IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, et al.,
Plaintiffs,

vs.

GOOGLE, LLC,

Defendant.
_____/

Civil Action
No. 1:20-cv-3010

Washington, DC
September 26, 2023
2:37 p.m.

Day 10
Afternoon Session

TRANSCRIPT OF BENCH TRIAL
BEFORE THE HONORABLE AMIT P. MEHTA
UNITED STATES DISTRICT JUDGE

APPEARANCES:

For DOJ Plaintiffs:

KENNETH DINTZER
U.S. Department of Justice
1100 L Street, NW
Washington, DC 20005

MEAGAN BELLSHAW
DIANA AGUILAR
U.S. Department of Justice
450 Fifth Street, NW
Washington, DC 20001

DAVID DAHLQUIST
U.S Department of Justice
209 South LaSalle Street, Suite 600
Chicago, IL 60604

For Plaintiffs State of Colorado & State of Nebraska:

WILLIAM CAVANAUGH, JR.
Patterson, Belknap, Webb & Tyler, LLP
1133 Avenue of the Americas #2200
Suite 2200
New York, NY 10036

APPEARANCES CONT:

For Plaintiff State of Colorado:
JONATHAN SALLET
Colorado Department of Law
CPS/Antitrust Section
1300 Broadway, 7th Floor
Denver, CO 80203

For Defendant Google:
JOHN SCHMIDTLEIN
KENNETH SMURZYNSKI
Williams & Connolly, LLP
680 Maine Avenue, SW
Washington, DC 20024

Court Reporter:
JEFF HOOK
Official Court Reporter
U.S. District & Bankruptcy Courts
333 Constitution Avenue, NW
Washington, DC 20001

I N D E X

WITNESS	PAGE
EDDY CUE	
Continued Cross-Examination by Mr. Schmidtlein	2618
Continued Redirect Examination by Ms. Bellshaw	2635
Continued Redirect Examination by Mr. Cavanaugh	2638
MIKHAIL PARAKHIN	
Direct Examination by Ms. Aguilar	2640
Direct Examination by Mr. Cavanaugh	2675

E X H I B I T S

EXHIBIT		PAGE
Exhibit UPX270	.....Admitted into evidence.....	2648
Exhibit UPXD3	.....Admitted into evidence.....	2687

P R O C E E D I N G S

THE COURT: Why don't we go ahead and get started, and we'll connect the media room when it's ready to be connected. Go ahead, Mr. Schmidtlein.

CONTINUED CROSS-EXAMINATION OF EDDY CUE

BY MR. SCHMIDTLEIN:

Q. You testified earlier today, Mr. Cue, about a concept known as the out-of-the-box experience. Do you recall that?

A. I did.

Q. And is the out-of-the-box experience that consumers have with Apple products important to Apple?

A. It's incredibly important. It starts with the packaging. If you look at the boxes in which we ship our packages, to the way that you open them, to the material that's used inside, to the fact when you turn it on for the first time. I mean, we care deeply about everything from the moment that you take that box, and everything that happens there on out to get it going.

Q. Does Apple's commitment to providing the very best out-of-box experience to consumers include pre-loading applications and services that Apple believes are the best-in-class?

A. We do. As I said, we want our customers -- when a customer buys one of our devices, they're excited to take them home, start them up for the first time. And we want those

experiences to be incredible, obviously, for them. They've spent a lot of money buying them, and it's really important to us that the out-of-box experience, as I call it, or the first time they use the product, that their experience is amazing.

Q. Does Apple consider internet browsing to be critical functionality that users expect from Apple mobile devices and computers?

A. It is. As you know, the internet is a huge piece of what customers do. They use Safari every day -- or a web browser, and so -- and part of using that is searching. So it's a critical experience of our devices.

Q. Does having a first class browsing and internet search capability out-of-the-box make Apple products more competitive?

A. It absolutely does. I mean, if you go back even to the launch of the iPhone with Steve Jobs on stage, it's an iPod, music, he talks about that. One of the things -- it's a phone, he talks about that. And the third thing he talks about, it's the internet in your pocket, a mobile device with the full internet, a full browser capability to be able to browse the web for the first time. So it's been a critical component of Apple from the very beginning.

Q. And has Apple touted that -- the fact that Google's search has been integrated into Safari for many, many years?

A. We are, we're proud of that. It's a great product for our customers, and we wanted our customers to know that they're

getting the Google search engine. I think one of the benefits, for example, that Google gets from Apple is that we are telling the world that Google is the best search engine, because that's what they would expect Apple to pick.

MR. SCHMIDTLEIN: Your Honor, may I approach?

THE COURT: Yes.

BY MR. SCHMIDTLEIN:

Q. Mr. Cue, if you will turn to DX267 in your binder -- and I believe this is in evidence, Your Honor.

Do you recognize this document?

A. I do. This was a great day for Apple.

Q. Can you tell us what this document is?

A. Prior to this, Apple did not have a web browser. The dominant web browser at the time was Microsoft's Internet Explorer. Internet Explorer was also available, it was on Windows and it was on the Mac. The version on the Mac was not as good as the version on Windows, so it didn't perform as well. And the other thing that Microsoft was doing with Internet Explorer was they were creating proprietary non-web standards for websites to build. So we were concerned, and we wanted to build our own web browser at the time that would work and be a great experience on Safari.

And what that meant to us was, you know, being really fast, so performance was really important. Number two, being able to render those pages from all of the websites. So we

wanted to be -- we were using standard web technology. Third, we wanted to be able to innovate. And we've continued to innovate in Safari over the last basically 20 years now in providing new capabilities. You can see some of them here. And thirdly, we wanted to talk about the fact that we had integrated search. It's maybe a little hard for people to think about this, but before 2003, the way that you searched the web was you had to go in and type in, you know, Google.com in the URL field -- or you could type another search engine, obviously Yahoo.com or anybody at that time.

And we had thought of this idea of like, well, this seems like an extra step for the customer. What if we come up with the idea of if you type in something in the search field and it's not a URL, let's just automatically search and provide the results. So we went out looking for what we thought at the time was the best search engine, and so we partnered with Google. And this is the announcement of that product.

Q. This is the original launch of the Safari browser?

A. This is Safari 1.0, as you would say.

Q. And at this time, Safari only was available on Mac; is that right?

A. That's correct. We were only selling Macs at that time, there was no other device to put it on.

Q. And what was Macintosh's market share roughly at this time, if you can remember?

A. It's in the single digits. As I said earlier, Microsoft was always the biggest player by far.

Q. If you'll turn in your binder to DX270. Just take a moment as we put that up. And this is also in evidence, Your Honor.

Do you recognize this document, Mr. Cue?

A. I do. This was the announcement of the iPhone.

Q. And this -- at this time, did Apple also launch a version of the Safari browser specifically for the iPhone?

A. Yes. As I stated earlier, prior to this, when you bought a mobile phone, it came with a quote, unquote mobile browser. Think of that as a browser that was a subset or neutered compared to a full browser that you got on Windows or Mac. One of the innovations that we wanted to bring to phones was to get a full browser so that you would get the same experience that you would get on Windows or on a Mac, for example, on a browser on the phone. And so this was part of that announcement.

Q. And if you look on page three -- and we'll blow it up on the computer screen in front of you, one of the features that's being touted at the release of the iPhone is this new version of Safari. And specifically, there's a reference to: "iPhone's Safari web browser also includes built-in Google search and Yahoo! search so users can instantly search for information on their phone, just like they do on their

computer."

Why was Apple promoting both Google and Yahoo! as part of this announcement of the new Safari browser on iPhones?

A. Though at the time we thought Google was the best search engine, Yahoo! was still kind of a close second and was popular. So we -- as we've done since then, we built it in so that customers could easily switch. And so we wanted to make sure that people knew that if they bought an iPhone and they were using Safari, they could also use Yahoo!. And so we made it easy, again, for customers to switch.

Q. Has Apple over the years put a great deal of thought into how it designs the Safari browser?

A. I mean, sorry if it comes off as -- I think we do -- we spend a great deal of time on everything that we do. From a design point of view, I think it's part of our culture and what makes us unique.

Q. Was designing the Safari browser to have an integrated search box so you could either type in a search query or a URL one of those design decisions?

A. Yes, absolutely.

Q. And --

A. I think everybody's copied it since then, so it was a great idea.

Q. Was building the Safari browser to have a single default search engine out-of-the-box another product design

decision that Apple carefully considered?

A. Sure. When you bring up Safari for the first time and you type something in and you get the search results, it works -- some people would call it magically. Again, we've gotten used to all of this. But at this time, when we're innovating and doing this for the first time, it was incredible. People were blown away with the fact that you could just type in there and you'd get search results. That had never been seen before.

Q. Did you or others at Apple understand that some consumers don't distinguish between a browser and a default search engine?

A. Yeah, again, I think from our point of view, our concern -- again, we're trying to address all of our customers. So -- and when you're trying to address all your customers, you have to make decisions on how you do things. And so when we looked at it, we said, look, we want customers to have an experience that doesn't force them to understand all these different search engines that potentially are there. Secondly, to pick the best search engine that there is out there for it so that when you do this it just works. If at some point later on you decide that you prefer a different search engine or there's a different one that you want to use, then it's fine, you can switch it over.

And again, we don't -- we didn't do anything to prevent

those search engines from working. In other words, if you do that, it works exactly the same way: You type in the URL field, and it works for Yahoo! or it works for somebody else. So we were giving the customer the choice and the experience. But it's critical for customers -- with our products, at least. As I said, we don't like bloatware, we don't like a lot of things that others do. We like our products to come out-of-the-box and work where it feels like magic. And I think the ability of searching in Safari and doing that with Google, it does feel like magic, it works really well.

Q. If a user has a poor experience with a browser because of the quality of the default search engine, will users potentially switch browsers?

A. Again, we have an App Store, it's very easy to download applications, it is not difficult. As a matter of fact, we highly encourage it. Most customers have downloaded tens, if not hundreds, of apps at this point. So it's quite easy to go download another browser or download any another application from that stance. So sure, look, if we're not -- I go back to the same thing. In my view, in the environment that we're in, if we don't have the best product, the best product ultimately wins. Because there's no lock and key here in any way, and so customers can choose a different browser, customers can choose a different search engine, customers can choose a different product. We compete -- as I said, we're not the

highest market share on phones, and so we compete vigorously around all of this.

Q. Does Apple have an incentive to make it easy for consumers to find and download applications in the Apple App Store?

A. Of course. It was one of the -- again, when you go back in history, today everyone takes that for granted. But prior to the App Store, you had to go to Circuit City or some shop to go buy software. If you were downloading it from the quote, unquote internet, there was a concern is it legitimate, does it have viruses, is it going to steal my data, all of these things. And the App Store was an incredible innovation that I think revolutionized the world and has made it amazing for developers, because all of a sudden I can be an individual developer and have access to every iPhone in the world, and it's really easy for a customer to download. And so we've had billions and billions of downloads because of that.

Q. Does Apple also have contractual obligations with search engines that require Apple to make sure that other search engines can be easily discovered, and that users can easily change the default search engine?

A. We do.

Q. If you'll look in your binder, Mr. Cue, at DX924. My apologies --

A. Sorry, I don't have that one. Thank you.

Q. I'm also going to give you DX963 as well.

A. Thank you.

Q. Now, can you identify DX924?

A. Yes, I believe this is the original deal with Yahoo! for search for the iPhone.

Q. And since this time, am I correct that there have been certain amendments or renewals of this agreement, but that this document embodies many of the live terms of the agreement?

A. That's correct.

Q. And if you will look at -- on page four of that agreement, there's a section 5.2 at the bottom. And Your Honor, I'm keeping this off the screen, and I think we can work around the contractual provisions here.

That is a section of the agreement that deals with placement of Yahoo! applications on Apple devices; is that right?

A. Well, it's talking about the Yahoo! settings, and then it talks about some other things like Mail.

Q. And am I correct that this is the provision of the Yahoo!-Apple agreement that obligates Apple to make sure that Yahoo!'s search is readily available and easily discoverable by end users?

A. That's correct.

Q. And that Apple is obligated to make it easy for users to be able to switch the default search engine in Safari?

A. That's correct.

Q. And then if you will look at DX963, this is -- well, why don't you tell me, what is DX963?

A. This is an agreement for -- with Microsoft related to the -- to Bing search.

Q. And this is the -- again, this embodies the terms that are subject to additional amendments that come later. This embodies the terms of an agreement that is in effect today?

A. That's correct.

Q. And if you will look at section 2.5 on page three. Is this a provision of the Microsoft-Apple agreement that obligates Apple to make sure that Apple provides a readily available and easily discoverable option for users to change the default search service to Bing?

A. That's correct.

Q. And do these agreements also provide that Apple will provide a mechanism for Microsoft or Yahoo! whereby if a user downloads Bing or downloads Yahoo! from the App Store, that user can be sort of sent a message or a request asking them if they want to change the default on Safari?

A. Yeah, I would like to correct your terms there. You don't really download a Yahoo! thing or whatever, you already have Safari as the browser sitting on there. So if you go to the Yahoo! website, we were giving Yahoo! a capability to be able to prompt the user to switch the search terms -- the

search -- the default search.

Q. So that if a user was -- had decided to use Yahoo!'s search through Safari, Yahoo! could message that person about the ability to change their default?

A. That's correct, we thought it would be a good idea. Unfortunately, Yahoo! abused the privilege, and we removed it later. And what I mean by abused the privilege is that they started basically prompting the customer all the time. And so kind of every time you went there to do anything, not just searching or whatever, they were prompting the customer. And so now the experience for the customer was horrible, because you had to say no multiple times, again, on a constant basis. And so we removed the capability, and so it's -- that no longer exists.

Q. And does Microsoft have that capability today?

A. They do not. It's the same thing. Unfortunately, when people have been given those capabilities, they tend to try to keep asking the customer over and over and over again until you say yes so that you make the thing go away and so it doesn't appear again.

Q. During the time that these agreements have been in effect -- and I believe these have been in effect for over a decade, are you aware of any instance in which either Yahoo! or Microsoft has complained to Apple that Apple's implementation of the Safari default settings is in violation of Apple's

obligation to make discovering Bing or Yahoo! search easy and readily discoverable?

A. They have not, and I can't imagine they ever would. It's pretty easy, and so it's -- if you know how to set your wifi, you would know how to switch your search browser. It's the same -- not a difficult process.

Q. Is it a matter of a couple of taps on your phone in the settings?

A. I can spell it out directly. You go to settings, you go to Safari. At the very top, it tells you search engines. You tap on it, and it shows you a list and then you pick the one you want around it. And so, as I said, there's other things that customers do that are similar: You go to settings, you pick wifi, you get a list of wifis, you tap and then it asks you for a password or whatever else. It's not a very complicated thing.

Q. I'm going to show you what we've marked as Defendant's Demonstrative Exhibit 6. Recognizing the resolution is not what you would like it to be, Mr. Cue, can you explain, is this the process that you were just describing on Defendant's Demonstrative Exhibit 6?

A. It is. This is an earlier version of iOS, but it works exactly the same today.

Q. And can you describe for the Court each of those screens?

A. Yeah, the screen on the left, the leftmost, is your -- the list of your applications. The settings app, by default when you buy a new phone, is on the main screen. And it typically stays there, because people use it often, as I said, to switch wifi or to switch airplane mode, for example, other things like that. When you tap on that settings, you get a list. The list is prioritized by the Apple things before you get to third-party apps, and Safari is one of those items. You tap on Safari, and then you have search engine listed there. It would show you what the current search engine is that you're using as the default. And then if you tap it, you get a list of choices, and you can pick any of them from that choice. You only have to do that once. After you do that once, it stays that choice until you decide to change it again, if you ever do.

Q. And this fourth screen that has the lists of the other options, is that the current list of search engines that Apple offers as the default in the United States?

A. I believe it is, yes.

Q. We can take that down. Mr. Cue, are you aware of any instance in which Apple has considered offering multiple versions of the Safari browser but with different default search engines attached to a different version of the browser?

A. Again, on Apple devices, we would never do that. There's no scenario in which I could see us ever doing that,

because it doesn't make any sense. We want to give our customers the best experience, so why would we ever do that.

Q. You were asked some questions this morning by DOJ counsel about choice screens. Do you recall that?

A. I do.

Q. And I think you testified about views around sort of choice screens. To your knowledge, has Apple ever implemented a choice screen in connection with the Safari browser on any of Apple's platforms?

A. We have not. To my knowledge, we've never even considered it. It doesn't make sense to us.

Q. Are you aware of any other browser that upon first use offers a choice screen to their customers to pick a default search engine?

A. I'm not. I don't recall -- when I download Internet Explorer or Edge or any of the third-party ones, Firefox, I don't recall anybody asking. I haven't done a conclusive search, but my own personal experience is no.

Q. Now, Mr. Cue, I know you were not present in the courtroom during the opening arguments in this case, but I am -- I guess I'm -- and you can put this up on the screen. I'm showing you here a slide that the Department of Justice showed during the opening statements in this case, quoting from a Google document that -- from 2007 with the quote: "No default placement - no revenue share." And the title of the

slide at the top is Google Restricts Apple.

Sir, are you aware of Google restricting Apple's ability to design its software products?

A. I am not, no.

Q. And are you aware of Google blocking Apple's ability to set its default search engine in any manner it sought fit -- it sought to?

A. No. Again, I'm not -- back in 2007, Apple was developing Safari for Windows, so this would be non Apple devices. If you recall, when I started, why did we start Safari on the Mac was we were competing with Microsoft and Internet Explorer. They started doing proprietary things that would break on a standard browser. And so we felt like we did Safari on the Mac, it was successful, and we said in order to get even more compatibility out there, we wanted to do Safari for Windows. Again, this is for non Apple devices, think of it as HP or Dell computers. And so we had a project to do Safari for Windows, which actually came to fruition.

But at this time, one of the concerns that we had was how do we get distribution for Safari for Windows. Obviously, Windows customers aren't coming to Apple generally, and so we started talking to other parties from Yahoo! -- and I believe we've talked to AOL, I know we talked to others. It wasn't me, I was not involved in that, but I was aware, because I was aware of the project and what we were doing for Windows. And

part of that discussion that came about as we were talking to other parties was a question around if you download Safari for Windows somewhere else, not on Apple's -- obviously, I just want to make very clear in case you have any questions around it, this has nothing to do with Apple devices. So if you download Safari for Windows on another site -- let's use Yahoo!, for example, Yahoo! wanted the capability such that Yahoo! would be the default search engine for that download of Safari when it got downloaded from Yahoo!. And you could understand that on their side, they wouldn't want to download -- push a download to a customer that was then pointing to somebody else.

And so we considered that, and ultimately we decided not to do it. It was very complicated as we talked to different parties. But we did go back to Google and ask for that, which is in the case of Windows specifically, would we have the capability to set the default if it was getting downloaded from other places. And Google said no, they wanted to be the default from that standpoint on Windows as well. As I said, not a lot came out of this, because it turned out that distributing software through third parties was difficult. There were -- some parties were asking for money and all these different things, and so it made it difficult. So we, at the end of the day, decided to ship Safari for Windows just like the Mac, and so it's shipped with Google as the default, and

again, with the choices on the screen. We no longer do Safari for Windows, but at that time we did it for several -- multiple years.

Q. Was Safari for Windows effectively discontinued as of roughly 2012?

A. That's correct.

MR. SCHMIDTLEIN: No further questions, Your Honor.

THE COURT: Redirect.

CONTINUED REDIRECT EXAMINATION OF EDDY CUE

BY MS. BELLSHAW:

Q. Thank you, Your Honor. Mr. Cue, how many days did you spend preparing for your testimony here?

A. I don't know, three, four days over a period of time, plus I had the pleasure to do the deposition with you as well. So we spent, I think, two days together. And then I had spent some time prior to that in my capacity as representing the company and meeting with different folks within the company for the things that I was not aware of -- or wasn't -- not that I wasn't aware of, but wasn't the party negotiating or other things like that. So over that period of time.

Q. And did you meet with Google's counsel in preparation for your testimony at trial?

A. No, this is the first time I've met the gentleman today.

Q. You mentioned ads earlier. Does Apple serve search

ads in its Apple App Store?

A. We serve ads in our Apple App Store, that's correct.

Q. You walked through with Mr. Schmidtlein the steps that a user can take to change the default in the Safari browser on their iPhone. Just as a few predicates to that, if a user wants to change the default in the Safari browser for their search engine, they have to first know that there is a default to change, right, you would agree with that?

A. Sure.

Q. And then in order for it to be the four steps that were on the demonstrative that Mr. Schmidtlein showed you, the user would have to already know how to change the default, correct?

A. Yes. Again, as I said, customers go to settings very often, and so it's not an unusual thing to go in there. You set your wifi, you set airplane, you set a lot of different things, and so it's not an unusual thing. We don't do anything to prevent anybody from communicating it. So to the extent that Bing communicates it to its customers, we think it's great. If you go to Apple's website and you look under Safari, we talk about the fact that there are other search engine providers. If you go to our support site where customers go, we itemize and tell you how to do it. So we're not trying to hide anything, we put it in the place where we think it belongs and where customers would expect it.

Q. Sure. And if the customer has to go to Apple's website or look up on Google or Bing how to change the default in Safari, that just adds a few steps, right?

A. For those customers, again, that wouldn't. But as I said, that just shows us trying to do the breadth of making sure that if a customer doesn't figure it out or doesn't know, we want them to -- to show them that it's relatively easy and how to do it.

MS. BELLSHAW: Thank you, Mr. Cue. I have no further questions, Your Honor.

THE COURT: Just one question, Mr. Cue: Does Apple track in any way whether its Safari customers do switch?

THE WITNESS: We don't for privacy reasons, again. So we don't -- when a customer switches, Apple isn't aware of it. It's a personal choice. We pride ourselves on our privacy when you're using devices, and so there was no reason for us to know -- in other words, if you were a customer and you were to -- and we said we know that you made this switch, we wouldn't have a reason to know that. There was no benefit to the customer, we wouldn't use that data for a benefit. So from a privacy perspective, we don't collect any of that information.

THE COURT: Okay, thank you.

MS. BELLSHAW: Thank you, Your Honor. Thank you, Mr. Cue.

THE WITNESS: Thank you.

THE COURT: Mr. Cavanaugh, did you have any?

CONTINUED REDIRECT EXAMINATION OF EDDY CUE

BY MR. CAVANAUGH:

Q. Just a few. If we could stick with the demonstrative. When I go to settings, am I correct, there's no search engine setting, correct?

A. Again, it lives under Safari, if that's what you're asking.

Q. Right. And that's not explicitly referenced on the settings page, is it?

A. No, we wouldn't. It makes more sense to be under the application itself so that it --

Q. And when I go -- and when I hit Safari and I go to search engine, the only one that comes up is the default, right?

A. Again, it shows you what the default is, that's correct.

Q. It doesn't show me any other search engines?

A. Well, we couldn't do that. It would be weird from a user interface perspective to do that.

Q. You're right, that would be like a choice screen, right?

A. No, it's not. I mean, our interface -- the default or whatever you have your settings with, with the little arrow on the right, is a common thing that we use throughout iOS

whenever you do any kind of setting. And everyone pretty much knows that you click on that and it takes you to a list.

MR. CAVANAUGH: Nothing further, Your Honor. Thank you.

THE WITNESS: Thank you.

THE COURT: Mr. Cue, thank you very much for your time and your testimony, sir.

THE WITNESS: Thank you, I appreciate it, Your Honor.

THE COURT: Safe travels home.

Do plaintiffs have another witness ready for this afternoon?

MR. DINTZER: We do, Your Honor. Your Honor, if we're going to take an afternoon break, if we did it right now, that would probably be the most efficient.

THE COURT: Right, that's what I was going to do, I just wanted to make sure we had another witness.

MR. SCHMIDTLEIN: Can we have a sidebar with Your Honor?

THE COURT: Sure.

(Sealed sidebar discussion placed under separate cover)

THE COURT: Okay, 15 minutes everyone. Thank you.

(Recess taken at 3:18 p.m.)

(Back on the record at 3:36 p.m.)

MS. AGUILAR: Good afternoon, Your Honor. Diana Aguilar on behalf of the United States. The government calls Mikhail Parakhin as our next witness.

DEPUTY CLERK: Before you take a seat, please raise your

right hand. Do you solemnly swear or affirm that the testimony you'll provide to the Court will be the truth, the whole truth, and nothing but the truth?

THE WITNESS: I do.

DEPUTY CLERK: Thank you.

THE COURT: Mr. Parakhin, welcome.

MS. AGUILAR: May I proceed?

THE COURT: You may.

DIRECT EXAMINATION OF MIKHAIL PARAKHIN

BY MS. AGUILAR:

Q. Good afternoon, Mr. Parakhin. My name is Diana Aguilar, and I'm going to be asking you a few questions today. I'd like to start by going over your professional background.

Where do you work?

A. I work with Microsoft.

Q. And what's your title?

A. My title is CEO of Advertising & Web Services business unit.

Q. How long have you held that title?

A. This particular title, I think a couple years.

Q. And what are your responsibilities?

A. Right now, I'm responsible for the business unit that essentially combines Microsoft's consumer -- online consumer services including Bing, Edge browser, Maps, advertising, and doing as of recently Windows shell.

Q. And what was your title immediately before your current role?

A. I had the title of president. Essentially the role was the same, but I didn't have sales back then. When sales team was moved in, then it became CEO of a business unit because we formed a full business unit.

Q. And as part of your job, are you familiar with Bing's processes for handling -- for ranking web results?

A. Very familiar, yes.

Q. And are you familiar with Bing's processes for returning ads?

A. Very familiar, yes.

Q. And are you familiar with how Microsoft makes investment decisions in its search product?

A. Certainly.

Q. And prior to Microsoft, where did you work?

A. Prior to this stint at Microsoft, I was CTO of Yandex.

Q. And CTO is?

A. Chief technology officer.

Q. And what is Yandex?

A. Yandex -- well, it used to be at that time the largest European tech company. It used to be an American-owned Dutch company with most of its business in Russia, and the largest Russian search engine.

Q. And while you were at Yandex, did you have

responsibilities over the search engine?

A. I did, yes. I ran the online business unit which included search engine and ads, similar to what I have in Microsoft.

Q. And so, similarly, were you familiar with Yandex's processes for ranking search results?

A. Very familiar, yes.

Q. And with their processes for returning ads?

A. Absolutely.

Q. And where did you work prior to Yandex?

A. Prior to Yandex, I was in Microsoft at Bing, several positions. The last one, and probably the longest, was head of multimedia search.

Q. Mr. Parakhin, I'd like to start by discussing how, at a high level, Microsoft makes investment decisions for search. In your current role, are you responsible for investment decisions regarding search?

A. I am responsible for those decisions, not unilaterally, but significantly.

Q. Excuse me, not unilaterally but?

A. But in a -- a significant portion of a decision, yes, is done by me.

Q. And at a high level, what criteria do you consider when making investment decisions for search?

A. There are multiple criterias to be taken into account.

It is -- you know, fundamentally it boils down to what kind of a long-term revenue we can achieve. It tends to be -- it tends to break down into several areas, what kind of distribution ability we have for a specific geographic area, for example, or entry point or form factor; what's our competitive position in terms of quality, is there other competitors in that area; and what partnerships we can bring to bear in that particular, again, geographic area, form factor or entry point.

Q. You mentioned distribution was one of the criterias you considered when making investment decisions for search. What did you mean by that?

A. In search, distribution is extremely important, the ability to distribute. There is the phrase that -- kind of the saying in the industry: turn your defaults. And people in general very rarely change defaults. So that means you either have to pay to be installed as default or have some entry point that doesn't have defaults and have a choice screen or some other medium that user can affect. Or you can build a partnership that can provide some sort of initial traffic to you. So distribution is basically an ability to get your services in front of user. If you don't have ability to effectively distribute, it's almost meaningless to invest in the area.

Q. Mr. Parakhin, you said -- I think you referred to distribution as a way to get traffic. What do you mean by

traffic?

A. Traffic, in our parlance, is basically a number of users using your -- our services.

Q. Mr. Parakhin, I'd like to pivot a little bit to discuss the relationship between traffic and search. Are you familiar with the term scale in the context of search?

A. I'm very familiar, yes.

Q. And what does it mean?

A. Well, there are two types of -- or two things we mean by when we say scale. There is one that is, you know, in my opinion more important, and that is relative scale -- meaning how much more users, how much more traffic, one search engine, for example, gets compared to the other search engine. And it affects greatly many aspects of both quality and revenue. There is also absolute scale. That is just the total number, an aggregate number of users that are -- that can use the service. It has a little bit secondary effect of also incorporating revenue. But, in my opinion, relative scale is more important.

Q. And you said that relative scale can have a direct effect on search quality. What did you mean by that?

A. There are several positive feedback loops in the system. The most obvious one is that if you have slightly more users using your search engine in specific geographic area and specific form factor, then you will have more clicks and more

user behavior. Those things very directly influence search quality. Simply if you've seen -- if this query was issued previously and people already clicked on certain results and read them, and some results they click-click-click back, it gives you a lot of information which results are actually good or not, and you can memorize them. So if you have more users than some other search engine, you will get more clicks, you will get slightly better quality because of that, which means you will get slightly more users, which means you'll get slightly more quality and so forth. That's the most obvious feedback mechanism.

There are several others that are -- that might be less obvious. One very important one is all the websites and website administrators optimize for the most popular search engine, they want the highest ROI. It takes about the same amount of effort to optimize for two different search engines, so you always start and spend most effort on the one that gives you more traffic back. Because of that, if you're a more popular search engine -- and this is relative, as you can see, a relative argument. If you're a more popular search engine, more websites will optimize, make sure more -- business will make sure that their open hours are correct, that their location is correct on the map, and so on and so forth, that all of their site maps are correctly indexed. So if you are a more popular search engine, more sites want to work with you,

you get better results. Again, you become a little bit more popular.

Q. Okay. If I may, you mentioned a concept of a feedback loop earlier, and you said there are many feedback loops in search. Did I hear you correctly?

A. Correct.

Q. And what's the role of traffic in a feedback loop?

A. Traffic participates in several feedback loops, but there is absolute value of traffic. As I said, that tends to be a little bit less important, but still important. For example, it provides ability to experiment. If I have enough absolute -- an absolute way to -- enough traffic, I can quicker understand whether my changes are good or not or run more experiments at the same time.

Relative traffic, if I have more traffic than my competitors, that participates in multiple feedback loops driving quality and driving index completeness, which in effect is driving quality. And not unimportant, it is very impactful for revenue. Revenue in search -- in advertising in general is nonlinear: If you're twice as big as your opponent, you will make four times as much money. Not exactly these numbers, but I'm just trying to illustrate the concept of nonlinearity.

Q. Okay. Mr. Parakhin, why don't we take a look at a document. Mr. Parakhin, I'm showing you what has been marked as UPX270. Do you see that at the bottom, at the front page on

the yellow sticker?

A. On the front, yes.

Q. And at the first page of the exhibit, there's a cover e-mail from Mr. Sachin -- and excuse me if I don't say that right, Malhotra?

A. Yes.

Q. Yes, okay. And who is Mr. Sachin Malhotra?

A. Sachin is our product manager on ads team.

Q. And he works for you?

A. He works in our organization, yes.

Q. And attached to the e-mail there's a PowerPoint presentation. Do you see that?

A. Uh-huh.

Q. Do you recognize the presentation?

A. I think I saw it before.

Q. At a high level, what is the presentation?

A. I think it is an explanation on roughly the feedback mechanisms that I just tried to describe.

Q. And was this presentation prepared in the ordinary course?

A. I believe so.

MS. AGUILAR: Your Honor, at this point, I'd like to move to admit UPX270.

MR. SMURZYNSKI: No objection, Your Honor.

THE COURT: 270 will be admitted.

(Exhibit UPX270 admitted into evidence)

BY MS. AGUILAR:

Q. Thank you. Mr. Parakhin, will you please turn to page three of the document in front of you. It has a Bates number ending in 70.001.

A. Yep.

Q. And the title of the slide is Successful Search Businesses Require Scale with Users and Advertisers. Do you see that?

A. Yes.

Q. And there's a graphic on the right hand side of the document. Do you see that?

A. Yes.

Q. And at a high level, is that image consistent with your understanding of the search feedback loop?

A. I think it is very consistent. It's trying to -- in simplified form, to show all those feedback loops, yes.

Q. I'd like to walk through each of those steps, starting with at the top, do you see where it says more users?

A. Yes.

Q. And that transitions into more advertisers. Do you see that?

A. Yes.

Q. And can you please explain to the Court briefly why more users would lead to more advertisers?

A. Advertisers need to optimize their systems for each ad network, each provider of advertising technology. The more users you have, the more your advertising network, your advertising solution is interesting for advertisers. They have to spend the same amount of work than, say, for somebody with smaller number of users, but they would get more conversions, more ads results. So usually the larger -- the more users you have, the more impressions or clicks or final conversions you can deliver, the more advertisers are interested in being on your platform.

Q. Earlier, I think you mentioned the term form factor. What did you mean by that?

A. Well, roughly usually we identify main two form factors --

THE COURT: Did you say form factor?

THE WITNESS: Form factor, device form factor, Your Honor. The most distinct sort of basic ones is desktop and mobile, and then there are smaller subgroups. There could be tablets, there could be smart TVs or other special devices which are -- which tend to be smaller as part of the market.

BY MS. AGUILAR:

Q. And does the form factor a user is using affect which advertisers a search engine can attract?

A. Usually, yes.

Q. And why is that?

THE COURT: I'm sorry, can you repeat the question?

BY MS. AGUILAR:

Q. Does the form factor a user is on affect the search advertisers a search engine can attract?

A. Different advertisers have different affinity to different form factors. For example, on the desktop, you tend to research something that takes more time. Like if you're looking for a new mortgage, for example, you would go likely to -- and get on the desktop and just search various options. If you're finding application, you also probably will do it on your desktop. Desktop or laptop, we use that interchangeably. If you're searching for a restaurant, you're much more likely to be on your cellphone, because it's more likely to be in the moment, where we should eat right now or have dinner later. So if you're a restaurant, you're more interested in advertising on mobile, but if you're a financial company, desktop is very interesting for you. And it's not always a sharp boundary, there is a spectrum. But different -- whether it's a desktop ad or mobile ad is very much significant for advertisers.

Q. And the next step here on the flywheel where it goes from more users to more advertisers to more data, what is the significance of more data on this flywheel?

A. If you have more users and you have more advertisers, then you have more user interaction with your results.

Q. And what is user interaction?

A. User interaction, the most basic and important one is click, when you click on a link. But it's not only that, it's also how much time you spent on the page after clicking; how quickly you clicked back; which results you didn't click; whether you scrolled down and then scrolled up. All this is very useful information that search engines use to improve results for both search and ads.

Q. And how do search engines use that data to improve results?

A. I cannot probably describe in detail, it's very complicated. It is an input to a large machine learning system. But roughly the intuition is if you see that -- if user issues a query and skips first result and then clicks on second, it usually is indication that something is wrong with the first result. And then if we see that user clicked on the result and then immediately clicked back, it is also an indication that something is wrong there versus user clicked on a result and then stayed on that page, and then issued query unrelated to the previous one or went away.

And so we have search engines try to extract those signals of being satisfied, and that's how you know that, oh, this result is really good versus signals of being unsatisfied and quickly abandoning, which means that result is bad. Once search engine observes it for a first person interacting, they can adjust results for the second person interacting with it,

and so forth.

Q. And the next step on the flywheel goes from more data to better search and more relevant ads. Can you please explain to the Court what that transition means or represents?

A. Well, as I just said, since we have -- with more data, we can have more signals of which results have something wrong with them versus which results really satisfied user intent. Next time people search for them, we can reorder them and show them in the order that's more aligned with user perception.

Q. And do search -- oh, sorry.

A. And, also, we can use that data later to train algorithms. The more data of this nature we have, the more we can train algorithms to be better in predicting what is good and what is bad.

Q. And are there both click and non click-based signals?

A. Definitely.

Q. And how would you compare those two in comparison to their relationship to search quality?

A. Click, or absence of click, tends to be the highest, most important signal. Dwell time, meaning if you clicked, how long you spent on the result, is probably second most important. Just scrolling, returning, going to a different page or reformulation of the query tends to be third important like, in rough priority order.

Q. And how does more data lead to more relevant results?

A. So --

Q. I'm sorry, I repeated myself. How does more data lead to more relevant ads?

A. Ads fundamentally are very similar to search. Algorithms that find relevant ads, they're similar to algorithms that find relevant search results, except there's also a monetary component involved. They have to take into account how much advertisers are willing to pay. So it's a very similar process for quality of ads to -- you know, basically if you have more traffic and no more, then your ads will be better. And, also, you'll have more advertisers, so you'll have a high selection of ads, so you'll have more to choose from, so you will pick up better ads.

Q. Okay. And the next step, turning back to the flywheel, goes from better search and more relevant ads to more revenue to invest in development and distribution. Do you agree with that?

A. Very much.

Q. And can you please explain to the Court what that link -- what the concept that link is conveying?

A. If you have more data and more advertisers, that means you can provider higher value for the advertisers. You can serve more relevant ads. That means for the same amount of money spent on advertiser side, they get more results. So that means advertisers start favoring you versus all other search

engines available. That means maybe they distribute budgets towards you, you get more revenue. You can reinvest that revenue either in just headcount and in improving algorithms or significantly in distribution, you know, doing partnership deals and trying to get more users.

THE COURT: Can I interrupt you for a moment --

MS. AGUILAR: Yes, Your Honor.

THE COURT: -- and take Mr. Parakhin back, just so I have him situated. Can you just tell me how long you have been the head of/CEO of online business units, when you were CTO at Yandex, and when you were at Microsoft prior to Yandex, just so I have an idea of what your background is?

THE WITNESS: So in my -- roughly my current responsibility was from the summer of 2019. I was CTO of Yandex roughly 2014 to 2019, about five and a half years. And before that, I was at Microsoft 2007 to 2014, for seven years, at various roles, mostly in search.

THE COURT: Thank you, I appreciate that.

BY MS. AGUILAR:

Q. No problem. And Mr. Parakhin, I think if we go back to the flywheel, I was asking you about the final link on the feedback loop, which was for more revenue to invest in development and distribution to more users. Can you tell us how more revenue leads to more users?

A. Well, there is a direct link where if I have more

revenue, then I can try to get more partnerships. I can make partnerships with OEM manufacturers -- or try to, OEM manufacturers of cellphones. I can try to have partnerships with other software distributors like Adobe. And I can also advertise my own services on other ad networks, commercial advertising saying hey -- you know, trying to incentivize people to come and check out your search engine -- our search engine in this case. There's also indirect way you get more users, and that is if you have more revenue, you can reinvest it into getting more computers to serve traffic, reducing latency; being able to afford more attributes to run artificial intelligence algorithms; and in general, have more engineers working. And all that contributes to quality.

Q. And Mr. Parakhin, the concept we just discussed, the feedback loop we just discussed, is that consistent with both the observations you made while at Yandex and at Bing?

A. It is identical in both cases.

Q. Mr. Parakhin, can you turn to the next page of UPX270. The title of the slide reads There are Several Critical Inputs Required to Achieve Sufficient User Scale. Do you see that?

A. Yes.

Q. And there's four items listed there. There are index, relevance, location awareness and entry points.

Do you see that?

A. Yes.

Q. And do you agree that these four items are required to achieve sufficient user scale?

A. They're required. I don't think it's a complete list, but those -- without those, certainly you will not achieve scale.

Q. And why don't we take each of those one by one. The first one is the index. Can you briefly explain what an index is?

A. I just recently realized we have two meanings for this word. One is index is the system that allows you to actually know about -- allows you to really know that this document exists, and have ability to return it if user queries for it. And the other meaning is the whole database of all the results -- essentially the database of all the web documents that exist in the world stored in such a format that they can be returned. Here, we're talking about the second meaning. So it's just a database essentially of the whole web that's publicly available that can be returned if user asks for it.

Q. And how does user scale affect that type of index?

A. The most direct effect is webmasters optimize for the most important search engine. So there is a simple story that if the most popular search engine is, I don't know, say, Google, then all the webmasters go and check that their website is correctly indexed, that it is actually in the index. So they will start writing support if website is not being

indexed. They will make sure that all the formats and tags that search engine uses to build that index are correctly set up for the most popular search engine. And that information -- like for small businesses, for example, that overall information such as open hours, location and so forth is correct.

So for less popular search engines, webmasters will often not do that work. And even worse, it's not free for webmasters to allow crawling to be indexed, to participate in search. When you build search, a special program, a crawler, goes and fetches pages. So certain websites have to pay serving costs essentially to their provider to allow that. And so for large websites, the large websites that have large amount of content, especially one that's quickly changing, it might be not a negligible cost. It is fairly standard practice often to go and allow most popular search engines, and just disallow everybody else. Because websites think, okay, I'm not really getting anything back, I'm not really getting traffic from the smaller search engines, but they will be crawling me just as much as the popular ones. And I don't have time to go and optimize to try to figure out whether I can get more traffic from those smaller search engines, because the best case is going to be very little. So very often websites just prohibit it.

THE COURT: I'm sorry, I'm not familiar. So a website can

actually prohibit -- or let me put it differently, can actually limit which search engine does the crawling of the website?

THE WITNESS: Yes, there is -- Your Honor, there's this standard language that -- of tags and descriptions called robots.txt. These are a special file that websites can put that says -- put under property which specifies which search engine is allowed to do what. It's not like -- most important thing is whether they allow to be in search engine or not. And then there's -- they can actually have finer grain control. For example, they can say I allow you to index, but I'm not allowing you to show anything -- any captions, like you have to show just blank only URL. They even -- even finer grained controls are all specified throughout.

THE COURT: And there's a cost associated with allowing more crawling?

THE WITNESS: There is cost associated, because crawling is essentially as if like people coming in and looking at results. And then you have to pay serving costs, you're hosting company will charge you for that, but you will not make any revenue from that. The most recent example that was in press, if I may, is OpenAI, one of our partners, tried to build a crawler. It's been reported in the press significantly that many, many companies -- many websites would just block them outright.

BY MS. AGUILAR:

Q. Mr. Parakhin, returning to the document. The next document after index -- the next thing under indexing is relevance. What is relevance in the context of search?

A. Relevance in the context of search is ability to return results that people actually search for. If I'm typing, I don't know, duration of Maxwell equations, you want the --

THE COURT: Say what equations?

BY MS. AGUILAR:

Q. I did that search last night.

A. Or the most popular restaurant in Washington, D.C., you want the result of most popular restaurant to be on top versus some random restaurant versus restaurant not in Washington, D.C., right. So the more -- the closer results are to what users are searching for, the more relevant they are. And there is a method of measuring how relevant results are.

Q. And it says that the critical input for relevance is query and click data at scale. Do you agree with that?

A. That is usually the base thing off of which most algorithms are being trained, yes.

Q. And turning to the next item on the list, it says location awareness. Do you see that?

A. Yes.

Q. And there's a note that mobile data scale is a critical input. Do you see that?

A. Yes.

Q. What is mobile data at scale?

A. This goes back to our discussion of form factors. When you're searching on a cellphone you tend to have very fine-grained location information, or you can ask user to provide that, allow them to provide that. Cellphones, most of them have GPS and high quality location tracking built in. Because of that, if you have that information, the search engine can return results that are specific to like various particular location you can be in. You can find the closest restaurant to you rather than just restaurant in Washington, D.C. or in some district.

On desktop, the location information either unavailable or is much coarser or granular, right, because most laptops or desktops don't have GPS or fine-grained location information. So it's very important to have as much mobile traffic as possible to be able to answer queries that are very location-specific.

Q. What is a -- I think we can put this document aside for now. Mr. Parakhin, what is a mobile -- what is a local query?

A. We tend to separate the queries in several segments. A local query is the query, results of which is changing if you're issuing this query from different locations. So, for example, querying President of the United States is the same -- the result will be same no matter where you are in the world

whereas best restaurant near me would be very different depending on where you are in the world. And even small -- you know, even sort of 1 mile distance would -- can change the results dramatically.

Q. Are local queries considered common?

A. Local queries are in general common. They're especially common on mobile. They're over represented on mobile versus desktop.

Q. And are you familiar with the concept of a tail query?

A. Yes. A tail query is the segment -- roughly speaking, is the query that hasn't been issued before at all, like the search engine sees this query for the first time.

Q. And do local queries tend to be tail queries?

A. A local query is not always tail query, but it tends to be -- local queries tend to be far more tailish. It's much more likely that the local query will be tail query.

Q. Mr. Parakhin, I'd like to pivot to discuss Bing's search traffic. As part of your job, do you track Bing's search traffic by device?

A. Definitely at very low granularity, yeah.

Q. And why do you do that?

A. Well, our revenue, as I explained, depends on traffic very strongly. So all our business goals are extremely tied to the traffic we're getting and to the split of traffic. Like, not all traffic is created equal. We need to have traffic --

we need to understand the split between locations; between the traffic that's more interesting for advertisers versus less interesting for advertisers; between form factors, because that's important for advertisers. And there's really like maybe a thousand different categories and slices that we split traffic into depending on what facet we're interested in at the moment, and what we're trying to understand or debug.

Q. And what do you use to track Bing's search traffic?

A. There are probably two main sources. One is we track information on the server. So that means we see the request coming in, we try to identify where request is coming from. Again, coarse location, time of day, type of request, what kind of device request is issued on. There is another -- another set is when we set up beacons on advertisers' websites. And this way we see what advertisers see, like how much of our traffic converts into what advertisers really want.

Q. Earlier I think you said you used these numbers to make business decisions?

A. Definitely.

Q. And can you tell me how Bing's search traffic share on desktop compares to its search traffic share on mobile in the United States?

A. Bing's search share on desktop in the United States, if in aggregate together there are partners such as Yahoo!, I'm going to say probably around 25 percent, give or take. Our

mobile share is immaterial, it's probably around 3.

Q. Probably around what?

A. Maybe 3 percent.

Q. And earlier we talked about the fact that mobile queries and desktop queries differ; is that right?

A. Yes.

Q. And does that affect how Microsoft can use desktop queries to improve mobile relevance?

A. Very much.

Q. Can you please explain?

A. So as we were discussing previously, there are head queries -- the queries that everybody issues, right, queries like Taylor Swift. And those queries are not changing, and the results of them are not changing based on location, not changing based on whether you're on cellphone or on your laptop. So those -- you know, those results, you can -- for those queries, you can use data that you get on desktop to have good mobile results. However, there are a significant portion of queries that are mobile-specific or are highly over represented on mobile. We discussed local queries, like those would be probably couple orders of magnitude more common on mobile than on desktop. Certain queries -- quick fact-checking queries, you know, when you're just trying to find something quick because you're in the heat of an argument with somebody, they tend to be very heavily over represented on mobile. And

so which is why from the very beginning I said it's important for us to look at more geographic area, language and market, and the form factor, because there's very significant difference in query distribution. So since there is this difference, you cannot easily sort of leverage data in one form factor to easily improve quality in another.

Q. Mr. Parakhin, I'd like to pivot a little bit to talk about non scale attributes of search quality. Do you know what I mean by non scale attributes of search quality?

A. Quality of algorithms, I assume.

Q. Well, based on your experience, are there other ways to improve search quality without increasing scale?

A. There are -- quality is an aggregate term. It, of course, requires certain components that are scale-dependent, and, of course, also requires certain components that are not scale-dependent like basic machine learning algorithms, the quality of engineering, the investment in just number of servers to serve, and so on and so forth.

Q. You mentioned the quality of engineers as a method of improving search -- as a non scale method of improving search quality. Did I hear you right?

A. Quality of engineering, yeah. Basic algorithms often can be improved, even in the -- you know, even for a small-scale or a no-scale situation. If I may, I would like to point out that sometimes it's not obvious how scale is

affecting certain things like, for example, the speed of serving results. You would say latency should not be dependent on scale, but in fact it does very significantly. For example, because the higher the scale you have, the more likely it is that query was issued that isn't in cache. And so in the cache somewhere closer to the user, you will have higher density of end points. So even latency can be affected by scale. So I'm trying to say it's not always obvious which facets are affected by scale and which are not. But certainly there are facets that are not affected by scale, including basic machine learning algorithms and engineering.

Q. Well, in terms of engineering, as sort of maybe increasing headcount as a method of improving search quality, how does that compare to improving search quality through increasing scale?

A. It's important up to a point, it hits diminishing returns. Empirically, if you look at successful companies worldwide, after about, I want to say -- and this is rough, my estimate. After about two to 3,000 engineers, core engineers on search, the next implement will be very incremental which is probably why if you look at companies like Yandex, never in Korea -- successful Korean search company or Bing all have roughly the same sized teams.

Q. You mentioned machine learning or improving machine learning as a method of improving search quality. Can you tell

me how that compares to improving search quality to increasing scale?

A. If you don't have scale, you can to a certain degree try to mitigate it by trying to be smarter and running more sophisticated machine learning algorithms. It will give you some way forward, which is why Bing very quickly embraced machine learning and was fully machine learning-based even in early -- or late 2000s. It's not a substitution or a solution, it can be mitigation. But empirically, even significant improvement in algorithms does not tend to outweigh importance of scale.

Q. And how about growing the index, is that a method of improving search quality?

A. The bigger the index the better. It is important to have a large index. There are -- again, there is a little bit of optimal size after which improvements become incremental. It's more important to have a higher quality index -- meaning higher quality results in that database than just pure sites, where our discussion of making sure that all the websites allow you to crawl is very, very relevant.

Q. And how do you compare improving search quality through growing the index to improving search quality through additional scale?

A. Well, you can -- if you don't have scale, you cannot have high quality index. I can show example from my past

career at Yandex. We really tried to expand into Turkey and invested a lot of effort. However, local -- you know, we were sub scale in Turkey. And a local, very important commerce site, kind of an Amazon of Turkey, Sahibinden, they prohibited Yandex from crawling. And then like no matter what you do, you're not going to have most important commercial site in the country in your index, and that makes the results very uncompetitive, right. So I would say scale is an enabling factor that has to be there. Of course, if you don't have engineering, it's not a panacea. But without scale, even the best engineering has proven, at least empirically, to be virtually powerless.

Q. Mr. Parakhin, I'd like to pivot to talk about Bing chat. Are you familiar with Bing Chat?

A. Very much. My little baby.

Q. And what is Bing Chat?

A. Bing Chat is our system where we use the most powerful language models that were developed in collaboration with OpenAI -- or by OpenAI, our partner. And we combine it with ability to query index and search index, and so provide results in a more natural human form.

Q. And you mentioned a large language model. At a very high level for the nontechnical audience, what is a large language model?

A. A large language model is the closest that humanity

came to producing actual artificial intelligence. It is a system that can look at written text or images, and reason over it and provide answers in a human readable flowing sort of language.

Q. And I'd like to show you a demonstrative. This is marked as UPXD3.

Mr. Parakhin, do you recognize what's on the demonstrative?

A. Very much.

Q. And what is that?

A. That is the home page of our Bing Chat system.

Q. And on the upper left hand side, there's a button with a magnifying glass that says search. Do you see that?

A. Yes.

Q. What happens if you click on that button?

A. The page sort of scrolls up and then revealing the regular normal search results.

Q. And why don't we look at an example of a query I have issued: Where should I have dinner in Washington, D.C. The Bing Chat pulls a response up. Do you see that?

A. Yes.

Q. And there's a couple of checkmarks at the top of the results. What is that?

A. We're trying to inform the user what is going on sort of behind the scenes when they issue this query. In

particular, it issues -- queried restaurants in Washington, D.C. to search -- to our regular search, gets results and passes it on to -- for the large language model to formulate the answer.

Q. And how does Bing Chat compare to what you've referred to as normal search?

A. Well, Bing Chat is a form of search, I would say it's the next step in search technology where we are able to aggregate multiple pages, multiple search results, and then provide a human readable, kind of high quality description answer, and allow it to go in multi-turn fashion. So in normal search I issue one query, get one set of results. Here, you can refine easily and then say, oh, I don't like this, show me something else. Just have an interaction rather than just one query and one set of results.

Q. And you mentioned that the large language model interacts with normal or traditional search. Did I understand you correctly?

A. That is correct.

Q. So does Bing Chat affect the need for scale to improve traditional search?

A. Bing Chat is based on search. And other similar systems, like Bard for Google, are also built on search. So in order to have up-to-date results right now, both fresh and localized to your position, and personalized and so forth, you

do need search. And so it doesn't -- it extends search, but it doesn't change the underlying mechanics.

MS. AGUILAR: Your Honor, I'd like to move to admit UPXD3.

MR. SMURZYNSKI: Your Honor, I think consistent with your practice of how you're dealing with demonstratives, how we suggest this be used, which is shown to the witness but not entered into the evidence.

THE COURT: Okay, that's fine.

MS. AGUILAR: We can take that demonstrative down.

THE COURT: I'm sorry, can I ask you a question. So the new Bing Chat, does it effectively integrate what is otherwise ChatGPT into Bing -- or it marries the two, the Bing search functionality and ChatGPT?

THE WITNESS: Essentially it marries the two. So basically it takes ChatGPT, asks ChatGPT to produce queries that it needs to provide actual answer. It gives the results of those queries, and then asks ChatGPT now aggregate it and produce the answer.

THE COURT: So how does it work when -- talking about, for example, more local results -- actually, strike that.

Fresh results. Because as I understand it, the data, at least in certain versions of ChatGPT, is capped at a certain date and time. So if I were to enter a question -- and I'll use the same example I used recently, which is, is Taylor Swift dating Travis Kelce, right, that wouldn't come up in ChatGPT?

THE WITNESS: It would not in ChatGPT, but it will in Bing. That is the power of marrying the two, the search engine and the large language model.

THE COURT: So Bing Chat would return the answer, but it would largely depend not on the large language model but the search functionality?

THE WITNESS: The large language model there is used for reasoning and for providing the answer, but the base information is coming from search.

THE COURT: Gotcha, thank you.

BY MS. AGUILAR:

Q. Mr. Parakhin, I'd like to pivot to talk about search quality experimentation. Does Bing conduct search quality experiments?

A. All the time.

Q. And is that something you have responsibility for?

A. My team, yes.

Q. At a high level, what are the types of experiments that Bing uses to evaluate search quality?

A. Well, we run thousands of experiments. In terms of search quality, we run every new modification of the Ranker. For example, any system that can affect our Ranker results goes through both offline and online evaluation. Offline meaning results are being shown to human judges, and they mark which results are good, which results are not good. Online means we

set portion of users randomly, and then they see new experience with new Ranker and we see how their behavior changes. What we expect is they click more on top results, less on lower down, they skip less, and they don't click back as much, and when they go to the result they stay there.

Q. And why is it important to run both human judge experiments and online experiments for changes to the Ranker?

A. Online experiments tend to be more precise, but they -- also, you have limited bandwidth, you have only so many users, and you need at least probably a million people in each experiment to have stat significant results coming out of it. When humans look at it, you can get it much faster and a little bit more actionable. They can -- you know, you can see, oh, okay, there is a class of these queries, for example, that's gotten worse, which humans can notice which in online data might get lost. However, human evaluation tends to be noisier and not as -- you know, sometimes they miss something.

Q. Did I hear you correctly that you said you need a million users to get statistical significance on online evaluation?

A. I mean, it's sort of an order of magnitude thing. But yeah, if you have -- it's a trade-off, you can have fewer users but then wait longer. And usually the normal practice in the industry is to run what we call flights, those experiments for about a week. So you would probably need a million users for a

week to get statistically significant results from these types of experiments.

Q. Now focusing on the United States, does Bing have sufficient scale to run search quality experiments?

A. I think on desktop in United States, we are not really constrained by amount of traffic we get to run experiments. On mobile, we are constrained simply because we have fewer overall mobile users. So, roughly speaking, we cannot run more than, I want to say, about 20 to 30 experiments at the same time on mobile where on desktop we run thousands of experiments at the same time.

Q. Mr. Parakhin, I'd like to pivot to discuss your time at Yandex. During your time at Yandex, was Google a competitor of Yandex?

A. It was the largest competitor, yes.

Q. And are you familiar with a dispute between Google and Yandex at the time you worked there?

A. Very much.

Q. And how are you familiar with that dispute?

A. Since I was Chief Technology Officer for the company, and was running and supervising the team that included all this search and ads technology, I was very much party to this dispute.

Q. And at a very high level, what was the nature of the dispute?

A. At a very high level, the nature was about opening the defaults on mobile devices. Yandex was a more popular search engine in Russia and some ex Soviet Union countries. At the same time, a hundred percent of all the cellphones sold in those countries were sold with Google coming default in all the entry points. And user -- you know, it was -- as we discussed previously, very few users change defaults, and it's not easy to do. So that led to Yandex not being able to maintain share on mobile.

Q. And what was Yandex's mobile share at that time?

A. When we first started, it was about -- I want to say about 30 percent and falling.

Q. And was there eventually a resolution to the dispute with Google?

A. Yes, the regulator eventually forced Google to have a choice screen as part of Android setup process which would prompt users to choose a search engine rather than just Google being pre-default.

Q. And what happened to Yandex's search shares as a result of that resolution?

A. It reversed direction, and when I left Yandex it was at about 55 percent on Android and rising.

MS. AGUILAR: No further questions, Your Honor.

THE COURT: Thank you, counsel. Mr. Cavanaugh.

DIRECT EXAMINATION OF MIKHAIL PARAKHIN

BY MR. CAVANAUGH:

Q. Good afternoon, Mr. Parakhin. My name is Bill Cavanaugh, and I represent Colorado and Nebraska. Will an increase in relative scale impact the quality of all types of queries?

A. Head queries will not materially change if you increase in scale. However, head query depends on the search engine. So you will get more -- more of your queries become head queries. So from that perspective, you can say -- on one hand, you can say head query quality won't change. On the other hand, you can say with any increase in scale, you will get more of -- more queries become head for you so quality improves.

Q. Now, I believe in response to counsel's prior questions, you mentioned the terms headway, body and tail queries. Are there any particular types of queries that may benefit more from increases in scale?

A. So obviously tail queries, the larger your scale, the higher the probability it is that somebody already issued that query so it stops being tail. And then when it stops being tail, the quality improves. So the less frequent query and the more specific it is, like location specific which makes it less frequent, the higher probability that it will benefit from scale.

Q. Does the relative scale of a search firm impact

whether a query will be considered head, body or tail?

THE COURT: I'm sorry, can you repeat the question, Mr. Cavanaugh?

BY MR. CAVANAUGH:

Q. Sure. Does the relative scale or size of a search firm impact whether a query will be considered a head, body or tail query by that search engine?

A. Definitely. For example, if tomorrow on my home machine I will create search engine, every single query will be tail query for it, right. But for Google, of course, many queries would be very much head queries.

Q. You testified that in mobile, Bing and Yahoo! have roughly a 3 percent share of queries?

A. Mobile, I mean, yeah, give or take roughly.

Q. And would it be fair to say the rest of that would be Google?

A. Outside of South Korea and probably --

Q. I'm referring to the United --

A. In the United States -- yeah, in the United States, there is small percentage on DuckDuckGo and other players, but majority would be Google.

Q. Now, does Microsoft's relative scale compared to Google in mobile impact in any way a third party's interest in working with Microsoft on Bing?

A. Very dramatically. I mean, that's where, as we

discussed previously, nonlinearity in ads is coming from. The bigger you are, the more advertisers want to work with you, the more they compete, the more revenue you make.

Q. And you mentioned websites interest in optimizing to work with certain search engines. How does scale impact that?

A. The bigger the search engine, the far more likely it is that websites will optimize for you, and far less likely it is that they will try to make you pay or extract some compensation for it instead of just allowing to crawl for free.

Q. You mentioned in response to counsel's questions websites confirming their hours of operation and other things. Could you explain what you meant by that?

A. If it's a restaurant or notary public or any other small business, for example, if people -- you know, if you're looking to see, you know, whether it's still open, for example, late at night, you want to know whether the information is correct or not. Websites are interested in customers knowing, right, so they usually try to go and make sure the information is correct. But it takes about the same effort to correct information on Bing and correct information on Google. Of course, first it will go -- everybody will go and make sure information is correct on Google, because that's the largest search engine. You know, they get more customers coming from that. And then far fewer of them will remember Bing, and go and also correct on Bing. Because it's diminishing returns,

they will have to do the same work but ROI is smaller.

Q. And how does that impact perceptions of the quality of Bing?

A. Not only perception, but it impacts the quality itself. Obviously, it creates big headway for Bing in the quality space which is why specifically, for local queries, Bing had to form strong partnership with TripAdvisor. We could just not do it alone, we could not just get the correct information.

Q. Does quality improve faster when you have more scale?

A. Dramatically faster.

Q. If you and I had the same algorithms but you had half the data that I had, would our algorithms perform differently?

A. Certainly. Right now, most of the algorithms that are used are machine learning-based. And the more data you have the better the results are, even for exactly the same algorithm.

Q. Now, is there a point at which there's a diminishing return in improvement in search quality, even when scale increases?

A. There are two important points that we observed empirically with other search engines in the world. There is a viability threshold. We noticed that if you -- if search engine dips below 20 percent, roughly speaking, they become nonviable, their quality just degrades rapidly and they

disappear. There are examples both in the United States and internationally, like Seznam in Czech Republic and others.

THE COURT: When you say degrade, you mean in terms of market share?

THE WITNESS: So if I have less than 20 percent of overall market share --

BY MR. CAVANAUGH:

Q. Someone's let the dogs out.

A. If I have less than 20 percent of the market share, my quality compared to my main competitor will become very bad, and so then it turns into a spiral. Advertisers leave, I cannot get enough revenue to distribute myself and quote those guys, and then people leave. There is nothing magic about that number, I'm just following sort of the history. We've seen that companies that stayed above 20 percent were able to continue operating. Again, Yandex in mobile or Bing in 2010, that's when Bing did this big deal with Yahoo! to stay above that viability threshold.

There is also the reverse, that once your share goes above 70 percent roughly, then quality improvements become incremental. So, again, this is my sort of empirical estimates. If you have more than 70 percent share, then each new share -- probably each new percent of share probably won't give you much quality improvement. But it will still give you exponential returns in terms of revenue. So revenue continues

to grow in accelerated pace, even up to last percent. You know, if you have 95 percent share or 100 percent share, you probably can make twice as much money with 100 percent share than the 95.

Q. But on the search side, you don't get the same degree of incremental improvement?

A. On the quality side, it tends to moderate after about 70, 75 percent.

Q. And let's assume I'm at 20 percent or a little below it. If I increase 5 percent, is that more valuable than if I'm at 70 and I go to 75?

A. Yeah, far more valuable.

Q. Why?

A. The slope of the curve is steeper when you go lower. So, basically, each percent of share dramatically improves your results versus each percent of share when you're closer to a hundred only incrementally slightly improves results.

Q. Do algorithms for search engines improve over time?

A. Constantly.

Q. Now, do those improvements that you see have a relationship to one another?

A. They build on top of each other.

Q. How does that occur?

A. The algorithms that we use, and everybody uses, they're machine learning-based. So they basically look at

examples from previous behavior and try to improve. And then they use -- the more data they have, the more they improve; the better the results were, the more they improve.

Q. So does one improvement incorporate the prior improvement and it just then increases over time?

A. Exactly.

Q. Can you retrain an algorithm from scratch to be comparable to an algorithm that's been evolving for a number of years?

A. Theoretically, yes. Practically speaking, it is nearly impossible.

Q. Why?

A. Well, because of this nature of interdependency, and that there are thousands of systems that depend on each other. It becomes -- you know, there is a little bit of bootstrapping chicken and egg problem. And then you essentially need to bootstrap some search engine and force traffic to it, and then let it run for a while to fully make it operational, which is -- you know, even internally, we couple of times tried to see what would happen if we would just even create a copy of old system and just run it side-by-side to see how much we improved. Even that turns out to be very difficult, because either you use machine learning algorithms and they keep improving, or you don't and then it's just not competitive.

Q. We've been talking about differences in relative

scale. Does that create an asymmetry?

A. It does create a very strong asymmetry I believe.

Q. And does that asymmetry linger?

A. It has a self-reinforcing component to it.

Q. Why?

A. Because once your relative scale is larger, your quality is better so people are more likely to prefer your results, and advertisers are more willing to come to you so you have more revenue, and so you have more money to invest.

Q. Has Bing made any efforts to maintain its existing share despite these differences in scale?

A. Bing made tremendous efforts over the years. Like empirically speaking, no other company could or did afford the amount of investment that was needed to stay viable at the level of scale that Bing had.

Q. Let me turn to advertising. The team at -- the ad team at Microsoft ultimately reports to you; is that correct?

A. That's correct.

Q. How does a search engine's scale impact the ability to generate ad revenue?

A. So relative scale is extremely important. It's probably more important for ad revenue than almost for anything else, because it does not have saturation point. Even large percentages are very, very valuable. So you both get higher quality ads, but even more importantly, more advertisers come

to you, they're willing to advertise. So you get benefits of larger scale from just more ads, more traffic, more clicks, and also more advertisers. So each click also becomes more expensive, because more advertisers compete for every click.

Q. Are you're familiar with, in digital advertising, auctions, the auction process?

A. Of course.

Q. How does volume impact the function of those auctions?

A. The more volume you have, the more advertisers you have. The more advertisers you have, the denser the auction is. Like our term density means more advertisers compete for the same result. That means they're more willing to raise prices competing against each other, and that has very beneficial impact on revenue. It also makes it more expensive for advertisers.

Q. What if you lack that density?

A. If you lack density, then imagine you have only one advertiser. Then in auction, there is no other competition, so this advertiser says I will pay an arbitrarily small amount, you know, 1,000th of a cent. And since there's no competitors, that's what you're going to charge. So it's great for that one lonely advertiser, but bad for everybody else.

Q. It's not exactly an auction, is it?

A. Yes.

Q. I believe you testified earlier that scale impacts a

search engine's ability to generate revenue through search ads. Is that -- is it linear?

A. It is strongly nonlinear.

Q. Can you explain to the Court why not?

A. So if I have -- if it were linear, you know, if I got twice as big, I would make twice as much money. But I would make twice as much money because I have twice as much clicks -- twice as many clicks, rather. But there is secondary effect that more advertisers will come in. So not only I will make twice as many -- twice as much money because I have twice as many clicks, but each click will be more expensive. So I will make more than 2X of the original amount.

Q. And is the converse true, if you're losing share, that it's nonlinear?

A. It is -- that is why I believe there is this viability threshold. It's a vicious spiral. You know, we've seen Ask Jeeves and Lycos and AltaVista and Seznam and many others, other search engines hitting exactly that vicious spiral.

Q. We've been talking about relative scale. You also mentioned absolute scale. Could you explain to the Court what you meant by absolute scale?

A. Relative scale is just percentage of the search market that -- or total number of queries that certain search engine will have. Absolute is just total number, 300,000,000 a day, 500,000,000 a day.

Q. Does absolute scale matter for ad revenue?

A. Absolute scale does matter for ad revenue. Absolute scale would be closer to linear than relative scale.

Q. In your experience, do some advertisers advertise on only one search engine?

A. By advertiser count, probably the majority advertise only on one search engine.

Q. And what is it that would lead them to one search engine?

A. It is roughly the same amount of work to set up a search campaign on, say, Bing versus search campaign on Google. If they get higher -- much more traffic and many more conversions on Google, of course they're going to first prioritize Google. They will set up search advertising campaign on Google. Now, large companies have marketing departments that are paid, and they can go and also then set up search campaign on Bing, even though it will be less important for them. Smaller companies or SMBs, small medium businesses, usually the owners would have better things to do than set up advertising campaigns across multiple search engines. So they go by the largest one, and then stop there.

Q. Does the ability to generate revenue from search ads depend on a search engine's ability to achieve scale on different devices?

THE COURT: Can you state the question one more time?

BY MR. CAVANAUGH:

Q. Sure. Does the ability to generate revenue from search ads depend on a search engine's ability to achieve scale on different types of devices?

A. You need to have some sort of breakthrough at least on -- at least in certain geographic area, at least on certain type of device. Again, you've seen that Bing was able to survive and become profitable essentially in United States on desktop. And we've seen that other search engines were able to do that in distinct geographic areas or other devices. But it's not -- you know, it is much better to have 40 percent on desktop and zero on mobile than 20 percent on both, roughly speaking. So it is -- concentration helps.

Q. Are there certain classes of advertisers that prefer advertising only on mobile?

A. As we discussed, there are advertisers preferences. There are advertisers that prefer only on mobile. There are advertisers who are exclusively mobile. There are also advertisers who prefer desktop.

THE COURT: Mr. Cavanaugh, how much longer do you think you have?

MR. CAVANAUGH: I'm probably about two-thirds of the way done, Your Honor.

THE COURT: We might as well just pause for the day.

MR. CAVANAUGH: That's fine.

THE COURT: Mr. Parakhin, we're going to be -- we'll conclude for the day. I will ask you to -- you'll be staying overnight, so you can search for best restaurants in Washington, D.C. and hopefully find it. We'll ask you to return before 9:30 so we can get started with your testimony. Thank you, sir, and I'll ask you not to discuss your testimony with anyone overnight. Thank you, sir. You're free to step down.

MS. AGUILAR: Your Honor, one small thing, I'm told we have been entering demonstratives into evidence, so I would renew my motion to admit UPXD3 into evidence.

THE COURT: Yeah, I think it's been sort of hit or miss. I'm not sure we've been as consistent as I might have hoped at the outset. Look, it's a bench trial, that's fine.

MS. AGUILAR: Thank you.

THE COURT: If you want to have it be admitted, it can be admitted, that's fine.

(Exhibit UPXD3 admitted into evidence)

THE COURT: Importantly, it's not summary evidence, so that's a different issue.

Okay. Anything else -- anything we need to deal with other than the motion that was filed last evening concerning posting of exhibits? Okay.

So here's my thinking about this: I would like to be -- I would like both sides to be in a position where they can

post -- and I understand the burden will be greater on Google and third parties, to be in a position to post as soon as it is reasonable to do so. It seems to me that Google and the third parties have a head start in the sense that typically when an exhibit gets admitted, it's not the first time you've seen it, you've already discussed redactions. And so the re-review of such an exhibit before it gets posted ought not to take as long as an exhibit that is -- that you've not seen before.

And so it seems to me -- again, you've got large teams. What I would propose is as follows: Which is that an exhibit is presumptively postable unless a third party -- or any party for that matter, or a third party objects to its posting by 8:00 o'clock that evening. And by object, I mean either a full on objection to posting or has concerns about the way in which a document was redacted as it was presented in court that would require some additional time to go through so that it can be posted once those discussions are concluded. But it seems to me that there are, I would hope, a majority of these exhibits as to which there really is no issue, and particularly once the PII is removed. And given that most of these exhibits are coming through the government -- excuse me, through the plaintiffs, and you all have expressed an interest in posting of them, that I hope you are doing the PII redactions sort of in parallel with the presentation of the evidence such that you can show Google what the final posted product will be at the

end of a trial day. I mean, only you all know what you're going to present on a particular day, so you ought to be in a position to say to Google, look, here's the final product shortly after the end of the trial day.

So in the interest of trying to be efficient, there is a premium then on the plaintiffs in particular to ensure that you're in a position to give Google the final -- and third parties, it's not limited to Google, what that final posted exhibit is going to look like. So if the plaintiffs are prepared and able to do that, it seems to me sort of a three-hour window ought to give Google enough time to at least identify whatever it thinks is fine and let that get posted in the evening. And if there are some exhibits that need to be -- as to which there needs to be further discussion, you can note that by 8:00 p.m., and we can hopefully get that resolved by the next day. And then as soon as it's resolved, it will be posted -- with the assumption that to the extent Google does have an issue, we can get it resolved and posted sometime the next business day.

MR. SCHMIDTLEIN: Yeah, that should be fine, Your Honor. In some instances, we have situations where we have talked about a document in advance, but then they may use sort of a derivative form of it -- let's say it's a demonstrative or a call out or something like that, or they use another version of it. And that's where we've had, I think, a couple of problems,

where like the translation hasn't been perfect. But if we can get these by, let's say, 6:00 o'clock, within an hour of the end of the day, and we have until 9:00 p.m., you know, three hours -- and as long as they send them to the third parties, too, if it's a third party document, obviously the third parties may or may not be waiting for these, but typically they should be.

THE COURT: There's usually counsel in here that is waiting for them.

MR. SCHMIDTLEIN: Then we should be able to make that work.

THE COURT: Okay.

MR. DAHLQUIST: Your Honor, we appreciate the additional guidance. On behalf of the United States, our strong position is that these documents, once moved in, are public documents. We'd like to make them available as soon as possible. We want to work with Your Honor's instructions in order to make it most administrable as possible. So I would ask, maybe amend your guidance with one slight piece, which is we will provide by 6:00 o'clock; if they can provide any objections by 9:00 o'clock. And if they object, to pick up on Your Honor's comment, this shouldn't extend on for days.

THE COURT: No, it's something that ought to be resolved within a business day. And I would think given how much work has already been put in, I would hope any such disputes would

be rare.

MR. DAHLQUIST: And we would ask that the parties, whether it's a third party or Google, be prepared to be in front of Your Honor that next morning in order to address it and resolve it. That would be our ask to add on to it.

THE COURT: Well, I think that's, as a general proposition, fine. You'll have notice by 9:00 o'clock as to what Google is disputing, and we can get it resolved the next day.

MR. DAHLQUIST: I hope that the majority of the times we'll be able to work it out amongst ourselves and not have to bother the Court with that.

THE COURT: That's what I'm here for.

MR. DAHLQUIST: Your Honor, I wanted to correct the record on one other point in Apple's filing last night --

THE COURT: Hang on, before you go to the next point, what does that mean about the exhibits moved into evidence thus far?

MR. DAHLQUIST: Fair point, Your Honor. I mean, those are ones we'd like to post, so we intend to repost.

THE COURT: But there was a point in time where you all stopped posting?

MR. DAHLQUIST: Correct.

THE COURT: To be clear, I did not order that, contrary to what some reports have said. And then there's been a period of time since then that more exhibits have been admitted. So does

Google -- and in particular Apple since it's affected, do their witnesses who were here last week and today, do they have final versions of what you want to put online?

MR. DAHLQUIST: Not yet. We will get those over starting tonight is what I presume. So we'll begin that process immediately.

THE COURT: So the sooner you get it over to them, the sooner we can be in a position to get all of what's been admitted so far back up online and publicly available.

MR. DAHLQUIST: And we assume, Your Honor, this process is mutual; when we're in Google's case, we're going to be having the same type of situation, they may want to post things in their case.

THE COURT: Right. I mean, to the extent they are going to or intend to post things, the same applies to them, but I don't know how much of that they intend to do.

Mr. Schmidtlein, if there are such documents -- look, I suspect you're not going to post that many, but if you are, please let the plaintiffs know.

MR. SCHMIDTLEIN: We have not posted -- we have posted the slides, the redacted slides, from the opening. We have not posted any other documents. I don't have any Department of Justice documents to post online, so I don't know that they have a -- there's nothing for them to review, because it's all our documents that have been at issue thus far. But if we

wanted to post a third party's document -- which I can't imagine we would, we obviously would follow the same process.

MR. DAHLQUIST: But therein lies the rub, they control the confidentiality of their own documents.

THE COURT: But I think the point is the same, which is that if Google does want to post whether it's their document or a third party document, they will let you know so that you can take a look at what it is they're proposing to post to include questions about whether they've over redacted. Although, again, given how much work has been put in, I presume you all have already decided that in the vast majority of cases.

MR. DAHLQUIST: Understood. Thank you, Your Honor. We appreciate the guidance. The final point, in Apple's filing last night, they stated that the Department of Justice chose to unilaterally close the courtroom. That did not occur. I think as we established there, that the United States has always been focused on open courtroom and public access. At times, we have not objected to the closing when the third parties and Google have put that forward. We want to just state that for the public record, Your Honor.

THE COURT: Okay. Well, let me state what I stated earlier today in closed session, which is as the presiding judge in this case, I don't have a crystal ball to know what's coming up. So it is very difficult for me to predict and say, well, this ought to be in closed session and this ought to be

in open session. So I'm relying largely on the plaintiffs, who represent the public interest, to let me know if you think it is objectionable to go into closed session. So this idea that you are not objecting, I get it, that's your official position. But only if you object does it get teed up for me to consider, because they don't care.

MR. DAHLQUIST: Understood.

THE COURT: Actually, that's too strong. But they don't have the same interests you do.

MR. DAHLQUIST: Point taken. Thank you, Your Honor.

THE COURT: Anything else we need to talk about, counsel, before we adjourn?

MR. CAVANAUGH: Not from us, Your Honor.

MR. DINTZER: Not for DOJ plaintiffs, Your Honor.

THE COURT: Thank you all, and we'll see you in the morning.

(Proceedings adjourned at 5:11 p.m.)

C E R T I F I C A T E

I, **Jeff M. Hook, Official Court Reporter,** certify that the foregoing is a true and correct transcript of the record of proceedings in the above-entitled matter.

September 26, 2023

DATE

Jeff M. Hook

BY MR. CAVANAUGH: [5] 2638/2 2674/25 2676/3 2679/6 2685/25
BY MR. SCHMIDTLEIN: [2] 2618/5 2620/6
BY MS. AGUILAR: [8] 2640/9 2648/1 2649/20 2650/1 2654/18 2658/24 2659/7 2671/10
BY MS. BELLSHAW: [1] 2635/9
DEPUTY CLERK: [2] 2639/24 2640/4
MR. CAVANAUGH: [4] 2639/2 2686/21 2686/24 2694/12
MR. DAHLQUIST: [12] 2690/12 2691/1 2691/9 2691/13 2691/17 2691/21 2692/3 2692/9 2693/2 2693/11 2694/6 2694/9
MR. DINTZER: [2] 2639/10 2694/13
MR. SCHMIDTLEIN: [6] 2620/4 2635/6 2639/15 2689/19 2690/9 2692/19
MR. SMURZYNSKI: [2] 2647/23 2670/3
MS. AGUILAR: [9] 2639/21 2640/6 2647/21 2654/6 2670/2 2670/8 2674/22 2687/8 2687/14
MS. BELLSHAW: [2] 2637/8 2637/23
THE COURT: [52] 2618/1 2620/5 2635/7 2637/10 2637/22 2637/25 2639/4 2639/7 2639/13 2639/16 2639/18 2640/5 2640/7 2647/24 2649/14 2649/25 2654/5 2654/7 2654/17 2657/24 2658/13 2659/6 2670/7 2670/9 2670/18 2671/3 2671/9 2674/23 2676/1 2679/2 2685/24 2686/19 2686/23 2686/25 2687/11 2687/15 2687/18 2690/7 2690/11 2690/22 2691/5 2691/12 2691/15 2691/19 2691/22 2692/6 2692/13 2693/4 2693/20 2694/7 2694/10 2694/14
THE WITNESS: [13] 2637/12 2637/24 2639/3 2639/6 2640/3 2649/15 2654/12 2658/2 2658/15 2670/13 2670/25 2671/6 2679/4

'

's [2] 2627/21 2629/2

-

-Apple [1] 2627/20

.

.....Admitted [2] 2617/15 2617/16

1

1,000th [1] 2683/20
1.0 [1] 2621/19
10 [1] 2615/7
100 [1] 2680/3
100 percent [1] 2680/2
10036 [1] 2615/25
1100 [1] 2615/14
1133 [1] 2615/24
1300 [1] 2616/4
15 [1] 2639/19
1:20-cv-3010 [1] 2615/4

2

2.5 [1] 2628/10
20 [2] 2621/3 2673/9
20 percent [6] 2678/24 2679/5 2679/9 2679/15 2680/9 2686/12
20001 [2] 2615/18 2616/25
20005 [1] 2615/15
2000s [1] 2666/8
20024 [1] 2616/8
2003 [1] 2621/7
2007 [3] 2632/24 2633/8 2654/16
2010 [1] 2679/16
2012 [1] 2635/5
2014 [2] 2654/15 2654/16
2019 [2] 2654/14 2654/15
2023 [1] 2615/5
209 [1] 2615/20
2200 [2] 2615/24 2615/24
25 percent [1] 2662/25
26 [1] 2615/5
2618 [1] 2617/4
2635 [1] 2617/5
2638 [1] 2617/6
2640 [1] 2617/9
2648 [1] 2617/15
2675 [1] 2617/10
2687 [1] 2617/16
270 [1] 2647/25
2:37 [1] 2615/6
2X [1] 2684/12

3

3 percent [2] 2663/3 2676/13
3,000 [1] 2665/19
30 [1] 2673/9
30 percent [1] 2674/12
300,000,000 [1] 2684/24
3010 [1] 2615/4
333 [1] 2616/24
3:18 p.m [1] 2639/20
3:36 p.m [1] 2639/21

4

40 percent [1] 2686/11
450 [1] 2615/17

5

5 percent [1] 2680/10
5.2 [1] 2627/11
500,000,000 [1] 2684/25
55 percent [1] 2674/22
5:11 p.m [1] 2694/17

6

600 [1] 2615/20
60604 [1] 2615/20
680 [1] 2616/8
6:00 [2] 2690/2 2690/20

7

70 [2] 2680/8 2680/11
70 percent [2] 2679/20 2679/22
70.001 [1] 2648/5
75 [1] 2680/11
75 percent [1] 2680/8
7th [1] 2616/4

8

80203 [1] 2616/4
8:00 [1] 2688/13
8:00 p.m [1] 2689/15

9

95 [1] 2680/4
95 percent [1] 2680/2
9:00 [2] 2690/20 2691/7
9:00 p.m [1] 2690/3
9:30 so [1] 2687/5

A

abandoning [1] 2651/23
ability [18] 2625/9 2629/4 2633/2 2633/5 2643/4 2643/13 2643/20 2643/21 2646/11 2656/12 2659/4 2667/20 2682/19 2684/1 2685/22 2685/23 2686/2 2686/3
able [15] 2619/19 2620/25 2621/2 2627/25 2628/25 2655/11 2660/16 2669/8 2674/8 2679/15 2686/7 2686/9 2689/10 2690/10 2691/11
above [4] 2679/15 2679/17 2679/19 2695/5
above-entitled [1] 2695/5
absence [1] 2652/19
absolute [10] 2644/15 2646/9 2646/12 2646/12 2684/20 2684/21 2684/24 2685/1 2685/2 2685/2
absolutely [3] 2619/14 2623/20 2642/9
abused [2] 2629/6 2629/7
accelerated [1] 2680/1
access [2] 2626/15 2693/17
account [2] 2642/25 2653/8
achieve [6] 2643/2 2655/20 2656/2 2656/4 2685/23 2686/3
across [1] 2685/20
Action [1] 2615/3
actionable [1] 2672/13
actual [2] 2668/1 2670/16
actually [10] 2633/18 2645/5 2656/10 2656/24 2658/1 2658/1 2658/9 2659/5 2670/20 2694/8
ad [9] 2649/1 2650/19 2650/19 2655/5 2682/16 2682/20 2682/22 2685/1 2685/2
add [1] 2691/5
additional [4] 2628/7 2666/23 2688/16 2690/13
address [3] 2624/14 2624/15 2691/4
adds [1] 2637/3
adjourn [1] 2694/12
adjourned [1] 2694/17
adjust [1] 2651/25
administrable [1] 2690/18
administrators [1] 2645/14
admit [3] 2647/23 2670/3 2687/11
admitted [8] 2647/25 2648/1 2687/16 2687/17 2687/18 2688/5 2691/25 2692/9
Adobe [1] 2655/4
ads [26] 2635/25 2636/1 2636/2 2641/11 2642/3 2642/8 2647/8 2649/7 2651/7 2652/3 2653/3 2653/4 2653/5 2653/9 2653/10 2653/12 2653/13 2653/15 2653/23 2673/22 2677/1 2682/25 2683/2 2684/1 2685/22 2686/3
advance [1] 2689/22
advertise [4] 2655/5 2683/1 2685/4 2685/6
advertiser [5] 2653/24 2683/18 2683/19 2683/22 2685/6
advertisers [39] 2648/8 2648/21 2648/25 2649/1 2649/4 2649/9 2649/23 2650/4 2650/5 2650/19 2650/21 2650/23 2653/8 2653/11 2653/21 2653/22 2653/25 2662/2 2662/3 2662/4 2662/15 2662/16 2677/2 2679/11 2682/8 2682/25 2683/3 2683/4 2683/9 2683/10 2683/11 2683/15 2684/9 2685/4 2686/14 2686/16 2686/17 2686/18 2686/19
advertisers' [1] 2662/14
advertising [13]

A

advertising... [13] 2640/17 2640/24 2646/19 2649/2 2649/3 2649/4 2650/15 2655/6 2682/16 2683/5 2685/14 2685/20 2686/15
affect [7] 2643/18 2649/22 2650/3 2656/19 2663/7 2669/20 2671/22
affected [4] 2665/7 2665/8 2665/10 2692/1
affecting [1] 2665/1
affects [1] 2644/14
affinity [1] 2650/5
affirm [1] 2640/1
afford [2] 2655/11 2682/13
afternoon [6] 2615/7 2639/10 2639/12 2639/22 2640/11 2675/2
again [30] 2623/10 2624/4 2624/13 2624/14 2624/25 2625/14 2626/6 2628/6 2629/12 2629/18 2629/20 2631/14 2631/24 2633/8 2633/16 2635/1 2636/14 2637/4 2637/13 2638/7 2638/16 2643/8 2646/1 2662/12 2666/15 2679/16 2679/21 2686/7 2688/9 2693/10
against [1] 2683/13
aggregate [5] 2644/16 2662/24 2664/13 2669/9 2670/17
agree [4] 2636/8 2653/17 2656/1 2659/17
agreement [8] 2627/7 2627/8 2627/11 2627/14 2627/20 2628/4 2628/8 2628/11
agreements [2] 2628/16 2629/21
AGUILAR [4] 2615/16 2617/9 2639/22 2640/12
ahead [2] 2618/2 2618/4
airplane [2] 2631/5 2636/16
al [1] 2615/3
algorithm [3] 2678/17 2681/7 2681/8
algorithms [19] 2652/12 2652/13 2653/5 2653/6 2654/3 2655/12 2659/19 2664/10 2664/16 2664/22 2665/11 2666/5 2666/10 2678/12 2678/13 2678/14 2680/18 2680/24 2681/23
aligned [1] 2652/9
allow [8] 2657/9 2657/12 2657/16 2658/8 2658/10 2660/5 2666/19 2669/11
allowed [1] 2658/7
allowing [3] 2658/11 2658/14 2677/9
allows [2] 2656/10 2656/11
almost [2] 2643/22 2682/22
alone [1] 2678/8
AltaVista [1] 2684/17
Although [1] 2693/9
always [6] 2622/2 2645/17 2650/17 2661/14 2665/8 2693/16
amazing [2] 2619/4 2626/13
Amazon [1] 2667/4
amend [1] 2690/18
amendments [2] 2627/7 2628/7
AMERICA [1] 2615/3
American [1] 2641/22
American-owned [1] 2641/22
Americas [1] 2615/24
AMIT [1] 2615/10
amongst [1] 2691/11
amount [9] 2645/16 2649/5 2653/23 2657/13 2673/6 2682/14 2683/19 2684/12 2685/10
Android [2] 2674/16 2674/22
announcement [4] 2621/17 2622/7 2622/18 2623/3
Antitrust [1] 2616/3
AOL [1] 2633/23
apologies [1] 2626/24
app [8] 2625/14 2626/4 2626/8 2626/12 2628/18 2631/2 2636/1 2636/2
appear [1] 2629/20
APPEARANCES [2] 2615/12 2616/1
Apple [47] 2618/11 2618/11 2618/21 2619/5 2619/6 2619/13 2619/21 2619/22 2620/2 2620/4 2620/11 2620/13 2622/8 2623/2 2623/11 2624/1 2624/10 2626/3 2626/4 2626/18 2626/19 2627/15 2627/20 2627/20 2627/24 2628/11 2628/12 2628/12 2628/16 2629/24 2631/7 2631/17 2631/21 2631/24 2632/7 2633/1 2633/8 2633/9 2633/16 2633/21 2634/5 2635/25 2636/1 2636/2 2637/11 2637/14 2692/1
Apple's [11] 2618/19 2629/24 2629/25 2632/9 2633/2 2633/5 2634/3 2636/20 2637/1 2691/15 2693/13
application [3] 2625/19 2638/12 2650/10
applications [5] 2618/21 2625/15 2626/4 2627/15 2631/2
applies [1] 2692/15
appreciate [4] 2639/7 2654/18 2690/13 2693/13
approach [1] 2620/5
apps [2] 2625/17 2631/8
arbitrarily [1] 2683/19
area [7] 2643/4 2643/6 2643/8 2643/23 2644/24 2664/2 2686/6
areas [2] 2643/3 2686/10
argument [2] 2645/20 2663/24
arguments [1] 2632/20
around [9] 2626/2 2627/13 2630/12 2632/6 2634/2 2634/4 2662/25 2663/1 2663/2
arrow [1] 2638/24
artificial [2] 2655/11 2668/1
aside [1] 2660/18
aspects [1] 2644/14
associated [2] 2658/14 2658/16
assume [3] 2664/10 2680/9 2692/10
assumption [1] 2689/17
asymmetry [3] 2682/1 2682/2 2682/3
attached [2] 2631/23 2647/11
attract [2] 2649/23 2650/4
attributes [3] 2655/11 2664/8 2664/9
auction [4] 2683/6 2683/10 2683/18 2683/23
auctions [2] 2683/6 2683/8
audience [1] 2667/23
automatically [1] 2621/14
available [8] 2620/15 2621/20 2627/21 2628/13 2654/1 2656/18 2690/16 2692/9
Avenue [3] 2615/24 2616/8 2616/24
aware [10] 2629/23 2631/20 2632/12 2633/2 2633/5 2633/24 2633/25 2635/18 2635/19 2637/14
awareness [2] 2655/23 2659/21
away [3] 2624/7 2629/19 2651/19

B

baby [1] 2667/15
back [18] 2619/14 2625/20 2626/7 2633/8 2634/15 2639/21 2641/4 2645/4 2645/18 2651/4 2651/16 2653/14 2654/8 2654/20 2657/18 2660/2 2672/4 2692/9
background [2] 2640/13 2654/12
bad [4] 2651/23 2652/14 2679/10 2683/22
ball [1] 2693/23
bandwidth [1] 2672/9
Bankruptcy [1] 2616/24
Bard [1] 2669/23
base [2] 2659/18 2671/8
based [8] 2652/15 2663/14 2663/15 2664/11 2666/7 2669/22 2678/15 2680/25
basic [5] 2649/17 2651/1 2664/16 2664/22 2665/10
basically [8] 2621/3 2629/8 2643/20 2644/2 2653/10 2670/15 2680/15 2680/25
basis [1] 2629/12
Bates [1] 2648/4
beacons [1] 2662/14
bear [1] 2643/7
became [1] 2641/5
become [8] 2646/1 2666/16 2675/8 2675/12 2678/24 2679/10 2679/20 2686/8
becomes [2] 2681/15 2683/3
begin [1] 2692/5
beginning [2] 2619/21 2664/1
behalf [2] 2639/23 2690/14
behavior [3] 2645/1 2672/2 2681/1
behind [1] 2668/25
believes [1] 2618/21
Belknap [1] 2615/23
BELLSHAW [2] 2615/16 2617/5
belongs [1] 2636/24
below [2] 2678/24 2680/9
bench [2] 2615/10 2687/14
beneficial [1] 2683/14
benefit [4] 2637/19 2637/20 2675/17 2675/23
benefits [2] 2620/1 2683/1
best [13] 2618/19 2618/22 2620/3 2621/16 2623/4 2624/20 2625/21 2625/21 2632/2 2657/22 2661/1 2667/11 2687/3
best-in-class [1] 2618/22
better [13] 2645/8 2646/1 2652/3 2652/13 2653/11 2653/13 2653/15 2666/14 2678/16 2681/3 2682/7 2685/19 2686/11
big [4] 2646/20 2678/5 2679/17 2684/6

B

bigger [3] 2666/14 2677/2 2677/6
biggest [1] 2622/2
Bill [1] 2675/2
billions [2] 2626/17 2626/17
binder [3] 2620/8 2622/3 2626/23
Bing [45] 2628/5 2628/14 2628/18 2630/1 2636/19 2637/2 2640/24 2642/11 2655/16 2665/22 2666/6 2667/13 2667/14 2667/16 2667/17 2668/11 2668/20 2669/5 2669/7 2669/20 2669/22 2670/11 2670/12 2670/12 2671/2 2671/4 2671/13 2671/19 2673/3 2676/12 2676/24 2677/20 2677/24 2677/25 2678/3 2678/5 2678/7 2679/16 2679/17 2682/10 2682/12 2682/15 2685/11 2685/17 2686/7
Bing's [7] 2641/7 2641/10 2661/17 2661/18 2662/8 2662/20 2662/23
bit [8] 2644/4 2644/17 2646/1 2646/10 2664/7 2666/15 2672/13 2681/15
blank [1] 2658/12
bloatware [1] 2625/6
block [1] 2658/23
blocking [1] 2633/5
blow [1] 2622/19
blown [1] 2624/7
body [3] 2675/15 2676/1 2676/6
boils [1] 2643/1
bootstrap [1] 2681/17
bootstrapping [1] 2681/15
both [13] 2623/2 2644/14 2651/7 2652/15 2655/15 2655/17 2669/24 2671/23 2672/6 2679/1 2682/24 2686/12 2687/25
bother [1] 2691/12
bottom [2] 2627/11 2646/25
bought [2] 2622/11 2623/8
boundary [1] 2650/17
box [9] 2618/8 2618/10 2618/17 2618/20 2619/3 2619/13 2623/18 2623/25 2625/8
boxes [1] 2618/13
breadth [1] 2637/5
break [3] 2633/13 2639/12 2643/3
breakthrough [1] 2686/5
briefly [2] 2648/24 2656/7
bring [3] 2622/14 2624/2 2643/7
Broadway [1] 2616/4
browse [1] 2619/20
browser [31] 2619/10 2619/19 2620/13 2620/14 2620/21 2621/18 2622/9 2622/12 2622/12 2622/13 2622/15 2622/17 2622/23 2623/3 2623/12 2623/17 2623/24 2624/11 2625/11 2625/18 2625/23 2628/23 2630/5 2631/22 2631/23 2632/8 2632/12 2633/13 2636/4 2636/6 2640/24
browsers [1] 2625/13
browsing [2] 2619/5 2619/12
budgets [1] 2654/1
build [7] 2620/20 2620/21 2643/18 2657/2 2657/10 2658/21 2680/22
building [1] 2623/24
built [4] 2622/23 2623/6 2660/6 2669/23
built-in [1] 2622/23
burden [1] 2688/1
business [13] 2640/17 2640/22 2641/5 2641/6 2641/23 2642/2 2645/21 2654/10 2661/23 2662/18 2677/14 2689/19 2690/24
businesses [3] 2648/8 2657/4 2685/18
button [2] 2668/12 2668/15
buy [2] 2626/9 2631/3
buying [1] 2619/2
buys [1] 2618/24

C

cache [2] 2665/5 2665/5
call [4] 2619/3 2624/4 2672/24 2689/24
called [1] 2658/4
calls [1] 2639/23
came [5] 2622/11 2633/18 2634/1 2634/20 2668/1
campaign [4] 2685/11 2685/11 2685/15 2685/17
campaigns [1] 2685/20
can [116]
capabilities [2] 2621/4 2629/17
capability [7] 2619/13 2619/19 2628/24 2629/13 2629/15 2634/7 2634/17
capacity [1] 2635/16
capped [1] 2670/22
captions [1] 2658/11
care [2] 2618/16 2694/6
career [1] 2667/1
carefully [1] 2624/1
case [9] 2632/20 2632/23 2634/4 2634/16 2655/8 2657/22 2692/11 2692/13 2693/23
cases [2] 2655/17 2693/11
categories [1] 2662/5
CAVANAUGH [8] 2615/23 2617/6 2617/10 2638/1 2674/24 2675/3 2676/3 2686/20
cellphone [3] 2650/13 2660/3 2663/15
cellphones [3] 2655/3 2660/5 2674/4
cent [1] 2683/20
CEO [3] 2640/17 2641/5 2654/10
certain [15] 2627/7 2645/3 2657/11 2663/22 2664/14 2664/15 2665/1 2666/3 2670/22 2670/22 2677/5 2684/23 2686/6 2686/6 2686/14
certainly [4] 2641/15 2656/4 2665/9 2678/14
certify [1] 2695/4
change [16] 2626/21 2628/13 2628/20 2629/4 2631/14 2636/4 2636/6 2636/8 2636/12 2637/2 2643/15 2661/3 2670/2 2674/7 2675/6 2675/10
changes [3] 2646/13 2672/2 2672/7
changing [5] 2657/14 2660/22 2663/13 2663/14 2663/15
charge [2] 2658/19 2683/21
chat [12] 2667/14 2667/14 2667/16 2667/17 2668/11 2668/20 2669/5 2669/7 2669/20 2669/22 2670/11 2671/4
ChatGPT [8] 2670/12 2670/13 2670/15 2670/15 2670/17 2670/22 2670/25 2671/1
check [2] 2655/7 2656/23
checking [1] 2663/22
checkmarks [1] 2668/22
Chicago [1] 2615/20
chicken [1] 2681/16
Chief [2] 2641/19 2673/20
choice [11] 2625/4 2631/12 2631/14 2632/4 2632/7 2632/8 2632/13 2637/15 2638/21 2643/17 2674/16
choices [2] 2631/12 2635/1
choose [5] 2625/23 2625/24 2625/24 2653/13 2674/17
chose [1] 2693/14
Circuit [1] 2626/8
City [1] 2626/8
Civil [1] 2615/3
class [3] 2618/22 2619/12 2672/14
classes [1] 2686/14
clear [2] 2634/4 2691/23
click [18] 2639/2 2645/4 2645/4 2645/4 2651/2 2651/2 2651/4 2652/15 2652/15 2652/19 2652/19 2659/17 2668/15 2672/3 2672/4 2683/3 2683/4 2684/11
click-based [1] 2652/15
click-click-click [1] 2645/4
clicked [6] 2645/3 2651/4 2651/15 2651/16 2651/17 2652/20
clicking [1] 2651/3
clicks [8] 2644/25 2645/7 2649/8 2651/13 2683/2 2684/7 2684/8 2684/11
close [2] 2623/5 2693/15
closed [3] 2693/22 2693/25 2694/3
closer [4] 2659/13 2665/6 2680/16 2685/3
closest [2] 2660/9 2667/25
closing [1] 2693/18
CO [1] 2616/4
coarse [1] 2662/12
coarser [1] 2660/13
collaboration [1] 2667/18
collect [1] 2637/21
Colorado [4] 2615/22 2616/2 2616/3 2675/3
COLUMBIA [1] 2615/1
combine [1] 2667/19
combines [1] 2640/23
coming [11] 2633/21 2658/17 2662/11 2662/11 2671/9 2672/11 2674/5 2677/1 2677/23 2688/21 2693/24
comment [1] 2690/22
commerce [1] 2667/3
commercial [2] 2655/5 2667/6
commitment [1] 2618/19
common [5] 2638/25 2661/5 2661/6 2661/7 2663/21
communicates [1] 2636/19
communicating [1] 2636/18
companies [6] 2658/23 2665/17 2665/21 2679/15 2685/15 2685/18
company [9] 2635/17 2635/17 2641/22 2641/23 2650/16 2658/19 2665/22 2673/20 2682/13
comparable [1] 2681/8
compare [4] 2652/17 2665/14 2666/21 2669/5

C

compared [4] 2622/13 2644/13 2676/22 2679/10
compares [2] 2662/21 2666/1
comparison [1] 2652/17
compatibility [1] 2633/15
compensation [1] 2677/9
compete [5] 2625/25 2626/1 2677/3 2683/4 2683/11
competing [2] 2633/11 2683/13
competition [1] 2683/18
competitive [3] 2619/13 2643/5 2681/24
competitor [3] 2673/13 2673/15 2679/10
competitors [3] 2643/6 2646/16 2683/20
complained [1] 2629/24
complete [1] 2656/3
completeness [1] 2646/17
complicated [3] 2630/16 2634/14 2651/11
component [3] 2619/21 2653/7 2682/4
components [2] 2664/14 2664/15
computer [2] 2622/20 2623/1
computers [3] 2619/7 2633/17 2655/10
concentration [1] 2686/13
concept [6] 2618/7 2646/3 2646/22 2653/20 2655/14 2661/9
concern [2] 2624/14 2626/10
concerned [1] 2620/20
concerning [1] 2687/22
concerns [2] 2633/19 2688/14
conclude [1] 2687/2
concluded [1] 2688/17
conclusive [1] 2632/17
conduct [1] 2671/13
confidentiality [1] 2693/4
confirming [1] 2677/11
connect [1] 2618/3
connected [1] 2618/3
connection [1] 2632/8
Connolly [1] 2616/7
consider [3] 2619/5 2642/23 2694/5
considered [8] 2624/1 2631/21 2632/11 2634/13 2643/10 2661/5 2676/1 2676/6
consistent [5] 2648/14 2648/16 2655/15 2670/4 2687/13
constant [1] 2629/12
Constantly [1] 2680/19
Constitution [1] 2616/24
constrained [2] 2673/6 2673/7
consumer [2] 2640/23 2640/23
consumers [4] 2618/10 2618/20 2624/11 2626/4
CONT [1] 2616/1
content [1] 2657/13
context [3] 2644/6 2659/3 2659/4
continue [1] 2679/16
continued [7] 2617/4 2617/5 2617/6 2618/5 2621/2 2635/9 2638/2
continues [1] 2679/25
contractual [2] 2626/18 2627/13
contrary [1] 2691/23
contributes [1] 2655/13
control [2] 2658/9 2693/3
controls [1] 2658/13
converse [1] 2684/13
conversions [3] 2649/6 2649/8 2685/13
converts [1] 2662/16
conveying [1] 2653/20
copied [1] 2623/22
copy [1] 2681/20
core [1] 2665/19
correctly [6] 2645/24 2646/5 2656/24 2657/2 2669/18 2672/18
cost [3] 2657/15 2658/14 2658/16
costs [2] 2657/11 2658/18
counsel [5] 2632/4 2635/21 2674/24 2690/8 2694/11
counsel's [2] 2675/14 2677/10
count [1] 2685/6
countries [2] 2674/3 2674/5
country [1] 2667/7
couple [6] 2630/7 2640/20 2663/21 2668/22 2681/19 2689/25
course [9] 2626/6 2647/20 2664/14 2664/15 2667/9 2676/10 2677/21 2683/7 2685/13
court [13] 2615/1 2616/23 2616/23 2630/24 2640/2 2648/24 2652/4 2653/19 2684/4 2684/20 2688/15 2691/12 2695/3
courtroom [3] 2632/20 2693/15 2693/17
Courts [1] 2616/24
cover [2] 2639/18 2647/3
CPS [1] 2616/3
CPS/Antitrust [1] 2616/3
crawl [2] 2666/20 2677/9
crawler [2] 2657/10 2658/22
crawling [6] 2657/9 2657/19 2658/2 2658/15 2658/16 2667/5
create [4] 2676/9 2681/20 2682/1 2682/2
created [1] 2661/25
creates [1] 2678/5
creating [1] 2620/19
criteria [1] 2642/23
criterias [2] 2642/25 2643/9
critical [7] 2619/5 2619/11 2619/20 2625/5 2655/19 2659/16 2659/24
Cross [2] 2617/4 2618/5
Cross-Examination [2] 2617/4 2618/5
crystal [1] 2693/23
CTO [4] 2641/17 2641/18 2654/10 2654/14
CUE [16] 2617/3 2618/5 2618/7 2620/8 2622/6 2626/23 2630/19 2631/20 2632/19 2635/9 2635/11 2637/9 2637/11 2637/24 2638/2 2639/5
culture [1] 2623/15
current [5] 2631/10 2631/17 2641/2 2642/16 2654/13
curve [1] 2680/14
customer [14] 2618/24 2621/12 2625/4 2626/16 2629/8 2629/10 2629/11 2629/18 2634/11 2637/1 2637/6 2637/14 2637/17 2637/20
customers [26] 2618/23 2619/9 2619/25 2619/25 2623/7 2623/10 2624/14 2624/15 2624/17 2625/5 2625/16 2625/23 2625/23 2625/24 2630/13 2632/2 2632/13 2633/21 2636/14 2636/19 2636/22 2636/25 2637/4 2637/12 2677/17 2677/23
cv [1] 2615/4
Czech [1] 2679/2

D

D.C [6] 2659/10 2659/13 2660/11 2668/19 2669/2 2687/4
DAHLQUIST [1] 2615/19
data [22] 2626/11 2637/20 2650/21 2650/22 2651/8 2652/2 2652/5 2652/11 2652/12 2652/25 2653/2 2653/21 2659/17 2659/23 2660/1 2663/17 2664/5 2670/21 2672/15 2678/13 2678/15 2681/2
database [4] 2656/13 2656/14 2656/17 2666/18
date [3] 2669/24 2670/23 2695/10
dating [1] 2670/25
DAVID [1] 2615/19
day [17] 2615/7 2619/9 2620/11 2634/24 2662/12 2684/24 2684/25 2686/24 2687/2 2689/1 2689/2 2689/4 2689/16 2689/19 2690/3 2690/24 2691/9
days [4] 2635/11 2635/13 2635/15 2690/22
DC [5] 2615/5 2615/15 2615/18 2616/8 2616/25
deal [5] 2623/11 2623/14 2627/4 2679/17 2687/21
dealing [1] 2670/5
deals [2] 2627/14 2654/5
debug [1] 2662/7
decade [1] 2629/23
decide [2] 2624/22 2631/14
decided [4] 2629/2 2634/13 2634/24 2693/11
decision [2] 2624/1 2642/21
decisions [9] 2623/19 2624/16 2641/14 2642/15 2642/17 2642/18 2642/24 2643/10 2662/18
deeply [1] 2618/16
default [32] 2623/25 2624/11 2625/12 2626/21 2627/25 2628/14 2628/20 2629/1 2629/4 2629/25 2631/2 2631/11 2631/18 2631/22 2632/13 2632/25 2633/6 2634/8 2634/17 2634/19 2634/25 2636/4 2636/6 2636/7 2636/12 2637/2 2638/14 2638/16 2638/23 2643/16 2674/5 2674/18
defaults [5] 2643/14 2643/15 2643/17 2674/2 2674/7
Defendant [2] 2615/7 2616/6
Defendant's [2] 2630/17 2630/20
Definitely [4] 2652/16 2661/20 2662/19 2676/8
degrade [1] 2679/3
degrades [1] 2678/25
degree [2] 2666/3 2680/5
deliver [1] 2649/9

D

Dell [1] 2633/17
demonstrative [8] 2630/18 2630/21 2636/11 2638/4 2668/5 2668/8 2670/9 2689/23
demonstratives [2] 2670/5 2687/10
denser [1] 2683/10
density [4] 2665/6 2683/11 2683/16 2683/17
Denver [1] 2616/4
Department [7] 2615/14 2615/17 2615/19 2616/3 2632/22 2692/22 2693/14
departments [1] 2685/16
depend [4] 2671/5 2681/14 2685/23 2686/3
dependent [3] 2664/14 2664/16 2665/2
depending [2] 2661/2 2662/6
depends [2] 2661/22 2675/7
deposition [1] 2635/14
derivative [1] 2689/23
describe [3] 2630/24 2647/18 2651/10
describing [1] 2630/20
description [1] 2669/10
descriptions [1] 2658/4
design [4] 2623/15 2623/19 2623/25 2633/3
designing [1] 2623/17
designs [1] 2623/12
desktop [20] 2649/17 2650/6 2650/9 2650/11 2650/11 2650/16 2650/18 2660/12 2661/8 2662/21 2662/23 2663/5 2663/7 2663/17 2663/22 2673/5 2673/10 2686/9 2686/12 2686/19
desktops [1] 2660/14
despite [1] 2682/11
detail [1] 2651/10
developed [1] 2667/18
developer [1] 2626/15
developers [1] 2626/14
developing [1] 2633/9
development [2] 2653/16 2654/23
device [6] 2619/18 2621/23 2649/16 2661/19 2662/13 2686/7
devices [14] 2618/24 2619/6 2619/11 2627/15 2631/24 2633/10 2633/16 2634/5 2637/16 2649/19 2674/2 2685/24 2686/4 2686/10
DIANA [3] 2615/16 2639/22 2640/11
differ [1] 2663/5
difference [2] 2664/4 2664/5
differences [2] 2681/25 2682/11
different [24] 2624/19 2624/22 2624/23 2625/23 2625/24 2625/25 2631/22 2631/23 2634/14 2634/23 2635/17 2636/16 2645/16 2650/5 2650/5 2650/6 2650/18 2652/22 2660/23 2661/1 2662/5 2685/24 2686/4 2687/20
differently [2] 2658/1 2678/13
difficult [6] 2625/15 2630/6 2634/21 2634/23 2681/22 2693/24
digital [1] 2683/5
digits [1] 2622/1
diminishing [3] 2665/16 2677/25 2678/18
dinner [2] 2650/14 2668/19
DINTZER [1] 2615/13
dips [1] 2678/24
direct [7] 2617/9 2617/10 2640/9 2644/20 2654/25 2656/20 2674/25
direction [1] 2674/21
directly [2] 2630/9 2645/1
disallow [1] 2657/16
disappear [1] 2679/1
discontinued [1] 2635/4
discoverable [3] 2627/21 2628/13 2630/2
discovered [1] 2626/20
discovering [1] 2630/1
discuss [4] 2644/5 2661/17 2673/12 2687/6
discussed [7] 2655/14 2655/15 2663/20 2674/6 2677/1 2686/16 2688/6
discussing [2] 2642/14 2663/11
discussion [5] 2634/1 2639/18 2660/2 2666/19 2689/14
discussions [1] 2688/17
dispute [5] 2673/16 2673/19 2673/23 2673/25 2674/13
disputes [1] 2690/25
disputing [1] 2691/8
distance [1] 2661/3
distinct [2] 2649/17 2686/10
distinguish [1] 2624/11
distribute [4] 2643/13 2643/22 2654/1 2679/12
distributing [1] 2634/21
distribution [10] 2633/20 2643/3 2643/9 2643/12 2643/20 2643/25 2653/16 2654/4 2654/23 2664/4
distributors [1] 2655/4
district [5] 2615/1 2615/1 2615/11 2616/24 2660/11
do search [1] 2652/10
document [18] 2620/10 2620/12 2622/6 2627/8 2632/24 2646/24 2648/4 2648/12 2656/11 2659/1 2659/2 2660/18 2688/15 2689/22 2690/5 2693/1 2693/6 2693/7
documents [8] 2656/14 2690/15 2690/15 2692/17 2692/22 2692/23 2692/25 2693/4
dogs [1] 2679/8
DOJ [3] 2615/13 2632/3 2694/14
dominant [1] 2620/14
done [4] 2623/6 2632/17 2642/22 2686/23
down [7] 2631/20 2643/1 2643/3 2651/5 2670/9 2672/3 2687/8
download [12] 2625/15 2625/18 2625/18 2626/4 2626/16 2628/22 2632/15 2634/2 2634/6 2634/8 2634/11 2634/11
downloaded [3] 2625/16 2634/9 2634/17
downloading [1] 2626/9
downloads [3] 2626/17 2628/18 2628/18
dramatically [4] 2661/4 2676/25 2678/11 2680/15
driving [3] 2646/17 2646/17 2646/18
DuckDuckGo [1] 2676/20
duration [1] 2659/6
during [4] 2629/21 2632/20 2632/23 2673/13
Dutch [1] 2641/22
Dwell [1] 2652/20
DX267 [1] 2620/8
DX270 [1] 2622/3
DX924 [2] 2626/23 2627/3
DX963 [3] 2627/1 2628/2 2628/3

E

e-mail [2] 2647/4 2647/11
earlier [11] 2618/7 2622/1 2622/10 2630/22 2635/25 2646/4 2649/11 2662/17 2663/4 2683/25 2693/22
early [1] 2666/8
easily [8] 2623/7 2626/20 2626/21 2627/21 2628/13 2664/5 2664/6 2669/13
easy [10] 2623/10 2625/14 2625/18 2626/3 2626/16 2627/24 2630/1 2630/4 2637/7 2674/7
eat [1] 2650/14
EDDY [4] 2617/3 2618/5 2635/9 2638/2
Edge [2] 2632/16 2640/24
effect [8] 2628/8 2629/22 2629/22 2644/17 2644/21 2646/17 2656/20 2684/8
effectively [3] 2635/4 2643/22 2670/11
efficient [2] 2639/13 2689/5
effort [4] 2645/16 2645/17 2667/2 2677/19
efforts [2] 2682/10 2682/12
egg [1] 2681/16
either [7] 2623/18 2629/23 2643/15 2654/3 2660/12 2681/23 2688/13
else [10] 2625/3 2630/15 2634/3 2634/12 2657/17 2669/14 2682/23 2683/22 2687/21 2694/11
embodies [3] 2627/8 2628/6 2628/8
embraced [1] 2666/6
empirical [1] 2679/21
empirically [5] 2665/17 2666/9 2667/11 2678/22 2682/13
enabling [1] 2667/8
encourage [1] 2625/16
end [6] 2627/22 2634/24 2665/7 2689/1 2689/4 2690/3
ending [1] 2648/5
engine [61] 2620/1 2620/3 2621/9 2621/16 2623/5 2623/25 2624/12 2624/20 2624/22 2625/12 2625/24 2626/21 2627/25 2631/9 2631/10 2632/14 2633/6 2634/8 2636/7 2636/21 2638/5 2638/14 2641/24 2642/1 2642/3 2644/12 2644/13 2644/24 2645/7 2645/15 2645/19 2645/20 2645/25 2649/23 2650/4 2651/24 2655/7 2655/8 2656/21 2656/22 2657/2 2657/3 2658/2 2658/7 2658/8 2660/8 2661/12 2671/2

E

engine... [13] 2674/3 2674/17 2675/8 2676/7 2676/9 2677/6 2677/23 2678/24 2681/17 2684/23 2685/5 2685/7 2685/9
engine's [4] 2682/19 2684/1 2685/23 2686/3
engineering [6] 2664/17 2664/22 2665/11 2665/12 2667/10 2667/11
engineers [4] 2655/12 2664/19 2665/19 2665/19
engines [23] 2624/19 2625/1 2626/19 2626/20 2630/10 2631/17 2631/23 2638/18 2645/16 2651/6 2651/8 2651/20 2654/1 2657/7 2657/16 2657/19 2657/22 2677/5 2678/22 2680/18 2684/18 2685/20 2686/9
enough [4] 2646/11 2646/12 2679/12 2689/11
ensure [1] 2689/6
enter [1] 2670/23
entered [1] 2670/7
entering [1] 2687/10
entitled [1] 2695/5
entry [5] 2643/5 2643/8 2643/16 2655/23 2674/6
environment [1] 2625/20
equal [1] 2661/25
equations [2] 2659/6 2659/7
especially [2] 2657/14 2661/7
essentially [9] 2640/23 2641/3 2656/14 2656/17 2657/12 2658/17 2670/14 2681/16 2686/8
established [1] 2693/16
estimate [1] 2665/19
estimates [1] 2679/22
et [1] 2615/3
European [1] 2641/22
evaluate [1] 2671/19
evaluation [3] 2671/23 2672/16 2672/20
even [23] 2619/14 2632/10 2633/15 2657/8 2658/12 2658/12 2661/2 2661/3 2664/23 2664/23 2665/7 2666/7 2666/9 2667/10 2678/16 2678/19 2680/1 2681/19 2681/20 2681/22 2682/23 2682/25 2685/17
evening [3] 2687/22 2688/13 2689/13
eventually [2] 2674/13 2674/15
everybody [5] 2657/17 2663/12 2677/21 2680/24 2683/22
everybody's [1] 2623/22
everyone [3] 2626/7 2639/1 2639/19
evidence [12] 2617/15 2617/16 2620/9 2622/4 2648/1 2670/7 2687/10 2687/11 2687/18 2687/19 2688/24 2691/17
evolving [1] 2681/8
ex [1] 2674/3
exactly [7] 2625/2 2630/23 2646/21 2678/16 2681/6 2683/23 2684/18
Examination [10] 2617/4 2617/5 2617/6 2617/9 2617/10 2618/5 2635/9 2638/2 2640/9 2674/25
example [24] 2620/2 2622/17 2631/5 2634/7 2643/4 2644/13 2646/11 2650/6 2650/8 2657/4 2658/10 2658/20 2660/24 2665/1 2665/3 2666/25 2668/18 2670/20 2670/24 2671/22 2672/14 2676/8 2677/14 2677/15
examples [2] 2679/1 2681/1
except [1] 2653/6
excited [1] 2618/24
exclusively [1] 2686/18
excuse [3] 2642/20 2647/4 2688/21
exhibit [13] 2617/14 2617/15 2617/16 2630/18 2630/21 2647/3 2648/1 2687/18 2688/5 2688/7 2688/8 2688/10 2689/9
Exhibit 6 [2] 2630/18 2630/21
exhibits [6] 2687/23 2688/18 2688/20 2689/13 2691/17 2691/25
exist [1] 2656/15
existing [1] 2682/10
exists [2] 2629/14 2656/12
expand [1] 2667/1
expect [4] 2619/6 2620/4 2636/25 2672/3
expensive [3] 2683/4 2683/14 2684/11
experience [17] 2618/8 2618/10 2618/20 2619/3 2619/4 2619/11 2620/22 2622/16 2624/18 2625/4 2625/11 2629/11 2632/2 2632/18 2664/11 2672/1 2685/4
experiences [1] 2619/1
experiment [2] 2646/11 2672/11
experimentation [1] 2671/13
experiments [13] 2646/14 2671/14 2671/18 2671/20 2672/7 2672/7 2672/8 2672/24 2673/2 2673/4 2673/6 2673/9 2673/10
explain [9] 2630/19 2648/24 2652/3 2653/19 2656/7 2663/10 2677/12 2684/4 2684/20
explained [1] 2661/22
explanation [1] 2647/17
explicitly [1] 2638/9
Explorer [5] 2620/15 2620/15 2620/19 2632/16 2633/12
exponential [1] 2679/25
expressed [1] 2688/22
extend [1] 2690/22
extends [1] 2670/1
extent [3] 2636/18 2689/17 2692/14
extra [1] 2621/12
extract [2] 2651/20 2677/8
extremely [3] 2643/12 2661/23 2682/21

F

facet [1] 2662/6
facets [2] 2665/8 2665/9
fact [9] 2618/15 2619/22 2621/5 2624/7 2625/16 2636/21 2663/4 2663/22 2665/3
fact-checking [1] 2663/22
factor [12] 2643/5 2643/8 2644/25 2649/11 2649/15 2649/16 2649/16 2649/22 2650/3 2664/3 2664/6 2667/9
factors [4] 2649/14 2650/6 2660/2 2662/3
fair [2] 2676/15 2691/18
fairly [1] 2657/15
falling [1] 2674/12
familiar [15] 2641/7 2641/9 2641/10 2641/12 2641/13 2642/5 2642/7 2644/6 2644/7 2657/25 2661/9 2667/14 2673/16 2673/19 2683/5
far [9] 2622/2 2661/15 2677/6 2677/7 2677/24 2680/12 2691/17 2692/9 2692/25
fashion [1] 2669/11
fast [1] 2620/24
faster [3] 2672/12 2678/10 2678/11
favoring [1] 2653/25
features [1] 2622/20
feedback [12] 2644/22 2645/11 2646/3 2646/4 2646/7 2646/8 2646/16 2647/17 2648/15 2648/17 2654/22 2655/15
feel [1] 2625/10
feels [1] 2625/8
felt [1] 2633/13
fetches [1] 2657/11
few [5] 2636/5 2637/3 2638/4 2640/12 2674/7
fewer [3] 2672/22 2673/7 2677/24
field [3] 2621/9 2621/13 2625/3
Fifth [1] 2615/17
figure [2] 2637/6 2657/21
file [1] 2658/5
filed [1] 2687/22
filing [2] 2691/15 2693/13
final [8] 2649/8 2654/21 2688/25 2689/3 2689/7 2689/8 2692/2 2693/13
financial [1] 2650/16
find [6] 2626/4 2653/5 2653/6 2660/9 2663/23 2687/4
finding [1] 2650/10
fine [10] 2624/23 2660/4 2660/14 2670/8 2686/25 2687/14 2687/17 2689/12 2689/20 2691/7
fine-grained [2] 2660/4 2660/14
finer [2] 2658/9 2658/12
Firefox [1] 2632/16
firm [2] 2675/25 2676/6
first [20] 2618/15 2618/25 2619/3 2619/12 2619/20 2624/2 2624/6 2632/12 2635/23 2636/7 2647/3 2651/13 2651/15 2651/24 2656/7 2661/12 2674/11 2677/21 2685/13 2688/5
fit [1] 2633/6
five [1] 2654/15
flights [1] 2672/24
Floor [1] 2616/4
flowing [1] 2668/3
flywheel [5] 2650/20 2650/22 2652/2 2653/15 2654/21
focused [1] 2693/17
focusing [1] 2673/3
folks [1] 2635/17
follow [1] 2693/2
following [1] 2679/14
follows [1] 2688/10
For Plaintiffs [1] 2615/22
force [2] 2624/18 2681/17
forced [1] 2674/15
foregoing [1] 2695/4
form [20] 2643/5 2643/8 2644/25 2648/17 2649/11 2649/13 2649/15 2649/16 2649/16 2649/22 2650/3 2650/6 2660/2 2662/3 2664/3 2664/5

F

form... [4] 2667/21 2669/7 2678/7 2689/23
format [1] 2656/15
formats [1] 2657/1
formed [1] 2641/6
formulate [1] 2669/3
forth [6] 2645/10 2645/23 2652/1 2657/5 2664/18 2669/25
forward [2] 2666/6 2693/19
four [6] 2627/10 2635/13 2636/10 2646/21 2655/22 2656/1
fourth [1] 2631/16
free [3] 2657/8 2677/9 2687/7
frequent [2] 2675/21 2675/23
fresh [2] 2669/24 2670/21
front [6] 2622/20 2643/21 2646/25 2647/2 2648/4 2691/3
fruition [1] 2633/18
full [6] 2619/19 2619/19 2622/13 2622/15 2641/6 2688/13
fully [2] 2666/7 2681/18
function [1] 2683/8
functionality [3] 2619/6 2670/13 2671/6
fundamentally [2] 2643/1 2653/4
further [5] 2635/7 2637/9 2639/3 2674/23 2689/14

G

general [5] 2643/15 2646/19 2655/12 2661/6 2691/6
generally [1] 2633/21
generate [4] 2682/20 2684/1 2685/22 2686/2
gentleman [1] 2635/23
geographic [6] 2643/4 2643/8 2644/24 2664/2 2686/6 2686/10
gets [5] 2620/2 2644/13 2669/2 2688/5 2688/7
given [4] 2629/17 2688/20 2690/24 2693/10
gives [3] 2645/5 2645/17 2670/16
giving [2] 2625/4 2628/24
glass [1] 2668/13
goals [1] 2661/23
goes [7] 2650/20 2652/2 2653/15 2657/10 2660/2 2671/22 2679/19
good [12] 2620/17 2629/5 2639/22 2640/11 2645/5 2646/13 2651/22 2652/13 2663/18 2671/25 2671/25 2675/2
GOOGLE [49] 2615/6 2616/6 2620/1 2620/2 2620/3 2621/17 2622/23 2623/2 2623/4 2625/9 2632/24 2633/1 2633/2 2633/5 2634/15 2634/18 2634/25 2637/2 2656/23 2669/23 2673/13 2673/16 2674/5 2674/14 2674/15 2674/17 2676/10 2676/16 2676/21 2676/23 2677/20 2677/22 2685/11 2685/13 2685/14 2685/15 2688/1 2688/3 2688/25 2689/3 2689/7 2689/8 2689/11 2689/17 2691/3 2691/8 2692/1 2693/6 2693/18
Google's [3] 2619/22 2635/21 2692/11
Google.com [1] 2621/8
Gotcha [1] 2671/10
government [2] 2639/23 2688/21
GPS [2] 2660/6 2660/14
grain [1] 2658/9
grained [3] 2658/12 2660/4 2660/14
granted [1] 2626/7
granular [1] 2660/13
granularity [1] 2661/20
graphic [1] 2648/11
great [8] 2619/24 2620/11 2620/22 2623/11 2623/14 2623/23 2636/20 2683/21
greater [1] 2688/1
greatly [1] 2644/14
grow [1] 2680/1
growing [2] 2666/12 2666/22
guess [1] 2632/21
guidance [3] 2690/14 2690/19 2693/13
guys [1] 2679/13

H

half [2] 2654/15 2678/12
hand [5] 2640/1 2648/11 2668/12 2675/10 2675/11
handling [1] 2641/8
Hang [1] 2691/16
happen [1] 2681/20
happened [1] 2674/19
happens [2] 2618/17 2668/15
hard [1] 2621/6
head [12] 2642/12 2654/10 2663/11 2675/6 2675/7 2675/9 2675/10 2675/12 2676/1 2676/6 2676/11 2688/4
headcount [2] 2654/3 2665/13
headway [2] 2675/15 2678/5
hear [3] 2646/5 2664/21 2672/18
heat [1] 2663/24
heavily [1] 2663/25
held [1] 2640/19
helps [1] 2686/13
here's [2] 2687/24 2689/3
hey [1] 2655/6
hide [1] 2636/24
high [12] 2642/15 2642/23 2647/16 2648/14 2653/12 2660/6 2666/25 2667/23 2669/10 2671/18 2673/24 2674/1
higher [9] 2653/22 2665/4 2665/6 2666/17 2666/18 2675/19 2675/23 2682/24 2685/12
highest [3] 2626/1 2645/15 2652/19
highly [2] 2625/16 2663/19
history [2] 2626/7 2679/14
hit [2] 2638/13 2687/12
hits [1] 2665/16
hitting [1] 2684/18
home [4] 2618/25 2639/8 2668/11 2676/8
Honor [35] 2620/5 2620/9 2622/5 2627/12 2635/7 2635/11 2637/10 2637/24 2639/3 2639/7 2639/11 2639/11 2639/16 2639/22 2647/22 2647/24 2649/16 2654/7 2658/3 2670/3 2670/4 2674/23 2686/23 2687/9 2689/20 2690/13 2691/4 2691/14 2691/18 2692/10 2693/12 2693/20 2694/10 2694/13 2694/14
Honor's [2] 2690/17 2690/21
HONORABLE [1] 2615/10
HOOK [3] 2616/23 2695/3 2695/10
hope [4] 2688/18 2688/23 2690/25 2691/10
hoped [1] 2687/13
hopefully [2] 2687/4 2689/15
horrible [1] 2629/11
hosting [1] 2658/19
hour [2] 2689/11 2690/2
hours [4] 2645/22 2657/5 2677/11 2690/4
HP [1] 2633/17
huge [1] 2619/8
huh [1] 2647/13
human [6] 2667/21 2668/3 2669/10 2671/24 2672/6 2672/16
humanity [1] 2667/25
humans [2] 2672/12 2672/15
hundred [2] 2674/4 2680/17
hundreds [1] 2625/17

I

idea [6] 2621/11 2621/13 2623/23 2629/5 2654/12 2694/3
identical [1] 2655/17
identify [4] 2627/3 2649/13 2662/11 2689/12
IL [1] 2615/20
illustrate [1] 2646/22
image [1] 2648/14
images [1] 2668/2
imagine [3] 2630/3 2683/17 2693/2
immaterial [1] 2663/1
immediately [3] 2641/1 2651/16 2692/6
impact [9] 2675/4 2675/25 2676/6 2676/23 2677/5 2678/2 2682/19 2683/8 2683/14
impactful [1] 2646/18
impacts [2] 2678/4 2683/25
implement [1] 2665/20
implementation [1] 2629/24
implemented [1] 2632/7
importance [1] 2666/10
important [29] 2618/11 2618/12 2619/2 2620/24 2643/12 2644/11 2644/19 2645/13 2646/10 2646/10 2651/1 2652/20 2652/22 2652/23 2656/21 2658/7 2660/15 2662/4 2664/1 2665/16 2666/14 2666/17 2667/3 2667/6 2672/6 2678/21 2682/21 2682/22 2685/17
importantly [2] 2682/25 2687/19
impossible [1] 2681/11
impressions [1] 2649/8
improve [11] 2651/6 2651/8 2663/8 2664/6 2664/12 2669/20 2678/10 2680/18 2681/1 2681/2 2681/3
improved [2] 2664/23 2681/22
improvement [6] 2666/10 2678/19 2679/24 2680/6 2681/4 2681/5
improvements [3] 2666/16 2679/20 2680/20
improves [4] 2675/13 2675/21 2680/15 2680/17
improving [12] 2654/3 2664/20 2664/20 2665/13 2665/14 2665/24 2665/25

I

improving... [5] 2666/1 2666/13 2666/21 2666/22 2681/24
incentive [1] 2626/3
incentivize [1] 2655/6
include [2] 2618/20 2693/8
included [2] 2642/3 2673/21
includes [1] 2622/23
including [2] 2640/24 2665/10
incorporate [1] 2681/4
incorporating [1] 2644/18
increase [4] 2675/4 2675/7 2675/11 2680/10
increases [3] 2675/17 2678/20 2681/5
increasing [4] 2664/12 2665/13 2665/15 2666/1
incredible [3] 2619/1 2624/7 2626/12
incredibly [1] 2618/12
incremental [4] 2665/20 2666/16 2679/21 2680/6
incrementally [1] 2680/17
index [19] 2646/17 2655/22 2656/7 2656/7 2656/10 2656/19 2656/24 2657/2 2658/10 2659/2 2666/12 2666/14 2666/15 2666/17 2666/22 2666/25 2667/7 2667/20 2667/20
indexed [4] 2645/24 2656/24 2657/1 2657/9
indexing [1] 2659/2
indication [2] 2651/14 2651/17
indirect [1] 2655/8
individual [1] 2626/14
industry [2] 2643/14 2672/24
influence [1] 2645/1
inform [1] 2668/24
information [18] 2622/25 2637/22 2645/5 2651/6 2657/3 2657/5 2660/4 2660/7 2660/12 2660/14 2662/10 2671/9 2677/16 2677/18 2677/20 2677/20 2677/22 2678/9
initial [1] 2643/19
innovate [2] 2621/2 2621/3
innovating [1] 2624/6
innovation [1] 2626/12
innovations [1] 2622/14
input [3] 2651/11 2659/16 2659/24
Inputs [1] 2655/19
inside [1] 2618/15
installed [1] 2643/16
instance [2] 2629/23 2631/21
instances [1] 2689/21
instantly [1] 2622/24
instead [1] 2677/9
instructions [1] 2690/17
integrate [1] 2670/11
integrated [3] 2619/23 2621/6 2623/17
intelligence [2] 2655/12 2668/1
intend [3] 2691/19 2692/15 2692/16
intent [1] 2652/7
interacting [2] 2651/24 2651/25
interaction [4] 2650/24 2650/25 2651/1 2669/14
interacts [1] 2669/17
interchangeably [1] 2650/11
interdependency [1] 2681/13
interest [5] 2676/23 2677/4 2688/22 2689/5 2694/2
interested [4] 2649/9 2650/15 2662/6 2677/17
interesting [4] 2649/4 2650/17 2662/2 2662/3
interests [1] 2694/9
interface [2] 2638/20 2638/23
internally [1] 2681/19
internationally [1] 2679/2
internet [11] 2619/5 2619/8 2619/12 2619/18 2619/19 2620/14 2620/15 2620/19 2626/10 2632/15 2633/12
interrupt [1] 2654/6
into [21] 2617/15 2617/16 2619/23 2623/12 2642/25 2643/3 2648/1 2648/21 2653/7 2655/10 2662/6 2662/16 2667/1 2670/7 2670/12 2679/11 2687/10 2687/11 2687/18 2691/17 2694/3
intuition [1] 2651/12
invest [4] 2643/22 2653/16 2654/22 2682/9
invested [1] 2667/2
investment [7] 2641/14 2642/15 2642/16 2642/24 2643/10 2664/17 2682/14
involved [2] 2633/24 2653/7
iOS [2] 2630/22 2638/25
iPhone [8] 2619/15 2622/7 2622/9 2622/21 2623/8 2626/15 2627/5 2636/5
iPhone's [1] 2622/23
iPhones [1] 2623/3
iPod [1] 2619/16
issue [6] 2668/25 2669/12 2687/20 2688/19 2689/18 2692/25
issued [7] 2645/2 2651/18 2661/11 2662/13 2665/5 2668/19 2675/19
issues [3] 2651/13 2663/12 2669/1
issuing [1] 2660/23
item [1] 2659/20
itemize [1] 2636/23
items [3] 2631/8 2655/22 2656/1

J

Jeeves [1] 2684/17
JEFF [3] 2616/23 2695/3 2695/10
job [2] 2641/7 2661/18
Jobs [1] 2619/15
JOHN [1] 2616/6
JONATHAN [1] 2616/2
JR [1] 2615/23
judge [3] 2615/11 2672/6 2693/23
judges [1] 2671/24
Justice [6] 2615/14 2615/17 2615/19 2632/22 2692/23 2693/14

K

keep [2] 2629/18 2681/23
keeping [1] 2627/12
Kelce [1] 2670/25
KENNETH [2] 2615/13 2616/7
key [1] 2625/22
kind [9] 2623/5 2629/9 2639/1 2643/1 2643/3 2643/13 2662/12 2667/4 2669/10
knew [1] 2623/8
knowing [1] 2677/17
knowledge [2] 2632/7 2632/10
known [1] 2618/8
knows [1] 2639/2
Korea [2] 2665/22 2676/17
Korean [1] 2665/22

L

lack [2] 2683/16 2683/17
language [12] 2658/4 2664/2 2667/18 2667/22 2667/24 2667/25 2668/4 2669/3 2669/16 2671/3 2671/5 2671/7
laptop [2] 2650/11 2663/16
laptops [1] 2660/13
large [16] 2651/11 2657/12 2657/13 2657/13 2666/15 2667/22 2667/23 2667/25 2669/3 2669/16 2671/3 2671/5 2671/7 2682/23 2685/15 2688/9
largely [2] 2671/5 2694/1
larger [4] 2649/7 2675/18 2682/6 2683/2
largest [5] 2641/21 2641/23 2673/15 2677/22 2685/21
LaSalle [1] 2615/20
last [8] 2621/3 2642/12 2659/9 2680/1 2687/22 2691/15 2692/2 2693/14
late [2] 2666/8 2677/16
latency [3] 2655/11 2665/2 2665/7
later [5] 2624/21 2628/7 2629/7 2650/14 2652/11
launch [3] 2619/15 2621/18 2622/8
Law [1] 2616/3
lead [4] 2648/25 2652/25 2653/2 2685/8
leads [1] 2654/24
learning [11] 2651/11 2664/16 2665/11 2665/24 2665/25 2666/5 2666/7 2666/7 2678/15 2680/25 2681/23
learning-based [3] 2666/7 2678/15 2680/25
least [8] 2625/5 2667/11 2670/22 2672/10 2686/5 2686/6 2686/6 2689/11
leave [2] 2679/11 2679/13
led [1] 2674/8
left [3] 2631/1 2668/12 2674/21
leftmost [1] 2631/1
legitimate [1] 2626/10
less [12] 2645/12 2646/10 2657/7 2662/2 2672/3 2672/4 2675/21 2675/22 2677/7 2679/5 2679/9 2685/17
level [9] 2642/15 2642/23 2647/16 2648/14 2667/23 2671/18 2673/24 2674/1 2682/15
leverage [1] 2664/5
lies [1] 2693/3
likely [8] 2650/8 2650/12 2650/13 2661/16 2665/4 2677/6 2677/7 2682/7
limit [1] 2658/2
limited [2] 2672/9 2689/8
linear [3] 2684/2 2684/5 2685/3
linger [1] 2682/3
link [5] 2651/2 2653/20 2653/20 2654/21 2654/25
list [10] 2630/11 2630/14 2631/2 2631/7 2631/7 2631/11 2631/17 2639/2 2656/3 2659/20
listed [2] 2631/9 2655/22
lists [1] 2631/16
little [13] 2621/6 2638/24 2644/4

L

little... [10] 2644/17 2646/1 2646/10 2657/23 2664/7 2666/15 2667/15 2672/12 2680/9 2681/15
live [1] 2627/8
lives [1] 2638/7
LLC [1] 2615/6
LLP [2] 2615/23 2616/7
loading [1] 2618/20
local [13] 2660/19 2660/22 2661/5 2661/6 2661/13 2661/14 2661/15 2661/16 2663/20 2667/2 2667/3 2670/20 2678/6
local results [1] 2670/20
localized [1] 2669/25
location [13] 2645/23 2655/23 2657/5 2659/21 2660/4 2660/6 2660/9 2660/12 2660/14 2660/17 2662/12 2663/14 2675/22
location-specific [1] 2660/17
locations [2] 2660/23 2662/1
lock [1] 2625/22
lonely [1] 2683/22
long [6] 2640/19 2643/2 2652/21 2654/9 2688/7 2690/4
long-term [1] 2643/2
longer [4] 2629/13 2635/1 2672/23 2686/20
longest [1] 2642/12
look [23] 2618/13 2622/19 2624/17 2625/19 2626/23 2627/10 2628/2 2628/10 2636/20 2637/2 2646/23 2664/2 2665/17 2665/21 2668/2 2668/18 2672/12 2680/25 2687/14 2689/3 2689/9 2692/17 2693/8
looked [1] 2624/17
looking [4] 2621/15 2650/8 2658/17 2677/15
loop [5] 2646/4 2646/7 2648/15 2654/22 2655/15
loops [5] 2644/22 2646/4 2646/8 2646/16 2648/17
losing [1] 2684/13
lost [1] 2672/16
lot [6] 2619/2 2625/6 2634/20 2636/16 2645/5 2667/2
low [1] 2661/20
lower [2] 2672/3 2680/14
Lycos [1] 2684/17

M

Mac [8] 2620/16 2620/16 2621/20 2622/14 2622/16 2633/11 2633/14 2634/25
machine [12] 2651/11 2664/16 2665/10 2665/24 2665/24 2666/5 2666/7 2666/7 2676/9 2678/15 2680/25 2681/23
Macintosh's [1] 2621/24
Macs [1] 2621/22
magic [3] 2625/8 2625/10 2679/13
magically [1] 2624/4
magnifying [1] 2668/13
magnitude [2] 2663/21 2672/21
mail [3] 2627/18 2647/4 2647/11
main [4] 2631/3 2649/13 2662/9 2679/10
Maine [1] 2616/8
maintain [2] 2674/8 2682/10
majority [5] 2676/21 2685/6 2688/18 2691/10 2693/11
makes [7] 2623/16 2638/11 2641/13 2642/15 2667/7 2675/22 2683/14
making [4] 2637/5 2642/24 2643/10 2666/19
Malhotra [2] 2647/5 2647/7
manager [1] 2647/8
manner [1] 2633/6
manufacturers [2] 2655/2 2655/3
many [17] 2619/23 2619/23 2627/8 2635/11 2644/14 2646/4 2658/23 2658/23 2658/23 2672/9 2676/10 2684/8 2684/10 2684/11 2684/17 2685/12 2692/18
map [1] 2645/23
maps [2] 2640/24 2645/24
mark [1] 2671/24
marked [3] 2630/17 2646/24 2668/6
market [8] 2621/24 2626/1 2649/20 2664/2 2679/4 2679/6 2679/9 2684/22
marketing [1] 2685/15
marries [2] 2670/12 2670/14
marrying [1] 2671/2
material [1] 2618/14
materially [1] 2675/6
matter [8] 2625/15 2630/7 2660/25 2667/5 2685/1 2685/2 2688/12 2695/5
Maxwell [1] 2659/6
may [11] 2620/5 2640/7 2640/8 2646/3 2658/21 2664/24 2675/16 2689/22 2690/6 2690/6 2692/12
maybe [6] 2621/6 2654/1 2662/5 2663/3 2665/12 2690/18
MEAGAN [1] 2615/16
mean [21] 2618/16 2619/14 2623/13 2629/7 2638/23 2643/11 2643/25 2644/8 2644/9 2644/21 2649/12 2664/9 2672/21 2676/14 2676/25 2679/3 2688/13 2689/1 2691/17 2691/18 2692/14
meaning [6] 2644/11 2652/20 2656/13 2656/16 2666/17 2671/23
meaningless [1] 2643/22
meanings [1] 2656/9
means [13] 2643/15 2645/8 2645/9 2651/23 2652/4 2653/21 2653/23 2653/25 2654/1 2662/10 2671/25 2683/11 2683/12
meant [3] 2620/23 2677/12 2684/21
measuring [1] 2659/15
mechanics [1] 2670/2
mechanism [2] 2628/17 2645/11
mechanisms [1] 2647/18
media [1] 2618/3
medium [2] 2643/18 2685/18
meet [1] 2635/21
meeting [1] 2635/17
MEHTA [1] 2615/10
memorize [1] 2645/6
mentioned [12] 2635/25 2643/9 2646/3 2649/11 2664/19 2665/24 2667/22 2669/16 2675/15 2677/4 2677/10 2684/20
message [2] 2628/19 2629/3
met [1] 2635/23
method [6] 2659/15 2664/19 2664/20 2665/13 2665/25 2666/12
Microsoft [20] 2620/18 2622/2 2628/4 2628/11 2628/17 2629/15 2629/24 2633/11 2640/15 2641/13 2641/16 2641/17 2642/4 2642/11 2642/15 2654/11 2654/16 2663/7 2676/24 2682/17
Microsoft's [3] 2620/14 2640/23 2676/22
Microsoft-Apple [1] 2628/11
might [5] 2645/12 2657/14 2672/16 2686/24 2687/13
MIKHAIL [4] 2617/8 2639/23 2640/9 2674/25
mile [1] 2661/3
million [3] 2672/10 2672/19 2672/25
minutes [1] 2639/19
miss [2] 2672/17 2687/12
mitigate [1] 2666/4
mitigation [1] 2666/9
mobile [36] 2619/6 2619/18 2622/11 2622/11 2649/17 2650/16 2650/19 2659/23 2660/1 2660/15 2660/19 2661/7 2661/8 2662/21 2663/1 2663/4 2663/8 2663/18 2663/19 2663/20 2663/22 2663/25 2673/7 2673/8 2673/10 2674/2 2674/9 2674/10 2676/12 2676/14 2676/23 2679/16 2686/12 2686/15 2686/17 2686/18
mobile-specific [1] 2663/19
mode [1] 2631/5
model [8] 2667/22 2667/24 2667/25 2669/3 2669/16 2671/3 2671/5 2671/7
models [1] 2667/18
moderate [1] 2680/7
modification [1] 2671/21
moment [5] 2618/16 2622/4 2650/14 2654/6 2662/7
monetary [1] 2653/7
money [9] 2619/2 2634/22 2646/21 2653/24 2680/3 2682/9 2684/6 2684/7 2684/10
more [144]
morning [3] 2632/3 2691/4 2694/16
mortgage [1] 2650/8
most [28] 2625/16 2639/13 2641/23 2644/23 2645/10 2645/14 2645/17 2649/17 2651/1 2652/20 2652/21 2656/20 2656/21 2656/22 2657/3 2657/16 2658/7 2658/20 2659/10 2659/11 2659/18 2660/5 2660/13 2667/6 2667/17 2678/14 2688/20 2690/17
mostly [1] 2654/17
motion [2] 2687/11 2687/22
move [2] 2647/22 2670/3
moved [3] 2641/5 2690/15 2691/17
Mr. [44] 2618/4 2618/7 2620/8 2622/6 2626/23 2630/19 2631/20 2632/19 2635/11 2636/3 2636/11 2637/9 2637/11 2637/24 2638/1 2639/5 2640/6 2640/11 2642/14 2643/24 2644/4 2646/23 2646/24 2647/4 2647/7 2648/3

M

Mr.... [18] 2654/8 2654/20 2655/14 2655/18 2659/1 2660/19 2661/17 2664/7 2667/13 2668/7 2671/12 2673/12 2674/24 2675/2 2676/3 2686/20 2687/1 2692/17
Mr. Cavanaugh [4] 2638/1 2674/24 2676/3 2686/20
Mr. Cue [12] 2618/7 2620/8 2622/6 2626/23 2630/19 2631/20 2632/19 2635/11 2637/9 2637/11 2637/24 2639/5
Mr. Parakhin [22] 2640/6 2640/11 2642/14 2643/24 2644/4 2646/23 2646/24 2648/3 2654/8 2654/20 2655/14 2655/18 2659/1 2660/19 2661/17 2664/7 2667/13 2668/7 2671/12 2673/12 2675/2 2687/1
Mr. Sachin [2] 2647/4 2647/7
Mr. Schmidtlein [4] 2618/4 2636/3 2636/11 2692/17
much [36] 2639/1 2639/5 2644/12 2644/12 2646/21 2650/12 2650/19 2651/3 2653/8 2653/18 2657/20 2660/13 2660/15 2661/15 2662/15 2663/9 2667/15 2668/9 2672/4 2672/12 2673/18 2673/22 2676/11 2679/24 2680/3 2681/21 2684/6 2684/7 2684/7 2684/10 2685/12 2686/11 2686/20 2690/24 2692/16 2693/10
multi [1] 2669/11
multi-turn [1] 2669/11
multimedia [1] 2642/13
multiple [8] 2629/12 2631/21 2635/2 2642/25 2646/16 2669/9 2669/9 2685/20
music [1] 2619/16
mutual [1] 2692/11
myself [2] 2653/2 2679/12

N

name [2] 2640/11 2675/2
natural [1] 2667/21
nature [4] 2652/12 2673/24 2674/1 2681/13
near [1] 2661/1
nearly [1] 2681/11
Nebraska [2] 2615/23 2675/3
need [13] 2649/1 2661/25 2662/1 2669/20 2670/1 2672/10 2672/18 2672/25 2681/16 2686/5 2687/21 2689/13 2694/11
needed [1] 2682/14
needs [2] 2670/16 2689/14
negligible [1] 2657/15
negotiating [1] 2635/19
network [2] 2649/2 2649/3
networks [1] 2655/5
neutered [1] 2622/13
new [12] 2615/25 2621/4 2622/21 2623/3 2631/3 2650/8 2670/11 2671/21 2672/1 2672/2 2679/23 2679/23
next [16] 2639/24 2650/20 2652/2 2652/8 2653/14 2655/18 2659/1 2659/2 2659/20 2665/20 2669/8 2689/16 2689/19 2691/4 2691/8 2691/16
night [4] 2659/9 2677/16 2691/15 2693/14
no-scale [1] 2664/24
noisier [1] 2672/16
non [7] 2620/19 2633/9 2633/16 2652/15 2664/8 2664/9 2664/20
non-web [1] 2620/19
nonlinear [3] 2646/20 2684/3 2684/14
nonlinearity [2] 2646/22 2677/1
nontechnical [1] 2667/23
nonviable [1] 2678/25
normal [5] 2668/17 2669/6 2669/11 2669/17 2672/23
notary [1] 2677/13
note [2] 2659/23 2689/14
notice [2] 2672/15 2691/7
noticed [1] 2678/23
number [11] 2620/24 2644/2 2644/15 2644/16 2648/4 2649/6 2664/17 2679/14 2681/8 2684/23 2684/24
numbers [2] 2646/21 2662/17
NW [3] 2615/14 2615/17 2616/24
NY [1] 2615/25

O

o'clock [5] 2688/13 2690/2 2690/20 2690/21 2691/7
object [3] 2688/13 2690/21 2694/5
objected [1] 2693/18
objecting [1] 2694/4
objection [2] 2647/24 2688/14
objectionable [1] 2694/3
objections [1] 2690/20
objects [1] 2688/12
obligated [1] 2627/24
obligates [2] 2627/20 2628/12
obligation [1] 2630/1
obligations [1] 2626/18
observations [1] 2655/16
observed [1] 2678/21
observes [1] 2651/24
obvious [5] 2644/23 2645/10 2645/13 2664/25 2665/8
obviously [8] 2619/1 2621/10 2633/20 2634/3 2675/18 2678/5 2690/5 2693/2
occur [2] 2680/23 2693/15
OEM [2] 2655/2 2655/2
of/CEO [1] 2654/10
off [4] 2623/13 2627/12 2659/18 2672/22
offering [1] 2631/21
offers [2] 2631/18 2632/13
officer [2] 2641/19 2673/20
official [3] 2616/23 2694/4 2695/3
offline [2] 2671/23 2671/23
often [6] 2631/4 2636/15 2657/7 2657/15 2657/23 2664/22
old [1] 2681/21
once [8] 2631/13 2631/13 2651/23 2679/19 2682/6 2688/17 2688/19 2690/15
one [49] 2618/24 2619/16 2620/1 2622/14 2622/20 2623/19 2624/23 2626/6 2626/25 2630/12 2631/8 2633/19 2637/11 2638/14 2642/12 2643/9 2644/10 2644/12 2644/23 2645/13 2645/13 2645/17 2651/1 2651/19 2656/6 2656/6 2656/7 2656/10 2657/14 2658/21 2662/9 2664/5 2669/12 2669/12 2669/14 2669/15 2675/9 2680/21 2681/4 2683/17 2683/21 2685/5 2685/7 2685/8 2685/21 2685/25 2687/9 2690/19 2691/15
ones [4] 2632/16 2649/17 2657/20 2691/19
online [12] 2640/23 2642/2 2654/10 2671/23 2671/25 2672/7 2672/8 2672/15 2672/19 2692/3 2692/9 2692/23
only [17] 2621/20 2621/22 2631/13 2638/14 2651/2 2658/12 2672/9 2678/4 2680/17 2683/17 2684/9 2685/5 2685/7 2686/15 2686/17 2689/1 2694/5
open [6] 2618/14 2645/22 2657/5 2677/15 2693/17 2694/1
OpenAI [3] 2658/21 2667/19 2667/19
opening [4] 2632/20 2632/23 2674/1 2692/21
operating [1] 2679/16
operation [1] 2677/11
operational [1] 2681/18
opinion [2] 2644/11 2644/18
opponent [1] 2646/20
optimal [1] 2666/16
optimize [7] 2645/14 2645/16 2645/21 2649/1 2656/20 2657/21 2677/7
optimizing [1] 2677/4
option [1] 2628/13
options [2] 2631/17 2650/9
order [9] 2633/14 2636/10 2652/9 2652/24 2669/24 2672/21 2690/17 2691/4 2691/23
orders [1] 2663/21
ordinary [1] 2647/19
organization [1] 2647/10
original [3] 2621/18 2627/4 2684/12
others [6] 2624/10 2625/7 2633/23 2645/12 2679/2 2684/17
otherwise [1] 2670/11
ought [6] 2688/7 2689/2 2689/11 2690/23 2693/25 2693/25
ourselves [2] 2637/15 2691/11
out [23] 2618/8 2618/10 2618/18 2618/20 2619/3 2619/13 2621/15 2623/25 2624/20 2625/8 2630/9 2633/15 2634/20 2634/20 2637/6 2655/7 2657/21 2664/25 2672/11 2679/8 2681/22 2689/24 2691/11
out-of-box [2] 2618/20 2619/3
out-of-the-box [5] 2618/8 2618/10 2619/13 2623/25 2625/8
outright [1] 2658/24
outset [1] 2687/14
Outside [1] 2676/17
outweigh [1] 2666/10

O

over [21] 2621/3 2623/11 2624/24 2629/18 2629/18 2629/18 2629/22 2635/13 2635/20 2640/13 2642/1 2661/7 2663/19 2663/25 2668/2 2680/18 2681/5 2682/12 2692/4 2692/7 2693/9
overall [3] 2657/4 2673/7 2679/5
overnight [2] 2687/3 2687/7
own [4] 2620/21 2632/18 2655/5 2693/4
owned [1] 2641/22
owners [1] 2685/19

P

p.m [6] 2615/6 2639/20 2639/21 2689/15 2690/3 2694/17
pace [1] 2680/1
packages [1] 2618/14
packaging [1] 2618/13
page [15] 2617/2 2617/14 2622/19 2627/10 2628/10 2638/10 2646/25 2647/3 2648/3 2651/3 2651/18 2652/23 2655/18 2668/11 2668/16
pages [3] 2620/25 2657/11 2669/9
paid [1] 2685/16
panacea [1] 2667/10
PARAKHIN [26] 2617/8 2639/24 2640/6 2640/9 2640/11 2642/14 2643/24 2644/4 2646/23 2646/24 2648/3 2654/8 2654/20 2655/14 2655/18 2659/1 2660/19 2661/17 2664/7 2667/13 2668/7 2671/12 2673/12 2674/25 2675/2 2687/1
parallel [1] 2688/24
parlance [1] 2644/2
part [9] 2619/10 2622/17 2623/2 2623/15 2634/1 2641/7 2649/20 2661/18 2674/16
participate [1] 2657/9
participates [2] 2646/8 2646/16
particular [8] 2640/20 2643/7 2660/9 2669/1 2675/16 2689/2 2689/6 2692/1
particularly [1] 2688/19
parties [12] 2633/22 2634/2 2634/15 2634/21 2634/22 2688/2 2688/4 2689/8 2690/4 2690/6 2691/2 2693/18
partner [1] 2667/19
partnered [1] 2621/16
partners [2] 2658/21 2662/24
partnership [3] 2643/19 2654/4 2678/7
partnerships [4] 2643/7 2655/1 2655/2 2655/3
party [10] 2631/8 2632/16 2635/19 2673/22 2688/11 2688/11 2688/12 2690/5 2691/3 2693/7
party's [2] 2676/23 2693/1
passes [1] 2669/3
password [1] 2630/15
past [1] 2666/25
Patterson [1] 2615/23
pause [1] 2686/24
pay [6] 2643/16 2653/8 2657/11 2658/18 2677/8 2683/19
people [16] 2621/6 2623/8 2624/4 2624/7 2629/17 2631/4 2643/14 2645/3 2652/8 2655/7 2658/17 2659/5 2672/10 2677/14 2679/13 2682/7
percent [24] 2662/25 2663/3 2674/4 2674/12 2674/22 2676/13 2678/24 2679/5 2679/9 2679/15 2679/20 2679/22 2679/23 2680/1 2680/2 2680/2 2680/3 2680/8 2680/9 2680/10 2680/15 2680/16 2686/11 2686/12
percentage [2] 2676/20 2684/22
percentages [1] 2682/24
perception [2] 2652/9 2678/4
perceptions [1] 2678/2
perfect [1] 2690/1
perform [2] 2620/17 2678/13
performance [1] 2620/24
period [3] 2635/13 2635/20 2691/24
person [3] 2629/3 2651/24 2651/25
personal [2] 2632/18 2637/15
personalized [1] 2669/25
perspective [3] 2637/21 2638/20 2675/9
phone [6] 2619/17 2622/11 2622/17 2622/25 2630/7 2631/3
phones [2] 2622/14 2626/1
phrase [1] 2643/13
pick [8] 2620/4 2624/20 2630/11 2630/14 2631/12 2632/13 2653/13 2690/21
piece [2] 2619/8 2690/19
PII [2] 2688/20 2688/23
pivot [6] 2644/4 2661/17 2664/7 2667/13 2671/12 2673/12
place [1] 2636/24
placed [1] 2639/18
placement [2] 2627/15 2632/25
places [1] 2634/18
Plaintiff [1] 2616/2
plaintiffs [10] 2615/4 2615/13 2615/22 2639/9 2688/22 2689/6 2689/9 2692/19 2694/1 2694/14
platform [1] 2649/10
platforms [1] 2632/9
player [1] 2622/2
players [1] 2676/20
please [7] 2639/25 2648/3 2648/24 2652/3 2653/19 2663/10 2692/19
pleasure [1] 2635/14
plus [1] 2635/14
pocket [1] 2619/18
point [19] 2623/15 2624/13 2624/21 2625/17 2643/5 2643/8 2643/16 2647/22 2664/25 2665/16 2678/18 2682/23 2691/15 2691/16 2691/18 2691/20 2693/5 2693/13 2694/10
point in [1] 2691/15
pointing [1] 2634/12
points [4] 2655/23 2665/7 2674/6 2678/21
poor [1] 2625/11
popular [14] 2623/6 2645/14 2645/19 2645/20 2645/25 2646/2 2656/22 2657/3 2657/7 2657/16 2657/20 2659/10 2659/11 2674/2
portion [3] 2642/21 2663/18 2672/1
position [9] 2643/5 2669/25 2687/25 2688/2 2689/3 2689/7 2690/14 2692/8 2694/4
positions [1] 2642/12
positive [1] 2644/22
possible [3] 2660/16 2690/16 2690/18
post [10] 2688/1 2688/2 2691/19 2692/12 2692/15 2692/18 2692/23 2693/1 2693/6 2693/8
postable [1] 2688/11
posted [10] 2688/7 2688/17 2688/25 2689/8 2689/12 2689/17 2689/18 2692/20 2692/20 2692/22
posting [5] 2687/23 2688/12 2688/14 2688/22 2691/21
potentially [2] 2624/19 2625/13
power [1] 2671/2
powerful [1] 2667/17
powerless [1] 2667/12
PowerPoint [1] 2647/11
Practically [1] 2681/10
practice [3] 2657/15 2670/5 2672/23
pre [2] 2618/20 2674/18
pre-default [1] 2674/18
pre-loading [1] 2618/20
precise [1] 2672/8
predicates [1] 2636/5
predict [1] 2693/24
predicting [1] 2652/13
prefer [5] 2624/22 2682/7 2686/14 2686/17 2686/19
preferences [1] 2686/16
premium [1] 2689/6
preparation [1] 2635/21
prepared [3] 2647/19 2689/10 2691/3
preparing [1] 2635/12
present [2] 2632/19 2689/2
presentation [5] 2647/12 2647/14 2647/16 2647/19 2688/24
presented [1] 2688/15
president [2] 2641/3 2660/24
presiding [1] 2693/22
press [2] 2658/21 2658/22
presume [2] 2692/5 2693/10
presumptively [1] 2688/11
pretty [2] 2630/4 2639/1
prevent [2] 2624/25 2636/18
previous [2] 2651/19 2681/1
previously [4] 2645/3 2663/11 2674/7 2677/1
prices [1] 2683/13
pride [1] 2637/15
prior [11] 2620/13 2622/10 2626/8 2635/16 2641/16 2641/17 2642/10 2642/11 2654/11 2675/14 2681/4
prioritize [1] 2685/14
prioritized [1] 2631/7
priority [1] 2652/24
privacy [3] 2637/13 2637/15 2637/21
privilege [2] 2629/6 2629/7
probability [2] 2675/19 2675/23
probably [20] 2639/13 2642/12 2650/10 2651/10 2652/21 2662/9 2662/25 2663/1 2663/2 2663/21 2665/21 2672/10 2672/25

P

probably... [7] 2676/17 2679/23 2679/23 2680/3 2682/22 2685/6 2686/22
problem [2] 2654/20 2681/16
problems [1] 2689/25
proceed [1] 2640/7
proceedings [2] 2694/17 2695/5
process [8] 2630/6 2630/20 2653/9 2674/16 2683/6 2692/5 2692/10 2693/2
processes [4] 2641/8 2641/10 2642/6 2642/8
produce [2] 2670/15 2670/18
producing [1] 2668/1
product [11] 2619/4 2619/24 2621/17 2623/25 2625/21 2625/21 2625/25 2641/14 2647/8 2688/25 2689/3
products [5] 2618/11 2619/13 2625/5 2625/7 2633/3
professional [1] 2640/13
profitable [1] 2686/8
program [1] 2657/10
prohibit [2] 2657/23 2658/1
prohibited [1] 2667/4
project [2] 2633/17 2633/25
promoting [1] 2623/2
prompt [2] 2628/25 2674/17
prompting [2] 2629/8 2629/10
property [1] 2658/6
propose [1] 2688/10
proposing [1] 2693/8
proposition [1] 2691/7
proprietary [2] 2620/19 2633/12
proud [1] 2619/24
proven [1] 2667/11
provide [13] 2621/14 2628/16 2628/17 2640/2 2643/19 2660/5 2660/5 2667/20 2668/3 2669/10 2670/16 2690/19 2690/20
provider [3] 2649/2 2653/22 2657/12
providers [1] 2636/22
provides [2] 2628/12 2646/11
providing [3] 2618/19 2621/4 2671/8
provision [2] 2627/19 2628/11
provisions [1] 2627/13
public [5] 2677/13 2690/15 2693/17 2693/20 2694/2
publicly [2] 2656/18 2692/9
pulls [1] 2668/20
pure [1] 2666/18
push [1] 2634/11
put [13] 2621/23 2622/4 2623/11 2632/21 2636/24 2658/1 2658/5 2658/6 2660/18 2690/25 2692/3 2693/10 2693/19

Q

quality [55] 2625/12 2643/6 2644/14 2644/21 2645/2 2645/8 2645/10 2646/17 2646/18 2652/18 2653/9 2655/13 2660/6 2664/6 2664/8 2664/9 2664/10 2664/12 2664/13 2664/17 2664/19 2664/21 2664/22 2665/13 2665/14 2665/25 2666/1 2666/13 2666/17 2666/18 2666/21 2666/22 2666/25 2669/10 2671/13 2671/13 2671/19 2671/21 2673/4 2675/4 2675/10 2675/12 2675/21 2678/2 2678/4 2678/6 2678/10 2678/19 2678/25 2679/10 2679/20 2679/24 2680/7 2682/7 2682/25
queried [1] 2669/1
queries [36] 2656/12 2660/16 2660/21 2661/5 2661/6 2661/13 2661/13 2661/15 2663/5 2663/5 2663/8 2663/12 2663/12 2663/12 2663/13 2663/17 2663/19 2663/20 2663/22 2663/23 2670/15 2670/17 2672/14 2675/5 2675/6 2675/8 2675/9 2675/12 2675/16 2675/16 2675/18 2676/11 2676/11 2676/13 2678/6 2684/23
query [34] 2623/18 2645/2 2651/13 2651/18 2652/23 2659/17 2660/20 2660/22 2660/22 2660/23 2661/9 2661/10 2661/11 2661/12 2661/14 2661/14 2661/16 2661/16 2664/4 2665/5 2667/20 2668/18 2668/25 2669/12 2669/15 2675/7 2675/10 2675/20 2675/21 2676/1 2676/6 2676/7 2676/9 2676/10
querying [1] 2660/24
quick [2] 2663/22 2663/24
quicker [1] 2646/12
quickly [4] 2651/4 2651/23 2657/14 2666/6
quite [1] 2625/17
quote [4] 2622/11 2626/10 2632/24 2679/12
quoting [1] 2632/23

R

raise [2] 2639/25 2683/12
ran [1] 2642/2
random [1] 2659/12
randomly [1] 2672/1
Ranker [4] 2671/21 2671/22 2672/2 2672/7
ranking [2] 2641/8 2642/6
rapidly [1] 2678/25
rare [1] 2691/1
rarely [1] 2643/15
rather [4] 2660/10 2669/14 2674/17 2684/8
re [1] 2688/6
re-review [1] 2688/6
read [1] 2645/4
readable [2] 2668/3 2669/10
readily [3] 2627/21 2628/12 2630/2
reads [1] 2655/19
ready [2] 2618/3 2639/9
realized [1] 2656/9
really [16] 2619/2 2620/23 2620/24 2625/10 2626/16 2628/22 2651/22 2652/7 2656/11 2657/17 2657/18 2662/4 2662/16 2667/1 2673/5 2688/19
reason [3] 2637/16 2637/19 2668/2
reasonable [1] 2688/3
reasoning [1] 2671/8
reasons [1] 2637/13
recall [5] 2618/8 2632/4 2632/15 2632/17 2633/10
recent [1] 2658/20
recently [3] 2640/25 2656/9 2670/24
Recess [1] 2639/20
recognize [4] 2620/10 2622/6 2647/14 2668/7
Recognizing [1] 2630/18
record [4] 2639/21 2691/14 2693/20 2695/5
redacted [3] 2688/15 2692/21 2693/9
redactions [2] 2688/6 2688/23
Redirect [5] 2617/5 2617/6 2635/8 2635/9 2638/2
reducing [1] 2655/10
reference [1] 2622/22
referenced [1] 2638/9
referred [2] 2643/24 2669/5
referring [1] 2676/18
refine [1] 2669/13
reformulation [1] 2652/23
regarding [1] 2642/17
regular [2] 2668/17 2669/2
regulator [1] 2674/15
reinforcing [1] 2682/4
reinvest [2] 2654/2 2655/9
related [1] 2628/4
relationship [3] 2644/5 2652/18 2680/21
relative [16] 2644/11 2644/18 2644/20 2645/19 2645/20 2646/15 2675/4 2675/25 2676/5 2676/22 2681/25 2682/6 2682/21 2684/19 2684/22 2685/3
relatively [1] 2637/7
release [1] 2622/21
relevance [6] 2655/23 2659/3 2659/3 2659/4 2659/16 2663/8
relevant [10] 2652/3 2652/25 2653/3 2653/5 2653/6 2653/15 2653/23 2659/14 2659/15 2666/20
relying [1] 2694/1
remember [2] 2621/25 2677/24
removed [3] 2629/6 2629/13 2688/20
render [1] 2620/25
renew [1] 2687/11
renewals [1] 2627/7
reorder [1] 2652/8
repeat [2] 2650/1 2676/2
repeated [1] 2653/2
reported [1] 2658/22
Reporter [3] 2616/23 2616/23 2695/3
reports [2] 2682/17 2691/24
repost [1] 2691/19
represent [2] 2675/3 2694/2
represented [3] 2661/7 2663/20 2663/25
representing [1] 2635/16
represents [1] 2652/4
Republic [1] 2679/2
request [5] 2628/19 2662/10 2662/11 2662/12 2662/13
require [3] 2626/19 2648/8 2688/16
required [3] 2655/20 2656/1 2656/3
requires [2] 2664/14 2664/15
research [1] 2650/7
resolution [3] 2630/18 2674/13 2674/20
resolve [1] 2691/4
resolved [5] 2689/15 2689/16 2689/18 2690/23 2691/8
response [3] 2668/20 2675/14 2677/10
responsibilities [2] 2640/21 2642/1
responsibility [2] 2654/14 2671/16
responsible [3] 2640/22 2642/16 2642/18
rest [1] 2676/15

R

restaurant [10] 2650/12 2650/15 2659/10 2659/11 2659/12 2659/12 2660/10 2660/10 2661/1 2677/13
restaurants [2] 2669/1 2687/3
restricting [1] 2633/2
Restricts [1] 2633/1
result [12] 2651/13 2651/15 2651/16 2651/18 2651/22 2651/23 2652/21 2659/11 2660/25 2672/5 2674/20 2683/12
results [57] 2621/15 2624/3 2624/8 2641/8 2642/6 2645/3 2645/4 2645/5 2646/1 2649/7 2650/24 2651/4 2651/7 2651/9 2651/25 2652/6 2652/7 2652/25 2653/6 2653/24 2656/14 2658/18 2659/5 2659/13 2659/15 2660/8 2660/22 2661/4 2663/14 2663/16 2663/18 2665/2 2666/18 2667/7 2667/20 2668/17 2668/23 2669/2 2669/9 2669/12 2669/15 2669/24 2670/16 2670/20 2670/21 2671/22 2671/24 2671/25 2671/25 2672/3 2672/11 2673/1 2678/16 2680/16 2680/17 2681/3 2682/8
retrain [1] 2681/7
return [6] 2656/12 2659/5 2660/8 2671/4 2678/19 2687/5
returned [2] 2656/16 2656/18
returning [4] 2641/11 2642/8 2652/22 2659/1
returns [3] 2665/17 2677/25 2679/25
revealing [1] 2668/16
revenue [28] 2632/25 2643/2 2644/14 2644/18 2646/19 2646/19 2653/16 2654/2 2654/3 2654/22 2654/24 2655/1 2655/9 2658/20 2661/22 2677/3 2679/12 2679/25 2679/25 2682/9 2682/20 2682/22 2683/14 2684/1 2685/1 2685/2 2685/22 2686/2
reverse [1] 2679/19
reversed [1] 2674/21
review [2] 2688/6 2692/24
revolutionized [1] 2626/13
right [28] 2621/21 2627/16 2636/8 2637/3 2638/9 2638/15 2638/21 2638/22 2638/25 2639/12 2639/14 2640/1 2640/22 2647/5 2648/11 2650/14 2659/13 2660/13 2663/5 2663/12 2664/21 2667/8 2669/24 2670/25 2676/10 2677/18 2678/14 2692/14
rising [1] 2674/22
robots.txt [1] 2658/5
ROI [2] 2645/15 2678/1
role [4] 2641/2 2641/3 2642/16 2646/7
roles [1] 2654/17
room [1] 2618/3
rough [2] 2652/24 2665/18
roughly [16] 2621/24 2635/5 2647/17 2649/13 2651/12 2654/13 2654/15 2661/10 2665/23 2673/8 2676/13 2676/14 2678/24 2679/20 2685/10 2686/12
rub [1] 2693/3
run [12] 2646/13 2655/11 2671/20 2671/21 2672/6 2672/24 2673/4 2673/6 2673/8 2673/10 2681/18 2681/21
running [2] 2666/4 2673/21
Russia [2] 2641/23 2674/3
Russian [1] 2641/24

S

Sachin [3] 2647/4 2647/7 2647/8
Safari [46] 2619/9 2619/23 2620/22 2621/3 2621/18 2621/19 2621/20 2622/9 2622/22 2622/23 2623/3 2623/9 2623/12 2623/17 2623/24 2624/2 2625/9 2627/25 2628/20 2628/23 2629/3 2629/25 2630/10 2631/8 2631/9 2631/22 2632/8 2633/9 2633/11 2633/14 2633/15 2633/17 2633/20 2634/2 2634/6 2634/9 2634/24 2635/1 2635/4 2636/4 2636/6 2636/20 2637/3 2637/12 2638/7 2638/13
Safe [1] 2639/8
Sahibinden [1] 2667/4
sales [2] 2641/4 2641/4
SALLET [1] 2616/2
same [30] 2622/15 2625/2 2625/20 2629/16 2630/6 2630/23 2641/4 2645/15 2646/14 2649/5 2653/23 2660/24 2660/25 2665/23 2670/24 2673/9 2673/11 2674/4 2677/19 2678/1 2678/12 2678/16 2680/5 2683/12 2685/10 2692/12 2692/15 2693/2 2693/5 2694/9
satisfied [2] 2651/21 2652/7
saturation [1] 2682/23
saw [1] 2647/15
saying [2] 2643/14 2655/6
scale [69] 2644/6 2644/10 2644/11 2644/15 2644/18 2644/20 2648/8 2655/20 2656/2 2656/5 2656/19 2659/17 2659/23 2660/1 2664/8 2664/9 2664/12 2664/14 2664/16 2664/20 2664/24 2664/24 2664/25 2665/3 2665/4 2665/7 2665/9 2665/10 2665/15 2666/2 2666/3 2666/11 2666/23 2666/24 2667/3 2667/8 2667/10 2669/20 2673/4 2675/4 2675/7 2675/11 2675/17 2675/18 2675/24 2675/25 2676/5 2676/22 2677/5 2678/10 2678/19 2682/1 2682/6 2682/11 2682/15 2682/19 2682/21 2683/2 2683/25 2684/19 2684/20 2684/21 2684/22 2685/1 2685/2 2685/3 2685/3 2685/23 2686/3
scale-dependent [2] 2664/14 2664/16
scenario [1] 2631/25
scenes [1] 2668/25
SCHMIDTLEIN [6] 2616/6 2617/4 2618/4 2636/3 2636/11 2692/17
scratch [1] 2681/7
screen [12] 2622/20 2627/12 2631/1 2631/3 2631/16 2632/8 2632/13 2632/21 2635/1 2638/21 2643/17 2674/16
screens [3] 2630/25 2632/4 2632/7
scrolled [2] 2651/5 2651/5
scrolling [1] 2652/22
scrolls [1] 2668/16
Sealed [1] 2639/18
search [204]
searched [1] 2621/7
searching [6] 2619/10 2625/9 2629/10 2650/12 2659/14 2660/3
seat [1] 2639/25
second [5] 2623/5 2651/14 2651/25 2652/21 2656/16
secondary [2] 2644/17 2684/8
Secondly [1] 2624/19
section [4] 2616/3 2627/11 2627/14 2628/10
seems [5] 2621/11 2688/3 2688/9 2688/17 2689/10
sees [1] 2661/12
segment [1] 2661/10
segments [1] 2660/21
selection [1] 2653/12
self [1] 2682/4
self-reinforcing [1] 2682/4
selling [1] 2621/22
send [1] 2690/4
sense [4] 2632/1 2632/11 2638/11 2688/4
sent [1] 2628/19
separate [2] 2639/18 2660/21
September [1] 2615/5
serve [5] 2635/25 2636/2 2653/23 2655/10 2664/18
server [1] 2662/10
servers [1] 2664/18
service [2] 2628/14 2644/17
services [6] 2618/21 2640/17 2640/24 2643/21 2644/3 2655/5
serving [3] 2657/11 2658/18 2665/2
session [5] 2615/7 2693/22 2693/25 2694/1 2694/3
set [16] 2630/4 2633/6 2634/17 2636/16 2636/16 2636/16 2657/2 2662/14 2662/14 2669/12 2669/15 2672/1 2685/10 2685/14 2685/16 2685/19
setting [2] 2638/6 2639/1
settings [11] 2627/17 2629/25 2630/8 2630/9 2630/13 2631/2 2631/6 2636/14 2638/5 2638/10 2638/24
setup [1] 2674/16
seven [1] 2654/16
several [8] 2635/2 2642/11 2643/3 2644/22 2645/12 2646/8 2655/19 2660/21
Seznam [2] 2679/2 2684/17
share [24] 2621/24 2626/1 2632/25 2662/20 2662/21 2662/23 2663/1 2674/8 2674/10 2676/13 2679/4 2679/6 2679/9 2679/19 2679/22 2679/23 2679/23 2680/2 2680/2 2680/3 2680/15 2680/16 2682/11 2684/13

S

shares [1] 2674/19
sharp [1] 2650/17
shell [1] 2640/25
ship [2] 2618/13 2634/24
shipped [1] 2634/25
shop [1] 2626/9
shortly [1] 2689/4
show [12] 2630/17 2631/10 2637/7 2638/18 2648/17 2652/8 2658/11 2658/12 2666/25 2668/5 2669/13 2688/25
showed [2] 2632/23 2636/11
showing [2] 2632/22 2646/24
shown [2] 2670/6 2671/24
shows [3] 2630/11 2637/5 2638/16
side [8] 2634/10 2648/11 2653/24 2668/12 2680/5 2680/7 2681/21 2681/21
side-by-side [1] 2681/21
sidebar [2] 2639/16 2639/18
sides [1] 2687/25
signal [1] 2652/20
signals [4] 2651/20 2651/22 2652/6 2652/15
significance [2] 2650/22 2672/19
significant [7] 2642/21 2650/19 2663/18 2664/3 2666/9 2672/11 2673/1
significantly [4] 2642/19 2654/4 2658/22 2665/3
similar [6] 2630/13 2642/3 2653/4 2653/5 2653/9 2669/22
similarly [1] 2642/5
simple [1] 2656/21
simplified [1] 2648/17
simply [2] 2645/2 2673/7
single [3] 2622/1 2623/24 2676/9
site [5] 2634/6 2636/22 2645/24 2667/4 2667/6
sites [2] 2645/25 2666/18
sitting [1] 2628/23
situated [1] 2654/9
situation [2] 2664/24 2692/12
situations [1] 2689/21
size [2] 2666/16 2676/5
sized [1] 2665/23
skip [1] 2672/4
skips [1] 2651/13
slices [1] 2662/5
slide [4] 2632/22 2633/1 2648/7 2655/19
slides [2] 2692/21 2692/21
slight [1] 2690/19
slightly [5] 2644/23 2645/8 2645/9 2645/10 2680/17
slope [1] 2680/14
small [8] 2657/4 2661/2 2664/24 2676/20 2677/14 2683/19 2685/18 2687/9
small-scale [1] 2664/24
smaller [7] 2649/6 2649/18 2649/20 2657/19 2657/22 2678/1 2685/18
smart [1] 2649/19
smarter [1] 2666/4
SMBs [1] 2685/18
SMURZYNSKI [1] 2616/7
software [4] 2626/9 2633/3 2634/21 2655/4
sold [2] 2674/4 2674/5
solemnly [1] 2640/1
solution [2] 2649/4 2666/8
somebody [5] 2625/3 2634/12 2649/5 2663/24 2675/19
Someone's [1] 2679/8
sometime [1] 2689/18
sometimes [2] 2664/25 2672/17
somewhere [2] 2634/3 2665/6
soon [3] 2688/2 2689/16 2690/16
sooner [2] 2692/7 2692/8
sophisticated [1] 2666/5
sorry [8] 2623/13 2626/25 2650/1 2652/10 2653/2 2657/25 2670/10 2676/2
sort [18] 2628/19 2632/6 2643/19 2649/17 2661/3 2664/5 2665/12 2668/3 2668/16 2668/24 2672/21 2679/14 2679/21 2686/5 2687/12 2688/23 2689/10 2689/22
sought [2] 2633/6 2633/7
sources [1] 2662/9
South [2] 2615/20 2676/17
Soviet [1] 2674/3
space [1] 2678/6
speaking [6] 2661/10 2673/8 2678/24 2681/10 2682/13 2686/13
special [3] 2649/19 2657/10 2658/5
specific [8] 2643/4 2644/24 2644/25 2660/8 2660/17 2663/19 2675/22 2675/22
specifically [4] 2622/9 2622/22 2634/16 2678/6
specified [1] 2658/13
specifies [1] 2658/6
spectrum [1] 2650/18
speed [1] 2665/1
spell [1] 2630/9
spend [4] 2623/14 2635/12 2645/17 2649/5
spent [6] 2619/2 2635/15 2635/15 2651/3 2652/21 2653/24
spiral [3] 2679/11 2684/16 2684/18
split [3] 2661/24 2662/1 2662/5
stage [1] 2619/15
stance [1] 2625/19
standard [4] 2621/1 2633/13 2657/15 2658/4
standards [1] 2620/20
standpoint [1] 2634/19
start [8] 2618/25 2633/10 2640/13 2642/14 2645/17 2653/25 2656/25 2688/4
started [7] 2618/2 2629/8 2633/10 2633/12 2633/22 2674/11 2687/5
starting [2] 2648/18 2692/4
starts [1] 2618/12
stat [1] 2672/11
state [6] 2615/22 2615/23 2616/2 2685/25 2693/19 2693/21
stated [3] 2622/10 2693/14 2693/21
statements [1] 2632/23
STATES [16] 2615/1 2615/3 2615/11 2631/18 2639/23 2660/24 2662/22 2662/23 2673/3 2673/5 2676/19 2676/19 2679/1 2686/8 2690/14 2693/16
statistical [1] 2672/19
statistically [1] 2673/1
stay [3] 2672/5 2679/17 2682/14
stayed [2] 2651/18 2679/15
staying [1] 2687/2
stays [2] 2631/4 2631/13
steal [1] 2626/11
steeper [1] 2680/14
step [6] 2621/12 2650/20 2652/2 2653/14 2669/8 2687/7
steps [4] 2636/3 2636/10 2637/3 2648/18
Steve [1] 2619/15
stick [1] 2638/4
sticker [1] 2647/1
still [4] 2623/5 2646/10 2677/15 2679/24
stint [1] 2641/17
stop [1] 2685/21
stopped [1] 2691/21
stops [2] 2675/20 2675/20
Store [7] 2625/14 2626/5 2626/8 2626/12 2628/18 2636/1 2636/2
stored [1] 2656/15
story [1] 2656/21
Street [3] 2615/14 2615/17 2615/20
strike [1] 2670/20
strong [4] 2678/7 2682/2 2690/14 2694/8
strongly [2] 2661/23 2684/3
sub [1] 2667/3
subgroups [1] 2649/18
subject [1] 2628/7
subset [1] 2622/12
substitution [1] 2666/8
successful [4] 2633/14 2648/7 2665/17 2665/22
sudden [1] 2626/14
sufficient [3] 2655/20 2656/2 2673/4
suggest [1] 2670/6
Suite [2] 2615/20 2615/24
summary [1] 2687/19
summer [1] 2654/14
supervising [1] 2673/21
support [2] 2636/22 2656/25
sure [20] 2623/8 2624/2 2625/19 2626/19 2627/20 2628/12 2636/9 2637/1 2637/6 2639/15 2639/17 2645/21 2645/22 2657/1 2666/19 2676/5 2677/18 2677/21 2686/2 2687/13
survive [1] 2686/8
suspect [1] 2692/18
SW [1] 2616/8
swear [1] 2640/1
Swift [2] 2663/13 2670/24
switch [11] 2623/7 2623/10 2624/24 2625/13 2627/25 2628/25 2630/5 2631/5 2631/5 2637/12 2637/18
switches [1] 2637/14
system [8] 2644/23 2651/12 2656/10 2667/17 2668/2 2668/11 2671/22 2681/21
systems [3] 2649/1 2669/23 2681/14

T

tablets [1] 2649/18
tags [2] 2657/1 2658/4
tail [12] 2661/9 2661/10 2661/13 2661/14 2661/16 2675/15 2675/18 2675/20 2675/21 2676/1 2676/7 2676/10
tailish [1] 2661/15
talk [6] 2621/5 2636/21 2664/7

T

talk... [3] 2667/13 2671/12 2694/11
talked [5] 2633/23 2633/23 2634/14 2663/4 2689/21
talking [7] 2627/17 2633/22 2634/1 2656/16 2670/19 2681/25 2684/19
talks [4] 2619/16 2619/17 2619/17 2627/18
tap [5] 2630/11 2630/14 2631/6 2631/9 2631/11
taps [1] 2630/7
Taylor [2] 2663/13 2670/24
team [6] 2641/5 2647/8 2671/17 2673/21 2682/16 2682/17
teams [2] 2665/23 2688/9
tech [1] 2641/22
technology [6] 2621/1 2641/19 2649/2 2669/8 2673/20 2673/22
teed [1] 2694/5
telling [1] 2620/2
tells [1] 2630/10
tend [10] 2629/17 2649/20 2650/6 2660/3 2660/21 2661/13 2661/15 2663/25 2666/10 2672/8
tends [8] 2643/2 2643/2 2646/9 2652/19 2652/23 2661/14 2672/16 2680/7
tens [1] 2625/17
term [5] 2643/2 2644/6 2649/11 2664/13 2683/11
terms [11] 2627/8 2628/6 2628/8 2628/21 2628/25 2643/6 2665/12 2671/20 2675/15 2679/3 2679/25
testified [4] 2618/7 2632/6 2676/12 2683/25
testimony [6] 2635/12 2635/22 2639/6 2640/1 2687/5 2687/6
the United [1] 2676/18
Theoretically [1] 2681/10
therein [1] 2693/3
thinking [1] 2687/24
third [19] 2619/17 2621/1 2631/8 2632/16 2634/21 2652/23 2676/23 2688/2 2688/3 2688/11 2688/12 2689/7 2690/4 2690/5 2690/5 2691/3 2693/1 2693/7 2693/18
third-party [2] 2631/8 2632/16
thirdly [1] 2621/5
thirds [1] 2686/22
though [2] 2623/4 2685/17
thought [5] 2621/11 2621/15 2623/4 2623/11 2629/5
thousand [1] 2662/5
thousands [3] 2671/20 2673/10 2681/14
three [6] 2622/19 2628/10 2635/13 2648/4 2689/11 2690/3
three-hour [1] 2689/11
threshold [3] 2678/23 2679/18 2684/16
throughout [2] 2638/25 2658/13
thus [2] 2691/17 2692/25
tied [1] 2661/23
times [5] 2629/12 2646/21 2681/19 2691/10 2693/17
title [9] 2632/25 2640/16 2640/17 2640/19 2640/20 2641/1 2641/3 2648/7 2655/19
to be [1] 2621/1
today [9] 2618/7 2626/7 2628/8 2629/15 2630/23 2635/24 2640/12 2692/2 2693/22
together [2] 2635/15 2662/24
told [1] 2687/9
tomorrow [1] 2676/8
tonight [1] 2692/5
top [7] 2630/10 2633/1 2648/19 2659/11 2668/22 2672/3 2680/22
total [3] 2644/15 2684/23 2684/24
touted [2] 2619/22 2622/21
towards [1] 2654/2
track [4] 2637/11 2661/18 2662/8 2662/9
tracking [1] 2660/6
trade [1] 2672/22
trade-off [1] 2672/22
traditional [2] 2669/17 2669/21
traffic [35] 2643/19 2643/25 2644/1 2644/2 2644/5 2644/12 2645/18 2646/7 2646/8 2646/9 2646/12 2646/15 2646/15 2653/10 2655/10 2657/18 2657/21 2660/15 2661/18 2661/19 2661/22 2661/24 2661/24 2661/25 2661/25 2662/2 2662/6 2662/8 2662/16 2662/20 2662/21 2673/6 2681/17 2683/2 2685/12
train [2] 2652/11 2652/13
trained [1] 2659/19
transcript [2] 2615/10 2695/4
transition [1] 2652/4
transitions [1] 2648/21
translation [1] 2690/1
travels [1] 2639/8
Travis [1] 2670/25
tremendous [1] 2682/12
trial [5] 2615/10 2635/22 2687/14 2689/1 2689/4
tried [4] 2647/18 2658/21 2667/1 2681/19
TripAdvisor [1] 2678/7
true [2] 2684/13 2695/4
truth [3] 2640/2 2640/2 2640/3
try [11] 2629/18 2651/20 2655/1 2655/2 2655/3 2657/21 2662/11 2666/4 2677/8 2677/18 2681/1
trying [14] 2624/14 2624/15 2636/23 2637/5 2646/22 2648/16 2654/5 2655/6 2662/7 2663/23 2665/8 2666/4 2668/24 2689/5
Turkey [3] 2667/1 2667/3 2667/4
turn [8] 2618/15 2620/8 2622/3 2643/14 2648/3 2655/18 2669/11 2682/16
turned [1] 2634/20
turning [2] 2653/14 2659/20
turns [2] 2679/11 2681/22
TVs [1] 2649/19
twice [10] 2646/20 2680/3 2684/6 2684/6 2684/7 2684/7 2684/8 2684/10 2684/10 2684/10
two [15] 2620/24 2635/15 2644/9 2644/9 2645/16 2649/13 2652/17 2656/9 2662/9 2665/19 2670/12 2670/14 2671/2 2678/21 2686/22
two-thirds [1] 2686/22
Tyler [1] 2615/23
type [11] 2621/8 2621/9 2621/13 2623/18 2624/3 2624/8 2625/2 2656/19 2662/12 2686/7 2692/12
types [6] 2644/9 2671/18 2673/1 2675/4 2675/16 2686/4
typically [3] 2631/4 2688/4 2690/6
typing [1] 2659/5

U

U.S [4] 2615/14 2615/17 2615/19 2616/24
Uh [1] 2647/13
ultimately [3] 2625/22 2634/13 2682/17
unavailable [1] 2660/12
uncompetitive [1] 2667/8
under [6] 2636/20 2638/7 2638/11 2639/18 2658/6 2659/2
underlying [1] 2670/2
Understood [2] 2693/12 2694/7
Unfortunately [2] 2629/6 2629/16
unilaterally [3] 2642/19 2642/20 2693/15
unimportant [1] 2646/18
Union [1] 2674/3
unique [1] 2623/16
unit [5] 2640/18 2640/22 2641/5 2641/6 2642/2
UNITED [17] 2615/1 2615/3 2615/11 2631/18 2639/23 2660/24 2662/22 2662/23 2673/3 2673/5 2676/18 2676/19 2676/19 2679/1 2686/8 2690/14 2693/16
units [1] 2654/10
unless [1] 2688/11
unquote [2] 2622/11 2626/10
unrelated [1] 2651/19
unsatisfied [1] 2651/22
unusual [2] 2636/15 2636/17
up [26] 2618/25 2621/12 2622/4 2622/19 2624/2 2632/21 2637/2 2638/14 2651/5 2653/13 2657/3 2662/14 2665/16 2668/16 2668/20 2669/24 2670/25 2680/1 2685/10 2685/14 2685/16 2685/19 2690/21 2692/9 2693/24 2694/5
up-to-date [1] 2669/24
upon [1] 2632/12
upper [1] 2668/12
UPX270 [5] 2617/15 2646/25 2647/23 2648/1 2655/18
UPXD3 [5] 2617/16 2668/6 2670/3 2687/11 2687/18
URL [5] 2621/9 2621/14 2623/18 2625/2 2658/12
use [25] 2619/4 2619/9 2623/9 2624/23 2629/2 2631/4 2632/12 2634/6 2637/20 2638/25 2644/16 2650/11 2651/6 2651/8 2652/11 2662/8 2663/7 2663/17 2667/17 2670/24 2680/24 2681/2 2681/23

U

use... [2] 2689/22 2689/24
used [9] 2618/15 2624/5 2641/21 2641/22 2662/17 2670/6 2670/24 2671/7 2678/15
useful [1] 2651/6
user [31] 2625/11 2628/17 2628/19 2628/25 2629/2 2636/4 2636/5 2636/12 2638/20 2643/18 2643/21 2645/1 2649/22 2650/3 2650/24 2650/25 2651/1 2651/13 2651/15 2651/17 2652/7 2652/9 2655/20 2656/2 2656/12 2656/18 2656/19 2660/4 2665/6 2668/24 2674/6
users [34] 2619/6 2622/24 2625/12 2626/20 2627/22 2627/24 2628/13 2644/3 2644/12 2644/16 2644/24 2645/6 2645/9 2648/8 2648/19 2648/25 2649/3 2649/6 2649/7 2650/21 2650/23 2654/5 2654/23 2654/24 2655/9 2659/14 2672/1 2672/10 2672/19 2672/22 2672/25 2673/8 2674/7 2674/17
uses [3] 2657/2 2671/19 2680/24
using [8] 2619/10 2621/1 2623/9 2631/11 2637/16 2644/3 2644/24 2649/22
usually [9] 2649/7 2649/13 2649/24 2651/14 2659/18 2672/23 2677/18 2685/19 2690/8

V

valuable [3] 2680/10 2680/12 2682/24
value [2] 2646/9 2653/22
various [3] 2650/9 2654/17 2660/8
vast [1] 2693/11
version [7] 2620/16 2620/17 2622/9 2622/22 2630/22 2631/23 2689/24
versions [3] 2631/22 2670/22 2692/3
versus [10] 2651/17 2651/22 2652/7 2653/25 2659/12 2659/12 2661/8 2662/2 2680/16 2685/11
viability [3] 2678/23 2679/18 2684/15
viable [1] 2682/14
vicious [2] 2684/16 2684/18
view [3] 2623/15 2624/13 2625/20
views [1] 2632/6
vigorously [1] 2626/1
violation [1] 2629/25
virtually [1] 2667/12
viruses [1] 2626/11
volume [2] 2683/8 2683/9

W

wait [1] 2672/23
waiting [2] 2690/6 2690/9
walk [1] 2648/18
walked [1] 2636/3
wants [1] 2636/6
Washington [11] 2615/5 2615/15 2615/18 2616/8 2616/25 2659/10 2659/13 2660/10 2668/19 2669/1 2687/4
way [13] 2618/14 2621/7 2625/2 2625/23 2637/12 2643/25 2646/12 2655/8 2662/15 2666/6 2676/23 2686/22 2688/14
way to [1] 2646/12
ways [1] 2664/11
web [13] 2619/9 2619/20 2620/13 2620/14 2620/19 2620/21 2621/1 2621/8 2622/23 2640/17 2641/8 2656/14 2656/17
Webb [1] 2615/23
webmasters [4] 2656/20 2656/23 2657/7 2657/8
website [8] 2628/24 2636/20 2637/2 2645/14 2656/23 2656/25 2657/25 2658/2
websites [17] 2620/20 2620/25 2645/13 2645/21 2657/11 2657/13 2657/13 2657/17 2657/23 2658/5 2658/23 2662/14 2666/19 2677/4 2677/7 2677/11 2677/17
week [3] 2672/25 2673/1 2692/2
weird [1] 2638/19
welcome [1] 2640/6
what's [6] 2640/16 2643/5 2646/7 2668/7 2692/8 2693/23
whenever [1] 2639/1
whereas [1] 2661/1
whereby [1] 2628/17
whole [3] 2640/2 2656/13 2656/17
wifi [4] 2630/5 2630/14 2631/5 2636/16
wifis [1] 2630/14
WILLIAM [1] 2615/23
Williams [1] 2616/7
willing [4] 2653/8 2682/8 2683/1 2683/12
window [1] 2689/11
Windows [18] 2620/16 2620/17 2622/13 2622/16 2633/9 2633/16 2633/18 2633/20 2633/21 2633/25 2634/3 2634/6 2634/16 2634/19 2634/24 2635/2 2635/4 2640/25
wins [1] 2625/22
within [3] 2635/17 2690/2 2690/24
without [3] 2656/4 2664/12 2667/10
witness [5] 2617/2 2639/9 2639/15 2639/24 2670/6
witnesses [1] 2692/2
word [1] 2656/10
words [2] 2625/1 2637/17
work [20] 2620/21 2625/8 2627/12 2640/14 2640/15 2641/16 2642/10 2645/25 2649/5 2657/8 2670/19 2677/2 2677/5 2678/1 2685/10 2690/11 2690/17 2690/24 2691/11 2693/10
worked [1] 2673/17
working [3] 2625/1 2655/13 2676/24
works [9] 2624/4 2624/21 2625/2 2625/3 2625/3 2625/10 2630/23 2647/9 2647/10
world [7] 2620/3 2626/13 2626/15 2656/15 2660/25 2661/2 2678/22
worldwide [1] 2665/18
worse [2] 2657/8 2672/15
writing [1] 2656/25
written [1] 2668/2
wrong [3] 2651/14 2651/17 2652/6

Y

Yahoo [28] 2622/24 2623/2 2623/5 2623/9 2625/3 2627/4 2627/15 2627/17 2627/20 2627/21 2628/17 2628/18 2628/22 2628/24 2628/24 2629/2 2629/3 2629/6 2629/23 2630/1 2633/22 2634/7 2634/7 2634/8 2634/9 2662/24 2676/12 2679/17
Yahoo.com [1] 2621/10
Yandex [21] 2641/17 2641/20 2641/21 2641/25 2642/10 2642/11 2654/11 2654/11 2654/15 2655/16 2665/21 2667/1 2667/5 2673/13 2673/13 2673/14 2673/17 2674/2 2674/8 2674/21 2679/16
Yandex's [3] 2642/5 2674/10 2674/19
years [9] 2619/23 2621/3 2623/11 2635/3 2640/20 2654/15 2654/16 2681/9 2682/12
yellow [1] 2647/1
Yep [1] 2648/6
York [1] 2615/25
you've seen [1] 2645/2

Z

zero [1] 2686/12