IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WORLDS INC.,
 	
    Plaintiff,
 	
  v.
 	
MICROSOFT CORPORATION;
 	
    Defendant.
	Civil Action No. 6:20-cv-872
	
	DEMAND FOR JURY TRIAL

PLAINTIFF WORLDS INC.'S ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT AGAINST MICROSOFT CORPORATION

Plaintiff Worlds Inc. ("Worlds"), by and through its attorneys, hereby alleges this Complaint against Defendant Microsoft Corporation ("Microsoft") for patent infringement.

PARTIES

1.   Plaintiff Worlds is a corporation organized and existing under the laws of the State of Delaware and having a principal place of business at 11 Royal Road, Brookline, Massachusetts.

2.   Defendant Microsoft is a Washington state corporation with a headquarters located at One Microsoft Way, Redmond, Washington 98052. Microsoft's Registered Agent for service of process in Corporate Service Company, 211 East 7th Street, Suite 620, Austin, Texas 78701.

3.   Worlds is the sole and exclusive owner of U.S. Patent No. 8,082,501 ("the '501 Patent"), entitled "System and Method for Enabling Users to Interact in a Virtual Space."   A true and correct copy of the '501 Patent is attached as Exhibit A.

4.   The '501 Patent generally discloses and claims, *inter alia*, methods used for improving network communications and managing client processing burdens in a multi-client/server architecture used in three-dimensional, computer-generated, graphical, multi-user, interactive virtual world systems such as those found in multiplayer gaming. More specifically,

PLAINTIFF'S COMPLAINT

the '501 Patent is directed to methods used in systems that permits a plurality of users to interact in a three-dimensional, computer-generated, graphical virtual world, where each user executes a "client process" to view the virtual world from the perspective of that user. The client process can be used to customize the display of the virtual world to the user, and that display may include avatars representing other users who are "near" the user within the virtual world. So that the virtual world can be updated to reflect the motion or rotation of various users' avatars, avatar position information is transmitted from each user's client process to a centralized "server process," which in turn transmits position updates back to the client processes. The client process updates its respective user's display of the virtual world.
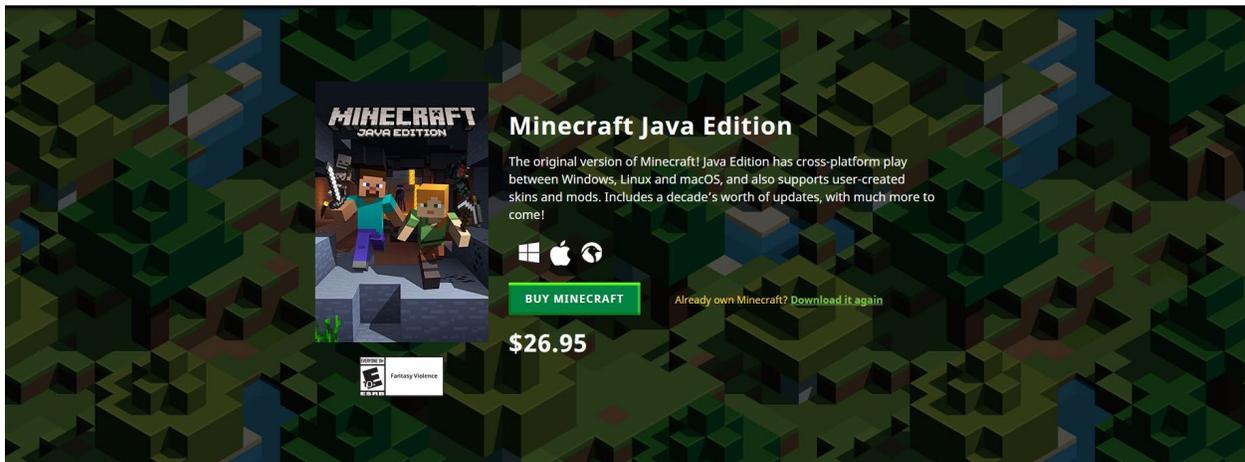
5.   Defendant Microsoft and entities and persons whose actions are attributable to Microsoft have made, used, sold, offered for sale, and/or imported in the United States, including in this judicial district, products and services that directly infringe at least method claims 1, 2, 5, and 10 of the '501 Patent ("the Asserted Claims"), either literally or under the doctrine of equivalents. These infringing activities are associated with, but are not limited to, the Minecraft Java Edition Product and associated software, the official Minecraft Realms subscription-based servers and their associated server software, and the official Minecraft server software used for establishing a private Minecraft server, (collectively, "the Accused Products and Services"). *See* Ex. K (https://web.archive.org/web/20141003153025/https://minecraft.net/); *see also* Ex. L

(https://web.archive.org/web/20151105105527if_/https://minecraft.net/realms), Ex. M
(https://minecraft.gamepedia.com/Java_Edition_1.7.9).

6.   In September of 2014, Microsoft announced it was acquiring Mojang, the
developer of Minecraft, for $2.5 Billion. *See* Ex. N
(https://news.microsoft.com/2014/09/15/minecraft-to-join-microsoft/). The deal was finalized in
November of 2014. *See* Ex. O (https://www.polygon.com/2014/11/6/7167349/microsoft-owns-
minecraft-mojang-acquisition-closes).

7.   In order for users to enjoy the benefits of interacting in the virtual world of
Minecraft, Microsoft sold its Minecraft Java Edition Product to users pursuant to a number of
aggrements including, but not limited to, the Mojang website Terms and Conditions, Ex. P
(https://web.archive.org/web/20151105175934/https://account.mojang.com/terms), which apply
generally to the downloading and use of all Minecraft games, as well as the specific Minecraft
End User's License Agreement in effect during the period of infringement, including in 2014
("2014 Minecraft EULA"), Ex. Q
(https://web.archive.org/web/20141230051357/https://account.mojang.com/documents/minecraft
_eula).

8.   For a user to download and enjoy the benefit of playing any Minecraft game, the
official Mojang website's Terms and Conditions note that "[t]hese terms and conditions are a
legal agreement between you and us (Mojang AB)" and "incorporate the terms of use for the
mojang.com website…." *See* Ex. P
(https://web.archive.org/web/20151105175934/https://account.mojang.com/terms) at
Introduction. Mojang's Terms and Conditions expressly note that "[i]f you buy, download, use
or play any of our games, you will also have to stick to the end user license agreement of that
game." *Id.* Further, the Mojang "Account Terms," expressly "cover the ways our websites
mojang.com and minecraft.net (our "Website") will be provided to you and may be used by
you." *Id.* As the Mojang Account Terms specifiy, "[y]ou are free to use our Website as long as
you stick to these Account Terms. … Your permission to use this website is personal to you, so

you can't give it to anyone else. Don't forget that we still own the Website and the content on it, but we are giving you permission to use it. We want you to enjoy using our website, but if we want, we can take away your permission to use our Website at any time if necessary." *Id.*   In particular, the Mojang Account Terms also include "Restrictions and Obligations" that state "[y]ou aren't allowed to hack, decompile, or change our website at all and you musn't do so. This includes the code or any content or data. Basically, you should just leave it as it is." According to the Mojang Account Terms, "[t]he purchase of a game through our Website provides you with a license to use the game that commences when the download of the game starts…." *Id.*

9.   The 2014 Minecraft EULA provides additional requirements that users must follow in order to enjoy the benefits of playing Mojang's Minecraft game. Specifically, the Minecraft EULA states "[i]n order to protect Minecraft ('our Game') and the members of our community, we need these end user license terms to set out some rules for downloading and using our Game. We don't like rules any more than you do, so we have tried to keep this as short as possible. If you break these rules we may stop you from using our Game. If we think it is necessary, we might even have to ask our lawyers to help out." Ex. Q. (https://web.archive.org/web/20141230051357/https://account.mojang.com/documents/minecraft _eula). Further, the Minecraft EULA states "[i]f you buy, download, use or play our Game, you are agreeing to stick to the rules of these end user license agreement ('EULA') terms. If you don't want to or can't agree to these rules, then you must not buy, download, use or play our Game. This EULA incorporates the terms of use of the mojang.com website ('Account Terms'), our brand and asset usage guidelines and our privacy policy. By agreeing to this EULA, you also agree to all parts of these three documents, so please read through them carefully." *Id*. The EULA also states "[t]he permission we give you to use and play our Game can be revoked if you break the terms of this EULA." *Id*.

10.   In order for users to enjoy the benefits of playing Minecraft in a "multiplayer mode," where multiple independent users can interact in the same Minecraft virtual world, a

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Minecraft server that is able to host the multiple users is also required. Microsoft's subsidiary Mojang provides and has provided online Minecraft Realms subscription server services. Ex. L (https://web.archive.org/web/20151105105527if_/https://minecraft.net/realms).

11.   In order for a user to enjoy the benefits of using a Mojang Realms service subscription for hosting a multiplayer Minecraft game, the user had to agree to abide by the Minecraft Realms Terms and Conditions. Ex. R (https://web.archive.org/web/20140915142357/https://minecraft.net/realms/terms). According to these Terms and Conditions for use of Minecraft Realms, "[t]hese Terms set out some rules for using the Minecraft Realms service ['Minecraft Realms']. We don't like rules any more than you do, so we have tried to keep this as short as possible. If you break these rules we may stop you from using Minecraft Realms. If you use Minecraft Realms, you are agreeing to stick to the rules of these Terms. If you don't want to or can't agree to these Rules, then please don't use Minecraft Realms. These Terms incorporate our Privacy Policy and the Mojang Account Terms and the Minecraft EULA." According to the Minecraft Realms Terms and Conditions, "Minecraft Realms is a service designed to easily let people play Minecraft with other people on a dedicated server subject to these Terms. A 'Minecraft Realm' is therefore a single Minecraft world, server or instance that is hosted by [or for] us." *Id.*

12.   Alternatively, users could establish and maintain partnered Minecraft servers by purchasing/licensing official Minecraft server software. *See* Ex. M (https://minecraft.gamepedia.com/Java_Edition_1.7.9). For users who opted to download the Minecraft server software to create a partnered Minecraft server, that Minecraft software was provided subject to various agreements including, but not limited to, the same Mojang Account Terms and Minecraft End User License Agreement discussed previously in paragraph 6. Ex. S (https://web.archive.org/web/20151105175934/https://account.mojang.com/terms#website); Ex. Q (https://web.archive.org/web/20141230051357/https://account.mojang.com/documents/minecraft _eula). As set forth previously, in order for a user to retain the right to use and benefit from the

Minecraft products and services, the user must abide by these terms, conditions, and agreements. Specifically, the Terms and Conditions state, "[w]ith hosting servers we want to enable the community to make money by creating, hosting and maintaining servers for Minecraft, so you may do so subject to these Guidelines." *Id*. One of those requirements is "you only give access to your server to users who have a genuine paid for version of Minecraft." *Id.*

13.   Microsoft benefited from users who used their Microsoft Minecraft accounts and played Minecraft in a multiplayer mode, which provides a server/client architecture with filtering/crowd control features for multiplayer use, using either partnered servers with licensed Minecraft server software, or through the Minecraft Realms service, and a licensed version of Microsoft's Minecraft Product. The manner and timing of the activities of the users was controlled by Microsoft by virtue of the Microsoft accounts, Microsoft software, and Microsoft licenses and agreements. Therefore, the asserted claims of the '501 Patent were directly infringed by Microsoft because all of the steps of the asserted method claims were attributable to Microsoft through the activities of Minecraft's users.

JURISDICTION AND VENUE

14.   This is an action for patent infringement, arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.* including, but not limited to, §§ 271, 281, 284, and 285.

15.   This Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

16.   Defendant Microsoft is subject to this Court's personal jurisdiction under the Texas Long Arm Statute and federal due process requirements because it has committed acts within this judicial District giving rise to this action, is registered to do business within the District, and has maintained established places of business having contacts within the state of Texas and within this judicial district including: (1) corporate sales offices (located at 10900 Stonelake Boulevard, Suite 225, Austin, TX 78759 and Concord Park II, 401 East Sonterra Boulevard, Suite 300, San Antonio, TX 78258); (2) retail stores (located at 3309 Esperanza Crossing, Suite 104, Austin, TX, 78758 and 7400 San Pedro Avenue, San Antonio, TX 78216);

and (3) data centers that host, among other things, Microsoft's Azure cloud services (located at 5150 Rogers Road, San Antonio, TX 78251, 5200 Rogers Road, San Antonio, TX 78251, and 15388 Lambda Drive, San Antonio, TX 78245). *See* Ex. T (https://www.microsoft.com/en-us/about/officelocator?Location=78759);   Ex.   U   (https://comptroller.texas.gov/taxes/data-centers/data-center-lists.php). Through these physical, regular, established places of business Microsoft regularly conducts and solicits business, engages in a persistent course of business, employs people, derives substantial revenue through the sale and licensing of goods and services including the sale and use of the Accused Products and Services, and otherwise avails itself of the privileges and benefits of doing business in the state of Texas and within this judicial district.

17.   Defendant Microsoft is subject to this Court's specific personal jurisdiction under the Texas Long Arm Statute and under federal due process standards because it has substantial, continuous, and systematic contacts with this State and this judicial district such exercise of personal jurisdiction over Microsoft would not violate traditional notions of fair play and substantial justice, such that Microsoft should expect to be haled into this Court.

18.   Defendant Microsoft has also been deemed subject to personal jurisdiction in this Court in patent actions 6:19-CV-00399-ADA and 1:19-CV-00874-ADA.

19.   Venue is proper pursuant to 28 U.S.C. 1400(b) because Defendant Microsoft and/or its subsidiaries, including through the physical, regular, and established places of business set forth previously, has committed acts of infringement within the state of Texas and this District, through the sale and use of its Accused Products and Services, and has derived substantial revenues from these infringing acts. Specifically, Defendant Microsoft has used and offered, and continues to use and offer to its customers, within the state and judicial district, its Minecraft Accused Products and Services which provide users with the specific benefit, ability, manner, and timing for interacting with each other and the environment within its immersive virtual reality environment pursuant to the requirements of the various Minecraft/Mojang Terms and Conditions, and End User License Agreements as set forth previously.

20.   Defendant Microsoft also used and offered, and continues to use and offer to its customers within the state and judicial district official Minecraft Java servers and Minecraft Java Edition server software products that, pursuant to Microsoft's legal requirements and terms of use, for hosting its Minecraft products and as a required and necessary tool for providing its users with the specific benefit, ability, manner, and timing to access the Minecraft virtual world and interact within its immersive virtual reality environment.

21.   Venue has also been determined as proper against Microsoft in this Court in patent actions 6:19-CV-00399-ADA and 1:19-CV-00874-ADA.

22.   For these reasons, personal jurisdiction exists and venue is proper in this District and Court.

BACKGROUND – WORLDS, INC.

23.   Worlds, Inc., a publicly traded company having stock ticker symbol "WDDD," is one of the earliest developers and an original innovator in the field of internet-based, multiplayer, 3-D entertainment. *See* Exhibit B, Gina Smith, *"Whole new Worlds on-line: S.F. Startup Making Waves with 3-D Virtual Reality World on the Internet"*, San Francisco Examiner, May 14, 1995; Exhibit C, Todd Copilevitz, *"Here's a chat room worth talking about"*, Dallas Morning News, June 11, 1995. As early as 1994, the company was engaged in the research and development of 3-D online worlds, the kind of technology that now powers massively multiplayer online role playing games ("MMORPGs").

24.   Worlds, Inc. was a spin-off of closely held Knowledge Adventure, Inc. Worlds Inc. was formerly known as Knowledge Adventure Worlds. *See* Exhibit D, *"Worlds Inc. Announces 'Worlds Chat'"*, Business Wire, April 25, 1995; Exhibit E, Jared Sandberg, *"Talking Blowfish to Enliven the Internet"*, The Wall Street Journal, April 3, 1995.

25.   Worlds, Inc. was at times known as Worlds.com, Inc.

26.   With ground-breaking product offerings in 1995, Worlds was one of the earliest adopters and developers of key technologies used in today's virtual reality and immersive environments.

27.   While the video gaming industry was in its infancy in 1994-1995, it is now a $100 billion a year industry and includes companies having multi-billion-dollar annual revenues. *See* Exhibit F, Teodora Dobrilova, "*How Much Is the Gaming Industry Worth*," techjury, April 4, 2019 (available at https://techjury.net/stats-about/gaming-industry-worth/).

BACKGROUND – WORLDS' INNOVATION

28.   In 1995, four Worlds employees — Dave Leahy, Judith Challinger, B. Thomas Adler, and S.J. Ardron (together, the "named inventors") — were faced with problems in the field of computer networks and discovered novel solutions that are the inventions disclosed in the '501 Patent asserted in this lawsuit. The named inventors arrived at their inventions while developing Worlds' virtual-worlds software platforms, *Worlds Chat* and *AlphaWorld* — both of which were first introduced in 1995, and enabled remote users to chat and interact over the Internet in graphically rich, three-dimensional virtual environments.

29.   Worlds unveiled its 3-D virtual space referred to as *Worlds Chat* in 1995 and distributed it to the public for free. *Worlds Chat* was a virtual worlds software application that allowed remote users to chat over the internet while occupying a visually rich three-dimensional virtual world. *See* Exs. B, C, D, E.

30.   Worlds Chat users are represented by three-dimensional avatars. Users can view the virtual world from the point of view of their avatar and freely move through the virtual world. *See* Ex. D.

31.   Worlds' technology was a radical leap from menu-driven, icon-based interfaces. Worlds' ground-breaking technology connected three-dimensional interactive environments even over regular phone lines in 1995, with minimum hardware requirements of a 9600 baud modem and a 486 PC. *Id*.

32.   On May 14, 1995, the *San Francisco Examiner* published an article entitled *"Whole new Worlds on-line: S.F. Startup Making Waves with 3-D Virtual Reality World on the Internet."* Ex. B. In the article Gina Smith reported, "Worlds—a spin off of La Crescenta-based edutainment firm Knowledge Adventure—has created Worlds Chat. It is one of the first

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examples of virtual reality on the Internet I've seen." The article further states, "Worlds Chat is a virtually real, multi-user 3-D world that you can walk through and meet people in" and "Worlds Chat is different. This isn't just text, it's a graphical environment." *Id*.

33.   Worlds' work on virtual environments also drew the attention of Steven Spielberg. In its article, the San Francisco Examiner reported that, "Last week, movie director Steven Spielberg announced that his nonprofit Starbright Foundation is working with Worlds, Intel, UB Networks and Sprint to create a 3-D environment where hospitalized children can play and socialize with each other." *Id*.

34.   Other newspaper articles written that year touted the achievements of Worlds Chat. For example, on June 11, 1995, the *Dallas Morning News* published an article titled *"Here's a chat room worth talking about."* Ex. C. The reporter Todd Copilevitz stated, "Worlds Chat is the hottest innovation the Internet will see this year. Write it down, take it to the bank. It may well be the most important, too, not just for the innovation it marks but the potential it brings to cyberspace." *Id*. The article further states, "Worlds Chat is a new service from Worlds Inc. of San Francisco. It uses direct Internet connections, the type offered by local service providers and CompuServe, to gather users from around the world." *Id*.

35.   Coming out of Worlds' innovation associated with Worlds Chat was the technology that provides the backbone for the patent at issue here. Shortly after the release of Worlds Chat, the named inventors initially set forth their inventions in a provisional patent application filed on November 13, 1995 (the "Provisional Application"). Exhibit G, U.S. Provisional Patent Application No. 60/020,296.

BACKGROUND - WORLDS' PATENT PORTFOLIO

36.   Worlds has been granted multiple U.S. patents, issuing from April 2001 to August 2015, for various inventions including certain client-server load balancing technology for three-dimensional virtual worlds. These inventions allow multiple users to interact in the three-dimensional, computer-generated graphical space, where each user executes a client process to view the virtual world from the perspective of that user. To update the virtual world to reflect

the motion and/or rotation of the users' avatars, position information is transmitted to a central server, which then provides position updates to client processes for displaying the updated virtual world from the point of view of their respective users.   The client processes also use an environment database to determine which background objects to render, as well as to limit the movement of an associated user's avatar.

37.   Worlds Inc., at times operating under the name Worlds.com Inc., is the original and sole assignee of the '501 Patent. *Id.*

38.   To date, Worlds' patent infringement enforcement program has pursued claims against multi-billion-dollar video game developing companies.

BACKGROUND - PRIOR LITIGATION AND ADMINISTRATIVE PROCEEDINGS

39.   On March 30, 2012, Worlds filed a patent infringement lawsuit against Activision Blizzard, Inc., Blizzard Entertainment, Inc., and Activision Publishing, Inc., (collectively, "Activision") in the United States District Court for the District of Massachusetts for patent infringement. *Worlds, Inc. v. Activision Blizzard, Inc., et al.*, Civil Action No. 1:12-CV-10576 (D. Mass., March 30, 2012). The asserted patents in the lawsuit against Activision included the '501 Patent.

40.   On June 26, 2015, a claim construction order was issued in Worlds' litigation with Activision. Exhibit H, *Worlds, Inc. v. Activision Blizzard, Inc., et al.*, Dkt. No. 153.

41.   On September 4, 2015, Activision filed a Motion for Summary Judgment against Worlds, asserting that the Asserted Patent Claims are Invalid under 35 U.S.C. § 101. *Worlds, Inc. v. Activision Blizzard, Inc., et al.*, Dkt. Nos. 174-177.

42.   In late May and early June 2015, Bungie, Inc. (a company having a contractual relationship with Activision) filed a number of petitions for *inter partes* review ("IPR") with the Patent Trial and Appeal Board ("PTAB") of the U.S. Patent and Trademark Office ("USPTO"), challenging the validity of many of the claims in the Worlds patent portfolio, including claims of the '501 Patent. The PTAB instituted the IPRs and reached final decisions on each. Three IPRs, including IPR2015-01319 directed to the '501 Patent, were appealed by Worlds and were

vacated and remanded to the PTAB by the Federal Circuit. *See Worlds Inc. v. Bungie, Inc.,* 903 F.3d 1237 (Fed. Cir. 2018). On remand, the PTAB terminated IPR2015-01319 without reaching a final written decision on January 14, 2020. Bungie, Inc. did not appeal the termination of IPR2015-01319.

43. The Massachusetts District Court litigation was stayed on February 11, 2016, and remained stayed pending the outcome of the three remanded IPRs until April 17, 2020. At that time, the district court lifted the stay, reopened fact discovery, and set a schedule for updated briefing on Defendants' Motion under 35 U.S.C. § 101. After updated briefing was complete, a hearing on that Motion was held on July 22, 2020, but the Massachusetts District Court has not yet rendered its decision.

OVERVIEW OF U.S. PATENT NO. 8,082,501

44. The '501 Patent duly and legally issued on December 20, 2001 from U.S. Patent Application Serial No. 12/406,968, filed on March 19, 2009. This application is a continuation application of and claims priority to U.S. Patent Application Serial No. 12/353,218 filed January 13, 2009, now U.S. Patent No. 7,945,856; which is a continuation of and claims priority to U.S. Patent Application Serial No. 11/591,878, filed November 2, 2006, now U.S. Patent No. 7,493,558; which is a continuation of and claims priority to U.S. Patent Application Serial No. 09/632,154, filed August 3, 2000, now U.S. Patent No. 7,181,690; which is a continuation of and claims priority to U.S. Patent Application Serial No. 08/747,420, filed November 12, 1996, now U.S. Patent No. 6,219,045; which claims priority to U.S. Provisional Patent Application Serial No. 60/020,296, filed November 13, 1995.

45. The '501 Patent is titled: "System and Method for Enabling Users to Interact in a Virtual Space." *Id*. As described in the Background of the '501 Patent, there are difficulties in a conventional "client-server system" for 3-D virtual reality "game playing, where the positions and actions of *each user* need to be communicated between *all the players* to inform *each* client of the state changes (position, actions, etc.) which occurred at the other clients." *Id*. at 1:63-66 (emphasis added).

46.   Similar to the traditional client-server system, the prior "peer-to-peer architecture" required many messages to provide the state change updates, and because of the heavy processing loads and limited capabilities of a workstation in a 3-D environment, this requirement to process many messages "limits the number of clients which can be connected to the network." *Id*. at 2:4-8.

47.   The '501 Patent describes an improved system in which "the virtual world server must be much more discriminating as to what data is provided to each client[]." *Id*. at 3:51-53.

48.   To handle the remote avatar positions received by a client, the client includes "a way to filter out avatars" for display using, according to various embodiments, proximity, user ID, or a crowd control function (which is "needed in some cases to ensure that neither client 60 nor user A get overwhelmed by the crowds of avatars likely to occur in a popular virtual world."). *Id*. at 6:3-5; 5:37-41.

49.   Thus, the '501 Patent discloses server-side crowd control, such that the server may notify the client of the positions of only certain relevant neighboring avatars. The client determines the avatars to be displayed based on, for example, the received avatar positions from the server, and application of these additional filtering and/or crowd control functions. The rendering engine 120 then generates the graphical display from the point of view (position and orientation) of the client's avatar. *Id*. at 7:55-57.

50.   On November 4, 2011, the USPTO Examiner examining the application that led to the '501 Patent issued a NOTICE OF ALLOWANCE AND FEE(S) DUE, allowing the claims in Patent Application No. 12/406,968. In the section titled "REASONS FOR ALLOWANCE," the Examiner concluded:

> The following is an examiner's statement of reasons for allowance: Applicant has claimed uniquely distinct features in the instant invention which are not found in the prior art either singularly or in combination. They are customizing, using a processor of a client device an avatar in response to input by a first user; receiving by the client device, position information associated with fewer than all the other user avatars in an

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interaction room of the virtual space, from a server process, wherein the client device does not receive position information of at least some avatars that fail to satisfy a participant condition imposed on avatars displayable on the client device display of the client device; determining by the client device, a displayable set of the other user avatars associated with the client device display; and displaying, on the client device display, the displayable set of the other user avatars associated with the client device display. These features are not found or suggested in the prior art.

See Exhibit I, NOTICE OF ALLOWANCE AND FEE(S) DUE dated November 4, 2011.

ASSERTED CLAIMS OF THE '501 PATENT

51.   The asserted claims of the '501 Patent include at least claims 1, 2, 5, and 10,

presented below.

52.   Claim 1 of the '501 Patent reads:

> 1. A method for enabling a first user to interact with other users in a virtual space, each user of the first user and the other users being associated with a three dimensional avatar representing each said user in the virtual space, the method comprising the steps of:
>
> > customizing, using a processor of a client device, an avatar in response to input by a first user;
> >
> > receiving, by the client device, position information associated with fewer than all of the other user avatars in an interaction room of the virtual space, from a server process, wherein the client device does not receive position information of at least some avatars that fail to satisfy a participant condition imposed on avatars displayable on a client device display of the client device;
> >
> > determining, by the client device, a displayable set of the other user avatars associated with the client device display; and
> >
> > displaying, on the client device display, the displayable set of other user avatars associated with the client device display.

53.   Claim 2 of the '501 Patent reads:

> 2. The method according to claim 1, further comprising the step of:

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monitoring an orientation of the first user avatar;

wherein the step of determining comprises filtering the other user avatars based on the monitored orientation of the first user avatar.

54.   Claim 5 of the '501 Patent reads:

5. The method according to claim 1, further comprising receiving by the client device orientation information associated with fewer than all of the other user avatars, wherein the client device does not receive orientation information of at least some avatars of the other user avatars in the virtual space.

55.   Claim 10 of the '501 Patent reads:

10. The method according to claim 1, wherein the step of determining comprises filtering the other user avatars based on a limit of the other user avatars that may be displayed on the client device display, the limit being set at the client device.

THE TECHNICAL PROBLEM SOLVED BY THE '501 PATENT

56.   The '501 Patent addresses a computer-centric problem unique to networked multiuser client-server systems: how to facilitate interaction among a large (and potentially unknown or variable) number of remote users in a three-dimensional world, given the limitations in network capacity and the different capabilities of client computers connected to the virtual world. Ex. A at 1:25–2:33.

57.   The '501 Patent specification further discusses the problems in this technology space. In "game playing, [ ] the positions and actions of each user need to be communicated between all the players to inform each client of the state changes (position, actions, etc.) which occurred at the other clients." *Id*. at 1:63-66. But "where many client machines or processes are communicating with each other in real-time through the server, several problems arise." *Id.* at 1:52-55.   "For example, where a client-server system is used for real-time exchange of information, such as a … virtual reality network where users … visually and aurally interact with

other users … communication is much more difficult, especially where the information is high-bandwidth data such as audio streams, graphic streams, and image streams." *Id*. at 1:56-62. That problem—the "difficulty" of using a "client-server system" for "real-time exchange of information … where the information is high-bandwidth data"—exists *only* in networked multiuser systems.

58.   There is no real-world analogue of the problem Worlds' inventors faced, *i.e.*, the risk that due to a large number of remote users, a system could crash or performance could become intolerably sluggish.

59.   Worlds was not the first to allow extensive remote user interaction. An earlier approach involved a "peer-to-peer" architecture, where each user communicated directly with all other users. *Id*. at 2:3-6. But that peer-to-peer communication imposed heavy processing loads and "limit[ed] the number of clients which can be connected to the network." *Id*. at 2:6-8. Another approach used a server to "broadcast" information to all users, but as transmissions swelled in size due to increased numbers of users, a broadcast approach was neither "efficient" nor "reliable" and, in an "open network[ ] such as the Internet … [was] not even possible." *Id*. at 2:17-29.

60.   As an improvement, the '501 Patent teaches an invention where a server and a client both perform culling functions—filtering avatars using criteria—to control crowds, manage network loads, and facilitate interaction of remote users in a three-dimensional world.

61.   Instead of a typical client-server architecture, where all avatar position and state information would be broadcast to all users, here the asserted claims teach a method of managing network loads while controlling crowds at both the server and the client process, thereby improving the user experience.

62.   The asserted claims of the '501 Patent describe a virtual world server that operates differently than other general-purpose computer servers. "So that the virtual world is scalable to a large number of clients, the virtual world server must be much more discriminating

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as to what data is provided to each client[].” *Id*. at 3:51-53. The '501 Patent's virtual world server sends position information only for certain user avatars.

63.   To efficiently process received position information for other avatars, a client determines which of those other avatars to display (which is "needed in some cases to ensure that neither client [ ] nor user [ ] get overwhelmed by the crowds of avatars likely to occur in a popular virtual world."). *Id.* at 6:3-5, 5:37-41.

64.   Thus, the '501 Patent claims are directed to solving a problem of facilitating interaction among remote users in a three-dimensional virtual world by performing crowd control, both at the server side and at the client side. Iterations of this innovation are claimed in the asserted claims 1, 2, 5, and 10 of the '501 Patent.

65.   These asserted claims provided a solution to the defined computer-centric problem by teaching a method for implementing a scalable client-server architecture that facilitates the efficient interaction of remote users in a 3-D, multi-user, interactive virtual environment. *Id.* at 2:37-54. The disclosed client-server system is relevant to multiplayer three-dimensional video games and internet chat programs, where the positions and actions of each avatar are communicated to other users.

66.   Thus, the '501 Patent discloses and claims a specific solution to a computer-centric problem unique to multiuser interaction over the internet. As noted in the '501 Patent, "Crowd control is one of the tougher problems solved by the present system." *Id*. at 13:12-13. The claim construction Order that issued in the District of Massachusetts recognized that the '501 Patent and other Patents-In-Suit all "share a common specification," *id*. at 2, and "disclose an invention to solve the problem of 'crowd control,'" which is a computer-centric problem unique to computer networks with multiuser client-server systems. Ex. H at 8.

THE '501 PATENT CLAIMS PATENT ELIGIBLE SUBJECT MATTER

67.   For a number of reasons, some of which are described in this Complaint, the asserted claims of the '501 Patent claim patent eligible subject matter. The '501 Patent claims new, novel and useful improvements over existing means or methods. The '501 Patent solves at

least two technical problems: large numbers of messages being transmitted between a server and each user/client in a networked virtual environment, and the overwhelming processing load on a client resulting from large numbers of avatars existing in the virtual environment.

68.   The '501 Patent specification sets forth computer functionality problems with conventional peer-to-peer systems handling the amount of data messages being passed from user/client to user/client. There were limitations in the conventional "peer-to-peer architecture" in managing the data flow of messages passing between clients, especially "where the network is not a dedicated network, but is an open network, such as the Internet." *Id*. at 2:3-29. The '501 Patent specification teaches that the claimed invention achieves benefits over such conventional peer-to-peer systems.

69.   The '501 Patent's asserted claims recite patent eligible subject matter because they entail an unconventional technological solution (e.g., server-side and client-side crowd control by limiting the number of position messages transmitted from the server side, and by limiting other user/client avatars visible to, and interacting with, each user/client) to technological problems (e.g., a large number of messages being sent and received by each user/client in a game network environment, and a client that is overwhelmed by position information for an excessive number of other avatars existing in the virtual world).

70.   The '501 Patent specification describes computer functionality problems arising "where many client machines or processes are communicating with each other in realtime through the server…" *Id*. at 1:52-55. "For example, where a client-server system is used for real-time exchange of information, such as a distributed virtual reality network where users at client machines visually and aurally interact with other users at other client machines, communication is much more difficult, especially where the information is high-bandwidth data such as audio streams, graphic images and image streams. One application of such a client-server system is for game playing, where the positions and actions of each user need to be communicated between all the players to inform each client of the state changes (position, actions, etc.) which occurred at the other clients. The server might maintain global state information and serve as a data server

for the clients as they request visual, program and other data as the game progresses." *Id*. at 1:56-2:2.

71.   The '501 Patent solves the described computer functionality problem by providing "an efficient system for communication between many client systems over dedicated or open networks to provide graphical interaction between users operating the client systems." *Id*. at 2:30-33.   "So that the virtual world is scalable to a large number of clients, the virtual world server must be much more discriminating as to what data is provided to each client[]." *Id*. at 3:51-53.

72.   The '501 Patent also creates a server-based and client-based scalable solution for the massive multiplayer virtual world. This scalable solution did not exist in 1995.

73.   The '501 Patent is directed to an improvement to the way computers operate and claims the improvement.   In implementation, the '501 Patent solution improves computer functionality by way of increasing the gaming speed and reducing the network message data flow.

74.   The '501 Patent entails an unconventional technological solution to a technological problem and achieves a practical result. The '501 Patent teaches crowd control by having a server limit the number of other user/client avatar position information to the client, and the client determining a displayable set of avatars to be displayed, where this determining may be performed using other filering and crowd control features.

75.   The claims of the '501 Patent include enhancing limitations that necessarily require that even any generic components operate in an unconventional manner to achieve an improvement in computer functionality.

76.   The '501 Patent claims describe and claim an "inventive concept," whereby a limited amount of avatar position information is transmitted from a customizable "server process," remote from the end user/client, to the client, which further determines a displayable set of avatars using, e.g., additional filtering or crowd control functions.

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77.   The claims of the '501 Patent are not directed to a judicial exception to patentability nor to an abstract idea. The '501 Patent claims are not directed to mathematical concepts, but instead are directed to managing the avatars shown on a screen and to limiting network traffic between a server and clients. The '501 Patent claims are not directed to organizing human activity, but instead, for example, to client/server computer systems for accessing and interacting within a virtual world. The '501 Patent is also not directed to mental processes or concepts performed in the human mind. Instead, the invention is implemented on computer systems implementing a computer-based virtual world, and does not involve human intervention.

78.   The claims of the '501 Patent are directed to a practical application of determining which avatars to display in a virtual environment existing solely on computers. More particularly some claims are directed to a client process that determines which avatars to display based a limited number of avatar positions received from a server, and additional filters and/or crowd control features for determining a displayable set of avatars.

79.   The claimed invention of the '501 Patent is rooted in computer technology. Virtual worlds for avatars only exist in the realm of computers. Only computers can decide, from among the numerous avatar positions received from a server, which avatars to display in a virtual world.

80.   The claimed invention of the '501 Patent is an improvement to virtual world computer systems. The '501 Patent improves the efficiency of processing the positional updates of avatars in the virtual world. This improved efficiency and speed is achieved through a server-side and client-side process that reduces message traffic and decreases processing resources for display of other avatars.

81.   The '501 Patent claims a solution that is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks by providing an "inventive concept," comprised of limiting the number of avatars

visible and interacting in a virtual space via a server-side filtering, client-side determinations of other avatars to display, and a combination thereof.

82.   The '501 Patent provides a practical solution to a problem and generates a practical result. The '501 Patent claims use computers to reduce message traffic and network load in a crowded virtual space, and to transform a crowded virtual space into a generated display with less than all the avatars. This practical solution and practical result has a negligible impact on virtual world interaction between a client's avatar and other users' avatars.

83.   The '501 Patent system and methods are not merely well-understood, routine, conventional activities previously known to the industry. Meetings of avatars in the virtual world were still new in 1995. *See* Exhibit J, *"Now, A 'Space Station' In Your Pc"*, BloombergBusiness, April 10, 1995; *see also* Exs. B, C, D, E.

84.   In 1995, meetings of large groups of avatars in a virtual world were uncommon and subject to technological constraints. On April 3, 1995 Wall Street Journal staff reporter Jared Sandberg wrote "Virtual worlds, as on-line computer buffs call them, may be the next part of the Internet to get mighty crowded." *See* Ex. E.   In 1995, Worlds Inc. rolled out an on-line virtual "environment" hoping hordes of Internet users would want to chat and explore a virtual world existing in simulated three dimensions. *Id.* "All of these things, [such as chatting in the virtual world,] presage the new telecommunications medium that is going to replace the telephone touch-tone keypad." *Id*.   Such chatting in the virtual world, was identified as a possible "backdrop" for on-line business meetings. *Id.* The value of virtual meetings with a large numbers of individuals was not understood, large virtual world meetings were not yet occurring, and therefore the problem was not understood and solutions were not available. *Id.*

85.   Meetings of three-dimensional avatars in a virtual world were not only not routine in 1995, they were virtually non-existent until release of Worlds' product in April of 1995. *See* Exs. D, E. Thus, a large gathering of avatars was not routine, and systems implementing virtual world had not arranged for any solution to address the technological constraints imposed by either the increased network message traffic resulting from large numbers of avatars or the

impact of a large number of avatars on a client process generating a display of the crowded virtual world.

86.   In 1995, there were no conventional systems or methods for implementing both server-side and client-side crowd control in virtual worlds with large numbers of avatars.

87.   The methods described and claimed in the '501 Patent were neither routine nor conventional. They broke from the peer-to-peer systems and client-server architecture of the prior art by using an unconventional server implementing an unconventional message flow, and an unconventional client using the position information from the server to further manage a crowded virtual world.

88.   In the Examiner's reasons for allowance, also cited above, the claims were described as not well-understood, routine nor conventional: "Applicant has claimed uniquely distinct features in the instant invention which are not found in the prior art *either singularly or in combination*." *See* Ex. I at 8 (emphasis added).

89.   In addition to the individual claim elements of the '501 Patent having an "inventive concept," the '501 Patent claim elements, considered as an ordered combination, disclose an inventive concept and thus cover patent eligible subject matter. Each '501 Patent claim taken as a whole teaches a multistep process whereby, in a virtual space, a user customizes, using a processor of a client device an avatar in response to input by a first user, receiving by the client device, position information associated with fewer than all the other user avatars in an interaction room of the virtual space, from a server process, and wherein the client device does not receive position information of at least some avatars that fail to satisfy a participant condition imposed on avatars displayable on the client device display of the client device, and determining by the client device, a displayable set of the other user avatars associated with the client device display; and displaying, on the client device display, the displayable set of the other user avatars associated with the client device display. That combination was inventive and not overbroad.

90.   The claims of the '501 Patent do not broadly and generically claim use of the Internet to perform an abstract business practice; instead, they specify how interactions and data exchanged over the Internet are manipulated to yield a desired result—a result that overrides the routine and conventional sequence of events ordinarily triggered in conventional networked multiuser client-server systems.

91.   The '501 Patent claims unique and non-conventional methods for processing the display of avatars in a computer environment. The claimed method of reducing computer system communication traffic related to avatars in a virtual space (by sending positions of less than all the avatars) and determining the number of avatars to be displayed was counter-intuitive at the time of the invention. Specifically, the virtual world concept was designed to bring remotely located users together in a common virtual environment. In order to achieve its solution, the '501 Patent took the counter-intuitive approach of reducing the message traffic conveying updated position information from the server to the client by sending position information for fewer than all other user avatars, and also accounting for limit of other users' avatars to display by a client when that client determines which other users' avatars to display. *See, e.g.*, '501 Patent, claim 10 (claiming the step of "filtering the other user avatars based on a limit of the other user avatars that may be displayed on the client device display, the limit being set at the client device"). The '501 Patent achieves this result with a non-conventional server and non-conventional client system.

92.   Worlds' '501 Patent claims a limited number of specific solutions for facilitating remote user interaction in a virtual space. Worlds' '501 Patent is not unduly pre-emptive, as it leaves open other potential approaches to manage network loads in the context of remote user interaction in a virtual space.

93.   Worlds' '501 Patent is directed to a specific improvement to multiuser 3-D software implementations and extends no further. Worlds' innovations can be used, for example, in multiplayer video games, internet chat rooms, or 3-D business-to-business software applications, but do not preempt other solutions.

COUNT I – DIRECT INFRINGEMENT OF U.S. PATENT NO. 8,082,501

94.   Worlds incorporates herein by reference the allegations stated in paragraphs 1-93 of this Complaint.

95.   On December 20, 2011, the United States Patent and Trademark Office duly and legally issued the '501 Patent to the inventors Dave Leahy, Judith Challinger, B. Thomas Adler, and S.J. Ardron. Worlds is the owner by assignment of all right, title and interest in and to the '501 Patent, including the right to sue, enforce and recover damages for all past infringements of the patent.

96.   At least claims 1, 2, 5, and 10 of the '501 Patent ("the Asserted Claims") are directed to methods for providing unique computing solutions that addresses problems particular to computerized virtual reality systems, in which avatars respectively representing a plurality of users can interact in a virtual world, or three-dimensional, computer generated graphical space managed by a server process.

97.   Defendant Microsoft directly infringed, either literally or through the doctrine of equivalents, the Asserted Claims of the '501 Patent, by making, using, offering to sell, selling and/or importing products in the United States and in this judicial District, including but not limited to its Minecraft Accused Products and Services, the use of which by Microsoft, either alone or through entities whose actions are attributable to it, practiced the methods claimed in at least claims 1, 2, 5, and 10 of the '501 Patent, thereby constituting infringement under 35 U.S.C. § 271(a).
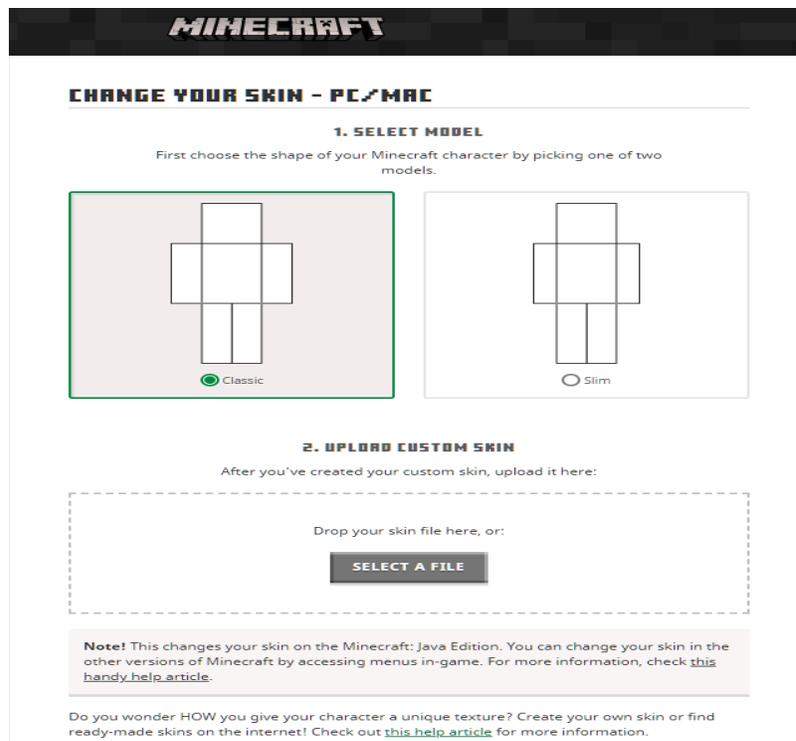
98.   As set forth previously in paragraphs 7-13, Microsoft infringes the Asserted Claims of the '501 Patent for purposes of direct infringement under 35 U.S.C. § 271(a) because its use, including use by entities whose actions are attributable to Microsoft, of Accused Products and Services practice each element of the Asserted Claims.

99.   Upon information and belief, Microsoft has tested and used its Accused Products and Services, including the practice of the claimed methods of the Asserted Claims, and which

provides a separate basis of Microsoft's direct infringement of at least claims 1, 2, 5, and 10 of the '501 Patent under 35 U.S.C. § 271(a).

100.   Regarding claim 1, in use of the Accused Products and Services, Microsoft uses a client process, such as that found in a Minecraft Java Edition Product, for enabling a first user to interact with other users in the Minecraft virtual space, wherein the first user and the other users each have a customizable avatar and a client process associated with each of those avatars, and where each of the client processes is in communication with a server process, such as programmed Minecraft Realms server software hosted by Microsoft's subsidiary Mojang, and/or other server partners pursuant to the Terms and Conditions and End User License Agreements which provided Microsoft the ability to, timing and manner for, and benefit of using a server process, such as the Minecraft server software, to manage multiple users within the Minecraft virtual space.   *See* Exhibit V, Infringement Claim Chart for Claim 1 of U.S. Patent No. 8,082,501, at pp. 1-9.

101.   In use, the Microsoft Minecraft Java Edition Product includes software programming for a first user's client process that provided the user with the ability to, timing and manner for, and benefit of performing a series of steps including customizing an avatar:

See Exhibit V, Infringement Claim Chart for Claim 1 of U.S. Patent No. 8,082,501, at pp. 1-4.
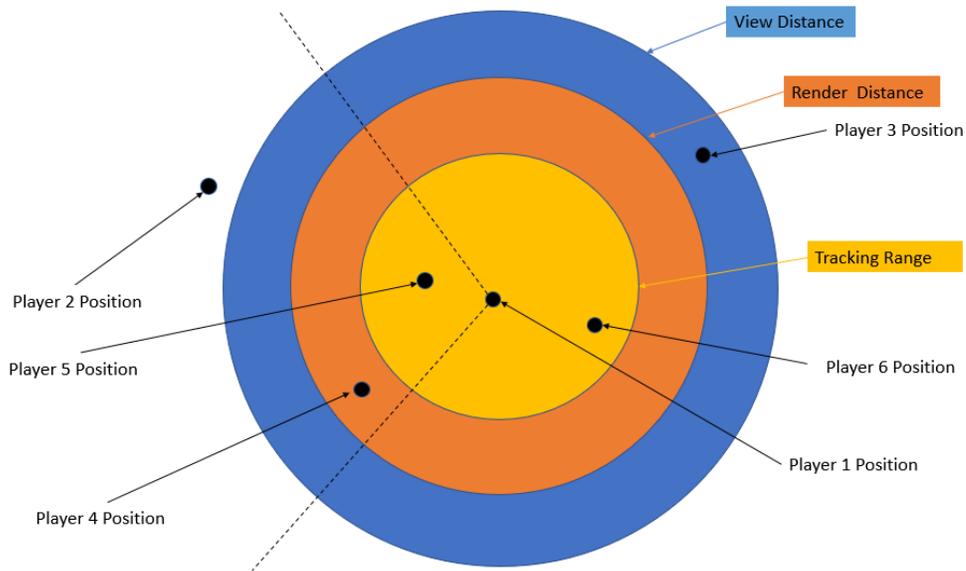
102.   In use, the Microsoft Minecraft Java Edition Product included software programming for a first user's client process that provided the user with the ability to, timing and manner for, and benefit of the step of receiving from a Minecraft server process, the position information associated with less than all of the other users' avatars (namely programmed software, including but not limited to use of the "View Distance" option on Minecraft servers):
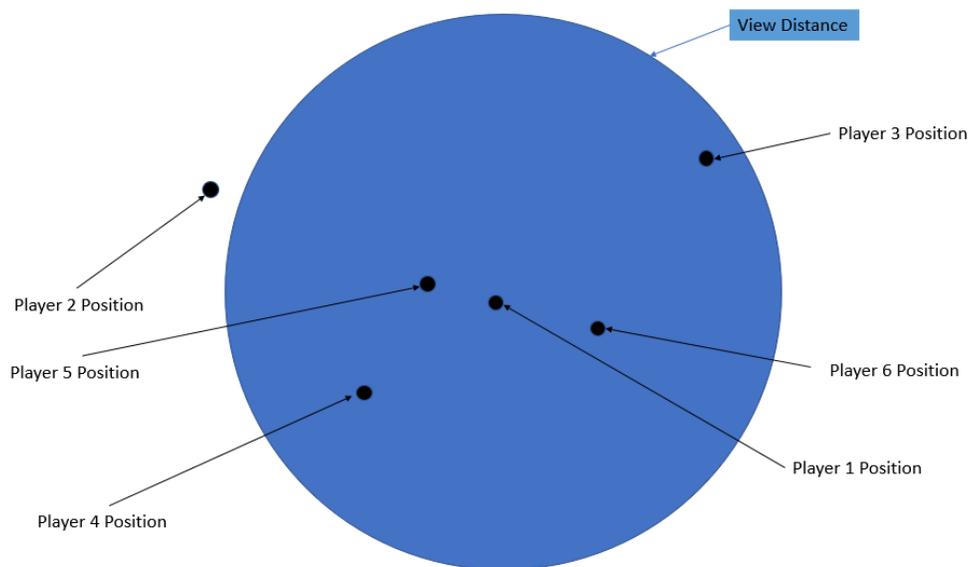
See Exhibit V, Infringement Claim Chart for Claim 1 of U.S. Patent No. 8,082,501, at pp. 5-6.

103.   In use, the Microsoft Minecraft Java Edition Product includes software programming for a first user's client process that provided the user with the ability to, timing and manner for, and benefit of the steps of determining a displayable set of the other user avatars associated with the client device display, and displaying, on the client device display, the displayable set of other user avatars associated with the client device display. This determining step includes the Minecraft Java Edition Product's determining from the received positions of less than all of the other users' avatars, a displayable set of avatars to be displayed using filtering and crowd control features in the Minecraft Java Edition Product including, but not limited to,

the "render distance" and "entity tracking range" options. As shown below, the user can use these options to further determine which of other users' avatars are to be displayed to the user, and rendering the limited set of other user's avatars on the user's display:

See Exhibit V, Infringement Claim Chart for Claim 1 of U.S. Patent No. 8,082,501, at pp. 6-9.

104.   In use, Microsoft's Accused Products and Services infringe claim 2 of the '501 Patent because, in addition to meeting each of the claimed limitations for claim 1 as set forth in paragraphs 100-103 above, the Microsoft Minecraft Java Edition Product includes software programming for a first user's client process that provided the user with the ability to, timing and manner for, and benefit of the step of monitoring the orientation of a user's avatar. *See* Exhibit V, Infringement Claim Chart for Claim 2 of U.S. Patent No. 8,082,501, at pp. 1-11.

105.   Microsoft's Accused Products and Services infringe claim 5 of the '501 Patent because, in addition to meeting each of the claimed limitations for claim 1 as set forth in paragraphs 100-103 above, the Microsoft Minecraft Java Edition Product includes software programming for a first user's client process that provided the user with the ability to, timing and

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manner for, and benefit of the step of receiving orientation information associated with fewer than all of the other user avatars, wherein the client device does not receive orientation information of at least some avatars of the other user avatars in the virtual space. Specifically, the server process of the Minecraft Server does not transmit the orientation information for all of the other users' avatars. *See* Exhibit V, Infringement Claim Chart for Claim 5 of U.S. Patent No. 8,082,501, at pp. 1-10 and 12-13.

106.   In use, Microsoft's Accused Products and Services infringe claim 10 of the '501 Patent because, in addition to meeting each of the claimed limitations for claim 1 as set forth in paragraphs 100-103 above, the Microsoft Minecraft Java Edition Product included software programming for a first user's client process that provided the user with the ability to, timing and manner for, and benefit of the step of filtering the other user avatars based on a limit of the other user avatars that may be displayed on the client device display, the limit being set at the client device including, but not limited to, the "entity tracking range" option. *See* Exhibit V, Infringement Claim Chart for Claim 10 of U.S. Patent No. 8,082,501, at pp. 1-10 and 13-14.

107.   To the extent any fact finder concludes that Defendant Microsoft's Accused Products and Services do not literally satisfy any element of at least claims 1, 2, 5, and 10 of the '501 Patent, those elements are met under the Doctrine of Equivalents.

108.   Defendant's acts of infringement have caused damage to Worlds, and Worlds is entitled to recover from Defendant the damages sustained as a result of Defendant's wrongful acts in an amount subject to proof at trial, but in any event not less than a reasonable royalty.

109.   In November 2014, when Microsoft acquired Minecraft from Mojang for $2.5 Billion, Minecraft had sold approximately 50 million copies. *See* Ex. W (https://savedelete.com/news/microsoft-to-shift-minecraft-workloads-from-aws-cloud-to-azure/341384/).   Microsoft has sold over 200 million copies and has over 126 million monthly users. *Id.; see also* Ex. X (https://www.forbes.com/sites/paultassi/2019/09/14/microsoft-reveals-minecraft-has-an-astonishing-112-million-monthly-players/#518bae8cb971).

110.   Upon information and belief, Minecraft generated revenues in excess of $100 million by 2016, not including revenues from Microsoft's server software and services, or hosting services, such as Realms and Azure. *See* Ex. Y (https://www.theverge.com/2020/5/18/21262045/minecraft-sales-monthly-players-statistics-youtube).

PRAYER FOR RELIEF

WHEREFORE, Worlds prays that it have judgment against Defendant for the following:

(1)   Adjudging that Defendant Microsoft has directly infringed, through its actions and the actions of it users that are attributable to Microsoft, at least claims 1, 2, 5, and 10 of the '501 Patent under 35 U.S.C. §§ 271(a), either literally or under the Doctrine of Equivalents.

(2)   Awarding Worlds damages for Defendant Microsoft's infringement adequate to compensate Worlds for the infringement by sale and licensing of its Minecraft Accused Products and Services, but in any event, not less than a reasonable royalty;

(3)   Awarding attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law, and such other and further relief, at law or in equity, to which Worlds is justly entitled.

DEMAND FOR JURY TRIAL

Worlds hereby demands a jury trial on all issues so triable pursuant to Rule 38 of the Federal Rules of Civil Procedure.

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