UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE: GOOGLE DIGITAL ADVERTISING ANTITRUST LITIGATION	Civil Action No.: 1:21-md-03010-PKC
THIS DOCUMENT RELATES TO: STATE OF TEXAS By Attorney General Ken Paxton STATE OF ALASKA By Attorney General Treg R. Taylor STATE OF ARKANSAS By Attorney General Leslie Rutledge STATE OF FLORIDA By Attorney General Ashley Moody STATE OF IDAHO By Attorney General Lawrence G. Wasden STATE OF INDIANA By Attorney General Todd Rokita COMMONWEALTH OF KENTUCKY By Attorney General Daniel Cameron STATE OF LOUISIANA By Attorney General Jeff Landry STATE OF MISSISSIPPI By Attorney General Lynn Fitch STATE OF MISSOURI By Attorney General Eric Schmitt STATE OF MONTANA By Attorney General Austin Knudsen STATE OF NEVADA By Attorney General Aaron D. Ford	Related File Civil Action No. 1:21-cv-06841-PKC **JURY TRIAL DEMANDED**

STATE OF NORTH DAKOTA
By Attorney General Wayne Stenehjem

COMMONWEALTH OF PUERTO RICO
By Attorney General Domingo Emanuelli-Hernández

STATE OF SOUTH CAROLINA
By Attorney General Alan Wilson

STATE OF SOUTH DAKOTA
By Attorney General Jason R. Ravnsborg

and

STATE OF UTAH
By Attorney General Sean D. Reyes

Plaintiffs,

vs.

GOOGLE LLC,

Defendant.

THIRD AMENDED COMPLAINT

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1. The States of Texas, Alaska, Arkansas, Florida, Idaho, Indiana, Louisiana, Mississippi, Missouri, Montana, Nevada, North Dakota, South Carolina, South Dakota, and Utah, and the Commonwealths of Kentucky and Puerto Rico, by and through their Attorneys General (collectively, the "Plaintiff States"), in the above-styled action, file their Third Amended Complaint ("Complaint") against Google LLC ("Google") under federal and state antitrust laws and deceptive trade practices laws and allege as follows:

I. NATURE OF THE CASE

2. The halcyon days of Google's youth are a distant memory. Over twenty years ago, two college students founded a company that forever changed the way that people search the internet. Since then, Google has expanded its business far beyond search and dropped its famous "don't be evil" motto. Its business practices reflect that change. Today, Google is a monopolist and engages in a wide variety of conduct that only a monopolist can accomplish. The Supreme Court has warned that there are such things as antitrust evils. This litigation will establish that Google is guilty of such antitrust evils, and it seeks to ensure that Google won't be evil anymore.

3. Google is an advertising company that makes billions of dollars a year by deceptively using individuals' personal information to engage in targeted digital advertising. Google has extended its reach from search advertising to dominate the online advertising landscape for image-based ads on the web, called "display ads." In their complexity, the markets for display ads resemble the most complicated financial markets: publishers and advertisers trade display inventory through brokers on electronic exchanges and networks at lightning speed. Google is a company standing at the apex of power in media and advertising, earning revenue over $65 billion per quarter, or $712 million per day, almost all from advertising.

4. Google's advertising apparatus extends across the "ad exchanges" and brokers through which display ads trade. Indeed, nearly all of today's online publishers (be they large or small)

depend on one company—Google—as their middleman to sell their online display ad space in ad exchanges, i.e., the centralized electronic trading venues where display ads are bought and sold. Conversely, nearly every consumer goods company, e-commerce entity, and small business now depends on Google as their respective middleman to purchase display ads through exchanges in order to market their goods and services to consumers. In addition to representing both the buyers and the sellers of online display ads, Google also operates the largest exchange, AdX. In this electronically traded market, Google is pitcher, batter, and umpire, all at the same time.

5. The scale of online display advertising markets in the United States is extraordinary. Google operates the largest electronic trading market in existence. Whereas financial exchanges such as the NYSE and NASDAQ match millions of trades to thousands of company symbols daily, Google's exchange processes about 11 billion online ad spaces each day. In Google's words, "[h]undreds of thousands of publishers and advertisers use [Google's] AdX [exchange] to transact inventory, and more daily transactions are made on AdX than on the NYSE and NASDAQ combined." At the same time, Google owns the largest buy-side and sell-side brokers. As one senior Google employee admitted, "[t]he analogy would be if Goldman or Citibank owned the NYSE." Or more accurately, the analogy would be if Goldman or Citibank were a monopoly financial broker and owned the NYSE, which was a monopoly stock exchange.

6. Google did not accrue its monopoly power through excellence in the marketplace or innovations in its services alone. Google's internal documents belie the public image of brainy Google engineers having fun at their sunny Mountain View campus while trying to make the world a better place. Rather, to cement its dominance across online display markets, Google has repeatedly and brazenly violated antitrust and consumer protection laws. Its modus operandi is to monopolize and misrepresent. Google uses its powerful position on every side of online display

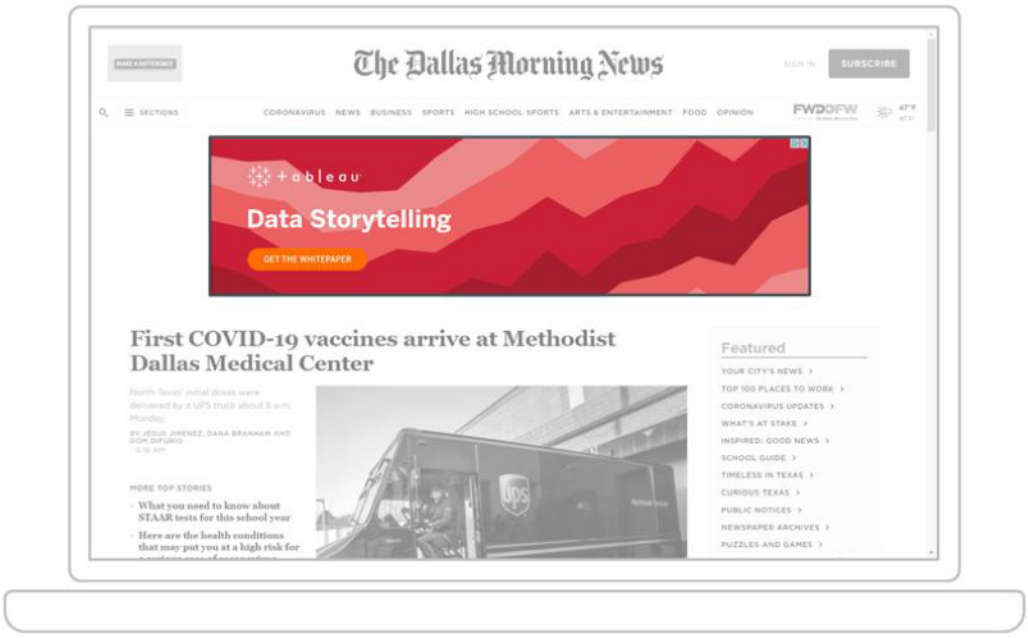
markets to unlawfully exclude competition. It also deceptively claims that "we'll never sell your personal information to anyone," but its entire business model centers on successfully leveraging users' personal information through targeted advertising—the purchase and sale of advertisements targeted to individual users based on their personal information.

7. Google's rise to dominance in display advertising markets began not with its own innovation but with the acquisition of existing companies. Google continued to grow and shield this power by choosing deceit over honesty and exclusionary tactics over competition on the merits. It now uses its interlocking web of monopolies to perpetuate a series of mutually reinforcing anticompetitive acts in complementary markets, all with a simple goal: further monopolization and greater monopoly profits.

8. Now that it wields the incredible power of a monopolist, Google purports to dictate the rules by which display advertising is bought and sold. Google's anticompetitive and deceitful conduct undermines consumer choice, increases prices, harms innovation, and degrades the quality of ad intermediation. This governmental enforcement action seeks to restrain and remedy Google's anticompetitive and deceitful conduct so that meritorious competition may flourish.

9. Display ads are the currency of the free and open internet. When internet users browse the open web, they are nearly certain to visit a webpage with space for display ads. Every time this happens, it generates a unique "impression" for each ad space available on the page. In the fraction of a second it takes for the page to load, the impression is bought, sold, and filled with an advertisement for the user to see. The image below shows an example of a display ad on *The Dallas Morning News*.

Figure 1: Display ad space on a publisher's website



10. Ad impressions are functionally distinct from ads traditionally distributed via hard-copy publications. An ad impression is not just space on a page, it is an opportunity to sell an advertisement "targeted" to a specific user or type of user. Unlike an ad in traditional print media, a single slot for a display ad can be sold to numerous different advertisers in millions of separate transactions at different prices. For example, if a publisher's entire website has just five pages each with five ad slots, and those pages are viewed by one thousand users per day, the publisher has up to 25,000 unique impressions to sell every day.

11. Managing ad inventory in a way that maximizes publishers' yield is a critical task for today's online publishers. To accomplish this goal, almost all major publishers use a unique type of product called an "ad server." When an impression becomes available, the ad server gathers and communicates information about the impression (e.g., dimensions, placement, and user information). At the heart of any ad server is an engine that automates split-second decisions about which ad to display. While many aspects of an ad server's functionality and decisioning logic are

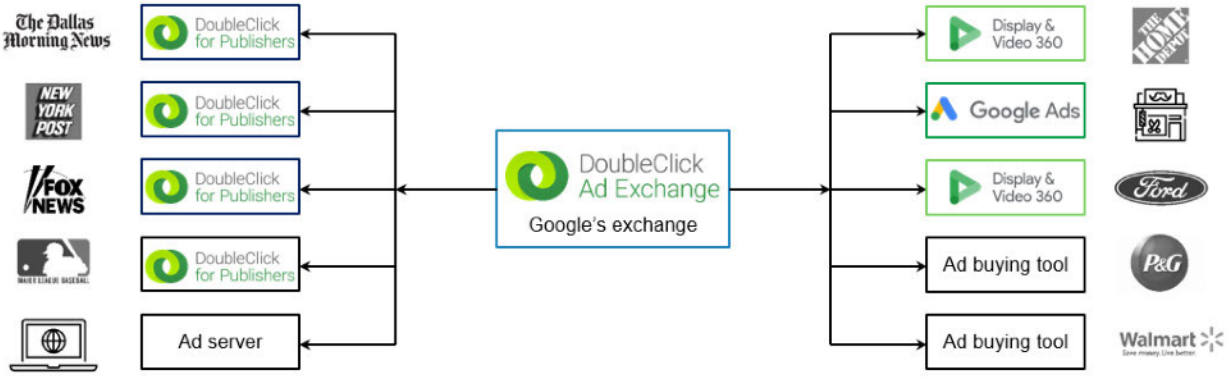
customizable, a publisher using an ad server necessarily relinquishes significant control of the management and sales process to the ad server.

12. On the other side of the coin, advertisers generate substantial demand for purchasing display ad inventory. Advertisers (be they large e-commerce companies, local artisan boutiques, or anything in between) use specialized ad buying tools to optimize and effectuate their purchases of ad impressions. These tools let advertisers set various decision-engine parameters integral to their unique ad campaigns and automated purchasing decisions (e.g., details about the types of users to target, the bids to submit for various types of ad inventory, etc.). Using these parameters, the ad buying tool will then automatically place bids to purchase impressions on the advertiser's behalf. Advertisers use two distinct types of buying tools: large advertisers use complex and customizable tools to buy large volumes of ad space, while small advertisers use basic buying tools to make smaller purchases of ad space.

13. Publishers using ad servers and advertisers using ad buying tools connect with one another in the ad exchange, which is a real-time auction marketplace. They do this billions of times every day. As the communication channel between publishers and advertisers in these auctions, the exchange has unique insight into vast amounts of data concerning advertiser bids and publisher inventory.

14. The image below—with publishers on the left, advertisers on the right, and the exchange in the middle—provides a high-level visual model of the relationship between the types of products that interact to effectuate the purchase and sale of display ads on the open web.

Figure 2: Exchanges transact with publishers and advertisers through ad servers and buying tools



15. Separate and apart from the products relevant to web display advertising, products in a roughly analogous—but distinct—ecosystem interact to effectuate purchases and sales of ads displayed within mobile device applications ("in-app" display advertising). Similar to publishers on the open web, developers of mobile device applications (e.g., a gaming app built for smartphones and tablets) generate revenue by selling their ad inventory. But the type of inventory they sell is quite different, as is the type of product they use. To sell and maximize the yield from their in-app ad space, developers use a specialized inventory management system called an "in-app mediation" tool, which connects to multiple sources of advertiser demand for in-app impressions. As each eligible in-app impression becomes available, the mediation tool automatically solicits bids from those sources and selects the winners. The main demand sources are known as "in-app networks," which act as intermediaries that trade in-app inventory on their own account. Instead of using exchanges to connect developers and advertisers in real-time transactions, in-app networks buy ad inventory from developers and resell to advertisers.

16. Google exercises substantial power in multiple web and in-app display markets. With regard to web display advertising, Google has monopoly power in the markets for ad servers, exchanges, and ad buying tools for small advertisers. Regarding in-app display markets, Google

has market power in the market for in-app mediation. In each of these markets, Google abuses its power to suppress competition, harm consumers, and reduce innovation.

17. The following table provides a brief description of the products in this case, lists the relevant antitrust markets for each type of product, and provides the name of Google's products in those markets.[1] Google has monopoly power in each of the markets denoted by an asterisk (*), and market power in the market denoted by a double asterisk (**).

Type of Product	Relevant Market	Google's Product
Publishers' tools for selling web display advertising	Ad Servers*	**DFP** (DoubleClick for Publishers)
Marketplaces for transacting web display advertising	Exchanges*	**AdX** (DoubleClick Ad Exchange)
Advertisers' tools for buying web display advertising	Buying tools for small advertisers*	**Google Ads**
	Buying tools for large advertisers	**DV360**
Developers' tools for selling in-app display advertising	In-app mediation**	**AdMob mediation** **GAM for apps**
Demand sources for in-app display advertising	In-app networks	**AdMob network**

18. As addressed in detail in Sections VII and VIII below, Google's conduct in these markets is brazenly unlawful and has caused substantial anticompetitive harm. The remainder of this Section provides a summary of that conduct and harm. The overarching theme evident across almost all of Google's conduct is control over the chokepoints between publishers and advertisers and the extraction of monopoly profits.

[1] For the sake of clarity, this Complaint refers to Google's products by their most commonly known names since Google has rebranded several of them over the years. For instance, Google's ad server was long known as "DoubleClick for Publishers" (or more commonly, "DFP"), and its exchange was known as "DoubleClick Ad Exchange" (or more commonly, "AdX"). But Google recently undertook a superficial marketing-based combination and rebranding of these two products into an umbrella product it calls "Google Ad Manager" (commonly known as "GAM"). Accordingly, this Complaint refers to these separate products as DFP and AdX. Similarly, Google's buying tool for small advertisers was once known as "AdWords," but it is now (and more commonly) known as "Google Ads," which is the name used in this Complaint. Finally, even though Google markets its in-app mediation tool and in-app network under the umbrella product name "AdMob," this Complaint refers to these otherwise-distinct products as "AdMob mediation" and "AdMob network" for ease of reference.

19. The origins of Google's display advertising monopolies trace back to its 2008 acquisition of DoubleClick, which operated the leading ad server, DFP. Google's new position as the middleman between publishers and exchanges was a key step in its unlawful strategy to monopolize the market for ad servers. It did so by effectively turning DFP—previously a clearinghouse of impression inventory that relied on price competition—into a chokepoint through which it could exclusively control access to the must-have demand of hundreds of thousands of advertisers. As addressed in Section VII.A, Google accomplished this by coercively tying its DFP ad server to its AdX exchange—the only exchange where publishers could access bids from advertisers that used Google's monopoly ad buying tool. More particularly, Google began to restrict the ability of publishers using rival ad servers to trade through AdX, allowing only publishers that license DFP to receive competitive live bids from AdX. Unable to compete with Google's coercive tactics, all of Google's most important rivals in the once-competitive market for ad servers have exited the market.

20. As addressed in Section VII.B, Google then used its newfound hold on publisher ad servers to foreclose competition from rival exchanges and buying tools. Its ability to do this stemmed from the fact that a publisher using an ad server necessarily relinquishes significant control of the management and sales process to the ad server. Google seized this control to surreptitiously and anticompetitively adjust crucial aspects of publishers' ad server functions and decisioning logic (e.g., what information to communicate when requesting bids, as well as when, how, and which demand sources the ad server would call to return bids). Google's scheme involved at least three sets of anticompetitive changes to DFP. First, as addressed in Section VII.B.1, Google reduced competition between exchanges by using DFP to block publishers from accessing and sharing information about their inventory with non-Google exchanges and buying tools. Next, as

addressed in Section VII.B.2, Google implemented a program called Dynamic Allocation, which gave AdX a right of first refusal. Finally, as addressed in Section VII.B.3, Google implemented a program called Enhanced Dynamic Allocation that gave Google access to a new pool of premium ad inventory and walled off rival buyers from that pool. As further explained throughout Section VII.B, each of these three changes to DFP caused substantial anticompetitive harm.

21. Google further entrenched its power by manipulating exchange auctions with the purpose and effect of foreclosing competition from rival exchanges and buying tools. As addressed in Section VII.C, Google did this by surreptitiously implementing at least three secret auction-manipulation programs to coerce publishers and advertisers to transact in AdX and to coerce advertisers to use Google's buying tools. First, as addressed in Section VII.C.1, Google's "Bernanke" program manipulates auctions to increase its take rate and then uses the resulting pool of ill-gotten gains to manipulate subsequent auctions, greatly harming competition in the exchange market and in the buying tools for small advertisers market. Next, as addressed in Section VII.C.2, Google's "Dynamic Revenue Share" program manipulated auctions such that AdX would win impressions it would have otherwise lost to rivals, thereby enabling Google to avoid price competition without sacrificing market share. Finally, as addressed in Section VII.C.3, Google's "Reserve Price Optimization" program overrides publishers' exchange floor prices and deceptively increases the amount advertisers must pay for impressions on AdX, thereby excluding competition in the exchange market.

22. In an attempt to reinject competition in the exchange market, a new innovation called "header bidding" (or "HB") was devised (see Section VII.D.1). This new method became known as header bidding because it uses a snippet of code embedded in a webpage's "header" section to run real-time auctions amongst competing non-Google exchanges before (or even without) the

publisher's ad server inviting AdX to bid. With header bidding, publishers were finally able to benefit from direct competition among exchanges by routing their ad inventory for sale simultaneously on multiple exchanges. Unsurprisingly, this increase in exchange competition enabled publishers to solicit higher winning bids for their impressions; as a result, many publishers began to use header bidding. Advertisers also began migrating to header bidding in droves, as it increased their access to ad inventory, which they could bid on and purchase without suffering the monopoly fees Google extracted from auctions already slanted in Google's favor.

23. Google quickly realized that this innovation substantially threatened its exchange's ability to demand a very large—19 to 22 percent—cut on all advertising transactions. Google deceptively told the public that "we don't see header bidding as a threat to our business. Not at all." But privately, Google's internal communications make clear Google viewed header bidding's promotion of genuine competition as a major threat. In Google's own words, header bidding was an "existential threat." During one internal debate, a Google employee proposed a "nuclear option" of reducing Google's exchange fees down to zero. A second employee captured Google's ultimate aim of destroying header bidding altogether, noting in response that the problem with simply competing on price is that it "doesn't kill HB [header bidding]." Google decided to respond to this threat with a series of anticompetitive tactics.

24. Google's first major tactic, as addressed in Section VII.D.2, was to introduce a product internally codenamed "Jedi" and marketed as "Exchange Bidding," whereby Google purported to address publishers' clear preference for exchange competition that header bidding facilitated. With Exchange Bidding, Google permitted some rival exchanges to submit live, competitive bids into Google's ad server. But other aspects of the program reveal that Exchange Bidding was designed to undermine competition. First, it diminishes rival exchanges' ability to return competitive bids

by further decreasing their ability to identify users associated with the impressions up for auction. Second, it causes otherwise-winning bids from rival exchanges to lose to AdX by imposing an additional fee on impressions sold through a rival exchange. Third, it requires publishers to route their inventory through AdX, even when they would not otherwise do so. Finally, it gives Google special visibility into rival exchanges' bids, which Google then uses to further suppress competition.

25. As described in Section VII.D.3, Google amplified its efforts to kill header bidding in its incipiency and coerce publishers into Exchange Bidding. More particularly, Section VII.D.3.i addresses Google's adjustment to DFP to advantage AdX and other exchanges participating in Exchange Bidding so that they could trade ahead of rivals that use header bidding. Next, Section VII.D.3.ii describes how Google deceives publishers and exchanges to forego header bidding. Section VII.D.3.iii examines how Google cripples publishers' ability to measure the efficiency of exchanges in header bidding, while Section VII.D.3.iv addresses Google's use of caps to limit publishers' ability to use header bidding. Finally, Section VII.D.3.v shines light on some of the strategies Google has implemented to divert ad spend away from rivals that use header bidding, and Section VII.D.3.vi shows how Google punishes publishers for using header bidding by cutting traffic to their content.

26. Google's efforts to kill header bidding did not stop there. Rather, Google became increasingly brazen in its efforts to undermine competition, enlisting the aid of its largest Big Tech rival, Facebook, as addressed in Section VII.E. In March 2017, Facebook announced that it would throw its weight behind header bidding. Like Google, Facebook brought millions of advertisers on board to reach the users on its social network. In light of Facebook's deep knowledge of its users, Facebook could use header bidding to disintermediate Google's ad server. Google understood the

severity of the threat to its position if Facebook were to enter the market and support header bidding. To diffuse the threat, Google made overtures to Facebook to abandon header bidding and instead bid inside of Exchange Bidding (i.e., "Jedi"). Internal Facebook communications reveal that Facebook executives fully understood why Google wanted to cut a deal with them: "they want this deal to kill header bidding." Ultimately, Google and Facebook struck a deal executed at the highest levels; Google codenamed it "Jedi Blue," i.e., a combination of their own Star Wars reference and the color of Facebook's logo. Following the agreement, Facebook curtailed its involvement with header bidding in return for Google giving Facebook information, speed, and other advantages. The parties also agreed up front on quotas for how often Facebook would win publishers' auctions—literally manipulating the auction with minimum spends and quotas for how often Facebook would bid and win.

27. Even more recently, Google instituted yet another anticompetitive program, "Unified Pricing." Section VII.F addresses this new set of rules, which prohibit publishers from setting exchange- and buyer-specific price floors, thereby eliminating publishers' ability to use such floors to assess ad inventory based on non-price criteria such as quality and to maximize their long-term yield.

28. Google's current dominance is also merely a preview of its future plans. Google's latest announcements with respect to its Chrome browser and privacy will further its longstanding plan to create a "walled garden"—a closed ecosystem—out of the otherwise-open internet, as addressed in Section VII.G. At the same time, Google uses "privacy" as a pretext to conceal its true motives, as addressed in Section VII.H.

29. In sum, Google's anticompetitive conduct has adversely and substantially affected the Plaintiff States' economies, as well as the general welfare in the Plaintiff States. More particularly,

Google's conduct has caused a wide range of anticompetitive effects, as delineated in Section VIII. These effects include higher prices, reduced output, lower quality, reduced innovation, the exit of rivals, and foreclosed entry. Google's harm to competition deprives advertisers, publishers, and their consumers of improved quality, greater transparency, greater innovation, increased output, and lower prices. At bottom, Google's illegal conduct has harmed the Plaintiff States' respective economies by depriving the Plaintiff States and the persons within each Plaintiff State of the benefits of competition.

30. As a result of Google's deceptive trade practices and anticompetitive conduct, Google has violated and continues to violate Sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2, as well as state antitrust and consumer protections laws. Plaintiff States bring this action to remove the veil of Google's secret practices and put an end to Google's anticompetitive abuses of its monopoly power in online advertising markets. Plaintiff States seek to restore free and fair competition to these markets and to secure structural, behavioral, and monetary relief to prevent Google from ever again engaging in deceptive trade practices and abusing its monopoly power to foreclose competition and harm consumers.

II. PARTIES

31. Plaintiff States, by and through their respective Attorneys General, bring this action in their respective sovereign capacities and as *parens patriae* on behalf of the citizens, general welfare, and economy of their respective states under their statutory, equitable, or common law powers, and pursuant to Section 16 of the Clayton Act, 15 U.S.C. § 26.

32. Google is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business in Mountain View, California. Google is an online advertising technology company providing internet-related products, including various online advertising technologies, directly and through subsidiaries and business units it owns and controls.

Google is owned by Alphabet Inc., a publicly traded company incorporated and existing under the laws of the State of Delaware and headquartered in Mountain View, California.

III. JURISDICTION

33. The Court has jurisdiction over this action under Sections 1, 2, and 4 of the Sherman Act, 15 U.S.C. §§ 1-2 & 4; Sections 16 of the Clayton Act, 15 U.S.C. § 26; and under 28 U.S.C. §§ 1331, 1337, and 1407.

34. In addition to pleading violations of federal antitrust law, the Plaintiff States allege violations of state antitrust and consumer protection laws and seek civil penalties, restitution, disgorgement, damages, equitable relief, and/or other relief, as applicable, under those state laws. All claims under federal and state law are based upon a common nucleus of operative facts, and the entire action commenced by this Complaint constitutes a single case that would ordinarily be tried in one judicial proceeding.

35. This Court has jurisdiction over the non-federal claims under 28 U.S.C. § 1367(a), as well as under principles of pendent jurisdiction. Pendent jurisdiction will avoid unnecessary duplication and multiplicity of actions and should be exercised in the interests of judicial economy, convenience, and fairness.

36. This Court may exercise personal jurisdiction over Google because Google conducts business in the Eastern District of Texas (where this action was commenced), as well as in this District. Google has established sufficient contacts in the Eastern District of Texas (as well as in this District) such that personal jurisdiction is appropriate. Google sells the products at issue throughout the United States and across state lines. Google is engaged in, and its activities substantially affect, interstate trade and commerce. Google provides a range of products and services that are marketed, distributed, and offered to consumers throughout the United States, in the Plaintiff States, across state lines, and internationally.

IV. VENUE

37. Venue is proper in the Eastern District of Texas (where this action was commenced), as well as in this District, under Section 12 of the Clayton Act, 15 U.S.C. § 22, and 28 U.S.C. §§ 1391 and 1407. A substantial part of the events or omissions giving rise to the Plaintiff States' claims occurred in the Eastern District of Texas (as well as in this District). Google transacts business and is found within the Eastern District of Texas (as well as in this District).

V. INDUSTRY BACKGROUND

38. The internet revolutionized the way people consume content, and along with it, the types of advertisements companies can purchase to reach consumers. Image-based ads presented to a user when a webpage is displayed on the open internet (called "display ads"), as well as other forms of advertising in the online world, have largely supplanted their traditional print, radio, and television counterparts. In addition, the internet ushered in completely new advertising formats, including targeted text-based ads on search engines, shareable ads on social media, and video ads shown before or during video content.

39. For advertisers and publishers alike, the different online advertising formats are not interchangeable. Advertisers purchase one format or another to serve different purposes. For example, advertisers seeking to increase brand awareness generally purchase display ads to reach target audience members at the "top of the funnel"; on the other hand, when advertisers hope to reach consumers at the "bottom of the funnel" (i.e., consumers actively looking to make a purchase in the advertiser's market), they generally purchase search ads (i.e., ads presented in response to a user's query). The distinction between "search advertising" and "display advertising" is well recognized in the industry; search and display advertising are not reasonably substitutable. The same goes for social media advertising. Because it can be easily shared among users and achieves high levels of user engagement, social media advertising is considered a category unto itself.

Further, "in-stream" video ads—commercials shown in frame before or after video content is displayed—are yet another category of online advertising, one that enjoys premium prices for its unrivaled ability to command a user's attention. Advertisers regard each of these ad formats as distinct and noninterchangeable, typically choosing the appropriate format depending on the goals of a particular ad campaign.

40. The online media companies who operate websites and mobile applications ("publishers" and "developers," respectively) are also limited in the ad formats they can sell. The format of the ads a publisher can sell depends on the format of that publisher's content. Publishers of news articles, for example, usually monetize their content with targeted display ads shown alongside the article. These publishers cannot sell in-stream video ads without producing video content. Nor could they sell search ads without developing a search engine. Nor could they sell social media ads without first developing a social media platform. Publishers are typically locked in with respect to the type of advertising they can sell, as they cannot switch between offering one format and another without facing substantial risk and incurring substantial costs.

41. Similar distinctions exist between ads for display on the open web and ads for display within a smartphone application. While many online media companies offer both a website and an "app," the displays ads shown on each platform are characterized by different features, levels of user engagement, and prices paid by advertisers. Open web and in-app ads are therefore generally not interchangeable. An online media company offering both a website and an app must take its users where they are—the company could not, for example, show an in-app ad to a user browsing a website.

42. Online publishers sell their inventory of display advertising to advertisers in one of two ways: (1) directly or (2) indirectly (through ad marketplaces). The "direct" sales method refers to

ad campaigns that the publisher or developer itself sells directly to advertisers. For example, *USA Today*, as an online publisher, could negotiate directly with Disney, as an advertiser, to display Disney's ads atop the *USA Today* homepage one million times in a particular month. But a publisher cannot always predict how many of its ad spaces will be available to sell directly to advertisers because its inventory depends principally on how many users visit the publisher's website. Publishers can therefore find themselves with unsold surplus inventory; this was the original impetus for the development of a specialized "indirect" distribution channel whereby publishers sell their ad inventory *indirectly* to advertisers.

43. "Indirect" sales occur through centralized electronic trading venues called "ad exchanges" and through "networks" of publishers and advertisers. Publishers can use an ad exchange to auction off some or all of their inventory to buyers in real time for a percentage fee, or sell their inventory to a network, which in turn will resell that inventory to an advertiser for an undisclosed markup.

44. When online publishers sell their display inventory, these advertisements can target specific users at specific times and locations. When a user views a website or mobile app, a buyer (whether an advertiser or an intermediary) can purchase the individual spaces for ads ("impressions") targeted to *that* user.

45. Because display ads can be targeted to specific users in real time, online publishers and developers manage highly varied, or "heterogeneous," inventory. One might think that a website with three pages and three different ad slots (i.e., impressions) per page would have a total of nine unique ad units to sell. But because online ads can be targeted at individual users, the same site with 1,000,000 readers has 9,000,000 different ad units to sell: each of the website's impressions targeted to each unique reader. Consequently, an online publisher's inventory is more akin to the

inventory of seats at a baseball stadium: no two pieces of inventory are the exact same, and each is valued by its particulars. In online advertising, this includes the particulars of each person viewing each ad.

46. Google frequently claims that it will "never sell your personal information to anyone," with Google CEO Sundar Pichai deceptively claiming that this policy is "unequivocal." But Google leverages intimate user data and personal information to broker billions of daily online ad impressions between publishers and advertisers that target individual users based almost entirely on their personal information. Internal documents confirm that Google knows its users are deceived by these misrepresentations, even as it reaps billions from ads that rely on personal data to target those users.

A. Web Display Advertising Markets

47. Online publishers and advertisers depend on several different, distinct, and noninterchangeable products for indirect sales of web display advertising. These products include: (1) the ad server, which acts as the publisher's inventory management system; (2) ad exchanges, which function as the marketplaces for matching buyers and sellers of display ads in real time; and (3) the ad buying tools advertisers use to purchase display inventory through exchanges. In addition, some web display advertising is initially purchased by an ad network, which in turn resells those ad units to advertisers. These products conduct the complex tasks associated with pricing, clearing, executing, and settling billions of display impressions every month in the United States. Google possesses monopoly power in each of these distinct markets.

48. Now, imagine if the financial markets are controlled by one monopoly company, say Goldman Sachs, and that company then owns the NYSE, which is the largest financial exchange, that then trades on that exchange to advantage itself, eliminate competition, and charge a monopoly

tax on billions of daily transactions. Obviously, no free, fair, and functioning market could operate that way. Yet, this is Google's role in today's world of online display advertising.

1. Publishers' Inventory Management Systems: Ad Servers

49. Large publishers such as CBS, *Time*, ESPN, Weather.com, and NPR depend on a sophisticated inventory management system called an ad server to holistically manage their display inventory on the web. Ad servers keep track of publishers' heterogeneous ad inventory and help them sell that inventory both directly and indirectly through exchanges, with the stated goal of maximizing their advertising revenue. Publishers typically use a single ad server to manage all of their web display inventory; using multiple ad servers would substantially frustrate a publisher's ability to effectively optimize management of their inventory and maximize revenue.

50. Publishers rely on the specialization of their ad server to help them navigate the complexities of electronic trading: ad server account analysts individually advise online publishers on how to adjust the ad server's parameters to maximize revenue. Put simply, in a competitive market, ad servers advance publishers' interests.

51. To holistically manage a publisher's web display inventory, the ad server performs three internal critical tasks related to selling ad space. First, whether inventory is sold directly or indirectly, the ad server identifies the users visiting the publisher's webpage in order to manage ad inventory and maximize yield. When a user visits a webpage, the ad server—on behalf of and with the permission of the publisher—identifies the user through identification technology facilitated by the user's web browser (e.g., Chrome or Safari) and/or mobile device (e.g., Android or iOS). To keep track of individual users, the ad server assigns each user a unique user ID (e.g., 5g77yuu3bjNH). By essentially "tagging" users with a unique user ID, an ad server helps publishers, ad exchanges, and advertisers identify and track various characteristics and behaviors of each particular user who accesses the publisher's content. For example, an advertiser can

correlate a user's pseudonymous ID (e.g., 5g77yuu3bjNH) with the user's identity (e.g., John Connor) and use that identity "link" to look up additional information about the user (e.g., John Connor lives in Los Angeles, drives Harley-Davidson motorcycles, and wears Oakley sunglasses). This, in turn, allows a prospective ad purchaser (an advertiser or network) to place a value on the ad space each individual user will see. A company advertising motorcycle helmets might place a higher value on an ad shown to John Connor than would a company selling golf clubs, for instance. User IDs are also used for "frequency capping," which limits the number of times a user is shown a particular ad to avoid oversaturating the user. Additionally, user IDs facilitate evaluation of ad campaigns' effectiveness by allowing publishers and advertisers to track whether a user took a subsequent action (e.g., whether the user clicked on an ad, signed up for a service, or purchased a product). This "attribution" is critical for some ad campaign billing models, including cost-per-conversion models, whereby advertisers are charged only to the extent users take a specified action.

52. The second critical task ad servers perform is managing how publishers sell ad space *indirectly*. Ad servers can connect with ad exchanges and networks, soliciting bids for particular impressions and routing inventory in accordance with the publishers' instructions.

53. The third critical task performed by ad servers is routing inventory between a publisher's direct and indirect sales channels. The image below shows how a publisher uses an ad server to manage and route inventory to direct and indirect sales channels.

Figure 3: An ad server manages and routes ad space from a publisher's website

54. The ad server sits between the publisher and the publisher's indirect sales channel, which puts it in a position to distort competition among the multiple exchanges and ad networks vying for the publisher's impressions. For example, an anticompetitive ad server could interfere with a publisher's ability to share full information about its impressions with particular exchanges (e.g., by withholding user ID information, thereby depressing the impressions' true value). Likewise, a firm operating both the ad server and an ad exchange (or an ad network) might be tempted to steer publishers' inventory towards its own channels, rather than winning individual impressions through fair, open, and competitive bidding. Furthermore, an anticompetitive ad server acting against a publisher's interests might try to prevent the publisher from understanding how their inventory performs in one exchange versus another. Without this transparency, a publisher cannot reward a better-performing exchange with more of its business. A competitive market would severely disincentivize ad servers from engaging in these sorts of misconduct; publishers would promptly switch to a competing ad server if theirs began to act against their interests.

55. Prior to Google's entrance into the ad server market, publishers controlled how ad servers routed publishers' inventory to exchanges and networks. Ad servers charged a low cost-per-impression rate or monthly subscription fee. As addressed below, Google's conduct substantially changed this market, making its ad server the only alternative to gain advantages in the exchange market.

56. Today, Google monopolizes the ad server market for display inventory through its product called Google Ad Manager (GAM). Google originally acquired its ad server in 2008 from DoubleClick. In 2011, Google acquired and integrated Admeld, a yield optimization technology. Prior to its acquisition by Google, Admeld helped publishers efficiently route inventory to

exchanges and networks. Post acquisition, Google used its new yield optimization technology to rank itself ahead of other exchanges in bidding for publisher inventory. Today, GAM controls over 90 percent of this product market in the United States. Essentially every major website uses GAM (including, e.g., *USA Today*, ESPN, CBS, Time, Walmart, and Weather.com). As the middleman between publishers and exchanges, GAM has the power to foreclose competition in the exchange market.

2. Electronic Marketplaces for Web Display Advertising: Exchanges and Networks

57. The vast majority of online publishers in the United States today sell at least some of their inventory to advertisers indirectly through ad exchanges and ad networks. Large publishers such as CNN and *The Wall Street Journal* typically sell their indirect inventory through ad exchanges, while smaller publishers such as local newspapers and individual blogs typically sell their indirect inventory to a network.

i. Exchanges

58. Ad exchanges for web display ads are real-time auction marketplaces that match multiple buyers and multiple sellers on an impression-by-impression basis. An ad server can route the publisher's inventory to exchanges in real time as the webpage loads for a user. To purchase an ad on an exchange, an advertiser must typically use an ad buying tool. An "open auction" takes place when a publisher offers an impression for sale on an exchange through a real-time auction that is open to all advertisers using the exchange. In other words, the entities that have a "seat" to bid on exchanges are not the actual advertisers (e.g., Ford or a local car dealership), but their respective agents. Exchanges do not bear inventory risk or otherwise trade on their own accounts. That is, an ad exchange serves only as a marketplace, connecting publishers' inventory with

willing buyers in real time, typically for a percentage fee of every transaction that clears on the exchange.

59. Ad exchanges are mostly intended for large online publishers. To sell in ad exchanges, online publishers must meet minimum impression or spend requirements. These requirements put exchanges out of reach for smaller online publishers (many local newspapers and blogs, for example), who typically sell their inventory using ad networks.

60. Ad exchanges charge publishers a share of transaction value, known as a "take rate," to facilitate the transaction, which has ranged from 5 to 20 percent (or more) of the inventory's clearing price. At the clearing price, the publisher is willing to sell, and the advertiser is willing to buy. The economic surplus from the transaction is split between the advertiser, the publisher, and the exchange, depending on the rules of the auction and the take rate charged by the exchange. The exchange take rate reduces the surplus available for the advertiser and the publisher: a higher take rate reduces the number of ads the advertiser purchases and the advertising revenue received by publishers. For example, in a second-price auction, the advertiser's surplus would be the difference between their bid (which reveals their willingness to pay) and the second-highest bid (the clearing price), and the publisher's surplus is the difference between their price floor (the minimum amount at which they are willing to sell) and the clearing price. Both advertiser's and publisher's surpluses are reduced by the exchange's take rate.

61. Google's AdX charges publishers 19 to 22 percent of exchange clearing prices, which is double to quadruple the prices of some of its nearest exchange competitors. For example, if $100,000 of a publisher's inventory trades through AdX, Google will extract at least $19,000. The dramatically higher price (or "take rate") of Google's exchange evidences its substantial market power.

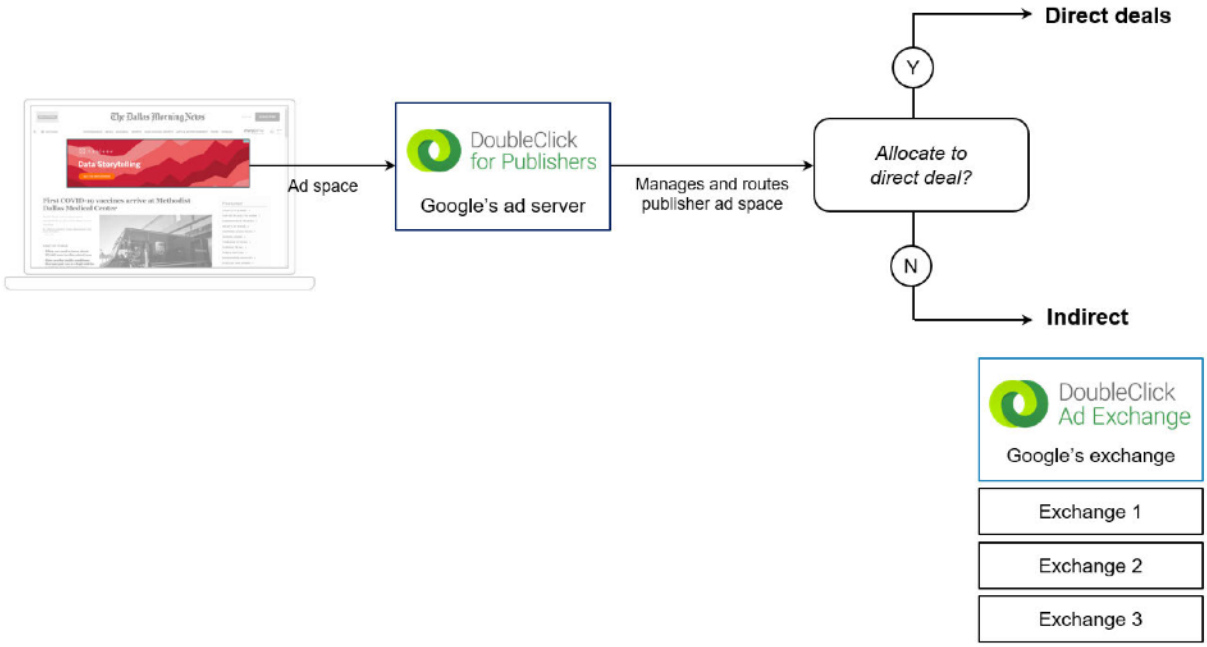
62. Google's exchange fees are also exponentially higher than analogous exchange fees on a stock exchange where, by contrast, fees are low and set by volume instead of transaction value. Imagine if the NYSE charged an individual a fee equivalent to a double-digit percentage of the value of the overall stock trade—e.g., $19,000 as a transaction fee on a $100,000 stock trade. Yet that is the minimum Google would extract on the same value of transactions between an online publisher like ESPN and an advertiser like Fanatics.

63. Internally, Google candidly acknowledges that electronic exchanges such as AdX should not be able to extract such high fees: "an exchange shouldn't be an immensely profitable business" but should instead be "like a public good used to facilitate buyers and sellers." Google's ability to mandate these supracompetitive exchange fees arises from its immense market power and anticompetitive conduct across interrelated display advertising markets.

64. The market for publisher ad servers is a prime example; Google's monopoly position in that market gives it control over which exchange(s) can bid on the vast majority of ad inventory on the open web. Google uses its control to preferentially route that inventory to its own ad exchange; as a result, Google operates the largest ad exchange in the market and maintains its monopoly position in ad serving, creating inherent conflicts of interest between publishers' best interests and its own. Google imposes one fee for its ad server to manage publishers' inventory and then takes another (substantially higher) fee when that inventory trades through AdX. Rather than managing this conflict of interest through firewalls or other internal controls, Google actively exploits it. While claiming to be an "innovator," Google's documents instead reveal a tireless quest for new tactics to aggressively, surreptitiously, and anticompetitively steer publishers' inventory towards its own exchange, where it can extract as much as four times the rate of other exchanges.

The image below shows how a publisher relies on Google's ad server to help route inventory to Google's exchange and other sales channels.

Figure 4: Google's ad server controls routing functions to competing exchanges



ii. Networks

65. While large publishers (those who can sell on exchanges) typically sell their indirect web display inventory through exchanges, smaller publishers typically sell their inventory to an intermediary known as a "web display ad network" (or "network"). Networks purchase impressions from smaller publishers and then resell that inventory to advertisers. They allow advertisers to reach users at scale across many individual sites that are not sufficiently large to trade their inventory in an exchange.

66. Networks represent a distinct sales path from exchanges. Rather than matching publishers' individual impressions with advertisers in a transparent real-time transaction as exchanges do, networks operate as middlemen trading on their own account. They buy inventory from publishers at one price and resell the same inventory to advertisers at a higher price, pocketing the difference with an often-undisclosed margin. Moreover, networks often carry inventory risk,

and they can engage in arbitrage, purchasing on a cost-per-impression basis and reselling on a different basis, such as cost-per-click or cost-per-action.

67. Most ad networks are willing to purchase at least part of a publisher's impressions regardless of the publisher's size—unlike exchanges, networks do not require publishers to meet high monthly minimum impression requirements. Ad networks are therefore particularly important for small publishers, who are typically ineligible to sell their inventory through an exchange.

68. Networks also differ from exchange marketplaces in their price point. Though the qualitative differences between exchanges and networks make direct price comparison difficult, on average, the markup of an impression bought and resold by a network will be greater than the fee charged for trading the same impression through an exchange.

69. Google describes its network (the Google Display Network, or "GDN") as "the largest ad network in the world." Google's retail margin on GDN impressions is typically between around 32 to 40 percent of each transaction. According to one industry report, this margin is almost 1.5 times the margin of GDN's competitors.

70. Between Google's AdX exchange and GDN network, the ad inventory of millions upon millions of websites of all sizes moves through Google's electronic marketplaces for web display advertising. Advertisers' ability to purchase web display advertising, therefore, depends heavily on access to Google's exchange and network. Google is *the* bottleneck between publishers and advertisers.

3. Ad Buying Tools for Large and Small Advertisers

71. Just as publishers use a specialized product (an ad server) to manage their inventory, advertisers use specialized ad buying tools to optimize and effectuate their purchases of ad impressions through an exchange or on a network. Large advertisers do this with ad buying tools called demand-side platforms (commonly known as "DSPs"), which they use to optimize their

spend across multiple exchanges and/or networks. Small advertisers, on the other hand, optimize and effectuate their purchases using pared-down analogues of DSPs. For a variety of reasons addressed below, they tend to do so using just one buying tool, similar to how publishers typically use only a single ad server. An analogy publicized by Google clarifies the distinction between these two sets of tools in more familiar terms: ad buying tools are akin to "brokerage houses" in financial markets, with large advertisers "using ETrade to pick stocks yourself" and small advertisers using a "fund manager to pick stocks for you."

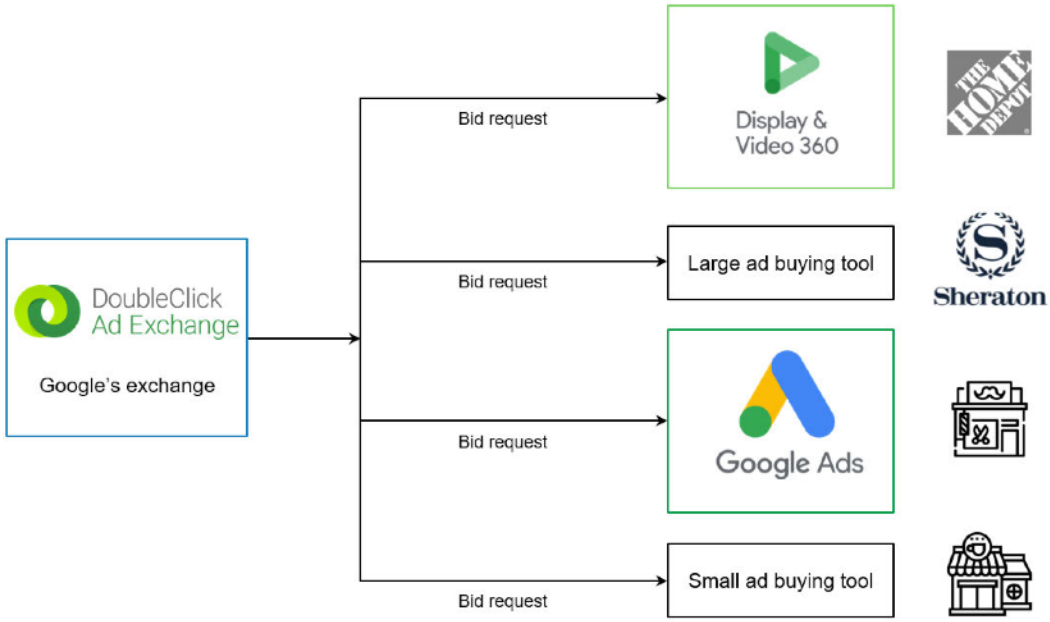
72. Ad buying tools let advertisers set various parameters integral to their automated purchasing decisions, including crucial details about the types of users they want to target and the maximum bids they are willing to submit for various types of display ad inventory. On an advertiser's behalf, an ad buying tool uses these parameters to automatically bid on impressions in exchanges and/or networks.

73. Ad buying tools for large advertisers (DSPs) offer robust and complex bidding and trading options ill-suited for smaller and less sophisticated advertisers. In fact, DSPs are so complex that they are frequently not used or managed by the advertisers themselves (e.g., Ford), but by a specialized ad buying team (e.g., an ad agency or specialized division at an agency called a "trading desk"). The two different types of ad buying tools are also sold at different price levels. DSPs usually require high minimum monthly spend commitments, sometimes $10,000 or more, whereas ad buying tools for small advertisers can require just a few dollars to get started. For example, Amazon's DSP requires a monthly commitment of over $35,000, while Google's buying tool for small advertisers (Google Ads) requires no monthly minimum spend.

74. When a user visits a publisher's website, the publisher's ad server sends a "bid request" to the ad buying tools who have a "seat" to bid in the exchange and purchase on behalf of their

advertiser clients. This bid request announces the publisher's available impressions to exchanges, along with information about the impression, including the user's ID, the ad slot's parameters, and any rules about pricing. These bid requests also contain information about the impression at issue and convey a "timeout," which is the amount of time prospective buyers are allotted to respond with their "bid response." Within this timeframe, which is typically a mere fraction of a second, each ad buying tool must unpack the information contained in the bid request, gather and deploy personal information about the user, determine the appropriate price to bid on behalf of the prospective advertiser, and return a bid response to the exchange. When time expires, each exchange closes its auction, excludes any late bids, and passes its highest bid to the ad server. The publisher's ad server then selects which ad to display and effectuates the display of the ad to the user. All of this happens behind the scenes—the user simply sees a display ad adjacent to the web content they are reading. This leveraging of personal information in a real-time auction happens every second of every day as millions of Americans browse the internet. The image below depicts Google's AdX exchange sending bid requests to different buying tools to solicit bids on publishers' impressions.

Figure 5: Exchanges solicit bids via bid requests from advertisers' buying tools



75. To compete effectively in an exchange's auction, an ad buying tool must not only return its bid to the exchange before the timeout; it must also adequately identify the user's relevant characteristics (e.g., an advertiser selling motorcycle accessories will bid more for an impression targeted to a motorcycle enthusiast such as John Connor than it would for a user who has no interest in motorcycles). An exchange has a unique capability to create advantages and disadvantages for buying tools, for instance, by giving a buying tool more robust information about the user or an effectively longer timeout period.

76. Google's DSP is called DV360, which is the largest ad buying tool for large advertisers; Google acquired it by purchasing the DSP Invite Media. Google also operates "Google Ads," which is the largest ad buying tool for small advertisers. In Google's own words, it designed this product for the "smaller, less sophisticated advertisers." Google allows small advertisers' bids from Google Ads to compete on its own AdX ad exchange. When they win, Google charges these small advertisers an undisclosed 15 percent commission, which is much higher than the 8 to 9

percent commission Google charges large advertisers using DV360 to purchase inventory through exchanges.

77. Although Google executives once considered "creating a completely neutral platform like the NYSE," they ultimately chose instead to "stack the deck in favor of Google [demand]" by using their control of the exchange to give preferred access to their own ad buying tools. Indeed, Google's exchange forecloses competition in the markets for buying tools for small and large advertisers by imposing shorter effective timeouts and by withholding relevant information about the very inventory AdX is supposedly taking "to market." The artificial disadvantages AdX imposes on non-Google buying tools helps explain why Google's ad buying tools win the overwhelming majority—over 80 percent—of the auctions hosted on Google's exchange.

78. Google's ad buying tools frequently act against the best interests of their advertiser clients. For instance, when bidding on behalf of small advertisers on AdX, Google can manipulate or adjust their bids, making it extraordinarily difficult to for them to understand the value of the inventory up for auction. Google discloses this in fine print distributed across multiple separate documents. When Google ultimately explains why it "automatically" routes advertisers' bids across multiple markets, the language is misleading: "If you go butterfly hunting during the height of summer, the bigger your butterfly net, the more butterflies you'll be able to catch." Google, however, does not clarify *who* it is hunting.

B. In-App Display Advertising Markets

79. Just as website publishers and advertisers use distinct products for transacting indirect sales of web display ad inventory, mobile device app publishers (also known as "developers") and advertisers likewise depend on several different, distinct, and noninterchangeable products for transacting indirect sales of display advertising appearing within mobile device apps (called "in-app display ads"). These products include: (1) mediation tools for in-app inventory ("in-app

mediation" or "mediation tools"), which act as the developer's inventory management system; and (2) in-app display ad networks ("in-app networks"), which purchase impressions from developers and resell them at a markup to advertisers.

1. Mediation Tools for In-App Inventory

80. In-app mediation is the inventory management service that developers use to manage, sell, and maximize the yield of their in-app display advertising inventory, i.e., the image-based graphical ads shown inside of mobile apps (e.g., within a game app on a smartphone). In industry jargon, in-app mediation services are often called "mediation tools." Developers typically use just one mediation tool for an app; using multiple mediation services would be exceedingly complex and frustrate the developer's ability to maximize ad revenue.

81. To use a mediation tool, a developer must install and integrate the mediation tool's software development kit ("SDK") into their app, which in turn is downloaded and installed on a user's mobile device. The mediation tool's SDK then interacts with in-app networks' SDKs, which allows the mediation tool to solicit bids and select winners from multiple demand sources. Although it is technically possible for a developer to solicit bids without using in-app mediation, doing so would make it quite difficult and expensive for a developer to effectively manage multiple in-app networks. Accordingly, the vast majority of apps capable of displaying ads from multiple demand sources use a third-party in-app mediation tool.

82. Mediation tools manage developers' solicitation and selection of bids, but they do not purchase impressions from developers. Rather, developers sell their in-app inventory via a mediation tool by separately contracting with one or more in-app networks. These networks submit bids for individual impressions through the mediation tool, which operates as the developer's agent to select a winner. While some companies offer both a mediation tool and an in-app network, these

are widely recognized as different products. When a company offers both products, developers often contract for just one or the other.

83. A mediation tool can function only by interoperating with one or more in-app networks, but no mediation tool interoperates with every in-app network. Rather, one of the crucial selling points of a mediation tool is the number and quality of in-app networks it supports. Generally speaking, the larger the in-app network is, the more important it is for a mediation tool to support that network. For that reason, there is significant overlap among the in-app networks supported by the major mediation tools.

84. Google's primary mediation tool is called AdMob, but it also offers another called Google Ad Manager for apps ("GAM for apps").[2] A developer can use either of Google's mediation tools to solicit bids from multiple in-app networks, including Google's own and several competing in-app networks; Google relies on this compatibility in encouraging developers to adopt its mediation tools. GAM for apps includes some additional functionality, allowing developers to allocate their inventory across direct and indirect sales channels.

85. A mediation tool makes the final decision (on the developer's behalf) as to which in-app network ultimately purchases each impression, which puts it in a position to distort competition between in-app networks. For example, an anticompetitive mediation tool could interfere with developers' ability to share full information about their impressions with potential bidders, provide some bidders more time to place bids than others, or otherwise fail to maximize the value of developers' inventory with a biased selection process. A competitive market, however, would severely disincentivize mediation tools from engaging in such misconduct; developers

[2] Despite the common branding, "Google Ad Manager for apps" should not be confused with Google's publisher ad server product, "Google Ad Manager." GAM for apps is a mediation tool and does not manage web inventory, while GAM is a publisher ad server for web inventory and does not mediate in-app auctions.

would promptly switch to a competing mediation tool if theirs failed to maximize yield, such as by favoring some in-app networks over others. In the past, mediation tools have competed, at least in part, based on their representations that they will allow developers to maximize impression value by optimally selecting among competing demand sources.

2. In-App Display Ad Networks

86. Ad networks for in-app display inventory are analogous to ad networks for web display, with the main difference being that they buy and sell in-app display ad inventory instead of web display ad inventory. Both types of networks act as intermediaries who trade on their own account, buying and then reselling at undisclosed margins as opposed to connecting developers and advertisers in real-time transactions. In some cases, they purchase on one price basis (such as cost-per-impression) and resell on a different basis (such as cost-per-click or cost-per-action). They can also purchase or sell blocks of impressions as a package, rather than trading each individual impression separately.

87. However, in-app networks are unlike web display networks in a number of ways. First, they must offer and support technology specifically designed to work with mobile apps. For example, an in-app network must provide a specialized SDK so that the developer's app can call for and display in-app ads in an appropriate manner. To this end, in-app networks also typically provide technical support to ensure functional interoperation between the network and the app.

88. Another major difference between these two types of networks is that in-app networks are the exclusive distribution channel for the vast majority of developers; only a tiny fraction of in-app impressions are traded through direct deals, and most developers have no direct deals at all.

89. Moreover, the ad buying tools used by advertisers for purchasing web display inventory do not submit bids to developers for in-app inventory. The exchange model proved unsuccessful for in-app inventory, so in-app networks are the only market participants who will reliably

purchase in-app impressions at scale and directly from developers. And because technical integration is required for an app to solicit bids, developers are functionally limited to accepting bids from a relatively small and fixed group of in-app networks. For example, Google's AdMob mediation tool currently claims to support just 25 in-app networks—though most developers will integrate and solicit bids from far fewer in-app networks.

90. Although in-app display advertising is distinct from web display advertising, some companies do offer both types of networks, sometimes under a single brand. For example, Facebook previously used its Facebook Audience Network ("FAN") label to describe both its in-app network and its web display network. FAN has since exited the web display market. FAN is, however, now Google's closest competitor in the in-app network market.

VI. THE RELEVANT MARKETS AND GOOGLE'S MARKET POWER

91. Google has harmed competition across various display advertising markets. This Section defines each relevant product market and describes Google's power in those markets. First, this Section defines markets relevant to the purchase and sale of web display advertising, in which Google has harmed competition through the widespread exclusionary conduct detailed in Sections VII.A-G. Then, this Section defines markets relevant to the purchase and sale of in-app display advertising, which are implicated by Google's illegal agreement with Facebook, detailed in Section VII.E.

A. Web Display Advertising Markets

92. Publishers and advertisers depend on several distinct and noninterchangeable products for indirect sales of web display advertising. This Section defines relevant antitrust markets for four distinct web display advertising products: (1) ad servers, through which publishers manage and sell their web display ad inventory; (2) exchanges, which match publishers and advertisers

through real-time auctions; (3) ad buying tools for small advertisers; and (4) ad buying tools for large advertisers. Google has monopoly power in the first three of these product markets.

1. Publisher Selling Tool: Ad Servers

i. Ad servers for display inventory in the United States constitute a relevant antitrust market.

93. Ad servers for web display inventory ("ad servers") in the United States constitute a relevant antitrust product market. An ad server is inventory management software that a publisher uses to holistically manage and sell their web display inventory through direct and indirect sales channels.

94. Ad servers have unique customers and exhibit unique product characteristics, pricing, and entry and usage requirements. In terms of product characteristics, ad servers provide publishers with specialized features such as: (1) reservation-based sales technology to support a publisher's direct sales efforts; (2) inventory forecasting technology to help a publisher determine what inventory will be available to sell; (3) a user interface through which a publisher's sales team can input ad requirements and parameters; (4) management capabilities for direct and indirect sales channels; (5) report generation technology for inventory performance; (6) invoicing capabilities for a publisher's direct sales; (7) a decision engine for determining when and how to route a publisher's impressions between direct and indirect sales channels; (8) a decision engine for choosing between different networks and exchanges for indirect sales; (9) a decision engine for determining what ad from the direct and indirect channels will ultimately serve on the publisher's page; and (10) yield management technology.

95. When it comes to pricing, ad servers usually charge publishers a monthly subscription fee or a cost-per-impression rate, based on the volume of ads served.

96. In terms of entry and usage requirements, ad servers are for publishers who manage a significant volume of sales made through direct and the indirect sales channels.

97. Typically, large publishers (e.g., CBS, *Time*, ESPN, Major League Baseball, Weather.com, *The New York Times*, *The Wall Street Journal*, NBC) use ad servers. Most small publishers, by contrast, do not need to manage direct sales or multiple exchanges and networks. Google recognizes this distinction internally, referring to these smaller publishers (including "Zagat, ReelzChannel, Doghouse Diaries") as "tail" and "torso" publishers who "don't need direct deals or any 3P demand." Conversely, Google refers to the large publishers that use ad servers as "head" or "premium" publishers who sell their inventory across multiple channels and "expect the ability to control their configurations and data." Google advertises the distinction to potential customers, noting that its DFP ad server (which it now includes within its broader "Google Ad Manager," or "GAM," product) "is an ad management platform for large publishers who have significant direct sales."

98. For large publishers, there are no reasonable substitutes for ad servers. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of ad servers from a competitive level would not cause a sufficient number of customers to switch to other means of selling display inventory such that the price increase would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of ad servers from a competitive level would not cause a sufficient number of customers to switch to other means of selling display inventory such that the quality decrease would be unprofitable.

99. Ad servers are unique and not interchangeable with exchanges, networks, in-app networks, in-app mediation tools, buying tools for large advertisers, or buying tools for small advertisers. An in-app mediation tool, for example, cannot be used to manage inventory for display

ads on the open web. None of those products can co-manage a publisher's direct and indirect sales channels and offer the reporting, invoicing, or forecasting functions large publishers need to holistically manage web display inventory and optimize yield.

100. When it served Google's interests, Google has argued that networks and exchanges are not substitutes for ad servers, making several representations to the United States Federal Trade Commission ("FTC") as part of its efforts to avoid a challenge to its acquisition of DoubleClick. Indeed, Google expressly represented to the FTC that its existing network (then called AdSense) and the ad server it sought to (and ultimately did) acquire (DFP) "*are not* direct substitutes" (emphasis added), explaining that "[i]f the price of DFP were increased by a small but significant amount, customers would switch to other publisher-side ad serving products, such as those provided by 24/7 Real Media, Atlas/aQuantive." Moreover, Google went even further, characterizing any suggestion that ad servers and networks are interchangeable as "seriously flawed and utterly divorced from commercial reality." In other words, Google has long acknowledged that while ad servers are substitutes for each other, networks and other advertising marketplaces are not.

101. Very few publishers have built an ad server from scratch because developing an "in-house ad server" customized to the publisher's needs requires substantial scale and capital as well as access to highly sophisticated engineering resources. Only the very largest online publishers are able to build in-house ad servers. But in-house ad servers are not a substitute for ad servers because the few publishers who build their own custom in-house ad server typically customize them for their own purposes and do not license them to third parties.

102. Selling inventory through direct deals is not an economic substitute for licensing an ad server to sell impressions indirectly. For one, a publisher selling impressions directly to an

advertiser will still need an ad server to deliver those impressions and hold up the publisher's end of the direct deal. In addition, direct deals could not substitute for an ad server's capability of soliciting bids from multiple networks and exchanges. This automated sales channel—"indirect sales"—is distinct from the direct sales channel, as various regulators have recognized. For example, in 2007, the FTC found that ad intermediation and directly sold ad inventory were not generally substitutable. Internally, Google documents provide a similar perspective. When considering the difference between indirect sales made in open auction and sales made through direct deals, a 2019 Google document states that "cannibalization would be highly unlikely" due to different pricing and the efforts required to maintain direct sales. These differences are reflected in the price of ads using direct and indirect channels, with internal documents confirming that Google charges drastically lower prices for direct deals compared to indirect deals—specifically, 1.7 to 4.4 times lower.

103. Selling a different form of advertising is not a feasible alternative to licensing an ad server. The format of the ads a publisher can sell depends on the format of that publisher's content. Other forms of online advertising (e.g., in-stream video, social media, search, and in-app) are not substitutes for web display advertising, and the ability to sell ads of these various forms requires distinct and substantial investments in content and technology. A publisher in the business of selling web display ads could not sell in-stream video, social media, search, or in-app ads as a substitute for licensing an ad server. Selling inventory through direct deals is not an economic substitute for licensing an ad server to sell impressions indirectly.

104. Google's internal documents confirm that the relevant product market is one of ad servers. As recently as 2020, Google's documents delineate between ad servers, exchanges, networks, and buying tools, detailing how each product performs unique functions. So it comes as

no surprise that Google routinely calculates its share of the ad server market without accounting for exchanges or networks. Indeed, Google identifies only competing ad servers (such as AppNexus and Sizmek) and the invention of header bidding as competing with and putting pricing pressure on Google's ad server. Google does not consider exchanges to be competitive threats to its ad server. Instead, Google compares its ad server to other ad servers and monitors other ad servers as competitive threats.

105. Government agencies around the world recognize ad servers as a distinct product market. In 2007, the FTC accepted Google's proposed definition of ad servers as a distinct product market in approving Google's acquisition of DoubleClick. The U.S. House Subcommittee on Antitrust, Commercial, and Administrative Law conducted an investigation of digital markets and released an accompanying 2020 report titled "Investigation of Competition in Digital Markets," which recognizes the functions performed by ad servers as distinct from exchanges, networks, and ad buying tools. Furthermore, the British and Australian competition authorities—the United Kingdom's Competition and Markets Authority ("UK CMA") and the Australian Competition and Consumer Commission ("ACCC")—recently conducted substantial investigations into competition in digital markets and published reports recognizing ad servers as a distinct product market. Earlier this year, the French Competition Authority identified ad servers as a distinct market, comprising products that "allow publishers to manage their ad inventories by evaluating their [ad inventory] availability, based on their historical properties, and automatically select the most relevant and profitable ads available," distinct from networks, exchanges, and ad buying tools for advertisers.

106. Market participants, standard-setting organizations, and industry trade journals also recognize ad servers as a distinct product market. The Interactive Advertising Bureau ("IAB"), a

prominent industry standard-setting organization for display advertising, defines a publisher ad server as "[a] computer application that enables the delivery, tracking and management of advertising content on publisher inventory." A 2017 internal Facebook document identifies a market consisting only of ad servers and describes the competitive landscape for ad servers. Likewise, an internal strategy deck prepared by competitor Xandr (owed by AT&T) in July 2020 describes an ad server as a stand-alone product that provides publishers with "ad decisioning, delivery, and reporting."

107. Industry sources discuss the advanced control that publishers need to have over their ad inventory, targeting, and campaign pacing, and they describe ad servers as the only product that can offer this to publishers. In 2014, AppNexus (now Xandr) offered both an exchange and a buying tool for large advertisers. In an interview around that time, the company's CEO, Brian O'Kelley, highlighted the distinct nature of ad servers, stating that they must be able to do "things like being able to forecast and reserve inventory, which is really important [for a publisher] making guaranteed [i.e., direct] deals" because ad servers "help serve the direct-sell process." In a 2013 article for industry publication AdExchanger, an industry participant recognized the publisher ad server market and named leading providers, including Google, OpenX, and Open AdStream (now Xandr). OpenX subsequently exited the ad server market, and Xandr's ad server has a very small share in the United States.

108. The relevant geographic market for ad servers is the United States. Ad servers that are only available in other countries are not substitutes for ad servers located in the United States. The overwhelming majority of publishers that use ad servers in the United States are trying to connect to demand that is also located in the United States since publishers can get the most money for their ad inventory by placing ads that are relevant to users that visit their website. Accordingly, ad

servers that connect publishers to demand that does not share the linguistic, cultural, and commercial characteristics of a publisher's users are not a substitute for ad servers that do.

109. Further, publishers who use an ad server in the United States are subject to different regulatory and legal systems that affect their choice of ad server. Laws and regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so publishers in the United States cannot choose an ad server that does not operate in a way that is consistent with their regulatory obligations.

110. Network latency based on geography also affects what ad server a publisher chooses. Publishers prefer to use ad servers that are hosted on servers within a reasonable geographic distance from where the publisher operates their webpage. An ad server located outside the United States could not display ads on publishers' webpages in the United States in a timeframe that would be competitive with ad servers located in the United States.

111. Google likewise tracks its share of the relevant product market by country because it acknowledges that users from different nationalities have different levels of demand for their ad server. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for ad servers for the United States geographic market suggests that Google believes that publisher demand for its ad server in the United States is distinct from the demand for its ad server both regionally and globally.

112. A small but significant and non-transitory increase in the price of ad servers from a competitive level in the United States would not cause a sufficient number of customers to switch to ad servers outside of the United States such that the price increase would be unprofitable. Ad servers that are available in other countries but not the United States connect to sources of demand that are not relevant to users that visit a publisher's webpage located in the United States.

Accordingly, ad servers available in other countries are not reasonable substitutes for ad servers available in the United States.

ii. Google has a monopoly in the ad server market.

113. Google has monopoly power in the ad server market in the United States, as confirmed by both indirect and direct evidence.

114. Google's internal documents confirm that it has held a consistent monopoly share of the ad server market for at least a decade. In 2010 (just two years after acquiring DoubleClick), Google estimated that its ad server managed 78 percent of gross spend on display advertising across the top 400 publishers in North America. By 2012, Google's internal documents indicate that approximately 85 percent of publishers in the United States licensed its ad server. By 2015, Google employees discussed how more than 90 percent of publishers used Google's ad server. For instance, in an email dated October 7, 2015, Google employee [redacted] discussed competitive threats to Google's ad server: "Right now we are the defacto, preferred ad server of choice for 90% of publishers." By Q2 2018, Google measured the "breadth" of its ad server (i.e., the number of publishers using the ad server) as 84 percent of publishers globally and a staggering 99 percent of large publishers in the United States. Similarly, Google documents demonstrate that the "depth" of its ad server (i.e., the number of web display impressions served using the ad server) is at least 76 percent of impressions served for publishers in the United States. By November 2020, then-advertising [redacted] memorialized in an internal strategy document that its ad server "is business critical to many of the world's largest publishers, with 85% of 'display web' addressable inventory flowing through [it]."

115. Google's employees recognize Google's monopoly power in the ad server market and the resulting lack of innovation to meet publishers' needs. As senior Google employee [redacted] candidly acknowledged: "Right now we are the … ad server ... for 90% of publishers....

Unlike our competitors, pub[lisher]s have been viewing us as a necessary evil, instead of a responsive, innovative partner.... Google simply isn't leading, and we aren't giving customers confidence that they can and should trust in us to build the right things and solve the right problems."

116. Other market participants also believe that Google has a monopoly in the ad server market. For instance, former Facebook [redacted] remarked internally in 2015 to colleagues that they "need the ecosystem to beat the google monopoly," referring to Google's position in the ad server market. In 2017, Facebook comprehensively evaluated Google's monopoly position (and the substantial lack of competition) in the ad server market as it considered how it might access more display inventory. It found that Google's ad server had "the lion['s] share of the ad serving market" and controlled decision making on 72 percent of the web's indirectly sold inventory by revenue, meaning that, as a practical matter, Google's ad server "sits between [Facebook] and the impressions [they] want to buy." Facebook concluded that in the ad server market, Google has "monopolistic power [and] uses its power to manipulate the market [in] its favor and disadvantage competition," and "[n]o legit competitor to Google is emerging."

117. Industry trade publications and the general media have also addressed Google's power in the ad server market. In 2014, AdExchanger reported that Xandr's ad server (Open AdStream) was a "very distant No. 2" in the ad server market behind, of course, Google's ad server. A 2019 article in *The Wall Street Journal* reported that more than 90 percent of large publishers use Google's ad server.

118. Google's monopoly power in the ad server market is further confirmed by direct evidence. Defying the existence of competitive restraints, Google's ad server charges supracompetitive fees. For example, Google's ad server currently charges publishers an additional

revenue share fee when routing their inventory to non-Google exchanges and networks. When Google decided to permit its ad server to route to non-Google exchanges, Google rather arbitrarily decided to impose a 5 percent revenue share fee on those transactions without even considering whether the market would bear it. Additionally, Google's ad server imposes a 10 percent revenue share fee on transactions clearing through non-Google networks. But as addressed below, when publishers routed their inventory to exchanges and networks using a non-Google routing service called header bidding, publishers paid no fee whatsoever for routing to any exchange or network.

119. Additional direct evidence of Google's monopoly power is found in the fact that Google routinely degrades the quality of its ad server product without consequence. As discussed in Section VII below, Google's ad server:

a) undermined publishers' ability to measure the performance of exchanges and networks (see Section VII.D.3.iii);

b) undermined publishers' ability to use their ad server to optimize sales of their inventory through exchanges (thereby artificially depressing their yield) (see Section VII.B);

c) undermined publishers' efforts to facilitate real-time competition between exchanges through header bidding (including by charging supracompetitive prices to route impressions through Google's version of header bidding) (see Section VII.D);

d) undermined publishers' ability to use price floors to maximize yield (see Section VII.F); and

e) provided information from Google's ad server to its advertiser buying tools, thereby reducing competition between advertisers and harming publishers' yield (see Sections VII.B, VII.D.1).

120. Industry publication AdExchanger recently reported on Google's ability to monopolistically degrade the quality of its ad server:

> Whenever Google changes how its ad server works, publishers fear that Google will wrest control over how they run their digital advertising.

> Those concerns often have merit.…
>
> [Publishers'] two main gripes about the tech giant [are] that every Google product change takes a bit more control from [them], limiting their flexibility in how they set up their stack … [and] that Google doesn't listen to them.

121. So instead of pursuing and providing the procompetitive welfare-enhancing innovations a competitive market would demand, Google has—and frequently exercises—a monopolist's power to degrade the quality of its ad server. Despite widespread customer dissatisfaction with its numerous quality degradations, Google suffers no corresponding loss in market share. This dynamic starkly illustrates Google's monopoly power and the lack of competitive constraints it faces in the ad server market.

122. Google's power in ad serving has increased and become entrenched as competing ad servers have exited the market. When Google urged the FTC to clear its acquisition of DoubleClick, it argued that several competing ad servers constrained its ability to increase price or decrease quality; these included WPP's 24/7 Real Media ad server, Microsoft's Atlas/aQuantive ad server, and ValueClick's ad server. All of those competitors have since exited the market. Moreover, additional ad server competitors have also exited the market, including ad servers offered by Yahoo!, Verizon (previously AOL), and OpenX.

123. For at least a decade, no competitive threat to Google has entered the market. Facebook was a well-resourced potential entrant and considered entry, but it was ultimately deterred by Google's ad server monopoly and efforts to maintain that monopoly. So instead of entering the market, Facebook opted instead to partner with Google pursuant to their "Jedi Blue" agreement (see Section VII.E). Today, the primary non-Google ad server remaining in the United States is Xandr, which has a negligible market share.

124. Google's market power in the ad server market is protected by significant barriers to entry and expansion, most notably including high switching costs. For publishers, switching ad servers is both resource intensive and risky. Some publishers have inventory on hundreds of thousands, millions, and even hundreds of millions of webpages, which renders switching ad servers exceedingly expensive, difficult, and time consuming. Moreover, the switching process necessarily entails significant revenue risk, as even minor glitches during a transition can substantially disrupt and prevent delivery of advertiser campaigns. Industry experts compare a change in ad servers to "switching planes in mid-flight."

125. Internal documents from Google and Facebook confirm publishers' high switching costs. For instance, Facebook internally acknowledged the unfortunate reality that "switching costs for publishers mean any competitor has a next to no chance of taking significant market share away from [G]oogle quickly."

126. In addition to publishers' disincentive to change ad servers due to switching costs, any potential entrant would face another substantial barrier to entry arising from the fact that publishers tend to use just one ad server at a time (i.e., they "single home"). Using multiple ad servers can create conflicts between ad servers, which defeats the point of the ad server's crucial inventory management function.

127. In addition to these barriers, Google's own anticompetitive conduct imposes additional barriers to entry and expansion. As addressed below in Section VII.A, from 2010 to present, Google has tied its ad server to its ad exchange, requiring publishers to use Google's ad server in order to receive live, competitive bids from Google's ad exchange. This tie effectively forces almost every large publisher to use Google's ad server. And because it is difficult-to-impossible for a publisher to use multiple ad servers simultaneously, requiring publishers to use Google's ad

server effectively prohibits them from using a competitor's ad server. Google's anticompetitive conduct creates an unnatural and nearly insurmountable barrier to entry.

2. Exchanges

i. Exchanges in the United States constitute a relevant antitrust market.

128. Exchanges for web display inventory ("exchanges") in the United States constitute a relevant antitrust product market. Exchanges are real time auction marketplaces that match publishers' web display impressions with bids from purchasers (whether submitted by an ad network on its own behalf or by a buying tool on behalf of an advertiser). Exchanges generally connect to a publisher's inventory through the publisher's ad server (e.g., Google's ad server). Conversely, exchanges bring advertisers to the table by interfacing with and accepting live bids from networks and buying tools on behalf of advertisers (e.g., Google's DV360); advertisers cannot bid directly into an exchange.

129. Exchanges have unique customers and exhibit unique features, pricing, and entry and usage requirements. Exchanges connect a publisher's available impression with an immediate willing buyer who has returned a live bid. Thus, exchanges do not bear inventory risk. When it comes to pricing, exchanges charge a percentage of transaction value; this percentage is transparent on an average basis across impressions. Exchanges also typically impose eligibility requirements; most exchanges require publishers to meet minimum monthly requirements for impression volume and/or revenue in order to sell directly on the exchange. As such, large publishers are usually the only ones able to have direct relationships with exchanges, which are generally out of reach for smaller publishers. Finally, many large advertisers (e.g., Procter & Gamble) primarily purchase indirectly through exchanges. To sell to these advertisers, publishers must make their inventory available in exchanges.

130. Trading in exchanges provides large publishers and advertisers with significant (and unique) controls to reduce problems of adverse selection, thereby increasing welfare and increasing output. For instance, publishers can increase price floors on informed traders. This encourages advertisers to bid for their inventory and increases the prices at which publishers' inventory ultimately clears at auction. On the buy-side, advertisers can bid on and purchase individual impressions to reduce waste and target more effectively. Together, these features reduce instances of information asymmetry that lead to adverse selection problems, thereby resulting in increased market output and improved overall welfare.

131. There are no reasonable substitutes for exchanges. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of exchanges from a competitive level would not cause a sufficient number of customers to switch to other means of selling and buying display inventory such that the price increase would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of exchanges from a competitive level would not cause a sufficient number of customers to switch to other means of selling and buying display inventory such that the quality decrease would be unprofitable.

132. Exchanges are unique and not interchangeable with ad servers, web networks, in-app mediation tools, in-app networks, buying tools for large advertisers, or buying tools for small advertisers. Those products have vastly different sets of features and price points. None of these products allow a publisher to sell an impression directly to an advertiser without use of an ad exchange. Selling an impression to a network without using an exchange would result in a significant loss of publisher revenue, given that the retail margin of most networks is much higher than the take rate of a typical exchange.

133. As Google itself recognizes internally, exchanges are not interchangeable with the direct sales channel. Selling directly requires substantial additional on-going investment, different expertise, and a unique skillset from both publishers and advertisers. For example, publishers and advertisers typically must hire and maintain internal staff to manage one-to-one relationships. As a result, the direct sales channel tends to be reserved for very high-value publisher-advertiser transactions. For instance, a large online publisher like *The Wall Street Journal* would generally not transact with a local Ford dealership directly because the dealership's monthly spend would fall far below the publisher's minimum monthly commitment for direct-sale transactions, which are typically thousands of dollars per month. The same publisher would, however, gladly transact with that dealership indirectly through an exchange, even if the total value of monthly transactions was just a few dollars.

134. Competition authorities worldwide have similarly concluded that the direct sales channel is noninterchangeable with indirect sales. In its statement regarding Google's acquisition of DoubleClick, the FTC concluded that intermediaries placing ads indirectly do not significantly constrain the pricing or quality of ads placed directly: "The evidence shows that ad intermediation is not a substitute for publishers and advertisers who place display ads into directly acquired ad inventory or vice versa." In its 2021 settlement with Google concerning anticompetitive practices in the exchange market, the French Competition Authority found that Google's exchange "is not restricted by the competitive pressure exerted by direct sales."

135. Selling a different form of advertising is not a feasible alternative to trading in an ad exchange. The format of the ads a publisher can sell depends on the format of that publisher's content. Other forms of online advertising (e.g., in-stream video, social media, search, and in-app) are not substitutes for web display advertising, and the ability sell ads of these various forms

requires distinct and substantial investments in content and technology. A publisher in the business of selling web display ads could not sell in-stream video, social media, search, or in-app ads as a substitute for trading in an ad exchange.

136. Nor would purchasing a different form of advertising (e.g., in-stream video, social media, search, and in-app) be a viable substitute for advertisers. Advertisers regard each of these ad formats as distinct and noninterchangeable, typically choosing the appropriate format depending on the goals of a particular ad campaign. An advertiser requiring display advertising would not switch to in-stream video, social media, search, or in-app ads in response to an increase in the price of purchasing display advertising through an ad exchange.

137. Industry participants define exchanges as facilitators of real-time auctions and as noninterchangeable with networks.

138. Moreover, Google's internal documents demonstrate that exchanges are a distinct product market. Google analyzes market share with reference only to other exchanges (instead of accounting for ad servers, networks, or either type of buying tool). Google measures its exchange market share in terms of share by exchange market revenue or exchange impression volume." In documents dating back to 2011, Google identifies only other exchanges as "key competitors" to its exchange.

139. Internally, Google continues to recognize that direct sales, exchanges, and networks are distinct. A 2020 Google presentation titled "Display Business Overview" refers separately to the direct sales channel ("Reservations"), exchanges ("RTB"), and networks, stating: "Conceptually, there are 3 ways Display transacts between adv[ertiser]s and pub[lisher]s: Reservations, RTB, and Network." The document further explained that "[d]isplay is not a monolithic business: within it, there are three paths for transactions, each with distinct

characteristics. Reservation: Direct transactions between advertisers and publishers … RTB: Auction connecting advertisers and publishers (primarily large, sophisticated ones), and giving them significant controls. Demand and supply are disaggregated … Network: Closed demand-supply loop, primarily between smaller advertisers and publishers; high degree of automation."

140. The relevant geographic market for exchanges is the United States. Exchanges that are only available in other countries are not substitutes for exchanges located in the United States. The overwhelming majority of publishers and advertisers that use exchanges in the United States are trying to connect to supply and demand that is also located in the United States. Publishers can get the most money for their ad inventory by placing ads that are relevant to users that visit their website. Similarly, advertisers can get the most return on investment by placing ads adjacent to content that is relevant or shares the same brand security concerns as the advertiser. Accordingly, exchanges that connect publishers to demand or that connect advertisers to supply that do not share the linguistic, cultural, and commercial characteristics are not substitutes for exchanges that do.

141. Further, publishers and advertisers who use an exchange in the United States are subject to different regulatory and legal systems that affect their choice of exchange. Laws and regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so publishers and advertisers in the United States cannot choose an exchange that does not operate in a way that is consistent with their regulatory obligations.

142. Network latency based on geography also affects what exchange a publisher or advertiser chooses. Publishers and advertisers prefer to use exchanges that are hosted on servers within a reasonable geographic distance from the publisher's ad server or the advertiser's buying tool. An exchange located outside the United States could not return bids to publishers in the United States in a timeframe that would be competitive with exchanges located in the United

States. Nor could an exchange located outside the United States transmit bid requests to buying tools in a timeframe that would be competitive with exchanges located within the United States.

143. Google likewise tracks its share of exchanges by country because it acknowledges that users from different nationalities have different levels of demand for their exchange. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for exchanges for the United States geographic market suggests that Google believes that publisher demand for its exchange in the United States is distinct from the demand for its exchange both regionally and globally.

144. A small but significant and non-transitory increase in the price of exchanges from a competitive level in the United States would not cause a sufficient number of customers to switch to exchanges outside of the United States such that the price increase would be unprofitable. Exchanges that are available in other countries but not available in the United States connect to sources of demand that are not relevant to users that visit a publisher's webpage located in the United States. Similarly, exchanges in other countries but not available in the United States offer impressions adjacent to content that is not desirable or brand safe for advertisers located in the United States. Accordingly, exchanges available in other countries that are not available in the United States are not reasonable substitutes for exchanges available in the United States.

ii. Google has a monopoly in the exchange market.

145. Google has a monopoly in the exchange market in the United States, as confirmed by both indirect and direct evidence.

146. Google's exchange has had market power since 2010 because it contains a *significant and unique* pool of advertisers not available through any other exchange—the bids belonging to the hundreds of thousands of advertisers using Google's monopoly buying tool for small advertisers, Google Ads (see Section VI.A.3.ii). The collective pool of advertisers bidding through

Google Ads on AdX accounts for at least 44 billion web display transactions per month in the United States and about 30 percent of monthly transactions across all exchanges in the United States. To put inventory up for bid to this pool of advertisers, publishers must transact in Google's exchange: Google routes the advertisers' bids to only Google's exchange (see Section VII.A) and the advertisers typically single-home on Google Ads (see Section VI.A.3.ii). Thus, publishers *must* transact in Google's exchange to receive bids from and sell their inventory to this unique pool of advertisers.

147. The advertisers bidding through Google Ads constitute a large share of transactions on Google's exchange. Internal documents show that in 2012 and 2013, advertisers using Google Ads accounted for 65 to 74 percent of transactions on Google's exchange, as measured by revenue. Between 2018 and 2019, advertisers using Google Ads purchased 52 percent of impressions transacted on Google's exchange. Moreover, Google Ads' transaction volume accounted for more than 30 percent of all impressions transacted on exchanges in the U.S. in this time period.

148. Publishers who forgo Google's exchange and the demand from Google Ads advertisers see substantial decreases in the number of bids for their inventory, the number of impressions they sell, and the amount of revenue they generate. One large publisher assessed that not transacting in Google's exchange would reduce monthly revenue by up to one-third, or by $1.4 million per month, with half of that revenue coming from advertisers using Google Ads. Another large publisher found that demand from Google Ads advertisers accounted for 45 percent of revenue earned through Google's exchange and 24 percent of the revenue earned through the indirect sales channel overall, which totaled millions of dollars per year. The significance and uniqueness of Google Ads demand in Google's exchange render Google's exchange a "must have" for publishers.

149. Google touts this "must have" selling point to publishers, stating that "higher yield starts with access to demand …. AdX is the only platform with direct access to the entirety of [Google Ads] demand." Elsewhere, Google explains that AdX offers "massive demand" with "seamless access to [Google Ads]."

150. This is reflected in publisher adoption of Google's exchange. Since at least 2014, Google's exchange has been the largest exchange; it has been used by the most publishers, and it has transacted the most impressions. In 2014, industry trade publication Digiday observed that "Google is the operator of the largest ad exchange, AdX." By 2015, Google's internal documents demonstrate that 80 percent of the publishers using Google's ad server also contracted with Google's exchange. Since 90 percent of publishers were using Google's ad server, this means that the large majority of available publisher customers were using Google's exchange—for publishers, Google's exchange was unmissable.

151. In 2019, *The Wall Street Journal* reported that AdX was "the world's largest [exchange] with about half [of] the [overall worldwide] market share." Since AdX is used by more publishers, transacts more revenue, and transacts more volume in the United States than in other countries, according to Google's internal documents, this means that AdX controls substantially more than half of the United States exchange market. Indeed, AdX transacted *more* than half of display impressions in the United States during this time period. In the twelve months leading up to October 2019, AdX transacted over 60 percent of all display inventory sold through exchanges in the United States.

152. Since then, Google has expanded its power in the exchange market, with AdX's share of impressions increasing even further in the wake of its imposition of Unified Pricing rules in 2019 (see Section VII.F), just as Google internally predicted. Indeed, analysis of at least one large

publisher's auction records show a substantial increase in the percentage of display inventory sold on AdX once Google imposed these new Unified Pricing rules.

153. Google's AdX is not the only exchange in the United States, but its closest competitors (exchanges offered by Rubicon, Xandr, and Index Exchange) each have considerably lower shares of the market. Whereas AdX transacts in excess of 60 percent of display impressions, data from multiple large publishers indicates the other three exchanges each typically transact a mere four to five percent. These other exchanges also transact far less than AdX from a revenue perspective. In 2018, Google's exchange transacted at least $7.6 billion in gross revenue, while the next-largest exchanges transact much less: Xandr transacted less than $2 billion and Rubicon and Index Exchange each transacted less than $1 billion. Estimates from Rubicon also show that, excluding Google's exchange, *all* other exchanges combined transacted a total of approximately $6 billion. In other words, the comparatively small non-Google portion of the exchange market is quite fragmented. Additionally, Rubicon's estimates show that AdX held 64 percent of the market available to exchanges in terms of advertising spend in 2019 and that this share was expected to grow to 69 percent by 2023 at the expense of other exchanges. Between 2018 and 2019, the increase in AdX's transacted revenue was about *five times* the value of the increase for Xandr, further amplifying the relative size difference between AdX and its closest competitors. These rival exchanges *cannot* offer publishers access to Google Ads demand.

154. Moreover, the quality of impressions trading in Google's exchange differs from the quality of impressions trading in competing exchanges. Google's exchange transacts impressions targeted to high-value users that advertisers cannot purchase in rival exchanges (see Section VII.B).

155. Even Google employees recognize Google's exchange market power. For example, in a 2015 email, Google employees expressed fear that Google's exchange might "actually have to compete" with other exchanges at some point in the future.

156. Direct evidence also confirms Google's monopoly power in the exchange market. Google's exchange has the power to control prices. Since at least 2016, Google's exchange has charged supracompetitive prices, with an average take rate of 20 percent of the transaction value. Google charges much more than its closest exchange competitors.

157. Google's exchange is also insulated from competition. In 2016, following widespread adoption of header bidding (which, as discussed in Section VII.D.1, allowed non-Google exchanges to compete for impressions on a real-time basis), a price war between exchanges began, and *non*-Google exchanges began cutting their prices. In 2017, several exchanges revealed their recent price cuts to industry publication AdExchanger: "Less than a week after Rubicon Project slashed its take rate in half, to 10% to 12% ... AppNexus [now Xandr] said its fees are even lower. The company revealed it charges an 8.5% average to the sellers on its platform." Despite these significant price cuts, these rival exchanges were unable to materially increase their market share. Meanwhile, Google's exchange maintained or even increased prices, yet still *increased* its market share. Google employee [redacted] emailed internally in November 2017 that she thought exchange "margins will stabilize at around 5 percent. Maybe it will happen by this time next year or in early 2019. This creates an obvious dilemma for us. AdX is the lifeblood of our programmatic business. … What do we do?" Google's 2018 internal documents observed that "[r]ecent market dynamics ... are putting pressure on the 20% fee and it is becoming more clear that the market bears the fee primarily because of the exclusive access to our [Google Ads] demand." Nevertheless, Google did not reduce its average exchange take rate from 2017 to 2020. In fact, by

2019, Google had increased its exchange take rate for third-party buyers by one to two percentage points, which was a six to ten percent price increase relative to those rates in 2017. The fact that Google did not lower its exchange take rates during this time—and instead increased them without losing market share—demonstrates that Google's exchange has pricing power and is insulated from competitive market dynamics.

158. Moreover, Google's exchange does not lose market share even though its customers perceive its exchange to be of lower quality than other exchanges on key dimensions. A 2018 survey asked publishers to evaluate exchanges across various dimensions of quality. Google trailed competing exchanges in all five of the key quality dimensions and ranked last in two of the five key dimensions. Notably, Google ranked last in the measure of "alignment with publisher goals and needs." In 2019, a column in AdExchanger observed that publishers continue to use Google's exchange not because of superior quality, but because of "the demand that Google brings through its buy-side and exchange-related dominance." According to a survey of publishers by Advertiser Perspectives (an advertising industry business intelligence agency), Google's exchange is the "dominant gateway for online advertising," Google's exchange is "always No. 1," and it has "real dominance."

159. The exchange market is also characterized by market exit and lack of recent entry. Microsoft (AdECN) exited the exchange market in 2011, Yahoo! (RMX) in 2015, and Facebook (FBX) in 2016.

160. Google's market power in the exchange market is protected by significant barriers to entry and expansion. Exchanges face the classic "chicken-and-egg" problem. A new entrant must achieve a sufficient scale of *both* publishers *and* advertisers using its exchange if it hopes to become viable. Google exploits this chicken-and-egg problem to benefit its own exchange and

raise further barriers to entry. By employing a variety of anticompetitive tactics, Google creates barriers for rival exchanges by causing its publisher ad server to preferentially route transactions to Google's exchange (see Section VII.B) and by preferentially routing Google Ads transactions to Google's exchange (see Section VII.A).

3. Advertiser Buying Tools

161. Just as publishers use ad servers to advance their own interests (e.g., to manage inventory and maximize yield), advertisers use buying tools to advance their own interests (e.g., to purchase inventory that suits their purposes at the lowest prices). There are two distinct types of buying tools—those for small-to-medium advertisers ("small advertisers") and those for large advertisers—and these two types of buying tools are generally not interchangeable with each other.

162. Internally, Google recognizes this distinction. For instance, Google refers to the customers of its ad buying tool for small advertisers (Google Ads) as "tail and torso advertisers," noting this category typically includes small-to-medium advertisers such as "Bob's Barber" and "Lumos Labs." On the other hand, Google refers to the customers of its ad buying tool for large advertisers (DV360) simply as "large buyers" such agencies and trading desks, as well as the large advertisers who are a "good fit" for DV360.

i. Buying tools for small advertisers in the United States constitute a relevant antitrust market.

163. Web display buying tools for small advertisers ("buying tools for small advertisers") in the United States constitute a relevant antitrust market. These tools provide a web interface for advertisers to use to effectuate bidding on and purchasing open web display inventory across exchanges and networks.

164. Buying tools for small advertisers exhibit unique characteristics. Broadly speaking, these tools provide small advertisers with a user interface to: (1) set up their display ad campaigns;

(2) input and modify their particularized bidding strategies (e.g., their maximum bids for particular types of inventory); (3) enumerate any particular websites they would like their ads to run on (e.g., just ads run exclusively on dallasnews.com or nytimes.com); (4) specify the types of audiences they want to target (e.g., based on users' geography, education level, interests, or parental, marital, or homeownership status, etc.); (5) acquire campaign performance reports; and (6) adjust campaign parameters, including budget, maximum bids, list of websites, and user targets to optimize campaign performance over time. Working with the parameters set by the advertiser, the buying tool will then automatically bid on the advertiser's behalf for ad inventory trading on an exchange or network. These tools are generally unable to bid on inventory that is available only outside of an exchange or network (e.g., Facebook's ad inventory).

165. Importantly, these buying tools are the only way small advertisers are able to display their advertisements to users across the open web (i.e., on websites whose inventory is available via an exchange or network). For instance, it is only with such a tool that a local Ford dealership will be able to advertise its upcoming end-of-year sale on a site like *The Wall Street Journal*; the dealership could not make that purchase directly (see para. 133). Moreover, the dealership can use such a tool to access inventory available on networks (i.e., inventory from the millions of websites across the internet that do not have a direct sales channel and are too small to trade in exchanges).

166. Buying tools for small advertisers have minimal usage requirements. For instance, Google's product in this market—Google Ads—has no minimum monthly spend requirement. An advertiser could spend just a few dollars each month purchasing ad space trading in networks and exchanges.

167. Buying tools for small advertisers serve a unique set of customers. Because these tools have low or no minimum monthly requirements, customers tend to be small-to-medium advertisers

who are otherwise priced out of the more sophisticated buying tools for large advertisers (see paras. 198-199). Customer examples include lawyers, real estate agents, plumbers, builders, doctors, barber shops, start-ups, and car dealerships.

168. Google recognizes that the set of customers served by buying tools for small advertisers (Google Ads) is unique and distinct from the set of customers served by buying tools for large advertisers (DV360); as their sales training materials acknowledge, "[o]n the spectrum of increasing advertiser sophistication, from small businesses to large direct advertisers to agencies, there comes a point of discontinuity where the needs of the buyer fundamentally change." Internally, Google refers to customers of its small advertising buying tool (Google Ads) as "small advertisers," "tail and torso advertisers," and "medium advertisers," which would include advertisers such as "Bob's Barber" and "Lumos Labs" (a Bay Area startup) who would be "not a good fit" for the more sophisticated and costly buying tools for larger more sophisticated advertisers (e.g., DV360).

169. As such, an additional critical feature of buying tools for small advertisers is that they are simple and easy to use; the individuals who use them (e.g., Bob the barber) typically do not have the resources to learn complex functionality. On the other hand, the enterprise buying tools for large advertisers are considerably more complex; using them typically requires an advertiser to have a specialized team of people to operate and manage display campaigns (see para. 198). Small advertisers simply do not have those kinds of resources at their disposal.

170. There are no reasonable substitutes for buying tools for small advertisers. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of buying tools for small advertisers from a competitive level would not cause a sufficient number of customers to switch to other means of buying display inventory such that the price increase

would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of buying tools for small advertisers from a competitive level would not cause a sufficient number of customers to switch to other means of buying display inventory such that the quality decrease would be unprofitable.

171. For instance, buying tools for small advertisers are unique and not interchangeable with the buying tools for large advertisers. As above, buying tools for large advertisers usually require dedicated and specialized teams to manage; also, they typically require high minimum spend requirements (see Section VI.A.3.iii). By contrast, Google's small advertiser buying tool (Google Ads) has thousands of small advertisers in the United States spending several hundred dollars or less a month on display. These advertisers' monthly spend falls far short of the high minimum monthly spend requirements for using the enterprise buying tools for large advertisers.

172. Neither are buying tools for small advertisers interchangeable with ad servers, web networks, in-app mediation tools, in-app networks, or exchanges. Those products do not provide small advertisers with tools to optimize ad campaigns and purchase web display inventory across networks and exchanges. Those products also serve different customers, have different features sets, and exhibit different entry and usage requirements. Moreover, web display ad inventory and in-app display ad inventory are generally not substitutes for small advertisers. Amongst other distinctions, those two types of ads are characterized by different targeting methods and audience reach. Whereas targeting via the open web relies upon a system of cookie-based user IDs, in-app advertising targets users via information gathered from SDKs and matched to users via identifiers unique to each mobile device, such as Android Advertising ID and Apple's IDFA.[3] As a result, the

[3] As a point of clarification, ads displayed on websites through a mobile web browser (e.g., the Chrome or Safari app on a smartphone) are not "in-app" display ads; they are web display ads, since they are served using the cookie-based web system. To purchase an impression for display within a mobile web browser, an advertiser would need to

display ads shown on each platform are characterized by different features, levels of user engagement, and prices paid by advertisers.

173. Purchasing ad inventory through direct sales channels is not interchangeable with purchasing ad inventory indirectly through buying tools for small advertisers. As discussed above, Google and other industry participants recognize that the indirect sales channel is distinct from the direct sales channel. Moreover, purchasing advertising through direct deals is not generally a possibility for small advertisers, owing to the high minimum spend requirements and the resources needed to negotiate deals directly with publishers.

174. Nor would purchasing a different form of advertising (e.g., in-stream video, social media, search, and in-app) be a viable substitute for advertisers. Advertisers regard each of these ad formats as distinct and noninterchangeable, typically choosing the appropriate format depending on the goals of a particular ad campaign. An advertiser requiring display advertising would not switch to in-stream video, social media, search, or in-app ads in response to an increase in the price or degradation of the quality of a buying tool for purchasing open web display advertising.

175. A recent natural experiment further demonstrates the non-interchangeability of social media advertising with open web display advertising. In mid-2020, Facebook faced intense public backlash for hosting "damaging and divisive" content. In July of that year, a sizable group of advertisers (both small and large) responded by halting their Facebook advertising campaigns in a "boycott" of Facebook. The stage was therefore set for an unprecedented natural experiment on the degree of substitution between social media and open web display advertising (and,

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use a buying tool for web inventory. As the ACCC explains, "delivery of ads on web browsers uses a similar ad tech supply chain, regardless of whether the web browsers are on mobile or desktop devices. However, it appears a different set of ad tech providers are necessary to serve ads within mobile apps."

accordingly, the distinct tools used to purchase each). If the two were interchangeable, the advertisers boycotting Facebook would re-allocate their spend through display buying tools. But this is not what happened. Rather, small and large advertisers alike instead overwhelmingly diverted their ad spend to *other social media sites* (e.g., Snapchat and Pinterest). Additional evidence further confirms this non-interchangeability; if the advertisers boycotting Facebook shifted spend to advertising on the open web, the resulting increase in demand would lead to higher auction prices for ad inventory on the open web. But this did not happen either; review of multiple major web publishers' open web display inventory data simply does not show price increases during the boycott. This unique natural experiment clearly demonstrates that advertisers do not consider these two types of advertising (and likewise, the separate buying tools) to be interchangeable.

176. Neither are buying tools for small advertisers interchangeable with tools for purchasing social media advertising, e.g., from Facebook. While advertisers can, of course, use Facebook's buying tool ("Facebook Ads") to purchase display ads on Facebook properties (e.g., on facebook.com), they cannot use it to purchase inventory on other websites (e.g., wsj.com or dallasnews.com). Nor can they use Facebook's tools to do other crucial functions of a buying tool for small advertisers, including purchasing display ads across sites (e.g., on both wsj.com and dallasnews.com) or optimizing those purchases towards the sites producing the best return on investment (e.g., by narrowing their campaign to just wsj.com if it produces better brand lift for them).

177. Similarly, buying tools for small advertisers are not interchangeable with any tools offered by Amazon for purchasing ad inventory. Amazon does offer a buying tool for large advertisers, but that tool has a minimum monthly spend requirement of $35,000, which puts it well

out of reach for small advertisers. It is not a substitute. Amazon's other ad buying tool (the Amazon Ad Console) is available only to advertisers who are also registered Amazon vendors. These vendors purchase ads through Amazon Ad Console solely to promote the goods they sell on Amazon (e.g., the "sponsored" ads appearing in response to a search on amazon.com). They cannot use the Amazon Ad Console to purchase display ads on third-party sites (e.g., ads on dallasnews.com, law360.com, or walmart.com). An internal research document from Amazon includes an advertiser's explanation of the value proposition of advertising on Amazon, which is quite distinct from the reasons advertisers purchase display advertising on the open web: "Amazon is all about shopping conversion," whereas by comparison "[w]ith other platforms (i.e., not Amazon), we're building a brand and we're using digital display ads to do that. We don't necessarily look at conversions for display. We look at reach for display and making sure that we're featured in the right targeted websites."

178. An internal Google document from 2018 reflects that Google Ads does not compete with Facebook's buying tool, which sells on Facebook owned-and-operated inventory (e.g., facebook.com) and third-party in-app inventory, nor with Amazon's buying tool for small advertisers, which sells only on Amazon owned-and-operated inventory.

179. Neither are buying tools for small advertisers substitutable for buying tools for search advertising inventory. This is because web display ad inventory and search ad inventory are generally not substitutable for advertisers, large or small. Regulators in the United States and around the world have found that search advertising does not operate as a significant competitive constraint on display advertising, and vice versa. Google's internal documents likewise track search and display advertising separately.

180. Further illustrating the distinct nature of buying tools for small advertisers, the UK CMA's investigation and accompanying 2020 report recognizes that small advertisers use different tools and seek different features than large advertisers. Moreover, this report includes a section on competition and market shares regarding buying tools; that section lists only those tools able to purchase inventory across the open web—it does not include Facebook Ads or Amazon's Ad Console.

181. Internally, Google recognizes that the relevant product market is one of buying tools for small advertisers, and Google documents reflect that the buying tools for large advertisers are in a different product market. Google's internal presentations and documents delineate between the two types of tools in terms of the distinct product features they provide and different groups of customers they serve. And of course, Google participates in the two markets by offering two distinct products: Google Ads is for small advertisers, and DV360 is for large advertisers.

182. The relevant geographic market for buying tools for small advertisers is the United States. Buying tools for small advertisers that are only available in other countries are not substitutes for buying tools for small advertisers located in the United States. The overwhelming majority of advertisers that use buying tools for small advertisers in the United States are trying to bid on and purchase ad inventory that is also located in the United States. Advertisers can get the most return on investment by placing ads adjacent to content that is relevant to or shares the same brand security concerns as the advertiser. Accordingly, buying tools for small advertisers that connect advertisers to ad inventory that do not share the linguistic, cultural, or commercial characteristics of the advertiser are not substitutes for buying tools for small advertisers that do.

183. Further, advertisers who use buying tools for small advertisers in the United States are subject to different regulatory and legal systems that affect their choice of buying tool. Laws and

regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so small advertisers in the United States cannot use a buying tool that does not operate in a way that is consistent with their regulatory obligations.

184. Network latency based on geography also affects what buying tool for small advertisers an advertiser chooses. Advertisers prefer to use buying tools for small advertisers that are hosted on servers within a reasonable geographic distance from the ad exchange or publisher's ad server. Accordingly, buying tools for small advertisers located outside the United States could not return bids to publishers in the United States in a timeframe that would be competitive with buying tools for small advertisers located in the United States. Nor could buying tools for small advertisers located outside the United States transmit bid responses to ad exchanges in a timeframe that would be competitive with buying tools for small advertisers located within the United States.

185. Google likewise tracks its share of buying tools for small advertisers by country because it acknowledges that users from different nationalities have different levels of demand for Google Ads. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for Google Ads for the United States geographic market suggests that Google believes that advertiser demand for buying tools for small advertisers in the United States is distinct from the demand for buying tools for small advertisers both regionally and globally.

186. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of buying tools for small advertisers from a competitive level in the United States would not cause a sufficient number of customers to switch to buying tools for small advertisers outside of the United States such that the price increase would be unprofitable. Buying tools for small advertisers in other countries that are not available in the United States offer impressions

adjacent to content that is often undesirable, irrelevant, or not brand safe for advertisers located in the United States. Accordingly, buying tools for small advertisers available in other countries that are not available in the United States are not reasonable substitutes for buying tools for small advertisers available in the United States.

ii. Google has monopoly power in the buying tool market for small advertisers.

187. Google has had monopoly power in the United States in the buying tools for small advertisers market since 2009, as confirmed by both indirect and direct evidence.

188. Since 2009, Google Ads has served far more advertisers than any other competing buying tool in the United States. In 2010, 600,000 small and medium size businesses in the United States used Google Ads. Since then, the number of advertisers using the tool to purchase display inventory has increased exponentially. At all relevant times, competing ad buying tools for small advertisers served far fewer advertisers.

189. By 2012, Google Ads had become so dominant that Google employees noted they were "artificially handicapping" Google Ads to "boost the attractiveness of our sellside (AdX)." In other words, Google's monopoly power over small advertisers allowed them to reduce the quality of their buying tool without being concerned that advertisers would switch to an alternative.

190. Google Ads is the largest buyer on the world's largest exchange (AdX). Google Ads buys about 50 percent of the web display impressions transacted in Google's exchange, accounting for about 30 percent of *all* web display impressions transacted across all exchanges in the US. Internal Google documents estimate that in 2013, Google Ads was "the largest buyer on AdX, comprising 74% of AdX revenue."

191. Most buying tools for small advertisers have exited the display market entirely, leaving advertisers without alternatives to Google Ads. Facebook previously offered a buying tool for

small advertisers to purchase display inventory across the open web (separate from its buying tool for purchasing inventory on Facebook's owned and operated properties), but Facebook exited the market and stopped offering this buying tool in 2020. Amazon does not offer a tool that small advertisers can use to purchase open web display inventory. In 2012, Google internally compared Google Ads to eight competitors; out of those eight competing buying tools, not even one still operates as a buying tool for small advertisers.

192. Google Ads also has monopoly power because small advertisers, unlike large advertisers, almost always single home (i.e., use just one buying tool at a time). Using multiple tools at the same time would impose substantial additional time and capital costs small advertisers are generally unable to bear. When deciding which buying tool to use, most small advertisers choose Google Ads because it is the only way to purchase display across the Google Display Network. Indeed, the recent competition reports from both the ACCC and the UK CMA confirm that small advertisers primarily single home, most often on Google Ads.

193. Google Ads' monopoly power is clearly manifested in its refusal to route most of its small advertisers' bids to identical but less expensive display impressions trading in non-Google exchanges and networks (see Section VII.A). Small advertisers' marketing costs would decrease if Google Ads did this. But because Google Ads faces no real competition, Google has no incentive to provide better prices to its small advertiser clients.

194. Further evidence of Google Ads' monopoly power in this market is found in the non-transparent pricing Google imposes. For example, Google Ads charged a non-transparent fee to advertisers when purchasing impressions in Google's exchange. In a discussion between Google employees about Google Ads' fees, one employee asked: "Buyers don't know that [we] take a 15 percent fee? I didn't realize that." Another clarified that the fee "is not transparent." Google's

monopoly power allows it to hide the details of the prices it charges to advertisers. Instead of charging a single consistent fee across all impressions, Google adjusts its fee upward and downward depending on the extent of competition from other buyer tools, even charging a "negative" margin on some impressions to increase the win rate of Google Ads.

195. Google Ads' market power is protected by at least two critical barriers to entry and expansion. First, Google Ads charges opaque fees and does not let advertisers readily audit the ad inventory Google purchases on their behalf. Without a legitimate mode of comparison, this practice hinders and discourages small advertisers from switching to a lower-cost or higher-quality small advertiser buying tool. Second, advertisers use ad buying tools to keep track of the users they have targeted with ads, the users that have made purchases, and the users that they want to keep targeting with more ads. Google Ads limits advertisers from accessing and taking this data with them to a rival buying tool. As a result, small advertisers are locked in and have high switching costs. A small advertiser looking to switch to a different ad buying tool would typically need to start over from scratch after abandoning the valuable data and intelligence they otherwise accumulated in Google Ads.

iii. Buying tools for large advertisers in the United States constitute a relevant antitrust market.

196. Web display buying tools for large advertisers ("buying tools for large advertisers") in the United States constitute a relevant antitrust market. These tools provide an interface for large advertisers (e.g., Geico or McDonalds) or their trading desks and ad agencies (e.g., Accuen or WPP) (collectively, "large advertisers") to bid on and purchase open web display ad inventory on exchanges and networks. Buying tools for large advertisers allow advertisers to optimize their campaigns to achieve their campaign objectives, including purchasing the best quality inventory on exchanges for the lowest prices.

197. The buying tools for large advertisers provide a range of product features over and above the six features common to the corresponding tools for small advertisers (see para. 164). These commonly include: (a) the ability to conduct substantially more complex and precise site-, user-, and audience-based targeting; (b) the ability to utilize more of an advertiser's own proprietary data; and (c) the ability to create and deploy highly customized bidding strategies across marketplaces.

198. The buying tools for large advertisers require dedicated and specialized teams of people to manage. The bidding and trading options are so complex that they frequently are not used or managed in-house by the actual advertiser (e.g., Ford). Instead, they are usually managed by the advertiser's specialized team at a third-party ad agency (e.g., WPP), or a specialized agency division called a "trading desk."

199. Ad buying tools for large advertisers exhibit unique entry and usage requirements. Unlike ad buying tools for small advertisers, these tools typically have very high monthly minimum spend requirements. For example, according to competitive intelligence gathered by Amazon, The Trade Desk's buying tool requires advertisers to spend at least $1 million per year, with Media Math requiring $2.4 million per year and Google's DV360 requiring at least $10 million per year. Other competing products require minimum spend commitments of $10,000 or more per month.

200. These ad buying tools offer features that serve a particular type of customer: large advertisers. Internally, Google describes the unique types of customers who license these tools: "large buyers" such as "agencies," "Trading desks," and "large advertisers" themselves.

201. There are no reasonable substitutes for buying tools for large advertisers. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price

of buying tools for large advertisers from a competitive level would not cause a sufficient number of customers to switch to other means of buying display inventory such that the price increase would be unprofitable. More particularly, such a price increase would not cause a sufficient number of customers to switch to using buying tools for small advertisers, ad servers, exchanges, networks, advertising on social media sites (e.g., Facebook), or advertising on Amazon such that the price increase would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of buying tools for large advertisers from a competitive level would not cause a sufficient number of customers to switch to other means of buying display inventory such that the quality decrease would be unprofitable. More particularly, such a quality decrease would not cause a sufficient number of customers to switch to using buying tools for small advertisers, ad servers, exchanges, networks, advertising on social media sites (e.g., Facebook), or advertising on Amazon such that the quality decrease would be unprofitable.

202. For instance, buying tools for large advertisers are unique and not interchangeable with the buying tools for small advertisers. The tools for small advertisers do not provide large advertisers with the unique features they need to manage their large and complex ad campaigns.

203. Industry sources discuss competitors in this market and list their unique characteristics and customers. A research document by Amazon characterized buying tools for large advertisers as providing "nearly limitless levels of configurability including the ability to adjust settings that directly influence auction dynamics," and contrasted these product features to the "more automated" functionality offered by buying tools for small advertisers.

204. Neither are buying tools for large advertisers interchangeable with ad servers, web networks, in-app mediation tools, in-app networks, or exchanges. Those products do not provide advertisers with tools to optimize ad campaigns and purchase web display inventory across

networks and exchanges. Those products also serve different customers, have different features sets, and exhibit different entry and usage requirements. Many suppliers of buying tools for large advertisers, such as The Trade Desk, do not offer networks or exchanges. Moreover, web display ad inventory and in-app display ad inventory are generally not substitutes for large advertisers. As discussed above (see para. 172), those two types of ads are characterized by different targeting methods, audience reach, engagement, and price.

205. Buying tools for large advertisers are also not interchangeable with the direct sales channel. As discussed above, Google and other industry participants recognize that the indirect sales channel is distinct from the direct sales channel.

206. Nor would purchasing a different form of advertising (e.g., in-stream video, social media, search, and in-app) be a viable substitute for advertisers. Advertisers regard each of these ad formats as distinct and noninterchangeable, typically choosing the appropriate format depending on the goals of a particular ad campaign. As noted above, even the large advertisers who participated in the Facebook boycott reallocated their spend primarily to social media sites (e.g., Snapchat and Pinterest), not to display advertising on the open web (see para. 175). An advertiser requiring display advertising would not switch to in-stream video, social media, search, or in-app ads in response to an increase in the price or degradation of the quality of a buying tool for purchasing open web display advertising.

207. Neither are buying tools for large advertisers interchangeable with tools for purchasing social media advertising, e.g., from Facebook. While advertisers can, of course, use Facebook's buying tool ("Facebook Ads") to purchase display ads on Facebook properties (e.g., on facebook.com), they cannot use it to purchase inventory on other websites (e.g., wsj.com or

dallasnews.com). Nor can they use Facebook's tools to do other crucial functions of a buying tool for large advertisers.

208. Competition authorities in other countries have recently recognized that ad buying tools for large advertisers are not interchangeable with other products. For instance, the UK CMA found that these tools offered unique functionality and are not interchangeable with exchanges, networks, or ad servers. Its 2020 report includes a section on competition and market shares regarding buying tools; that section lists only those tools able to purchase inventory across the open web—it does not include Facebook Ads for only purchasing ads on Facebook and third-party developer apps or Amazon's Ad Console for only purchasing ads on Amazon. Similarly, the French Competition Authority recently found that buying tools for large advertisers are not substitutable for exchanges or networks.

209. Finally, Google itself clearly considers buying tools for large advertisers as a standalone product market. Its internal analysis of the market share of DV360 (Google's buying tool for large advertisers), Google does not consider its own buying tool for small advertisers (Google Ads) as operating in the same market. Indeed, Google acquired Invite Media in 2010 for the purpose of developing a product targeted to the needs of large advertisers, separate and distinct from Google's already-existing buying tool for small advertisers.

210. The relevant geographic market for buying tools for large advertisers is the United States. Buying tools for large advertisers that are only available in other countries are not substitutes for buying tools for large advertisers located in the United States. The overwhelming majority of advertisers that use buying tools for large advertisers in the United States are trying to bid on and purchase ad inventory that is also located in the United States. Advertisers can get the most return on investment by placing ads adjacent to content that is relevant to or shares the same

brand security concerns as the advertiser. Accordingly, buying tools for large advertisers that connect advertisers to ad inventory that do not share the linguistic, cultural, or commercial characteristics of the advertiser are not substitutes for buying tools for large advertisers that do.

211. Further, advertisers who use buying tools for large advertisers in the United States are subject to different regulatory and legal systems that affect their choice of buying tool. Laws and regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so large advertisers in the United States cannot use a buying tool that does not operate in a way that is consistent with their regulatory obligations.

212. Network latency based on geography also affects what buying tool for large advertisers an advertiser chooses. Advertisers prefer to use buying tools for large advertisers that are hosted on servers within a reasonable geographic distance from the ad exchange or publisher's ad server. Accordingly, buying tools for large advertisers located outside the United States could not return bids to publishers in the United States in a timeframe that would be competitive with buying tools for large advertisers located in the United States. Nor could buying tools for large advertisers located outside the United States transmit bid responses to ad exchanges in a timeframe that would be competitive with buying tools for large advertisers located within the United States.

213. Google likewise tracks its share of buying tools for large advertisers by country because it acknowledges that users from different nationalities have different levels of demand for DV360. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for DV360 for the United States geographic market suggests that Google believes that advertiser demand for buying tools for large advertisers in the United States is distinct from the demand for buying tools for large advertisers both regionally and globally.

214. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of buying tools for large advertisers from a competitive level in the United States would not cause a sufficient number of customers to switch to buying tools for large advertisers outside of the United States such that the price increase would be unprofitable. Buying tools for large advertisers in other countries that are not available in the United States offer impressions adjacent to content that is often undesirable, irrelevant, or not brand safe for advertisers located in the United States. Accordingly, buying tools for large advertisers available in other countries that are not available in the United States are not reasonable substitutes for buying tools for large advertisers available in the United States.

B. In-App Display Advertising Markets

215. Developers and advertisers also depend on several distinct and noninterchangeable products for indirect sales of in-app display ads. This Section defines the markets for two distinct in-app display advertising products: (1) in-app mediation tools, through which app developers manage and sell their in-app display inventory; and (2) in-app networks, which purchase in-app display inventory from app developers and resell it to advertisers.

1. In-App Mediation

i. In-app mediation in the United States constitutes a relevant antitrust market.

216. Mediation tools for in-app inventory ("in-app mediation") in the United States constitute a relevant antitrust product market. In-app mediation is inventory management software used by mobile device app publishers (also known as "developers") to manage, sell, and maximize the yield of their in-app display advertising inventory, i.e., the graphical ads shown inside of a mobile app such as a game on a smartphone.

217. Mediation tools exhibit unique characteristics that serve the needs of developers. They help developers sell their in-app ad inventory and optimize yield across multiple networks. In terms of features, mediation tools allow developers to connect to multiple sources of demand and provide developers with a decision engine for determining, on an impression-by-impression basis, which ad will ultimately serve in the available ad space. Google's mediation tools include AdMob mediation and GAM for apps. These Google services compete with in-app mediation tools offered by companies such as MoPub, ironSource, and Unity.

218. There are no reasonable substitutes for in-app mediation; it is the only feasible way for developers to open up their inventory to multiple sources of demand. Only the largest and most sophisticated developers have the capability to build an effective mediation tool in-house. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of in-app mediation from a competitive level would not cause a sufficient number of customers to switch to other means of managing in-app inventory such that the price increase would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of in-app mediation from a competitive level would not cause a sufficient number of developers to switch to other means of managing in-app inventory such that the quality decrease would be unprofitable.

219. In-app mediation tools are unique and not interchangeable with ad servers, exchanges, networks, in-app networks, buying tools for large advertisers, or buying tools for small advertisers. An ad server, for example, cannot be used to manage inventory for in-app advertising. None of those products can be used to interoperate with and optimize yield across multiple in-app networks.

220. Selling inventory through direct deals is not an economic substitute for using a mediation tool. For one, a developer selling impressions directly to an advertiser will still need

some way to deliver those impressions and hold up the developer's end of the direct deal. In addition, the automated sales channel—"indirect sales"—is distinct from the direct sales channel for in-app inventory, much as it for web display inventory.

221. Selling a different form of advertising is not a feasible alternative to using a mediation tool. The format of the ads a developer can sell depends on the format of that developer's content. Other forms of online advertising (e.g., in-stream video, social media, search, and web display) are not substitutes for in-app display advertising, and the ability sell ads of these various forms requires distinct and substantial investments in content and technology. A developer in the business of selling in-app display ads could not sell in-stream video, social media, search, or web display ads as a substitute for using a mediation tool.

222. Both Google and the industry recognize in-app mediation tools as a distinct product market. As Google's internal documents explain, an in-app network "delivers demand," but it is the mediation tool that "makes the final ad decision across different demand sources." Google separately tracks the market shares of its in-app network and its in-app mediation offerings. Likewise, industry participants recognize a market for mediation tools distinct from in-app networks and other ad delivery tools. In the beginning, developers sold their in-app ad inventory by integrating a single in-app network's SDK into their app; this proved unworkable because a single source of demand meant limited demand, lower auction prices, and lower fill rates (i.e., a lot of money left on the table). In an effort to solve this problem, developers tried to solicit bids from multiple in-app networks; to do this, they had to integrate separate SDKs for *every single* additional network (at one point averaging more than 15 SDKs each). But as the IAB UK recently reported, this method also proved unworkable: "embedding this many SDKs slowed the apps down and also made it much harder for developers to effectively manage and optimize their monetisation

[sic] strategy across all the SDKs." Mediation tools were designed to solve this problem; a mediation tool functions as "a single SDK that connects apps to multiple ad sources, without sacrificing performance."

223. The relevant geographic market for in-app mediation is the United States. In-app mediation products available in other countries are not substitutes for in-app mediation products located in the United States. The overwhelming majority of developers that use in-app mediation products in the United States are trying to connect to networks that are also located in the United States. Developers can get the most money for their in-app inventory by placing ads that are relevant to users that use their app(s). Accordingly, in-app mediation tools that connect developers to networks or advertisers that do not share the linguistic, cultural, and commercial characteristics of a developer's users are not a substitute for in-app mediation products that do.

224. Further, developers who use an in-app mediation product in the United States are subject to different regulatory and legal systems that affect their choice of in-app mediation product. Laws and regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so developers in the United States cannot choose an in-app mediation product that does not operate in a way that is consistent with their regulatory obligations.

225. Google likewise tracks its share of the relevant product market by country because it acknowledges that apps directed to different national markets have different levels of demand for their in-app mediation product. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for in-app mediation for the United States geographic market suggests that Google believes that developer demand for its in-app mediation product in the United States is distinct from the demand for its in-app mediation product both regionally and globally.

226. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of in-app mediation from a competitive level in the United States would not cause a sufficient number of customers to switch to an in-app mediation product outside of the United States such that the price increase would be unprofitable. Accordingly, in-app mediation tools available in other countries are not reasonable substitutes for in-app mediation tools available in the United States.

ii. Google has market power in the in-app mediation market.

227. Google offers two products in the market for in-app mediation: (1) AdMob mediation and (2) Google Ad Manager for apps ("GAM for apps"). Google promotes GAM for apps as a product for large developers and AdMob mediation as a product for other developers. But unlike other general types of tools comprising discrete markets (e.g., buying tools for large advertisers and buying tools for small advertisers), the demand for mediation tools is not nearly so segmented; it comprises just one market. Indeed, Google typically evaluates its in-app mediation market share by considering both AdMob mediation and GAM for apps, indicating its view that these two products compete in the same market—the market for in-app mediation.

228. By any metric, Google's mediation tools dominate the market for in-app mediation in the United States. By 2019, at least 50 percent of ad-containing apps available for download in the United States used one of Google's mediation tools. But this statistic actually understates Google's share of the market for in-app mediation because the denominator includes numerous apps that do not use a mediation tool. By excluding apps that display ads from a single demand source (and thus have no need for in-app mediation), the more accurate measure of Google's market share rises to more than 60 percent. Google considers its most important competitors in this market to be MoPub (owned by Twitter), ironSource, and AppLovin. None of those companies enjoy a market share of more than 30 percent.

229. Google's dominant share of the in-app mediation market gives it the technical ability to influence allocation of a substantial amount of in-app ad inventory; according to Google's own documents, the mediation tool "makes the final ad decision across different demand sources." Indeed, Google now makes these decisions for a substantial share of indirectly sold in-app impressions. In 2017, Facebook estimated that Google's mediation tools mediated 39 percent of all indirectly sold in-app impressions, and it projected that number to rise to 68 percent by 2020. Facebook's prediction closely matched Google's own target of mediating 65 percent of in-app impressions in 2020. By comparison, Google's closest competitor (MoPub) mediated a mere 20 percent of all in-app impressions in 2017 (measured by revenue); Facebook projected that MoPub's share would fall from there as a result of "years of underinvestment." And indeed, just last month (October 2021), Twitter announced its sale of MoPub to in-app mediation competitor AppLovin in order to "focus on O&O product development."

230. Google's power in this market is entrenched due to high switching costs. For developers, switching mediation tools is an expensive and risky proposition; it would require them to incur substantial costs similar to those faced by web display publishers changing ad servers (see para. 124), with additional burdens and technical challenges, including rewriting code in the app itself and integrating a new service's SDK. According to a recent Google study, most developers consider switching tools only "every few years," and making a switch would significantly impact their advertising revenue. The switching costs in this market are so significant, in fact, that Google's study found that developers generally do not consider switching to be "a priority unless [switching] can *double* [their] revenue" (emphasis added), and even a substantial 10 to 15 percent increase would be an "interesting but not urgent" proposition for most developers.

231. These switching costs protect Google's dominant position in the market for in-app mediation, helping to ensure its ability to raise prices and reduce quality without concern of losing developers.

2. In-App Networks: Networks for in-app inventory in the United States constitute a relevant antitrust market.

232. In-app display ad networks ("in-app networks") in the United States constitute a relevant antitrust product market. In-app networks are the intermediaries that purchase in-app display ad inventory from developers and resell those impressions to advertisers. Google's primary in-app network is called the AdMob network. Aside from Google, firms offering in-app networks include Facebook (with the Facebook Audience Network, or "FAN"), Unity, ironSource, and Vungle, among others.

233. There are no reasonable substitutes for in-app networks. While some developers sell a portion of their inventory through direct deals, that sales channel typically requires a dedicated staff; it is economically feasible only for the largest and most sophisticated developers. But even the large developers with some direct sales typically use indirect sales to sell the vast majority of their in-app inventory. For developers, there is no economically rational choice but to work with one or more in-app networks. The only alternative is to forgo substantial advertising revenue.

234. In-app networks are unique and not interchangeable with in-app mediation tools. These two products serve very different purposes. As Google's internal documents explain, a mediation tool "makes the final ad decision across different demand sources," but it is the in-app network that actually "delivers demand." Google analyzes its in-app network market share separately from its mediation tools' market share. Likewise, industry participants recognize a market for in-app mediation, distinct from in-app networks.

235. Nor are in-app networks interchangeable with ad servers, web networks, ad exchanges, buying tools for large advertisers, or buying tools for small advertisers. None of those products offer the unique technical integration (e.g., SDKs) necessary for a developer to include in-app advertising.

236. Selling a different form of advertising is not a feasible alternative to using an in-app network. The format of the ads a developer can sell depends on the format of that developer's content. Other forms of online advertising (e.g., in-stream video, social media, search, and web display) are not substitutes for in-app display advertising, and the ability sell ads of these various forms requires distinct and substantial investments in content and technology. A developer in the business of selling in-app display ads could not sell in-stream video, social media, search, or web display ads as a substitute for using an in-app network.

237. Google itself analyzes its in-app network market share separately from its shares of the markets for web display networks and exchanges. Likewise, when Facebook evaluates the competitive landscape for its own network, FAN, it distinguishes between "display ad networks" and "mobile ad networks," considering only the latter to be competitive with Facebook's in-app network.

238. Accordingly, a hypothetical monopolist imposing a small but significant and non-transitory increase in the price of in-app networks from a competitive level would not cause a sufficient number of customers to switch away from in-app networks such that the price increase would be unprofitable. Similarly, a hypothetical monopolist imposing a small but significant and non-transitory decrease in the quality of in-app networks from a competitive level would not cause a sufficient number of customers to switch away from in-app networks such that the quality decrease would be unprofitable.

239. The relevant geographic market for in-app networks is the United States. In-app networks that are only available in other countries are not substitutes for in-app networks located in the United States. The effectiveness of advertising depends on the advertiser and target of the ad sharing certain linguistic, cultural, and commercial characteristics. The overwhelming majority of advertisers that use in-app networks in the United States are trying to connect to users that are also located in the United States. These advertisers can get the greatest return on investment by placing ads where their potential customers are. Similarly, developers can get the most money for their ad inventory by selling impressions to networks that operate in the same country as their users.

240. Further, developers and advertisers who use an in-app network in the United States are subject to different regulatory and legal systems that affect their choice of in-app network. Laws and regulations concerning competition, user privacy, and deceptive trade practices vary from country to country, so developers and advertisers in the United States cannot choose an in-app network that does not operate in a way that is consistent with the laws of the United States.

241. Network latency based on geography also affects what in-app network a developer or advertiser chooses. Developers and advertisers prefer to use in-app networks that are hosted on servers within a reasonable geographic distance from the in-app mediation tool and the end user to whom the ad will be displayed. An in-app network located outside the United States could not return bids and displays ads to users in the United States in a timeframe that would be competitive with in-app networks located in the United States. Nor could an in-app network located outside the United States transmit bid requests to buying tools in a timeframe that would be competitive with in-app networks located within the United States.

242. Google likewise tracks its share of in-app networks by country because it acknowledges that developers and advertisers targeting different nationalities have different levels of demand for its in-app ad networks. Although Google tracks market share both globally and regionally as well, the fact that Google monitors its market share for in-app networks for the United States geographic market suggests that Google believes that demand for its in-app network in the United States is distinct from the demand for its in-app network both regionally and globally.

243. A hypothetical monopolist imposing a small but significant and non-transitory increase in the price of in-app networks from a competitive level in the United States would not cause a sufficient number of customers to switch to an in-app network outside of the United States such that the price increase would be unprofitable. Accordingly, in-app networks available in other countries are not reasonable substitutes for in-app networks available in the United States.

VII. ANTICOMPETITIVE AND DECEPTIVE CONDUCT

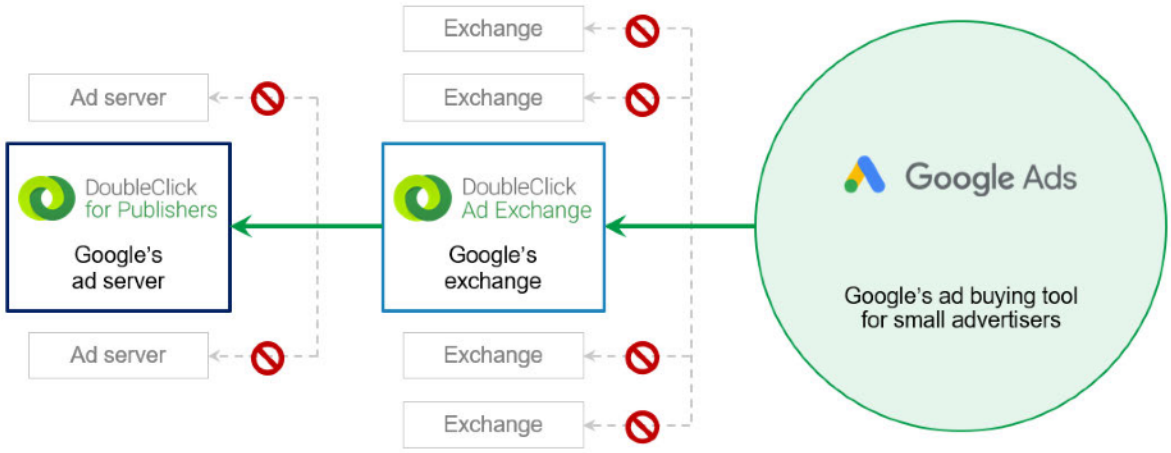
244. Acting in each of the markets described above—and in utter disregard of federal or state antitrust or consumer protection laws—Google has unashamedly obtained and maintained monopoly positions by engaging in a striking variety of conduct that, while often complex and technical on the surface, is deeply anticompetitive and deceptive at its core. More particularly, Google's conduct unlawfully forecloses competition in the markets for: (1) publisher ad servers, (2) ad exchanges, (3) in-app networks, (4) ad buying tools for large advertisers, and (5) ad buying tools for small advertisers. Google excludes competition by engaging in conduct unlawful under settled antitrust precedent, including through unlawful tying arrangements, a pattern and practice of exclusionary conduct targeting actual and potential rivals, and even a market allocation and price fixing agreement with Facebook, its largest potential competitive threat in the publisher ad server and ad network markets.

A. Google coerces publishers to license Google's ad server (2010 to present).

245. Google entered the publisher ad server market by acquiring DoubleClick in 2008. At the time, DoubleClick's share of the publisher ad server market was between 48 and 57 percent. Despite having the largest share of the market, Google faced competition from well-funded rivals, including 24/7 Real Media (owned by publicly traded WPP PLC), aQuantive (owned by Microsoft), and ValueClick (also publicly traded).

246. Soon thereafter, Google began pursuing an unlawful strategy to monopolize the market for publisher ad servers. Publishers depend on Google's exchange for access to the hundreds of thousands of small advertisers purchasing advertising through Google Ads and transacting exclusively on Google's exchange. But Google does not make its exchange open to all publishers. Instead, since 2010, Google has deliberately restricted the ability of publishers using a non-Google ad server to trade through Google's exchange, only allowing publishers that license Google's ad server to receive live, competitive bids from its exchange. In this way, and as depicted in the image below, Google has tied its ad server to its exchange, using market power from the latter product to entrench its monopoly in the former. The image below demonstrates how Google uses its power in the small advertiser buying tool market to coerce publishers to use Google's exchange and ad server.

Figure 6: Google uses the buying power of Google Ads advertisers to coerce publishers to use Google's ad server, to the exclusion of competing ad servers and ad exchanges



247. Google's ultimatum coerced publishers into licensing its ad server. While many publishers would prefer to use an ad server other than Google's, they cannot afford to lose the significant income generated from the large volume of small advertisers trading through Google's exchange. According to a study Google performed in 2013, receiving static bids instead of live, competitive bids from Google's exchange could decrease publisher's advertising revenue by a factor of 20 to 40 percent. Publishers themselves have reached similar conclusions. For example, one large publisher contemplating a switch from Google's ad server in 2017 abandoned those plans after determining that the resulting loss of AdX bids would cost the publisher several million dollars per year. Many publishers reached the same conclusion: in an industry dependent on advertising, losing 20 to 40 percent is simply untenable. A publisher forced to choose between switching to Google's ad server and losing the ability to receive live, competitive bids through Google's exchange would be economically forced to choose the former.

248. Google's threat was effective for a simple reason: Google's was the only exchange where publishers could access bids from advertisers using Google's buying tool, Google Ads (formerly known as AdWords). Google limited these advertisers to bidding through a single exchange—its own. Though these advertisers may be small individually, the collective advertising

dollars from the hundreds of thousands of small advertisers was and remains a "must have" source of demand for most publishers, constituting more than 30 percent of all exchange-traded transactions between 2018 and 2019. As Google described the tactic in a 2012 strategy document, the company was "artificially handicapping our buyside … to boost the attractiveness of our sell-side (AdX)." In this way, Google conditions receipt of competitive bids from the enormous and unrivaled roster of advertisers it represents on publishers using both its ad server and its exchange.

249. Google's share of the publisher ad server market skyrocketed as a result of this coercion. Within a few years, 78 percent of large publishers in the United States used Google's ad server. And because it is difficult-to-impossible for a publisher to use multiple ad servers simultaneously, publishers adopting Google's ad server were simultaneously dropping competitors' ad servers. Unable to compete with Google's coercive tactics, all of Google's most important former competitors have since left the market, including 24/7 Real Media, aQuantive, and ValueClick. In 2019, Google's share of large publishers using its ad server was more than 90 percent, with no significant competitors on the horizon.

250. Google maintains its ad server monopoly today through the same product ties. After forcing its most important competitors to exit the ad server market, Google allowed a small, select group of Google Ads advertisers to bid on other exchanges for "remarketing" impressions (constituting a miniscule share of Google Ads' total volume). Still, as of late 2019, approximately 93 percent of all exchange-traded impressions purchased using Google Ads were still traded through Google's AdX exchange, which continues its policy of restricting the trading capabilities of any publisher who chooses not to license Google's ad server. From a publishers' perspective, Google's threat remains as powerful as it was in 2010: license Google's ad server, or face a crushing loss of competitive bids from the many thousands of small advertisers who purchase

through Google Ads. By continuing to tie nearly all of Google Ads advertisers' buying demand to Google's ad server and exchange, Google deters prospective entrants and maintains its ill-begotten ad server monopoly.

251. Google has reinforced the coercive pressure of its tie over time, closing off any remaining loopholes for publishers. For example, in early 2018, Google began renegotiating publisher contracts to eliminate the few remaining exchange-only contracts in existence, requiring publishers to sign a combined contract that included both Google's DFP ad server and Google's AdX exchange. According to [redacted], Google decided to contractually "jam[] DFP and AdX together to ensure that we take the best of both worlds." To accomplish this objective, Google aimed to have "100% of AdX-only accounts to sign DRX [combined ad server] contract, or be terminated by EOQ2 '18." Before long, Google confirmed "all [self-service] contracts have either been signed or are going through the termination process." With this strict contractual tie, Google no longer even attempts to maintain the fiction that its exchange and ad server may be purchased separately.

252. Through these ties, Google used its market power in the ad exchange first to acquire and now to maintain an ad server monopoly. But this was only the opening salvo in Google's larger scheme. With each publisher that switched to Google's ad server, Google acquired the technical ability to steer that publisher's inventory back to Google's exchange and ad buying tools, even for impressions the publisher could have sold for higher prices elsewhere. In a competitive market, the maker of an ad server would face pressure not to engage in such behavior. But publishers were not switching to Google's ad server on the merits; they were doing so only because Google's tie forced them to. With a business relationship founded on such terms, the opportunities for coercion and deceptive self-dealing had only just begun.

B. Google uses its control over publisher ad serving to block exchange competition.

253. After coercing publishers to license its publisher ad server, Google began using its monopoly position in that market to unlawfully foreclose competition in the exchange and buying tool markets. First, Google blocked publishers from accessing and sharing information about their inventory with non-Google exchanges and buying tools. Then, Google blocked publishers from receiving a live bid from more than one exchange at a time through a program called Dynamic Allocation. Finally, Google blocked competition from non-Google exchanges under false pretenses through a program called Enhanced Dynamic Allocation, thereby reducing publishers' yield. Through this conduct, Google foreclosed competition in the exchange market, enabling its exchange to extract a supracompetitive take rate, and it foreclosed competition in the markets for buying tools for small advertisers and large advertisers. Internally, Google admits that an exchange should be more of "a public good used to facilitate buyers and sellers" and not "an immensely profitable business," as it is for Google. Google's anticompetitive conduct, however, ensured that publishers and advertisers could not benefit from competition.

1. Google interferes with publishers' ability to access and share information about their inventory with advertisers using non-Google exchanges and buying tools (2009 to present).

254. Through Google's DFP ad server, Google foreclosed competition in the market for exchanges, the market for buying tools for small advertisers, and the market for buying tools for large advertisers, by blocking publishers' ability to access and share information about their heterogenous inventory.

255. Google's ad server manages publishers' inventory and promises to maximize publishers' inventory yield. On behalf of publishers, the ad server is the tool that identifies the site visitors (i.e., "users") associated with each piece of the publishers' ad inventory, assigning

individual IDs to each user. The ability to identify the user associated with an ad impression has a direct and substantial relationship to the price advertisers will be willing to pay for the impression. As an example, an advertiser selling motorcycle accessories will probably bid more for an impression if it can identify the user as a motorcycle enthusiast. Conversely, when an advertiser cannot adequately identify the user, they will either bid low or not at all.

256. Prior to Google's 2008 acquisition of DoubleClick, the DoubleClick publisher ad server let publishers access and share the publisher ad server user IDs associated with each ad space. Sharing those IDs with exchanges and ad buying tools increased publishers' inventory yield—the most basic goal of a publisher ad server.

257. After Google's acquisition of DoubleClick, Google's DFP ad server continued to let publishers access and share their DFP user IDs; but when Google subsequently launched its ad exchange in 2009, its DFP ad server began restricting publishers from continuing to access and share their DFP ad server user IDs with non-Google exchanges and ad buying tools. Google accomplished this by hashing or encrypting the user IDs differently for each publisher using Google's ad server (e.g., John Connor = user QWERT12345), as well as for each advertiser bidding through Google's ad buying tools (e.g., John Connor = user YUIOP67890).

258. Those advertisers using non-Google exchanges and ad buying tools, now unable to receive and utilize these raw user IDs, could not know the identity of a user associated with a publisher's impressions, know if they are bidding on *valuable* impressions, cap the frequency at which any given user is shown the same ads, or target particular audiences.

259. Consequently, those advertisers return bids on fewer publisher impressions, win less often, and return lower bids than if they could accurately identify the user. Google has studied the effects of advertisers not being able to identify users in auctions and has concluded that the prices

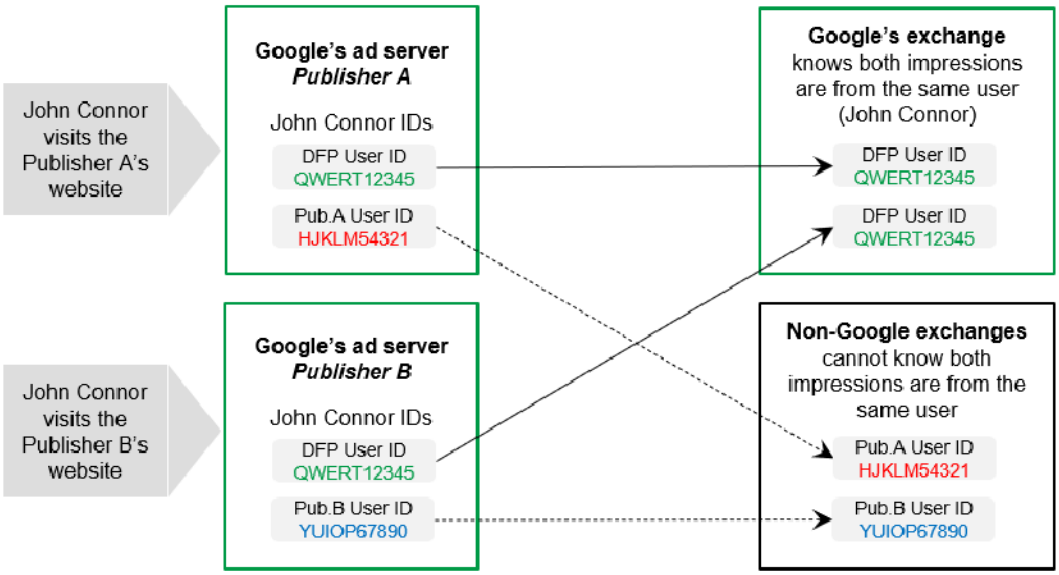
of publishers' impressions on exchanges can fall by about 50 percent. Those advertisers would also return fewer and lower bids because of a well-known phenomenon that economists call "winner's curse." When a less-informed advertiser submits a bid and wins, they must wonder *why* they won: for that impression, the more-informed advertiser bidding through Google's ad buying tool and exchange thought it wiser to bid less or not at all. The less-informed bidder more likely won a low-quality impression, but doesn't know it until after they've won. Winner's curse causes the less-informed advertisers bidding through non-Google buying tools and exchanges to bid less often and more conservatively. All of this substantially harmed publisher yield.

260. The information asymmetry resulting from Google's conduct further forecloses competition in the exchange and buying tool markets by reducing quality, entry and output. The phenomenon of better-informed parties exploiting their information advantage in a manner that adversely harms less informed parties ("adverse selection") has been studied in a range of markets and has been shown to reduce quality, entry and output.

261. But harming publisher yield in this way was merely a side effect of Google's true aim, which was plainly anticompetitive and foreclosed competition in the exchange and buying tools markets. Advertisers bidding through Google's buying tools and exchange could access information relevant to the value of the impression. While Google's ad server blocked publishers from accessing and sharing user IDs with non-Google exchanges and ad buying tools, Google's ad server continued to share the same raw IDs with Google's exchange and ad buying tools (DV360 and Google Ads). So, for Google's exchange and ad buying tools, John Connor is always a consistent ID, e.g., HJKLM54321. In other words, the only way for publishers and advertisers to always know that two different user IDs related to the same individual was to use *Google's* ad buying tools *and* trade in *Google's* exchange. The advertisers rendered unable to properly identify

users were those bidding through *non-Google* exchanges or *non-Google* ad buying tools. The following image shows how Google's hashing or encrypting of publishers' ad server user IDs benefitted Google's exchange to the detriment of competition.

Figure 7: Google's ad server restricts publishers from sharing DFP ad server user IDs with non-Google exchanges and ad buying tools



262. Google's decision to encrypt user IDs marked the end of the DoubleClick ad server acting in publishers' interests. Prior to Google's acquisition, the DoubleClick ad server was designed to maximize publishers' yield by routing their impressions to exchanges in an impartial manner and subject to the publishers' control. Google's newfound control of the DoubleClick ad server began to highlight the problems with Google's conflicts of interest.

263. Mischaracterizing the nature of its conduct, Google publicly touted its reasons in terms of protecting user privacy. However, Google's purported concern for user privacy is pure pretext; Google continues to share the same user information with the buying tools and exchange that Google just so happens to own. In fact, at one point (see Section VII.E.1), Google entered an agreement with Facebook to share information about users' identities with Facebook to give it an advantage when bidding into Google's Exchange Bidding product, undermining the privacy of

millions of users across billions of impressions. Moreover, Google's egregious violations of users' privacy on so many other occasions belie the veracity of any claim that encrypting user IDs was done for any procompetitive reason (see Section VII.H).

264. Furthermore, in interfering with publishers' ability to access (and communicate) information about their own inventory, Google breached the promises it made to the FTC and the United States Congress. Seeking to avoid challenge to its acquisition of DoubleClick, Google addressed concerns regarding publishers' control and ownership over their critical ad server data. Google assured Congress that DoubleClick "data is owned by the customers, publishers and advertisers, and DoubleClick or Google cannot do anything with it." Similarly, Google represented to the FTC that "customer and competitor information that DoubleClick collects currently belongs to publishers, not DoubleClick," and "[r]estrictions in DoubleClick's contracts with its customers, which those customers insisted on, protect that information from disclosure." Google then "committed to the sanctity of those contracts." In essence, DoubleClick's contracts rendered publishers' data confidential and non-public, thereby prohibiting Google from using that data to act against publishers' interests.

265. The publisher ad server is a tool publishers pay for in order to maximize their inventory yield. Google's decision to encrypt user IDs did the opposite and punished publishers for selling impressions to non-Google exchanges and buying tools; it is a move that can only be explained by the promise of monopoly profits.

266. Google's interference with publishers' ability to continue accessing and sharing information about their inventory was exclusionary and successfully foreclosed competition in the exchange market, the buying tool market for small advertisers, and the buying tool market for large advertisers (see Sections VIII.B, D). As Google clearly hoped, advertisers began to redirect spend

away from non-Google buying tools and exchanges and toward Google's buying tools and exchange, where they could resume effectively identifying the user associated with publishers' inventory, frequency cap, and effectively target and track their ad campaigns.

2. Google blocks competition from non-Google exchanges and deceives publishers about Dynamic Allocation (2010 to 2019).

267. Next, through its DFP ad server, Google foreclosed competition in the market for exchanges, the market for buying tools for small advertisers, and the market for buying tools for large advertisers with the 2010 introduction of a program called "Dynamic Allocation." With Dynamic Allocation, Google's DFP ad server terminated impartial exchange order routing and gave Google's AdX exchange a first right of refusal at depressed prices, all the while deceiving publishers. Before addressing the anticompetitive nature of Dynamic Allocation, this Section first addresses the context from which it arose.

268. Before 2009, a publisher using Google's DFP ad server that wanted to sell its impressions through multiple exchanges needed to determine which exchanges would be called in which order. When a publisher's impression became available for sale, Google's ad server would offer the impression through the exchange the publisher wanted to call first; the impression would then pass to subsequent exchanges in sequential order, calling each subsequent exchange only if all prior higher-ranked exchanges failed to clear the impression. The industry referred to this practice as "waterfalling."

269. This system of allocation of publisher's inventory across multiple exchanges did not favor one exchange over another. Once a publisher established the sequence for the relevant exchanges, Google's ad server faithfully carried out those instructions. If an exchange performed well for a publisher (e.g., because it attracted advertisers willing to bid top dollar for impressions on that publisher's site, or because the publisher wanted to be associated with advertisers on that

exchange), then the publisher would be incentivized to reward it with a higher place in their waterfall. Conversely, if an exchange's bid prices or quality performance failed to justify its place in the waterfall, the publisher would be incentivized to demote it. Publishers benefited from exchanges competing over time to earn their place in each waterfall.

270. Starting around 2009, however, the industry began to evolve away from waterfalling, with exchanges starting to compete with each other by submitting *real-time* bids for publishers' inventory. In this new era, a publisher could put an impression up for sale and have exchanges compete *at the same time* for the impression by returning live, competitive bids.[4] Simultaneous real-time bidding by exchanges results in higher inventory yield for publishers.

271. As the concept of real-time bidding began to gain popularity, Google strategized to use its control of the ad server market to inhibit competition among exchanges. Opting to foreclose competition rather than compete on the merits, Google incorporated new decisioning logic—a new program it called Dynamic Allocation—into DFP in 2010. Dynamic Allocation marked an end to DFP ad server order-routing impartiality. Under this program, Google used the dominance it held with its DFP ad server to impart a substantial new unearned and anticompetitive advantage to its own AdX exchange: a right of first refusal. Rather than sequentially calling a publisher's preferred exchanges and allocating the impression to the first exchange able to clear its respective price floor, Google's Dynamic Allocation program instead had DFP permit AdX to peek at the average historical bids from rival exchanges and then transact the publisher's impression if AdX could return a live bid for just a penny more than the highest of these historical bids. Of course, Google's

[4] "CPM" is industry shorthand for "cost per mille"; "mille" is Latin for "thousand," so "CPM" is the term used to denote the price of 1,000 ad impressions. An advertiser in a $10 CPM transaction pays $10 for displaying 1,000 impressions of its ad. For the sake of simplicity, except as otherwise specified, references in this Complaint to the dollar value of bids and transactions are to CPM. For example, a "$10 bid" means a "$10 CPM bid."

AdX was the only exchange with such an unprecedented backdoor right of first refusal on publishers' inventory in DFP.

272. According to its internal documents from this time, Google expected this limitation to foreclose exchange competition and benefit Google's AdX exchange: "Back when AdX launched, we imagined publishers would select one exchange partner to manage all programmatic demand… Exclusive access to the largest ad network in the world and the fact we had our proprietary contextual targeting algorithm, we assumed that AdX would be the preferred exchange for pubs. However, it quickly became apparent pubs were willing to work with multiple exchanges." When routing to exchanges in sequential order, Google expected publishers to route their inventory to AdX first to receive live, competitive bids from Google's dominant buying tool for small advertisers (Google Ads) because Google knew this incredible scale of demand was a "must-have" for publishers (see Section VII.A). Google closely monitored publishers' behavior, however, to determine its next steps.

273. Google's expectations were correct insofar as Google Ads' must-have status ensured that publishers actually listed AdX in their waterfall. But much to Google's dismay, these expectations were incorrect insofar as publishers did not uniformly rank AdX first in their waterfalls. Rather, since non-Google exchanges often outperformed AdX on price, many publishers ranked those exchanges higher and would use AdX merely as a lower priority option to fill impressions not otherwise purchased by a higher-performing exchange. This meant that AdX missed out on the opportunity to return bids for many of the publishers' impressions.

274. Dynamic Allocation ultimately reduced publishers' yield by shielding AdX from real-time competition and by permitting AdX to transact impressions at depressed prices. Publishers ranked exchanges to reflect the historical average prices paid by each exchange. But those very

prices were artificially depressed *by Google*; as addressed above in Section VII.B.1, shortly before introducing Dynamic Allocation, Google cut off much of publishers' ability to share information about their inventory with the advertisers using non-Google products, which led to a less-informed pool of advertisers using non-Google products, which in turn led to lower bids from that pool of advertisers.

275. Google seized the opportunity it created. With Dynamic Allocation, Google used DFP to allow AdX to swoop in and buy inventory at just a penny more than the depressed average historical bids returned by non-Google exchanges to DFP. Indeed, at the very moment DFP was giving AdX an unparalleled right to bid ahead of the publisher's established waterfall, DFP *also* gave AdX the information it needed to beat out competing exchanges without paying the higher prices it otherwise would have paid because of its information advantages. In other words, Google used its ad server monopoly to let its ad exchange view a publisher's valuable impression—like a box seat at a baseball game—and transact that impression for just a penny more than the average price that a non-Google exchange sold any old impression for—like the average price for any seat in the stadium. That is not competition on the merits, and it was certainly not in the best interest of publishers.

276. Google used AdX to further depress competition, depress output, and discourage entry in the buying tools markets by preferencing a subset of bidders. Once Google had DFP routing publishers' impressions to AdX, AdX foreclosed competition between the bidders in its exchange auction by exacerbating problems of adverse selection. Google's AdX exchange provides its buying tools (DV360 and Google Ads) with information advantages when bidding (see Section VII.B.1), permitting them to win over 80 percent of the auctions in AdX. In its external marketing of its exchange to publishers and advertisers, Google explained that an ad exchange is "just like a

stock exchange, which enables stocks to be traded in an open way." But this is not what Google's exchange did.

277. Because publishers license ad servers for the express purpose of maximizing their inventory yield, Dynamic Allocation did not serve the interests Google's DFP customers (i.e., publishers), and but for Google's dominance in ad serving, publishers would have switched to a rival ad server. Google's deliberate steps to degrade the quality of its ad server—in particular by giving its own AdX exchange preferred access to publishers' inventory and information—furthered Google's aspirations for monopolization.

278. Unsurprisingly, Google concealed the nature of its conduct and did not tell publishers the truth about Dynamic Allocation. Google induced publishers to use DFP (including DFP's Dynamic Allocation "feature") by representing that it maximized publishers' inventory yield. Google advertised to publishers, for instance, that DFP/Dynamic Allocation "maximizes revenue." Google also told publishers that, with Dynamic Allocation, publishers have a "risk-free way to get the highest real-time revenues for all their non-guaranteed impressions."

279. Google, however, knew that Dynamic Allocation did not maximize publishers' yield. Internal Google documents reveal Google's knowledge of its own misrepresentations, stating that the optimal publisher set up in display advertising includes "real-time bidding across exchanges," which is "at scale, at the best possible price, with zero waste."

280. Some marketplace competitors and industry sources eventually recognized Dynamic Allocation as a scheme to hurt publishers and foreclose competition. For instance, Facebook executives internally referred to waterfalling and Dynamic Allocation as "access caps" that let Google make competing marketplaces return lower bids for publishers. Reflecting back on the

effects of Dynamic Allocation in 2017, industry publication AdMonsters would observe: "The lack of competition was costing pub[lishers] cold hard cash."

281. Dynamic Allocation was exclusionary and successfully foreclosed competition in the exchange and buying tool markets (see Sections VIII.B,D). The scheme exacerbated problems of adverse selection in the exchange market, permitting Google's exchange to transact a large number of publishers' impressions and cream skim publishers' high-value impressions; competing exchanges were left with the ad impressions passed over by AdX and starved of liquidity. Despite entering a competitive market just a few years earlier, Dynamic Allocation propelled Google's AdX exchange to the top of the market by 2013.

3. Google denies rival exchanges access to publishers' inventory pools using Enhanced Dynamic Allocation (2014 to present).

282. Finally, Google excluded competition under false pretenses through a new program introduced in 2014 called Enhanced Dynamic Allocation ("EDA"). With EDA, Google devised a new way to use its ad serving monopoly to foreclose competition in the market for exchanges, the market for buying tools for small advertisers, and the market for buying tools for large advertisers.

283. Before EDA, the various exchanges (technically) had the opportunity to "compete" (within the limits of the DFP waterfall and Dynamic Allocation) to transact amongst the same pool of ad inventory as one another. Of course, Google ensured that this was not *actual* competition (see Section VII.B.2), but at least the whole pool was technically open at that time.

284. With EDA, Google added yet another anticompetitive wrinkle. Like Dynamic Allocation, EDA was a new decisioning logic that Google incorporated into DFP. EDA had the purpose and effect of opening up a new additional pool of publishers' inventory to exactly one exchange: AdX. Moreover, this new pool contained publishers' most high-value impressions (e.g.,

impressions displayed in the most prominent positions of a webpage, impressions targeted to users likely to make a purchase, etc.).

285. So, in addition to blindfolding and cutting in line ahead of competing exchanges, Google gave itself access to particularly valuable inventory and the ability to close off that inventory from all other exchanges, thus further starving rival exchanges of scale and liquidity.

286. Enhanced Dynamic Allocation was exclusionary and successfully foreclosed competition in the exchange and buying tool markets (see Sections VIII.B,D). Now operating the only exchange with access to this new pool of ad inventory, Google caused even more harm to competition between exchanges and siphoned even more advertisers away from rival exchanges; advertisers wishing to purchase from the new pool of high-value impressions through exchanges had to purchase through AdX. This foreclosed competition in the exchange market, especially because the vast majority—80 percent—of web publishers' ad revenue is generated from a much smaller percent—just 20 percent—of impressions, according to Google's review of revenue and impressions on AdX in the United States. Google refers to this dynamic as "cookie concentration."

287. Enhanced Dynamic Allocation further shielded Google's buying tools from competition. Advertisers wishing to purchase the inventory from Google's exchange without losing sight of the user or the value of impressions had to use Google's buying tools.

288. Google accomplished this through its ad server (DFP)—a product publishers reasonably expected to further their interests in maximizing yield—but none of it was in the interests of Google's DFP customers. Rather, EDA hurt publishers' yield by foreclosing competition from exchanges (most particularly, exchanges that charged lower take rates than AdX). A $10 transaction in AdX would cost the publisher a ~20 percent exchange fee. The same transaction clearing through a non-Google exchange could cut that cost in half.

289. Moreover, EDA hurt publishers' yield by permitting AdX to transact publishers' impressions for depressed prices. DFP permitted AdX to transact high-value impressions for one penny more than a price floor that Google set for itself—despite Google's obvious conflicts of interest. Google's exchange could transact the impression if an advertiser returned a net bid greater than both (a) the price Google set for itself and called the "EDA reserve price" and (b) the average historical bids belonging to rival exchanges.

290. Once again, these steps to deliberately degrade the ad server make sense only through the lens of Google's power in the ad server market and desire to advantage its own exchange. Publishers license an ad server to maximize their inventory yield, but Google continued to move in the opposite direction. The company had a clear goal in mind: further monopolization.

291. Google automatically turned EDA on for publishers then coaxed publishers into leaving EDA turned on under a false pretense. Wearing its publisher ad server hat, Google falsely told publishers that EDA "maximizes yield." Publishers relied upon Google's misrepresentations to enable EDA, thinking it would maximize yield.

292. Google knew EDA did not and would not actually maximize publishers' yield. Internally, Google understood that EDA was a scheme to let its own AdX exchange simply "cherry-pick [publishers'] higher-revenue impressions," earning Google's exchange an additional $150 million per year. Moreover, Google concealed the true nature of its conduct by hashing publishers' ad server user IDs.

293. Today, publishers have no choice but to leave EDA turned on in DFP; if a publisher turns off EDA, then AdX will not return live, competitive bids for their impressions.

294. In summary, Google's conduct at issue in this Section VII.B—including interfering with publishers' ability to share their ad server user IDs, overriding publisher control of exchange

routing through Dynamic Allocation, and terminating publishers' ability to make their inventory pools available to an exchange of their choosing through EDA—constituted an exclusionary and unlawful scheme to exclude competition. Each set of conduct standing alone foreclosed exchange competition. However, the combined effect of this conduct was even more powerful. Indeed, the synergistic effect of Google's anticompetitive conduct in the ad server market significantly increased the number of transactions flowing through Google's exchange and buying tools. As a result of Google's behavior, non-Google exchanges could not as effectively compete on quality (valuable impressions), liquidity (volume), or take rate. As a result, even otherwise large and powerful companies such as Microsoft and Yahoo!, which Google identified internally as offering better-quality and lower-priced exchanges, exited the exchange market in 2011 and 2015 respectively. By foreclosing competition, Google's exchange can charge a supracompetitive 19 to 22 percent commission on transactions.

295. The ability to channel impressions to Google's exchange and buying tools and charge supracompetitive fees in the exchange market are the key to understanding Google's otherwise puzzling behavior in the publisher ad server market. Publishers license Google's DFP ad server to manage their existing relationships with exchanges and maximize their inventory yield. But Google used its power in the ad server market to jeopardize those existing relationships and reduce its customers' inventory yield. These degradations were possible only because of Google's ad server monopoly; they were profitable for Google due to Google's supracompetitive fees in the exchange market, which is a market that may have appeared somewhat competitive on the surface but was also a market in which it was difficult for publishers to observe effective prices. In furtherance of its scheme, Google concealed and misrepresented its programs' true nature and the financial harm Google would subsequently cause to publishers' yield.

296. These extra costs are ultimately born not just by publishers and advertisers, but by the millions of Americans who consume online content and purchase goods and services advertised online. Lower inventory yield for publishers means less money devoted to producing quality content and/or higher subscription fees; higher effective rates for advertisers mean higher-priced and lower-quality goods and services for consumers.

C. Google secretly manipulates auctions to unlawfully exclude competition.

297. In addition to using its publisher ad server to foreclose competition between exchanges, Google also foreclosed competition by manipulating exchange auctions themselves. Google's quantitative team (called "gTrade," based in New York) used publishers' ad server user IDs and other inside information to develop several non-transparent programs that exclude competition, including by coercing publishers and advertisers to transact in Google's exchange and coercing advertisers to use Google's buying tools. This Section considers each of these programs in turn: (1) "Bernanke," which deceives publishers and advertisers and excludes competition in the exchange market and the buying tools for small advertisers market; (2) "Dynamic Revenue Share" (or "DRS"), which deceived publishers and advertisers and unlawfully foreclosed competition in the exchange market; and (3) "Reserve Price Optimization" (or "RPO"), which misled publishers and advertisers and unlawfully excluded competition in the exchange market.

1. Google uses a secret program called Bernanke to drop advertisers' bids from Google's exchange (2013 to present).

298. In 2013, Google's gTrade team devised and launched a secret program, which they codenamed "Project Bernanke" (after the quantitative easing policy of the former Federal Reserve Chairman). Project Bernanke deceives publishers and advertisers and excludes competition in the exchange market and the buying tools for small advertisers market.

299. By way of background, "first-price" and "second-price" auctions are common types of auctions used in various industries and contexts. Generally speaking, in a first-price auction, the buyer pays the amount of their own winning bid; and as the name implies, the buyer in a second-price auction pays the amount of the second-highest bid (sometimes with a negligible additional amount, e.g., one penny). A "third-price" auction, therefore, is one in which the buyer pays the amount of the *third*-highest bid. As addressed below, Google's secret Bernanke program surreptitiously switched Google's AdX exchange from a second-price auction to a third-price auction on billions of impressions per month.

300. Between 2010 and September 2019, Google led publishers and advertisers to believe that AdX was a second-price auction. For example, shortly after launching its AdX exchange in 2009, Google executive Scott Spencer promoted the new product by discussing AdX's mechanics in an interview published on the popular industry website AdExchanger. Spencer explained: "AdX is a second price auction with minimum CPMs set by the publisher. This is the most efficient auction model, resulting in the most stable, long-term equilibrium price." In their 2014 paper "Yield Optimization of Display Advertising with Ad Exchange" (published in the *American Economic Review*), Google senior researchers Jon Feldman, Vahab Mirrokni, and S. Muthukrishnan similarly promoted AdX: "With multiple bidders, AdX runs a sealed bid second-price auction." No doubt, publishers and advertisers were led by Google to believe that when AdX ran an auction, the highest bidder would win and pay the amount of the second-highest bid.

301. A 10,000-foot view of what an advertiser might see in a second-price auction is as follows: in the milliseconds after an ad impression becomes available, eligible bidders can respond to a "bid request" (which they had just received via an exchange) by returning a "bid response"; when they do this, they do not know the amount of any other bidders' bids (i.e., they submit what

economists call a "sealed bid"). If the two highest bids come in at $15 and $12, then the advertiser with the $15 bid will win, but they will pay just $12.

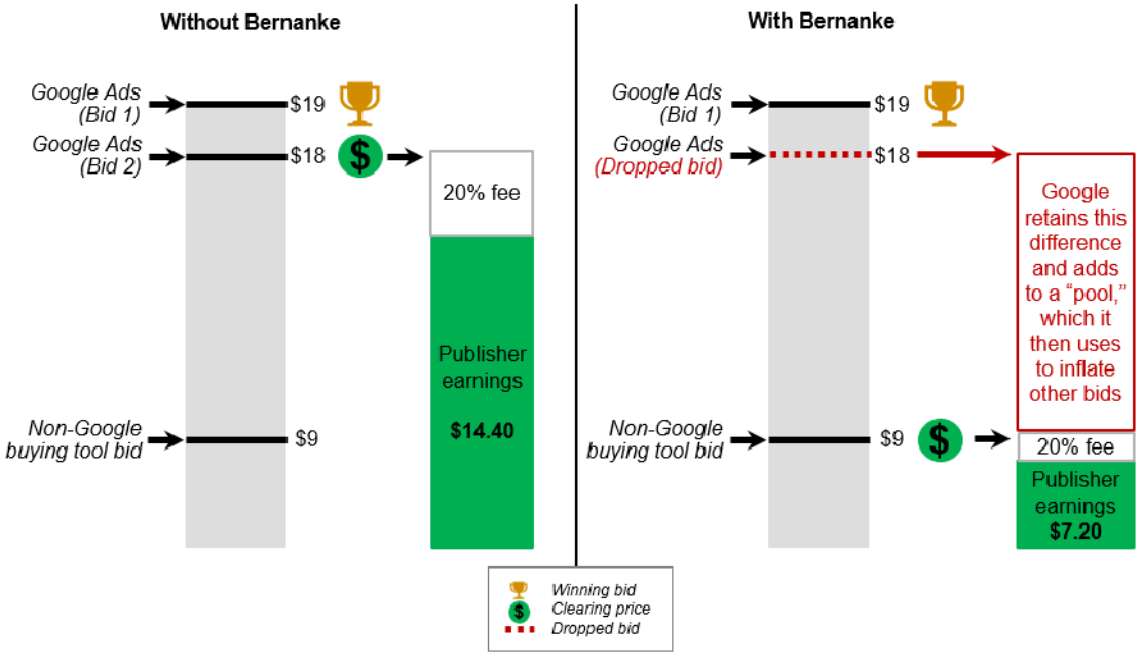
302. An additional characteristic of many types of auctions is a seller's ability to set a "price floor," i.e., the minimum amount they will accept to complete a sale. Price floors are commonplace for publishers who sell web display ad inventory in exchanges. A publisher using DFP could seek to optimize their yield by setting different price floors for different exchanges. In a second-price auction, if only the highest bid exceeds the floor (with the second-highest bid falling below the floor), then the floor will serve as the second-highest bid, such that the winner will pay an amount equal to the floor. Continuing from the example above (where the two highest bids are $15 and $12), if the applicable floor price is $13, then the advertiser who bid $15 will win—but it will pay $13 (the floor) instead of $12 (the second-highest bid). The following diagram illustrates this scenario:

Figure 8: Price floors in second-price auctions serve as the clearing price when the second-highest bid falls below the floor

303. Google's secret Bernanke program surreptitiously switched AdX from a second-price auction to a third-price auction on billions of impressions per month. Bernanke dropped the second-highest bid from the AdX auction when the two highest bids were above the floor and from Google Ads advertisers. The price to be paid, then, was the lower *third-place* bid. With Bernanke, AdX ran third-price auctions rather than second-price auctions.

304. To illustrate, suppose a *USA Today* impression is up for auction and the three highest returned to AdX are: a Google Ads bid of $19 on behalf of a car dealership, a second Google Ads bid of $18 on behalf of a hospital, and a third bid of $9 from a non-Google buying tool on behalf of a law firm. In a second-price auction, the dealership's $19 bid wins and the clearing price is $18, which nets the publisher $14.40 ($18 minus Google's ~20 percent exchange fee). Bernanke drastically changes the result for the publisher. Under Bernanke, AdX drops (i.e., disregards) the hospital's second-place $18 bid; so even though the dealership's $19 bid will still win, the clearing price is now only $9, which nets the publisher a mere $7.20 ($9 minus Google's ~20 percent exchange fee). The following diagram illustrates the operation of Project Bernanke:

Figure 9: The Bernanke program caused AdX to drop the second bid from the auction and lowered publisher earnings. Google retained the difference and adds it to a "pool" to use it to inflate other bids.



305. Google examined some of the effects of its secret Bernanke program, finding that it drops any given publisher's revenue by upwards of *40 percent*. Stating the obvious, one Google employee observed: "Bernanke is powerful." Publishers had no idea Google was dropping second-highest bids and impacting their revenues in this way.

306. Incredibly, even after dropping these second-highest bids under Bernanke, Google Ads nevertheless charges the winning bidder as if the second-highest bid had remained in the auction. For instance, in the example above, the dealership would pay $18 with and without Bernanke; the difference is what Google would pay out to the publisher ($14.40 before Bernanke, $7.20 with Bernanke). Google retains the difference and moves it to a separate "pool," which it then uses to inflate the bids of advertisers bidding through Google Ads to help them win impressions they would have otherwise lost to advertisers bidding through non-Google buying tools.

307. To determine how much to increase advertisers' bids, Bernanke relied on inside information: bids calculated using publishers' unencrypted ad server user IDs.

308. Google's internal documents reveal that Google invented Bernanke after observing Google Ads lose in AdX to competing buyers. According to Google, prior to Bernanke, advertisers bidding through non-Google buying tools were winning too often over advertisers bidding through Google Ads. Google's initial intent with Bernanke was to reverse this trend. But the secret program continued to evolve. Google next intended Bernanke to boost the number of impressions transacted in AdX, which, of course, would necessarily come at the expense of competing exchanges. The Bernanke-inflated bids would increase the number of impressions transacted in AdX and permit AdX to cream-skim, i.e., transact publishers' most valuable impressions while leaving mainly low-value impressions for rival exchanges. An internal Google document from 2014 states that the gTrade team was founded in late 2012 to devise "novel trading strategies" to increase Google's "win rate on AdX by +20 percent, reversing a worrisome 2013 trend" of non-Google buyers winning on AdX at Google's expense.

309. Google developed three different versions of Bernanke, each of which varied how the program accumulated money in a Bernanke pool and spent those funds to inflate the bids of Google Ads advertisers. As described above, the initial 2013 version of Bernanke dropped bids in a publisher's auctions, accumulated a per-publisher pool, and then spent that pool to manipulate and inflate the bids of advertisers using Google Ads on a per-publisher basis.

310. Google launched a second version, "Global Bernanke," in May 2015. Global Bernanke dropped the second highest bids *across* publishers' auctions, accumulated money into a single "global" pool, then spent pool money to inflate only the bids belonging to Google Ads advertisers who would have likely lost for being too close to the price floor a publisher set for AdX. Google applied Global Bernanke not only to the floors publishers themselves set in DFP, but also to the floors Google set for itself by peeking at rivals' bids, e.g., through Dynamic Allocation (see

Section VII.B.2), Enhanced Dynamic Allocation (see Section VII.B.3), Last Look with header bidding (see Section VII.D.3.i), and Last Look with Exchange Bidding (see Section VII.D.3.i).

311. Google designed a third version of the program, this time called "Bell," which changed how Bernanke allocates the pool of money accumulated across publishers. With Bell, Bernanke uses Google Global Publisher Tags to pre-determine whether a publisher provides AdX with preferential access to its inventory. "Preferential access" means that the publisher gives AdX an opportunity to bid on inventory prior to any other exchange (e.g., through Dynamic Allocation or EDA). If a publisher does not give preferential access to AdX, then Bell would drop their auctions from second- to third-price auctions, which would decrease their revenue from AdX up to the 40 percent Bernanke maximum. Bell would then only redirect Bernanke pool funds to inflate the bids returned to publishers that were giving AdX preferential access. Google employees were instructed to tell publishers, "just make sure EDA is working or AdX is booked higher." For example, if there are three publishers (*USA Today*, *New York Times*, and the *Wall Street Journal*), but only *USA Today* gives preferential access to AdX, then Bernanke will drop the *New York Times*' and the *Wall Street Journal*'s revenues from AdX by up to 40 percent, then utilize those siphoned revenues to inflate the bids of advertisers using Google Ads to bid on *USA Today*'s ad inventory.

312. Google never disclosed any iteration of Bernanke to publishers or advertisers.

313. Bernanke hurt publishers. Google falsely told publishers its AdX exchange ran a transparent second-price auction that "is the most efficient auction model, resulting in the most stable, long-term equilibrium price." But Bernanke secretly dropped second-highest bids from the auction, thereby decreasing publishers' yield by up to 40 percent.

314. Bernanke also restricted publisher choice. Many publishers chose to set higher floors for Google Ads than other demand sources (see Section VII.F). But Bernanke overrode that choice, allowing Google buyers to win at the expense of non-Google buyers.

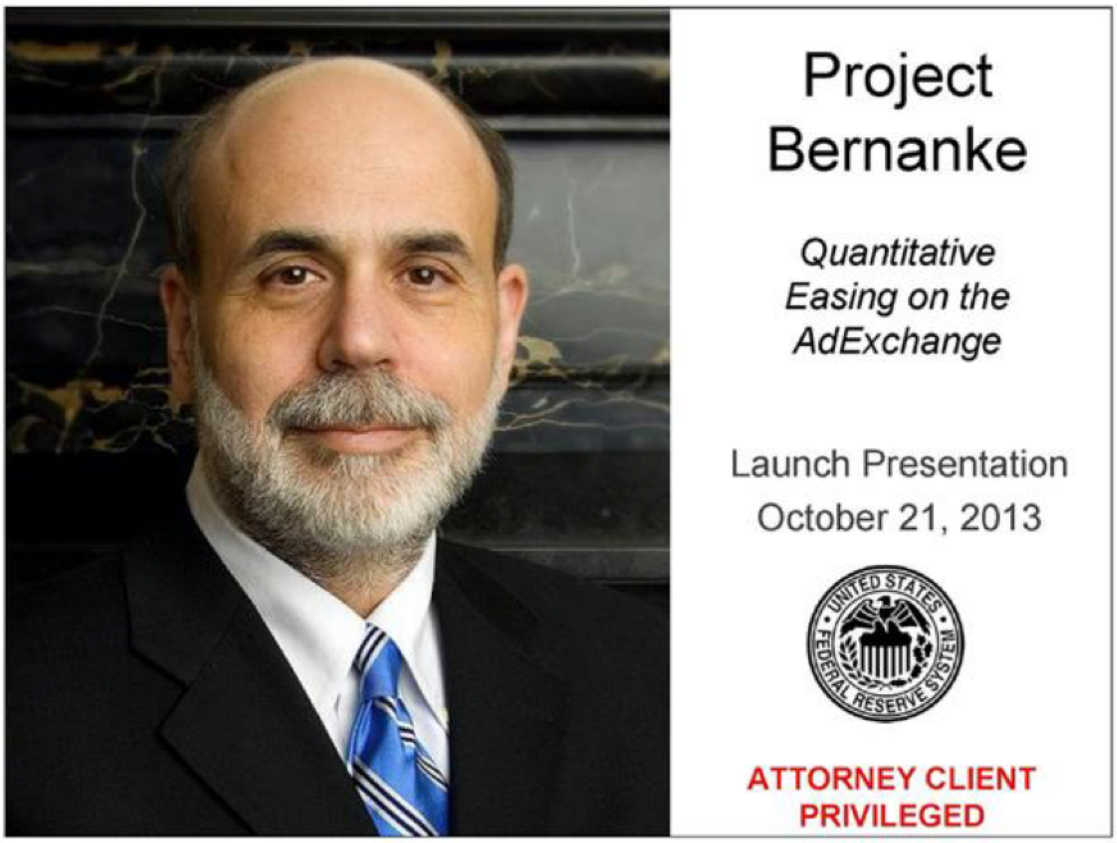
315. Bernanke hurt advertisers, too. It caused advertisers to pay the price of the *actual* second-highest bid instead of the third-highest bid (i.e., the bid that Google reported as the second highest and paid to publishers after extracting its 20 percent fee). Bernanke also harmed advertisers by manipulating and inflating their bids. The small advertiser bidding through Google Ads wants their bids routed in a way that maximizes their return on investment. For instance, a local doctor might want her ads displayed on sites that are likely to lead to new patients by reaching a relevant audience (e.g., on medical websites). Bernanke could route the doctor's bids to less relevant sites and audiences (e.g., on sports websites), merely to help AdX beat out other exchanges. This increases the cost of the doctor's campaign and lowers her return on investment.

316. Bernanke was exclusionary and successfully foreclosed competition in both the exchange and ad buying tool markets (see Sections VIII.B,D). Google's documents reveal that, prior to Bernanke, advertisers bidding through competitors' ad buying tools were beating advertisers bidding through Google Ads. So, Google's idea with Bernanke was to trade on inside information to reverse the trend and inflate Google Ads' win rate. Bernanke exacerbated adverse selection problems in the buying tool and exchange markets and ensured that Google Ads and AdX transacted publishers' most valuable impressions, leaving the low-value inventory for non-Google competitors. As a result, Bernanke radically influenced the amount of trading executed through Google Ads and within AdX.

317. Looking back on the Bernanke program's success, Google reflected that in just the first year of launch, Google increased its small advertisers' win rate on AdX by +20 percent. In just the

first year of launch, the Bernanke program alone swelled trading in AdX enough to increase annual revenue by a staggering $230 million. Google's internal documents project Bell to generate Google an additional $140 million per year.

gTrade 2013 strategy document "Project Bernanke: Quantitative Easing on the Exchange," featuring a screenshot of then-Federal Reserve Chair Ben Bernanke



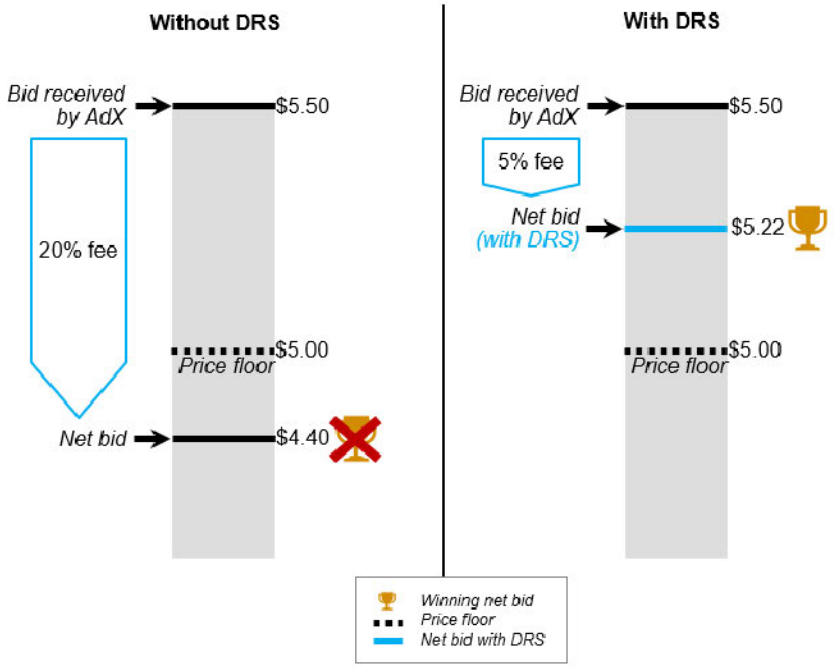
2. Google uses a secret program called DRS to manipulate advertisers' bids (2014 to 2019).

318. In 2014, Google's gTrade team launched a program codenamed Dynamic Revenue Share or DRS that deceived publishers and advertisers and unlawfully foreclosed competition in the exchange market. As originally constructed, DRS dynamically adjusted Google's exchange fee on an impression-per-impression basis *after* soliciting bids in the auction to let Google's AdX exchange win impressions it would have otherwise lost.

319. If Google was operating a true second-price auction, AdX could only transact an impression where a bid cleared a publisher's pre-set floor *after* accounting for Google's exchange fee ("net bid"). For example, suppose a publisher set the floor for AdX to $10 for all bidders to improve inventory yield. Suppose the highest bid returned was $12. The $12 bidder could win if its net bid of $12 minus Google's exchange fee of ~20 percent, i.e., ~$9.60, exceeded the price floor. Because a ~$9.60 net bid is lower than the publisher's $10 exchange floor, AdX could not transact the publisher's impression. Instead, the publisher could sell its impression to the same advertiser through an exchange charging a lower fee.

320. DRS manipulated Google's exchange fee *after* soliciting bids in the auction and *after* peeking at rival exchanges' bids to win impressions it would have otherwise lost. For example, with Dynamic Allocation, Google Ad Manager sent AdX a floor reflecting a rival exchange's historic average bid (e.g., $5). If AdX received bids of $4 and $5.50, DRS could lower Google's exchange fee on the top bid to 5 percent, to produce a net bid of ~$5.22 ($5.50 minus a 5 percent fee); under Google's standard 20 percent fee the net bid would have been $4.40 ($5.50 times 0.8). The manipulated ~$5.22 net bid is suddenly higher than the floor. AdX transacts the impression it would have otherwise lost.

Figure 10: Google manipulates its take rate to win impressions it would have otherwise lost



321. Later, when multiple exchanges could bid simultaneously with live, competitive bids, as described in Sections VII.D.1-2, DRS would use as its floor the highest net bid coming from rival exchanges. Rival exchanges' net bids reflect the bids produced by rival exchanges *after* each had set their take rate. Only Google had access to rivals' net bids as a result of running publishers' ad server, a market in which Google had a monopoly.

322. In addition to lowering Google's exchange fee, DRS also secretly *increased* AdX's fee to above 20 percent (e.g., to 30 percent) on impressions when one buyer bid significantly above the floor. On these impressions, publishers made less revenue than they would have otherwise made (e.g., $7 on a $10 AdX bid with a manipulated 30 percent fee, rather than $8). Why would AdX have just one buyer returning a bid high above the floor? Because only a few buyers (e.g., Google Ads) could identify the high-value users loading the page and would return a high bid.

323. DRS harmed advertisers. DRS meant that, contrary to Google's multiple representations, AdX did not function as a second-price auction. Advertisers that bid high above the floor should pay the exchange floor determined at the auction onset, not a higher floor that

Google manipulated after the fact. Advertisers whose bids fall below the floor should lose in AdX; they could win the exact same impression through a non-Google exchange charging a lower fee. DRS also forced advertisers to pay more on certain impressions. Advertisers that bid high above the floor should pay the exchange floor determined at the auction's onset, not a higher floor that Google manipulated after the fact.

324. Google internally acknowledged that DRS made its auction untruthful: "One known issue with the current DRS is that it makes the auction untruthful as we determine the AdX revshare after seeing buyers' bids and use winner's bid to price itself (first-pricing)…."

325. DRS harmed publishers, as well. DRS overrode the floors that publishers had strategically adjusted in their ad server to improve yield and return high quality ads. For example, by dropping the take rate for some low bidding advertisers, DRS allowed lower quality advertisers to win—a company advertising fake N95 masks for COVID, for example, might win through AdX as opposed to a reputable brand winning through a competitor's exchange. On a quality-adjusted basis, DRS harmed publishers. The only party that DRS benefits is Google.

326. Not surprisingly, Google concealed DRS from both publishers and advertisers. Google started opting publishers into DRS starting in 2014 without disclosing anything about the program to publishers or advertisers. By the fall of 2015, Google had opted all publishers into DRS, still without disclosing the program.

327. In the summer of 2016, without referring to the program's real name, Google told publishers it was launching a "revenue share-based optimization" that increased a publisher's yield. Google was referring to DRS, which plainly did not increase publisher yield.

328. Google continued to mislead publishers and advertisers about the program and withheld critical information that the parties could have used to make an informed decision about the

program. For instance, Google did not disclose that Google had been operating the program since 2014 or that DRS set floors on a post-hoc basis *after* peeking at received bids. And this was the critical point. Peeking ahead at other exchanges' net bids, then altering AdX's margin after peeking at its own received bids, permitted AdX to win when it should have been excluded according to publishers' wishes.

329. Internally Google discussed how DRS did not increase publishers' yield. Whereas DRS decreased AdX's take rate on some impression to net publishers more, DRS increased AdX's take rate increases on other impression to wipe out any publisher gains. Moreover, the program decreased publisher revenues compared to a situation where exchanges could compete effectively by lowering their take rates.

330. DRS was exclusionary and inflicted significant harm on competition in the exchange market (see Section VIII.B). Manipulating floors and net bids *after* receiving bids based on a floor communicated in the bid request and *after peeking* at rival exchanges' net bids (something only Google could do because of its monopoly ad server) foreclosed exchanges from competing, including from competing on take rates. Only Google's exchange could set its take rate on an impression-basis *after peeking* at all of its rival's net bids. DRS enabled Google to avoid price competition without sacrificing market share, and even win impressions that it would otherwise have lost to lower-priced rivals. According to internal documents, turning on DRS minted AdX an additional $250 million per year in transactions. Competing exchanges couldn't compete against Google's insider trading. Google's deception also preempted publishers and advertisers from making informed decisions and switching to a more trustworthy and transparent exchange. Advertisers could not adjust their bid strategy to protect their welfare and acquire inventory at lower prices.

3. Under a secret program called RPO, Google uses inside information to manipulate exchange floors (2015 to present).

331. In 2015, Google's "gTrade" group implemented a program called Reserve Price Optimization ("RPO") that overrode publishers' exchange floors and deceptively increased the amount advertisers paid for impressions on Google's exchange. RPO excluded competition in the exchange market.

332. Between 2010 and September 2019, Google led publishers and advertisers to believe that AdX was a second-price auction. By advertising its auction as a second-price auction, Google induced bidders to reveal the maximum each would be willing to pay for a particular impression (what economists commonly call "true value"). It is well-established and well-known that the dominant bid strategy in sealed-bid, second-price auctions is to bid one's true value. This is because revealing the maximum one is willing to pay is not harmful. Bids are "sealed" and, in the event one outbids others, they pay only the second-highest price, effectively masking the true value the bidder was willing to pay.

333. Google's Group Product Manager Scott Spencer drove this point home in the 2010 AdExchanger.com interview. He promoted that a second-price auction "incentivizes buyers to bid the most that they're willing to pay for a given piece of inventory and it minimizes the need to 'game' the system." That is, bidders can feel safe revealing their maximum bid and do not need to spend resources guessing what others will bid.

334. Consequently, when bidding into AdX, advertisers revealed the maximum they would be willing to pay for each impression, bidding their true value. They did so because they relied on Google's misrepresentations that AdX ran a second-price auction and that revealing this information would not be used against them.

335. With RPO, Google abused advertisers' trust and secretly used their true value bids against them. RPO overrode publishers' AdX exchange floors (which Google induced publishers to pre-set in their DFP ad server) and generated unique and custom per-buyer floors depending on what a buyer had bid in the past. The manufactured RPO floors acted as second-highest bid that forced advertisers to pay more than they otherwise would.

336. For instance, suppose a publisher set a $10 price floor for bids coming through AdX. An impression targeted to John Connor becomes available. In AdX, Buyer A bids $15 for that impression, Buyer B bids $12, and Buyer C bids $11. Buyer A wins the impression at the amount of the second-highest bid, or $12. This is consistent with how Google represented its auctions work. But in the *next* auction for an impression targeted to John Connor, RPO would use an advertiser's past true value bids to its detriment. In the next auction RPO would override the $10 floor set by the publisher and, instead, send Buyers A, B and C a floor of $14.90, $11.90, and $10.90, respectively—a unique and custom floor based on what each buyer had bid in the past for John Connor's impressions. If Buyers A, B, and C return their expected bids of $15, $12, and $11, Buyer A still wins. But instead of paying the $12 owed under the rules of a second-price auction, Buyer A would pay $14.90—the increased price coming not from an actual competing bidder, but through the artificial and manipulated bid of the RPO floor.

337. To guess how much each advertiser would pay for a specific impression, RPO relied on inside information: advertisers' historic bids into Google's supposedly second-price exchange auction, as well as publishers' ad server user IDs. Eventually, RPO would use competing exchanges' bids (see Section VII.D.3) to inform Google's "optimization" programs. Google employees privately acknowledged that RPO should be based on "smarts and tech" rather than "insider information," even as Google's own RPO implementation leveraged Google's "insider

information" in the form of user IDs derived from the Google publisher ad server and bid history data from AdX.

338. RPO clearly harmed advertisers by forcing them to pay more than Google advertised. By falsely representing that its AdX exchange was a second-price auction, Google induced advertisers to bid their true value, only to override publishers' pre-set AdX floors and use advertisers' true value bids against them. This meant that AdX did not function as a second-price auction—a fact that Google employees flagged with concern internally.

339. RPO harmed publishers too. Publishers pre-set different floors for different exchanges, buyers, and advertisers, for the specific purpose of improving yield and improving the quality of advertisements returned to their website. RPO overrode publishers' floor settings, the express instructions they provided to Google's DFP ad server as a term of trading on AdX.

340. Google launched RPO in early 2015 and automatically opted publishers into the program without their knowledge or consent.

341. Around the same time, Google publicly and falsely denied plans to launch dynamic floors in its exchange. On March 5, 2015, Digiday ran a story based on a leak about Google's potential plans to launch dynamic price floors. The publication asked Google whether it planned to adjust price floors based on publishers' use of Google's DFP ad server. In response, spokeswoman Andrea Faville issued a statement: "That description doesn't match anything in our current product suite or future roadmap." Ms. Faville's statement directly contradicted Google's internal operations. Internally, Google planned to launch RPO weeks later for 50 percent of publishers by April 7 and for 90 percent by April 17.

342. Instead, Google continued to mislead publishers by encouraging them to adjust Google exchange floors in their publisher ad server. DFP continued to let publishers pre-set floors for

Google's AdX exchange, buying tools, and advertisers, directly leading them to believe that they could control outcomes and optimize yield through floors.

343. Over a year later, on May 12, 2016, Google announced it was launching "optimized pricing." However, Google did not disclose that it had actually launched RPO over a year earlier, did not disclose that RPO relied on inside information, and misled publishers and advertisers as to how the program worked.

344. For instance, Google's publisher-facing team told publishers that the dynamic floor program increased inventory yield. On the surface, RPO appeared to increase yield because AdX initially returned higher bids. However, because RPO relied on inside information, combining bid data from AdX with publishers' ad server user IDs, it exacerbated problems of adverse selection in publishers' inventory auctions. Markets rife with problems of adverse selection are inefficient, dissuade participants from entering, and result in lower output. As a result, RPO ultimately forecloses competition from exchanges and advertisers and reduces inventory yield. Publishers could not discover this harmful effect because Google failed to disclose RPO's reliance on inside information.

345. In addition to misleading publishers, Google misled advertisers and misrepresented how the program worked. In its blog post disclosing RPO, Google claimed that it would "monitor [optimized pricing's] performance to ensure advertisers continue[d] to get great ROI" and that it would "give programmatic buyers greater access to premium inventory." Google also approached select large, sophisticated buyers on a one-on-one basis representing that the dynamic floors were good for them. Google kept a record of these conversations and advertiser responses. According to Google's records, one advertiser pushed back, asking "How is this good for the buyer? Because, I'll tell you, it isn't. It just raises the price." Google responded misleadingly by saying that the

program helps advertisers by increasing the amount of inventory available for purchase programmatically. Privately, employees acknowledged that RPO did not help advertisers at all.

346. All the while, Google continued to lead publishers and advertisers to believe that AdX operated a second-price auction, inducing advertisers to submit a sealed bid reflecting their true value. Numerous industry articles covering Google's conduct in the exchange market continued to report that Google operated a second-price auction. Internally, Google employees discussed public perception around AdX operating as a second-price auction. It was not until 2019 that Google publicly migrated to a first-price auction, discarding all pretense of running a second-price auction.

347. Google's internal documents reveal that Google was aware of the resulting deception and harm in the market. In an email between colleagues discussing RPO, a Google employee wrote: "Doesn't that undermine the whole idea of second price auctions? I.e., the assurance that you can bid the maximum you're willing to pay with no negative consequence. But if the publisher manufactures a floor based on your bid to get you to pay more than the second price, this principle gets violated. It'll transform the system into a 1st price auction where the bidder has a strong incentive to bid LESS than he's willing to pay. (Only just enough to win.) I don't think that's desirable for either side in the long term." Another employee wondered: "Is RPO not just basically pushing our second price auction - that is supposed to be fair - toward a first priced auction?"

348. Google did not give publishers the option to turn off RPO. Internal Google documents suggest that RPO continues in some form after Google's migration to a first-price auction under the codename "Bulbasaur," a reference to the Pokémon green monster that is half frog and half poisonous plant.

349. RPO was and is successful in excluding competition in the exchange market (see Section VIII.B). RPO impacted billions of impressions sold by publishers and transacted by

Google's exchange. Google ran an experiment measuring the impact of RPO on exchange competition, finding that RPO netted Google an additional $250 million of annual recurring revenue. Because RPO made use of publishers' ad server user IDs, it exacerbated problems of adverse selection between exchanges and foreclosed competition. Simultaneously interfering with publishers' ability to access and share their ad server user IDs, RPO ensured that no competing exchange could adjust floors like Google did in its AdX exchange. Further, concealing the fact that RPO relied on inside information (e.g., use of publishers' ad server user IDs) preempted publishers and advertisers from switching to transacting in more efficient, transparent exchanges. Instead, publishers and advertisers continued to use AdX, accelerating its scale and network effects, all the while under the impression that AdX was an authentic second-price auction.

350. Moreover, Google used its auction programs— Bernanke, DRS, RPO—in conjunction with each other to further the advantages provided by any one of these programs in isolation. For instance, RPO would increase the price paid by an advertiser by raising the floor, while DRS would ensure that the advertiser's bid nevertheless cleared the higher floor set by RPO, which exacerbates harm to competition in the exchange market.

351. Google compounds its exclusionary auction manipulations by purposefully keeping its auction mechanics, terms, and pricing, opaque and "nontransparent." This makes it nearly impossible for publishers and advertisers to discover Google's misrepresentations, and even harder for rivals to neutralize or offset. Overall, the lack of transparency prevents more efficient competition that would drive greater innovation, increase the quality of intermediary services, increase output, and create downward pricing pressure on intermediary fees. As one senior Google employee put it, "[b]y charging non-transparently on both sides, we give ourselves some flexibility to react and counteract market changes. If we face tons of pricing pressure on the buy-side, we can

fall back on the sell-side, and vice-versa." The lack of transparency around fees impedes other firms from coming in and competing with Google by offering the same services at lower prices.

D. A new industry innovation called "header bidding" promotes exchange competition; Google sets out to kill it.

352. By 2014, Google's exclusionary conduct had successfully suppressed competition in the exchange market. In response, publishers, advertisers, and exchanges rapidly adopted an innovation called "header bidding," which increased exchange competition by circumventing Google's ad server monopoly and facilitating real-time competition between Google's exchange and other exchanges. Header bidding allowed non-Google exchanges to submit live, competitive bids for publisher inventory. Faced with this competitive threat, Google schemed to "kill" header bidding. To illustrate, in an October 13, 2016, meeting, Google employees discussed "options for mitigating growth of header bidding infrastructure." One Google employee, [redacted], proposed the "nuclear option" of reducing Google exchange fees down to zero. The problem with that idea, according to another senior executive, [redacted], "is that this doesn't kill HB."

1. Header bidding facilitates competition among ad exchanges (2014 to present).

353. Header bidding created a clever technical workaround for publishers to circumvent Google's anticompetitive ad serving programs. Header bidding involves a simple and innovative piece of code that publishers could insert into the header section of their HTML webpages to facilitate competition between exchanges. When a user visited a page, the code enabled publishers to direct a user's browser to solicit live, competitive bids from multiple exchanges before DFP could prevent them from doing so by running Dynamic Allocation. Competition from header bidding also decreased the anticompetitive effects of Enhanced Dynamic Allocation and Google's auction manipulation programs, including Bernanke and RPO.

354. Publishers using header bidding continued to license DFP because Google continued to require them to do so in order to solicit live, competitive bids from AdX, which was the only exchange to include the billions of monthly buy transactions coming in from the hundreds of thousands of small advertisers using Google Ads (see Section VII.A).

355. Header bidding was wildly popular. By 2015, publishers and advertisers alike were rapidly adopting the innovation. For their part, advertisers were more than willing to bid through a marketplace where publishers made their ad inventory available for purchase—particularly when that inventory could be purchased from a different exchange at a lower take rate than through AdX. By 2016, approximately 70 percent of major publishers in the United States were using header bidding to route their inventory to multiple exchanges.

356. Publishers could facilitate implementation of header bidding by using pre-built code libraries offered by third-party providers, such as Amazon. Amazon started offering web publishers a header bidding code library in 2017.

357. Publishers were quick to adopt the header bidding protocol because. as Google internally acknowledged, "pitting multiple exchanges against one another fostered price competition, which was good for [publishers'] business." Before header bidding, and under Dynamic Allocation, AdX could clear a publisher's particularly valuable impression for one penny more than a rival exchange's average historic bid. With header bidding, AdX was forced to compete with other exchanges' live, competitive bids for particular impressions. Header bidding forced AdX to clear impressions at more competitive prices.

358. Publishers saw their ad revenue jump overnight simply because exchanges could compete. Google's own analysis in 2017 found that, between January of 2016 and February of 2017, the average price publishers received for impressions sold through exchanges in header

bidding were 80 percent higher than the average price publishers received for impressions sold through AdX. Internally, Google conceded that header bidding caused the ad revenues of one publisher, Weather.com, to jump by 30 percent. Some publishers' revenue jumped by 40 percent, while other publishers saw even larger revenue increases—as high as 70 percent.

359. Header bidding was also a positive development for advertisers. Under Dynamic Allocation, advertisers had to bid through AdX to have a meaningful chance of winning an impression, particularly a high value impression. As a result, advertisers were forced to pay Google's high exchange fees. Under these circumstances, there was little incentive to bid through a rival exchange even if it had a lower take rate. Now, advertisers could submit a live, competitive bid through an exchange charging a lower take rate. This created a greater incentive for advertisers to direct their ad spend towards ad exchanges with lower take rates. Consequently, exchanges began competing with one another by lowering their rates.

360. Consumers also benefitted from header bidding. Increased revenue for publishers meant that publishers could invest in developing better-quality content for the internet and avoid subscriptions and paywalls in the process. Similarly, advertisers bidding through more efficient supply paths decreased their costs and increased their return on investment. Consumers benefit through higher-quality and lower-priced goods and services.

361. Based on a review of Google's internal documents, Google wanted to quash header bidding innovation for three reasons: (1) to maintain its publisher ad serving monopoly; (2) to continue using its control of publishers' ad server to preference its exchange and buying tools; and (3) to avoid price competition in the exchange market.

362. First, Google wanted to eliminate header bidding to foreclose potential competition with its publisher ad server monopoly. The companies involved with header bidding would have

a foothold on a key function of Google's DFP ad server: routing publishers' inventory to exchanges. They could evolve from simply routing to exchanges to performing other critical ad server functions, such as managing publishers' direct sales channel. If a company like Facebook or Amazon made a concerted effort to offer header bidding functionality to publishers at scale, they would be a serious threat to Google's ad serving monopoly. Google executives warned in an internal document "RISK: If header bidding consolidates all non-Google demand, we could lose our must-call status and be disintermediated."

363. Second, Google wanted to destroy header bidding because the innovation threatened Google's practice of preferencing its exchange through anticompetitive ad server programs (see Sections VII.B.2,3) and auction manipulations (see Section VII.C). For instance, DFP shared competing exchanges' bids on publishers' inventory with AdX, permitting AdX and Google's ad buying tools (DV360 and Google Ads) to use that information to transact and win more of publishers' impressions, albeit for depressed prices (see Section VII.B.2). If header bidding opened the door for competition in the ad server market and publishers switched to a non-Google ad server, Google would no longer be able to engage in such practices to foreclose exchange and buying tool competition. As Google discussed the predicament internally, header bidding caused Google to "lose[] visibility" into the "prices on a per-competitor basis," which are "important data pieces of our own optimization."

364. Third, Google wanted to eliminate header bidding to protect its high exchange take rates from competition. As Google discussed internally, "20% for just sell-side platform/exchange isn't likely justified by value." Google employee [redacted] emailed internally in November 2017 that she thought exchange "margins will stabilize at around 5 percent. Maybe it will happen by this time next year or in early 2019. This creates an obvious dilemma for us. AdX is the lifeblood

of our programmatic business. … What do we do?" Competition from header bidding threatened AdX's ability to charge a supracompetitive 19 to 22 percent take rate.

365. Google discussed how competition from exchanges was a problem and deliberated over what to do about it. Indeed, Google was so concerned it launched a program called the "Header Bidding Observatory" to monitor and detect publisher adoption of header bidding. In the end, rather than compete with other exchanges on price or quality, Google adopted a long list of overt and anticompetitive acts with the express purpose, in Google's words, to "kill HB."

2. Google creates an alternative to header bidding that forecloses exchange competition (2016 to present).

366. Faced with the potential threat from header bidding of disintermediation of its ad server monopoly and unwitting release of its stranglehold on the exchange market, Google devised a plan to preserve its position as the ad serving decision-making engine. In April 2016, DFP started to let publishers route their inventory to more than one exchange at a time to mimic the multi-exchange competition fostered by header bidding. DFP would finally permit non-Google exchanges to return live, competitive bids for publishers' impressions, alongside AdX. Google called this Exchange Bidding. Internally, Google's codename for the project was "Jedi."

367. However, Google devised Exchange Bidding to maintain its exchange monopoly and exclude competition from exchanges in at least four ways. First, Exchange Bidding diminishes the ability of non-Google exchanges to return live, competitive bids by further decreasing their ability to identify users associated with publishers' heterogeneous inventory. Header bidding lets each exchange access a cookie on the user's page, which permits an exchange to recapture some information about the user's identity. Google's new program prohibits exchanges from directly accessing the user's page. As a result, Exchange Bidding, like Google's practice of encrypting publishers' ad server user IDs (see Section VII.B.1), causes non-Google exchanges to identify

users in auctions less often, causing their buyers to bid lower and less often than they otherwise would. Non-Google exchanges consequently transact fewer impressions than AdX.

368. Data from one large publisher shows that Google continues to block exchanges participating in Exchange Bidding from accessing information that Google itself exploits, enabling Google's AdX to win more often and with lower margins. With respect to this large publisher's inventory, when both AdX and rival Exchange Bidding exchanges compete for the same impression, AdX's win rate is double the win rate of other exchanges. Moreover, AdX's average winning margin—the percent above the publisher's price floor or the next-highest comparable bid, whichever is higher—is half as much as the average winning margin for Google's Exchange Bidding rivals.

369. Second, Exchange Bidding forecloses exchange competition by charging publishers an additional five percent fee on any impression sold through a non-Google exchange. This means that bids from rival exchanges always need to be more than five percent higher than bids from AdX to win. As Google understood it the fact that publishers and advertisers measure an exchange's performance in part based on its take rate, AdX gets a "'moat' in performance" when competing against competing exchanges.

370. Third, Exchange Bidding forecloses exchange competition by requiring publishers to route their inventory through AdX, even if they do not want to do so. A publisher signing up for Exchange Bidding can select which non-Google exchanges to route their impressions to, but the publisher *must* route their impressions to AdX. The publisher does not have the choice to *not* transact in AdX.

371. Finally, in operating Exchange Bidding, Google maintained visibility into the bids submitted by rival exchanges and used that information to inform its own trade decisions. For

instance, Google used the bids from competing exchanges in Exchange Bidding to continue to operate its secret auction manipulations (see Section VII.C). Google also initially designed Exchange Bidding to provide Google's exchange a special "prioritization." With this design, Google's exchange could win an auction for a publisher's inventory even over another exchange's higher bid. Google employee [redacted] explained this aspect of Exchange Bidding "generates suboptimal yields for publishers and serious risks of negative media coverage if exposed externally."

372. Exchange Bidding is exclusionary and successfully forecloses competition from header bidding and in the exchange market (see Section VIII.B).

373. Indeed, Google's intent in creating Exchange Bidding was not to meet market demand for multi-exchange competition. Rather, Google's internal stated objective was to undermine header bidding, even if Exchange Bidding was not revenue positive, to protect its ad server and exchange monopolies. Tellingly, Google measured Jedi's success not by financial targets or output increases, but by how much it stopped publishers from using header bidding. A Google executive advised colleagues internally, "I would suggest being very careful here what we say to publishers. Remember, Jedi negatively impacting header bidding is a Google desired outcome. Publishers are likely fine with header bidding, they make more money with it."

374. Google was eager to kill header bidding and force publishers back into the control of DFP. This was an effort that Google executives described as the "holy grail." Google feared that its injuries from header bidding could be more than just a flesh wound.

3. Google excludes participation in header bidding and coerces participation in Exchange Bidding.

375. After creating a header bidding alternative that would continue to advantage its own exchange, Google worked tirelessly to stop the innovation of header bidding entirely. Google

engaged in a course of conduct to coerce participation in Exchange Bidding and exclude participation in header bidding. To that end, Google's ad server advantaged Google's exchange and other exchanges participating in Exchange Bidding so that they could trade ahead of those participating in header bidding. Google further targeted header bidding by crippling publishers' ability to measure the efficiency of exchanges in header bidding, limiting publishers' ability to use header bidding with Google's ad server, diverting advertiser spend away from exchanges using header bidding, and punishing publishers that were using header bidding in Google search rankings, cutting off an important source of publisher traffic. This conduct was exclusionary, and together, it substantially suppressed the competitive threat posed by header bidding.

i. Google and other exchanges using Exchange Bidding trade ahead of and exclude exchanges using header bidding (2016 to present).

376. DFP excluded competition from header bidding by providing AdX and other exchanges in Exchange Bidding information advantages that allowed them to trade ahead of the bids submitted by header bidding exchanges.

377. From the earliest days of header bidding, DFP let AdX peek at the winning net bid from an exchange using header bidding, then displace the trade by paying one penny more. Industry participants called this practice, along with Dynamic Allocation, Google's "Last Look." Other industries call analogous conduct by intermediaries "insider trading" and "front running." According to a confidential Google study evaluating the effects on competition, Last Look significantly re-routed trading from non-Google exchanges to AdX and Google's ad buying tools, protecting Google's market power in both. Google itself admitted: "Last Look is inherently unfair."

378. Starting with the official launch of Exchange Bidding in June of 2017, Google sought to lure exchanges away from header bidding by sharing its Last Look advantage with other

exchanges participating in Exchange Bidding. These exchanges could now also peek at header bidding net bids and displace their trades by a penny.

379. Several years later, in 2019, Google publicly announced that exchanges in Exchange Bidding would no longer be able to trade ahead of header bidding exchanges. Google represented that it would run a "a fair and transparent market for everyone." It said that "every offer from programmatic buyers will compete in the same unified auction, alongside inventory which is directly negotiated with advertisers. An advertising buyer's bid will not be shared with another buyer before the auction or be able to set the price for another buyer." But Google's auction was neither fair nor transparent. Rather, Google continued to advantage its own exchange and other Exchange Bidding exchanges over header bidding exchanges.

380. Specifically, in 2019, DFP began sharing sensitive pricing information derived from publishers' sensitive clearing auction records (which Google called "Minimum Bid to Win" data) with exchanges in Exchange Bidding. Google's AdX exchange and other exchanges in Exchange Bidding use this data to adjust their future bidding strategy to continue trading ahead of exchanges returning bids through header bidding and underpaying for publishers' impressions. Sharing Minimum Bid to Win data immediately upon an auction closing informs Google's pricing, and the pricing of other bidders who use it, on their bids on millions of immediately following, highly-similar auctions. For instance, Google can use the Minimum Bid to Win data from one auction to bid on another impression for the same user on the same page.

381. Google compounded this Exchange Bidding advantage with a new secret bid optimization scheme that allowed Google to recapture the advantages it had under Last Look. The new scheme uses information about publishers' ad server user IDs and rival exchanges' bids to accurately predict the amount to bid, effectively permitting Google to re-engineer the ability of

AdX and Google's ad buying tools to trade ahead of rivals exchanges in Exchange Bidding. As a Google planning document outlines: "If we knew our competitor's bid exactly, we can simply bid a cent above that[.] But we don't have this information before the auction, so we need to predict [the] competitor's bid."

382. Google's new manipulation permitted Google to create the illusion of leveling the playing field, but nonetheless maintain Google's anticompetitive conduct. Internal Google documents reveal that these changes were revenue neutral for DV360 (+2 percent) and Google Ads (-1 percent). Truly giving up Last Look would have cost Google too much; Google predicted a 10 percent hit to DV360's revenue and at least a 30 percent decrease in Google Ads' revenue.

383. The information advantages provided to Google's exchange and other Exchange Bidding exchanges harmed publishers' yield. When one auction participant has a known information advantage, other participants perceive greater risk of over-paying and consequently depress their participation and their bids. Thus, Google's behavior of trading on the information of other exchange's bids depressed competition for publishers' inventory and harmed publishers' inventory yield. Indeed, publishers tried to overcome this conduct by increasing the floors for AdX to offset Google's information advantage.

384. Through these advantages, Google successfully foreclosed competition in the exchange market and ensured a system where AdX and other Exchange Bidding exchanges could cherry pick the best impressions, leaving header bidding exchanges the low value impressions.

ii. Google deceives publishers and exchanges to forego header bidding.

385. Internal communications between Google employees reveal that Google engaged in further deception of publishers to undermine header bidding and foreclose competition in the exchange market. Indeed, Google had launched the "Header Bidding Observatory," an internal division at Google formed to develop strategies to combat header bidding, which detected whether

publishers had enabled header bidding and launched "proactive outreach" to "optimize these implementations." In one instance, the OpenX exchange noticed their auction transactions and revenue for a particular major New York publisher in header bidding plummet. When OpenX reached out to the publisher to diagnose the problem, the publisher explained to OpenX that Google had advised them to remove the OpenX exchange from header bidding to solve a "strain on its servers" and improve the publisher's inventory yield. Google used its position as publishers' agent to deceive publishers to act against their own interests. Internally at Google, a senior employee worried that Google's misrepresentations would make it difficult "to convince [companies] to trust us." Another employee conceded it gave Google a "bad look." Google employees agreed that, in the future, they should find ways to convince publishers to act against their own interests and remove competing exchanges in header bidding on their own.

From: [redacted]
To:
Sent: Wed, 18 Oct 2017 11:40:10 -0400
Subject: Re: Prebid Looks Off - URGENT PUB INTEL RE EBDA.
Cc: [redacted]

OK..so sounds like we need to create a jedi mind trick plan that get's the ecosystem talking about why SSPs and DSPs are willing to do things that are NOT in the publisher's best interests... [redacted] said he's on it...not sure what that means...but trust it will work.

On Wed, Oct 18, 2017 at 9:14 AM, [redacted] wrote:

+1

On Wed, Oct 18, 2017 at 14:03 [redacted] wrote:

It's likely that OX prefers to keep existing prebid integrations when they exist for a bunch of reasons:

- OX gets to decide when a billable even occurs
- OX pays the pub directly
- no EB fee
- cookie matching opportunities on each page load
- not wanting pub to feel they totally wasted Eng time on prebid at OX's request

We do want pubs to remove these integrations, but when the suggestion comes from Google then OX feels we're not collaborating in good faith. Risk is that this causes them to rethink how strongly they want to support EB vs also investing in non-Google alternatives to diversify. Other holdouts like Rubicon will also hear about this, and that makes it very tough for us to convince them to trust us.

On Wed, Oct 18, 2017 at 1:23 PM, [redacted] wrote:

I don't believe it would be a bad outcome for Exchanges buying through EB to be pulled from PreBid but I don't think the optics of the email chain are great. We need the Exchanges to to support EB and see Google as partner. We should figure out how to get publishers to come up with the idea to remove exchanges from PreBid on their own.
[redacted]

386. Google also falsely told one major online publisher that it should cut off a rival exchange in header bidding because of a strain on servers. After the exchange uncovered Google's deception, Google employees discussed playing a "jedi mind trick" on the industry and "get[ting] publishers to come up with the idea to remove exchanges … on their own."

iii. Google cripples publishers' ability to measure the success of rival exchanges in header bidding (2018 to present).

387. Beginning in 2018, Google's publisher ad server (DFP) started redacting various data fields from publishers' consolidated auction records. Previously, DFP provided auction records containing the data fields called KeyPart and TimeUsec2. Publishers used these data fields to compare the relative performance of exchanges in header bidding with the performance of

exchanges going through Exchange Bidding. Knowing when a header bidding exchange outperformed AdX facilitated publishers' ability to quantify how much header bidding would hep them, which supported continued and increased use of header bidding. Google's redactions inhibit publishers' ability to evaluate the performance of exchanges in header bidding, frustrating publishers' ability to use header bidding and increase yield. As a result, the redactions foreclose competition from header bidding.

388. Google also splits the data it provides so as to make it impossible for even a sophisticated publisher to track auction results. Google splits the data it provides publishers into bid-level data and impression-level data. The impression-level data informs the publisher which demand source won each impression. The bid-level data gives publishers a limited amount of information concerning the bids submitted for particular impressions. By splitting the data, Google makes it impossible for their publisher customers to see if the high bidder won.

iv. Google obstructs publishers' use of header bidding through caps.

389. Google throttles publishers' use of header bidding by artificially capping publishers use of "line items"—an existing feature in DFP that publishers must use to receive bids from exchanges in header bidding.

390. For context, Google's DFP ad server requires publishers to match a bid received from a header bidding exchange (e.g., $4.29) with a price corresponding to a pre-existing ad server line item (e.g., a line item with a price of $4.29). If a publisher receives a header bidding exchange bid of $4.29, but only has a pre-existing line item with a price of $4.20, then the publisher's Google ad server rounds down the header bidding bid to the line item with the next closest price, e.g., to the line item with the price of $4.20. Thus, the publisher must create a large number of line items (e.g., line items with corresponding prices of $4.20, $4.21, $4.22, $4.23, $4.24, $4.25, $4.26,

$4.27, $4.28, and $4.29) to capture a live, competitive bid coming in from a header bidding exchange.

391. Google purposefully limits publishers' implementation of line items to foreclose competition from header bidding. When publishers requested that Google increase the number of permissible line items implemented so that they could properly utilize header bidding, Google rejected their requests, or would provide only temporary and limited increases. Google documents make it clear that Google's intent was to keep artificial line items caps in place as a "tool we have to fight [header bidding]."

392. Google also limited the number of line items publishers could use, even though DFP allows for a greater number to be implemented, to pressure publishers to switch to Exchange Bidding. As one employee explained to others, "[w]e need to push these pubs to using Jedi – if imposing more limits pushes them more to Jedi – then we should keep those limits in place."

393. In a competitive market, an ad server would *help* publishers use header bidding to increase publishers' yield. In fact, this is precisely what the OpenX ad server did when it incorporated header bidding through a single line item, removing altogether the need for the multiple line-item set-up. However, most publishers are locked-in to using Googles monopoly ad server and cannot easily switch. Thus, OpenX's ad server had limited opportunity to gain share against Google's monopoly and exited the market in 2019.

394. Instead of increasing line items to enhance publishers' yield, DFP undermines its own clients' revenue yield. Fewer line items cause publishers' bids from header bidding exchanges to be rounded down more often. As a result, the bids from header bidding exchanges are less competitive compared to the bids from Google's (not subject to Exchange Bidding's additional fee). Publishers also receive less revenue when a header bidding exchange wins.

v. Google diverts ad spend away from rival exchanges that engage in header bidding.

395. Although Google Ads was significantly limited from placing bids into non-Google ad exchanges, Google's ad buying tool for large advertisers (DV360) was designed to be an "agnostic" buying tool. Indeed, large advertisers benefitted when they could buy ad impressions across multiple exchanges. If Google were to restrict large advertisers to buying primarily on Google networks and exchanges the way Google Ads did to small advertisers, it is unlikely that large advertisers would continue to use DV360. For its part, Google knew that it made the most money when advertiser spend flowed through every product in its supply chain and therefore tried to ensure that DV360 operated in a way that locked advertisers into using DV360 while channeling as much of that spend towards Google's ad exchange as possible.

396. Initially, Google's ad exchange could offer a captive supply of ad inventory. Given Google's scale in publisher ad serving and the loaded deck operation of Dynamic Allocation and Enhanced Dynamic Allocation, Google's ad exchange simply had a mix of premium and small advertiser ad inventory that other exchanges couldn't always match. But header bidding significantly disrupted Google's dominion over publishers' ad inventory. By circumventing Google's ability to suppress live, competitive bids from rival exchanges, header bidding unlocked a significant amount of premium and small advertiser inventory and made it available for purchase on rival exchanges.

397. DV360 was now forced to bid and purchase inventory on rival exchanges, otherwise it would have lost visibility into a significant supply of ad inventory, losing ad spend and market share to rival DSPs that could compete for that ad inventory. In fact, as [redacted] noted, "[DV360] is the top buyer on every other exchange, so a huge chunk of publisher [header bidding] revenue is Google demand going

outside our ecosystem and then coming back in via [third-party exchanges]/[header bidding]." But DV360 couldn't simply stop buying on rival exchanges. When Google conducted experiments on DV360 pulling spend off rival exchanges for known header bidding bid requests, those impressions did not become available to Google's exchange; rather, they tended to transact through header bidding instead.

398. Google knew that allowing DV360 to participate in header bidding was undermining its efforts to "kill" this competitive market innovation. Internally, however, Google also knew that if it could not offer publishers a way to reach the pool of advertisers willing to pay the most for their ad inventory, publishers would increasingly use header bidding to reach those advertisers anyway, and advertisers would increasingly use buying tools that allowed them to reach publishers' ad inventory on their own terms. In short, header bidding destabilized Google's control over both ad inventory and where advertisers directed their ad spend.

399. Google knew it needed to reshuffle the deck and devised a "multi-pronged" strategy to "respon[d] to HB." Google's gTrade team developed "[a]uction [d]efenses" designed to allow Google to reassert control over publishers' inventory and keep ad spend flowing through Google's ad exchange, while also starving header bidding exchanges of valuable large advertiser demand.

400. "[T]o combat the effects of header bidding," gTrade first devised project Poirot, which was initially designed to identify when a rival exchange wasn't running a true second-price auction. The algorithm relied on inputs from DV360's own bid data to detect and quantify any deviations from second-price auctions. Once detected, Poirot would typically adjust DV360's bid to avoid overpaying for an impression or providing the rival exchange with meaningful data about DV360's willingness to pay. Although DV360 was openly critical of "greedy" rival exchanges that claimed to run a true second-price auction while actually running a "dirty" second-price

auction, Google's own exchange was engaging in the very same auction manipulation (see Section VII.C.3). Accordingly, DV360 intentionally bid less on rival exchanges and increased bids on its own ad exchange, ostensibly to avoid optimizations that were bad for advertisers, when DV360 was actually redirecting that ad spend to a marketplace that engaged in exactly the same behavior. In reality, Google's efforts to "protect" advertisers were therefore a direct reallocation of advertising dollars to Google's own ad exchange with no actual benefit to advertisers.

401. Initial experiments regarding the effect of Poirot actually showed a negative revenue impact to DV360, but Google's main goal was depriving rival exchanges of sufficient scale engaged in header bidding to compete with Google's ad exchange: "Non-second price exchanges will see a revenue drop in the range of 20-30% … Overall [DV360] revenue impact is -1.9%."

402. Google later extended Poirot to optimize bidding in first-price auction environments like the ones used by header bidding exchanges. As one Google employee noted, "Our response to [header bidding] has been a multi-pronged effort, which includes … First-Price Auction Defenses in [DV360] (since all [header bidding] is transacted through first-price auctions)." This expansion of Poirot proved successful. As Google explained internally, "Poirot has actually been quite effective, resulting in "[DV360] spending 7% more on AdX and reducing spend on most other exchanges."

403. Elmo, another gTrade project designed to "protec[t] against header bidding," is a mechanism that reallocated ad spend away from rival exchanges engaged in header bidding. Recall that header bidding increased competition by routing a bid request across multiple exchanges. Google devised project Elmo to help DV360 identify when it saw the same bid request across multiple exchanges, and it decreased overall ad spend on any exchange that it suspected to meaningfully engage in header bidding.

404. Elmo was very successful in achieving its objectives. By March of 2018, Elmo had decreased DV360 ad spend on the largest user of header bidding by 25 percent alone, while also bringing in at least an additional 7.8 percent increase to DV360 spend on Google's ad exchange, or $220 million. Just four months later, one internal Google document shows Elmo had accomplished a reduction of 44 percent in spend across major rival exchanges overall.

405. Taken together, Poirot, Elmo, and other strategies to reduce spend on rival exchanges represent a campaign to undermine the success of header bidding and starve rival exchanges of their primary source of demand. According to one Google employee, the combined impact of these programs was on average a 21 percent revenue decrease on affected exchanges and a 16 percent increase in revenue or $300 million for Google's ad exchange.

vi. Google cuts user traffic to publishers that use header bidding (2016 to present).

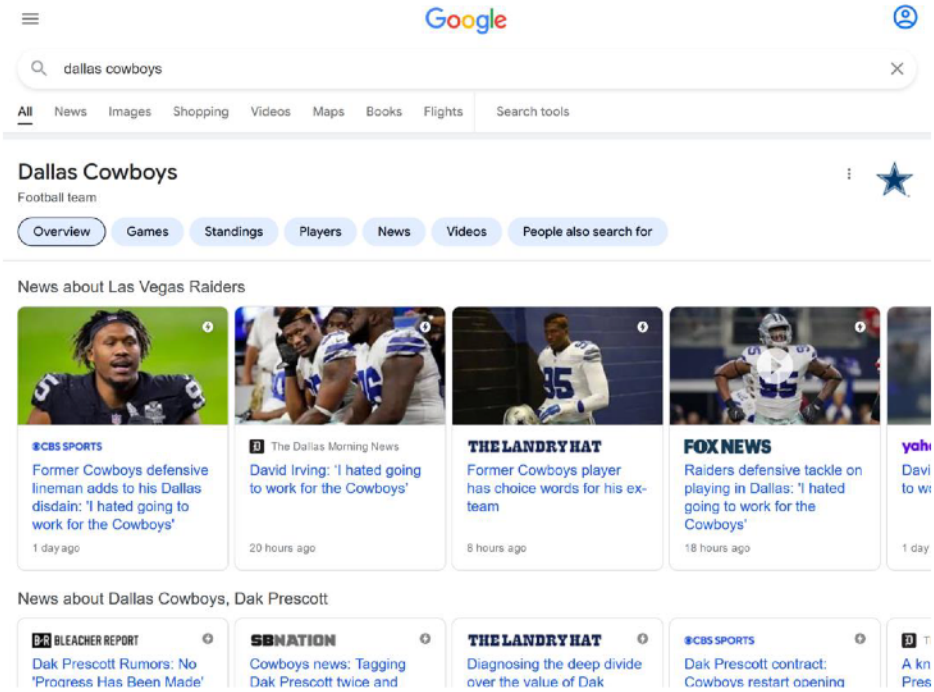
406. Google also used the importance of Google search traffic to strongarm publishers to stop using header bidding.

407. Google first created Accelerated Mobile Pages ("AMP"), a framework for developing mobile webpages, and made AMP compatible with Google's ad server but substantially hindered compatibility with header bidding. Specifically, Google made AMP unable to execute JavaScript in the header, which frustrated publishers' use of header bidding. When Google observed that publishers were working around the JavaScript restraint using a mechanism known as remote.html, Google nixed remote.html and restricted the AMP code to prohibit publishers from routing their bids to, or sharing their user data with, more than a few exchanges at a time. Meanwhile, Google made AMP fully compatible with DFP, which allowed Google to continue to favor AdX and exclude rival exchanges.

408. Google then forced publishers to use AMP; if publishers didn't, their pages would be displayed lower in Google Search results, causing publishers to lose traffic, user engagement, and advertising revenue—which caused publishers a 40+ percent decrease in monetization. Specifically, Google Search ranks non-AMP pages lower and reserves the top placements in the "Search AMP Carousel"—the top search results placements with pictures—to publishers using AMP. Publishers that did not adopt AMP would see the traffic to their site drop precipitously from Google suppressing their ranking in search and re-directing traffic to AMP-compatible publishers.

409. Google's search engine ("Google Search") is an important source of traffic for web publishers. A common way for users to find online content is to enter a query into a search engine and then navigate to sites shown in the results. A study of more than three billion user visits to English-language websites in 2019 found that navigation via search was the largest source of user traffic, outpacing direct navigation (e.g., typing the URL into the address bar), and navigation via social, referral, email or display ads.

Google search results for "Dallas Cowboys"; AMP results are displayed in the carousel along the top:



410. Although Google claims that AMP was developed as an open-source collaboration, AMP is actually a Google-controlled initiative. Google originally registered and still owns AMP's domain, ampproject.org. In addition, Google controls all AMP decision-making. Google employees with responsibility for Google's DFP business met with AMP employees to strategize about using AMP to impede header bidding, addressing in particular how much pressure publishers and advertisers would tolerate. Until the end of 2018, AMP relied on a governance model called "Benevolent Dictator For Life," which vested ultimate decision-making authority in a single Google engineer. Since then, Google has transferred control of AMP to a foundation, but the transfer was superficial. Google still controls the foundation's board and debates internally whether AMP communications should come from Google or the Google-controlled AMP board.

411. Publicly, Google presented the true objectives of AMP as decreasing page load time and reducing latency. Internally, however, Google identified that AMP was an avenue to combat the adoption of header bidding.

412. Each set of conduct standing alone foreclosed header bidding and exchange competition. However, the combined effect of this conduct was even more powerful. Indeed, the synergistic effect of Google's anticompetitive conduct to undermine the competitive innovation of header bidding significantly excluded competition in the exchange market and ad buying tools markets while fortifying and maintaining Google's ad server monopoly.

E. Google enlists Facebook's help to "kill" header bidding (2018 to current).

413. Google was eager to "kill" header bidding competition and feared its secret Exchange Bidding scheme would fall short of its end-goal. To advance its desire to eliminate the competition, Google entered into an unlawful agreement with Facebook in 2018. Facebook substantially curtailed its use of header bidding in return for Google giving Facebook a leg up in publishers'

web display and developers' in-app ad auctions, allocating a portion of the wins to Facebook, and helping Facebook's ad network FAN beat the competition.

414. The principal impetus for this deal began many months before. In March 2017, Facebook publicly announced that it would submit bids from FAN to open web publishers using header bidding, via partnerships with technology providers such as Amazon Publisher Services, Amazon's header bidding code library that facilitated implementation of header bidding by open web publishers. By doing so, Facebook would enable publishers and advertisers to bypass substantial fees imposed by Google's ad server and exchange. Thus, Facebook's use of header bidding promised to increase revenue paid to publishers and lower prices ultimately paid by advertisers.

415. But header bidding was not just a threat to Google's fees in the short term. Google also feared that Facebook's support of header bidding posed a longer-term threat to Google's publisher ad server monopoly. If a significant numbers of buyers banded together to bid through header bidding, Google feared they could "disintermediate" Google and cause it to "lose [its] must-call status." Google executive [redacted], outlined that Google's priorities for 2017 included stopping Facebook from supporting header bidding. In a company presentation, he outlined the "top priorities" for 2017, writing: "Need to fight off the existential threat posed by Header Bidding and FAN. This is my personal #1 priority. If we do nothing else, this need[s] to [be] an all hand[s] on deck approach."

416. The wider industry also thought Facebook was prepared to challenge Google's ad server monopoly. The same day as Facebook's March 2017 header bidding announcement, industry publication AdAge wrote that Facebook was poised to execute a "digital advertising coup against rival Google and its DoubleClick empire." A Business Insider headline the same day read:

"Facebook made an unprecedented move to partner with ad tech companies – including Amazon – to take on Google."

417. Google started monitoring Facebook's initiative in header bidding. According to metrics posted in Facebook's public blog, Facebook was helping publishers use header bidding to achieve two to three times more yield per impression and increase some third-party publishers' revenue by as much as 10 to 30 percent. As part of its internal monitoring efforts, Google referenced this blog post in an email circulated amongst the management team.

418. Internal Google documents show that one of Google's strategies for killing header bidding was to induce Facebook, Amazon, and other industry participants to end their support for the new technology. In an October 5, 2016 presentation to senior Google executives, a Google employee expressed concern about Amazon, Criteo, and Facebook enabling the growth of header bidding, stating "to stop these guys from doing HB we probably need to consider something more aggressive." The presentation plainly asserted that Google's "goal/mandate" was to "[f]orestall major industry investment in HB & HB wrapper infrastructure." Google hoped to deprive header bidding of scale and industry adoption, for the express purpose of protecting its own monopolistic position.

419. Facebook understood these stakes as well. Internal Facebook communications indicate that Facebook's March 2017 announcement was intended to signal Facebook's willingness to support header bidding. Facebook knew that Google would see its participation in header bidding as a major threat. Evidently, Facebook was executing a planned long-term strategy—"18 month 'header bidding' strategy to minimize "[the Exchange Bidding] tax"—by threatening to expose the hidden costs Google charges publishers.

420. Google and Facebook entered into formal negotiations shortly thereafter. Both sides recognized that Facebook's leverage came from its critical role in supporting header bidding. As a Facebook document from February 2, 2017 memorialized, "What Google wants: To kill header bidding (us baptizing their product will help significantly)." Elsewhere, Facebook employees summarized an earlier meeting between the parties discussing header bidding and Exchange Bidding ("EBDA"), "We discussed the EBDA product they're building. Both parties (FB and G) were candid about why header bidding exists and that EBDA's sole reason for existence is to kill it." In an October 30, 2017 email, senior Facebook executive [redacted] discussed the proposed Google-Facebook agreement and explained to another Facebook executive, [redacted], "they want this deal to kill header bidding." Google put the matter just as bluntly, explaining internally in 2017 that the goal of partnering with Facebook would be to "protect" Google's "leadership position in 3P [third party] ad buying/selling." To that end, the endgame with Facebook was to "collaborate when necessary to maintain status quo." The "status quo," in this case, was an unlawfully obtained ad server monopoly and an ad exchange charging many multiples over the competition.

421. As negotiations proceeded, Google began to accept that Facebook's price for abandoning header bidding would require Google to share some of the auction advantages it had previously taken for itself. In an August 9, 2018, internal Google presentation, one slide averred that if Google could not "avoid competing with FAN" in the trade for third-party inventory, then it would instead collaborate with Facebook to "build a moat." Google thus preferred to share a slice of its monopoly profits with a potential entrant rather than risk reducing its monopoly power.

422. The prospect of cooperating rather than competing with Google was enticing for Facebook too. As internal Facebook documents reveal, Facebook believed that partnering with

Google was "relatively cheap compared to build/buy and compete in zero-sum ad tech game." Facebook identified "build/buy ad tech" as the company's second-best option but noted that entering the market would have required "huge [engineering] and services investment, and patience for sales cycle." Compared to the time and expense of building a new technology and competing on the merits, entering an unlawful deal with Google *not* to do those things was an attractive option.

423. Facebook's Chief Operating Officer [redacted] was explicit that "[t]his is a big deal strategically" in an email thread that included Facebook CEO [redacted] When the economic terms had taken their form, the team sent an email addressed directly to CEO [redacted]: "We're nearly ready to sign and need your approval to move forward." Facebook CEO [redacted] wanted to meet with COO [redacted] and his other executives before making a decision.

424. The ultimate outcome of these negotiations was a September 2018 Google-Facebook agreement signed by Philipp Schindler, Senior Vice-President and head of Google advertising sales and operations, and Ms. [redacted] Facebook's Chief Operating Officer and member of Facebook's Board of Directors, who herself was one-time head of Google advertising. Google CEO Sundar Pichai also personally signed off on the terms of the deal.

425. Google internally used the code phrase "Jedi Blue" to refer to the 2018 Google-Facebook agreement. Google kept this code phrase secret. Google does not use code words to uniquely refer to any other Exchange Bidding agreement. With the addition of networks, Google renamed Exchange Bidding to Open Bidding.

CONFIDENTIAL

Network Bidding Agreement

This Network Bidding Agreement (this "**Agreement**") is entered into by Google LLC and Google Ireland Limited (collectively, "**Google**") and Facebook, Inc. and Facebook Ireland Limited (collectively, "**Facebook**") as of the Effective Date (as defined below). This Agreement governs Facebook's participation in the Network Bidding Pilot program and any successor services (collectively, the "**Program**"). Any use of the term "including" in the Agreement will mean

426. In the end, with the Jedi Blue agreement Google secured its core objective—the end of Facebook's active support for header bidding. Google ensured that Facebook would not—and, economically, could not—return to support header bidding by imposing significant minimum spend requirements running to hundreds of millions of dollars a year. As a result of the agreement, Facebook curtailed its header bidding initiatives and instead bid through Google's tools. In return, Google agreed to give Facebook a leg up in the web and in-app auctions it conducted on behalf of publishers and developers. In an internal Google memo titled "FAN deal discussion," Google memorialized that "FAN requires special deal terms, but it is worth it to cement our value."

1. Google gives Facebook a leg up in publishers' and developers' auctions in return for Facebook backing off from header bidding.

427. Google promised Facebook a number of special advantages in publishers' and developers' auctions to induce Facebook to shift from routing bids through header bidding to routing bids through Google's web ad server and in-app mediation tools.

428. The first was price. Traditionally, Google only permitted networks to buy on AdX as Authorized Buyers for a 20 percent fee. With the introduction of Network Bidding, Google began charging ad networks a 10 percent fee. But in the Jedi Blue agreement, Google gave Facebook a significant further concession. The exact fee owed to Google depends on the volume of impressions Facebook purchases from publishers, but Facebook expected its volume would trigger

the lowest possible rate. Internally, Facebook treated the deal as offering a five percent fee—a 50 percent discount. Because auction winners are selected based on highest bid after fees, this special, Facebook-only discount allows Facebook to win auctions even when it submits a lower gross bid than its competitors.

429. Google also provided Facebook with a speed advantage. Google subjects other marketplaces competing for publishers' inventory in Exchange Bidding to 160 millisecond timeouts. Competitors have actively complained that 160ms is not enough time to recognize users in auctions and return bids before they are excluded. By comparison, Google nearly doubled timeouts for Facebook, extending them to 300 milliseconds. These longer timeouts granted by Google were presumably designed to aid FAN in winning more auctions.

430. A third advantage was direct billing. Google further induced Facebook to help Google "kill HB" by letting Facebook have direct billing and contractual relationships with publishers. This term was advantageous to Facebook because Google prohibits other exchanges and networks in Exchange Bidding from having such direct relationships. In fact, Google's policies with other exchanges and networks in this regard are so strict that Google has prohibited marketplaces from even discussing pricing with web publishers. The inability to discuss pricing and terms constrains marketplaces' ability to operate and compete. One advertising competitor compared Google's business term to a "gag order."

431. A fourth advantage was more information. On top of special pricing, longer timeouts, and a direct billing relationship exception, Google further induced Facebook to help it shut down competition from header bidding by informing Facebook which impressions are likely targeted to spam (e.g., impressions targeted to bots, rather than humans). Facebook does not have to pay for those impressions. Other networks have asked Google for the same information, but Google has

refused. So now Facebook has a further leg up over the competition in Google-run auctions: Facebook knows which impressions sold through Google are fake and worthless.

432. A fifth advantage was improved match rates. In the Jedi Blue agreement, Google promised to use "commercially reasonable efforts" to help Facebook's network recognize the identity of users in publishers' and developers' auctions. The parties agreed to benchmark "match rate" commitments, i.e., the percent of users Facebook could identify in auctions over the percent of bid requests received. Google promised Facebook an 80 percent match rate in auctions for in-app inventory and a 60 percent match rate in auctions for web inventory (excluding users browsing with Safari).

433. Indeed, since signing the agreement, Google and Facebook have been working closely in an ongoing manner to help Facebook recognize users in auctions and bid and win more often. For example, Google and Facebook have integrated their software development kits (SDKs) so that Google can pass Facebook data for user ID cookie matching. The companies also have been working together to improve Facebook's ability to recognize users using browsers with blocked cookies, on Apple devices, and on Apple's Safari browser. For instance, according to an April 2, 2019 discussion between Facebook employees, Facebook was having trouble matching users of Apple's Safari browser. Google shared that Facebook's match rates were about the same that Google saw for other auction participants. Facebook employees noted, however, that Google was ready to "initiate a detailed discussion with Product and Legal to allow FB to collect signals on the client (using a JavaScript) and G passing it to the bid request." These efforts gave Facebook an information advantage over all other auction participants, unparalleled except for the information advantages of Google itself.

434. A sixth advantage was restricting Google's use of Facebook bid data. Google provided Facebook special treatment when it came to Google using Facebook's inside information to beat Facebook in auctions. In entering the agreement, Facebook was wary that Google would use information about Facebook's bids to manipulate auctions. As a result, Facebook was explicit in demanding that Google be prohibited from using Facebook's bid data for the purpose of advantaging itself. Dan Rose, Facebook Vice President of Partnerships, explained in an email to Mark Zuckerberg that "The deal we've negotiated gives us protections against Google using our data." This was a stark departure from Google's usual practices of spying and trading based on other bidders' past behavior.

Screenshot of contractual terms that prohibit Google from trading using Facebook's inside information (e.g., information about Facebook's bids):

6.5. **Additional Restrictions on Google's use of Bid Response Data.** Google will not use Bid Response Data to: (a) transfer or otherwise disclose in Real-Time such Bid Response Data to any Google system other than the system conducting the auction for the applicable Ad Inventory; (b) adjust or otherwise influence in Real-Time the bid response of another bidder (including Google) in the auction for the applicable Ad Inventory; (c) adjust or otherwise influence in Real-Time the computation of any price floor, price reserve, or other pricing parameter for the applicable Ad Inventory; (d) reverse engineer, or otherwise derive the underlying algorithms, strategies, models, or approach of Facebook's bidding logic (e.g., Google will not use Bid Response Data to improve Google's own bidding strategy as a bidder); or (e) associate any Bid Response Data (including any bid amounts) with any data related to Ads or Creatives (other than for the purposes set forth in second sentence of Section 6.4 or (d) of the first sentence of Section 2.1(e)). Notwithstanding the foregoing, the immediately preceding sentence does not apply to the following data, as long as such data is not preferentially shared with DoubleClick Bid Manager or the Google Display Network as compared to all other bidders or other demand sources in an auction: (a) the amount of the second-highest bid (which may be disclosed to the winning bidder or other demand source) or (b) the amount of the highest bid (which may be disclosed to all bidders or other demand sources in the same auction). Google may retain event-level Bid Response Data for no longer than 18 months, except for certain event-level Bid Response Data (***e.g.***, buyer identity, bid price, trading location, time stamp, etc.) which may be kept indefinitely as required by Google's reasonable and standard business practice solely for archival and record-keeping purposes (e.g., financial reporting, audit purposes, or dispute resolution).

435. Google not only kept these special advantages for Facebook secret, but also continues to actively misrepresent the terms on which it conducts publishers' auctions. Google publicly markets on its website that "All participants in the unified auction, including Authorized Buyers and third-party yield partners, compete equally for each impression on a net basis." That is patently

false, at least because Google gave all these undisclosed advantages to Facebook through Jedi Blue.

436. By threatening to disrupt and then cutting a deal with Google, Facebook was able to achieve what others could not: an opportunity to compete against Google for publishers' and developers' inventory on equal terms. As discussed throughout this Complaint, Google uses its ad server monopoly to withhold relevant information about inventory from rival buyers, while using the same monopoly to copiously gather information about those buyers' behavior so that Google's can trade ahead. But in the Jedi-Blue agreement, Google agreed to put these tactics aside for the benefit of the one tech behemoth poised to seriously challenge Google's power. In exchange for Facebook ending its support of header bidding, Google gave Facebook the kind of access to publishers' inventory that header bidding promised to give to everyone. Rather than risk losing its monopoly profits, Google simply cut Facebook in.

2. Google and Facebook agree to limit their competitive bidding for developers' in-app inventory.

437. Although the Jedi Blue agreement originally contemplated that FAN would bid on impressions for both web and in-app display, FAN effectively left the market for web display advertising in 2020. As operative today, the Jedi Blue agreement primarily applies to the auctions Google conducts on behalf of developers to sell their in-app inventory. Within these auctions, Google and Facebook have not only given themselves special advantages unavailable to other buyers, but also have agreed to limit their competitive bidding as between each other. They have done this by fixing a minimum share of impressions that Facebook will win in developers' auctions. This hard limit on contractually acceptable auction outcomes predictably increases Google's monopsony power and depresses prices paid to developers.

438. The auction manipulation scheme turns on three, interrelated provisions of the Jedi Blue agreement. First, Google and Facebook agreed to work together so that Facebook could identify the end user for at least 80 percent of auctions conducted by Google. Second, they agreed that Facebook would use "commercially reasonable efforts" to bid on at least 90 percent of those auctions in which Facebook recognizes the end user. Third, Google and Facebook agreed that Facebook would win at least 10 percent of all such auctions in which Facebook bid. In combination, these terms established an agreement for Facebook to win at least 7.2 percent of all in-app impressions sold by developers in Google-run auctions. And Facebook could take its contractually agreed share of auction wins up to 10 percent, simply by identifying more users or submitting more frequent bids.

439. These terms set boundaries on the extent of Google and Facebook's competition, much as if they had established a traditional buying cartel. As the companies themselves recognize, Google and Facebook are direct, horizontal competitors in the in-app network market and compete to purchase in-app inventory from developers. An impression bought by Google's ad network is one that cannot be bought by Facebook's ad network, and vice versa. And Google and Facebook are the two largest bidders in this market. When developers sell their in-app impressions in auctions run by Google, Google's own AdMob network wins more impressions than anyone else—over 50 percent around the time Google signed the Jedi-Blue agreement. Facebook's FAN is number two, winning more impressions than any other non-Google buyer. As Google described its counterparty internally, "FAN is the largest competitive network across formats."

440. Despite competing directly to purchase in-app impressions from developers, Google and Facebook agreed to limit their competition by an agreement establishing the minimum share of developers' auctions that were to be won by Facebook and, implicitly, the maximum share of

developers' auctions that were to be won by Google. The expected effect of a side-deal like this between rival buyers is to depress the prices paid to developers. To achieve this goal, it is irrelevant whether the colluding buyers set a minimum, a maximum, or a precise target; *any* such agreement between rivals interferes with the usual price-setting and inventory allocation mechanisms of the free market. Compared to a bidder unprotected by collusion, a participant in a buying cartel can bid less aggressively without the same risk of losing share. So too here: Google and Facebook can each bid low, knowing that the other will follow the move, lowering prices for the colluding buyers while preserving their pre-agreed allocation of auction victories. The agreement terms assure that Facebook will bid high enough to win the minimum percent quota, irrespective of how high or low others might bid.

441. The fact that Google's mediation tool is trusted to run these auctions on behalf of developers does not change the horizontal nature of this agreement to limit competition. It only makes the scheme more robust. Ordinarily, when two bidders conspire to manipulate auction outcomes, they face a risk that some third, non-conspiring bidder will spoil the scheme by submitting a truly competitive bid. Bringing the auction house itself into the scheme reduces that risk, since the auction house can take steps to disadvantage outside bidders by withholding information, giving them less time to bid, or charging them higher bidder fees—precisely as Google has done to other prospective bidders (see Sections VII.B.1, VII.C.2). In this way, the anticompetitive terms of Jedi Blue are mutually reinforcing. By setting a win rate *and* excluding rival bidders, Google and Facebook not only limited the terms of competition between each other, but also insulated their scheme from outside competition.

442. Although Google's mediation tool oversees the process necessary to conduct these auctions, Google itself does not sell in them. The Jedi-Blue agreement applies only to third-party

developer inventory—thereby excluding any impressions that would be displayed on Google or Facebook's own properties. Google's mediation tool does not function as a wholesaler or market-maker. Prior to an auction, Google does not take title or otherwise bear the risk of a particular impression going unsold. Rather, it conducts these auctions *on behalf of* developers, who are sellers in both substance and form. It is developers—not Google—who stand to receive a direct economic benefit from higher auction prices. Google and Facebook's ad networks are buyers in these auctions. They stand to receive a direct economic benefit from lower auction prices. The predictable effect of an agreement fixing share between them is to lower prices paid to developers, compared to a world in which the auction's two largest bidders compete without restraint.

443. Internal Facebook documents suggest that the auction manipulation terms of Jedi Blue have yielded precisely this result. For example, one Facebook study in 2019 found that Facebook's bids for in-app impressions won more frequently in Google-run auctions than they did on any other platform. At the same time, the average price Facebook paid per in-app impression was *lower* in Google-run auctions than it was on any other platform. This would be a puzzling result, to say the least, if Facebook faced the same competition for inventory across auction houses. But it is an entirely predictable result when a buying cartel depressing prices and allocating the inventory within Google-run auctions.

444. In addition to suppressing prices paid to developers, the auction manipulation terms of Jedi Blue can reduce competition on the output side too—that is, the market in which in-app ad networks resell impressions to advertisers. After all, Google and Facebook do not typically bid in developers' auctions to promote their own products and services. Rather, their primary reason for bidding in these auctions is to resell the resulting inventory to advertisers, usually at undisclosed margins. Google acknowledged this head-to-head resale competition at the time it entered the Jedi-

Blue agreement, noting that a downside of giving Facebook preferential treatment in Google-run auctions was "cannibalization" of Google's own ad network because advertisers would be more tempted to "buy the same inventory via FB."

445. Google and Facebook's coordinated buying reduces competition in this downstream market by simultaneously guaranteeing Facebook a minimum share of the resale business and insulating both firms from effective competition by rival ad networks. Without access to the in-app impressions sold by developers, a competing ad network would have nothing to resell to advertisers. And because Google and Facebook did not manipulate the outcomes of some backwater auction house, but the auction house in which more than 60 percent of all indirect in-app impressions are sold, their collusive scheme gave them the power to exclude rival networks and raise the prices at which Google and Facebook resold in-app impressions to advertisers.

446. Enabling Facebook to bid in Google-run auctions did not require a secret agreement to pre-determine the outcomes of those auctions. It would have been straightforward to write a network bidding agreement without minimum bid and win rate terms, thereby leaving auction outcomes to be determined by competition rather than collusion. Indeed, Facebook *itself* has entered a number of network bidding agreements with other mediation tools without such terms. Though some of these agreements include dollar-denominated minimum spending requirements (as does Jedi Blue), none of them promise Facebook an ongoing, specified share of developers' impressions. And while Google and Facebook surely prefer the reduced prices paid to publishers as a result of their collusion, a naked auction manipulation scheme such as this can offer no pro-competitive benefits.

447. Given the choice, no rational developer would choose to have its auctions rigged by the market's two largest buyers. So, Google and Facebook swore themselves to secrecy about the

terms of their agreement and have not generally disclosed their secret match-rate, bid-rate, or win-rate agreements to either developers or other auction participants. They have had plenty of opportunity to do so: implementing the Jedi Blue agreement requires both Google and Facebook to update and re-execute their respective agreements with the app developers whose advertising inventory they hope to purchase. When encouraging developers to update to the latest version of their respective bidding agreements, Google and Facebook obfuscate the true motive for the contract changes, which say nothing about the auction manipulation terms of Jedi Blue. Google uses the promise of competitive bidding between Google and Facebook's ad networks as an inducement for developers to sign new contracts, when in fact Jedi Blue secretly limits the terms of the competition between those two bidders.

448. Google also advertises the ability to accept Facebook bids as a feature of its mediation tool and has used the promise of competitive bidding by rival ad networks as a lure to further increase its share of the in-app mediation market. But this is a classic bait and switch. Rather than robust competition between Google and Facebook's ad networks, an app developer adopting Google's mediation tool gets a form of sham competition between those supposed rivals, one that is constrained by secret terms in Jedi Blue. And once a developer has adopted Google's mediation tool, the costs of switching to a different tool are substantial. Doing so would require rewriting source code, implementing a new tool, and testing that tool's compatibility with various ad networks. For the very large number of developers who have adopted Google's mediation tool—representing more than *half* of all applications featuring any advertising—Google now has an ability to impose anticompetitive and collusive terms that developers never would have accepted in advance.

449. Given the scope and extent of this cooperation between rivals, Google and Facebook were mindful that their agreement would invite antitrust scrutiny. They discussed, negotiated, and memorialized how they would cooperate with one another should a government entity in the United States or overseas start to investigate the agreement under antitrust laws. By its terms, the Jedi Blue agreement permits the parties to terminate the agreement in the event of regulatory inquiries, material document requests, a formal antitrust investigation, or a commenced antitrust action. If neither party invokes those termination options, the agreement permits termination "immediately" after either party exhausts its right to appeal. The agreement also requires the parties to coordinate antitrust defenses, such that Facebook must approve any and all of Google's arguments relating to their illegal agreement in Google's answer to this Complaint. The word "antitrust" is mentioned no fewer than twenty times throughout the Jedi Blue agreement.

Screenshot of the Jedi-Blue agreement specifying regulatory and antitrust cooperation:

7. Regulatory Cooperation.

7.1. To the extent permitted by applicable law, and subject to Section 7.2 below, each of Google and Facebook agrees to use its reasonable best efforts to:

(a) cooperate and assist each other in responding to any Antitrust Action, Data Protection Action, or any inquiry or investigation relating to the Agreement by any Governmental Authority, and in defending the Agreement against any Antitrust Action, Data Protection Action, or any inquiry or investigation relating to the Agreement by any Governmental Authority;

(b) promptly and fully inform the other Party of any Governmental Communication relating to the Agreement (provided that, to the extent appropriate, any Party may designate such information as attorneys' or outside counsel only);

(c) allow the other Party a reasonable time to review and consider in good faith the views of the other with respect to any Governmental Communication (**provided that**, to the extent appropriate, any Party may designate such information as attorneys' or outside counsel only);

(d) not advance arguments in connection with any Antitrust Action, Data Protection Action, or any inquiry or investigation relating to the Agreement by any Governmental Authority (other than litigation between the Parties) over the objection of the other Party that would reasonably be likely to have a substantial adverse effect on that other Party; and

(e) consult with the other Party in advance, to the extent practicable, and give the other Party and its counsel reasonable notice and, to the extent not prohibited by law or the relevant Governmental Authority, an opportunity to attend and participate in any meeting or discussion with any Governmental Authority relating to any Antitrust Action, Data Protection Action, or any inquiry or investigation relating to the Agreement by any Governmental Authority.

450. Perhaps anticipating antitrust enforcement actions, Google and Facebook drafted Jedi Blue to suggest that their agreed bid and win rates were duties owed by Facebook, not Google. But other provisions in the agreement penalized Google if Facebook failed to obtain its promised win rate, so both parties had contractual incentives to ensure that developers' inventory was divided according to plan. In any event, it is irrelevant which party technically held the contractual obligation to hold up the auction-allocation scheme. Google and Facebook's agreement as to the minimum share of auctions Facebook was expected to win would be just as pernicious if the

contract had described their "Win Rate" as a non-enforceable "commitment in spirit," or if Google SVP Philipp Schindler and Facebook COO [redacted] had orally agreed to these terms in a smoke-filled room. Likewise, even if Google and Facebook were to strike the bid and win rate terms from their contract tomorrow, their prior meeting of the minds would hardly disappear. Once the two largest bidders have secretly colluded to manipulate auctions, allocate developers' inventory, and suppress prices, free and fair competition from truly rival buyers is necessary to clear the air.

F. Unified Pricing rules exclude competition and advance Google's conspiracy with Facebook (2019 to present).

451. Though its DFP ad server, Google unlawfully forecloses competition in the exchange market and buying tool markets through Unified Pricing rules adopted in 2019.

452. Historically, publishers set different price floors for different exchanges and different buyers in the publisher ad server. Large publishers often invested considerable resources in fine-tuning and managing hundreds upon hundreds of different floors for various buyers and exchanges.

453. Publishers undertook this effort for two main reasons: first, to increase revenue and second, to improve the quality of ads returned to their site. Relative to its competitors, AdX and Google's buying tools have substantial information advantages concerning publishers' heterogenous ad inventory (see Section VII.B.1). Setting higher price floors for AdX and Google's buying tools permitted publishers to combat (but not solve) the problem of adverse selection caused by Google, thereby encouraging exchange and buyer participation (including those engaged in header bidding) and increasing overall yield. Publishers also set high floors for Google's exchange and buying tools to diversify the sources of demand for their inventory. By ensuring rival exchanges and buying tools had a meaningful opportunity to return live, competitive bids, publishers were able to reduce their reliance on Google, promote competition from header

bidding, and increase yield. Publishers also set higher price floors for AdX and Google's buying tools to improve the quality of the ads returned to their site and displayed to consumers. Accordingly, publishers used price floors to make optimized decisions to get the best yield possible while protecting their content from low quality ads.

454. Google observed that the higher floors that publishers routinely set for AdX and Google buying tools were an impediment to Google increasing its market share in the exchange and buying tool markets.

455. Based on a survey conducted by Google, Google understood that publishers were setting higher floors for Google to improve inventory yield, improve ad quality, and increase competition. Some publishers responded that they were doing so to block the "undesirable" low-quality ads that AdX and buyers sometimes returned at low prices. Elsewhere, Google's documents reveal that Google knew publishers were using floors to increase yield.

456. Google's intent with the adoption of Unified Pricing floors was to foreclose competition by shifting transactions to AdX. To illustrate, an internal Google document from Q2 2019 identified that differentiated floors "drive DV360 to spend more on third party exchanges" and that a unified floor could achieve the "desired state" that "DV360 wins on AdX at higher margin."

457. Publishers' use of floors to disadvantage Google became something Google needed to "fix": "We should look at all real issues that we are aware of which incentivizes publishers to use other platforms (header bidding and pricing floors cutting off access etc.) that we should try to fix as soon as possible."

458. Rather than improve the quality of ads returned by AdX and Google Ads, reduce its exchange take rate, or stop interfering with publishers' ability to share information about their

heterogeneous inventory, Google punished publishers that set higher floors for Google, then cut off publishers' ability to set differential floors altogether.

459. Initially, Google used its scale in search to punish publishers that set higher floors for Google. One publisher reported that Google manipulated its search algorithm to punish the publisher for setting higher floors, causing the publisher to lose half of its search traffic in a single day.

460. Within months, Google would address the issue more directly through Unified Pricing rules. DFP cut off publishers' ability to set different floors for different exchanges and buyers; publishers must set the same price floor for different exchanges and the same price floor for different buyers.

461. Google's Unified Pricing rules ensure that rival exchanges and buying tools are at a *price disadvantage*. Because Google's publisher ad server imposes extra fees to serve ad inventory sold on non-Google exchanges (see Section VII.D.2) Google's exchange can win an impression by returning a bid 5 to 10 percent lower than a rival exchange. Thus, rather than a level playing field, Google's pricing rules guarantee that Google's exchange has a pricing advantage to win a publisher's impression. For example, if a publisher sets a $10 floor, an advertiser bidding through Google's exchange can win that impression so long as its bid, after Google takes its cut, is at least $10. An advertiser bidding through a non-Google exchange can win the impression only if its bid, after paying the non-Google exchange fee, is at least $10.53 ($10.53 minus Google's five-percent Exchange Bidding fee = $10).

462. Google's Unified Pricing rules interfere with a publisher's ability to set prices in transactions in which Google has no interest as a buyer. Of note, Google's Unified Pricing rules are imposed by Google's publisher ad server, and not by Google's exchange or buying tools. Thus,

publishers are restricted from setting exchange-specific or buyer-specific price floors whether Google's buying tools or exchange participate in the auction or not. So even when Google is not an auction participant, publishers are still prohibited from making tradeoffs between price and quality or otherwise increasing yield from non-Google buying tools and exchanges by setting different floors. Google's Unified Pricing rules interfere with a publisher's ability to set prices in transactions in which Google has no interest as a buyer.

463. In the past, Google was unopposed to setting variable price floors for different sources of demand, so long as Google was in control. Google itself secretly manipulated the publishers' price floors in its Reserve Price Optimization (RPO) program (see Section VII.C.3).

464. Over time, Unified Pricing rules exacerbate problems of adverse selection, which results in lower inventory yield, lower quality ads for publishers, and less competition (see Section VII.B.1). Unified Pricing blocks publishers from charging Google a rational information premium to combat problems of adverse selection. This precludes publishers from generating competition from non-Google bidders that lack Google's information advantages. Analysis by one large publisher shows how Unified Pricing rules suppresses bids from non-Google buyers. In the publisher's open auctions for impressions that received at least one bid from either AdX or a rival Exchange Bidding exchange, rival exchanges participated less than 40 percent of the time. Google's AdX, however, placed a bid in nearly every such auction.

465. Unified Pricing rules disrupt publishers' routine use of floors to increase competition and yield. For example, one large publisher invested significant resources in developing and testing machine-learning algorithms that set a higher floor price for Google's AdX on a per-impression basis. The publisher applied those floors to mitigate the effect of Google's blocking rival exchanges from accessing impression information. Tests run by this large publisher showed that

the ability to mitigate Google's information advantage through differential floors generated an 11 percent revenue gain for the publisher.

466. Given the monopoly position Google commands in publisher ad serving, and the high barriers to entry and high switching costs, publishers already have very little ability to substitute with rival ad servers. This didn't stop Google from deceiving publishers about the negative impacts of Unified Pricing rules. Google misrepresented to publishers the reasons for adopting Unified Pricing and the effects of Unified Pricing for publishers. Externally, Google represented that abolishing price floors benefited publishers. Privately, however, Google recognized that Unified Pricing was "extremely self-serving."

467. Google's internal documents also reveal that Unified Pricing rules furthered its conspiracy with Facebook. In one communication, Google wrote that the true objective with its Unified Pricing rules was to allow "Google buyside and Facebook (after FAN integrates through Exchange Bidding) to get access to the same 1st Price auction dynamics." According to an internal Google memorandum summarizing a May 2, 2019 meeting between Google and Facebook, the parties discussed publisher pricing floors, and Facebook told Google it would rather publishers not have the ability to set price floors. These discussions helped Google later decide to prohibit publishers from setting lower price floors for non-Google (or non-Facebook) exchanges, networks, and ad buying tools. The Unified Pricing rules further the collusion between Google and Facebook.

468. Google's Unified Pricing rules are exclusionary and have been successful in foreclosing competition in the exchange and ad buying tool markets (see Sections VIII.B, D). For instance, a review of a publisher's auction records reveals that AdX drastically grew its share of impressions as a result of Unified Pricing restrictions. Unified Pricing resulted in AdX winning nearly double the number of impressions it used to but paying roughly half as much. Records from

one large publisher also show that Unified Pricing rules resulted in Google's ad buying tools tripling and quintupling the share of impressions they win.

469. The Unified Pricing rules also result in AdX winning more because they coerce publishers to transact with Google ad buying tools *in* AdX. Previously, publishers could choose to transact with DV360 only in non-Google exchanges by increasing DV360's price floors in AdX. Unified Pricing rules ended this practice and forced publishers to transact with DV360 and Google Ads in AdX. Forcing publishers to transact with Google's ad buying tools only if they also transact in AdX was one of Google's main aims with Unified Pricing.

G. Google's future plans are to further foreclose competition and create a "walled garden" of the open web.

470. Google's efforts to exclude competition in display advertising markets have an ambitious and harmful end goal: to create a "walled garden"—a closed ecosystem—out of the open web. Specifically, Google's aim is to limit publishers' ability to identify and track users, and to position itself as the arbiter of identification and targeting on the open web. To sell targeted ads, publishers will be required to lean even *more* into Google. Google has evolved in its approach to achieving this anticompetitive end-goal: its original plan was called Project NERA, and it later developed Privacy Sandbox. With both, Google's objective stands in stark contrast to the open internet that Google claims to protect. After the States filed their First Amended Complaint, Google publicly delayed its plans for Privacy Sandbox.

1. Project NERA

471. Project NERA was Google's original plan to create a closed ecosystem out of the open internet. Google documents reveal that Google's motive was to "successfully mimic a walled garden across the open web [so] we can protect our margins." For Google, Project NERA's walled garden meant two things: controlling the design of publishers' ad space, then forcing those

publishers to sell their ad space exclusively through Google's products. According to internal Google documents, captive publisher inventory would act as an "exclusive anchor to Google's buyside products," permitting Google to extract even higher intermediation fees. A Google employee aptly described Google's ambition for Project NERA by acknowledging that Google wants to "capture the benefits of tightly 'operating' a property … without 'owning' the property and facing the challenges of building new consumer products." Google's nickname for this walled garden plan was "not-owned-but-operated," or "NOBO" for short. In other words, Google wanted to be able to control and close off independent websites like *The Dallas Morning News*.

472. To get publishers to give Google exclusive access over their ad inventory, Google set publishers up for a lose/lose scenario. Google created user profiles based on vast amounts of data collected across Google's browser Chrome (the leading browser in the United States with 50 percent market share), Google's search engine, YouTube, Gmail, and other properties. This data was highly relevant to targeting display advertising. Google offered to give publishers the ability to tap into Google's now-deeper trove of user data in exchange for the publishers' agreement to join the New Network and give Google exclusive control over their ad space. If publishers did not agree to the new exclusivity terms, Google would continue to use Chrome to collect data about users in the publishers' audience to sell ads on other properties at the expense of the publishers' ad space. For Google, Project NERA represented a win-win, but it was only the beginning of Google's plan to wall off the open web.

2. Privacy Sandbox

473. As regulatory scrutiny around Google and other Big Tech firms increased globally, Google refined its plot to wall off the majority of the ad-supported open web for its benefit. Google was unrivaled when it came to tracking users online through cookies. As technology and policy evolved, the leader in cookie-based tracking needed a way to ensure its future control of user

identity and therefore publisher inventory. To ensure its future position, Google outlined a new approach to building a walled garden out of the open web using privacy as a pretextual justification to engage in further monopolistic conduct.

474. Google's new scheme is, in essence, to wall off the entire portion of the internet that consumers access through Google's Chrome browser. By the end of 2022, Google plans to modify Chrome to block publishers and advertisers from using the type of cookies they rely on to track users and target ads. Then, Google, through Chrome, will offer publishers and advertisers new and alternative tracking mechanisms outlined in a set of proposals that Google has dubbed "Privacy Sandbox." Overall, the changes are anticompetitive because they raise barriers to entry and exclude competition in the exchange and ad buying tool markets, which will further expand the already-dominant market power of Google's advertising businesses.

475. Google's new scheme coerces advertisers to shift spend to Google's ad buying tools. Whereas other buying tools would be reliant on aggregated and anonymized data to target users on Chrome, Google's ad buying tools would receive the much richer data from Google's tracking technology. An advertiser like a local car dealership will no longer be able to use cookies to advertise across *The Dallas Morning News* and *The Austin Chronicle*. But the advertiser will be able to continue tracking and targeting ads using Google's buying tools, which rely on alternative tracking technologies to offer cross-site tracking to advertisers.

476. Google's new scheme forecloses competition in the exchange and ad buying tool markets while simultaneously providing Google with a workaround. Non-Google ad buying tools rely primarily on the type of cookies that Chrome is set to block in order to track users and target them with ads. Google's ad buying tools, however, partially circumvent reliance on the same type of cookies because Google grants them exclusive access to user data from Chrome and Google's

Android mobile operating system. As a result of these impending changes, some advertisers are already in the process of preparing to shift their spend from competing ad buying tools to Google's. Because Google's ad buying tools favor AdX, the upcoming changes will further entrench Google's exchange monopoly.

477. Google's plans will also shift spend from smaller media properties like *The Dallas Morning News* to large dominant properties like Google's. Chrome is set to disable the primary cookie-tracking technology that almost all non-Google publishers currently use to track users and target ads. By blocking the type of cookies publishers like *The Dallas Morning News* currently use to sell ads, but not blocking the other technologies that Google relies on for cross-site tracking, Google's plan will pressure advertisers to shift to Google money otherwise spent on smaller publishers.

478. Google's new scheme limits competitors' ability to compete with Google's scale in user data and prevents competitors from collecting their own user data. For over ten years, Google has been the single largest tracker of online users using the very type of cookies that Google will now block. Google has already amassed massive quantities of user data and associated them with individual profiles. Moving forward, Google is also uniquely positioned to continue collecting vast troves of data on individual users: Google will continue individually tracking users on their major properties (e.g., Google Search, Google Maps, YouTube) and through various workarounds (e.g., via Chrome and Android).

479. In addition to excluding competition in these ways, Google's new walled garden scheme poses a systemic risk to online advertising markets in the United States: it blocks publishers and advertisers from transacting through intermediaries that do not have conflicts of interest. By blocking cookies, and through proposals in Privacy Sandbox, Google forcibly inserts

itself in the middle of publishers' business relationships with non-Google advertising companies, cutting off publishers' ability to transact with rivals without also going through Google. As internal Google documents make clear, some of the largest advertisers in America actively try to avoid working with Google because of its conflicts of interest. In advertising, a lack of transparency exacerbates advertiser concerns: Google does not permit adequate third-party audits for things like ad fraud, measurement (e.g., render rates), or circulation. Google's upcoming changes will force market participants to rely even more on Google, a conflicted intermediary, as the arbiter of ad transactions.

480. Google's upcoming cookie changes, under the guise of privacy, are a ruse to further Google's longstanding plan to advantage itself by creating a closed ecosystem out of the open web. Project NERA was Google's first attempt to wrest control over ad inventory away from publishers. Then, to deflect growing regulatory concern over its own privacy and intrusive cookie practices with consumers, Google launched "Privacy Sandbox" to wall off the internet accessed through Chrome. Google's aim is to further squeeze competition in the exchange and ad buying tool markets by restricting competitors' ability to track users and target ads.

481. At the same time, Google is trying to hide its true intentions behind a pretext of privacy. But Privacy Sandbox does not actually end user profiling or targeted advertising—it places Google's Chrome browser at the center of tracking and targeting. Google does not put a stop to Google's tracking of users on Chrome; it does not put a stop to Google's tracking of users through cookie workarounds; it does not put a stop to Google's tracking of users across the largest sites in the world. In fact, the new Google Chrome tracking groups create something akin to a Google social credit score based on group identity. As the Electronic Frontier Foundation recently summarized: "Today, trackers follow you around the web, skulking in the digital shadows to guess

at what kind of person you might be. In Google's future, they will sit back, relax and let your browser do the work for them. …. The Sandbox isn't about your privacy. It's about Google's bottom line. At the end of the day, Google is an advertising company that happens to make a browser."

H. While Google cites "privacy" as the justification for restricting access to user IDs, Google does not actually care about privacy.

482. Google's publicly stated reason for cutting off publishers' ability to share ad server user IDs is the purported protection of users' privacy. Specifically, Google claims that encrypting IDs reduces companies' ability to combine data sets to create more intrusive individual user data profiles. However, Google's ad server has no qualms with sharing user IDs amongst Google's own buying tools and with Facebook through its Jedi Blue agreement. This allows Google to do precisely what it seeks to prohibit others from doing: combining user data sets in secret databases with codenames like HULK and MindReader to deliver more targeted advertising. Therefore, contrary to Google's purported concern for user privacy, Google prevents publishers from providing their consumers with similar privacy benefits from Google's own network, exchange, and buying tools.

483. At the same time, encrypting user IDs and reducing publisher inventory yield hurts consumers in non-privacy ways. Publishers receive lower advertising revenue because of depressed exchange competition. As a result, publishers as a whole offer consumers lower-quality content and higher-priced access to their content.

1. Google violates the privacy of over 750 million Android users.

484. The egregious ways that Google violates users' privacy further reveals the pretextual nature of Google's purported privacy concerns. For example, Google knowingly failed to disclose

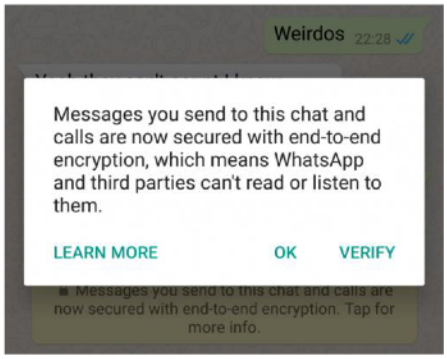
the lack of privacy of its Google Drive service, and it has also met secretly with competitors to "slow down" efforts to enhance user privacy.

485. Google's violation of the privacy of over 750 million Android users illustrates the pretextual nature of Google's privacy concerns. Around July 2015, Google, through its cloud back up service Google Drive, entered into an exclusive agreement with Facebook's private messaging service WhatsApp. As provided in that agreement, starting around October 2015, WhatsApp users on Google-Android devices were presented with the option to back up their WhatsApp messaging history, photos, video, and audio files to Google Drive.

486. WhatsApp users were led to believe that their WhatsApp messages were private and inaccessible to third parties such as Google or Facebook. WhatsApp started encrypting users' WhatsApp messages in 2013, completed end-to-end encryption on Android users' messages in 2014, and completed all end-to-end encryption in 2016.

487. WhatsApp prominently marketed the claim that the messages users sent and received using WhatsApp and through its encryption protocol were inaccessible by third parties. The WhatsApp website in 2016 and 2017 read: "Many messaging apps only encrypt messages between you and them, but WhatsApp's end-to-end encryption ensures only you and the person you're communicating with can read what is sent … messages are secured with a lock, and only the recipient and you have the special key needed to unlock and read them."

Screenshot of the WhatsApp mobile application assuring users that no third party could read or listen to their communications:



488. Protecting the privacy of communications from third-party access was not a minor issue. Many consumers demanded communications applications that ensured their communications were walled off from anyone else having access.

489. Media reports reinforced the understanding that no third party had access to users' WhatsApp communications, including those backed up to Google Drive. For example, Mike Isaac with *The New York Times* wrote in 2016 that "WhatsApp, the messaging app owned by Facebook and used by more than one billion people, … introduced full encryption for its service, a way to ensure that only the sender and recipient can read messages sent using the app." In a similar vein, a 2016 report from Lifehacker, a technology site launched by Gawker Media, stated: "WhatsApp can also backup your messages to Google Drive, though they're encrypted so that shouldn't be that big of a deal. Even if law enforcement requested it from Google, they wouldn't be able to read it."

490. However, this was not true. Conceding this fact in a June 2016 memo, Google wrote that "when WhatsApp media files are shared with 3rd parties such as Drive, the files are no longer encrypted by WhatsApp." The memo continued: "For clarity, all of the [WhatsApp] data stored in Drive is currently encrypted with Google holding the keys." What this meant was that Google, as a third party, could in fact access the photos, videos, and audio files that users thought they had shared privately on WhatsApp.

491. Google knew users were misled about the privacy of their communications. The same June 2016 memo further acknowledges: "WhatsApp's current messaging around end-to-end encryption is not entirely accurate." The memo also states: "WhatsApp currently markets that all communications through its product are end-to-end encrypted, with keys that only the users possess. They have failed to elaborate that data shared from WhatsApp to 3rd party services does not get the same guarantee. This includes backups to Google Drive."

492. Google also knew that it was important for Google Drive users to know the truth: that Google as a third party had access to their communications. The same June 2016 Google memo memorialized: "It's important for users to know that when WhatsApp media files are shared with 3rd parties such as Drive, the files are no longer encrypted by WhatsApp."

493. But Google did nothing to correct this misunderstanding. Rather, it failed to disclose the relevant information to its customers, with the intent to sign up more users of Google Drive. For example, in an October 7, 2015 Google blog post explaining the WhatsApp-Google Drive partnership to consumers, Google affirmed that users' WhatsApp backups were private backups: "WhatsApp for Android lets you create a private backup of your chat history, voice messages, photos, and videos in Google Drive." In addition, the Google Drive website, the Google Drive mobile application, and the Google Drive Terms and Privacy policy all failed to disclose to users that Google as a third party had access to their WhatsApp communications. The Google Drive terms of service at the time even permitted Google to use its access to users' private WhatsApp communications to sell advertising.

494. Google also concealed the fact that it could access users' WhatsApp communications. Normally, users can log into their Google Drive account and view their files contained there. But according to an internal Google memo, Google was "opaquely" backing up users' WhatsApp

communications to Google Drive. As a result, users could not log into Google Drive to discover that Google had access to their decrypted WhatsApp communications.

495. Google's privacy affirmations, omissions, and concealment resulted in increased demand for Google's back up service. Users rapidly signed up for Google Drive backup of WhatsApp communications. By June of 2016, about 434 million WhatsApp users backed up approximately 345 billion WhatsApp files to Google Drive, netting for Google Drive about a quarter of a billion new Google Drive customers. By May of 2017, Google Drive had gained approximately 750 million new WhatsApp backup accounts. In short, Google had no problem violating the privacy of almost a billion users if it helped them to grow their business.

2. Google secretly met with competitors to discuss competition and forestall consumer privacy efforts.

496. The way Google has actively worked with its Big Tech competitors to undermine users' privacy further illustrates the pretextual nature of Google's purported privacy concerns. For example, in a closed-door meeting on August 6, 2019, between the five Big Tech companies—including Facebook, Apple, and Microsoft—Google discussed forestalling consumer privacy efforts. In a July 31, 2019 document prepared in advance of the meeting, Google memorialized that it had been "working behind the scenes hand in hand with the other companies," and had thus far "been successful in slowing down and delaying the [ePrivacy Regulation] process."

497. Google also sought a coordinated effort to forestall and diminish child privacy protections in proposed regulations by the FTC and in proposed legislation by Senators Ed Markey and Josh Hawley. According to the same July 31, 2019 document prepared ahead of the August 6 gathering, Google wanted to use the upcoming meeting with the other Big Tech firms to "find areas of alignment and narrow gaps in our positions and priorities on child privacy and safety." Google expressed particular concern that Microsoft was taking child privacy more seriously than

Google and sought to rein in Microsoft. "Whether at this meeting or at another forum, we may want to reinforce that this is an area of particular importance to have a coordinated approach," read the memo.

498. Not unlike concerns for defections in a price-fixing cartel, Google expressed frustration that companies like Facebook were not aligning with Google to reduce users' privacy. "We've had difficulty getting FB to align on our privacy goals and strategy, as they have at time[s] prioritized winning on reputation over its business interest in legislative debates," said Google, referring to Facebook.

499. Google also sought to encourage Microsoft not to compete on privacy and to stop directing "subtle privacy attacks" at Google and other Big Tech companies, which Google described as "their industry colleagues." "We have direction from Kent [Walker] to find alignment with MSFT where we can but should be wary of their activity [in promoting privacy] and seek to gain as much intel as possible."

500. Google's efforts to collude with its rivals on privacy often spilled over to include collusion on competition matters, with one June 31, 2019 memo requesting a discussion on "competition" and "ways we can work together."

501. Google presents a public image of caring about privacy, but behind the scenes Google coordinates closely with its Big Tech competitors to lobby the government to delay or destroy measures that would actually protect users' privacy. Of course, effective competition is concerned with both price and quality, and the fact that Google coordinates with its competitors on the quality metric of privacy—one might call it privacy fixing—underscores Google's selective promotion of privacy concerns only when doing so facilitates its efforts to exclude competition.

VIII. ANTICOMPETITIVE EFFECTS

502. Google's exclusionary conduct has caused a wide range of anticompetitive effects, including higher prices, reduced output, lower quality services, reduced innovation, the exit of rival firms, and foreclosed entry in the relevant antitrust markets (despite the significant profits enjoyed by Google in those markets). Google's harm to competition deprives advertisers, publishers, and ultimately their consumers of improved quality, greater transparency, greater innovation, increased output, and lower prices.

503. Google's anticompetitive conduct described throughout this Complaint has adversely and substantially affected, and continues to adversely and substantially affect, the Plaintiff States' economies and the general welfare in the Plaintiff States by depriving the Plaintiff States and the persons within each Plaintiff State of the benefits of competition.

504. This section outlines the effect of Google's conduct on competition in the publisher ad server market, the exchange market, the in-app network market, the market for ad buying tools for small advertisers, and the market for ad buying tools for large advertisers, as well as the resulting harm to publishers, advertisers, and the general public.

A. Anticompetitive Effects in the Publisher Ad Server Market

505. Google has foreclosed competition in the publisher ad server market by tying its DFP ad server to its AdX exchange (see Section VII.A) and engaging in a scheme to "kill" header bidding, including its unlawful agreement with Facebook. This exclusionary conduct has harmed competition in the publisher ad server market and has thereby harmed publishers.

506. Google's exclusionary conduct has allowed it to charge publishers supracompetitive prices in the publisher ad sever market. For example, DFP charges supracompetitive fees of five to ten percent on transactions executed in non-Google exchanges through Exchange Bidding,

which is higher than the fee charged on transactions executed in non-Google exchanges through header bidding.

507. Google's exclusionary conduct has also lowered the quality of its ad serving for publishers below competitive levels. In a competitive market, DFP would perform its function as an inventory management system by maximizing publisher's inventory yield and making inventory available to the highest bidder across multiple exchanges, but DFP has done the opposite by blocking and interfering with competition from non-Google exchanges. For example, while Google's competitors created capabilities to promote publisher's use of header bidding, DFP provided a cumbersome, labor-intensive process that depressed header bidding revenue. Google also lowered the quality of its ad server by restricting the data available to publishers about their exchange bids and transactions, thus impeding their ability to comprehensively evaluate their inventory.

508. Google's exclusionary conduct also caused competing publisher ad servers to exit the market or significantly scale back their offerings, leaving publishers with little to no choice but to license DFP. Several large public advertising technology firms, including Microsoft, Yahoo!, WPP, and OpenX, once competed in this market; all four firms have since exited the market.

509. The entry of new competition has been remarkably weak for over a decade, as new entrants are thwarted by Google-created barriers to entry and expansion insurmountable to even large tech companies with comparable scale and market capitalization. Even Facebook was unsuccessful in entering the publisher ad server market to compete with Google. For instance, Facebook acquired a publisher ad server in 2014 but did not reach the scale necessary to compete with Google and discontinued this ad server less than two years later. Then, in 2018, Facebook again considered entering this market by building its own publisher ad server but determined that

such an endeavor was not worth both the investment and resources required to scale to a competitive level once Google gave Facebook special advantages in the Jedi Blue Agreement as part of its effort to kill header bidding.

510. Leading, long-established, and high-quality news publications have faced challenges monetizing via digital advertising, despite large readership and growing subscriber bases. Digital publishers were built on the expectation of fast growth in advertising sales, but that expectation has remained largely unrealized. In 2019, industry commentary described a pattern of struggling publishers heralding the "accelerating deterioration of the sector." Struggling to meet advertising revenue targets, many publishers have had to resort to the downsizing of their workforces and the production of less content. By reducing the revenue potential for publishers, Google reduces publishers' incentives and resources to produce content, thereby lowering publisher output.

511. Google's harm to the competitive process in the ad server market has harmed publishers' customers, i.e., individual consumers. Publishers use revenue generated from selling ad space to improve the quality of their content, offer more content, and offer more subsidized content access (i.e., less expensive subscriptions or free content access). Because DFP depresses publishers' inventory yield, publishers offer consumers less content, lower-quality content, less innovation in content delivery, more paywalls, and higher subscription fees.

B. Anticompetitive Effects in the Exchange Market

512. Google has foreclosed competition in the exchange market by tying its DFP ad server to its AdX exchange (see Section VII.A); preventing publishers from accessing and sharing their user IDs with non-Google exchanges and ad buying tools (see Section VII.B.1); blocking competition between exchanges and advantaging its exchange through processes like Dynamic Allocation and Enhanced Dynamic Allocation in its ad server (see Sections VII.B.2-3); manipulating exchange auctions through secret programs like RPO, DRS, and Bernanke (see

Section VII.C); advantaging its exchange through its implementation of Exchange Bidding (see Sections VII.D.2-3); engaging in a scheme to "kill" header bidding (see Section VII.E); and preventing publishers from setting different price floors for different exchanges through its implementation of Unified Pricing rules (see Section VII.F). This exclusionary conduct harmed competition in the exchange market and thereby harmed publishers and advertisers.

513. Google's exclusionary conduct has allowed it to charge a supracompetitive take rate in the exchange market, which is borne by both publishers and advertisers. While Google's exchange competitors have lowered their take rates in response to competitive pressure, Google has maintained or increased its take rate over time. For example, in 2017, Google observed internally that market forces, including the advent of header bidding, were putting pressure on take rates in the exchange. In response to these market forces, Google's competitors lowered their exchange rates, with some of its competitors lowering their prices to 25 percent of what Google charged. Google, in contrast, increased its exchange take rate from 20 percent in 2017 to 22 percent in 2019 for third-party buyers buying through its exchange. Today, Google continues to charge a supracompetitive take rate of 19 to 22 percent, while the prices charged by Google's closest exchange competitors are considerably lower: from 15 percent down to 5 percent.

514. Google's exclusionary conduct has also harmed quality in the exchange market. Google has created information asymmetries that exacerbate problems of adverse selection in the exchange market, allowing Google's exchange to win more high-value impressions and significantly lowering the quality of matches that competing exchanges can provide as compared to Google's exchange. This conduct harmed competition in the exchange market since rival exchanges were limited in their ability to compete on the quality of the matches provided. Google's exclusionary conduct has also caused competing exchanges to exit the market. Over ten years ago, Microsoft,

Yahoo!, and top Silicon Valley venture funds competed in the exchange market, with the AdECN, AdBrite, and ADSDAQ exchanges; all three of these exchanges have since exited the market. The few remaining exchanges have been unable to compete with Google.

515. Competition from new entrants has been weak because of the barriers to entry Google has created. For instance, Google has created an enormous barrier to entry by preventing small advertisers using Google's ad buying tool from submitting live, competitive bids in non-Google exchanges, thus eliminating a large source of demand from other exchanges and inhibiting potential new entrants from obtaining the scale necessary to successfully compete with Google. Competing exchanges have tried to compete for market share by lowering their take rates to 25 percent of Google's exchange take rates. However, competition is obstructed; due to Google's exclusionary conduct, lowering prices does not permit exchanges to gain market share. In fact, in recent years, Google's anticompetitive conduct has significantly increased Google's market share without any decrease in its take rate.

516. Google's exclusionary conduct has resulted in harm to innovation. For many years, DFP depressed publishers' inventory yields by blocking real-time competition from non-Google exchanges. When publishers found a way to work around the restrictions imposed by DFP using header bidding, an innovative technology that promoted competition between exchanges, publishers' yields jumped by over 30 percent, sometimes even over 100 percent. Rather than competing on the merits of its exchange and ad server, Google schemed to "kill" header bidding, This scheme was successful and substantially suppressed the adoption and growth of header bidding while at the same time causing its AdX Exchange to continue gaining market share.

517. Google's harm to the competitive process has harmed publishers and advertisers. Because of Google's exclusionary conduct, advertisers are significantly less able to identify the

user associated with an impression when transacting through a competing exchange with respect to transacting through Google's exchange and are thus forced to transact more on Google's exchange with a higher take rate. And publishers are harmed when more transactions go through Google's exchange, which charges a higher take rate. In a competitive market, publishers and advertisers would benefit from exchanges competing on take rates and quality and from innovation that promotes exchange competition. Competition would lead to lower take rates, benefiting publishers and advertisers. Publishers would retain a greater share of their advertising revenue, permitting them to create more content, higher-quality content, and more subsidized content access. Advertisers would pay less to purchase ad space, permitting them to re-invest those cost savings into providing consumers with higher-quality and lower-priced goods and services. Google's foreclosure of competition in the exchange market has permitted its exchange to charge supracompetitive take rate (approximately 19 to 22 percent on gross transactions) and provide lower quality below competitive levels. Google has consequently reduced output in the exchange market.

C. Anticompetitive Effects in the In-App Network Market

518. Google's exclusionary conduct has foreclosed competition in the market for in-app ad networks. Google's exclusionary conduct in this market includes using its in-app mediation tool to disadvantage competitors in developers' auctions, making numerous misrepresentations to developers about the nature of its in-app mediation tool, and entering an illegal agreement with Facebook to artificially depress prices paid to developers and deny inventory to competitors (see Section VII.E).

519. Google's harm to the competitive process has harmed app developers and advertisers who purchase in-app advertising. In a competitive market, app developers would benefit from networks competing to purchase their inventory, and advertisers would benefit from networks

competing to resell that inventory. Competition would lead to lower margins for networks, benefiting developers and advertisers. App developers would obtain higher yield for their inventory, permitting them to create more content, higher-quality content, and more subsidized content access. Advertisers would pay less to purchase in-app impressions, permitting them to re-invest those cost savings into providing consumers with higher-quality and lower-priced goods and services. Google's foreclosure of competition in the in-app network market has permitted its in-app networks to pay less for developers' impressions and resell those impressions to advertisers at higher prices.

D. Anticompetitive Effects in the Market for Ad Buying Tools for Small Advertisers and in the Market for Ad Buying Tools for Large Advertisers

520. Google's exclusionary conduct has foreclosed competition in both the market for ad buying tools for small advertisers and the market for ad buying tools for large advertisers. Google's exclusionary conduct in these separate markets includes preventing publishers from sharing their user IDs with non-Google ad buying tools (see Section VII.B.1); advantaging its own buying tools through processes like Dynamic Allocation and Enhanced Dynamic Allocation in its ad server (see Sections VII.B.2-3); and rolling out its planned Privacy Sandbox scheme (see Section VII.G.2). This exclusionary conduct harmed competition in the ad buying tool markets and thereby harmed both small and large advertisers. Google's exclusionary conduct of manipulating advertiser bids in exchange auctions through the Bernanke program (see Section VII.C.1) harmed competition in the market for buying tools for small advertisers and thereby harmed small advertisers.

521. Google's exclusionary conduct has lowered the quality of its ad buying tools. For example, Google internally admitted to "artificially handicapping" Google Ads (its buying tool for small advertisers) by preventing small advertisers from submitting live, competitive bids on any exchange other than Google's AdX exchange so that these small advertisers would then "boost the

attractiveness" of AdX to publishers. In a competitive market, ad buying tools would compete on quality and allow advertisers to bid in multiple exchanges.

522. Google's exclusionary conduct has created barriers to entry, inhibiting competition from potential new entrants to the ad buying tool market. Large technology companies like Microsoft and Facebook have considered but decided against entering the market for advertiser buying tools.

523. Google's planned Privacy Sandbox scheme has also already harmed competition in the buying tools markets. In anticipation of Google blocking third-party buying tool access to cookies, some advertisers are already preparing to shift their spend from competing ad buying tools to Google's.

524. Google's harm to the competitive process has harmed both small and large advertisers. In a competitive market, advertisers would benefit from ad buying tools competing on price and quality (e.g., the extent to which the tools maximize advertisers' best interests). Google's exclusionary conduct has permitted its ad buying tool for small advertisers to charge supracompetitive fees and lower quality below competitive levels (e.g., charging non-transparent fees, manipulating advertisers' bids to purchase ad space for higher prices trading on AdX, and arbitraging small advertisers' bids to extract higher fees). Similarly, Google's exclusionary conduct has permitted Google's ad buying tool for large advertisers to charge supracompetitive fees and lower quality below competitive levels (e.g., the lack of adequate auditing of Google conflicts of interests and fraudulent impressions). Google's conduct has consequently also lowered output in these markets.

525. Google's harm to the competitive process in the ad buying tool markets has also harmed advertisers' customers, i.e., consumers. The fees advertisers would save on ad buying tools and ad

purchases in the absence of Google's anticompetitive conduct would result in reduced costs that advertisers would ultimately pass on to consumers. Consumers would benefit through better quality and lower priced goods and services. Advertising also allows consumers to learn of the range of competitors in a market, their prices, and the nature of the products and services offered. When advertising effectiveness is reduced, competition between products and services is reduced, and consumers are harmed.

IX. TRADE & COMMERCE

526. Google's activities were in the regular, continuous, and substantial flow of interstate trade and commerce and continue to have a substantial effect upon interstate commerce. Google's activities also had and continue to have a substantial effect upon the trade and commerce within each of the Plaintiff States.

X. CLAIMS

A. Count I – Monopolization in Violation of Section II of the Sherman Act, 15 U.S.C. § 2

527. Plaintiff States repeat and reallege every proceeding allegation as if fully set forth herein.

528. Google willfully acquired or maintained monopoly power in the market for publisher ad servers, the market for ad exchanges, and the market for ad buying tools for small advertisers.

529. Google willfully acquired or maintained its monopoly in these markets through a litany of anticompetitive conduct, including, among other things:

a) preventing publishers from accessing and sharing their user IDs with non-Google exchanges and ad buying tools;

b) blocking competition between exchanges and advantaging its exchange through processes like Dynamic Allocation and Enhanced Dynamic Allocation in its ad server;

c) manipulating exchange auctions through secret programs like RPO, DRS, and Bernanke;

d) advantaging its exchange through its implementation of Exchange Bidding; and

e) engaging in a scheme to "kill" header bidding by trading ahead of exchanges using header bidding, crippling publishers ability to measure the success of rival exchanges in header bidding, obstructing publishers' use of header bidding through line item caps, diverting ad spend away from exchanges using header bidding, cutting user traffic to publishers using header bidding, entering an unlawful agreement with Facebook to curtail Facebook's support of header bidding, and implementing Unified Pricing rules.

530. For the reasons set forth above, Google has violated Section 2 of the Sherman Act, 15 U.S.C. § 2.

B. Count II – Attempted Monopolization in Violation of Section II of the Sherman Act, 15 U.S.C. § 2

531. Plaintiff States repeat and reallege every proceeding allegation as if fully set forth herein.

532. As detailed above, Google has monopoly power, or in the alternative, a dangerous probability of acquiring monopoly power, in the market for ad exchanges and the markets for ad buying tools for large and small advertisers.

533. Google willfully, knowingly, and with specific intent to do so, attempted to monopolize the market for ad exchanges and the markets for ad buying tools for large and small advertisers.

534. Google has attempted to monopolize these markets through a litany of anticompetitive conduct, including, among other things:

a) preventing publishers from accessing and sharing their user IDs with non-Google exchanges and ad buying tools;

b) blocking competition between exchanges and advantaging its exchange through processes like Dynamic Allocation and Enhanced Dynamic Allocation in its ad server;

c) manipulating exchange auctions through secret programs like RPO, DRS, and Bernanke;

d) advantaging its exchange through its implementation of Exchange Bidding;

e) engaging in a scheme to "kill" header bidding by trading ahead of exchanges using header bidding, crippling publishers ability to measure the success of rival exchanges in header bidding, obstructing publishers' use of header bidding through line item caps, diverting ad spend away from exchanges using header bidding, cutting user traffic to publishers using header bidding, entering an unlawful agreement with Facebook to curtail Facebook's support of header bidding, and implementing Unified Pricing rules; and

f) rolling out its Privacy Sandbox scheme.

535. For the reasons set forth above, Google has violated Section 2 of the Sherman Act, 15 U.S.C. § 2.

C. Count III – Unlawful Tying in Violation of Sections I and II of the Sherman Act, 15 U.S.C. §§ 1, 2

536. Plaintiff States repeat and reallege every proceeding allegation as if fully set forth herein.

537. Google tied its AdX exchange to its DFP ad server, thereby coercing publishers to enter contracts to license its DFP ad server.

538. Google's DFP and Google AdX are separate and distinct products in separate product markets.

539. Google AdX has monopoly power or, in the alternative, sufficient market power in the exchange market to coerce publishers to license DFP, thus restraining competition as to the DFP ad server.

540. Google's tying arrangement affects a substantial volume of commerce in the ad server market and has substantially foreclosed competition in the publisher ad server market.

541. Google's tying arrangement has excluded competition in the publisher ad server market and caused competing ad servers substantial damages as a direct and proximate cause of this unlawful conduct because Google has foreclosed other ad servers from competing for potential publishers and has deprived ad servers of other business for reasons having nothing to do with the merits of Google DFP or other ad server products.

542. For the reasons set forth above, Google has violated Sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2.

D. Count IV – Unlawful Agreement in Violation of Section I of the Sherman Act, 15 U.S.C. § 1

543. Plaintiff States repeat and reallege every proceeding allegation as if fully set forth herein.

544. Google, by and through its officers, directors, employees or other representatives, entered into an unlawful agreement with its co-conspirator Facebook in restraint of trade and commerce in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, in which they agreed to allocate markets, manipulate publisher auctions, depress prices paid to publishers, and exclude rival ad networks, as described in this Complaint. Google's conduct is a *per se* violation that restrains trade and harms competition through an unlawful agreement in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1.

545. In the alternative, Google's agreement with Facebook as described above caused significant anticompetitive effects that outweigh any procompetitive benefits that could not be achieved through less anticompetitive means, if any such benefits exist at all. For that reason, the agreement is a violation of Section 1 of the Sherman Act, 15 U.S.C. § 1.

E. Count V – Supplemental State Law Antitrust Claims

1. Texas

546. Plaintiff State of Texas repeats and realleges every preceding allegation as if fully set forth herein.

547. The aforementioned practices by Google were and are in violation of Texas Business and Commerce Code § 15.01 *et seq*., including § 15.05(b).

2. Alaska

548. Plaintiff State of Alaska repeats and realleges each and every preceding allegation as if fully set forth herein. The aforementioned acts or practices by Google violate the Alaska Restraint of Trade Act ("ARTA"), AS 45.50.562 *et seq*.

549. Google engaged in and is engaging in unlawful conduct in the course of trade or commerce within the meaning of AS 45.50.562 *et seq*. This conduct has harmed and is harming Alaska and its citizens, residents, businesses, and consumers.

550. As provided for under ARTA, Alaska seeks a civil penalty of up to $50,000,000, injunctive relief, penalties, disgorgement, and costs and attorney's fees.

3. Arkansas

551. Plaintiff State of Arkansas repeats and realleges each and every preceding allegation as if fully set forth herein.

552. Google's actions alleged herein violate, and Plaintiff State of Arkansas is entitled to relief under, the Unfair Practices Act, Ark. Code Ann. § 4-75-201 *et seq*., Monopolies Generally, Ark. Code Ann. § 4-75-301 *et seq*., and the common law of Arkansas.

553. Plaintiff State of Arkansas seeks and is entitled to maximum civil penalties allowed by law, injunctive relief, disgorgement, attorney's fees, costs, investigative expenses, expert witness expenses, and such other relief as this Court deems just and equitable.

4. Florida

554. Plaintiff State of Florida repeats and realleges each and every preceding allegation as if fully set forth herein. The aforementioned acts or practices by Google violate the Florida Antitrust Act, Fla. Stat. § 542.15 *et seq*.

555. The State of Florida seeks remedies available under The Florida Antitrust Act including:

a) Injunctive and other equitable relief pursuant to Fla. Stat. § 542.23;

b) Civil penalties pursuant to Fla. Stat. § 542.21, which provides that any person other than a natural person is subject to a penalty of up to $1 million and that "[a]ny person who knowingly violates any of the provisions … or who knowingly aids in or advises such violation, is guilty of a felony, punishable by a fine not exceeding $1 million if a corporation"; and

c) Costs and attorneys' fees pursuant to Fla. Stat. § 542.23.

5. Idaho

556. Plaintiff State of Idaho repeats and realleges each and every preceding allegation as if fully set forth herein.

557. Google has engaged in Idaho commerce, as that term is defined by Idaho Code § 48 103(1).

558. Google's actions as alleged herein violate the Idaho Competition Act, Idaho Code § 48 105, in that such actions constitute monopolization, an attempt to monopolize, and/or a combination or conspiracy to monopolize lines of Idaho commerce, as that term is defined by Idaho Code § 48 103(1).

559. Google's actions as alleged herein violate the Idaho Competition Act, Idaho Code § 48 104, in that they have the purpose and/or the effect of unreasonably restraining Idaho commerce, as that term is defined by Idaho Code § 48-103(1).

560. For each and every violation alleged herein, Plaintiff State of Idaho is entitled to all equitable relief available under the Idaho Competition Act, Idaho Code §§ 48-108 and 48-112, including, but not limited to, declaratory judgment, injunctive relief, civil penalties, divestiture of assets, disgorgement, expenses, costs, attorneys' fees, and such other and further relief as this Court deems just and equitable.

6. Indiana

561. Plaintiff State of Indiana repeats and realleges every preceding allegation as if fully set forth herein.

562. The aforementioned practices by Google were and are in violation of Ind. Code §§ 24-1-2-1 and -2.

563. Plaintiff State of Indiana seeks all injunctive and other equitable relief available under Ind. Code. § 24-1-2-1 et seq. and common law.

7. Kentucky

564. Plaintiff the Commonwealth of Kentucky hereby reincorporates by reference all other paragraphs of this Complaint.

565. Plaintiff the Commonwealth of Kentucky repeats and realleges each and every preceding allegation as if fully set forth herein.

566. The aforementioned acts or practices by Google violate Ky. Rev. Stat. § 367.175.

567. Google engaged in and is engaging in unlawful conduct in the course of trade or commerce, within the meaning of Ky. Rev. Stat. § 367.175, that has harmed and is harming the Commonwealth and its persons.

568. The Commonwealth of Kentucky seeks the following remedies under Kentucky law for violations of Ky. Rev. Stat. § 367.175:

a) Disgorgement and restitution pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law;

b) Injunctive and other equitable relief pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law;

c) Civil penalties pursuant to Ky. Rev. Stat. § 367.990(8);

d) Costs and attorneys' fees pursuant to Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, Ky. Rev. Stat. § 48.005(4), and common law; and

e) Other remedies as the court may deem appropriate under the facts and circumstances of the case.

8. Louisiana

569. Plaintiff State of Louisiana repeats and re-alleges each and every preceding allegation as if fully set forth herein.

570. The Attorney General of the State of Louisiana is authorized to bring this action on behalf of the people of the State of Louisiana for injunctive relief, restitution, and civil penalties pursuant to the Louisiana Monopolies statute, La. Rev. Stat. Ann.§ 51:121, *et seq*.

571. La Rev. Stat. Ann.§ 51:123 states that no person shall monopolize, or attempt to monopolize, or combine, or conspire with any other person to monopolize any part of the trade or commerce within this state.

572. Google's continuing and systematic business practices as alleged herein meant to control or manipulate the digital advertising industry constitute a contract, combination, or conspiracy in restraint of trade or commerce in the state of Louisiana in violation of Louisiana Monopolies statute, La. Rev. Stat. Ann.§ 51:122.

573. Google's continuing and systematic business practices as alleged herein meant to control or manipulate the digital advertising industry constitute an attempt to monopolize trade or

commerce in the state of Louisiana in violation of Louisiana Monopolies statute, La. Rev. Stat. Ann.§ 51:123.

574. Pursuant to La. Rev. Stat. Ann.§ 51:121 *et seq*., the Plaintiff State of Louisiana seeks to recover civil penalties, the cost of suit, attorneys' fees, and equitable and injunctive relief pursuant to La. Rev. Stat. Ann.§ 51:128.

9. Mississippi

575. Plaintiff State of Mississippi repeats and realleges each and every preceding allegation as if fully set forth herein.

576. Google's acts violate Miss. Code Ann. § 75- 21-1 *et seq*., and Plaintiff State of Mississippi is entitled to relief under Miss. Code Ann. § 75- 21-1 *et seq*.

577. Pursuant to Miss. Code Ann. § 75-21-1 *et seq*., Plaintiff State of Mississippi seeks and is entitled to relief, including but not limited to injunctive relief, restitution, disgorgement, civil penalties, costs, attorney fees, and any other just and equitable relief which this Court deems appropriate.

10. Missouri

578. Plaintiff State of Missouri repeats and realleges every preceding allegation as if fully set forth herein.

579. The aforementioned practices by Google were and are in violation of the Missouri Antitrust Law, Mo. Rev. Stat. §§ 416.011 *et seq*.

11. Montana

580. Plaintiff State of Montana repeats and realleges every preceding allegation as if fully set forth herein.

581. The aforementioned acts and practices by Google were and are in violation of Montana's Unfair Trade Practices and Consumer Protection Act, Mont. Code Ann. § 30-14-101 *et*

seq., including, but not limited to, § 30-14-103, and Unfair Trade Practices Generally, Mont. Code Ann. § 30-14-201 *et seq*., including §§ 30-14-205(1), 30-14-205(2), and 30-14-222.

12. Nevada

582. Plaintiff State of Nevada repeats and realleges each and every preceding allegation as if fully set forth herein. The aforementioned acts or practices by Google violate the Nevada Unfair Trade Practices Act, Nev. Rev. Stat. §598A.010, *et seq*., and specifically unlawful restraints of trade prohibited by Nev. Rev. Stat. §598A.060.

583. As repeatedly alleged *supra*, Google engaged in and is engaging in unlawful conduct that produced, and continues to produce, harm across the Plaintiff States, including in Nevada. Google's unlawful conduct has occurred in the course of trade or commerce, within the meaning of Nev. Rev. Stat. §598A.020.

584. Accordingly, the State of Nevada seeks all available relief under the Nevada Unfair Trade Practices Act and common law, including but not limited to: disgorgement, injunctions, civil penalties, and its costs and attorney's fees pursuant to Nev. Rev. Stat. §598A.070, Nev. Rev. Stat. §598A.170, and Nev. Rev. Stat. §598A.250.

13. North Dakota

585. Plaintiff State of North Dakota repeats and realleges every preceding allegation as if fully set forth herein.

586. The aforementioned practices by Google were and are in violation of North Dakota Century Code (N.D.C.C.) § 51-08.1-01 *et seq*., *Uniform State Antitrust Act*, including §§ 51-08.1-02 and 51-08.1-03.

14. Puerto Rico

587. Plaintiff Commonwealth of Puerto Rico repeats and realleges every preceding allegation as if fully set forth herein.

588. The aforementioned practices by Google were and are in violation of Puerto Rico Law No. 77 of June 25, 1964, also known as "Puerto Rico's Antitrust and Restrictions of Commerce Law," 10 P.R. Laws Ann. §§ 257 *et seq*.

589. Accordingly, the Commonwealth of Puerto Rico is entitled to remedies available under Puerto Rico's Antitrust and Restrictions of Commerce Law, including injunctive relief, civil penalties, and any other appropriate relief.

15. South Carolina

590. Plaintiff State of South Carolina repeats and realleges each and every preceding allegation as if fully set forth herein.

591. The Attorney General of South Carolina is bringing this action in the name of the State pursuant to S.C. Code § 39-5-50(a).

592. At all times described herein, Google was engaged in conduct which constitutes "trade" and "commerce" as defined in S.C. Code § 39-5-10(b).

593. Google's acts or practices regarding South Carolina consumers as alleged herein are capable of repetition and affect the public interest.

594. Google's acts or practices alleged herein constitute "unfair methods of competition" under S.C. Code § 39-5-20. Every unfair act or practice by Google constitutes a separate and distinct violation of S.C. Code § 39-5-20.

595. Google's acts or practices alleged herein are offensive to established public policy, immoral, unethical, or oppressive.

596. At all times Google knew or should have known that its conduct violated S.C. Code § 39-5-20 and therefore is willful for purposes of S.C. Code § 39-5-110, justifying civil penalties.

597. Plaintiff State of South Carolina seeks all remedies available under the South Carolina Unfair Trade Practices Act (SCUTPA) including, without limitation, the following:

a) Injunctive and other equitable relief pursuant to S.C. Code § 39-5-50(a);

b) Civil penalties in the amount of $5,000, pursuant to S.C. Code § 39-5-110(a), for every willful violation of SCUTPA;

c) Costs and attorneys' fees pursuant to S.C. Code § 39-5-50(a) and S.C. Code § 1-7-85; and

d) Other remedies as the court may deem appropriate under the facts and circumstances of the case.

16. South Dakota

598. Plaintiff State of South Dakota repeats and realleges every preceding allegation as if fully set forth herein.

599. The aforementioned practices by Google constitute separate and multiple violations of South Dakota statutes §§ SDCL 37-1-3.1 and 37-1-3.2.

600. For each and every violation alleged herein, Plaintiff State of South Dakota is entitled to all legal and equitable relief, and all costs and fees, available under SDCL §§ 37-1-3.1 *et seq*. Such relief includes injunctive relief and civil penalties for the State, as authorized by SDCL § 37-1-14.2, and all injunctive and other equitable relief, as *parens patriae* on behalf of persons of the State, for injuries sustained, directly or indirectly, because of Google's violations of South Dakota law, as authorized by SDCL § 37-1-32.

17. Utah

601. Plaintiff State of Utah repeats and realleges each and every preceding allegation as if fully set forth herein.

602. Google's acts violate the Utah Antitrust Act, Utah Code § 76-10-3101, *et seq*. (the "Act") and Plaintiff State of Utah is entitled to all relief available under the Act for those violations, including, but not limited to, injunctive relief, civil penalties, disgorgement, attorneys' fees, and costs.

F. Count VI – Supplemental State Law Deceptive Trade Practices Claims

1. Texas

603. Plaintiff State of Texas repeats and realleges every preceding allegation.

604. At all times described herein, Google has engaged in conduct which constitutes "trade" and "commerce" defined in § 17.45(6) of the DTPA.

605. Plaintiff State of Texas has reason to believe that Google has engaged in, and will continue to engage in, the unlawful practices set forth herein, has caused and will cause adverse effects to legitimate business enterprises which lawfully conduct trade and commerce in this State, and will cause damage to the State of Texas and to persons in the State of Texas. Therefore, the Consumer Protection Division of the Office of the Attorney General of the State of Texas believes and is of the opinion that this matter is in the public interest.

606. As alleged in more detail above, Google has engaged in false, deceptive, or misleading acts or practices in connection with each of its roles within the ad tech stack. In each such role, Google at least implicitly misrepresents that it is operating in the best interest of its customer, fails to disclose its conflicts of interest, and misrepresents the many ways that Google operates to disadvantage its customers.

607. For example, in its role as an ad server, Google led publishers to believe that it was acting in the publisher's best interest and would help them maximize revenue, when Google does not seek to maximize the publisher's revenue, but its own.

608. Similarly, in its roles as an ad exchange and ad network, Google misleads both publishers and advertisers regarding the actual price of advertisements. Google is deliberately opaque and nontransparent in its pricing terms, fails to disclose the fee it collects, and generally causes confusion regarding the mechanics, terms, and pricing of its ad exchange and ad network.

609. Google has also engaged in false, deceptive, or misleading acts or practices in its efforts to discourage publishers, ad exchanges, and advertisers from participating in header bidding and to manipulate them into participating in Google's products. Such acts included misrepresenting to publishers that including rival exchanges in header bidding would negatively affect the publisher (e.g., by putting a strain on the publisher's servers), falsely telling publishers that the DRS program would increase their revenue, manipulating advertisers' bids and publishers' floors without advertisers' knowledge or consent, misrepresenting to publishers that Exchange Bidding would benefit them through exchange competition, falsely telling publishers that adopting AMP would enhance load times, falsely claiming that header bidding increased latency, falsely representing that abolishing price floors in Unified Pricing benefited publishers, misrepresenting that it does not manipulate search traffic results to favor publishers where Google makes more ad money, misrepresenting that all bidders in AdX compete on an equal footing, and misrepresenting that Google had removed its Last Look advantage and would not trade ahead of their bids.

610. Google also misrepresents to participants in the ad tech stack and its users alike that Google encrypts user IDs in order to protect users' privacy, when in fact, Google continues to infringe on users' privacy by continuing to access such information in its own ad tech stack products.

611. As alleged in more detail above, Google has engaged in false, deceptive, or misleading acts or practices by misrepresenting that it will never sell users' personal information to anyone and by misrepresenting, causing confusion and misunderstanding, and failing to disclose how Google uses the information and data of its consumers.

612. Google has also engaged in false, deceptive, or misleading acts or practices by falsely promising users that their WhatsApp messages remained private, by publicly misrepresenting that

Google did not have decryption keys, and by failing to disclose to users that backing up to Google Drive would give Google access to users' private WhatsApp communications.

613. Through its false, deceptive, or misleading acts, Google has violated § 17.46(a) of the DTPA, including by engaging in conduct specifically defined to be false, deceptive, or misleading by § 17.46(b) such as:

a) Representing that services have sponsorship, approval, characteristics, ingredients, uses, benefits, or quantities which they do not have or that a person has a sponsorship, approval, status, affiliation, or connection which he does not have, in violation of DTPA § 17.46(b)(5);

b) Representing that services are of a particular standard, quality, or grade, if they are of another, in violation of DTPA § 17.46(b)(7);

c) Advertising goods or services with the intent not to sell them as advertised, in violation of DTPA § 17.46(b)(9);

d) Representing that an agreement confers or involves rights, remedies, or obligations which it does not have or involve, or which are prohibited by law, in violation of DTPA § 17.46(b)(12); and

e) Failing to disclose information concerning goods or services which was known at the time of the transaction with the intent to induce the consumer into a transaction into which the consumer would not have entered had the information been disclosed in violation of § 17.46(b)(24).

614. By means of the foregoing unlawful acts and practices, Google has acquired money or other property from persons to whom such money or property should be restored.

2. Alaska

615. Plaintiff the State of Alaska repeats and realleges each and every preceding allegation as if fully set forth herein, specifically including all allegations in Count VI of this Complaint. The aforementioned acts or practices by Google violate the Alaska Unfair Trade Practices and Consumer Protection Act ("AUTPCPA"), AS 45.50.471 *et seq*.

616. Google engaged in and is engaging in unlawful conduct in the course of trade or commerce, within the meaning of AS 45.50.471, that has harmed and is harming the State of Alaska, its citizens, residents, businesses, and consumers.

617. Specifically, Google violated AS 45.50.471(b)(11) and (b)(12) by misleading, deceiving, and damaging Alaskans. Among other things, Google omitted material facts, namely their anti-competitive conduct, knowing this would harm Alaskans. Plaintiff State of Alaska is entitled to relief for these violations under AS 45.50.501, .537, and .551, including injunctive relief, civil penalties of between $1,000 and $25,000 for each violation, and costs and attorney's fees.

618. Further, the State of Alaska seeks restitution to Alaska and/or disgorgement pursuant to its statutory and common law.

619. The State of Alaska seeks relief on behalf of itself and as *parens patriae* on behalf of its persons.

3. Arkansas

620. Plaintiff State Arkansas repeats and realleges each and every preceding allegation as if fully set forth herein.

621. Google's actions violate the Arkansas Deceptive Trade Practices Act, Ark. Code Ann. § 4-88-101 *et seq*., and Arkansas is entitled to and seeks relief under the Arkansas Deceptive Trade Practices Act, Ark. Code Ann. § 4-88-113.

4. Florida

622. Plaintiff State of Florida repeats and realleges each and every preceding allegation as if fully set forth herein. The aforementioned acts or practices by Google constitute unfair methods of competition in violation of the Florida Deceptive and Unfair Trade Practices Act, Fla. Stat. § 501.204 *et seq*.

623. In addition, Google's actions offend established public policy and are immoral, unethical, oppressive, unscrupulous, or substantially injurious to consumers in the State of Florida in violation of Fla. Stat. § 501.204 *et seq*.

624. The State of Florida seeks all remedies available under the Florida Deceptive and Unfair Trade Practices Act, including, without limitation, the following:

a) Damages pursuant to Fla. Stat. § 501.207;

b) Disgorgement and restitution pursuant to Fla. Stat. § 501.204 *et seq*.;

c) Injunctive and other equitable relief pursuant to Fla. Stat. § 501.207;

d) Civil penalties pursuant to Fla. Stat. § 501.2075, which provides that anyone who engages in a willful violation "is liable for a civil penalty of not more than $10,000 for each such violation"; and

e) Costs and attorneys' fees pursuant to Fla. Stat. § 501.2105.

5. Idaho

625. Plaintiff State of Idaho repeats and realleges every preceding allegation, including the allegations above in Count VI of this Complaint.

626. The above-mentioned acts and practices by Google violate the Idaho Consumer Protection Act (ICPA), Idaho Code title 48, chapter 6, and the Idaho Rules of Consumer Protection, IDAPA 04.02.01.000 *et seq*., which prohibit unfair and deceptive acts and practices in the conduct of trade or commerce and which provide efficient and economical procedures to secure the public's protection from unlawful business practices.

627. At all times described herein, Google has engaged in conduct that constitutes "trade" and "commerce" under Idaho Code § 48-602(2) and IDAPA 04.02.01.020.

628. The Attorney General of the State of Idaho is authorized to bring an action in the name of the State against any person who is using, has used, or is about to use any method, act, or practice declared unlawful by the ICPA. Idaho Code § 48-606. The Attorney General of Idaho has reason

to believe that Google has used and is using the acts and practices set forth in this Complaint, which violate the ICPA; that Google has caused and will cause adverse effects for the business enterprises of the State of Idaho that lawfully conduct trade and commerce; and that Google has caused and will cause damage to the State of Idaho and to the persons of the State of Idaho. The Attorney General of Idaho therefore believes that this action is in the public interest.

629. Through its unfair or deceptive acts and practices, Google has violated the ICPA, including by engaging in conduct specifically defined to be unfair or deceptive by Idaho Code § 48-603. For example, Google knows, or in the exercise of due care should know, that it was and is:

a) Representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or quantities that they do not have or that a person has a sponsorship, approval, status, affiliation, connection, qualifications, or license that he does not have, in violation of Idaho Code § 48-603(5);

b) Representing that goods or services are of a particular standard, quality, or grade, if they are of another, in violation of Idaho Code § 48-603(7);

c) Advertising goods or services with the intent not to sell them as advertised, in violation of Idaho Code § 48-603(9); and

d) Engaging in any act or practice that is otherwise misleading, false, or deceptive to consumers, such as making any claim or representation, or omitting any material or relevant fact, concerning goods or services that directly, or by implication, has the capacity, tendency, or effect of deceiving or misleading a consumer acting reasonably under the circumstances, in violation of Idaho Code § 48-603(17) and IDAPA 04.02.01.030.

630. Google's unfair or deceptive acts and practices, as alleged above, constitute separate and multiple violations of Idaho Code §§ 48-603(5), 48-603(7), 48-603(9), and 48-603(17), and IDAPA 04.02.01.030. Google's separate and multiple violations of these provisions subject Google to the remedies outlined in Idaho Code §§ 48-606 and 48-607.

631. The Attorney General finds that the purpose of the ICPA would be substantially and materially impaired by delay in bringing, at this time, these claims under the ICPA. Accordingly, he has determined to file these claims, pursuant to Idaho Code § 48-606(3), without first providing Google notice of these proceedings or allowing Google an opportunity to appear before the Attorney General and to execute an assurance of voluntary compliance or a consent judgment under the ICPA.

6. Indiana

632. Plaintiff State of Indiana repeats and re-alleges each and every preceding allegation as if fully set forth herein. Acts alleged in Count VI of this Complaint also constitute violations of the Indiana Deceptive Consumer Sales Act, Ind. Code § 24-5-0.5-1 *et seq*., including knowing violations and incurable deceptive acts. Plaintiff State of Indiana seeks all remedies available under the Indiana Deceptive Consumer Sales Act.

7. Kentucky

633. Plaintiff the Commonwealth of Kentucky hereby reincorporates by reference all other paragraphs of this Complaint.

634. Plaintiff the Commonwealth of Kentucky repeats and realleges each and every preceding allegation as if fully set forth herein, specifically including all allegations in Count VI of this Complaint.

635. The aforementioned acts or practices by Google, in addition to the following acts, constitute violations of Ky. Rev. Stat. § 367.170.

636. Google engaged in and is engaging in unlawful conduct in the course of trade or commerce, within the meaning of Ky. Rev. Stat. § 367.170, that has harmed and is harming the Commonwealth and its persons.

637. The above-described conduct has been and is willful within the meaning of Ky. Rev. Stat. § 367.990.

638. The Commonwealth states that the public interest is served by seeking a permanent injunction to restrain the acts and practices described herein. The Commonwealth and its persons will continue to be harmed unless the acts and practices complained of herein are permanently enjoined pursuant to Ky. Rev. Stat. § 367.190.

639. The Commonwealth of Kentucky seeks the following remedies under Kentucky law for violations of Ky. Rev. Stat. § 367.170:

a) Damages for its persons under *parens patriae* authority, pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law;

b) Disgorgement and restitution pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law;

c) Injunctive and other equitable relief pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.190, and common law;

d) Civil penalties pursuant to Ky. Rev. Stat. § 367.990(2);

e) Costs and attorneys' fees pursuant to Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, Ky. Rev. Stat. § 48.005(4), and common law; and

f) Other remedies as the court may deem appropriate under the facts and circumstances of the case.

8. Louisiana

640. Plaintiff State of Louisiana repeats and re-alleges each and every preceding allegation as if fully set forth herein.

641. The Attorney General of the State of Louisiana is authorized to bring this action on behalf of the people of the State of Louisiana for injunctive relief, restitution, and civil penalties

pursuant to the Louisiana Unfair Trade Practices and Consumer Protection Law (LUTPA), La. Rev. Stat. Ann. § 51:1401, *et seq*.

642. LUTPA expressly gives the Attorney General the right to bring an action for injunctive relief (La. Rev. Stat. Ann. 51:1407A) and request civil penalties (La. Rev. Stat. Ann. 51:1407(B)) and restitution (La. Rev. Stat. Ann. 51:1408(5)).

643. LUTPA makes unlawful "unfair and deceptive acts or practices in the conduct of any trade or commerce." La. Rev. Stat. Ann. § 51:1405(A).

644. Google engages in "trade" or "commerce" within the meaning of La. Rev. Stat. Ann. § 51:1402(9). Google's unfair and deceptive acts or practices in the conduct of its trade or commerce are offensive to established public policy.

645. Each and every act in the conduct of trade or commerce by Google that is deemed to be unfair or deceptive constitutes a separate violation of the act.

646. Google's continuing and systematic business practices alleged herein constitute a pattern of unfair and deceptive trade practices in violation of Louisiana Unfair Trade Practices and Consumer Protection Law (LUTPA), La. Rev. Stat. Ann. § 51:1405.

647. Pursuant to La. Rev. Stat. Ann. § 51:1409, the State of Louisiana seeks to recover damages in an amount to be determined at trial; treble damages for knowing violations of Louisiana Unfair Trade Practices and Consumer Protection Law, La. Rev. Stat. Ann. § 51:1401, et seq; an order enjoining Google's unfair, unlawful, and/or deceptive practices pursuant to La. Rev. Stat. Ann. § 51:1407(A); civil penalties pursuant to La. Rev. Stat. Ann. § 51:1407 and La. Rev. Stat. Ann. § 51;1722; declaratory relief; attorney's fees; and any other just and proper relief available under La. Rev. Stat. Ann. § 51:1409.

9. Mississippi

648. Plaintiff State of Mississippi repeats and realleges each and every preceding allegation as if fully set forth herein.

649. The aforesaid conduct was not only anti-competitive but was also unfair and deceptive to the consumers of the State of Mississippi, therefore Google's acts violate the Mississippi Consumer Protection Act, Miss. Code Ann. § 75-24-1, *et seq*., and Plaintiff State of Mississippi is entitled to relief under the Mississippi Consumer Protection Act, Miss. Code Ann. § 75-24-1, *et seq*.

650. Pursuant to the Mississippi Consumer Protection Act, Miss. Code Ann. § 75-24-1, *et seq*., Plaintiff State of Mississippi seeks and is entitled to relief, including but not limited to injunctive relief, damages, restitution, disgorgement, civil penalties, costs, attorney fees, and any other just and equitable relief which this Court deems appropriate.

10. Missouri

651. Plaintiff State of Missouri repeats and realleges every preceding allegation as if fully set forth herein.

652. The aforementioned practices by Google were and are unfair and deceptive practices in violation of Missouri's Merchandising Practices Act, Mo. Rev. Stat. §§ 407.010 *et seq*., as further interpreted by 15 CSR 60-8.010 *et seq*. and 15 CSR 60-9.01 *et seq*.

11. Montana

653. Plaintiff State of Montana repeats and realleges each and every preceding allegation as if fully set forth herein, specifically including all allegations in Count VI of this Complaint. The forgoing acts and practices by Google were and are in willful violation of Montana's Unfair Trade Practices and Consumer Protection Act, Mont. Code Ann. § 30 14-101 *et seq*., including § 30-14-103, 142(2).

654. Google has engaged in and is engaging in trade and commerce within the meaning of Mont. Code Ann. § 30-14-102(8) and unfair methods of competition and unfair or deceptive acts or practices within the meaning of Mont. Code Ann. § 30-14-103 and *Rohrer v. Knudson*, 203 P.3d 759 (Mont. 2009).

655. Google's unlawful conduct was willful, and Plaintiff State of Montana is entitled to all legal and equitable relief pursuant to, without limitation, Mont. Code Ann. §§ 30-14-111(4); 30-14-131; and, 30-14-142(2).

12. Nevada

656. Plaintiff State of Nevada repeats and realleges each and every preceding allegation as if fully set forth herein.

657. As alleged in Section VII of this Complaint, and further described in Texas's allegations in Count VI of this Complaint, Google's conduct was and is directed at consumers nationwide, including in Nevada, and was overtly deceptive, not merely anticompetitive.

658. As repeatedly alleged herein, Google has engaged in false, deceptive, or misleading acts, practices and/or omissions in connection with each of its roles within the ad tech stack. In all such cases, the alleged acts, practices and omissions were, and are, in violation of the Nevada Deceptive Trade Practices Act, Nev. Rev. Stat. §598.0903, *et seq*., and specifically the following:

a) NRS 598.0915(5), a person engages in a deceptive trade practice by representing that services have characteristics, ingredients, uses, benefits, alterations or quantities which they do not have, or that a person has a sponsorship, approval, status, affiliation, or connection which he does not have;

b) NRS 598.0915(7), a person engages in a deceptive trade practice by representing that services are of a particular standard, quality, or grade, if they are of another standard, quality or grade;

c) NRS 598.0915(9), a person engages in a deceptive trade practice by advertising goods or services with the intent not to sell them as advertised;

d) NRS 598.092(8), a person engages in a deceptive trade practice by misrepresenting the legal rights, obligations or remedies of a party to a transaction; and

e) NRS 598.0923(2), a person engages in a deceptive trade practice by failing to disclose a material fact in connection with the sale of goods or services.

659. At all times, the above-described conduct has been and is willful within the meaning of Nev. Rev. Stat. §598.0999.

660. Accordingly, the State of Nevada seeks all available relief under the Nevada Deceptive Trade Practices Act and common law, including but not limited to: disgorgement, injunctions, restitution, civil penalties, damages, and its costs and attorney's fees pursuant to Nev. Rev. Stat. §§ 598.0963, 598.0973, and 598.0999.

13. North Dakota

661. Plaintiff State of North Dakota repeats and realleges every preceding allegation as if fully set forth herein.

662. The aforementioned practices by Google were and are in violation of N.D.C.C. § 51-15-01 *et seq*., *Unlawful Sales or Advertising Practices*, including § 51-15-02.

663. The Attorney General of North Dakota is authorized to bring an action in the name of the State against any person who has engaged in, or is engaging in, any practice declared to be unlawful by N.D.C.C. § 51-15-01 *et seq*. The Attorney General has reason to believe that Google has engaged in and continues to engage in such practices, constituting separate and multiple violations of North Dakota law; that Google has caused and will cause adverse effects for the business enterprises of the State; and that Google has caused and will cause damage to the State and to the persons of the State.

664. Google's separate and multiple violations of N.D.C.C. § 51-15-01 *et seq*. subject Google to the remedies outlined in N.D.C.C. §§ 51-15-07, 51-15-10, and 51-15-11.

14. Puerto Rico

665. Plaintiff Commonwealth of Puerto Rico repeats and realleges each and every preceding allegation as if fully set forth herein.

666. The aforementioned conduct was not only anticompetitive but was also unfair and deceptive to the consumers of the Commonwealth of Puerto Rico. Therefore, Google's conduct violates 10 L.P.R.A. § 259.

667. Every unfair or deceptive act or practice by Google constitutes a separate and distinct violation of 10 L.P.R.A. § 259.

15. South Carolina

668. Plaintiff State of South Carolina repeats and realleges each and every preceding allegation as if fully set forth herein.

669. The Attorney General of South Carolina is bringing this action in the name of the State pursuant to S.C. Code § 39-5-50(a).

670. At all times described herein, Google was engaged in conduct which constitutes "trade" and "commerce" as defined in S.C. Code § 39-5-10(b).

671. Google's acts or practices regarding South Carolina consumers as alleged herein are capable of repetition and affect the public interest.

672. Google's acts or practices alleged herein constitute "unfair or deceptive acts or practices" under S.C. Code § 39-5-20. Every unfair or deceptive act or practice by Google constitutes a separate and distinct violation of S.C. Code § 39-5-20.

673. Google's acts or practices alleged herein are offensive to established public policy, immoral, unethical, or oppressive.

674. At all times Google knew or should have known that its conduct violated S.C. Code § 39-5-20 and therefore is willful for purposes of S.C. Code § 39-5-110, justifying civil penalties.

675. Plaintiff State of South Carolina seeks all remedies available under the South Carolina Unfair Trade Practices Act (SCUTPA) including, without limitation, the following:

a) Injunctive and other equitable relief pursuant to S.C. Code § 39-5-50(a);

b) Civil penalties in the amount of $5,000, pursuant to S.C. Code § 39-5-110(a), for every willful violation of SCUTPA;

c) Costs and attorneys' fees pursuant to S.C. Code § 39-5-50(a) and S.C. Code § 1-7-85; and

d) Other remedies as the court may deem appropriate under the facts and circumstances of the case.

16. South Dakota

676. Plaintiff State of South Dakota repeats and realleges every preceding allegation as if fully set forth herein.

677. The aforementioned practices by Google were and are in violation of South Dakota statute SDCL § 37-24-6(1).

678. The Attorney General of the State of South Dakota is authorized to bring an action in the name of the State against any person who is using, has used, or is about to use any act or practice declared unlawful by SDCL § 37-24-6. The Attorney General has reason to believe that Google has used and is using the acts and practices set forth in this Complaint, which violate SDCL § 37-24-6; that Google has caused and will cause adverse effects for the business enterprises of the State; and that Google has caused and will cause damage to the State and to the persons of the State. The Attorney General therefore finds that this action is in the public interest.

17. Utah

679. Plaintiff State of Utah, by and through its attorney general who is acting as counsel to the Utah Division of Consumer Protection to enforce the Utah Consumer Sales Practices Act, Utah

Code § § 13-11-1 *et seq*., repeats and realleges every preceding allegation as if fully set forth herein.

680. The aforesaid conduct was not only anticompetitive, but also constituted unconscionable and deceptive practices to the consumers of the State of Utah, therefore Google's conduct violated the Utah Consumer Sales Practices Act. Utah Code §§ 13-11-1, 4, *et seq*., and Plaintiff State of Utah, Division of Consumer Protection, is entitled to relief under the Utah Consumer Sales Practices Act, Utah Code §§ 13-11-1, *et seq*.

681. At all times described herein, Google was a "supplier" and engaged in "consumer transactions" pursuant to Utah Code §§ 13-11-3(2), (6).

682. Pursuant to the Utah Consumer Sales Practices Act, Utah Code §§ 13-11-1, *et seq*., Plaintiff State of Utah, Division of Consumer Protection, is entitled to relief including, but not limited to, injunctive relief, damages, fines determined after considering the factors in Utah Code § 13-11-17(6), costs, attorneys' fees, and any other just and equitable relief which this Court deems appropriate. Utah Code §§ 13-11-17, 17.2.

XI. PRAYER FOR RELIEF

683. Accordingly, the Plaintiff States request that the Court:

a) Adjudge and decree that Google has committed violations of Section 2 of the Sherman Act, 15 U.S.C. § 2;

b) Adjudge and decree that Google has committed violations of Section 1 of the Sherman Act, 15 U.S.C. § 1;

c) Order injunctive relief to restore competitive conditions in the relevant markets affected by Google's unlawful conduct;

d) Order structural relief to restore competitive conditions in the relevant markets affected by Google's unlawful conduct;

e) Enjoin and restrain, pursuant to federal and state law, Google and their officers, directors, partners, agents, and employees, and all persons acting or claiming to act on their behalf or

in concert with them, from continuing to engage in any anticompetitive conduct and from adopting in the future any practice, plan, program or device having a similar purpose or effect to the anticompetitive actions set forth above;

f) Order Google to disgorge all sums, monies, and value unlawfully taken from consumers by means of deceptive trade practices, together with all proceeds, interest, income, profits, and accessions thereto; making such disgorgement for the benefit of victimized consumers and Plaintiffs;

g) Order Google to disgorge and return all data and information unlawfully taken from consumers by means of deceptive trade practices; making such disgorgement and return for the benefit of victimized consumers and Plaintiffs;

h) Order Google to pay all costs of suit, including reasonable attorneys' fees, pursuant to 15 U.S.C. § 26 and specific state law claims; and

i) Adjudge and decree that Google has committed separate and multiple violations of each of the state laws enumerated in Counts V and VI.

684. Plaintiff State of **Texas** requests that the Court:

a) Order Google to pay civil fines pursuant to § 15.20(a) of the Texas Business and Commerce Code;

b) Enjoin and restrain, pursuant to 15.20(b) of the Texas Business and Commerce Code, Google and its officers, directors, partners, agents, and employees, and all persons acting or claiming to act on its behalf or in concert with it, from engaging in conduct that violates Texas's antitrust laws;

c) Award Plaintiff State of Texas its costs of suit pursuant to 15.20(b) of the Texas Business and Commerce Code;

d) Enjoin and restrain, pursuant to the DTPA and/or other State law, Google and its officers, directors, partners, agents, and employees, and all persons acting or claiming to act on its behalf or in concert with it, from continuing to engage in any false, deceptive, or misleading acts or practices and from adopting in the future any acts or practice having a similar purpose or effect to the false, deceptive, or misleading actions set forth above;

e) Order Google to pay civil penalties of up to $10,000.00 per violation for each and every violation of the DTPA as authorized by Tex. Bus. & Com. Code § 17.47(c)(1); and

f) Order Google to pay all costs of Court, costs of investigation, and reasonable attorneys' fees pursuant to Section 17.47 of the DTPA and Tex. Govt. Code Ann. § 402.006(c).

685. Plaintiff State of **Alaska** requests that the Court:

a) Order Google to pay disgorgement and restitution pursuant to Alaska statutes and common law;

b) Order injunctive and other equitable relief pursuant to ARTA and AUTPCPA, including a permanent injunction prohibiting Google from engaging in anticompetitive conduct described in this Complaint and unfair, false, misleading, or deceptive, conduct described in this Complaint violating AS 45.50.471;

c) Order Google to pay civil penalties pursuant to AS 45.50.551 and AS 45.50.578; and

d) Order Google to pay costs and attorneys' fees as permitted by Alaska statutes, court rules, and common law.

686. Plaintiff State of **Arkansas** requests that the Court:

a) Order injunctive and other equitable relief as the Court deems appropriate pursuant to Ark. Code Ann. §§ 4-75-212 and 4-75-315;

b) Order Google to pay civil penalties to the State of Arkansas of up to $1,000 per violation of Ark. Code Ann. § 4-75-212;

c) Order Google to pay civil penalties to the State of Arkansas of up to $1,000 per violation of Ark. Code Ann. § 4-75-315;

d) Order Google to pay civil penalties to the State of Arkansas of up to $10,000 per violation for each and every violation of Ark. Code Ann. § 4-88-113; and

e) Order Google to pay to the Attorney General of Arkansas all of the State's expenses, costs, and attorneys' fees, pursuant to Ark. Code Ann. §§ 4-75-212, 4-75-315, and 4-88-113.

687. Plaintiff State of **Florida** requests that the Court:

a) Order injunctive and other equitable relief pursuant to Fla. Stat. § 542.23;

b) Order payment of civil penalties pursuant to Fla. Stat. § 542.21;

c) Order payment of costs and attorneys' fees pursuant to Fla. Stat. § 542.23;

d) Order payment of damages for consumers under *parens patriae* authority, pursuant to Fla. Stat. § 501.207;

e) Order disgorgement and restitution payments pursuant to The Florida Deceptive and Unfair Trade Practices Act, Fla. Stat. § 501.204 *et seq*.;

f) Order injunctive and other equitable relief pursuant to Fla. Stat. § 501.207;

g) Order payment of civil penalties pursuant to Fla. Stat. § 501.2075; and

h) Order payment of costs and attorneys' fees pursuant to Fla. Stat. § 501.210.

688. Plaintiff State of **Idaho** requests that the Court:

a) Order Google to pay civil penalties to the Attorney General of Idaho of up to $50,000 per violation for each and every violation of the Idaho Competition Act, as authorized by Idaho Code § 48-108(1)(d);

b) Order Google to pay to the Attorney General of Idaho all costs of suit, including attorneys' fees, as authorized by Idaho Code § 48-108(2) to the State of Idaho as *parens patriae* on behalf of persons of the State of Idaho;

c) Order Google to pay to the Attorney General of Idaho all of the State's expenses, costs, and attorneys' fees, as authorized by Idaho Code §§ 48-108(1)(d) § 48-108(2)(a);

d) Grant such further relief to the Attorney General and the State of Idaho as provided for by law or equity, including by Idaho Code § 48-112(4), or as the Court deems appropriate and just;

e) Order Google to pay civil penalties to the Attorney General of Idaho of up to $5,000 per violation for each and every violation of the ICPA and the Idaho Rules of Consumer Protection, as authorized by § 48-606(1)(e);

f) Order Google to pay to the Attorney General on behalf of consumers actual damages or restitution of money, property, or other things received from such consumers by Google in connection with each and every violation of the Idaho Consumer Protection Act and the Idaho Rules of Consumer Protection, as authorized by Idaho Code § 48-606(1)(c);

g) Order Google to pay to the Attorney General of Idaho all of the State's expenses, costs, and attorneys' fees, as authorized by Idaho Code §§ 48-606(1)(f); and

h) Grant such further relief to the Attorney General and the State of Idaho as provided for by law or equity, including by Idaho Code § 48-607, or as the Court deems appropriate and just.

689. Plaintiff State of **Indiana** requests that the Court:

a) Order injunctive and other equitable relief pursuant to Ind. Code §§ 24-1-2-1 *et seq*. and 24-5-0.5-4(c)(1);

b) Order Google to pay restitution pursuant to Ind. Code § 24-5-0.5-4(c)(2) for money unlawfully received through violations of the Indiana Deceptive Consumer Sales Act;

c) Order Google to pay costs pursuant to Ind. Code § 24-5-0.5-4(c)(4);

d) Order Google to pay civil penalties pursuant to Ind. Code § 24-5-0.5-4(g) for knowing violations of the Indiana Deceptive Consumer Sales Act; and

e) Order Google to pay civil penalties pursuant to Ind. Code § 24-5-0.5-8 for incurable deceptive acts done as part of a scheme, artifice, or device with intent to defraud or mislead.

690. Plaintiff State of **Kentucky** requests that the Court:

a) Order Google to pay disgorgement and restitution pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law;

b) Order injunctive and other equitable relief pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law, including a permanent injunction prohibiting Google from engaging in anticompetitive conduct described in this Complaint violating Ky. Rev. Stat. § 367.175, and unfair, false, misleading, or deceptive conduct described in this Complaint violating Ky. Rev. Stat. § 367.170;

c) Order Google to pay civil penalties pursuant to Ky. Rev. Stat. § 367.990(2);

d) Order Google to pay civil penalties pursuant to Ky. Rev. Stat. § 367.990(8);

e) Order Google to pay damages pursuant to Ky. Rev. Stat. § 15.020, Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, and common law; and

f) Order Google to pay costs and attorneys' fees pursuant to Ky. Rev. Stat. § 367.110 through Ky. Rev. Stat. § 367.990, Ky. Rev. Stat. § 48.005(4), and common law.

691. Plaintiff State of **Louisiana** requests that the Court:

a) Order injunctive relief to restrain, enjoin and prohibit Google from engaging in any activity in violation of the Louisiana Monopolies statutes, La. Rev. Stat. Ann. § 51:121, *et seq.*, including, but not limited to, the unfair methods of competition and unfair or deceptive acts or practices alleged herein;

b) Order injunctive relief and other equitable relief, pursuant to La. Rev. Stat. Ann. § 51:1401 restraining, enjoining and prohibiting Google from engaging in any acts that violate LUTPA, including, but not limited to, the unfair methods of competition and unfair or deceptive acts or practices alleged herein;

c) Order that Google pay restitution under LUTPA (La. Rev. Stat. Ann. § 51.1408) to all consumers who have incurred a loss due to the conduct of Google through any manner deemed practicable by the Court;

d) Order Google to pay all civil penalties allowed pursuant to La. Rev. Stat. Ann. § 51:1407 and La. Rev. Stat. Ann. § 51:1722, for each and every willful violation of LUTPA; and

e) Order Google to pay attorneys' fees and costs pursuant to La. Rev. Stat. Ann. § 51:1409 for violations of LUTPA.

692. Plaintiff State of **Mississippi** requests that the Court:

a) Enjoin and restrain, pursuant to Miss. Code Ann. §§ 75-21-1; 75-21-3; 75-24-9; 75-24-11 and/or other State law, Google and its officers, directors, partners, agents, and employees, and all persons acting or claiming to act on its behalf or in concert with it, to correct, prevent and deter the recurrence of the anticompetitive actions set forth above, to restore and preserve fair competition, and to prevent false, deceptive, or misleading acts or practices;

b) Order Google to pay the Attorney General of Mississippi on behalf of consumers restitution pursuant to Miss. Code Ann. § 75-24-11 and the Attorney General's *parens patriae* authority;

c) Order Google to pay the Attorney General of Mississippi disgorgement pursuant to Miss. Code Ann. §§ 75-24-11 and 75-24-23 and as an equitable remedy pursuant to common law;

d) Order Google to pay the Attorney General of Mississippi civil penalties of up to ten thousand dollars ($10,000) per violation for each and every violation of the MCPA pursuant to Miss. Code Ann. § 75-24-19(b);

e) Order Google to pay the Attorney General of Mississippi's costs and attorneys' fees pursuant to Miss. Code Ann. § 75-24-19(1)(b) and pursuant to common law; and

f) Order other remedies as the court may deem appropriate under the facts and circumstances of the case and pursuant to Miss. Code Ann. §§ 75-24-23 and 11-45-11.

693. Plaintiff State of **Missouri** requests that the Court:

a) Order structural and other injunctive relief to enjoin, restrain, and prevent and deter the recurrence of the anticompetitive actions set forth above and to restore and preserve fair competition per Mo. Rev. Stat. §§ 416.011 *et seq*.;

b) Order Google to pay civil penalties in an amount of up to $1,000 for each act in connection with each sale or advertisement of merchandise in violation of Mo. Rev. Stat. §§ 407.010 *et seq*.;

c) Order structural and other injunctive relief to enjoin, restrain and prevent, and deter the recurrence of the unlawful merchandising practices set forth above, including an order to disgorge all revenues, profits and gains achieved in whole or in part through violations of Mo. Rev. Stat. §§ 407.010 *et seq*.; and

d) Order an award of restitution, payable to the State of Missouri, to restore all persons in Missouri suffering loss as a result of Google's unlawful merchandising practices in

violation of Mo. Rev. Stat. §§ 407.010 *et seq*., and order additional award equal to 10 percent of such restitution, payable to the State of Missouri to the credit of the Missouri Merchandising Practices Revolving Fund, as provided in Mo. Rev. Stat. § 407.140, and to pay all costs, including fees, of investigation and prosecution of these claims pursuant to Mo. Rev. Stat. § 407.130 and § 416.121.

694. Plaintiff State of **Montana** requests that the Court:

a) Order Google to pay civil fines of up to $10,000 for each willful violation of Mont. Code Ann. § 30-14-103, pursuant to Mont. Code Ann. § 30-14-142;

b) Order structural, injunctive, and all available legal and equitable relief pursuant to Mont. Code Ann. § 30-14-101 *et seq*. and § 30-14-201 *et seq*.; and

c) Order payment of Plaintiff State of Montana's costs and attorney fees pursuant to Mont. Code Ann. § 30-14-131.

695. Plaintiff State of **Nevada** requests that the Court:

a) Order Google to pay disgorgement and restitution pursuant to Nev. Rev. Stat. §598.0963 and Nev. Rev. Stat. §598A.170;

b) Order injunctive and other equitable relief pursuant to Nev. Rev. Stat. §598A.070 and Nev. Rev. Stat. §598.0963, including a permanent injunction prohibiting Google from engaging in the anticompetitive conduct described in this Complaint;

c) Order Google to pay civil penalties pursuant to (i) Nev. Rev. Stat. §598A.170, which provides that the Attorney General may recover a civil penalty "not to exceed 5 percent of the gross income realized by the sale of commodities or services sold by such persons in this state in each year in which the prohibited activities occurred," (ii) under Nev. Rev. Stat. §598.0999 of not more than five thousand dollars ($5,000) per violation, and (iii) Nev. Rev. Stat. §598.0973, a civil penalty of not more than twelve thousand five hundred dollars ($12,500) per violation where the defendant's conduct is directed at a person aged sixty (60) or older, or a disabled person;

d) Order Google to pay treble damages as provided by Nev. Rev. Stat. §598.0999; and

e) Order Google to pay costs and attorneys' fees pursuant to Nev. Rev. Stat. §598A.200, Nev. Rev. Stat. §598A.210, Nev. Rev. Stat. §598.0963 and Nev. Rev. Stat. §598.0999.

696. Plaintiff State of **North Dakota** requests that the Court:

a) Order Google to pay civil penalties of not more than fifty thousand dollars ($50,000) for each violation of N.D.C.C. § 51-08.1-01 *et seq*., pursuant to N.D.C.C. § 51-08.1-07;

b) Award the State of North Dakota the costs of this action and its preceding investigation, including reasonable attorneys' fees and costs, as provided for in the Clayton Act and applicable state law, including N.D.C.C. § 51-08.1-08;

c) Order Google to pay civil penalties of not more than five thousand dollars ($5,000) for each violation of N.D.C.C. § 51-15-01 *et seq.* pursuant to N.D.C.C. §§ 51-15-11;

d) Order Google to pay reasonable attorney's fees, investigation fees, costs, and expenses pursuant to N.D.C.C. § 51-15-10;

e) Order Google to pay to the Attorney General of North Dakota, on behalf of persons of the State, all damages, compensation, or restitution necessary to restore to such persons any money or property that may have been acquired by Google in connection with each and every violation of N.D.C.C. § 51-15-01 *et seq.*, pursuant to N.D.C.C. § 51-15-07; and

f) Grant such further relief to the Attorney General and the State of North Dakota as provided for by law or equity, including by N.D.C.C. § 51-15-07, or as the Court deems appropriate and just.

697. Plaintiff Commonwealth of **Puerto Rico** requests that the Court:

a) Order injunctive and other equitable relief, civil penalties of up to $5,000 per violation, and any other appropriate relief pursuant to Puerto Rico Law No. 77 of June 25, 1964, also known as "Puerto Rico's Antitrust and Restrictions of Commerce Law," 10 P.R. Laws Ann. §§ 257 *et seq.*, and 32 P.R. Laws Ann. § 3341; and

b) Order injunctive and other equitable relief, civil penalties of up to $5,000 per violation, and any other appropriate relief pursuant to 10 L.P.R.A. § 259, 10 L.P.R.A. 10 L.P.R.A. § 269; 32 P.R. Laws Ann. § 3341, as well as the payment of all costs of Court, costs of investigation, and reasonable attorneys' fees.

698. Plaintiff State of **South Carolina** requests that the Court:

a) Permanently enjoin Google, pursuant to S.C. Code § 39-5-50(a) from engaging in any acts that violate SCUTPA, including, but not limited to, the unfair methods of competition and unfair or deceptive acts or practices alleged herein;

b) Order Google to pay civil penalties in the amount of $5,000, pursuant to S.C. Code § 39-5-110(a), for each and every willful violation of SCUTPA; and

c) Order Google to pay attorneys' fees and costs pursuant to S.C. Code § 39-5-50 and S.C. Code § 1-7-85 for violations of SCUTPA.

699. Plaintiff State of **South Dakota** requests that the Court:

a) Order Google to pay civil penalties to the State of South Dakota of up to $50,000 per violation for each and every violation of SDCL §§ 37-1-3.1 *et seq*., pursuant to SDCL § 37-1-14.2;

b) Order Google to pay all injunctive and other equitable relief authorized by SDCL § 37-1-32 to the State of South Dakota as *parens patriae* on behalf of persons of the State for any and all injury directly or indirectly sustained because of each and every violation by Google of SDCL §§ 37-1-3.1 et seq;

c) Order Google to pay to the Attorney General of South Dakota all of the State's expenses, costs, and attorneys' fees, as authorized by SDCL § 37-1-24;

d) Order Google to pay civil penalties to the State of South Dakota of up to $2,000 per violation for each and every violation of SDCL § 37-24-6, as authorized by SDCL § 37-24-27;

e) Order Google to grant all relief to the State of South Dakota authorized by SDCL § 37-24-29 to restore to any person in interest all monies or property, real or personal, that Google has acquired by each and every violation of SDCL § 37-24-6;

f) Order Google to pay to the Attorney General of South Dakota all of the State's expenses, costs, and attorneys' fees, as authorized by SDCL § 37-24-23; and

g) Grant such further relief to the Attorney General and the State of South Dakota as provided for by law or equity, including by SDCL § 37-24-29, or as the Court deems appropriate and just.

700. Plaintiff State of **Utah** requests that the Court:

a) Grant declaratory judgment that Google has engaged deceptive acts and practices as contemplated by Utah Code § 13-11-4, and as permitted by Utah Code § 13-11-17;

b) Order Google to pay civil penalties determined after considering the factors in Utah Code § 13-11-17(6); and

c) Order Google to pay Plaintiff State of Utah, Division of Consumer Protection, an award of reasonable attorneys' fees, court costs, and costs of investigation (Utah Code § 13-11-17.5).

701. The Plaintiff States further request that the Court:

a) Order other equitable relief as may be appropriate;

b) Grant leave to amend the Complaint to conform to the evidence produced at trial; and

c) Direct such other and further relief as the Court deems just and proper.

XII. DEMAND FOR A JURY TRIAL

702. Pursuant to Federal Rule of Civil Procedure 38(b), the Plaintiff States demand a trial by jury of all issues properly triable to a jury in this case.

Respectfully submitted,

November 12, 2021

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