IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

UNILOC 2017, LLC, UNILOC LICENSING USA LLC, and UNILOC USA, INC.	§	
	§	CIVIL ACTION NO. 2:18-cv-00449
Plaintiffs,	§	
	§	
v.	§	PATENT CASE
	§	
GOOGLE LLC,	§	
	§	JURY TRIAL DEMANDED
Defendant.	§	

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs, Uniloc 2017 LLC, Uniloc Licensing USA LLC, and Uniloc USA, Inc. (together "Uniloc"), as and for their complaint against defendant Google LLC ("Google") allege as follows:

THE PARTIES

1. Uniloc 2017 LLC is a Delaware limited liability company having places of business at 620 Newport Center Drive, Newport Beach,

California 92660 and 102 N. College Avenue, Suite 303, Tyler, Texas 75702.

2. Uniloc Licensing USA LLC is a Delaware limited liability company having places of business at 620 Newport Center Drive, Newport Beach, California 92660 and 102 N. College Avenue, Suite 303, Tyler, Texas 75702.

3. Uniloc holds all substantial rights, title and interest in and to the asserted patent.

4. On information and belief, Google, a Delaware corporation with its principal office at 1600 Amphitheatre Parkway, Mountain View, CA 94043. Google offers its products and/or services, including those accused herein of infringement, to customers and potential customers located in Texas and in the judicial Eastern District of Texas.

JURISDICTION

5. Uniloc brings this action for patent infringement under the patent laws of the United States, 35 U.S.C. § 271 *et seq.* This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. This Court has personal jurisdiction over Google in this action because Google has committed acts within the Eastern District of Texas giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Google would not offend traditional notions of fair play and substantial justice. Google has committed and continues to commit acts of infringement in this District by, among other things, offering to sell and selling products and/or services that infringe the asserted patent.

7. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and 1400(b). Google is registered to do business in Texas, and upon information and belief, Google has transacted business in the Eastern District of Texas and has committed acts of direct and indirect infringement in the Eastern District of Texas. Google has a regular and established place of business in this District, as set forth below.

8. Google is a multinational technology company that collects, stores, organizes, and distributes data. In addition to its service model for distribution of data (e.g., movies, search results, maps, music, etc.), Google has an expansive regime that gathers data on residents of this District through the hardware devices it sells (e.g., phones, tablets, and home audio devices) and, also, through the operating systems and apps it provides. As an example, Google gathers data when a resident runs its operating systems and apps (e.g., location services).[1] As another example, Google

[1] *See* e.g., "AP Exclusive: Google tracks your movements, like it or not," https://apnews.com/828aefab64d4411bac257a07c1af0ecb/AP-Exclusive:-Google-tracks-your-movements,-like-it-or-not

gather's data when a resident interacts with Google's plethora of services such as search, email, and music and movie streaming. *See* https://safety.google/privacy/data/ (indicating that Google gathers data from "things you search for," "Videos you watch," "Ads you view or click," "Your location," "Websites you visit," and "Apps, browsers, and devices you use to access Google services"). As yet another example, Google gathers data by listening and recoding everything a resident says within proximity of one of its products such as Google Home.[2] Others have reported that Google gathers "where you've been," "everything you've ever searched – and deleted," "all the apps you use," "all of your YouTube history," "which events you attended, and when," "information you deleted [on your computer]," "your workout routine," "years' worth of photos," and "every email you ever sent."[3]

9. Google takes these massive amounts of gathered data on residents of this district and monetizes them, for example, through targeted advertising. Some have reported that "creepy" advertisements for items never searched for, but only spoken out loud appeared. *See* e.g., https://www.youtube.com/watch?v=zBnDWSvaQ1I (conducting test on the term "dog toys" spoken out loud, but never searched; tester claims targeted "dog toy" advertisements only appeared after speaking the phrase out loud).

10. In addition to extensive data gathering of information on residents of this District, Google has a substantial presence in the District directly through the products and services Google provides residents of this District (some of which also gather data).[4] One of Google's main

[2] *See* https://www.unilad.co.uk/technology/google-is-listening-to-everything-we-say-and-you-can-hear-it-back/ ("Tech giant and the font of all pub quiz knowledge, Google, can quietly record many of the conversations that people have in close proximity to its products.").

[3] *See* https://www.theguardian.com/commentisfree/2018/mar/28/all-the-data-facebook-google-has-on-you-privacy.

[4] Non-limiting examples include Google Search, Maps, Translate, Chrome Browser, YouTube, YouTube TV, Google Play Music, Chromecast, Google Play Movies and TV, Android Phones, Android Wear, Chromebooks, Android Auto, Gmail, Google Allo, Google Duo, Google+, Google

businesses in this District is delivering information, including digital content such as movies, music, apps, and advertising.

11. Google describes itself as an "information company."[5] Its vision is "to provide access to the world's information in one click," and its mission is "to organize the world's information and make it universally accessible and useful."[6] Making information available to people wherever they are and as quickly as possible is critical to Google's business.

Google Global Cache (GGC)

12. As Google's CEO, Sundar Pichai, explains, "We want to make sure that no matter who you are or where you are or how advanced the device you are using—Google works for you."[7] To meet this goal, Google developed a content delivery network that it calls the Edge Network.

13. One non-limiting example of physical presence in this District is Google's Edge Network. Google provides web-based services, such as YouTube, YouTube TV, and Google Play, to users throughout the world. These services are in high demand. Google reports that Google Play reaches more than 1 billion Android users and that YouTube serves over 1.8 billion users per month.[8] Studies show that YouTube alone is responsible for approximately 20% of all internet traffic.[9] YouTube TV, which has been described as an "add-on to YouTube" allows Google to

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Photos, Google Contacts, Google Calendar, Google Keep, Google Docs, Google Sheets, Google Slides, Google Drive, Google Voice, Google Assistant, Android operating system, Project Fi Wireless phone systems, Google Pixel, Google Home, Google Wifi, Daydream View, Chromecast Ultra.

[5] *See* "This Year's Founder's Letter" by Alphabet CEO, Sundar Pichai, https://blog.google/inside-google/alphabet/this-years-founders-letter/.

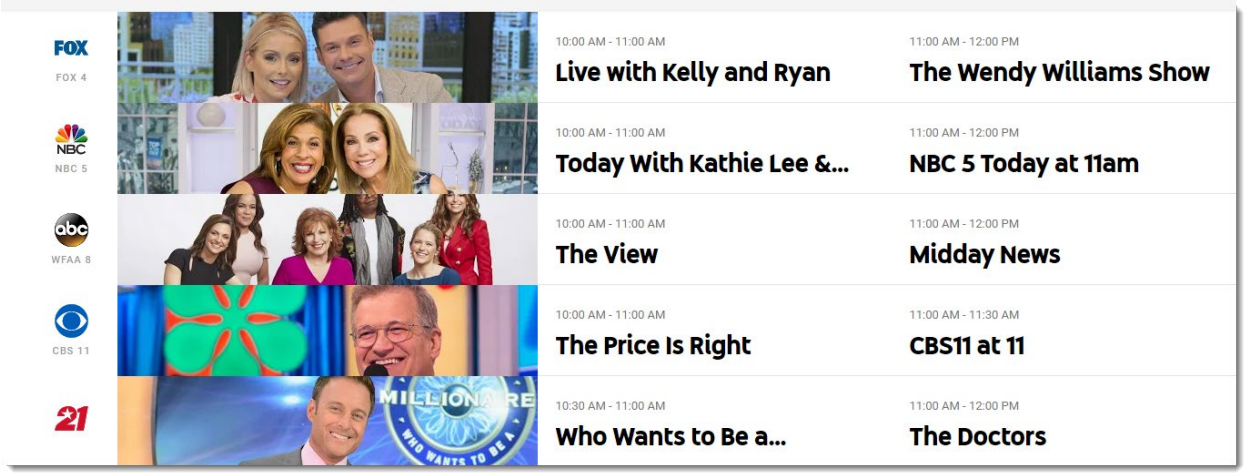
[6] http://panmore.com/google-vision-statement-mission-statement.

[7] *See* e.g., http://time.com/4311233/google-ceo-sundar-pichai-letter/.

[8] *See* https://www.theverge.com/2018/5/3/17317274/youtube-1-8-billion-logged-in-monthly-users-brandcast-2018

[9] *See* https://www.sandvine.com/hubfs/downloads/archive/2016-global-internet-phenomena-report-latin-america-and-north-america.pdf and http://testinternetspeed.org/blog/half-of-all-internet-traffic-goes-to-netflix-and-youtube/

essentially become the local TV provider for residents of this District. For example, residents in this District obtain local Dallas-Fort Worth area channels such as WFAA, ABC (Channel 8); CBS (Channel 11); NBC (Channel 5); and Fox (Channel 4).[10]



Source: https://tv.youtube.com/live (as accessed from this District).

To verify a resident should receive such local channels, Google verifies a location of such resident.

14. Google's Edge Network, itself, has three elements: Core Data Centers, Edge Points of Presence, and Edge Nodes. The Core Data Centers (there are eight in the United States) are used for computation and backend storage. Edge Points of Presence are the middle tier of the Edge Network and connect the Data Centers to the internet. Edge Nodes are the layer of the network closest to users. Popular content, including YouTube TV, YouTube, video advertising, music, mobile apps, and other digital content from the Google Play store, is cached on the Edge Nodes, which Google refers to as Google Global Cache or "GGC".

15. Google Global Cache is recognized as "one of Google's most important pieces of infrastructure,"[11] and Google uses it to conduct the business of providing access to the world's

[10] *See*, e.g. https://support.google.com/youtubetv/answer/7068923?hl=en and https://support.google.com/youtubetv/answer/7370552?hl=en&ref_topic=7071745.
[11] http://blog.speedchecker.xyz/2015/11/30/demystifying-google-global-cache/.

information. GGC servers in the Edge Nodes function as local data warehouses, much like a shoe manufacturer might have warehouses around the country. Instead of requiring people to obtain information from distant Core Data Centers, which would introduce delay, Google stores information in the local GGC servers to provide quick access to the data.

16. Caching and localization are vital for Google's optimization of network resources. Because hosting all content everywhere is inefficient, it makes sense to cache popular content and serve it locally. Doing so brings delivery costs down for Google, network operators, and internet service providers. Storing content locally also allows it to be delivered more quickly, which improves user experience. Serving content from the edge of the network closer to the user improves performance and user happiness. To achieve these benefits, Google has placed Edge Nodes throughout the United States, including in this District. Google describes these nodes as the workhorses of video delivery.

17. Just like brick-and-mortar stores, Google's GGC servers independently determine what content to cache based on local requests. The GGC servers in Google's Edge Nodes include software that Google refers to as "µstreamer." µstreamer is responsible for serving video content from YouTube and other Google services, along with other large content such as Google Play applications and Chrome downloads. It operates on a content-delivery platform at the edge of Google's network called "bandaid"; it does not run in the core (except for some internal testing purposes), unlike most of the Google services, such as search or Gmail.

18. Using µstreamer and bandaid, a GGC server handles requests directly from its clients, predominantly YouTube's video players. When such a request is received, if the content is stored in the node's local cache, the node will serve it to the end user, improving the user experience and saving bandwidth. If cache-eligible content is not already stored on the node, and the content is cache-eligible, the node will retrieve it from Google, serve it to the user, and store it for future

requests.

19. µstreamer is largely autonomous, in the sense that almost all decisions related to serving a particular request are made locally, without coordinating with other servers. Like a brick-and-mortar store sells directly to customers from inventory and stocks that inventory based on local customer demand, µstreamer in each GGC node decides—independently from other nodes in Google's Edge Network— whether to serve requested content, whether to cache content, and whether to send requests to other servers.

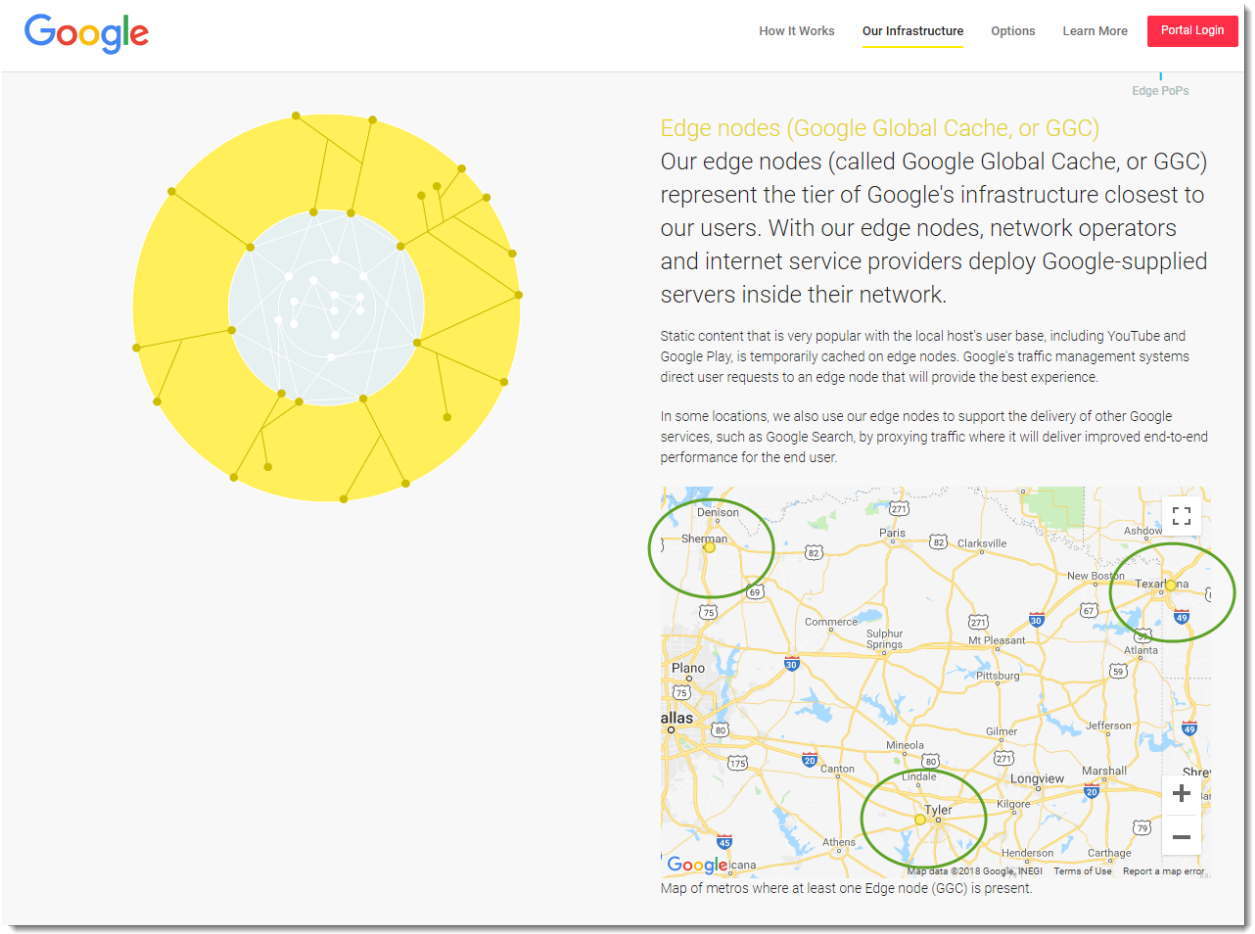
20. Google's GGC servers are housed in spaces in the District leased by Google. Google's GGC servers are housed in spaces leased by Google from Internet Service Providers (ISPs) whose networks have substantial traffic to Google and are interested in saving bandwidth. Hosting Google servers allows ISPs to save both bandwidth and costs, as they do not incur the expense of carrying traffic across their peering and/or transit links.

21. When an ISP agrees to host a GGC server, the parties enter into a Global Cache Service Agreement, under which Google provides:

- hardware and software— including GGC servers and software—to be housed in the host's facilities;
- technical support; service management of the hardware and software; and
- content distribution services, including content caching and video streaming.

In exchange, the host provides, among other things, a physical building, rack space where Google's computer hardware is mounted, power, and network interfaces. All ownership rights, title, and intellectual property rights in and to the equipment (i.e., the hardware and software provided by Google) remain with Google and/or its licensors.

22. Multiple ISPs hosted GGC servers are in this District. Google provides the location of its GGC servers, namely Sherman, Tyler, and Texarkana.



Source: https://peering.google.com/#/infrastructure

23. Suddenlink Communications, for example, is an ISP that hosts six GGC servers in Tyler, Texas.

24. CableOne is an ISP that hosts three GGC servers in Sherman, Texas, and three GGC servers Texarkana, Texas.

25. Google caches content on these GGC servers located in this District.

26. Google's GGC servers located in this District cache content that includes, among other things: (i) video advertising; (ii) apps; and (iii) digital content from the Google Play store.

27. Google's GGC servers located in this District deliver cached content for the items in the preceding paragraph to residents in this District.

28. Google generates revenue (i) by delivering video advertising, (ii) from apps,

and (iii) from digital content in the Google Play store.

29. Google treats its GGC servers in this District the same as it treats all its other GGC servers in the United States.

30. The photographs below show Google's GGC servers hosted by Suddenlink and the building where they are located at 322 North Glenwood Boulevard, Tyler, Texas 75702.

Exterior

Interior Rack Spaces

Google GGC Servers

31. Google not only exercises exclusive control over the digital aspects of the GGC, Google, but also exercises exclusive control over the physical server and the physical space within which the server is located and maintained.

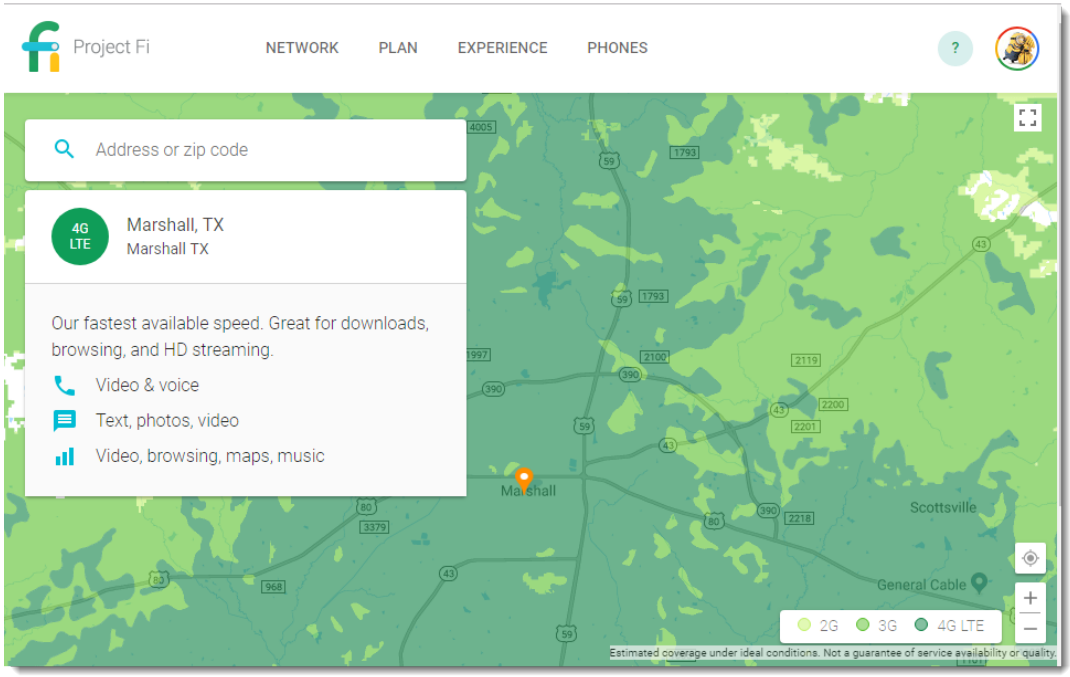
32. This District has previously determined that the GGC server itself and the place of the GGC server, both independently and together, meet the statutory requirement of a "physical place." *See Seven Networks, LLC v. Google, LLC*, Case No. 2:17-cv-00442-JRG (E.D. Tex) (Jul. 19, 2018) at Page 24.

33. Likewise, this District has determined that GGC servers and their several locations within this District constitute "regular and established place[s] of business" within the meaning of the special patent venue statute *See Seven Networks, LLC v. Google, LLC*, Case No. 2:17-cv-00442-JRG (E.D. Tex.) (Jul. 19, 2018) at page 38.

34. Similarly, this District has determined that the GGC servers and their locations within the various ISPs within this District are "places of Google" sufficient to meet the statutory requirement of § 1400(b). *See Seven Networks, LLC v. Google, LLC*, Case No. 2:17-cv-00442-JRG (E.D. Tex.)(Jul. 19, 2018) at page 41.

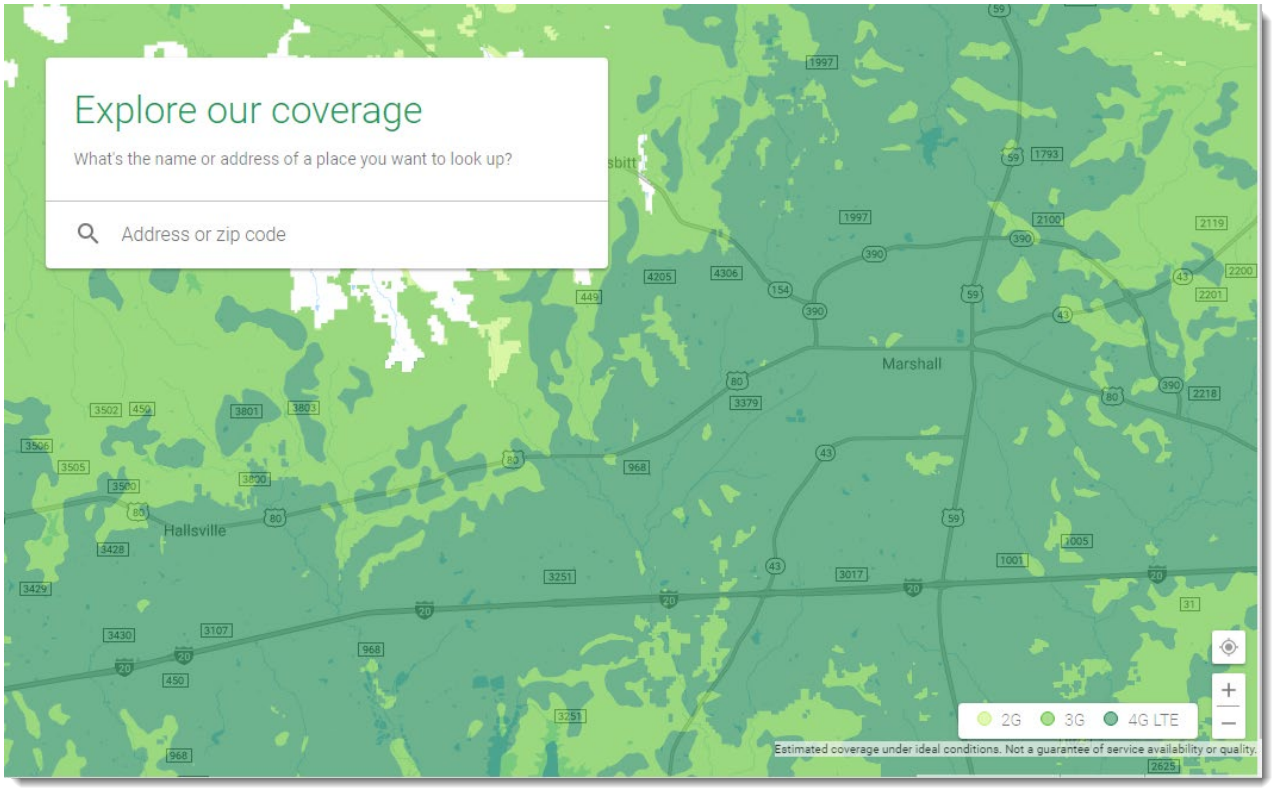
Google's Cell Phone Service (aka Google Fi)

35. Google also provides phone, messaging, and data services in this District from its wireless phone services called Google Fi. Via this Google Fi service, Google provides its customers voice and high-speed data coverage (4G LTE) for cities such as Tyler and Marshall, TX.



Source: https://fi.google.com/coverage?q=Marshall%2C%20TX%2C%20USA

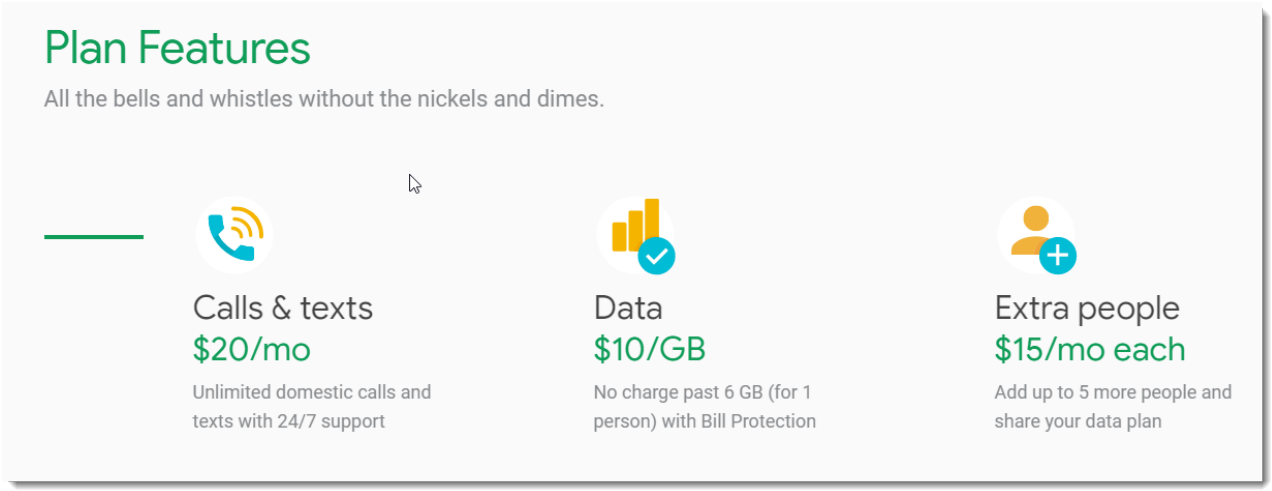
36. The cell towers used for Google's services are fixed geographical locations. They are "regular" and "established" because they operate in a "steady, uniform, orderly, and methodical manner" and are sufficiently permanent. They are "of the defendant" because Google has contractual and/or property rights to use the cell towers to operate its business. Google also ratifies the service locations through its coverage lookup service.



Source: https://fi.google.com/coverage?

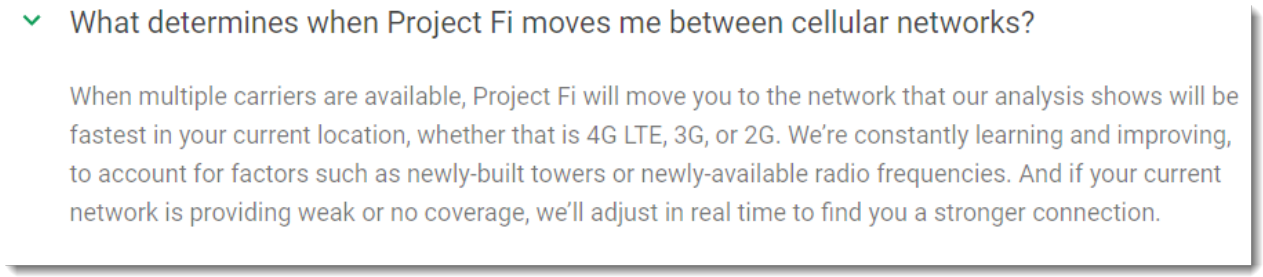
37. With this coverage lookup service, Google advertises its ability to provide cell coverage in this District and it selected cell towers in and near this District to provide the advertised coverage (e.g., 2G, 3G, or 4GLTE) depending on the location in the District. See https://fi.google.com/coverage?. Google is not indifferent to the location of its cell towers. It "established" and "ratified" them where they are for a specific business purpose.

38. Residents of this District also directly contract with and are billed by Google for these services.



Source: https://fi.google.com/about/plan

39. Google also determines which cell tower a particular project Fi customer will use while within the District.

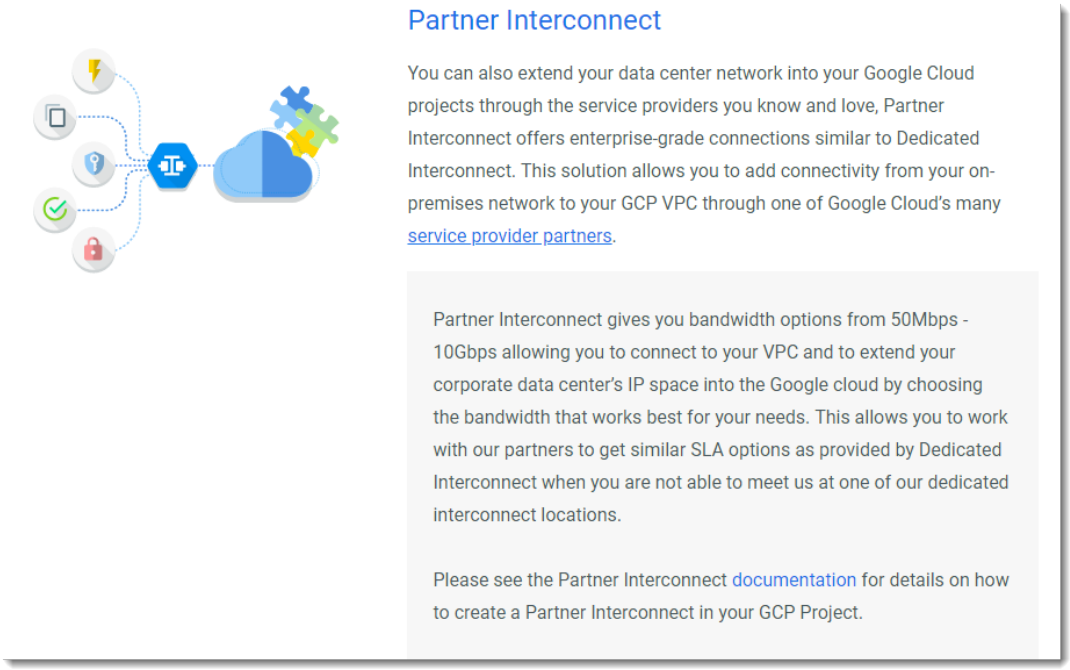


Source: https://fi.google.com/about/faq/#network-and-coverage-4

Google Cloud Interconnect (GCI) and Direct Peering

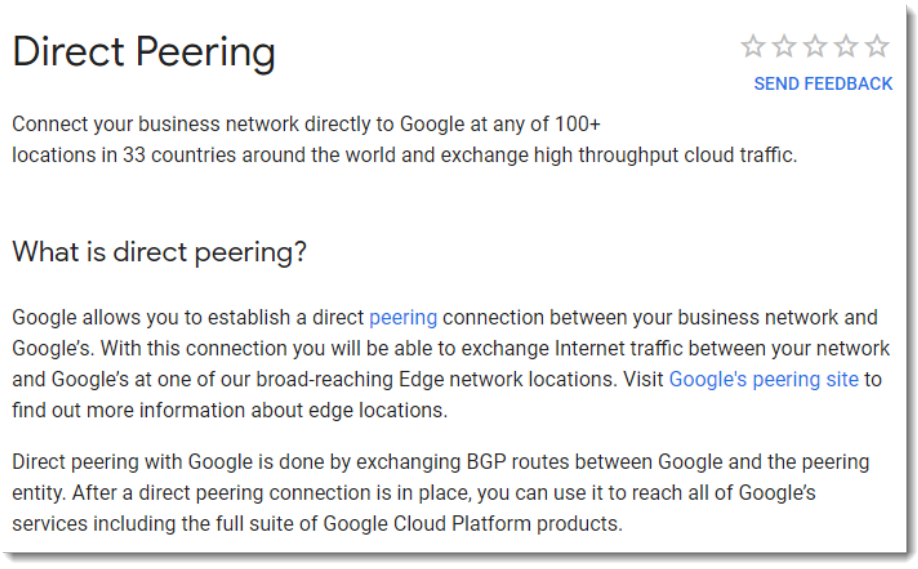
40. Google additionally services its customers in this District (and other districts) through yet other facilities it has in this District. More particularly, Google's equipment is located in this District in Denton County Texas at two facilities referred to as "Megaport." At the Megaport facilities in this District, Google offers two services: Google Cloud Interconnect (GCI) and Direct Peering.

41. Google Cloud's Interconnect (GCI) is a service from Google that allows customers to connect to Google Cloud Platform directly as opposed to, for example, over the public network.



Source: https://cloud.google.com/interconnect/

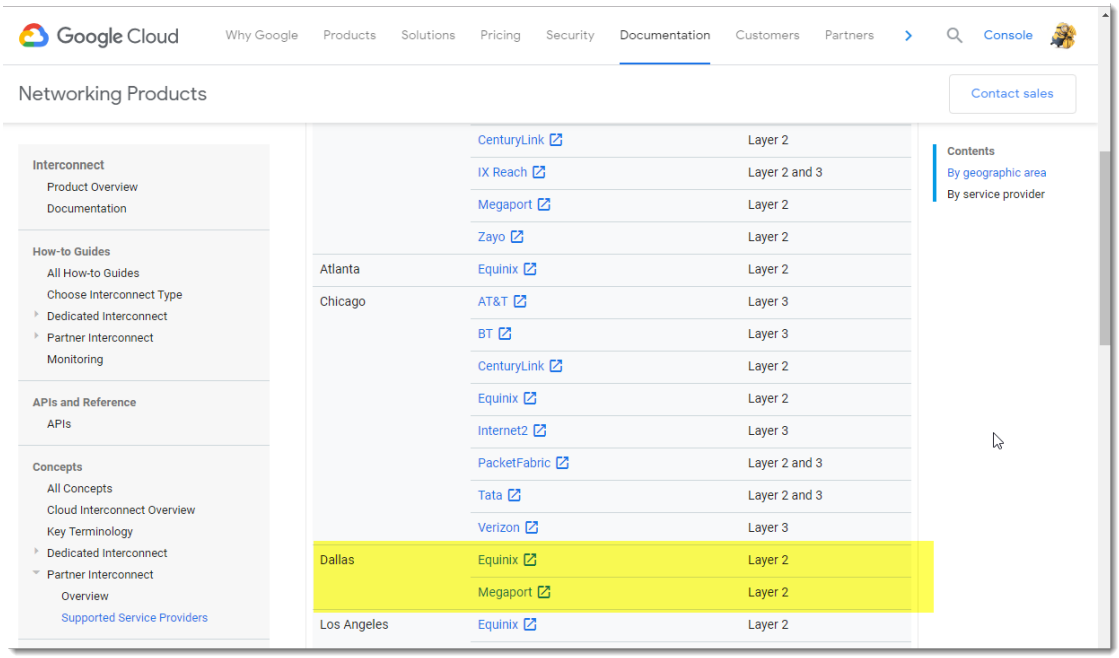
42. Google's Direct Peering services allows its customers to exchange Internet traffic between its customers network and Google's at one of its broad-reaching Edge network locations such as the one at Megaport.



Source: https://cloud.google.com/interconnect/docs/how-to/direct-peering

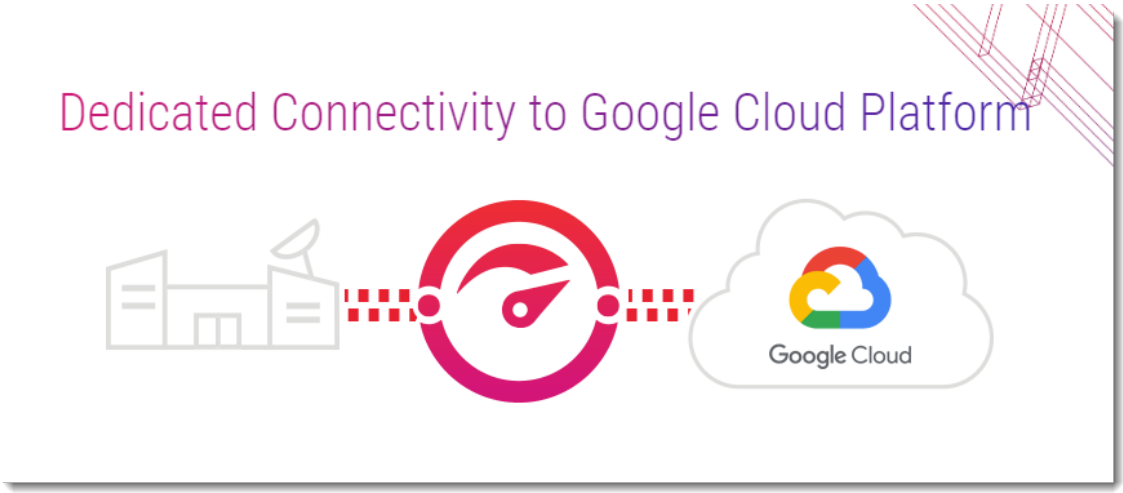
43. In establishing such a direction connection, Google provides the necessary physical

equipment at Megaport to enable such GCI or Direct Peering connections. Google advertises only two GCI facilities in Texas – the Equinix facility and Megaport facility (the latter is located in this District).



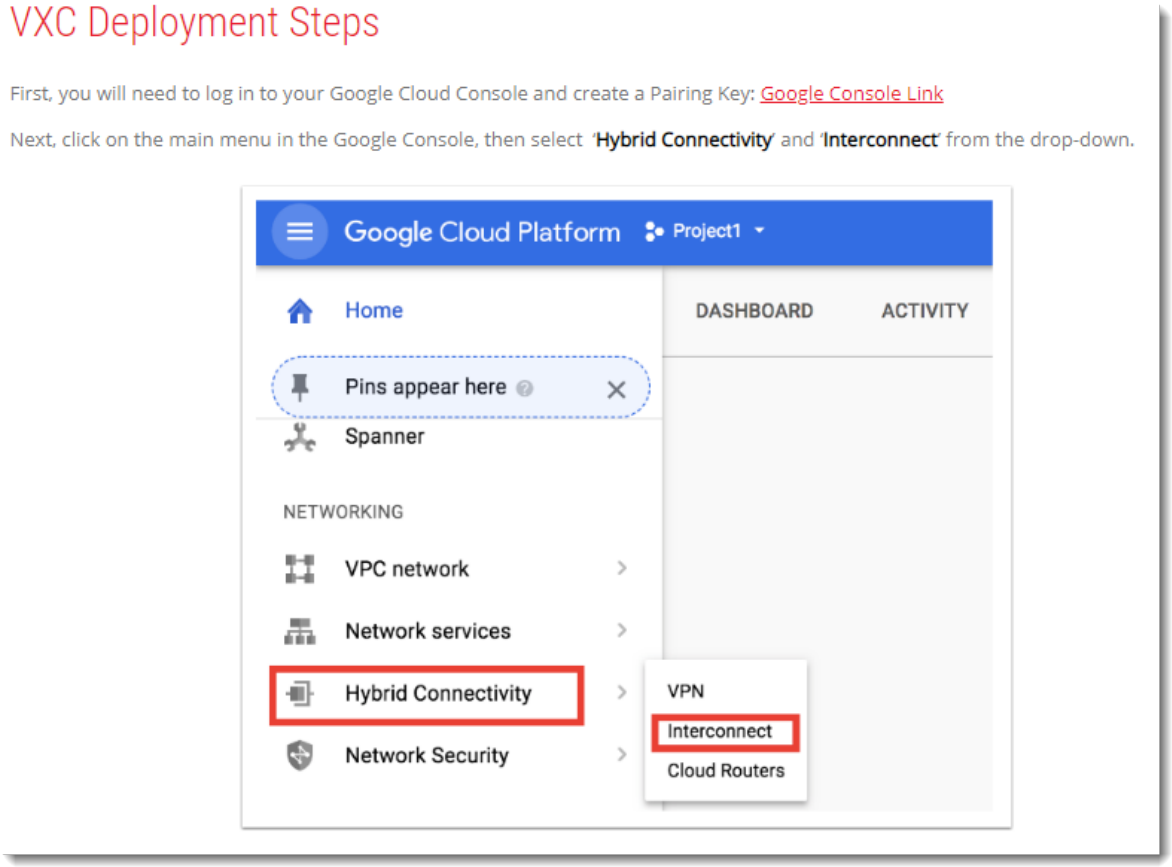
Source: https://cloud.google.com/interconnect/docs/concepts/service-providers#by-location

44. Clicking on the Megaport link from screenshot of Google's website in the preceding paragraph directs a customer as to the details of directly connecting to Google's equipment at the facility in this District to connect to Google's GCI service.



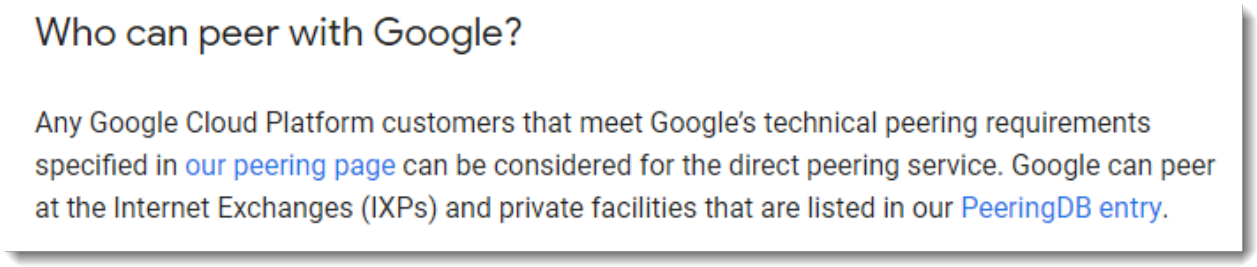
https://www.megaport.com/services/google-cloud-partner-interconnect/

45. More particularly, the Google-linked Megaport site explains how a Google customer can use the Google Cloud Platform console to enable connection to the Google equipment at the Megaport facility in this district.

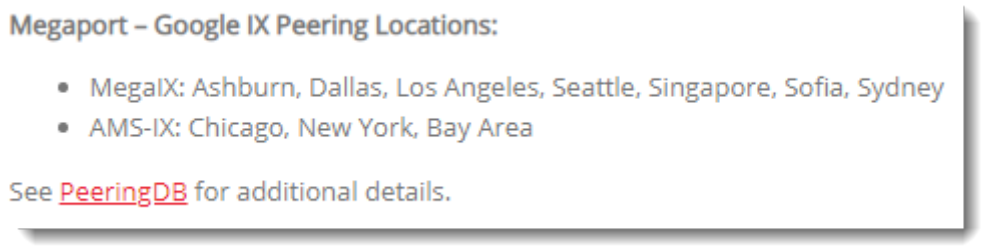


Source: https://knowledgebase.megaport.com/cloud-connectivity/google-cloud/?_ga=2.258056911.476938490.1538320465-1560947970.1538320465

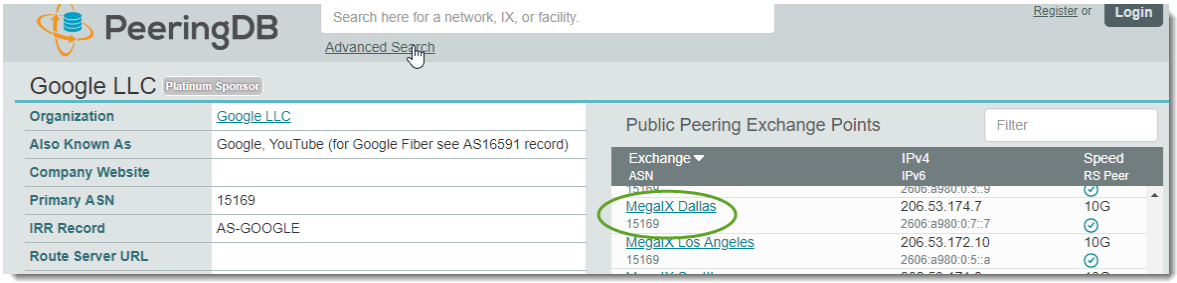
46. Both Google's website and Megaport's website advertise the peering service and point a consumer the website, www.peeringdb.com, for details. The peering DB website lists Megaport Dallas as a Google peering facility.



Source: https://cloud.google.com/interconnect/docs/how-to/direct-peering

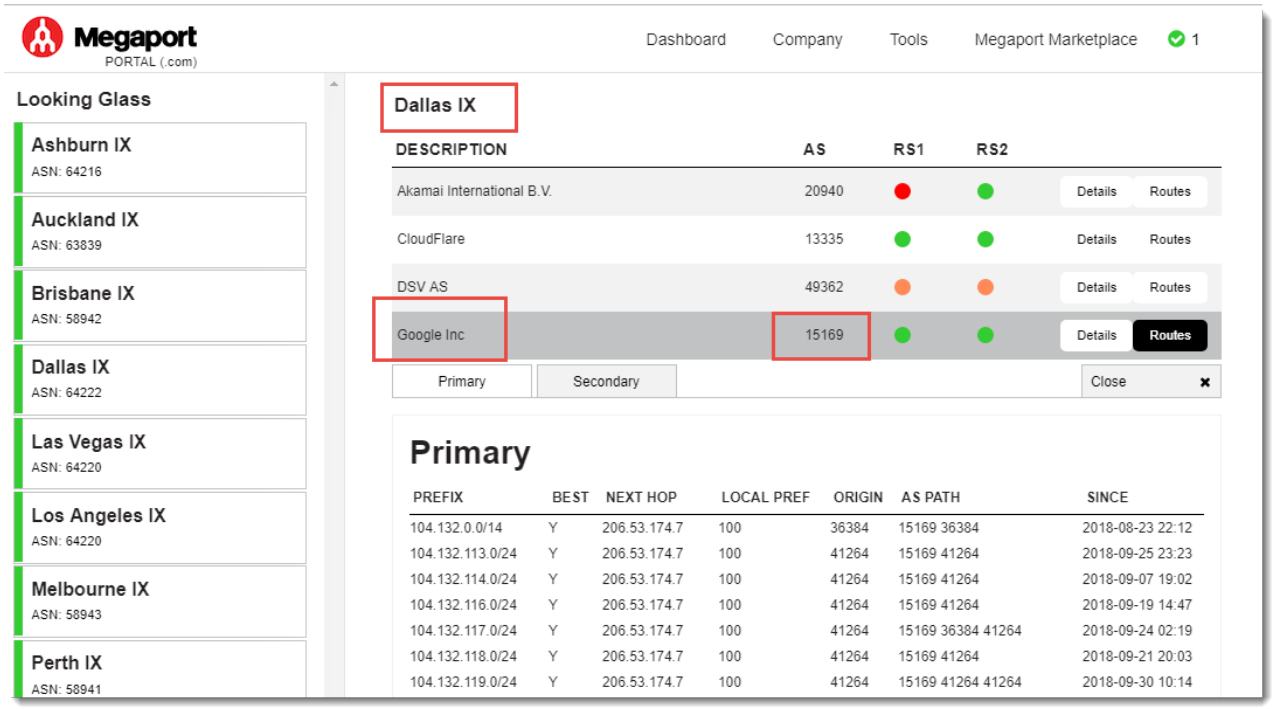


https://knowledgebase.megaport.com/cloud-connectivity/google-cloud-platform-direct-peering/



https://www.peeringdb.com/net/433

47. Megaport's website also confirms in its "Looking Glass" tool the presence of Google at its facility – (AS No. 15169).



Source: https://portal.megaport.com/tools/looking-glass

48. Both of Megaport's "Dallas" locations are in the Eastern District of Texas in Denton County.[12] The larger Megaport facility, the Carrolton facility, is located at 1649 West Frankford Rd and is the largest of its kind in the state of Texas.[13] The smaller Megaport facility, the Lewisville facility, is located at 2501 St. State Hwy 121.

49. The Google equipment at Megaport's facilities which provide the GCI and Direct Peering services for Google customer are fixed geographical locations. They are "regular" and "established" because they operate in a "steady, uniform, orderly, and methodical manner" and are sufficiently permanent. They are "of the defendant" because Google holds contractual and/or property rights to use this space and to maintain this equipment. Google also ratifies the equipment through advertising of the Megaport location as authorized to provide these Google services.

[12] https://www.megaport.com/blog/cyrusone-brings-dallas-closer-cloud/

[13] *Id.*

Other Google Presence in this District

50. In addition to the Google presence described above, Google has other pervasive contacts in this District.

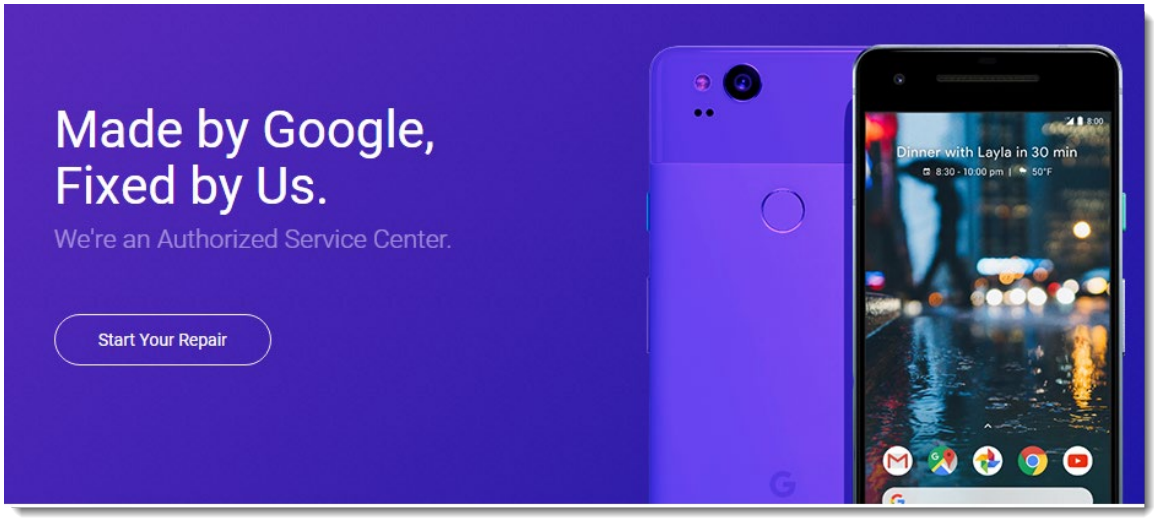
51. Google has multiple authorized repair centers in the Eastern District. A resident can visit Google' website to find a list of these repair centers:

United States	uBreakiFix	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	Walk-in	• uBreakiFix • **Phone**: 1-877-320-2237
	Puls	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	At home (Dial-in)	• Puls • **Phone**: (855) 256-3709
	Google	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	Mail-in	• Google • Repair program currently expanding, option might not be available

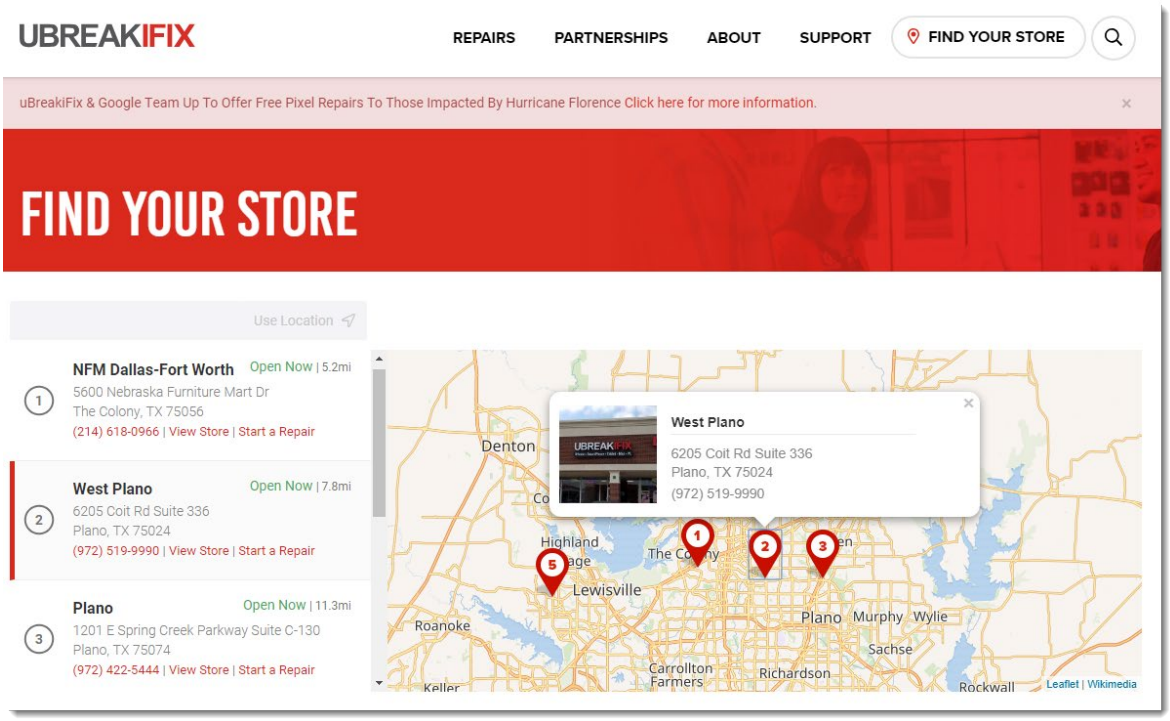
In US and Canada, replacement of parts or product service is made available for a minimum of three years after end of production for all phones through Google or its service providers.

Source: https://support.google.com/store/answer/7182296?hl=en

52. Google's only authorized walk-in repair center, uBreakiFix, lists at least four facilities in this District



Source: https://www.ubreakifix.com/google



Source: https://www.ubreakifix.com/google

53. Google and uBreakiFix teamed up to offer free repairs to those impacted by Hurricane Florence.[14]

54. uBreakiFix has fixed geographical location. They are "regular" and "established" because they operate in a "steady, uniform, orderly, and methodical manner" and are sufficiently permanent. These stores are "of the defendant" because Google has contractual rights with uBreakiFix -- the only authorized walk-in repair centers in the United States. Google also ratifies these facilities through its advertising of them through its website.

55. Google's also has a branded mail-in repair service that is contracted with a company called KMT Wireless, LLC dba Cynergy. Cynergy receives phones at its facility in Grapevine, TX.

[14] *See* https://www.ubreakifix.com/blog/hurricane-florence

United States	uBreakiFix	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	Walk-in	• uBreakiFix • **Phone**: 1-877-320-2237
	Puls	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	At home (Dial-in)	• Puls • **Phone**: (855) 256-3709
	Google	Pixel, Pixel XL, Pixel 2, Pixel 2 XL	Mail-in	• Google • Repair program currently expanding, option might not be available

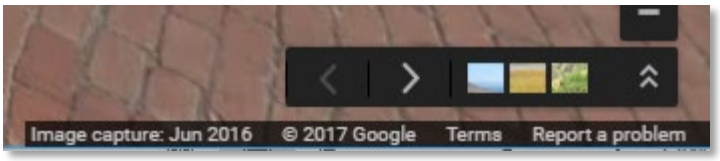
In US and Canada, replacement of parts or product service is made available for a minimum of three years after end of production for all phones through Google or its service providers.

Source: https://support.google.com/store/answer/7182296?hl=en

56. Google has operated and is currently operating its Google Maps Street View business and services in this District. For example, the image below shows the Google Maps Street View of the Eastern District of Texas courthouse in Marshall.

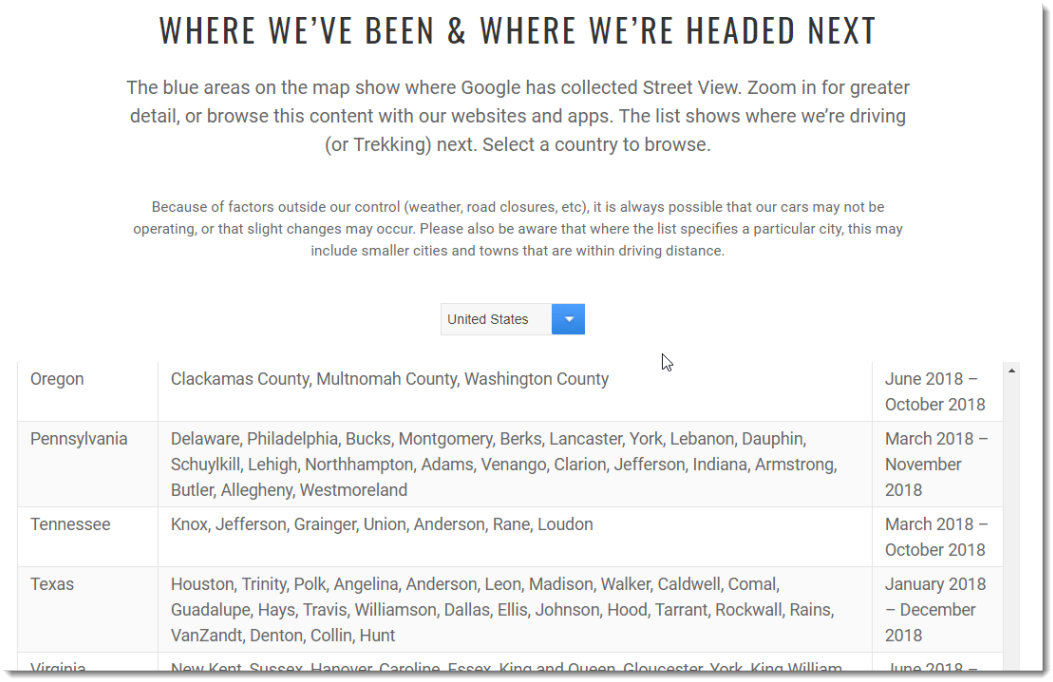
Source:https://www.google.com/maps/@32.5447534,-94.3670371,3a,75y,170.99h,76.06t/data=!3m6!1e1!3m4!1smECZXlUFylR2yu5E-6wj2g!2e0!7i13312!8i6656

Furthermore, in the lower right-hand corner of the Google Street View above, the image is credited to Google and states that it was captured in June 2016.



57. Google also operates a Street View car in and around this District in order to provide the Google Maps Street View service.[15]

58. In addition to the above Google Street View image, Google operates and continues to operate a fleet of Google Street View vehicles in this District, including in the counties of Houston, Trinity, Polk, Angelina, Anderson, VanZandt, Denton, and Collin, as shown below.



WHERE WE'VE BEEN & WHERE WE'RE HEADED NEXT

The blue areas on the map show where Google has collected Street View. Zoom in for greater detail, or browse this content with our websites and apps. The list shows where we're driving (or Trekking) next. Select a country to browse.

Because of factors outside our control (weather, road closures, etc), it is always possible that our cars may not be operating, or that slight changes may occur. Please also be aware that where the list specifies a particular city, this may include smaller cities and towns that are within driving distance.

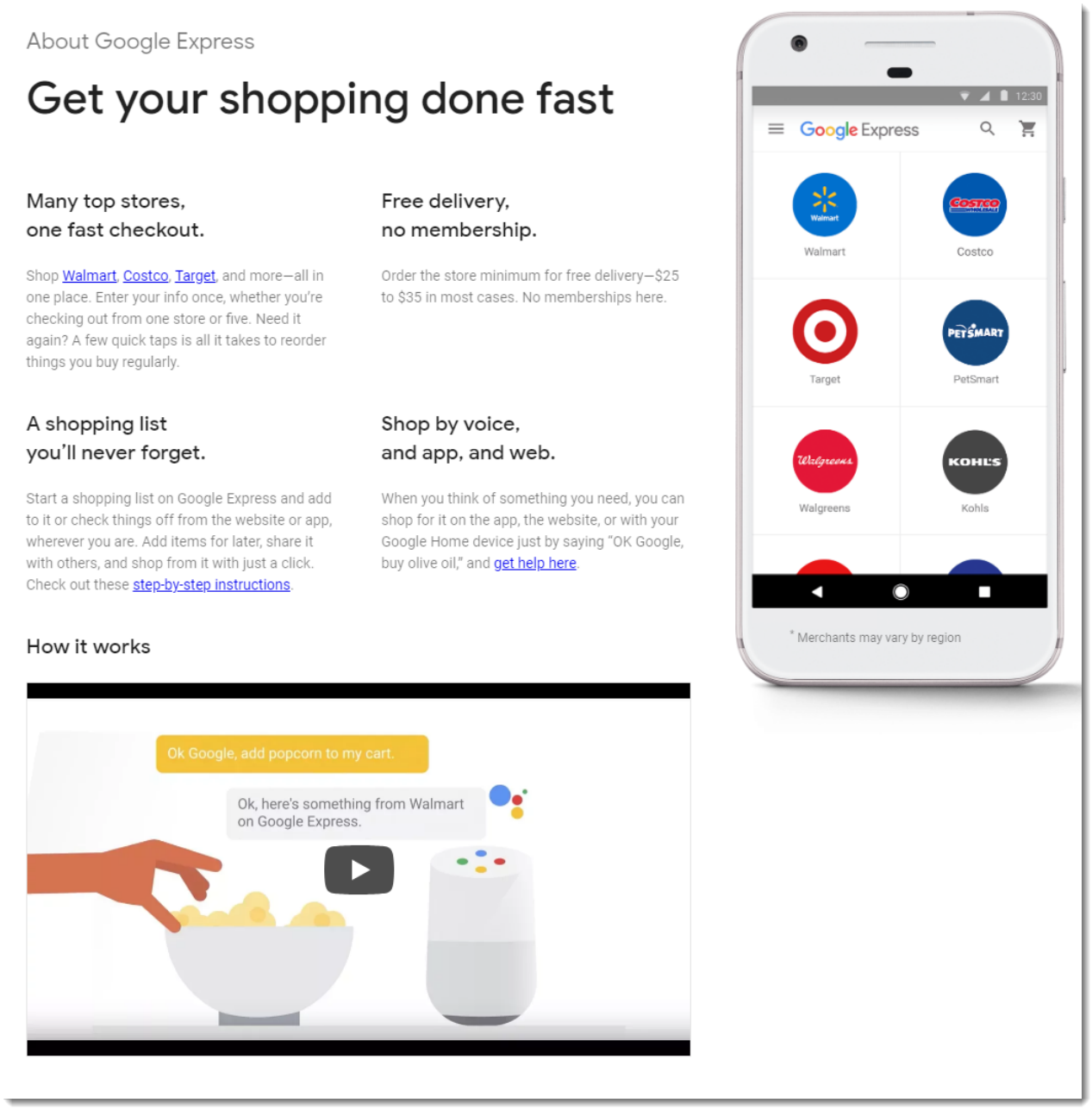
United States

Oregon	Clackamas County, Multnomah County, Washington County	June 2018 – October 2018
Pennsylvania	Delaware, Philadelphia, Bucks, Montgomery, Berks, Lancaster, York, Lebanon, Dauphin, Schuylkill, Lehigh, Northhampton, Adams, Venango, Clarion, Jefferson, Indiana, Armstrong, Butler, Allegheny, Westmoreland	March 2018 – November 2018
Tennessee	Knox, Jefferson, Grainger, Union, Anderson, Rane, Loudon	March 2018 – October 2018
Texas	Houston, Trinity, Polk, Angelina, Anderson, Leon, Madison, Walker, Caldwell, Comal, Guadalupe, Hays, Travis, Williamson, Dallas, Ellis, Johnson, Hood, Tarrant, Rockwall, Rains, VanZandt, Denton, Collin, Hunt	January 2018 – December 2018
Virginia	New Kent, Sussex, Hanover, Caroline, Essex, King and Queen, Gloucester, York, King William	June 2018 –

Source: https://www.google.com/streetview/understand/

[15] See https://www.google.com/streetview/understand/

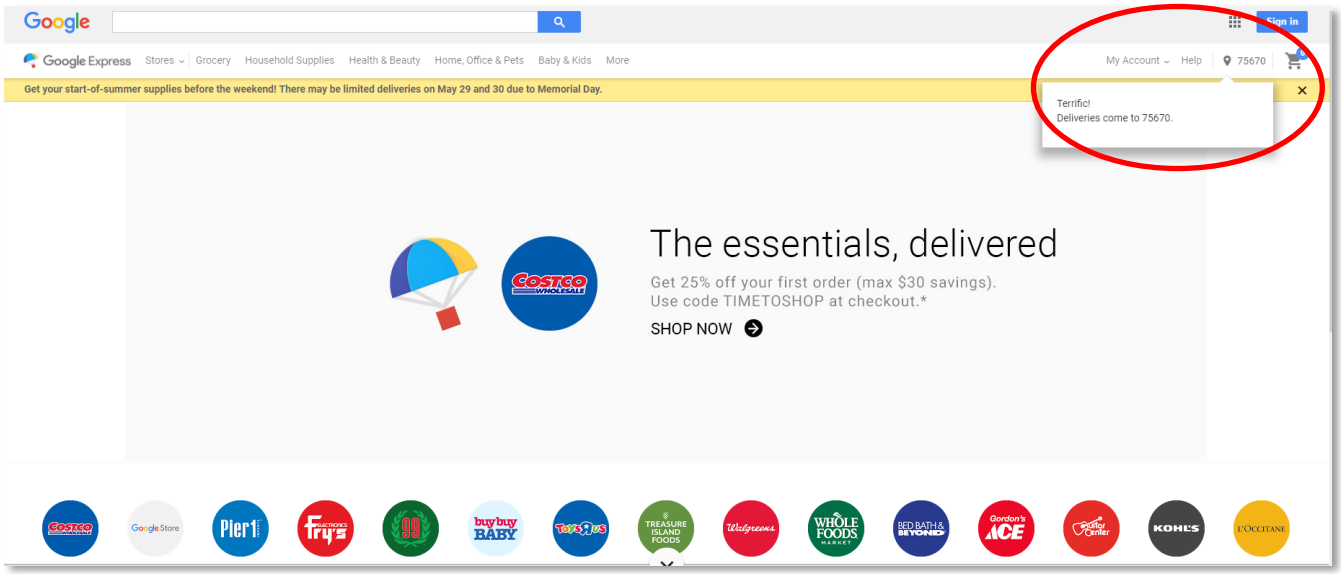
59. Google also has operated and currently operates its Google Express business and services in this District. Google Express allows residents of this District to shop – directly from Google's website – for select products with companies that Google has contracted with.



Source: https://express.google.com/u/0/about

To verify which stores a user may shop, a resident enters his or her zip code and begins shopping at the Google contracted stores. The image below shows the Google Express website showing

that its business and services are available in this District.



Source: https://www.google.com/express/

60. Googles provides its Google Express business and services to the residents of this District by advertising and inviting the residents of this District, then Defendant arranges for a delivery company to bring the goods and products purchased through the Google Express website to the residents of this District.[16] This service uses fixed geographical stores in this District. They are "regular" and "established" because they operate in a "steady, uniform, orderly, and methodical manner" and are sufficiently permanent. They are "of the defendant" because Google ratifies the stores (and select products of the stores) through its website. Only information provided by Google through its service can be purchased although the store may have other items for sale.

61. Google previously leased office space in this District for about 50 people through its Frisco, TX office.

62. Google also provides services to business and schools in this District including email services, word processing software, electronic file storage services, and video conferencing

[16] See https://support.google.com/express/answer/4561693?hl=en

services. Google brands such services as "G Suite" services. Non-limiting examples of such business and schools include the Frisco Independent School District, as shown below.[17]

How do I login?

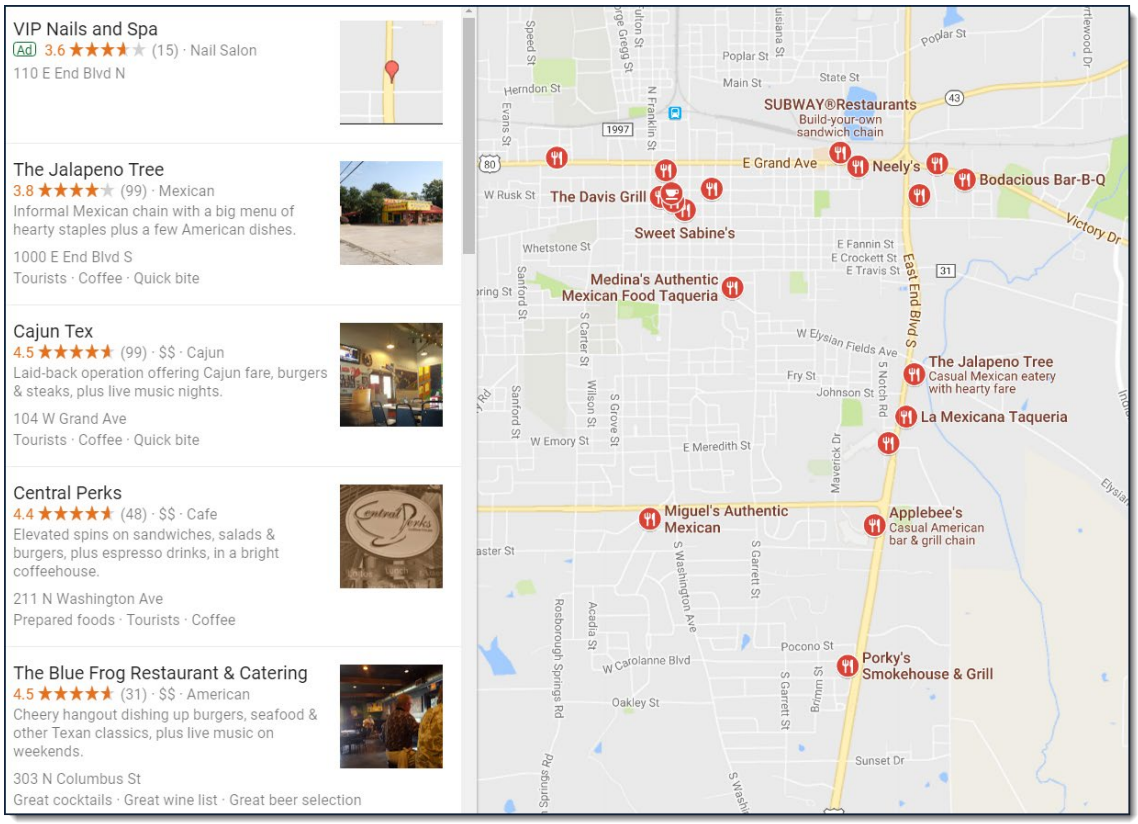
Each student in FISD has a Google login. The username is their Frisco ISD email address, which is firstname.lastname.###@k12.friscoisd.org

where the ### is the last three digits of their student id#. This address uses the full legal first name and full legal last name of the student, and does not recognize nicknames. All teachers have access to student gmail addresses and can help if you aren't sure what the username is.

The password will most likely be the student birth date in 8 digits MMDDYYYY.

Source: http://schools.friscoisd.org/ms/vandeventer/site/resources/accessing-google-applications

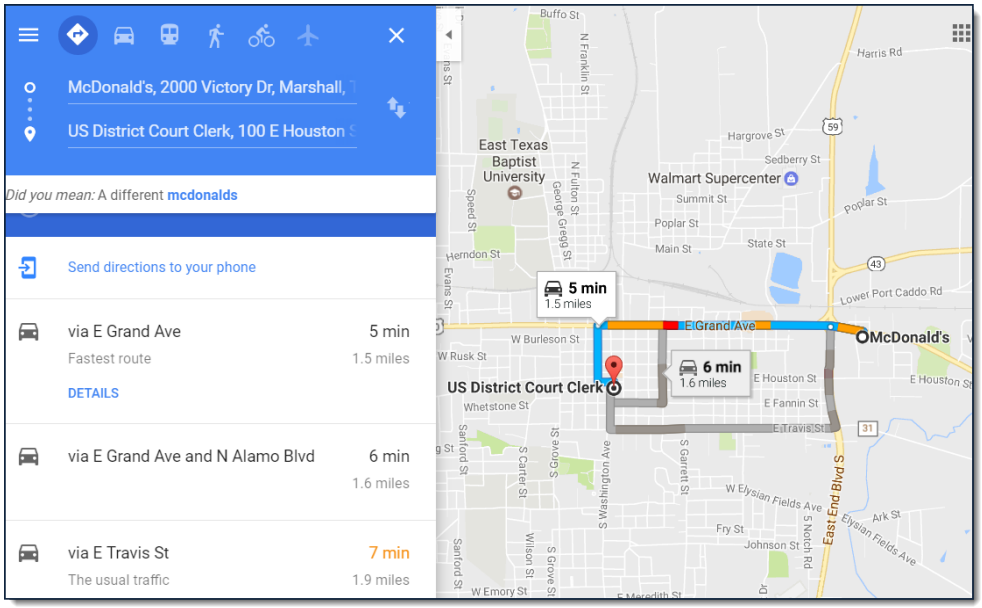
63. Google also provides advertising services to businesses in this District, including soliciting reviews of patrons that have visited a business in the Eastern District of Texas, as shown below.



[17] See http://schools.friscoisd.org/ms/vandeventer/site/resources/accessing-google-applications

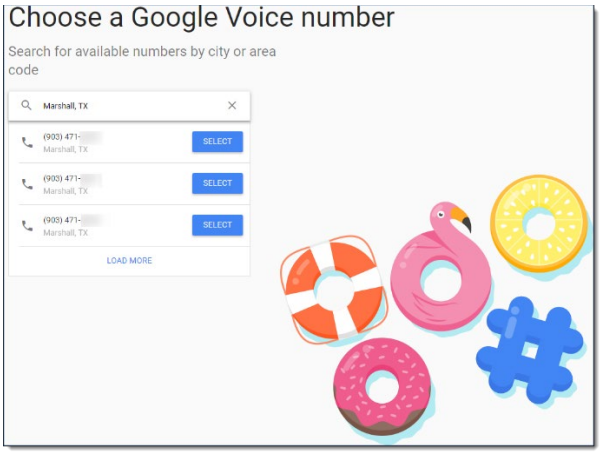
Source: product testing through www.maps.google.com

64. Google also monitors traffic conditions in this District. For example, traffic conditions between a McDonalds and the Federal Courthouse in Marshall, as shown below.



Source: Product testing at www.maps.google.com

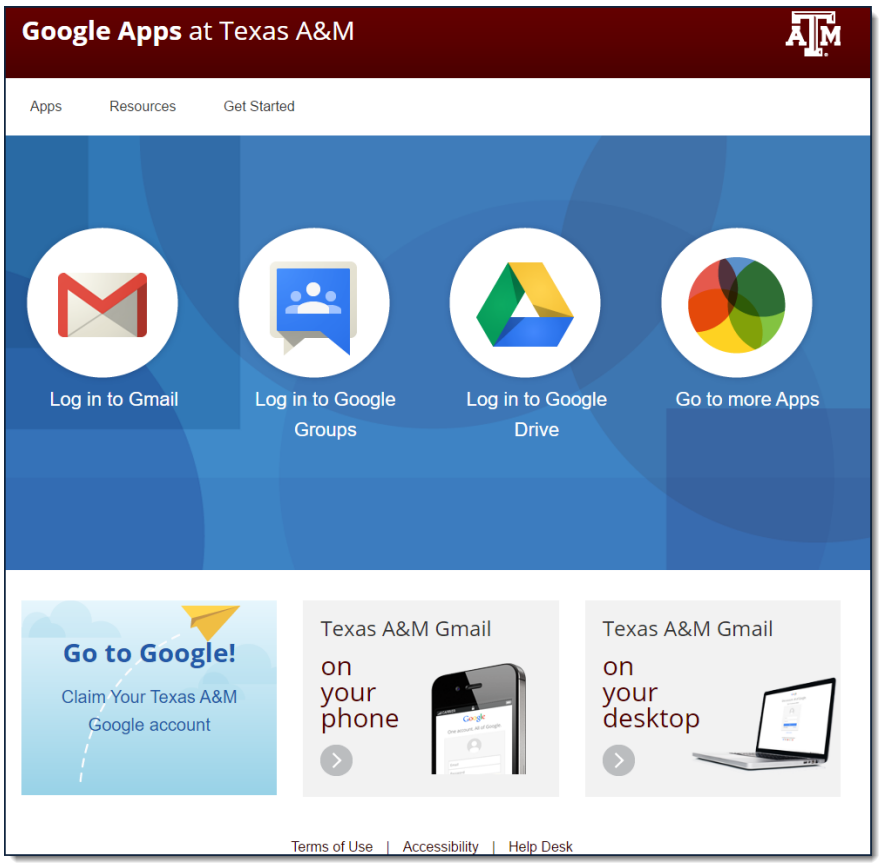
65. Separate and apart from its Google Fi mobile service, Google also provides telephone services to residents in this District through a product it calls Google Voice.[18] A user of Google voice can select local numbers, for example, in Marshall, TX.



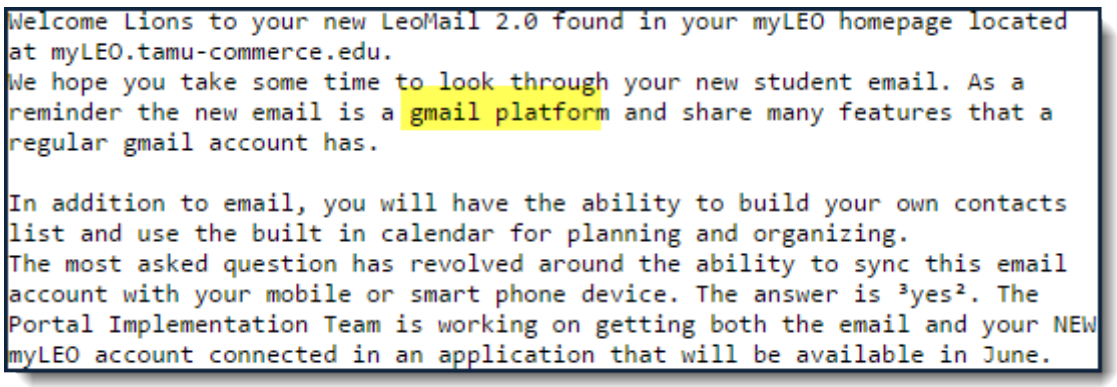
[18] See http://www.wikihow.com/Get-a-Google-Voice-Phone-Number

Source: Product testing at https://voice.google.com/signup

66. Google provides Software-as-a-Service applications, including email and server space, to Texas public universities. Non-limiting examples of such universities are Texas A&M University (which has facilities in this District) and Texas A&M Commerce (located in this District), as shown below.



Source: http://google.tamu.edu/


Welcome Lions to your new LeoMail 2.0 found in your myLEO homepage located at myLEO.tamu-commerce.edu.
We hope you take some time to look through your new student email. As a reminder the new email is a gmail platform and share many features that a regular gmail account has.

In addition to email, you will have the ability to build your own contacts list and use the built in calendar for planning and organizing.
The most asked question has revolved around the ability to sync this email account with your mobile or smart phone device. The answer is ³yes². The Portal Implementation Team is working on getting both the email and your NEW myLEO account connected in an application that will be available in June.

Source: http://mailman.tamuc.edu/pipermail/students/2012-May/004325.html

Other Google Presence in the State

67. Google also has pervasive connection to the state of Texas through multiple commercial activities.

68. Google has purchased land in Midlothian, TX where it plans to build a half-a-billion-dollar data center.19

69. Since 2007, Google has employed "hundreds" of employees in Texas, including in Austin, Texas.20

70. Google has at least one current office located in Austin, on North MoPac Expressway,21 and additional office locations at University Park and Austin's Children Museum.22

71. Google has leased over 200,000 square feet of office space in Austin, Texas, at 500 West 2nd Street.23

72. Google has, as of September 2018, job postings for Addison, TX; Dallas, TX; Midlothian, TX; and Austin, TX (38 postings) including positions such as:[24]

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[19] *See* https://www.datacenterknowledge.com/google-alphabet/google-buys-property-build-data-center-near-dallas

[20] According to Gerardo Interiano, Google's public affairs and government relations manager, in a statement. *See* http://www.statesman.com/business/google-lease-200-000-square-feet-new-downtown-austin-tower/SANZSa3du8QQ4k8ytOC2rJ/

[21] *See* https://www.google.com/intl/en/about/locations/?region=north-america

[22] *See* http://www.statesman.com/business/google-lease-200-000-square-feet-new-downtown-austin-tower/SANZSa3du8QQ4k8ytOC2rJ/

[23] *See* http://www.statesman.com/business/google-lease-200-000-square-feet-new-downtown-austin-tower/SANZSa3du8QQ4k8ytOC2rJ/

[24] *See* https://careers.google.com/jobs#t=sq&q=j&li=20&l=false&jl=32.7766642%3A-96.79698789999998%3ADallas%2C+TX%2C+USA%3AUS%3A%3A25.77719109274963%3ALOCALITY&jld=20&&jcoid=7c8c6665-81cf-4e11-8fc9-ec1d6a69120c&jcoid=e43afd0d-d215-45db-a154-5386c9036525& and https://careers.google.com/jobs#t=sq&q=j&li=20&l=false&jlo=en-US&jcoid=7c8c6665-81cf-4e11-8fc9-ec1d6a69120c&jcoid=e43afd0d-d215-45db-a154-5386c9036525&jl=30.267153%3A-

- Network Transport Engineer (Midlothian)
- Project Controls Group Lead, Google Data Centers (Dallas)
- Network Engineer, Tools (Addison)
- Cluster Security Manager (Austin)

73. Upon information and belief, Defendant has at least eleven (11) entities registered in Texas, including:

- GOOGLE LLC
- GOOGLE ACQUISITION HOLDINC, INC.
- GOOGLE COMPARE AUTO INSURANCE SERVICES INC.
- GOOGLE COMPARE CREDIT CARDS INC.
- GOOGLE COMPARE MORTGAGES INC.
- GOOGLE FIBER INC.
- GOOGLE FIBER NORTH AMERICA INC.
- GOOGLE FIBER TEXAS, LLC
- GOOGLE INC.
- GOOGLE NORTH AMERICA INC.
- GOOGLE PAYMENT CORP.

74. Google has provided, currently provides, and is currently offering to provide its Google Fiber services to the residents of Austin, Texas and San Antonio, Texas.25

75. Google has invested $200,000,000 in the Spinning Spur wind farm project in

97.74306079999997%3AAustin%2C+TX%2C+USA%3AUS%3A%3A20.13709231046343%3ALOCALITY%3A%3A%3A%3A%3A%3A%3A%3A%3A%3A%3A%3A%3A%3A&jld=20&

[25] See https://fiber.google.com/cities/austin/ and https://fiber.google.com/cities/sanantonio/

Oldham County, Texas.[26]

76. Google has massively scanned books from Texas public universities.

Source: https://www.lib.utexas.edu/google/faqs.html

77. Google provides the State of Texas with aerial imagery.27

78. Google acquired Waze in 2013,28 and Google's Waze traffic app partners with cities and business in Texas, non-limiting examples include the Waze partnership with the city of Forth Worth to provide constant traffic data to the city.[29] Another non-limiting example includes the Waze partnership with the Genesis Group in Tyler, to decrease emergency response times.[30]

COUNT I
(INFRINGEMENT OF U.S. PATENT NO. 6,349,154)

79. Uniloc incorporates the preceding paragraphs above by reference.

80. U.S. Patent No. 6,349,154 ("the '154 Patent"), entitled METHOD AND ARRANGEMENT FOR CREATING A HIGH-RESOLUTION STILL PICTURE issued on February 19, 2002. The '154 lists the following inventor: Richard P. Kleihorst. A true and correct copy of the '154 Patent is attached as Exhibit A hereto.

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[26] See https://www.chooseenergy.com/blog/energy-news/google-invests-200m-in-west-texas-wind-farm/
[27] See http://www.bisconsultants.com/affordable-imagery-for-texas-government-entities-from-google/
[28] See https://techcrunch.com/2013/06/11/its-official-google-buys-waze-giving-a-social-data-boost-to-its-location-and-mapping-business/
[29] See http://dfw.cbslocal.com/2016/12/14/forth-worth-partners-with-waze-traffic-app/
[30] See https://genesispulse.com/2015/10/06/the-genesis-group-joins-waze-connected-citizens-program/

81. Pursuant to 35 U.S.C. § 282, the '154 Patent is presumed valid. More than 10 refenced were considered in '154 Patent's examination, including references from Kodak, Hitachi, Canon, Sony, Ricoh, and DEC. Additionally, more than 30 references have cited the '154 Patent, including references from Fuji, Canon, Sony, STMicroelectronics, U.S. Army, and Google. The '154 was cited in the prosecution of 11 Google patents.

82. The '154 Patent describes inventive features that are not well-understood, routine, and conventional.

83. Google makes, uses, offers for sale, sells and/or imports into the United States mobile phones under the trade name "Google Pixel." Google Pixel 2 and 3 (and corresponding XL versions of Google Pixel 2 and 3) are high-end flagship smartphones sold in the US by Google. The Pixel phones have built-in features called Motion Photos/Motion Stills and RAISR, which are part of Google's Pixel Visual Core. Captured images or frames are enhanced to improve the resolution of a resulting live photo. Collectively, such versions of the product are referred to as the "Accused Infringing Devices."

84. The Accused Infringing Devices have a feature called Motion Photos. Motion Photos supports capturing live photos using Motion Stills technology. The Accused Infringing Devices also support a super resolution technology called RAISR (Rapid and accurate Image Super resolution) to create high resolution pictures from low resolution pictures.

> One of the most compelling things about smartphones today is the ability to capture a moment on the fly. With motion photos, a new camera feature available on the Pixel 2 and Pixel 2 XL phones, you no longer have to choose between a photo and a video so every photo you take captures more of the moment. When you take a photo with motion enabled, your phone also records and trims up to 3 seconds of video. Using advanced stabilization built upon technology we pioneered in Motion Stills for Android, these pictures come to life in Google Photos. Let's take a look behind the technology that makes this possible!

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html

All Eyes on AI

But there are some features launching with the Pixel 3 that do appear to be the clear beneficiaries of Google's AI prowess—specifically, Google's Visual Core, a co-processor that Google developed with Intel. It serves as a dedicated AI chip for the Pixel camera. The Visual Core was first rolled out with the Pixel 2 smartphone, a signal that Google was willing to invest in and customize its own chips to make something better than an off-the-shelf component. It's what powers the Pixel's commendable HDR+ mode.

This year, the Visual Core has been updated, and it has more camera-related tasks. Top Shot is one of those features. It captures a Motion Photo, and then automatically selects the best still image from the bunch. It's looking for open eyes and big smiles, and rejecting shots with windswept hair or faces blurred from too much movement.

Source: https://www.wired.com/story/google-pixel-3-camera-features/

"Pixel Visual Core also runs RAISR, which means zoomed-in shots look sharper and more detailed than ever before," said Ofer Shacham, the Pixel Visual Core engineering manager, in a blog post Monday.

Source: https://www.cnet.com/news/google-pixel-2-photos-get-ai-better-digital-zoom/

One of the most impressive camera tricks that Google introduced with the Pixel 3 last week is Super Res Zoom. The Google AI team behind the feature detailed the technical aspects today, and how Google wants to challenge the idea that digital zoom is "the 'ugly duckling' of mobile device cameras."

In a nutshell, Super Res Zoom works by merging many frames to form a higher resolution image rather than upscaling the crop of a single image. This results in improved details that are "roughly competitive with the 2x optical zoom lenses on many other smartphones."

> *Super Res Zoom means that if you pinch-zoom before pressing the shutter, you'll get a lot more details in your picture than if you crop afterwards.*

The goal on the Pixel 3 is to capture more detail when zooming into a subject. Machine learning-backed image upscalers, like Google's RAISR, can magnify straight edges and certain texture, but "cannot recover natural high-resolution details."

Source: https://9to5google.com/2018/10/15/google-pixel-3-super-res-zoom/

85. Motion Stills technology stabilizes a live photo. Live Photos have a sequence of frames stored as video. In the sequence of frames each frame can be treated as a still picture.

Last year, we launched Motion Stills, an iOS app that stabilizes your Live Photos and lets you view and share them as looping GIFs and videos. Since then, Motion Stills has been well received, being listed as one of the top apps of 2016 by The Verge and Mashable. However, from its initial release,

Source: https://ai.googleblog.com/2017/07/motion-stills-now-on-android.html

> Motion Photos do exactly what the name suggests: They capture frames before and after your image, so your picture appears to be moving. Previously, users had two options: "Save as still photo" or "Save as video." But now, if you open the "Export" menu, "Export as GIF" is a third option.

Source: https://www.engadget.com/2018/03/07/google-pixel-2-motion-photos-gifs/

86. Motion Stills uses RAISR technology to sharpen individual frames of video before a user exports video.

> **Enhance! your videos with better detail and loops**
>
> Last month, we published the details of our state-of-the-art RAISR technology, which employs machine learning to create super-resolution detail in images. This technology is now available in Motion Stills, automatically sharpening every video you export.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html

87. Motion Photos uses stablization techniques to generate output frames which are stable, sharp and ready to share.

> Fused Video Stabilization combines the best of OIS and EIS, shows great results in camera motion smoothing and motion blur reduction, and corrects both rolling shutter and focus breathing. With Fused Video Stabilization on the Pixel 2 and Pixel 2 XL, you no longer have to carefully place the phone before recording, hold it firmly over the entire recording session, or carry a gimbal mount everywhere. The recorded video will always be stable, sharp, and ready to share.

Source: https://ai.googleblog.com/2017/11/fused-video-stabilization-on-pixel-2.html

88. The Accused Infringing Devices captures a video clip as soon as a user hits shutter button. This video clip is a sequence of frames of lower resolution.

> **Camera Motion Estimation by Combining Hardware and Software**
> The image and video pair that is captured every time you hit the shutter button is a full resolution JPEG with an embedded 3 second video clip. On the Pixel 2, the video portion also contains motion metadata that is derived from the gyroscope and optical image stabilization (OIS) sensors to aid the trimming and stabilization of the motion photo. By combining software based visual tracking with the motion metadata from the hardware sensors, we built a new hybrid motion estimation for motion photos on the Pixel 2.

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html

> Motion Photos do exactly what the name suggests: They capture frames before and after your image, so your picture appears to be moving. Previously, users had two options: "Save as still photo" or "Save as video." But now, if you open the "Export" menu, "Export as GIF" is a third option.

Source: https://www.engadget.com/2018/03/07/google-pixel-2-motion-photos-gifs/

89. The Accused Infringing Devices estimate motion in consecutive frames to stablize photos. The Accused Infringing Devices analyze the visual data from video frames to yield motion vectors.

> The purely software-based technique we introduced in Motion Stills uses the visual data from the video frames, detecting and tracking features over consecutive frames yielding motion vectors. It then classifies the motion vectors into foreground and background using motion models such as an affine transformation or a homography. However, this classification is not perfect and can be misled, e.g. by a complex scene or dominant foreground.

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html,

90. Motion Photos uses Motion Stills technology, which monitors transition between frame pairs to achieve motion stillness.

> We are also going beyond stabilization to bring you fully automatic cinemagraphs. After freezing the background into a still photo, we analyze our result to optimize for the perfect loop transition. By considering a range of start and end frames, we build a matrix of transition scores between frame pairs. A significant minimum in this matrix reflects the perfect transition, resulting in an endless loop of motion stillness.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html.

91. The Accused Infringing Devices creates high resolution video sequence from low resolution input using RAISR technology.

> **Enhance! your videos with better detail and loops**
>
> Last month, we published the details of our state-of-the-art RAISR technology, which employs machine learning to create super-resolution detail in images. This technology is now available in Motion Stills, automatically sharpening every video you export.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html

92. To identify objects in images, Motion Stills classifies frames into foreground and background. This classification is done using motion metadata. The motion metadata is used to assist in applying super resolution to objects to create high resolution video.

> "Privacy Blur", and made it run even faster on your device. How? We first create motion metadata for your video by leveraging machine learning to classify foreground/background features as well as to model temporally coherent camera motion. We then take this metadata, and use it as input to an algorithm that can track individual objects while discriminating it from others. The algorithm models each object's state that includes its motion in space, an implicit appearance model (described as a set of its moving parts), and its centroid and extent, as shown in the figure below.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html

93. Motion Stills technology creates still sequence of pictures of good quality from shaky and blurred pictures using the motion vectors which are generated from motion estimation and video clip. Motion photos classifies motion vectors by using complex motion estimation models.

> To keep the background steady while looping, Motion Stills has to separate the background from the rest of the scene. This is a difficult task when foreground elements occlude significant portions of the video, as in the example below. Our novel method classifies motion vectors into foreground (red) and background (green) in a temporally consistent manner. We use a cascade of motion models, moving our motion estimation from simple to more complex models and biasing our results along the way.

Source: https://ai.googleblog.com/2016/06/motion-stills-create-beautiful-gifs.html

94. The Accused Infringing Devices capture a sequence of frames and encodes it as a video clip. The Accused Infringing Devices also captures a full resolution image and encode it using JPEG encoding. The video portion contains motion metadata from gyroscope and OIS sensors.

> **Camera Motion Estimation by Combining Hardware and Software**
> The image and video pair that is captured every time you hit the shutter button is a full resolution JPEG with an embedded 3 second video clip. On the Pixel 2, the video portion also contains motion metadata that is derived from the gyroscope and optical image stabilization (OIS) sensors to aid the trimming and stabilization of the motion photo. By combining software based visual tracking with the motion metadata from the hardware sensors, we built a new hybrid motion estimation for motion photos on the Pixel 2.

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html.

95. Motion Sills uses visual data from video frames to generate motions vectors which are used for foreground and background classification.

> The purely software-based technique we introduced in Motion Stills uses the visual data from the video frames, detecting and tracking features over consecutive frames yielding motion vectors. It then classifies the motion vectors into foreground and background using motion models such as an affine transformation or a homography. However, this classification is not perfect and can be misled, e.g. by a complex scene or dominant foreground.

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html

96. The Accused Infringing Devices also support Google photos. To play the stored video, the encoded video is decoded for processing. Decoded video is trimmed to render a stablized output in real time using a GPU.

> Once we have accurately estimated the background motion for the video, we determine an optimally stable camera path to align the background using linear programming techniques outlined in our earlier posts. Further, we automatically trim the video to remove any accidental motion caused by putting the phone away. All of this processing happens on your phone and produces a small amount of metadata per frame that is used to render the stabilized video in real-time using a GPU shader when you tap the Motion button in Google Photos. In addition, we play the video starting at the exact timestamp as the HDR+ photo, producing a seamless transition from still image to video.

Source: https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html

97. Motion Stills also creates sharp and stable sequence of frames from low resolution video frames by using RAISR technology on video frames.

98. Motion Stills also uses super resolution to improve the resolution of individual frames in the video to be exported. To track individual objects in individual frames, Motion Stills uses motion metadata as input to an algorithm.

> **Enhance! your videos with better detail and loops**
>
> Last month, we published the details of our state-of-the-art RAISR technology, which employs machine learning to create super-resolution detail in images. This technology is now available in Motion Stills, automatically sharpening every video you export.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html

> "Privacy Blur", and made it run even faster on your device. How? We first create motion metadata for your video by leveraging machine learning to classify foreground/background features as well as to model temporally coherent camera motion. We then take this metadata, and use it as input to an algorithm that can track individual objects while discriminating it from others. The algorithm models each object's state that includes its motion in space, an implicit appearance model (described as a set of its moving parts), and its centroid and extent, as shown in the figure below.

Source: https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html

99. The exported video is stable, sharp and of high quality than that of shot video.

> Fused Video Stabilization combines the best of OIS and EIS, shows great results in camera motion smoothing and motion blur reduction, and corrects both rolling shutter and focus breathing. With Fused Video Stabilization on the Pixel 2 and Pixel 2 XL, you no longer have to carefully place the phone before recording, hold it firmly over the entire recording session, or carry a gimbal mount everywhere. The recorded video will always be stable, sharp, and ready to share.

Source: https://ai.googleblog.com/2017/11/fused-video-stabilization-on-pixel-2.html

100. Google has directly infringed and continues to directly infringe one or more claims of the '154 Patent in the United States during the pendency of the '154 Patent, including at least claim 1 literally and/or under the doctrine of equivalents, by or through making, using, offering for sale and/or selling the Accused Infringing Devices that operate as described above.

101. In addition, should the Accused Infringing Devices be found to not literally infringe claims of the '154 Patent, use of the devices would nevertheless infringe one or more claims of the '154 Patent. More specifically, the devices perform substantially the same function (creating high-resolution still pictures from lower-resolution pictures and estimated motion) in substantially the same way (generating motion vectors by subjecting a sequence of pictures to motion-compensated predictive encoding) to yield substantially the same result (a high-resolution still picture). Google would thus be liable for direct infringement under the doctrine of equivalents.

102. Google has indirectly infringed and continues to indirectly infringe at least claim 1 of the '154 Patent in this judicial district and elsewhere in the United States by, among other things, actively inducing the using, offering for sale or sell1ing the Accused Infringing Devices. Google's customers who use such devices in accordance with Google's instructions directly infringe one or more of claims of the '154 Patent in violation of 35 U.S.C. § 271. Google directly and/or indirectly intentionally instructs its customers to infringe through training videos, demonstrations, brochures, installation and/or user guides such as those located at one or more of the following:

- https://ai.googleblog.com/2018/03/behind-motion-photos-technology-in.html
- https://ai.googleblog.com/2017/07/motion-stills-now-on-android.html

- https://ai.googleblog.com/2016/12/get-moving-with-new-motion-stills.html
- https://ai.googleblog.com/2017/11/fused-video-stabilization-on-pixel-2.html

103. Google has indirectly infringed and continues to indirectly infringe at least claim 1 of the '154 Patent by, among other things, contributing to the direct infringement by others including, without limitation customers using the Accused Infringing Devices, by making, offering to sell, selling and/or importing into the United States, a component of a patented machine, manufacture or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringing the '154 Patent and not a staple article or commodity of commerce suitable for substantial non-infringing use.

104. Google has been on notice of the '154 Patent since at least 2015. Since 2015, the'154 has been referenced in the following eleven Google Patents: 8,929,459; 9,094,681; 9,167,268; 9,247,257; 9,344,742; 9,369,732; 9,380,298; 9,544,587; 9,628,790; 9,756,346; and 9,781,447. Google will have been on even further notice of the '154 Patent, at the latest, since the service of this complaint upon Google. By the time of trial, Google will have known and intended (since receiving such notice) that its continued actions would actively induce and contribute to the infringement of one or more of claims of the '154 Patent.

105. Google may have infringed the '154 Patent through other devices, systems, and software utilizing the same or reasonably similar functionality as described above. Uniloc reserves the right to discover and pursue all such additional infringing software and devices.

106. Uniloc has been damaged by Google's infringement of the '154 Patent.

PRAYER FOR RELIEF

Uniloc requests that the Court enter judgment against Google as follows:

(A) declaring that Google has infringed the '154 Patent;

(B) awarding Uniloc its damages suffered as a result of Google's infringement of the '154 Patent pursuant to 35 U.S.C. § 284;

(C) awarding Uniloc its costs, attorneys' fees, expenses and interest; and

(D) granting Uniloc such further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Uniloc hereby demands trial by jury on all issues so triable pursuant to Fed. R. Civ. P. 38.

Dated: October 31, 2018

Respectfully submitted,

By: /s/ James L. Etheridge

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