	Case 8:19-cv-01432 Document 1 Filed 07	/25/19 Page 1 of 27 Page ID #:1			
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16	Attorneys for Plaintiff Intellectual Pixels	Limited			
17	UNITED STATES	DISTRICT COURT			
18	CENTRAL DISTRI	CT OF CALIFORNIA			
19	SOUTHER	RN DIVISION			
20	INTELLECTUAL PIXELS LIMITED,	Case No.			
21	Plaintiff,	COMPLAINT FOR PATENT INFRINGEMENT			
22	V.	JURY TRIAL REQUESTED			
23	SONY INTERACTIVE ENTERTAINMENT LLC,	JUNI INIAL NEQUESTED			
24	Defendant.				
25					
26					
27					
28					
	COMPLAINT FOR PATENT INFRINGEMENT				

("SIE" or "Defendant") and states as follows:

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## **NATURE OF THE ACTION**

submits this Complaint against Defendant Sony Interactive Entertainment LLC

Plaintiff Intellectual Pixels Limited ("IPL" or "Plaintiff") hereby

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.

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

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

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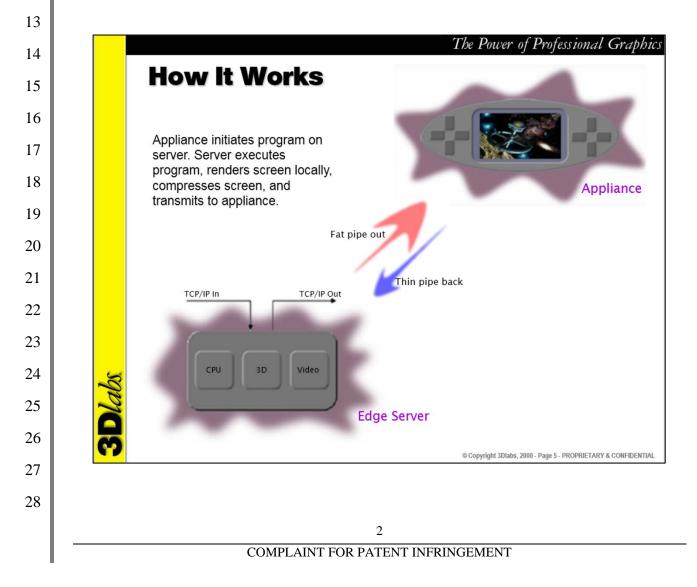
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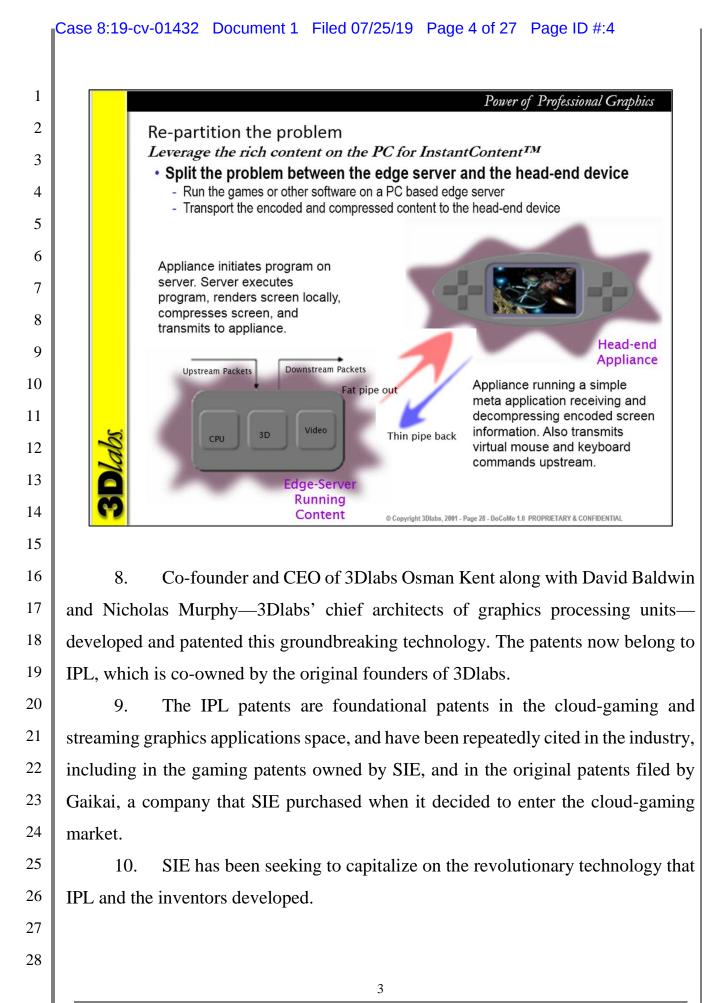
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from the cloud or a local server at the home (like a game console) have been gaining
 momentum since around 2014. As reflected in the popular press, the ultimate
 objective for these industry efforts is to become the "Netflix" for games.

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





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# THE PARTIES

IPL is a company registered in the United Kingdom, with registration 11. 2 number 11840479. IPL's principal place of business is located at St. Anns Court, St. 3 Anns Hill Road, Chertsey, Surrey, UK KT16 9NW. 4

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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").

9 13. The technology underlying the Patents-in-Suit was developed by 3Dlabs, which was publicly traded on the NASDAQ exchange at the time. 3Dlabs 10 11 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. 12 ("Creative"), which was also publicly traded on the NASDAQ exchange at that time. 13 Creative, a longtime business partner of 3Dlabs, was and is a leader in the design, 14 manufacture, and distribution of digitized sound and video boards and related 15 16 multimedia and personal digital entertainment products. The inventors of the Patentsin-Suit were Osman Kent, a co-founder and chief executive officer of 3Dlabs, and 17 David Baldwin and Nicholas Murphy, both chief architects of GPUs at 3Dlabs. 18 Subsequently, the Patents-in-Suit were assigned to Creative. Eventually, the Patents-19 20 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 21 and streaming other graphics applications from a server or the cloud to a client device 22 23 was considered one of the most valuable inventions developed by 3Dlabs.

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14. Sony Interactive Entertainment LLC is a California entity with a registered agent at CSC Lawyers Incorporating Service, 2710 Gateway Oaks Drive, 25 Suite 150N, Sacramento, CA 95833-3505. On information and belief, SIE is a wholly 26 owned subsidiary of Sony Corporation, a Japanese entity with its principal place of 27 business located at 1-7-1 Konan, Minato-Ku, 108-0075, Japan. Sony Corporation is 28

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

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

Venue is proper in the Central District of California, Southern Division 21 17. 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 infringing technology relative to PlayStation Now and Sony Remote Play was 24 developed and, on information and belief, continues to be managed. Defendant's acts 25 26 of infringement include making, using, and selling its PlayStation Now game streaming service, hosting PlayStation games on the PlayStation Now server, and 27 making, using, and selling the Remote Play feature in with PS4 consoles, PS4 games, 28

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

18. In 2012, Sony Computer Entertainment ("SCE") acquired the cloud-3 based gaming company Gaikai Inc. ("Gaikai"), located in Aliso Viejo, California, for 4 \$380 approximately million. 5 6 (https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloudgaming-startup-gaikai-for-380-million/#695731696fbc, last visited July 12, 2019). 7 At the time of the Gaikai acquisition, SCE stated that it would "establish a new cloud 8 9 service, ensuring that it continues to provide users with truly innovative and immersive interactive entertainment experiences." That new cloud service, based on 10 11 Gaikai streaming technology, was and is marketed as PlayStation Now. (https://gamerant.com/sony-playstation-now-gaikai-cloud-gaming-ps3-ps4/, 12 last visited July 12, 2019); (https://www.geek.com/games/gaikai-streaming-becomes-13 PlayStation-now-available-this-summer-1581518/, last visited July 12, 2019); 14 (https://www.gamespot.com/gallery/google-stadia-playstation-now-and-more-15

16 cloud-gamin/2900-2647/2/, last visited July 12, 2019); (https://www.wired.com/2014/01/playstation-now/, last visited July 12, 2019). At 17 that time, SCE's President promised that the company would "deliver a world-class 18 cloud-streaming service that allows users to instantly enjoy a broad array of content 19 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-22 releases/sony-computer-entertainment-to-acquire-gaikai-inc-a-leading-interactivecloud-gaming-company-161042365.html, last visited July 12, 2019).

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19. SIE resulted from the combination of SCE and other Sony properties, centralizing various gaming hardware, software, and services. "In April 2016, Sony 25 Computer Entertainment Inc. ("SCEI") and Sony Network Entertainment 26 International LLC ("SNEI") founded Sony Interactive Entertainment LLC ("SIE"), a 27 new company that combined all the business units belonging to SCEI and SNEI, 28

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including hardware, software, content and network services operations."
 (<u>https://www.sony.net/SonyInfo/IR/library/FY2016\_20F\_PDF.pdf</u>, last visited July
 17, 2019). The cloud-streaming service developed by Gaikai underlies the accused
 functionalities in this case.

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20. Gaikai is the assignee of U.S. Patent No. 8,147,339 (the "Gaikai Patent"), titled "Systems and Methods of Serving Game Video." The Gaikai Patent post-dates IPL's patents. On information and belief, the Defendant's PlayStation Now incorporates certain technology disclosed in the Gaikai Patent. SIE is the current assignee of the Gaikai Patent.

At the time of the acquisition, Gaikai was located in Aliso Viejo, 10 21. California. On information and belief, Gaikai's Aliso Viejo facility became a Sony 11 facility, and thereafter, Gaikai employees became SIE employees. SIE currently lists 12 job openings for positions in Aliso Viejo (https://www.playstation.com/en-13 us/corporate/about/careers/, last visited July 12, 2019), including jobs related to 14 network operations management and control for cloud-based applications, cloud 15 16 gaming engineering and infrastructure, and cloud back-end engineering. For example, the job listing for Sr. Network Operations Engineer (NetDevOps) at Sony 17 Interactive Entertainment PlayStation identifies Aliso Viejo, CA as the location for 18 the position. The listing states in part: 19

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

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

26 (https://boards.greenhouse.io/sonyinteractiveentertainmentplaystation/jobs/1724883

- , last visited July 12, 2019) (emphasis added). The former Gaikai facility has been
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and continues to be a regular and established place of business of the Defendant in
 Orange County.

The inventor of the Gaikai Patent is David Perry. Mr. Perry served as 3 22. the CEO of Gaikai at the time it was acquired by SCE. After the acquisition, Mr. 4 Perry served as an employee of Sony Computer Entertainment America LLC until he 5 6 left the company in June 2017. (https://www.linkedin.com/in/dperry, last visited July 12, 2019). In a 2014 interview, Mr. Perry stated, "Just to be very clear, we only do 7 two things for Sony. We focus on cloud gaming and remote play." 8 9 (https://www.gameinformer.com/b/features/archive/2014/09/17/gaikai-playstationnow.aspx?PostPageIndex=1, last visited July 12, 2019). 10

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### **THE PATENTS-IN-SUIT**

12 23. 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.

First, the inventions allow one or more client devices to share a single 17 24. remote GPU on a server that performs graphics processing and generates images 18 streamed to client devices. Because the generation of the graphic images (which often 19 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 high-performance gaming by leveraging the remote GPU located on a server. As the 24 patents explain, under prior systems, "additional hardware increases the cost of the 25 26 client hardware as the graphics hardware must be incorporated and integrated therewith." '520 Patent at 2:53-55. 27

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

11 26. Third, and relatedly, the invention solves issues related to software compatibility by allowing software to run at the server level when the client devices 12 might not otherwise be able to execute the software because of instruction set or 13 operating system limitations of the client device. For example, the invention provides 14 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 images to a client device, it is not necessary that the client device be at all compatible 17 with the video game or the graphics application that is being run on the server. 18

27. Fourth, the invention allows end users to play games without first 19 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 games at the server level and only transmitting the generated images to the client 23 device, time and memory are conserved. Users can maintain control of the game 24 through their user control inputs, while the game processing and image generation is 25 26 performed remotely on a server.

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

29. The inventors had to address and overcome a number of technological 11 hurdles in order to transfer graphics processing from a client device to a separate 12 server capable of handling graphics processing for multiple client devices. For 13 example, the inventors needed to address the manner in which latency should be 14 reduced relative to the interactive graphics applications, the manner in which the 15 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 devices should be handled, and the manner in which the client and server devices 18 should be configured to support the remote processing of the control inputs and the 19 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 developed GPUs with very fast context save and restore capabilities so that 22 application threads associated with different client devices would behave as if they 23 had exclusive access to the GPU. 24

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

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

6 31. 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 32. 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.

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

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### THE PLAYSTATION NOW AND SONY REMOTE PLAY SYSTEMS

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

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

6 35. The PlayStation Now system and service is based on technology
7 developed by Gaikai, which Sony purchased for \$380 million.
8 (<u>https://www.forbes.com/sites/tomiogeron/2012/07/02/sony-to-acquire-cloud-</u>

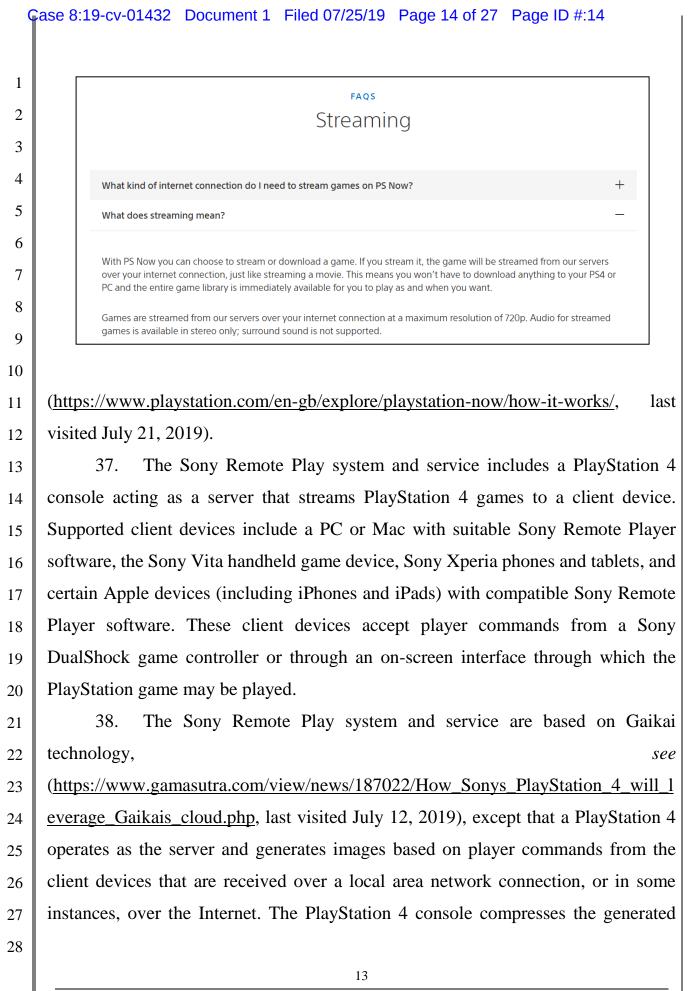
gaming-startup-gaikai-for-380-million/#695731696fbc, last visited July 12, 2019).
PlayStation Now was launched, at least in part, based on the inability of the newly
launched PS4 consoles to play older PS3 games.
(https://www.geek.com/games/gaikai-streaming-becomes-PlayStation-now-

available-this-summer-1581518/, last visited July 21, 2019). Because of this lack of
backwards capability with its prior PlayStation games, Sony launched the PlayStation
Now system and service so customers of the PS4 consoles would be able to play the
older, but much more numerous, PS3 games.

The PlayStation Now system and service operates by having the 17 36. PlayStation Now server perform all or substantially all of the graphics processing for 18 a particular game being played on a client device (currently a PS4 or PC with 19 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 generated by the server, it is compressed and transmitted to the client device. The 23 client devices do not perform any additional 3D graphics processing on the images 24 provided by the server, but instead only decompress the compressed images and 25 26 display them as they arrive at the client device.

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

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

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

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

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 2 3 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 4 Defendant with the purpose of using those devices with the PlayStation Now service. 5

6 41. Defendant has also directly infringed and continues to directly infringe one or more of the claims of the '520 Patent by making, using, or selling its 7 PlayStation Remote Play and Remote Play app. Remote Play is a feature included 8 9 with the PlayStation PS4 console that allows Sony PlayStation PS4 consoles to transmit their video output to a PC or Mac computer or laptop, a PlayStation Vita 10 11 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/, 12 last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock 13 14 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 15 16 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 17 components of the Remote Play network. Commands entered by game players on 18 their individual devices are transmitted to a PS4 console, where display images are 19 20 generated based on the player commands. The generated images are then compressed 21 and streamed back to the client devices and displayed. The PlayStation games are 22 hosted by Defendant's PS4 consoles.

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42. In addition, Defendant has induced business partners to design PS4 games with Remote Play capabilities and has induced customers to use the Remote 25 Play service provided with the PS4 consoles and with the various client devices 26 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 27 (https://www.playstation.com/en-au/get-help/help-library/apps---28 products.

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1 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 2 PlayStation must for 3 4 games provide support Remote Play. (https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-4 play-for-ps4-games, last visited July 12, 2019). Like PlayStation Now, and on 5 6 information and belief, the Sony Remote Play feature also is based on Gaikai 7 technology. (https://www.gamasutra.com/view/news/187022/How\_Sonys\_PlayStation\_4\_will\_1 8 9 everage\_Gaikais\_cloud.php, last visited July 12, 2019)

43. 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 '520 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.

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

44. On March 6, 2012, U.S. Patent No. 8,131,826 was duly and legally
issued for inventions entitled "Image Display System with Visual Server." IPL was
assigned the '826 Patent and continues to hold all rights and interests in the '826
Patent. The '826 Patent was filed on April 10, 2009 as Application No. 12/538,347,
which is a continuation of Application No. 10/037,688, which claims priority to
Provisional Application 60/263,854, filed on January 24, 2001. A true and correct
copy of the '826 Patent is attached hereto as Exhibit 2.

45. Defendant has directly infringed and continues to directly infringe one
or more of the claims of the '826 Patent by its manufacture, use, and sale of its
PlayStation Now game streaming service, and through its hosting of PlayStation
games on the PlayStation Now servers. The infringing components include all
PlayStation Now servers and server software and associated Sony and PlayStation

1 client devices and other software that supports PlayStation Now. Defendant also performs the claimed method by making available and hosting PlayStation games via 2 the PlayStation Now service. PlayStation Now is a service that allows subscribers to 3 play various PlayStation games online through an online subscription. Defendant 4 maintains control over both the server and client components of the PlayStation Now 5 6 network, and in at least some instances, provides both the server-side hardware and software and client-side hardware and software. Individual users may access the 7 PlayStation Now network though either a PS4 console or a compatible PC with a 8 9 PlayStation DualShock controller. In addition, Sony also made the PlayStation Now service available to the PlayStation Vita, certain Sony Bravia television models, Sony 10 11 Blu-ray player models, and PS3 consoles. (https://gamerant.com/sony-playstationnow-gaikai-cloud-gaming-ps3-ps4/, last visited July 12, 2019); 12 (https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3-13 vita-tv, last visited July 12, 2019). Commands entered by game players on their 14 individual client devices are transmitted to central servers, where display images are 15 16 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 17 by Defendant, and for most client devices, those devices are made and sold by 18 19 Defendant with the purpose of using those devices with the PlayStation Now service. 20 46. Defendant has also directly infringed and continues to directly infringe 21 one or more of the claims of the '826 Patent by making, using, or selling its 22 PlayStation Remote Play and Remote Play app. Remote Play is a feature included

with the PlayStation PS4 console 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. (<u>https://www.playstation.com/en-gb/explore/ps4/features/remote-play/</u>,
last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock
controller to various devices, including Android devices, Apple computers, Windows

1 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 2 instances, the Internet. Defendant maintains control over both the client and server 3 components of the Remote Play network. Commands entered by game players on 4 their individual devices are transmitted to a PS4 console, where display images are 5 6 generated based on the player commands. The generated images are then compressed and streamed back to the client devices and displayed. The PlayStation games are 7 hosted by Defendant's PS4 consoles. 8

9 47. In addition, Defendant has induced business partners to design PS4 games with Remote Play capabilities and has induced customers to use the Remote 10 11 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 12 instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia 13 (https://www.playstation.com/en-au/get-help/help-library/apps---14 products. features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/, last visited 15 16 July 12, 2019). In fact, on information and belief, Defendant has required that all PlayStation 17 games must provide support for Remote Play. (https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remote-18

<u>play-for-ps4-games</u>, 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).

48. 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

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continue to damage IPL, causing irreparable harm, for which there is no adequate
 remedy at law, unless enjoined by this Court.

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

49. On March 4, 2014, U.S. Patent No. 8,667,093 was duly and legally 4 issued for inventions entitled "Image Display System with Visual Server." IPL was 5 6 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. 7 13/296,776, which is a continuation of Application No. 12/538,347, which is a 8 9 continuation of Application No. 10/037,688, which claims priority to Provisional Application 60/263,854, filed on January 24, 2001. A true and correct copy of the 10 11 '093 Patent is attached hereto as Exhibit 3.

50. Defendant has directly infringed and continues to directly infringe one 12 or more of the claims of the '093 Patent by its manufacture, use, and sale of its 13 PlayStation Now game streaming service, and through its hosting of PlayStation 14 15 games on the PlayStation Now servers. The infringing components include all 16 PlayStation Now servers and server software and associated Sony and PlayStation client devices and other software that supports PlayStation Now. Defendant also 17 performs the claimed method by making available and hosting PlayStation games via 18 the PlayStation Now service. PlayStation Now is a service that allows subscribers to 19 20 play various PlayStation games online through an online subscription. Defendant 21 maintains control over both the server and client components of the PlayStation Now 22 network, and in at least some instances, provides both the server-side hardware and 23 software and client-side hardware and software. Individual users may access the PlayStation Now network though either a PS4 console or a compatible PC with a 24 PlayStation DualShock controller. In addition, Sony also made the PlayStation Now 25 26 service available to the PlayStation Vita, certain Sony Bravia television models, Sony Blu-ray player models, and PS3 consoles. (https://gamerant.com/sony-playstation-27 now-gaikai-cloud-gaming-ps3-ps4/, visited 12, 2019); 28 last July 19

(https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3vita-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.

51. Defendant has also directly infringed and continues to directly infringe 8 one or more of the claims of the '093 Patent by making, using, or selling its 9 PlayStation Remote Play and Remote Play app. Remote Play is a feature included 10 11 with the PlayStation PS4 console that allows Sony PlayStation PS4 consoles to transmit their video output to a PC or Mac computer or laptop, a PlayStation Vita 12 handheld video game console, Sony Xperia phones and tablets, and Apple's iPhones 13 and iPads. (https://www.playstation.com/en-gb/explore/ps4/features/remote-play/, 14 last visited July 12, 2019). Similarly, PlayStation users can connect a DualShock 15 16 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 17 local area network, including a Wifi network or an Ethernet network, and in some 18 instances, the Internet. Defendant maintains control over both the client and server 19 components of the Remote Play network. Commands entered by game players on 20 21 their individual devices are transmitted to a PS4 console, where display images are 22 generated based on the player commands. The generated images are then compressed and streamed back to the client devices and displayed. The PlayStation games are 23 hosted by Defendant's PS4 consoles. 24

52. 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 1 products. (https://www.playstation.com/en-au/get-help/help-library/apps---2 features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/, last visited 3 July 12, 2019). In fact, on information and belief, Defendant has required that all 4 PlayStation must provide for Remote Play. 5 games support 6 (https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remoteplay-for-ps4-games, last visited July 12, 2019). Like PlayStation Now, and on 7 information and belief, the Sony Remote Play feature also is based on Gaikai 8 9 technology. (https://www.gamasutra.com/view/news/187022/How\_Sonys\_PlayStation\_4\_will\_1 10 11 everage\_Gaikais\_cloud.php, last visited July 12, 2019) 53. The acts of infringement by Defendant have caused damage to IPL, and 12 IPL is entitled to recover from Defendant the damages sustained by IPL as a result 13 of Defendant's wrongful acts in an amount subject to proof at trial. The infringement 14 of IPL's exclusive rights under the '093 Patent by Defendant has damaged and will 15 16 continue to damage IPL, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court. 17 **INFRINGEMENT OF U.S. PATENT NO. 9,699,238** 18 54. On July 4, 2017, U.S. Patent No. 9,699,238 was duly and legally issued 19 20 for inventions entitled "Image Display System with Visual Server." IPL was assigned the '238 Patent and continues to hold all rights and interests in the '238 Patent. The 21 22 '238 Patent was filed on February 27, 2014 as Application No. 14/192,789, which is 23 a continuation of Application No. 13/296,776, which is a continuation of Application No. 12/538,347, which is a continuation of Application No. 10/037,688, which 24 claims priority to Provisional Application 60/263,854, filed on January 24, 2001. A 25 26 true and correct copy of the '238 Patent is attached hereto as Exhibit 4. 55. Defendant has directly infringed and continues to directly infringe one 27 or more of the claims of the '238 Patent by its manufacture, use, and sale of its 28

1 PlayStation Now game streaming service, and through its hosting of PlayStation games on the PlayStation Now servers. The infringing components include all 2 3 PlayStation Now servers and server software and associated Sony and PlayStation client devices and other software that supports PlayStation Now. Defendant also 4 performs the claimed method by making available and hosting PlayStation games via 5 6 the PlayStation Now service. PlayStation Now is a service that allows subscribers to 7 play various PlayStation games online through an online subscription. Defendant maintains control over both the server and client components of the PlayStation Now 8 9 network, and in at least some instances, provides both the server-side hardware and software and client-side hardware and software. Individual users may access the 10 11 PlayStation Now network though either a PS4 console or a compatible PC with a PlayStation DualShock controller. In addition, Sony also made the PlayStation Now 12 service available to the PlayStation Vita, certain Sony Bravia television models, Sony 13 Blu-ray player models, and PS3 consoles. (https://gamerant.com/sony-playstation-14 now-gaikai-cloud-gaming-ps3-ps4/, visited 12, 15 last July 2019); 16 (https://www.polygon.com/2017/2/15/14627922/playstation-now-discontinued-ps3vita-tv, last visited July 12, 2019). Commands entered by game players on their 17 individual client devices are transmitted to central servers, where display images are 18 generated. The generated stream of images is then transmitted back to the client 19 20 devices and displayed. The games are hosted by servers operated by and/or controlled 21 by Defendant, and for most client devices, those devices are made and sold by 22 Defendant with the purpose of using those devices with the PlayStation Now service.

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56. Defendant has also directly infringed and continues to directly infringe one or more of the claims of the '238 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 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

1 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 2 controller to various devices, including Android devices, Apple computers, Windows 3 PCs, and iOS devices. Both the PS4 console and the user device are connected to a 4 local area network, including a Wifi network or an Ethernet network, and in some 5 6 instances, the Internet. Defendant maintains control over both the client and server components of the Remote Play network. Commands entered by game players on 7 their individual devices are transmitted to a PS4 console, where display images are 8 9 generated based on the player commands. The generated images are then compressed and streamed back to the client devices and displayed. The PlayStation games are 10 11 hosted by Defendant's PS4 consoles.

57. In addition, Defendant has induced business partners to design PS4 12 games with Remote Play capabilities and has induced customers to use the Remote 13 Play service provided with the PS4 consoles and with the various client devices 14 executing the Sony Remote Play client software. These client devices in many 15 16 instances constitute Sony products, such as the PlayStation Vita and the Sony Xperia (https://www.playstation.com/en-au/get-help/help-library/apps---17 products. features/playstation-apps---features/ps4--remote-play-for-pc-and-mac/, last visited 18 July 12, 2019). In fact, on information and belief, Defendant has required that all 19 20 PlayStation must provide for Remote Play. games support 21 (https://www.eurogamer.net/articles/digitalfoundry-sony-mandates-vita-remoteplay-for-ps4-games, last visited July 12, 2019). Like PlayStation Now, and on 22 information and belief, the Sony Remote Play feature also is based on Gaikai 23 technology. 24

(https://www.gamasutra.com/view/news/187022/How\_Sonys\_PlayStation\_4\_will\_1
 everage\_Gaikais\_cloud.php, last visited July 12, 2019).

58. 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

1 of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of IPL's exclusive rights under the '238 Patent by Defendant has damaged and will 2 continue to damage IPL, causing irreparable harm, for which there is no adequate 3 remedy at law, unless enjoined by this Court. 4

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## **DEFENDANT'S KNOWLEDGE OF THE PATENTS-IN-SUIT**

59. 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.

9 60. 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, 10 11 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, 12 9,192,859, 9,203,685, 9,227,139, 9,272,209, 9,272,220, and 9,314,691. The '826 and 13 '093 Patents were also cited during the prosecution of Sony Computer Entertainment 14 America LLC's U.S. Patent No. 9,086,995. 15

16 61. 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, 17 9,420,283, 9,446,305, 9,584,575, 9,723,319, 9,756,349, 9,878,240, 9,956,490, 18 10,039,978, 10,130,891, and 10,201,760. The '826 Patent was cited during the 19 20 prosecution of Sony Interactive Entertainment America LLC's U.S. Patent Nos. 21 9,626,308 and 10,002,088. The '093 Patent was cited during the prosecution of Sony 22 Interactive Entertainment America LLC's U.S. Patent No. 9,626,308.

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On April 3, 2015, Osman Kent emailed SIE employee David Perry to 62. 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 25 26 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 27 Patents-in-Suit. Mr. Perry responded to Mr. Kent's email on April 4, 2015, stating 28

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.

4	patents.								
5	JURY DEMAND								
6	63.	IPL demands a trial by jury on all issues.							
7		PRAYER FOR RELIEF							
8	64.	IPL requests entry of judgment in its favor and against Defendant as							
9	follows:								
10		a. A declaration that Defendant has infringed and is infringing U.S.							
11		Patent Nos. 7,587,520, 8,131,826, 8,667,093, and 9,699,238;							
12		b. A declaration that Defendant's infringement of the Patents-in-							
13		Suit was willful;							
14		c. An order permanently enjoining Defendant, its respective							
15		officers, agents, employees, and those acting in privity with it,							
16		from further direct and/or indirect infringement of U.S. Patent							
17		Nos. 7,587,520, 8,131,826, 8,667,093, and 9,699,238;							
18		d. An award of damages to IPL arising out of Defendant's							
19		infringement of U.S. Patent Nos. 7,587,520, 8,131,826,							
20		8,667,093, and 9,699,238, including enhanced damages pursuant							
21		to 35 U.S.C. § 284, together with prejudgment and post-judgment							
22		interest, in an amount according to proof;							
23		e. An award or attorneys' fees pursuant to 35 U.S.C. § 285 or as							
24		otherwise permitted by law; and							
25		f. Granting IPL its costs and further relief as the Court may deem							
26		just and proper.							
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	25								
	COMPLAINT FOR PATENT INFRINGEMENT								

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