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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

INTELLECTUAL PIXELS LIMITED,
Plaintiff,
v.
SONY INTERACTIVE
ENTERTAINMENT LLC;
Defendant.

Case No. 8:19-CV-01432-JVS-KES
**FIRST AMENDED COMPLAINT
FOR PATENT INFRINGEMENT**
DEMAND FOR JURY TRIAL

1 1. Plaintiff Intellectual Pixels Limited (“IPL” or “Plaintiff”) hereby
2 submits this First Amended Complaint against Defendant Sony Interactive
3 Entertainment LLC (“SIE” or “Defendant”) and states as follows:

4 **NATURE OF THE ACTION**

5 2. Online video gaming is a multi-billion dollar industry in the United
6 States with tens of millions of Americans playing online games on a variety of
7 devices. As video games have become more sophisticated with higher graphical
8 demands, gaming companies have been searching for new technological solutions to
9 deliver these games to any consumer device, while minimizing user-related issues
10 with regard to compatibility and the playability of the games.

11 3. As a result, video gaming industry leaders have increasingly begun to
12 move their games to the “cloud” so that users can stream games from a server to
13 game consoles and other non-traditional gaming platform devices like tablets and
14 smartphones. Similarly, it has become desirable to offer solutions that enhance the
15 portability of the game, by streaming games from one device, say a console, to
16 another device like a smartphone or a tablet.

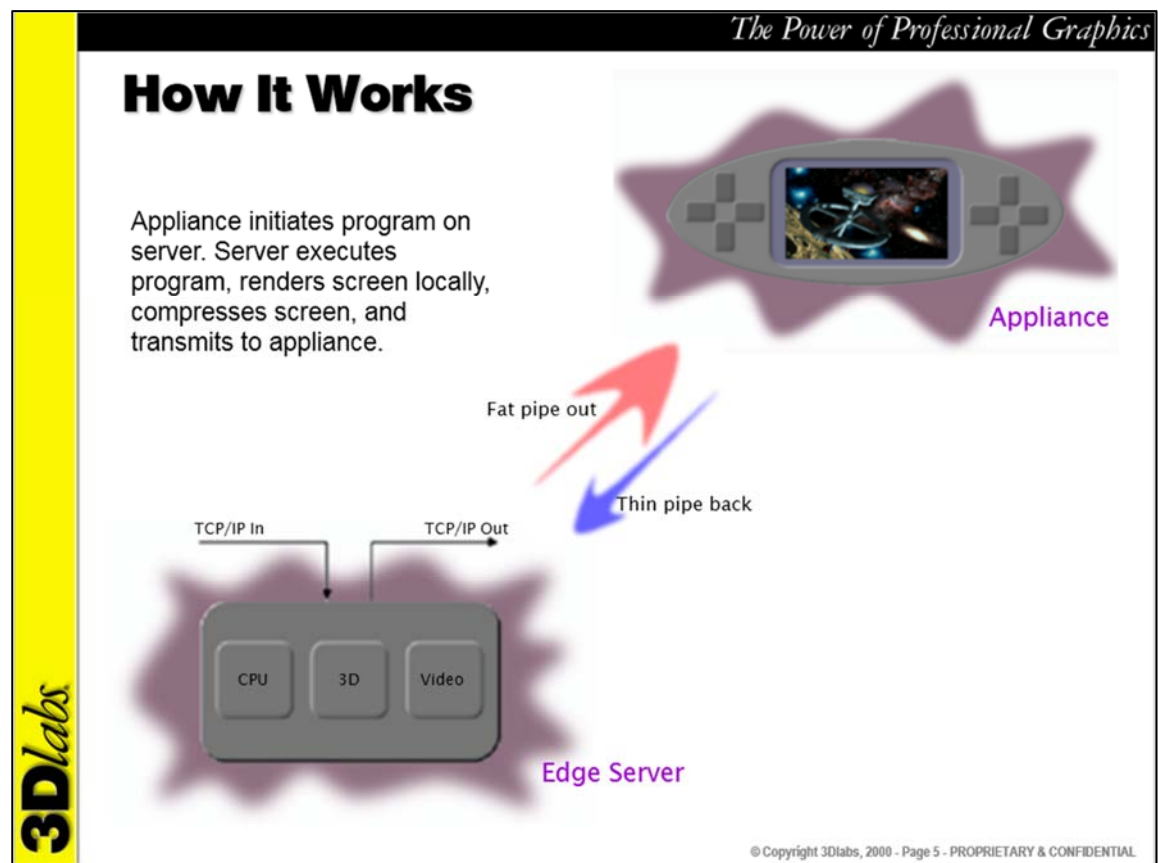
17 4. Streaming video games from the cloud has a number of advantages. One
18 of those advantages is that players can avoid having to download the games (which
19 can be very large and frequently updated with large software patches) to their local
20 device, saving time and conserving local storage. In addition, the ability to play
21 games streamed from a visual server in the cloud or streamed from a console or a PC
22 at the home allows users to play those games on devices which would have been
23 underpowered or otherwise be simply incompatible with the game software. For
24 example, streaming allows a game specifically designed to run on a high-end, special-
25 purpose game console to be played on a Windows PC or smartphone.

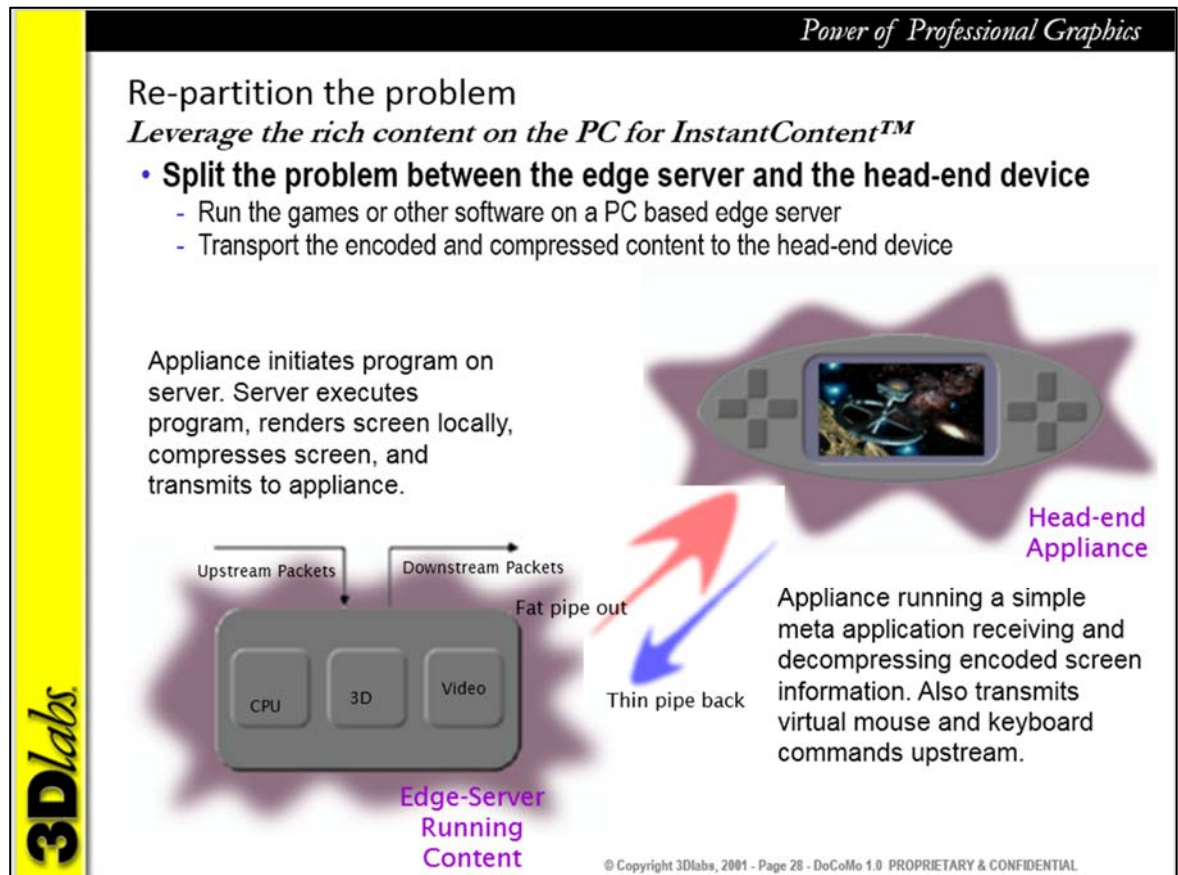
26 5. Cloud-gaming has dominated recent gaming conferences with industry
27 leaders like SIE and others competing to top each other with new announcements and
28 rollouts centered on the ability to play video games on the cloud. Streaming games

from the cloud or a local server at the home (like a game console) have been gaining momentum since around 2014. As reflected in the popular press, the ultimate objective for these industry efforts is to become the “Netflix” for games.

6. But decades before SIE and others started touting cloud gaming as the new frontier, pioneers in the field of graphics processing invented the fundamental technologies for enabling cloud gaming and streaming graphics applications.

7. 3Dlabs Inc., Ltd. (“3Dlabs”)—a leading developer of graphics processing units (GPU’s) in the late 1990’s and early 2000’s—recognized the enormous advantages of being able to stream graphics applications (including games) from a server or cloud to a remote client device in the late 1990’s. Excerpts below from confidential 3Dlabs presentations from 2000 and 2001 provide an overview of the 3Dlabs’ solution.





8. Co-founder and CEO of 3Dlabs Osman Kent along with David Baldwin and Nicholas Murphy—3Dlabs’ chief architects of graphics processing units—developed and patented this groundbreaking technology. The patents now belong to IPL, which is co-owned by the original founders of 3Dlabs.

9. The IPL patents are foundational patents in the cloud-gaming and streaming graphics applications space, and have been repeatedly cited in the industry, including in the gaming patents owned by SIE, and in the original patents filed by Gaikai, a company that SIE purchased when it decided to enter the cloud-gaming market.

10. SIE has been seeking to capitalize on the revolutionary technology that IPL and the inventors developed.

THE PARTIES

11. IPL is a company registered in the United Kingdom, with registration number 11840479. IPL's principal place of business is located at St. Anns Court, St. Anns Hill Road, Chertsey, Surrey, UK KT16 9NW.

12. IPL is the assignee and owner of the patents at issue in this action, United States Patent Nos. 7,587,520 (the "'520 Patent"), 8,131,826 (the "'826 Patent"), 8,667,093 (the "'093 Patent"), and 9,699,238 (the "'238 Patent") (collectively, the "Patents-in-Suit").

13. The technology underlying the Patents-in-Suit was developed by 3Dlabs, which was publicly traded on the NASDAQ exchange at the time. 3Dlabs was a prominent developer of graphics processing units (GPU's) in the late 1990's and early 2000's. In 2002, 3Dlabs was acquired by Creative Technology Ltd. ("Creative"), which was also publicly traded on the NASDAQ exchange at that time. Creative, a longtime business partner of 3Dlabs, was and is a leader in the design, manufacture, and distribution of digitized sound and video boards and related multimedia and personal digital entertainment products. The inventors of the Patents-in-Suit were Osman Kent, a co-founder and chief executive officer of 3Dlabs, and David Baldwin and Nicholas Murphy, both chief architects of GPUs at 3Dlabs. Subsequently, the Patents-in-Suit were assigned to Creative. Eventually, the Patents-in-Suit were assigned to IPL, which is co-owned by the original founders of 3Dlabs. Although never commercialized by 3Dlabs or Creative, the concept of cloud gaming and streaming other graphics applications from a server or the cloud to a client device was considered one of the most valuable inventions developed by 3Dlabs.

14. Sony Interactive Entertainment LLC is a California entity with a registered agent at CSC Lawyers Incorporating Service, 2710 Gateway Oaks Drive, Suite 150N, Sacramento, CA 95833-3505. On information and belief, SIE is a wholly owned subsidiary of Sony Corporation, a Japanese entity with its principal place of business located at 1-7-1 Konan, Minato-Ku, 108-0075, Japan. Sony Corporation is

1 a Japanese multinational conglomerate corporation headquartered in Kōnan, Minato,
2 Tokyo. (<https://www.playstation.com/en-us/corporate/about/>, last visited July 17,
3 2019).

4 15. SIE “is responsible for the PlayStation brand and family of products.
5 PlayStation has delivered innovative products to market since the launch of the first
6 PlayStation in Japan in 1994. The PlayStation family of products and services
7 includes PlayStation 4, PlayStation VR, PlayStation Store, PlayStation Now,
8 PlayStation Vita, and PlayStation Vue. SIE also oversees Worldwide Studios, which
9 is responsible for developing exclusive, world-class games for PlayStation.”
10 (<https://www.playstation.com/en-us/corporate/about/>, last visited July 12, 2019).
11 PlayStation games are streamed by PlayStation Now servers to Sony PlayStation 4
12 consoles and to PCs that are loaded with suitable client software provided by Sony.
13 PlayStation games also may be streamed from Sony PlayStation 4 consoles to PCs
14 and Mac computers, the PlayStation Vita handheld game player, Sony Xperia phones
15 and tablets, and certain iOS devices, including iPhones and iPads loaded with the
16 Remote Play application provided by Sony.

17 **JURISDICTION AND VENUE**

18 16. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331
19 and 1338(a) because this action arises under the patent laws of the United States, 35
20 U.S.C. §§ 101 *et seq.*

21 17. Venue is proper in the Central District of California, Southern Division
22 because Defendant has committed acts of infringement in Orange County and has a
23 regular and established place of business in Aliso Viejo, California, where the
24 infringing technology relative to PlayStation Now and Sony Remote Play was
25 developed and, on information and belief, continues to be managed. Defendant’s acts
26 of infringement include making, using, and selling its PlayStation Now game
27 streaming service, hosting PlayStation games on the PlayStation Now server, and
28 making, using, and selling the Remote Play feature in with PS4 consoles, PS4 games,

1 and various Sony and third party client devices that have the appropriate Sony client
2 software.

3 18. In 2012, Sony Computer Entertainment (“SCE”) acquired the cloud-
4 based gaming company Gaikai Inc. (“Gaikai”), located in Aliso Viejo, California, for
5 approximately \$380 million.

6 ([https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-](https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-gaming-startup-gaikai-for-380-million/#695731696fbc)
7 [gaming-startup-gaikai-for-380-million/#695731696fbc](https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-gaming-startup-gaikai-for-380-million/#695731696fbc), last visited July 12, 2019).

8 At the time of the Gaikai acquisition, SCE stated that it would “establish a new cloud
9 service, ensuring that it continues to provide users with truly innovative and
10 immersive interactive entertainment experiences.” That new cloud service, based on

11 Gaikai streaming technology, was and is marketed as PlayStation Now.

12 (<https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/>, last
13 visited July 12, 2019); ([https://www.geek.com/games/gaikai-streaming-becomes-](https://www.geek.com/games/gaikai-streaming-becomes-playstation-now-available-this-summer-1581518/)

14 [PlayStation-now-available-this-summer-1581518/](https://www.geek.com/games/gaikai-streaming-becomes-playstation-now-available-this-summer-1581518/), last visited July 12, 2019);
15 ([https://www.gamespot.com/gallery/google-stadia-playstation-now-and-more-](https://www.gamespot.com/gallery/google-stadia-playstation-now-and-more-cloud-gamin/2900-2647/2/)

16 [cloud-gamin/2900-2647/2/](https://www.gamespot.com/gallery/google-stadia-playstation-now-and-more-cloud-gamin/2900-2647/2/), last visited July 12, 2019);
17 (<https://www.wired.com/2014/01/playstation-now/>, last visited July 12, 2019). At

18 that time, SCE’s President promised that the company would “deliver a world-class
19 cloud-streaming service that allows users to instantly enjoy a broad array of content

20 from immersive core games with rich graphics to casual content anytime, anywhere
21 on a variety of internet-connected devices.” ([https://www.prnewswire.com/news-](https://www.prnewswire.com/news-releases/sony-computer-entertainment-to-acquire-gaikai-inc-a-leading-interactive-cloud-gaming-company-161042365.html)

22 [releases/sony-computer-entertainment-to-acquire-gaikai-inc-a-leading-interactive-](https://www.prnewswire.com/news-releases/sony-computer-entertainment-to-acquire-gaikai-inc-a-leading-interactive-cloud-gaming-company-161042365.html)
23 [cloud-gaming-company-161042365.html](https://www.prnewswire.com/news-releases/sony-computer-entertainment-to-acquire-gaikai-inc-a-leading-interactive-cloud-gaming-company-161042365.html), last visited July 12, 2019).

24

25 19. SIE resulted from the combination of SCE and other Sony properties,
26 centralizing various gaming hardware, software, and services. “In April 2016, Sony

27 Computer Entertainment Inc. (“SCEI”) and Sony Network Entertainment

28 International LLC (“SNEI”) founded Sony Interactive Entertainment LLC (“SIE”), a

new company that combined all the business units belonging to SCEI and SNEI,

1 including hardware, software, content and network services operations.”
 2 (https://www.sony.net/SonyInfo/IR/library/FY2016_20F_PDF.pdf, last visited July
 3 17, 2019). The cloud-streaming service developed by Gaikai underlies the accused
 4 functionalities in this case.

5 20. Gaikai is the assignee of U.S. Patent No. 8,147,339 (the “Gaikai
 6 Patent”), titled “Systems and Methods of Serving Game Video.” The Gaikai Patent
 7 post-dates IPL’s patents.

8 21. On information and belief, the Defendant’s PlayStation Now and
 9 Remote Play incorporate certain technology disclosed in the Gaikai Patent.

10 22. SIE is the current assignee of the Gaikai Patent.

11 23. At the time of the acquisition, Gaikai was located in Aliso Viejo,
 12 California. On information and belief, Gaikai’s Aliso Viejo facility became a Sony
 13 facility, and thereafter, Gaikai employees became SIE employees. SIE currently lists
 14 job openings for positions in Aliso Viejo ([https://www.playstation.com/en-](https://www.playstation.com/en-us/corporate/about/careers/)
 15 [us/corporate/about/careers/](https://www.playstation.com/en-us/corporate/about/careers/), last visited July 12, 2019), including jobs related to
 16 network operations management and control for cloud-based applications, cloud
 17 gaming engineering and infrastructure, and cloud back-end engineering. For
 18 example, the job listing for Sr. Network Operations Engineer (NetDevOps) at Sony
 19 Interactive Entertainment PlayStation identifies Aliso Viejo, CA as the location for
 20 the position. The listing states in part:

21 Sony Interactive Entertainment, Playstation is leading the cloud gaming
 22 revolution, putting console-quality video games on any device.

23 As a primary member of the Network Engineering team you will be
 24 responsible for the **development, support and mid to long term**
 25 **considerations of an advanced global IP network that adheres to the**
 26 **highest standards to provide robust, low latency game streaming**
 27 **services to PlayStation Now customers around the globe.** You will
 28 help contribute to an automation first operations team (DevOps) to
 increase our efficiencies and ability to scale.

27 (<https://boards.greenhouse.io/sonyinteractiveentertainmentplaystation/jobs/1724883>
 28 , last visited July 12, 2019) (emphasis added). The former Gaikai facility has been

1 and continues to be a regular and established place of business of the Defendant in
2 Orange County.

3 24. The inventor of the Gaikai Patent is David Perry. Mr. Perry served as
4 the CEO of Gaikai at the time it was acquired by SCE. After the acquisition, Mr.
5 Perry served as an employee of Sony Computer Entertainment America LLC until he
6 left the company in June 2017. (<https://www.linkedin.com/in/dperry>, last visited July
7 12, 2019). In a 2014 interview, Mr. Perry stated, “Just to be very clear, we only do
8 two things for Sony. We focus on cloud gaming and remote play.”
9 ([https://www.gameinformer.com/b/features/archive/2014/09/17/gaikai-playstation-](https://www.gameinformer.com/b/features/archive/2014/09/17/gaikai-playstation-now.aspx?PostPageIndex=1)
10 [now.aspx?PostPageIndex=1](https://www.gameinformer.com/b/features/archive/2014/09/17/gaikai-playstation-now.aspx?PostPageIndex=1), last visited July 12, 2019).

11 **THE PATENTS-IN-SUIT**

12 25. The inventions disclosed and claimed in the Patents-in-Suit provide
13 numerous benefits over then-existing graphics rendering systems by implementing
14 an architecture that moves the graphics processing and generation of graphic images
15 to a remotely-located server and away from the client device where the user is playing
16 a video game or utilizing a graphics application.

17 26. First, the inventions allow one or more client devices to share a single
18 remote GPU on a server that performs graphics processing and generates images
19 streamed to client devices. Because the generation of the graphic images (which often
20 are in three dimensions) are performed at the server rather than on client devices,
21 multiple client devices may use the resources of a single powerful GPU – either
22 concurrently or allocated on a per session basis. This minimizes the time a user’s
23 device must spend on graphics processing locally while still providing the benefit of
24 high-performance gaming by leveraging the remote GPU located on a server. As the
25 patents explain, under prior systems, “additional hardware increases the cost of the
26 client hardware as the graphics hardware must be incorporated and integrated
27 therewith.” ’520 Patent at 2:53-55.

1 27. Second, the invention allows those end users who have client devices
2 with even minimal graphics computing capabilities access to high-end graphics
3 processing, including three-dimensional real-time graphics processing. By
4 performing graphics processing at the server rather than at the client, there is no need
5 for each client device to have the most recent GPU chip, or in some instances, to have
6 a GPU at all. Without the patented technology, “for reasons of cost, size, and power
7 consumption, sophisticated three-dimensional graphics are not available on common
8 consumer client devices such as personal digital assistants (PDAs) mobile telephones
9 and set-top boxes used to decode cable and satellite television signals.” ’520 Patent
10 at 3:3-7.

11 28. Third, and relatedly, the invention solves issues related to software
12 compatibility by allowing software to run at the server level when the client devices
13 might not otherwise be able to execute the software because of instruction set or
14 operating system limitations of the client device. For example, the invention provides
15 “the ability to provide access to industry standard software on a device which is
16 unable to execute that software.” ’093 Patent at 9:13-15. By streaming video game
17 images to a client device, it is not necessary that the client device be at all compatible
18 with the video game or the graphics application that is being run on the server.

19 29. Fourth, the invention allows end users to play games without first
20 needing to download the game to the client device. Downloading games and their
21 frequent large updates requires significant time and storage resources and creates a
22 substantial hindrance to the user enjoying a new game instantly. By maintaining
23 games at the server level and only transmitting the generated images to the client
24 device, time and memory are conserved. Users can maintain control of the game
25 through their user control inputs, while the game processing and image generation is
26 performed remotely on a server.

27 30. Fifth, the Patents-in-Suit centralize and streamline GPU and software
28 maintenance. As the patents explain, “the software and hardware used to generate 3D

1 images is in constant flux, and the system must be continually upgraded.” ’520 Patent
2 at 2:55-58. Upgrades on the client devices as faster graphics processing chips and
3 components become commercially available impose additional costs and burdens on
4 users. *Id.* at 2:57-58. Further, “remote hardware impedes the central maintenance and
5 coordination of configurations of client software, which is an important capability
6 and critical to the product viability of many applications.” *Id.* at 2:59-62. The
7 disclosed invention, by maintaining the GPU and associated software at the server,
8 calls for fewer GPUs needed at the client level to monitor, maintain and upgrade,
9 further reducing cost. Further, the user’s experience is enhanced because she does
10 not need to continually update software in order to play the latest version of the game.

11 31. The inventors had to address and overcome a number of technological
12 hurdles in order to transfer graphics processing from a client device to a separate
13 server capable of handling graphics processing for multiple client devices. For
14 example, the inventors needed to address the manner in which latency should be
15 reduced relative to the interactive graphics applications, the manner in which the
16 exchange of user control inputs and images should be synchronized between the
17 client device and server, the manner in which graphics processing for different client
18 devices should be handled, and the manner in which the client and server devices
19 should be configured to support the remote processing of the control inputs and the
20 images produced in response to those inputs. To support the ability to virtualize the
21 GPU (*i.e.*, making a single physical GPU look like many virtual GPUs), 3Dlabs
22 developed GPUs with very fast context save and restore capabilities so that
23 application threads associated with different client devices would behave as if they
24 had exclusive access to the GPU.

25 32. In certain instances, the Asserted Patents specify that the client device
26 sends user input signals (or “image-modifying data”) based upon a predetermined
27 duration, and/or for the server to generate and send an image based on a
28 predetermined duration. This period may include a frame rate for providing images

1 to the client to reduce latency and improve quality of the video/animation provided
2 to the user. The exchange of user control inputs may also be transmitted based on a
3 period predetermined by the system. In this manner, the user input signals and the
4 generated images may be able to be synced to produce a higher quality user
5 experience.

6 33. Other claims require a client to transmit a link that identifies the client
7 device to the server. This operation allows the server to allocate resources among
8 different clients. In addition, by identifying the client device and its characteristics,
9 the server is able to authenticate the client device, establish that it remains connected,
10 and provide the optimal format for delivering the image output to minimize the
11 transmission to and processing at the client device.

12 34. Other claims require that the server provides three-dimensional
13 graphical images for complex interactive games without requiring the client device
14 to perform any of the three-dimensional graphics processing, making it clear that the
15 server is running and maintaining the game state for a particular game application
16 and performing all of the three-dimensional graphics processing for each client
17 device for that game. Having the server perform all the three-dimensional processing
18 for a game provides a consistent user experience on each client device.

19 35. These and other features of the claimed invention provided a significant
20 advance over the existing approach of requiring each client device to handle its own
21 graphics processing.

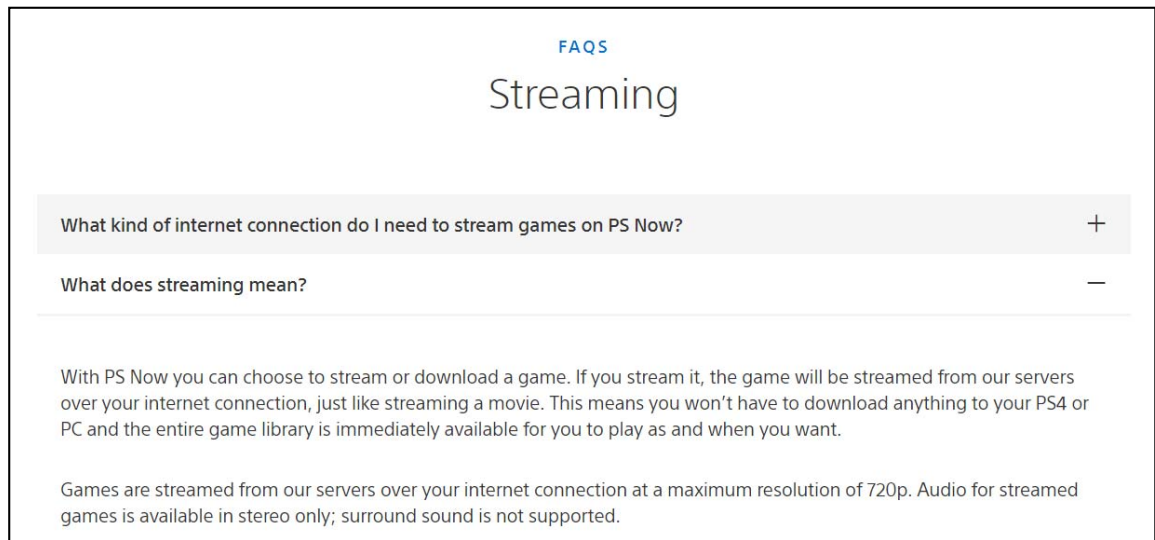
22 **THE PLAYSTATION NOW AND SONY REMOTE PLAY SYSTEMS**

23 36. The PlayStation Now system includes Sony game servers with
24 appropriate server software located in datacenters at strategic locations that are
25 configured to play a supported PlayStation video game at the request of one or more
26 client devices equipped with PlayStation Now client software. Devices that are
27 currently capable of operating as PlayStation clients include PS4 consoles and PCs
28 equipped with a Sony PlayStation Now app. Prior to February 2017, PlayStation

1 client devices also included certain Sony televisions, including the Sony Bravia TVs,
2 the PlayStation TV, the Sony Vita, the PS3, and certain Sony Blu-ray players.
3 ([https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv)
4 [vita-tv](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv), last visited July 12, 2019). Sony charges a subscription fee for customers to
5 play PlayStation video games using the PlayStation Now system.

6 37. The PlayStation Now system and service is based on technology
7 developed by Gaikai, which Sony purchased for \$380 million.
8 ([https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-](https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-gaming-startup-gaikai-for-380-million/#695731696fbc)
9 [gaming-startup-gaikai-for-380-million/#695731696fbc](https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-gaming-startup-gaikai-for-380-million/#695731696fbc), last visited July 12, 2019).
10 PlayStation Now was launched, at least in part, based on the inability of the newly
11 launched PS4 consoles to play older PS3 games.
12 ([https://www.geek.com/games/gaikai-streaming-becomes-PlayStation-now-](https://www.geek.com/games/gaikai-streaming-becomes-PlayStation-now-available-this-summer-1581518/)
13 [available-this-summer-1581518/](https://www.geek.com/games/gaikai-streaming-becomes-PlayStation-now-available-this-summer-1581518/), last visited July 21, 2019). Because of this lack of
14 backwards capability with its prior PlayStation games, Sony launched the PlayStation
15 Now system and service so customers of the PS4 consoles would be able to play the
16 older, but much more numerous, PS3 games.

17 38. The PlayStation Now system and service operates by having the
18 PlayStation Now server perform all or substantially all of the graphics processing for
19 a particular game being played on a client device (currently a PS4 or PC with
20 appropriate Sony software). The image is generated based on the player commands
21 that are generated on separate client devices using a Sony DualShock game controller
22 and transmitted to the server via a high-speed Internet connection. Once the image is
23 generated by the server, it is compressed and transmitted to the client device. The
24 client devices do not perform any additional 3D graphics processing on the images
25 provided by the server, but instead only decompress the compressed images and
26 display them as they arrive at the client device.



(<https://www.playstation.com/en-gb/explore/playstation-now/how-it-works/>, last visited July 21, 2019).

39. The Sony Remote Play system and service includes a PlayStation 4 console acting as a server that streams PlayStation 4 games to a client device. Supported client devices include a PC or Mac with suitable Sony Remote Player software, the Sony Vita handheld game device, Sony Xperia phones and tablets, and certain Apple devices (including iPhones and iPads) with compatible Sony Remote Player software. These client devices accept player commands from a Sony DualShock game controller or through an on-screen interface through which the PlayStation game may be played.

40. The Sony Remote Play system and service are based on Gaikai technology, *see* (https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1_everage_Gaikais_cloud.php, last visited July 12, 2019), except that a PlayStation 4 operates as the server and generates images based on player commands from the client devices that are received over a local area network connection, or in some instances, over the Internet. The PlayStation 4 console compresses the generated

1 images and transmits them to the client devices over the network connection (the
2 local area network or Internet).

3 **INFRINGEMENT OF U.S. PATENT NO. 7,587,520**

4 41. On September 8, 2009, U.S. Patent No. 7,587,520 was duly and legally
5 issued for inventions entitled “Image Display System with Visual Server.” IPL was
6 assigned the ’520 Patent and continues to hold all rights and interests in the ’520
7 Patent. The ’520 Patent was filed on January 4, 2002 as Application No. 10/037,688
8 and claims priority to Provisional Application 60/263,854, filed on January 24, 2001.
9 A true and correct copy of the ’520 Patent is attached hereto as Exhibit 1.

10 42. Defendant has directly infringed and continues to directly infringe at
11 least claims 1-9 of the ’520 Patent by its manufacture, use, and sale of its PlayStation
12 Now game streaming service, and through its hosting of PlayStation games on the
13 PlayStation Now server. The infringing components include all PlayStation Now
14 servers and server software and associated Sony and PlayStation client devices and
15 other software that supports PlayStation Now. Defendant also performs the claimed
16 method by making available and hosting PlayStation games via the PlayStation Now
17 service. PlayStation Now is a service that allows subscribers to play various
18 PlayStation games online through an online subscription. Defendant maintains
19 control over both the server and client components of the PlayStation Now network,
20 and in at least some instances, provides both the server-side hardware and software
21 and client-side hardware and software. Individual users may access the PlayStation
22 Now network through either a PS4 console or a compatible PC with a PlayStation
23 DualShock controller. In addition, Sony also made the PlayStation Now service
24 available to the PlayStation Vita, certain Sony Bravia television models, Sony Blu-
25 ray player models, and PS3 consoles. ([https://gamerant.com/sony-playstation-now-](https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/)
26 [gaikai-cloud-gaming-ps3-ps4/](https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/), last visited July 12, 2019);
27 ([https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv)
28 [vita-tv](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv), last visited July 12, 2019). Commands entered by game players on their

individual client devices are transmitted to central servers, where display images are generated. The generated stream of images is then transmitted back to the client devices and displayed. The games are hosted by servers operated by and/or controlled by Defendant, and for most client devices, those devices are made and sold by Defendant with the purpose of using those devices with the PlayStation Now service.

43. Claim 1 of the '520 Patent is representative for purposes of this First Amended Complaint. Claim 1 requires:

a. "An image display system, comprising:"

i. This limitation is met by Sony's PlayStation Now, which is an image display system. PlayStation Now provides a method of playing interactive games at a client device, such as a PC or PS4 console. The client devices (including the PC and PS4) have an image display on which the game being streamed from the PlayStation Now server is displayed to the user. Defendant advertises that PlayStation Now allows a user to "[s]team [games] directly to your PS4 or PC." (<https://www.playstation.com/en-ca/explore/playstationnow/>, last visited January 7, 2020).

b. "a visual server having image processing capabilities wherein the visual server selectively receives image-modifying data corresponding to a generated image, generate a modified image based upon the image-modifying data, and transmit the modified image as compressed data;"

i. This limitation is met by the PlayStation Now server. The application running on a PlayStation Now server has image processing capabilities and generates 3-dimensional graphics as a compressed stream of images based on the image-modifying data provided by the client device (for example a PS4 console). The image-modifying data corresponds to a generated image because

1 the input control signals are generated at the client device in
2 response to the image being displayed on the image display
3 system at the client device. The client selectively generates and
4 transmits (and the server selectively receives) image modifying
5 data, such as the DUALSHOCK 4 control inputs, or other types
6 of control inputs, to the server while not sending other data not
7 necessary to image modification to the server, such as volume
8 control or brightness inputs. In the past and as part of its
9 infringing conduct, Sony advertised and supported other Sony
10 client devices that could operate as client devices in the
11 PlayStation Now system, in addition to PS4 consoles and PCs
12 running Sony PlayStation Now software. Those other client
13 devices included the PlayStation Vita and Sony Bravia devices.
14 Although Sony no longer currently advertises support for those
15 devices in the PlayStation Now system, they were supported as
16 PlayStation Now client devices during the six-year period
17 predating the filing of the Original Complaint, and therefore form
18 part of the infringing PlayStation Now system during the relevant
19 periods of infringement. The user provides inputs to the game via
20 a controller, such as a DUALSHOCK 4 controller. The visual
21 server is the PlayStation Now's game server.
22 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
23 December 30, 2019; [https://www.finder.com.au/gaming/ps4-](https://www.finder.com.au/gaming/ps4-backwards-compatibility)
24 [backwards-compatibility](https://www.finder.com.au/gaming/ps4-backwards-compatibility), last visited December 30, 2019). The
25 PlayStation Now server runs PlayStation games that are streamed
26 to the client devices as compressed images.
27 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
28

December 30, 2019; <https://www.finder.com.au/gaming/ps4-backwards-compatibility>, last visited December 30, 2019).

- ii. The Gaikai Patent embodies PlayStation Now and Remote Play.
 - iii. The Gaikai Patent explains that the server generates compressed images based on commands received from a player via the player interface. 3:46-55, 4:12-21. Player inputs are provided through a Player Interface to the Game Server, and player inputs received from the client result in updates or changes in the image displayed. *Id.* at 8:4-9, 11:67-12:3, 13:65-14:7. The Game Server has image-modifying capabilities in the form of an Image Generator. *Id.* at Figs. 2, 3. As the Gaikai Patent explains, the server will at least partially render an image based on the current game state, which is updated by the user input received from the client. *Id.* at 15:15-27, Fig. 6. The compressor 340 is illustrated in Figure 3. *See id.* at 11:36-45. The compressed image is delivered from the image generator to the client device. *Id.* at 15:33-38.
- c. “at least one client in selective communication with the visual server, the client including an image display, the client selectively generates image-modifying data and transmits the image-modifying data to the visual server,”
- i. This limitation is met by the PlayStation Now client devices, which include PS4 consoles and compatible PCs with a DUALSHOCK 4 controller. The client selectively generates and transmits image modifying data, such as the DUALSHOCK 4 control inputs, or other types of control inputs, to the server while not sending other data unnecessary to image modification, such as volume control or brightness inputs. In the past and as part of its infringing conduct, Sony advertised and supported other Sony

client devices that could operate as client devices in the PlayStation Now system, in addition to PS4 consoles and PCs running Sony PlayStation Now software. Those other client devices included the PlayStation Vita and Sony Bravia devices. Although Sony no longer currently advertises support for those devices in the PlayStation Now system, they were supported as PlayStation Now client devices during the six-year period predating the filing of the Original Complaint, and therefore form part of the infringing PlayStation Now system during the relevant periods of infringement. The user provides inputs to the game via a controller, such as a DUALSHOCK 4 controller. (<https://www.playstation.com/en-gb/explore/playstation-now/how-it-works/>, last visited December 30, 2019; <https://www.PlayStation.com/en-us/explore/PlayStation-now/devices/>; last visited December 30, 2019).

ii. The Gaikai Patent—which embodies Sony’s streaming services—also explains that the client-side device sends player commands to an application server to generate 3-dimensional graphics. 2:58-3:3. It also describes how the server receives inputs from the Player Interface and converts those inputs “into data that can be provided to Game Server 205 via Network 120.” *Id.* at 11:67-12:3. Player inputs include things such as movement commands. *Id.* at 15:46-52, Fig. 7. The game application running on the server maintains the global game state.

d. “and the client receives as compressed data from the visual server an image modified based upon the transmitted image-modifying data, decompresses the compressed image data, and displays the decompressed image on the client image display,”

- i. The application running on a PlayStation Now server generates 3-dimensional graphics, which are generated based on image-modifying data provided by the client device. The compressed stream of images is transmitted to the client device and decompressed at the client device (PS4 or PC) into images for displaying on the client display. (https://dperry.com/2011/02/06/gaikai_is_live/, last visited December 30, 2019; <https://www.eurogamer.net/articles/digitalfoundry-2014-sony-creates-custom-ps3-for-PlayStation-now>, last visited December 30, 2019).
- ii. The Gaikai Patent—which embodies Sony’s streaming services—also explains that the client device receives a compressed image from the game server based on commands from the player, decompresses the compressed image from the server, and displays the decompressed image to the player. 3:46-55, 4:12-23. The client device receives a compressed stream of images from the PlayStation Now servers. *Id.* at 11:36-45. Those images are decompressed (12:4-10, 15:53-60) and displayed at the client device. 15:28-38, 16:6-8.
- e. “wherein the visual server transmits the modified image to the client after predetermined duration of generating an image based upon the transmitted image, modifying data has occurred;”
- i. The PlayStation Now server transmits a modified image to the client device after a predetermined duration. PlayStation Now servers transmit information periodically based on the target frame rate of a game. Testing by trade publications indicates that frame rates for a particular game are identical, regardless of

1 whether the game is played locally on a PlayStation console or by
2 streaming via the PlayStation Now servers.
3 ([https://www.eurogamer.net/articles/digitalfoundry-2015-hands-](https://www.eurogamer.net/articles/digitalfoundry-2015-hands-on-with-playstation-now)
4 [on-with-playstation-now](https://www.eurogamer.net/articles/digitalfoundry-2015-hands-on-with-playstation-now), last visited December 30, 2019). This
5 indicates that PlayStation Now sets a specific frame rate for its
6 PlayStation Now service.

7 f. “and wherein the client transmits the image-modifying data to the visual
8 server after a predetermined duration of generating image-modifying
9 data.”

10 i. The PlayStation Now client devices transmit image-modifying
11 data to the PlayStation Now servers after a predetermined
12 duration. The code that processes video game inputs is tied to the
13 frame rate of the game, which is set by Sony for its PlayStation
14 games. ([https://www.eurogamer.net/articles/digitalfoundry-](https://www.eurogamer.net/articles/digitalfoundry-2015-hands-on-with-playstation-now)
15 [2015-hands-on-with-playstation-now](https://www.eurogamer.net/articles/digitalfoundry-2015-hands-on-with-playstation-now), last visited December 30,
16 2019). A single loop of the game will process inputs from the
17 client device, update the game state, and draw the rendered image.
18 The processing of inputs at the server is tied to the frame rate of
19 the game.

20 ii. Academic literature analyzing Sony’s game streaming services
21 indicates that “upstream packets are sent with certain regularity,”
22 which means input commands are sent on a periodic basis, which
23 would be a predetermined duration. See “Network Analysis of the
24 Sony Remote Play System.”

25 iii. Testing performed by IPL indicated that packets were transmitted
26 from a PlayStation Now client device to a PlayStation Now server
27 at a consistent interval, which indicates the client device transmits
28 image-modifying data at a predetermined duration.

44. Additionally, Defendant has directly infringed and continues to directly infringe at least claims 1-9 of the '520 Patent by making, using, or selling its PlayStation Remote Play and Remote Play app. Remote Play is a feature included with the PlayStation PS4 console and PlayStation video games that allows Sony PlayStation PS4 consoles to transmit their video output to a PC or Mac computer or laptop, a PlayStation Vita handheld video game console, Sony Xperia phones and tablets, and Apple's iPhones and iPads. (<https://www.playstation.com/en-gb/explore/ps4/features/remote-play/>, last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock controller to various devices, including Android devices, Apple computers, Windows PCs, and iOS devices. Both the PS4 console and the user device are connected to a local area network, including a Wifi network or an Ethernet network, and in some instances, the Internet. Defendant maintains control over both the client and server components of the Remote Play network. Commands entered by game players on their individual devices are transmitted to a PS4 console, where display images are generated based on the player commands from the remote client devices. The generated images are then compressed and streamed back to the client devices and displayed. The PlayStation games are hosted by Defendant's PS4 consoles.

45. Claim 1 of the '520 Patent is representative for the purposes of this First Amended Complaint. Claim 1 requires:

a. "An image display system, comprising:"

i. This limitation is met by Remote Play, which includes an image display system for playing interactive games. The games are played at a client device, such as a PC or Mac, a Sony Vita or Xperia phone or tablet, or an iOS device. These devices include an image display on which the game being streamed from the PS4 is displayed to the user. (<https://www.playstation.com/en->

1 gb/explore/ps4/features/remote-play/, last visited December 30,
2 2019).

3 b. “a visual server having image processing capabilities wherein the visual
4 server selectively receives image-modifying data corresponding to a
5 generated image, generate a modified image based upon the image-
6 modifying data, and transmit the modified image as compressed data;”

7 i. In Remote Play, the visual server having image processing
8 capabilities is the PS4 console. The PS4 server receives image
9 modifying data corresponding to a generated image from the
10 client device using a DUALSHOCK 4 controller or other game
11 input signal from one of the remote client devices, including
12 PlayStation Vita control inputs, or other types of control inputs
13 from Sony Xperia devices or supported iOS devices such as an
14 iPhone or iPad. The input control signals in these portable Sony
15 and iOS devices include touchscreen inputs, keyboard inputs, or
16 inputs from other supported peripheral input control devices.
17 Specifically, Sony’s website indicates that Remote Play client
18 devices may receive input control signals from a DUALSHOCK
19 4 controller. ([https://www.sonymobile.com/us/apps-](https://www.sonymobile.com/us/apps-services/remote-play/)
20 [services/remote-play/](https://www.sonymobile.com/us/apps-services/remote-play/), last visited December 30, 2019). The
21 image modifying data corresponds to a generated image because
22 the input control signals are generated at a client device in
23 response to the image being displayed on the image display
24 system of the client device. The client device selectively
25 generates and transmits image modifying data, such as the
26 DUALSHOCK 4 control inputs, PS Vita control inputs, or other
27 types of control inputs, such as touchscreen inputs, keyboard
28 inputs, or peripheral device inputs for other supported Sony and

1 iOS portable phones and tablets, to the server while not sending
2 other data not necessary to image modification to the server, such
3 as volume control or brightness inputs. Based on the image-
4 modifying data, the server generates a modified image and
5 transmits the modified image back to the client device. The
6 modified image transmitted from the server to the client is
7 compressed using, for example, h.264 compression.

8 ii. Additionally, the Gaikai Patent—which embodies Sony’s
9 streaming services—explains that the server generates
10 compressed images based on commands received from a player
11 via the player interface. 3:46-55, 4:12-21. Player inputs are
12 provided through a Player Interface to the Game Server, and
13 player inputs received from the client result in updates or changes
14 in the image displayed. *Id.* at 8:4-9, 11:67-12:3, 13:65-14:7. The
15 Game Server has image-modifying capabilities in the form of an
16 Image Generator. *Id.* at Figs. 2, 3. As the Gaikai Patent explains,
17 the server will at least partially render an image based on the
18 current game state, which is updated by the user input received
19 from the client. *Id.* at 15:15-27, Fig. 6. The compressor 340 is
20 illustrated in Figure 3. *See id.* at 11:36-45. The compressed image
21 is delivered from the image generator to the client device. *Id.* at
22 15:33-38.

23 c. “at least one client in selective communication with the visual server,
24 the client including an image display, the client selectively generates
25 image-modifying data and transmits the image-modifying data to the
26 visual server,”

27 i. PlayStation Remote Play client devices, including PCs and Macs,
28 receive input control signals from a DUALSHOCK 4 controller

1 or other game input signal from one of the remote client devices,
2 including PlayStation Vita control inputs, or other types of
3 control inputs from Sony Xperia devices or supported iOS
4 devices such as an iPhone or iPad. The input control signals in
5 these portable Sony and iOS devices include touchscreen inputs,
6 keyboard inputs, or inputs from other supported peripheral input
7 control devices. The image modifying data generated at the client
8 device corresponds to an image generated by the PlayStation Now
9 console and displayed at the client device. These client devices
10 include an image display in the form of a monitor or display
11 screen at the remote client device. The image modifying data
12 corresponds to a generated image because the input control
13 signals are generated in response to the image being displayed to
14 the user. The client selectively generates and transmits image
15 modifying data pertaining to the PlayStation game being played,
16 such as the DUALSHOCK 4 control inputs, PS Vita control
17 inputs, or other types of control inputs, such as touchscreen
18 inputs, keyboard inputs, or peripheral device inputs, to the server
19 while not sending other data not necessary to image modification
20 to the server, such as volume control or brightness inputs or other
21 inputs directed to the operation of the remote client device not
22 pertinent to game play.

- 23 ii. The Gaikai Patent—which embodies Sony’s streaming
24 services—explains that the client-side device sends player
25 commands to an application server to generate 3-dimensional
26 graphics. 2:58-3:3. It also describes how the server receives
27 inputs from the Player Interface and converts those inputs “into
28 data that can be provided to Game Server 205 via Network 120.”

1 *Id.* at 11:67-12:3. Player inputs include things such as movement
 2 commands. *Id.* at 15:46-52, Fig. 7. The game application running
 3 on the server maintains the global game state.

4 d. “and the client receives as compressed data from the visual server an
 5 image modified based upon the transmitted image-modifying data,
 6 decompresses the compressed image data, and displays the
 7 decompressed image on the client image display,”

8 i. The application running on a PS4 console generates compressed
 9 images based on the image-modifying data transmitted by the
 10 various Remote Play client devices. The client devices
 11 decompress the images streamed from the PS4 console and
 12 display the images on a client image display.
 13 ([https://www.eurogamer.net/articles/digitalfoundry-sony-](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games)
 14 [mandates-vita-remote-play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited December
 15 30, 2019).

16 ii. The Gaikai Patent—which embodies Sony’s streaming
 17 services—explains that the client device receives a compressed
 18 image from the game server based on commands from the player,
 19 decompresses the compressed image from the server, and
 20 displays the decompressed image to the player. 3:46-55, 4:12-23.
 21 The client device receives a compressed stream of images from
 22 the PlayStation Now servers. *Id.* at 11:36-45. Those images are
 23 decompressed (12:4-10, 15:53-60) and displayed at the client
 24 device. 15:28-38, 16:6-8.

25 e. “wherein the visual server transmits the modified image to the client
 26 after predetermined duration of generating an image based upon the
 27 transmitted image, modifying data has occurred;”
 28

- i. The Remote Play server transmits a modified image to the client device after a predetermined duration. Remote Play servers transmit information periodically based on the target frame rate of a game. This indicates that Sony sets a specific frame rate for its Remote Play service.
 - ii. Testing performed by IPL indicated that packets are transmitted from a Remote Play server to a Remote Play client device at a consistent interval, which indicates the server transmits image-modifying data at a predetermined duration.
- f. “and wherein the client transmits the image-modifying data to the visual server after a predetermined duration of generating image-modifying data.”
- i. The Remote Play client devices transmit image-modifying data to the server after a predetermined duration. Client devices transmit information periodically based on the target frame rate of a game. This indicates that Sony sets a specific frame rate for its Remote Play service.
 - ii. Testing performed by IPL indicated that packets are transmitted from a Remote Play client device to a Remote Play server at a consistent interval, which indicates the client device transmits image-modifying data at a predetermined duration.
 - iii. An academic analysis performed on Remote Play concluded that “upstream packets are sent with certain regularity,” which indicates that input commands from the client are sent on a periodic basis, which would be a predetermined duration. *See* “Network Analysis of the Sony Remote Play System.”

46. In addition, Defendant has induced business partners to design PS4 games with Remote Play capabilities and has induced customers to use the Remote

1 Play service provided with the PS4 consoles and with the various client devices
 2 executing the Sony Remote Play client software. These client devices in many
 3 instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia
 4 products. ([https://www.playstation.com/en-au/get-help/help-library/apps---
 5 features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/](https://www.playstation.com/en-au/get-help/help-library/apps---features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/), last visited
 6 July 12, 2019). In fact, on information and belief, Defendant has required that all
 7 PlayStation 4 games must provide support for Remote Play.
 8 ([https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-
 9 play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited July 12, 2019). In addition to the Sony remote client
 10 devices supported by Remote Play, Sony also has induced its business partners,
 11 including Apple, to include software to support Remote Play on certain iOS devices,
 12 including Apple iPhone and iPad devices. Like PlayStation Now, and on information
 13 and belief, the Sony Remote Play feature also is based on Gaikai technology.
 14 ([https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1
 15 everage_Gaikais_cloud.php](https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1), last visited July 12, 2019)

16 47. The acts of infringement by Defendant have caused damage to IPL, and
 17 IPL is entitled to recover from Defendant the damages sustained by IPL as a result
 18 of Defendant's wrongful acts in an amount subject to proof at trial. The infringement
 19 of IPL's exclusive rights under the '520 Patent by Defendant has damaged and will
 20 continue to damage IPL, causing irreparable harm, for which there is no adequate
 21 remedy at law, unless enjoined by this Court.

22 **INFRINGEMENT OF U.S. PATENT NO. 8,131,826**

23 48. On March 6, 2012, U.S. Patent No. 8,131,826 was duly and legally
 24 issued for inventions entitled "Image Display System with Visual Server." IPL was
 25 assigned the '826 Patent and continues to hold all rights and interests in the '826
 26 Patent. The '826 Patent was filed on April 10, 2009 as Application No. 12/538,347,
 27 which is a continuation of Application No. 10/037,688, which claims priority to
 28

1 Provisional Application 60/263,854, filed on January 24, 2001. A true and correct
2 copy of the '826 Patent is attached hereto as Exhibit 2.

3 49. Defendant has directly infringed and continues to directly infringe at
4 least claims 1 and 5-8 of the '826 Patent by its manufacture, use, and sale of its
5 PlayStation Now game streaming service, and through its hosting of PlayStation
6 games on the PlayStation Now servers. The infringing components include all
7 PlayStation Now servers and server software and associated Sony and PlayStation
8 client devices and other software that supports PlayStation Now. Defendant also
9 performs the claimed method by making available and hosting PlayStation games via
10 the PlayStation Now service. PlayStation Now is a service that allows subscribers to
11 play various PlayStation games online through an online subscription. Defendant
12 maintains control over both the server and client components of the PlayStation Now
13 network, and in at least some instances, provides both the server-side hardware and
14 software and client-side hardware and software. Individual users may access the
15 PlayStation Now network and servers through either a PS4 console or a compatible
16 PC with a PlayStation DualShock controller. In addition, Sony also made the
17 PlayStation Now service available to the PlayStation Vita, certain Sony Bravia
18 television models, Sony Blu-ray player models, and PS3 consoles.
19 (<https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/>, last
20 visited July 12, 2019); ([https://www.polygon.com/2017/2/15/14627922/playstation-](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv)
21 [now-discontinued-ps3-vita-tv](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv), last visited July 12, 2019). Commands entered at
22 supported client devices are transmitted to central servers, where display images are
23 generated based on any new control inputs from the client devices. The generated
24 stream of images is then transmitted back to the client devices and displayed. The
25 games are hosted by servers operated by and/or controlled by Sony that are running
26 Sony PlayStation games, and for most client devices, those devices are made and sold
27 by Defendant with the purpose of using those devices with the PlayStation Now
28 service.

1 50. Claim 1 of the '826 Patent is representative for the purposes of this First
2 Amended Complaint. Claim 1 requires:

3 a. "A method of displaying a stream of images on a client device having
4 an image display, comprising the actions of:"

5 i. PlayStation Now provides a method of playing interactive games
6 on a client device consisting of a PC or a PS4. In the past and as
7 part of its infringing conduct, Sony advertised and supported
8 other Sony client devices that could operate as client devices in
9 the PlayStation Now system, in addition to PS4 consoles and PCs
10 running Sony PlayStation Now software. Those other client
11 devices included the PlayStation Vita and Sony Bravia devices.
12 Although Sony no longer currently advertises support for those
13 devices in the PlayStation Now system, they were supported as
14 PlayStation Now client devices during the six-year period
15 predating the filing of the Original Complaint, and therefore form
16 part of the infringing PlayStation Now system during the relevant
17 periods of infringement. Both the PS4 and the PC have an image
18 display on which the game being streamed is displayed to the
19 user. Defendant advertises that PlayStation Now allows a user to
20 "[s]tream [games] directly to your PS4 or PC."
21 (<https://www.playstation.com/en-ca/explore/playstationnow/>,
22 last visited January 7, 2020).

23 b. "receiving at least part of one image of said stream of images, and
24 generating image-modifying data corresponding to the one image in the
25 image display at the client device;"

26 i. PlayStation Now client devices receive and display a stream of
27 images as clients play PlayStation Now video games on their PS4
28 or PC devices. In the past and as part of its infringing conduct,

1 Sony advertised and supported other Sony client devices that
2 could operate as client devices in the PlayStation Now system, in
3 addition to PS4 consoles and PCs running Sony PlayStation Now
4 software. Those other client devices included the PlayStation Vita
5 and Sony Bravia devices. Although Sony no longer currently
6 advertises support for those devices in the PlayStation Now
7 system, they were supported as PlayStation Now client devices
8 during the six-year period predating the filing of the Original
9 Complaint, and therefore form part of the infringing PlayStation
10 Now system during the relevant periods of infringement.
11 PlayStation Now client devices also generate image-modifying
12 data corresponding to one or more images in the image display at
13 the client device. The image-modifying data generated at the
14 client device is made through a DUALSHOCK 4 controller
15 associated with a PS4 console or PC device.

16 ii. The inventor of PlayStation Now described the system as
17 “transmit the data to a user and get the control inputs back.”
18 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
19 January 7, 2020).

20 iii. The Gaikai Patent—which embodies Sony’s streaming
21 services—indicates that received data is provided to the display,
22 and player inputs are provided as data to the game server. 11:67-
23 12:3, Figs. 2, 4.

24 c. “transmitting the image-modifying data from the client device to a
25 server system that has image processing capabilities;”

26 i. The PlayStation Now client devices transmit image-modifying
27 data (such as input signals from a DUALSHOCK 4 controller) to
28

1 a PlayStation Now server, which has images processing
2 capabilities.

3 ii. The Gaikai Patent—which embodies Sony’s streaming
4 services—describes the inputs received at the server from the
5 client device. It explains that inputs from the Player Interface are
6 provided to the Game Server. 11:67-12:3, Figs. 2, 4. Examples of
7 inputs from the client device include “a movement, a change in
8 player point of view, an interaction with an object within the
9 game, an interaction with the game environment, an interaction
10 with an avatar of another player, and/or the like.” *Id.* at 13:65-
11 14:7, 15:46-52, Fig. 6. The game server has image-processing
12 capabilities in the form of Image Generator 225. *Id.* at 8:4-9,
13 11:67-12:3, Fig. 2.

14 d. “generating a further image of said stream of images by the server
15 system based on the image-modifying data;”

16 i. The Sony PlayStation video game application running on a
17 PlayStation Now server generates 3-dimensional graphics as a
18 compressed stream of images based on the image-modifying data
19 provided by the client device.

20 ii. The inventor of PlayStation Now described the system as
21 “transmit the data to a user and get the control inputs back.”
22 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
23 January 7, 2020).

24 iii. The Gaikai Patent—which embodies Sony’s streaming
25 services—indicates that the server will at least partially render an
26 image based on the current game state. 15:15-27, Fig. 6.

27 e. “generating compressed data based on the further image by the server
28 system;”

- i. The images generated by the PlayStation Now servers are compressed before they are transmitted to the client device. PlayStation Now client devices are required to support h.264 video decoding, which is a type of compression/decompression. (<https://www.eurogamer.net/articles/digitalfoundry-2014-sony-creates-custom-ps3-for-PlayStation-now>, last visited December 30, 2019). This indicates the image data is compressed at the server before it is transmitted to the client device.
 - ii. The Gaikai Patent—which embodies Sony’s streaming services—explains that images are compressed before they are transmitted to the client device. 3:46-55, 4:12-21, 11:36-45, 15:28-32, Figs. 3, 6.
- f. “transmitting the compressed data to said client device;”
- i. The PlayStation Now game servers transmit compressed data to the client device.
 - ii. The inventor of PlayStation Now stated that compression and decompression are part of the system. (https://dperry.com/2011/02/06/gaikai_is_live/, last visited December 30, 2019).
 - iii. The Gaikai Patent—which embodies Sony’s streaming services—explains that images are compressed before they are transmitted to the client device. 3:46-55, 4:12-21, 11:36-45, 15:28-32, Figs. 3, 6.
- g. “decompressing the compressed data into a decompressed image at said client device; and displaying the decompressed image at the display of said client device;”
- i. The PlayStation Now client devices decompress and display images. PlayStation Now client devices are required to support

1 h.264 video decoding, which is a type of
2 compression/decompression.

3 ([https://www.eurogamer.net/articles/digitalfoundry-2014-sony-](https://www.eurogamer.net/articles/digitalfoundry-2014-sony-creates-custom-ps3-for-PlayStation-now)
4 [creates-custom-ps3-for-PlayStation-now](https://www.eurogamer.net/articles/digitalfoundry-2014-sony-creates-custom-ps3-for-PlayStation-now), last visited December
5 30, 2019). This indicates client devices must decompress data
6 before it is displayed.

7 ii. The Gaikai Patent—which embodies Sony’s streaming
8 services—explains that the client device decompresses (15:58-
9 60) and displays the image (16:6-8).

10 h. “and further comprising the action of transmitting a link to identify the
11 client device to the server system prior to transmitting the image-
12 modifying data.”

13 i. A PlayStation Now client device transmits a link to identify the
14 client device to the PlayStation Now server prior to transmitting
15 the image-modifying data in the form of a log-in or authentication
16 process, during which the client device is associated with the
17 PlayStation Now server. Sony requires that PlayStation Now
18 users have a PlayStation Network account and subscription prior
19 to playing PlayStation Now games.
20 ([https://www.PlayStation.com/en-us/explore/PlayStation-](https://www.PlayStation.com/en-us/explore/PlayStation-now/devices/)
21 [now/devices/](https://www.PlayStation.com/en-us/explore/PlayStation-now/devices/), last visited December 30, 2019). Sony instructs
22 users to “sign in to an existing subscription” to transmit a link
23 identifying the client device to the server.
24 ([https://www.PlayStation.com/en-gb/explore/PlayStation-](https://www.PlayStation.com/en-gb/explore/PlayStation-now/how-it-works/)
25 [now/how-it-works/](https://www.PlayStation.com/en-gb/explore/PlayStation-now/how-it-works/), last visited December 30, 2019).

26 ii. In addition, each client device identifies itself each time that
27 image-modifying data is transmitted to the PlayStation Now
28 server system so that the image-modifying data being transmitted

1 may be associated with a particular PlayStation Now server or
2 server instance running a particular PlayStation video game.

3 iii. In addition, each transmission from the client to the PlayStation
4 Now server contains a link in the form of an address that identifies
5 the client device to the server as part of the data packet, which
6 includes image-modifying data.

7 iv. The Gaikai Patent—which embodies Sony’s streaming
8 services—explains that the PlayStation Now client device
9 transmits a link to the game server to identify the client to the
10 server. 9:60-10:13. The link is used to identify characteristics of
11 the client device, including rendering ability, screen size,
12 processing power, player interface type, and version information.
13 *Id.* at 7:13-24. The link is also used to assure that only clients
14 capable of receiving a certain level of quality of video receive a
15 video stream. *Id.* at Abstract.

16 51. Defendant has also directly infringed and continues to directly infringe
17 at least claims 1 and 5-8 of the ’826 Patent by making, using, or selling its PlayStation
18 Remote Play and Remote Play app. Remote Play is a feature included with the
19 PlayStation PS4 console that allows Sony PlayStation PS4 consoles to transmit their
20 video output to a PC or Mac computer or laptop, a PlayStation Vita handheld video
21 game console, Sony Xperia phones and tablets, and Apple’s iPhones and iPads.
22 (<https://www.playstation.com/en-gb/explore/ps4/features/remote-play/>, last visited
23 July 12, 2019). Similarly, PlayStation users can connect a DualShock controller to
24 various devices, including Android devices, Apple computers, Windows PCs, and
25 iOS devices. Both the PS4 console and the user device are connected to a local area
26 network, including a Wifi network or an Ethernet network, and in some instances,
27 the Internet. Defendant maintains control over both the client and server components
28 of the Remote Play network. Commands entered by game players on their individual

1 devices are transmitted to a PS4 console, where display images are generated based
 2 on the player commands. The generated images are then compressed and streamed
 3 back to the client devices and displayed. The PlayStation games are hosted by
 4 Defendant's PS4 consoles.

5 52. Claim 1 of the '826 Patent is representative for the purposes of this First
 6 Amended Complaint. Claim 1 requires:

7 a. "A method of displaying a stream of images on a client device having
 8 an image display, comprising the actions of:"

9 i. Remote Play provides a method of displaying images on a client
 10 device (a PC, Mac, PlayStation Vita, Sony Xperia, Android
 11 device, and/or Apple iOS device). Each of these devices has an
 12 image display.

13 b. "receiving at least part of one image of said stream of images, and
 14 generating image-modifying data corresponding to the one image in the
 15 image display at the client device;"

16 i. Remote Play client devices receive and display a stream of
 17 images and generate corresponding image-modifying data
 18 corresponding to the one image in the image display at the client
 19 device in the form of user input signals from a remote client
 20 device, including PlayStation Vita control inputs, or other types
 21 of control inputs from Sony Xperia devices or supported iOS
 22 devices such as an iPhone or iPad. The input control signals in
 23 these portable Sony and iOS devices include touchscreen inputs,
 24 keyboard inputs, or inputs from other supported peripheral input
 25 control devices.

26 ([https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.](https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.html)
 27 [html](https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.html), last visited December 30, 2019).
 28

- 1 ii. The inventor of PlayStation Now described the system as
2 “transmit the data to a user and get the control inputs back.”
3 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
4 January 7, 2020).
- 5 iii. The Gaikai Patent—which embodies Sony’s streaming
6 services—indicates that received data is provided to the display,
7 and player inputs are provided as data to the game server. 11:67-
8 12:3, Figs. 2, 4.
- 9 c. “transmitting the image-modifying data from the client device to a
10 server system that has image processing capabilities;”
- 11 i. Remote Play client devices capture image-modifying data in the
12 form of input signals from a DUALSHOCK 4 controller (and
13 other supported client devices) and relay those user input signals
14 to a server system. Sony advertises that DUALSHOCK 4
15 controllers are used to input information during Remote Play.
16 ([https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.](https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.html)
17 [html](https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.html), last visited December 30, 2019). Technical publications
18 state that Remote Play client devices transmit control inputs to the
19 server. ([https://www.eurogamer.net/articles/digitalfoundry-vs-](https://www.eurogamer.net/articles/digitalfoundry-vs-vita-remote-play)
20 [vita-remote-play](https://www.eurogamer.net/articles/digitalfoundry-vs-vita-remote-play), last visited December 30, 2019;
21 [https://www.eurogamer.net/articles/digitalfoundry-sony-](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games)
22 [mandates-vita-remote-play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited December
23 30, 2019).
- 24 ii. The Gaikai Patent—which embodies Sony’s streaming
25 services—describes the inputs received at the server from the
26 client device. It explains that inputs from the Player Interface are
27 provided to the Game Server. 11:67-12:3, Figs. 2, 4. Examples of
28 inputs from the client device include “a movement, a change in

1 player point of view, an interaction with an object within the
2 game, an interaction with the game environment, an interaction
3 with an avatar of another player, and/or the like.” *Id.* at 13:65-
4 14:7, 15:46-52, Fig. 6. The game server has image processing
5 capabilities in the form of Image Generator 225. *Id.* at 8:4-9,
6 11:67-12:3, Fig. 2.

7 d. “generating a further image of said stream of images by the server
8 system based on the image-modifying data;”

9 i. The Remote Play server (the PS4 console) generates images
10 based on image-modifying data (game inputs) received from the
11 client device.

12 ii. The inventor of Remote Play described the system as “transmit
13 the data to a user and get the control inputs back.”
14 (https://dperry.com/2011/02/06/gaikai_is_live/, last visited
15 January 7, 2020).

16 iii. The Gaikai Patent—which embodies Sony’s streaming
17 services—indicates that the server will at least partially render an
18 image based on the current game state. 15:15-27, Fig. 6.

19 e. “generating compressed data based on the further image by the server
20 system;”

21 i. The Remote Play server (the PS4 console) compresses image data
22 before it is transmitted to the supported client device, which may
23 include Android devices, Apple computers, Windows PCs, and
24 iOS devices. ([https://www.eurogamer.net/articles/digitalfoundry-
25 sony-mandates-vita-remote-play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited
26 December 30, 2019).

27 ii. The Gaikai Patent—which embodies Sony’s streaming
28 services—explains that images are compressed before they are

transmitted to the client device. 3:46-55, 4:12-21, 11:36-45, 15:28-32, Figs. 3, 6.

f. “transmitting the compressed data to said client device;”

i. The Remote Play server (the PS4 console) transmits compressed image data to the client device, which may include [insert]. (<https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games>, last visited December 30, 2019).

ii. The inventor of Remote Play stated that compression and decompression are part of the system. (https://dperry.com/2011/02/06/gaikai_is_live/, last visited December 30, 2019).

iii. The Gaikai Patent—which embodies Sony’s streaming services—explains that images are compressed before they are transmitted to the client device. 3:46-55, 4:12-21, 11:36-45, 15:28-32, Figs. 3, 6.

g. “decompressing the compressed data into a decompressed image at said client device; and displaying the decompressed image at the display of said client device;”

i. The Remote Play client device receives compressed data from the server. The compressed data is decompressed into images and displayed on the client display. (<https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games>, last visited December 30, 2019). The supported client devices include Android devices, Apple computers, Windows PCs, and iOS devices.

ii. The Gaikai Patent—which embodies Sony’s streaming services—explains that the client device decompresses (15:58-

60) and displays the image (16:6-8).

h. “and further comprising the action of transmitting a link to identify the client device to the server system prior to transmitting the image-modifying data.”

i. The Remote Play client devices transmit a link to identify the client device to the PS4 server prior to transmitting the image-modifying data. This link includes at least a log-in or authentication process, during which the client device is associated with the PS4 server. All Remote Play users must have a PlayStation Network account in order to use the Sony Remote Play service.

(<https://remoteplay.dl.playstation.net/remoteplay/lang/en/index.html>, last visited December 30, 2019). When the client device is a PlayStation Vita, the link is an 8-digit number. (<https://www.playstation.com/en-gb/get-help/help-library/apps---features/playstation-apps---features/playstation-4-remote-play-and-second-screen/>, last visited December 30, 2019).

ii. In addition, each transmission from the client to the PS4 server contains a link in the form of an address that identifies the client device to the server as part of the data packet, which includes image-modifying data.

iii. The Gaikai Patent—which embodies Sony’s streaming services—explains that the PlayStation Now client device transmits a link to the game server to identify the client to the server. 9:60-10:13. The link is used to identify characteristics of the client device, including rendering ability, screen size, processing power, player interface type, and version information. *Id.* at 7:13-24. The link is also used to assure that only clients

capable of receiving a certain level of quality of video receive a video stream. *Id.* at Abstract.

53. In addition, Defendant has induced business partners to design PS4 games with Remote Play capabilities and has induced customers to use the Remote Play service provided with the PS4 consoles and with the various client devices executing the Sony Remote Play client software. These client devices in many instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia products. (<https://www.playstation.com/en-au/get-help/help-library/apps---features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/>, last visited July 12, 2019). In fact, on information and belief, Defendant has required that all PlayStation games must provide support for Remote Play. (<https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games>, last visited July 12, 2019). Like PlayStation Now, and on information and belief, the Sony Remote Play feature also is based on Gaikai technology. (https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1_everage_Gaikais_cloud.php, last visited July 12, 2019).

54. The acts of infringement by Defendant have caused damage to IPL, and IPL is entitled to recover from Defendant the damages sustained by IPL as a result of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of IPL's exclusive rights under the '826 Patent by Defendant has damaged and will continue to damage IPL, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

INFRINGEMENT OF U.S. PATENT NO. 8,667,093

55. On March 4, 2014, U.S. Patent No. 8,667,093 was duly and legally issued for inventions entitled "Image Display System with Visual Server." IPL was assigned the '093 Patent and continues to hold all rights and interests in the '093 Patent. The '093 Patent was filed on November 15, 2011 as Application No.

1 13/296,776, which is a continuation of Application No. 12/538,347, which is a
2 continuation of Application No. 10/037,688, which claims priority to Provisional
3 Application 60/263,854, filed on January 24, 2001. A true and correct copy of the
4 '093 Patent is attached hereto as Exhibit 3.

5 56. Defendant has directly infringed and continues to directly infringe one
6 or more of the claims of the '093 Patent by its manufacture, use, and sale of its
7 PlayStation Now game streaming service, and through its hosting of PlayStation
8 games on the PlayStation Now servers. The infringing components include all
9 PlayStation Now servers and server software and associated Sony and PlayStation
10 client devices and other software that supports PlayStation Now. Defendant also
11 performs the claimed method by making available and hosting PlayStation games via
12 the PlayStation Now service. PlayStation Now is a service that allows subscribers to
13 play various PlayStation games online through an online subscription. Defendant
14 maintains control over both the server and client components of the PlayStation Now
15 network, and in at least some instances, provides both the server-side hardware and
16 software and client-side hardware and software. Individual users may access the
17 PlayStation Now network through either a PS4 console or a compatible PC with a
18 PlayStation DualShock controller. In addition, Sony also made the PlayStation Now
19 service available to the PlayStation Vita, certain Sony Bravia television models, Sony
20 Blu-ray player models, and PS3 consoles. ([https://gamerant.com/sony-playstation-
21 now-gaikai-cloud-gaming-ps3-ps4/](https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/), last visited July 12, 2019);
22 ([https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-
23 vita-tv](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv), last visited July 12, 2019). Commands entered by game players on their
24 individual client devices are transmitted to central servers, where display images are
25 generated. The generated stream of images is then transmitted back to the client
26 devices and displayed. The games are hosted by servers operated by and/or controlled
27 by Defendant, and for most client devices, those devices are made and sold by
28 Defendant with the purpose of using those devices with the PlayStation Now service.

1 57. Defendant has also directly infringed and continues to directly infringe
2 one or more of the claims of the '093 Patent by making, using, or selling its
3 PlayStation Remote Play and Remote Play app. Remote Play is a feature included
4 with the PlayStation PS4 console that allows Sony PlayStation PS4 consoles to
5 transmit their video output to a PC or Mac computer or laptop, a PlayStation Vita
6 handheld video game console, Sony Xperia phones and tablets, and Apple's iPhones
7 and iPads. (<https://www.playstation.com/en-gb/explore/ps4/features/remote-play/>,
8 last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock
9 controller to various devices, including Android devices, Apple computers, Windows
10 PCs, and iOS devices. Both the PS4 console and the user device are connected to a
11 local area network, including a Wifi network or an Ethernet network, and in some
12 instances, the Internet. Defendant maintains control over both the client and server
13 components of the Remote Play network. Commands entered by game players on
14 their individual devices are transmitted to a PS4 console, where display images are
15 generated based on the player commands. The generated images are then compressed
16 and streamed back to the client devices and displayed. The PlayStation games are
17 hosted by Defendant's PS4 consoles.

18 58. In addition, Defendant has induced business partners to design PS4
19 games with Remote Play capabilities and has induced customers to use the Remote
20 Play service provided with the PS4 consoles and with the various client devices
21 executing the Sony Remote Play client software. These client devices in many
22 instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia
23 products. ([https://www.playstation.com/en-au/get-help/help-library/apps---
24 features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/](https://www.playstation.com/en-au/get-help/help-library/apps---features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/), last visited
25 July 12, 2019). In fact, on information and belief, Defendant has required that all
26 PlayStation games must provide support for Remote Play.
27 ([https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-
28 play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited July 12, 2019). Like PlayStation Now, and on

1 information and belief, the Sony Remote Play feature also is based on Gaikai
2 technology.

3 (https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1
4 [average_Gaikais_cloud.php](https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1), last visited July 12, 2019).

5 59. The acts of infringement by Defendant have caused damage to IPL, and
6 IPL is entitled to recover from Defendant the damages sustained by IPL as a result
7 of Defendant's wrongful acts in an amount subject to proof at trial. The infringement
8 of IPL's exclusive rights under the '093 Patent by Defendant has damaged and will
9 continue to damage IPL, causing irreparable harm, for which there is no adequate
10 remedy at law, unless enjoined by this Court.

11 **INFRINGEMENT OF U.S. PATENT NO. 9,699,238**

12 60. On July 4, 2017, U.S. Patent No. 9,699,238 was duly and legally issued
13 for inventions entitled "Image Display System with Visual Server." IPL was assigned
14 the '238 Patent and continues to hold all rights and interests in the '238 Patent. The
15 '238 Patent was filed on February 27, 2014 as Application No. 14/192,789, which is
16 a continuation of Application No. 13/296,776, which is a continuation of Application
17 No. 12/538,347, which is a continuation of Application No. 10/037,688, which
18 claims priority to Provisional Application 60/263,854, filed on January 24, 2001. A
19 true and correct copy of the '238 Patent is attached hereto as Exhibit 4.

20 61. Defendant has directly infringed and continues to directly infringe one
21 or more of the claims of the '238 Patent by its manufacture, use, and sale of its
22 PlayStation Now game streaming service, and through its hosting of PlayStation
23 games on the PlayStation Now servers. The infringing components include all
24 PlayStation Now servers and server software and associated Sony and PlayStation
25 client devices and other software that supports PlayStation Now. Defendant also
26 performs the claimed method by making available and hosting PlayStation games via
27 the PlayStation Now service. PlayStation Now is a service that allows subscribers to
28 play various PlayStation games online through an online subscription. Defendant

1 maintains control over both the server and client components of the PlayStation Now
2 network, and in at least some instances, provides both the server-side hardware and
3 software and client-side hardware and software. Individual users may access the
4 PlayStation Now network through either a PS4 console or a compatible PC with a
5 PlayStation DualShock controller. In addition, Sony also made the PlayStation Now
6 service available to the PlayStation Vita, certain Sony Bravia television models, Sony
7 Blu-ray player models, and PS3 consoles. ([https://gamerant.com/sony-playstation-
8 now-gaikai-cloud-gaming-ps3-ps4/](https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/), last visited July 12, 2019);
9 ([https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-
10 vita-tv](https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-vita-tv), last visited July 12, 2019). Commands entered by game players on their
11 individual client devices are transmitted to central servers, where display images are
12 generated. The generated stream of images is then transmitted back to the client
13 devices and displayed. The games are hosted by servers operated by and/or controlled
14 by Defendant, and for most client devices, those devices are made and sold by
15 Defendant with the purpose of using those devices with the PlayStation Now service.

16 62. Defendant has also directly infringed and continues to directly infringe
17 one or more of the claims of the '238 Patent by making, using, or selling its
18 PlayStation Remote Play and Remote Play app. Remote Play is a feature included
19 with the PlayStation PS4 console that allows Sony PlayStation PS4 consoles to
20 transmit their video output to a PC or Mac computer or laptop, a PlayStation Vita
21 handheld video game console, Sony Xperia phones and tablets, and Apple's iPhones
22 and iPads. (<https://www.playstation.com/en-gb/explore/ps4/features/remote-play/>,
23 last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock
24 controller to various devices, including Android devices, Apple computers, Windows
25 PCs, and iOS devices. Both the PS4 console and the user device are connected to a
26 local area network, including a Wifi network or an Ethernet network, and in some
27 instances, the Internet. Defendant maintains control over both the client and server
28 components of the Remote Play network. Commands entered by game players on

1 their individual devices are transmitted to a PS4 console, where display images are
2 generated based on the player commands. The generated images are then compressed
3 and streamed back to the client devices and displayed. The PlayStation games are
4 hosted by Defendant's PS4 consoles.

5 63. In addition, Defendant has induced business partners to design PS4
6 games with Remote Play capabilities and has induced customers to use the Remote
7 Play service provided with the PS4 consoles and with the various client devices
8 executing the Sony Remote Play client software. These client devices in many
9 instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia
10 products. ([https://www.playstation.com/en-au/get-help/help-library/apps---
11 features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/](https://www.playstation.com/en-au/get-help/help-library/apps---features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/), last visited
12 July 12, 2019). In fact, on information and belief, Defendant has required that all
13 PlayStation games must provide support for Remote Play.
14 ([https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-
15 play-for-ps4-games](https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-play-for-ps4-games), last visited July 12, 2019). Like PlayStation Now, and on
16 information and belief, the Sony Remote Play feature also is based on Gaikai
17 technology.
18 ([https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1
19 everage_Gaikais_cloud.php](https://www.gamasutra.com/view/news/187022/How_Sonys_PlayStation_4_will_1), last visited July 12, 2019).

20 64. The acts of infringement by Defendant have caused damage to IPL, and
21 IPL is entitled to recover from Defendant the damages sustained by IPL as a result
22 of Defendant's wrongful acts in an amount subject to proof at trial. The infringement
23 of IPL's exclusive rights under the '238 Patent by Defendant has damaged and will
24 continue to damage IPL, causing irreparable harm, for which there is no adequate
25 remedy at law, unless enjoined by this Court.

DEFENDANT'S KNOWLEDGE OF THE PATENTS-IN-SUIT

65. Gaikai has known of the '520 Patent since at least November 10, 2011. On that date, Gaikai cited the '520 Patent in an Information Disclosure Statement submitted during prosecution of the Gaikai Patent, which is now assigned to SIE.

66. In addition, the '520 Patent was cited during the prosecution of Sony Computer Entertainment America LLC's U.S. Patent Nos. 8,506,402, 8,560,331, 8,613,673, 8,676,591, 8,840,476, 8,888,592, 8,926,435, 8,968,087, 9,061,207, 9,077,991, 9,084,936, 9,086,995, 9,108,107, 9,138,644, 9,155,962, 9,168,457, 9,192,859, 9,203,685, 9,227,139, 9,272,209, 9,272,220, and 9,314,691. The '826 and '093 Patents were also cited during the prosecution of Sony Computer Entertainment America LLC's U.S. Patent No. 9,086,995.

67. The '520 Patent was also cited during the prosecution of Sony Interactive Entertainment America LLC's U.S. Patent Nos. 9,352,222, 9,375,635, 9,420,283, 9,446,305, 9,584,575, 9,723,319, 9,756,349, 9,878,240, 9,956,490, 10,039,978, 10,130,891, and 10,201,760. The '826 Patent was cited during the prosecution of Sony Interactive Entertainment America LLC's U.S. Patent Nos. 9,626,308 and 10,002,088. The '093 Patent was cited during the prosecution of Sony Interactive Entertainment America LLC's U.S. Patent No. 9,626,308.

68. On April 3, 2015, Osman Kent emailed SIE employee David Perry to inform him of the portfolio and provide an opportunity for SIE to acquire the patents. Mr. Kent explained that "these are the foundational patents relating to GPU virtualization and pixel streaming." He also identified four specific patents—U.S. Patent Nos. 7,587,520, 8,131,826, 8,560,643, and 8,667,093—including three of the Patents-in-Suit. Mr. Perry responded to Mr. Kent's email on April 4, 2015, stating that "I'd be happy to forward the patent numbers to [the Sony Patent team]." On information and belief, Mr. Perry forwarded the patent numbers of the '520, '826, and '093 Patents to SIE's in-house legal department, who elected to disregard those patents.

69. Additionally, SIE had knowledge of all of the Patents-in-Suit, including the '238 Patent, as of the date of the filing of IPL's Complaint, July 25, 2019.

JURY DEMAND

70. IPL demands a trial by jury on all issues.

PRAYER FOR RELIEF

71. IPL requests entry of judgment in its favor and against Defendant as follows:

- a. A declaration that Defendant has infringed and is infringing U.S. Patent Nos. 7,587,520, 8,131,826, 8,667,093, and 9,699,238;
- b. A declaration that Defendant's infringement of the Patents-in-Suit was willful;
- c. An order permanently enjoining Defendant, its respective officers, agents, employees, and those acting in privity with it, from further direct and/or indirect infringement of U.S. Patent Nos. 7,587,520, 8,131,826, 8,667,093, and 9,699,238;
- d. An award of damages to IPL arising out of Defendant's infringement of U.S. Patent Nos. 7,587,520, 8,131,826, 8,667,093, and 9,699,238, including enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount according to proof;
- e. An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law; and
- f. Granting IPL its costs and further relief as the Court may deem just and proper.

1 Dated: January 7, 2020

By: /s/ Kalpana Srinivasan
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