

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

INTERACTIVE GRAPHIC SOLUTIONS
LLC,

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendant.

Case No. 6:21-cv-462-ADA

Patent Case

Jury Trial Demanded

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Interactive Graphic Solutions LLC files this First Amended Complaint for patent infringement against Microsoft Corporation alleging as follows:

NATURE OF THE SUIT

1. This is a claim for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code. More specifically, this cause of action asserts infringement of United States Patent Nos. 7,916,147 (“the ’147 Patent”), 8,081,192 (“the ’192 Patent”), 8,203,568 (“the ’568 Patent”), 8,466,922 (“the ’922 Patent”), 9,113,146 (“the ’146 Patent”), 9,117,285 (“the ’285 Patent”), 9,424,621 (“the ’621 Patent”), and 9,852,490 (“the ’490 Patent”) (collectively, the “Patents-in-Suit”).

THE PARTIES

2. Plaintiff **Interactive Graphic Solutions LLC** (“**Plaintiff**” or “**IGS**”) is a Texas limited liability company with its principal place of business at 11 Tattersall, Laguna Niguel, California 92677.

3. Defendant **Microsoft Corporation (“Microsoft”)** is a Washington corporation with places of business located throughout the United States, Texas, and this District, including at 10900 Stonelake Boulevard, Suite 225, Austin, Texas 78759.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, 35 U.S.C. § 101, *et seq.* This Court’s jurisdiction over this action is proper under the above statutes, including 35 U.S.C. § 271, *et seq.*, 28 U.S.C. § 1331 (federal question jurisdiction), and § 1338 (jurisdiction over patent actions).

5. Microsoft is subject to personal jurisdiction in this Court. In particular, this Court has personal jurisdiction over Microsoft because Microsoft has engaged in continuous, systematic, and substantial activities within this State, including substantial marketing and sales of products within this State and this District. Microsoft has conducted and does conduct substantial business in this forum, directly and/or through subsidiaries, agents, representatives, or intermediaries, such substantial business including but not limited to: (i) at least a portion of the infringements alleged herein; (ii) purposefully and voluntarily placing one or more infringing products into the stream of commerce with the expectation that they will be purchased or used by consumers in this forum; or (iii) regularly doing or soliciting business, engaging in other persistent courses of conduct, or deriving substantial revenue from goods and services provided to individuals in Texas and in this judicial district. Furthermore, this Court has personal jurisdiction over Microsoft because Microsoft has committed acts giving rise to IGS’s claims for patent infringement within and directed to this District.

6. Venue is proper in the Western District of Texas pursuant to 28 U.S.C. §1391 and 28 U.S.C. § 1400(b). Microsoft has committed acts of infringement in this District and has one or

more regular and established places of business within this District under the language of 28 U.S.C. § 1400(b). Thus, venue is proper in this District under 28 U.S.C. § 1400(b).

7. As set forth below (*see* Counts I-VIII), Microsoft directly infringes one or more claims of the Patents-in-Suit in this District, including (for example) through, upon information and belief, its support of remote desktop services (e.g., as illustrated in **Exhibits 9 - 16**) at one or more data centers located in this this District. Microsoft has also committed acts of infringement in this District by inducing direct infringement by users of its products in this District (e.g., as illustrated in **Exhibits 9 - 16**).

8. Microsoft maintains permanent physical presences within the Western District of Texas, conducting business from at least its locations at (1) 10900 Stonelake Boulevard, Suite 225, Austin, Texas 78759 (Corporate Sales Office); (2) Concord Park II, 401 East Sonterra Boulevard, Suite 300, San Antonio, Texas 78258 (Corporate Sales Office); and (3) 5150 Rogers Road, San Antonio, Texas and others in the San Antonio area (Data Center).

BACKGROUND

9. T5 Labs Ltd. (“T5 Labs”), the owner of the Patents-in-Suit, is the developer of software and other technologies related to interactive graphic processing.

10. The origin of T5 Labs began when one day Mr. Graham Clemie, the founder of T5 Labs and a named inventor on the Patents-in-Suit, attempted to download a video game only to discover that his computer was not powerful enough to run the video game.

11. Mr. Clemie’s background is in telecommunications and cable TV, having previously worked at companies such as Ericsson and NEC. As a potential solution to his problem, Mr. Clemie began looking into whether remote computer processing power could be utilized to

run a video game, as opposed to relying solely on the processing power of, for example, a user's home computer.

12. In other words, Mr. Clemie began researching whether the processing power of centralized servers (e.g., what is now called the "cloud") could be utilized to expand the availability of video games and other software to remote users with limited computing power.

13. T5 Labs was originally funded by Mr. Clemie and later by grants that T5 Labs received from the Department of Trade and Industry in the United Kingdom as part of competitive awards that were granted to high-tech companies with strong and promising concepts.

14. T5 Labs became an official partner of IBM and worked together to bid on major projects in the United States, Japan, France, and other locations around the world.

15. As T5 Labs grew, it sought to raise additional capital from private individuals and venture capital firms, including Benchmark Capital (a/k/a Balderton Capital) ("Balderton").

16. On April 7, 2005, Mr. Clemie had a meeting at the London offices of Balderton with one of the firm's partners, George Coelho. The purpose of the meeting was to explore raising funding for T5 Labs.

17. During the meeting, Mr. Coelho indicated that he did not fully understand T5 Labs' technology, but that he thought someone at Balderton's offices that day may be able to assist in helping Mr. Coelho understand the technical aspects of T5 Labs' pitch. Mr. Coelho then asked Mr. Clemie to meet with Mr. Neal Margulis.

18. Mr. Clemie proceeded to explain to Mr. Margulis in detail the nature of T5 Labs' technology, inventions, etc. Mr. Clemie also informed Mr. Coelho and Mr. Margulis that T5 Labs had patents pending on its technology.

19. The two exchanged contact information and, on July 12, 2005, Mr. Clemie e-mailed Mr. Margulis to inquire whether Mr. Margulis would be interested in joining T5 Labs.

20. Mr. Margulis responded on August 9, 2005, indicating that he had too much on his plate. Mr. Clemie later learned that Mr. Margulis was in the process of forming Calista Technologies, Inc. (“Calista”) which became a competitor to T5 Labs and ultimately formed the basis for certain Accused Instrumentalities (defined herein) at issue in this case.

21. Mr. Clemie would later learn that on November 1, 2005, Mr. Margulis filed U.S. Patent Application No. 11/264,269, titled “Multi-User Terminal Services Accelerator” (“the ’269 Application”).

22. The ’269 Application, and Mr. Margulis’, Calista’s, and ultimately Microsoft’s subsequent patent filings, relate to the key technical concepts that Mr. Clemie presented to Mr. Coelho and Mr. Margulis and that are claimed in one or more the Patents-in-Suit.

23. On February 22, 2006, Mr. Margulis formed Calista.

24. On February 27, 2006, the ’269 Application was assigned to Calista.

25. In January 2008, Calista was acquired by Microsoft for a reputed \$125 million. As part of the acquisition, Mr. Margulis, who was intimately familiar with T5 Labs’ technology and inventions, became a high level employee of Microsoft.

26. On March 6, 2009, the ’269 Application was assigned to Microsoft as a result of Calista’s acquisition by, and merger with, Microsoft.

27. In February 2011, Microsoft announced a new technology called RemoteFX that formed part of an update to Windows Server 2008. This new technology was based on the technology it acquired from Calista, including the technology disclosed in the ’269 Application.

28. On March 1, 2011, the '269 Application issued to Microsoft as U.S. Patent No. 7,899,864 (the '864 Patent"). The technology disclosed in the '864 Patent relates to the key technical concepts that Mr. Clemie presented to Mr. Coelho and Mr. Margulis and that are claimed by the Patents-in-Suit.

29. The '147 Patent, which is asserted in this case, stems from PCT Application No. PCT/GB03/00933 (the "'933 PCT") filed on March 3, 2003, which subsequently published as WO03/075116 ("the '116 Publication") on September 12, 2003 (i.e., more than a year before Mr. Clemie's meeting with Mr. Margulis).

30. The U.S. Patent Application that ultimately issued as the '147 Patent (i.e., U.S. Application No. 10/506,151) published as US Publication No. 2005/0104889 ("the '889 Publication") on May 19, 2005 (i.e., months before Mr. Margulis filed the application for the '269 Application).

31. During prosecution of the '269 Application, Microsoft was, or should have been aware, of T5 Labs' '116 Publication and '889 Publication. Despite being aware of these publications, Microsoft did not disclose them to the United States Patent and Trademark Office ("PTO") during prosecution of the '269 Application.

32. In addition, on December 4, 2009, Microsoft filed U.S. Patent Application No. 12/631,662 ("the '662 Application"), which listed Mr. Margulis as a named inventor, among others.

33. The '662 Application, which subsequently published on May 5, 2011 as U.S. Publication No. 2011/0102443, also relates to the key technical concepts that Mr. Clemie presented to Mr. Margulis and that are claimed in one or more of the Patents-in-Suit.

34. During prosecution of the '662 Application, Microsoft did not disclose the '116 Publication, the '889 Publication, or any of the Patents-in-Suit before Microsoft abandoned the '662 Application on June 12, 2017.

THE PATENTS-IN-SUIT

35. As part of their efforts at T5 Labs, Mr. Clemie, and his co-inventor, Mr. Dedrick Duckett, invented the technologies and solutions claimed by the Patents-in-Suit.

The '147 Patent

36. The '147 Patent, entitled "Centralised Interactive Graphical Application Server," duly and legally issued on March 29, 2011 from U.S. Patent Application No. 10/506,151, filed on August 31, 2004, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '147 Patent is attached hereto as **Exhibit 1** and is incorporated by reference.

37. The '147 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

38. An assignment of the '147 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 025821/0042.

39. IGS is the exclusive licensee of the '147 Patent with all substantial rights to the '147 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

40. IGS has standing to sue for infringement of the '147 Patent.

The '192 Patent

41. The '192 Patent, entitled "Centralised Interactive Graphical Application Server," duly and legally issued on December 20, 2011 from U.S. Patent Application No. 13/132,401, filed on February 22, 2011, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '192 Patent is attached hereto as **Exhibit 2** and is incorporated by reference.

42. The '192 Patent claims the right of priority, and is a continuation of, U.S. Patent Application No. 10/506,151 (issued as the '147 Patent), which in turn claims the right of priority to the '933 PCT, which claims the right of priority to United Kingdom Patent Application Nos. 0226192.3 (filed November 9, 2002), 0223687.5 (filed October 11, 2002), and 0204859.3 (filed March 1, 2002).

43. The '192 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

44. An assignment of the '192 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at 027260/0585.

45. IGS is the exclusive licensee of the '192 Patent with all substantial rights to the '192 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

46. IGS has standing to sue for infringement of the '192 Patent.

The '568 Patent

47. The '568 Patent, entitled "Sharing a graphical processing unit between a plurality of programs" duly and legally issued on June 19, 2012 from U.S. Patent Application No. 13/298,266, filed on November 16, 2011, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '568 Patent is attached hereto as **Exhibit 3** and is incorporated by reference.

48. The '568 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to, and is a continuation of U.S. Patent Application No. 10/506,151 (issued as the '147 Patent).

49. The '568 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

50. An assignment of the '568 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 027280/0109.

51. IGS is the exclusive licensee of the '568 Patent with all substantial rights to the '568 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

52. IGS has standing to sue for infringement of the '568 Patent.

The '922 Patent

53. The '922 Patent, entitled "Centralised interactive graphical application server" duly and legally issued on June 18, 2013 from U.S. Patent Application No. 13/369,280, filed on February 8, 2012, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '922 Patent is attached hereto as **Exhibit 4** and is incorporated by reference.

54. The '922 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application No. 13/298,266 (issued as the '568 Patent), which in turn claims the right of priority to U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to U.S. Patent Application No. 10/506,151 (issued as the '147 Patent).

55. The '922 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

56. An assignment of the '922 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 027754/0530.

57. IGS is the exclusive licensee of the '922 Patent with all substantial rights to the '922 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

58. IGS has standing to sue for infringement of the '922 Patent.

The '146 Patent

59. The '146 Patent, entitled "Centralised Interactive Graphical Application Server" duly and legally issued on August 18, 2015 from U.S. Patent Application No. 13/887,522, filed on May 6, 2013, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '146 Patent is attached hereto as **Exhibit 5** and is incorporated by reference.

60. The '146 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application Ser. No. 13/369,280 (issue as the '922 Patent), which claims the right of priority to U.S. Patent Application No. 13/298,266 (issued as the '568 Patent), which in turn claims the right of priority to U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to U.S. Patent Application No. 10/506,151 (issued as the '147 Patent).

61. The '146 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

62. An assignment of the '146 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 030972/0690.

63. IGS is the exclusive licensee of the '146 Patent with all substantial rights to the '146 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

64. IGS has standing to sue for infringement of the '146 Patent.

The '285 Patent

65. The '285 Patent, entitled "Centralised Interactive Graphical Application Server" duly and legally issued on August 25, 2015 from U.S. Patent Application No. 14/138,065, filed on December 21, 2013, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '285 Patent is attached hereto as **Exhibit 6** and is incorporated by reference.

66. The '285 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application No. 13/887,538 (issued as the '621 Patent), which in turn claims the right of priority

to U.S. Patent Application No. 13/369,280 (issued as the '922 Patent), which claims the right of priority to U.S. Patent Application No. 13/298,266 (issued as the '568 Patent), which in turn claims the right of priority to U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to U.S. Patent Application No. 10/506,151 (issued as the '147 Patent).

67. The '285 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

68. An assignment of the '285 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 056074/0549.

69. IGS is the exclusive licensee of the '285 Patent with all substantial rights to the '286 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

70. IGS has standing to sue for infringement of the '285 Patent.

The '621 Patent

71. The '621 Patent, entitled "Centralised Interactive Graphical Application Server" duly and legally issued on August 23, 2016 from U.S. Patent Application No. 13/887,538, filed on May 6, 2013, naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '621 Patent is attached hereto as **Exhibit 7** and is incorporated by reference.

72. The '621 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application No. 13/369,280 (issued as the '922 Patent), which claims the right of priority to U.S. Patent Application No. 13/298,266 (issued as the '568 Patent), which in turn claims the right of priority to U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to U.S. Patent Application No. 10/506,151 (issued as the '147 Patent).

73. The '621 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

74. An assignment of the '621 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 030972/0690.

75. IGS is the exclusive licensee of the '621 Patent with all substantial rights to the '621 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

76. IGS has standing to sue for infringement of the '621 Patent.

The '490 Patent

77. The '490 Patent, entitled “Centralised Interactive Graphical Application Server” duly and legally issued on December 16, 2017 from U.S. Patent Application No. 15/212,349, filed on July 18, 2016 naming Graham Clemie and Dedrick Duckett as the inventors. A true and correct copy of the '490 Patent is attached hereto as **Exhibit 8** and is incorporated by reference.

78. The '490 Patent claims the right of priority to, and is a continuation of, U.S. Patent Application No. 13/887,538 (issued as the '621 Patent), which in turn claim the right of priority to U.S. Patent Application No. 13/369,280 (issued as the '922 Patent), which claims the right of priority to U.S. Patent Application No. 13/298,266 (issued as the '568 Patent), which in turn claims the right of priority to U.S. Patent Application No. 13/032,401 (issued as the '192 Patent), which in turn claims the right of priority to U.S. Patent Application No. 10/506,151, (issued as the '147 Patent).

79. The '490 Patent claims patent-eligible subject matter under 35 U.S.C. § 101.

80. An assignment of the '490 Patent from inventors Clemie and Duckett to T5 Labs is recorded at the PTO at Reel/Frame 039264/0388.

81. IGS is the exclusive licensee of the '490 Patent with all substantial rights to the '490 Patent, including the exclusive right to enforce, sue, and recover damages for past and future infringement.

82. IGS has standing to sue for infringement of the '490 Patent.

83. On information and belief, with respect to each Patent-in-Suit, IGS has complied with the requirements of 35 U.S.C. § 287.

84. Microsoft has not obtained a license to any of the Patents-in-Suit.

85. Microsoft does not have IGS's permission to practice the Patents-in-Suit or to make, use, sell, offer to sell, or import products that are covered by one or more claims of any of the Patents-in-Suit.

86. Microsoft needs to obtain a license to the Patents-in-Suit and cease its ongoing infringement of IGS's patent rights.

GENERAL ALLEGATIONS

87. Microsoft makes, uses, sells, offers to sell, and/or imports into the United States products, and/or engages in practices, as claimed in each of the Patents-in-Suit.

88. Microsoft makes, uses, sells, offers to sell, and/or imports into the United States products and/or systems that infringe at least one claim of one or more of the Patents-in-Suit, including but not limited to its Operating Systems with RemoteFX (e.g., Windows Server, Windows 7, Windows 8, Windows 10, etc.) in conjunction with the features and capabilities disclosed in the claim charts attached hereto as **Exhibits 9 – 16** (hereinafter, collectively, **the “Accused Instrumentalities”**).

89. Microsoft has infringed and continues to infringe (literally and/or under the doctrine of equivalents), directly, indirectly, and/or through subsidiaries, agents, representatives, or

intermediaries, one or more claims of each of the Patents-in-Suit by making, using, importing, testing, supplying, causing to be supplied, selling, and/or offering for sale in the United States the Accused Instrumentalities. For example, on information and belief, Microsoft has and continues to directly infringe one or more claims of each of the Patents-in-Suit via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services.

90. Microsoft's customers and end users of the Accused Instrumentalities have directly infringed and continue to directly infringe the Patents-in-Suit by using the Accused Instrumentalities. Through its product manuals, sales and marketing activities, support, etc., Microsoft solicits, instructs, encourages, and aids and abets its customers to purchase and use the Accused Instrumentalities in infringing ways. *See, e.g., Exhibits 9 – 16* and materials cited therein.

91. Microsoft has had knowledge of, or been willfully blind to, the Patents-in-Suit and its infringement of the Patents-in-Suit since before this lawsuit was filed.

92. Microsoft disclosed the '116 Publication, from which the Patents-in-Suit stem, to the PTO in an Information Disclosure Statement filed in May 2006 during prosecution of its U.S. Application No. 10/939,983 (titled "Accelerated Video Encoding Using a Graphics Processing Unit"). At that time the application was assigned to Microsoft. Microsoft also disclosed the '116 Publication to the PTO in an International Search Report for PCT/US2014/023096 submitted in November 2014 during the prosecution of its U.S. Application No. 13/554,215 (titled "Game Browsing"). Although this application was originally assigned to Microsoft, Microsoft later assigned the application to Microsoft Technology Licensing, LLC ("MTL").

93. MTL was formed in 2014 to acquire, manage and license Microsoft's patent portfolio. MTL is a wholly owned subsidiary of Microsoft that, among other things, manages the company's patents and tech transfer activities. Upon information and belief, Microsoft assigned the bulk (if not all) of its patent portfolio to MTL in late 2014. Upon information and belief, Microsoft's policy before the formation of MTL was to have its employees assign inventions (and related patents and applications) created in the course of their work at Microsoft to Microsoft, and its policy after the formation of MTL is to have its employees assign inventions (and related patents and applications) created in the course of their work at Microsoft to MTL. MTL shares an address with Microsoft at One Microsoft Way, Redmond, WA, and MTL's governors (April Bjornstad, Geoffrey Hoggard, Benjamin Orndorff) identify Microsoft, not MTL, as their employer. MTL is Microsoft's agent for acquiring, evaluating, managing, and licensing patents and other intellectual property. As such, MTL's activities and knowledge with respect to patents and other intellectual property are imputed to Microsoft.

94. Microsoft has had knowledge of the '147 Patent since at least March 2014 when it was identified to Microsoft by the PTO during Microsoft's prosecution of its U.S. Application No. 12/022,297 (titled "Server-Based Recalculation of Vector Graphics"). At that time the application was assigned to Microsoft. Microsoft identified the '889 Publication (which issued as the '147 Patent) to the PTO in an Information Disclosure Statement filed in February 2008 during prosecution of U.S. Patent Application No. 12/024,848 (titled "Graphics Remoting Architecture"). At that time the application was assigned to Microsoft.

95. On information and belief, Microsoft has had knowledge of the '192 Patent since at least April 2016 when U.S. Patent Publication No. 2011/0157197 (which issued as the '192 Patent on December 20, 2011) was identified to Microsoft by the PTO during the prosecution of

its U.S. Patent Application No. 14/488,905 (titled “Intelligent Streaming of Media Content”). The application was originally assigned by the named inventors to Microsoft but was subsequently assigned by Microsoft to MTL in late 2014.

96. Microsoft has had knowledge of the ’568 Patent since at least January 2016, when it was disclosed by Microsoft to the PTO on an Information Disclosure Statement during prosecution of U.S. Patent Application No. 14/990,623 (titled “View Rendering from Multiple Server-Side Renderings”). At the time the application was assigned to MTL. Microsoft also disclosed the ’568 Patent to the PTO in April 2016 on an Information Disclosure Statement during prosecution of U.S. Patent Application No. 14/603,213 (titled “Predictive Server-Side Rendering of Scenes”) and on an Information Disclosure Statement during prosecution of U.S. Patent Application No. 15/089,310 (titled “Video Decoding Using Point Sprites”). The ’568 Patent was also disclosed to the USPTO on an Information Disclosure Statement in July 2018 during prosecution of U.S. Application No. 14/744,860 (titled “Low Latency Application Streaming Using Temporal Frame Transformation”), and again in February 2019 when Microsoft identified the patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953 (titled “Inducing Higher Input Latency in Multiplayer Programs”).

97. Despite having knowledge of the Patents-in-Suit and its infringements, or being willfully blind to the same, Microsoft has continued make and use Accused Instrumentalities in a way that infringes (e.g., as illustrated by **Exhibits 9 – 16**) and to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users. Microsoft’s ongoing actions are with specific intent to cause infringement of one or more claims of each of the Patents-in-Suit.

98. At a minimum, Microsoft exercised willful blindness to the existence of the Patents-in-Suit and took deliberately wrongful steps to ignore infringement of the Patents-in-Suit when usurping the technology claimed in the Patents-in-Suit.

99. Further discovery may reveal earlier knowledge and/or additional evidence of knowledge of one or more of the Patents-in-Suit, which would provide additional evidence of Microsoft's specific intent and/or willful blindness with respect to infringement.

100. IGS has been and continues to be damaged as a result of Microsoft's infringing conduct. Microsoft is therefore liable to IGS in an amount that adequately compensates IGS for Microsoft's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

101. Microsoft markets and sells other products and services that are not covered by the claims of the Patents-in-Suit but that are sold with or in conjunction with the Accused Instrumentalities. Accordingly, IGS is entitled to collect damages from Microsoft for convoyed sales of certain non-patented items and services.

102. Microsoft failed to obtain permission from IGS to make, use, sell, offer to sell, or import products, or engage in practices, that use the inventions claimed in the Patents-in-Suit including, but not limited to, the Accused Instrumentalities, including the infringing practices engaged in by Microsoft and other users of the Accused Instrumentalities.

103. Attached hereto are **Exhibits 9 – 16**, and incorporated herein by reference, are representative claim charts detailing how the Accused Instrumentalities, including Microsoft practices with respect to the Accused Instrumentalities, have, and continue to, infringe the Patents-in-Suit.

104. For each count of infringement listed below, IGS incorporates and re-states the allegations contained in the preceding paragraphs above, including these General Allegations, as if fully set forth in each count of infringement.

COUNT I – INFRINGEMENT OF THE '147 PATENT

105. IGS incorporates herein the allegations made in paragraphs 1 through 104.

106. Microsoft has and continues to directly infringe one or more claims of the '147 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '147 Patent, including, for example, claim 1, via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '147 Patent via Accused Instrumentalities is attached as **Exhibit 9** and incorporated herein by reference.

107. Additionally, Microsoft has and continues to indirectly infringe the '147 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '147 Patent (e.g., claim 1 as illustrated by **Exhibit 9**).

108. Microsoft has had knowledge of the '147 Patent and its infringement since before this lawsuit was filed. For example, Microsoft has had knowledge of the '147 Patent since March 2014, when it was cited during Microsoft's prosecution of its U.S. Application No. 12/022,297. Microsoft also has knowledge of the '147 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

109. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '147 Patent (e.g., claim 1 as illustrated by **Exhibit 9**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

110. To the extent Microsoft denies it had knowledge of the '147 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '147 Patent and its infringement (e.g., as illustrated in **Exhibit 9**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was also aware of the '147 Patent and applications from which it stems based on Microsoft's and the PTO's identification of the patent and applications as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-94, above. Despite having knowledge that the '147 Patent and related patents and applications are relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '147 Patent. Microsoft's failure to have its counsel or employees review the '147 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

111. Despite having knowledge of the '147 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '147 Patent as illustrated by **Exhibit 9**). For example, Microsoft offers

its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '147 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 9** and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '147 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

112. As a result of Microsoft's infringement of the '147 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT II – INFRINGEMENT OF THE '192 PATENT

113. IGS incorporates herein the allegations made in paragraphs 1 through 112.

114. Microsoft has and continues to directly infringe one or more claims of the '192 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '192 Patent, including, for example, claim 1, via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '192 Patent via Accused Instrumentalities is attached as **Exhibit 10** and incorporated herein by reference.

115. Additionally, Microsoft has and continues to indirectly infringe the '192 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '192 Patent (e.g., claim 1 as illustrated by **Exhibit 10**).

116. Microsoft has had knowledge of the '192 Patent and its infringement since before this lawsuit was filed. For example, Microsoft has had knowledge of the '192 Patent since at least April 2016 when U.S. Patent Publication No. 2011/0157197 (which issued as the '192 Patent on December 20, 2011) was cited during Microsoft's prosecution of its U.S. Patent Application No. 14/488,905. Microsoft also has knowledge of the '192 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

117. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '192 Patent (e.g., claim 1 as illustrated by **Exhibit 10**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

118. To the extent Microsoft denies it had knowledge of the '192 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '192 Patent and its infringement (e.g., as illustrated in **Exhibit 10**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was also aware of the '192 Patent and patents/applications from which it stems based on Microsoft's and the PTO's identification of the patents and applications as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See*

paragraphs 92-95, above. Despite having knowledge that the '192 Patent and related patents and applications are relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '192 Patent. Microsoft's failure to have its patent counsel or employees review the '192 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

119. Despite having knowledge of the '192 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '192 Patent as illustrated by **Exhibit 10**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '192 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 10** and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '192 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

120. As a result of Microsoft's infringement of the '192 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT III – INFRINGEMENT OF THE '568 PATENT

121. IGS incorporates herein the allegations made in paragraphs 1 through 120.

122. Microsoft has and continues to directly infringe one or more claims of the '568 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '568 Patent, including, for example, claim 1, via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '568 Patent via Accused Instrumentalities is attached as **Exhibit 11** and incorporated herein by reference.

123. Additionally, Microsoft has and continues to indirectly infringe the '568 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '568 Patent (e.g., claim 1 as illustrated by **Exhibit 11**).

124. Microsoft has had knowledge of the '568 Patent and its infringement since before this lawsuit was filed. For example, Microsoft has had knowledge of the '568 Patent since at least January 2016, when it was disclosed by Microsoft to the PTO during prosecution of U.S. Patent Application No. 14/990,623. Microsoft's knowledge of the '568 Patent is further illustrated by its disclosure of the patent to the PTO in April 2016 during prosecution of U.S. Patent Application No. 14/603,213 and U.S. Patent Application No. 15/089,310; its disclosure to the PTO in July 2018 during prosecution of U.S. Application No. 14/744,860; and its disclosure to the PTO in February 2019 during prosecution of U.S. Application No. 16/148,953. Microsoft also has

knowledge of the '568 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

125. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '568 Patent (e.g., claim 1 as illustrated by **Exhibit 11**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

126. To the extent Microsoft denies it had knowledge of the '568 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '568 Patent and its infringement (e.g., as illustrated in **Exhibit 11**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was also aware of the '568 Patent and patents/applications from which it stems based on Microsoft's and the PTO's identification of the patents and applications as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '568 Patent and related patents and applications are relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '568 Patent. Microsoft's failure to have its patent counsel or employees review the '568 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

127. Despite having knowledge of the '568 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused

Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '568 Patent as illustrated by **Exhibit 11**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '568 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 11** and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '568 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

128. As a result of Microsoft's infringement of the '568 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT IV – INFRINGEMENT OF THE '922 PATENT

129. IGS incorporates herein the allegations made in paragraphs 1 through 128.

130. Microsoft has and continues to directly infringe one or more claims of the '922 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '922 Patent, including, for example, claim 1, via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating

Microsoft's and others' infringement of the '922 Patent via Accused Instrumentalities is attached as **Exhibit 12** and incorporated herein by reference.

131. Additionally, Microsoft has and continues to indirectly infringe the '922 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '922 Patent (e.g., claim 1 as illustrated by **Exhibit 12**).

132. Microsoft has had, or should have had, knowledge of the '922 Patent and its infringements since before this lawsuit was filed at least based investigation(s) of the '922 Patent at the time of Microsoft's and the PTO's identification of patents and applications from which the '922 Patent stems between June 18, 2013 (when the '922 Patent issued) and February 2019 (when Microsoft identified the '568 Patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953). *See* paragraphs 92-96, above. Microsoft also has knowledge of the '922 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

133. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '922 Patent (e.g., claim 1 as illustrated by **Exhibit 12**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

134. To the extent Microsoft denies it had knowledge of the '922 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '922 Patent and its infringement (e.g., as illustrated in **Exhibit 12**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs'

patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was (and is) well aware of the family of patents and applications comprising the '922 Patent (the "'922 Patent Family"); as discussed above, Microsoft and the PTO identified (on numerous occasions) patents and applications from which the '922 Patent stems as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '922 Patent Family is relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '922 Patent. Microsoft's failure to have its patent counsel or employees review the '922 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

135. Despite having knowledge of the '922 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '922 Patent as illustrated by **Exhibit 12**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '922 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 12** and materials cited therein. Microsoft's ongoing actions represent a specific intent to

induce infringement of at least claim 1 of the '922 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

136. As a result of Microsoft's infringement of the '922 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT V – INFRINGEMENT OF THE '146 PATENT

137. IGS incorporates herein the allegations made in paragraphs 1 through 136.

138. Microsoft has and continues to directly infringe one or more claims of the '146 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '146 Patent, including, for example, claim 1, via its use of the Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '146 Patent via Accused Instrumentalities is attached as **Exhibit 13** and incorporated herein by reference.

139. Additionally, Microsoft has and continues to indirectly infringe the '146 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '146 Patent (e.g., claim 1 as illustrated by **Exhibit 13**).

140. Microsoft has had, or should have had, knowledge of the '146 Patent and its infringements since before this lawsuit was filed at least based investigation(s) of the '146 Patent at the time of Microsoft's and the PTO's identification of patents and applications from which the '146 Patent stems between August 18, 2015 (when the '146 Patent issued) and February 2019

(when Microsoft identified the '568 Patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953). *See* paragraphs 92-96, above. Microsoft also has knowledge of the '146 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

141. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '146 Patent (e.g., claim 1 as illustrated by **Exhibit 13**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

142. To the extent Microsoft denies it had knowledge of the '146 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '146 Patent and its infringement (e.g., as illustrated in **Exhibit 13**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was (and is) well aware of the family of patents and applications comprising the '146 Patent (the "'146 Patent Family"); as discussed above, Microsoft and the PTO identified (on numerous occasions) patents and applications from which the '146 Patent stems as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '146 Patent Family is relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '146 Patent. Microsoft's failure to have its patent counsel or employees review the '146 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

143. Despite having knowledge of the '146 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '146 Patent as illustrated by **Exhibit 13**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '146 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 13** and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '146 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

144. As a result of Microsoft's infringement of the '146 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT VI – INFRINGEMENT OF THE '285 PATENT

145. IGS incorporates herein the allegations made in paragraphs 1 through 144.

146. Microsoft has and continues to directly infringe one or more claims of the '285 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '285 Patent, including, for example, claim 1, via its use of Accused Instrumentalities

in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '285 Patent via Accused Instrumentalities is attached as **Exhibit 14** and incorporated herein by reference.

147. Additionally, Microsoft has and continues to indirectly infringe the '285 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '285 Patent (e.g., claim 1 as illustrated by **Exhibit 14**).

148. Microsoft has had, or should have had, knowledge of the '285 Patent and its infringements since before this lawsuit was filed at least based investigation(s) of the '285 Patent at the time of Microsoft's and the PTO's identification of patents and applications from which the '285 Patent stems between August 25, 2015 (when the '285 Patent issued) and February 2019 (when Microsoft identified the '568 Patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953). *See* paragraphs 92-96, above. Microsoft also has knowledge of the '285 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

149. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '285 Patent (e.g., claim 1 as illustrated by **Exhibit 14**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

150. To the extent Microsoft denies it had knowledge of the '285 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge,

IGS contends that Microsoft is, and has been, willfully blind to the '285 Patent and its infringement (e.g., as illustrated in **Exhibit 14**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was (and is) well aware of the family of patents and applications comprising the '285 Patent (the "'285 Patent Family"); as discussed above, Microsoft and the PTO identified (on numerous occasions) patents and applications from which the '285 Patent stems as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '285 Patent Family is relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '285 Patent. Microsoft's failure to have its patent counsel or employees review the '285 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

151. Despite having knowledge of the '285 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '285 Patent as illustrated by **Exhibit 14**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '285 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also*

Exhibit 14 and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '285 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

152. As a result of Microsoft's infringement of the '285 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT VII – INFRINGEMENT OF THE '621 PATENT

153. IGS incorporates herein the allegations made in paragraphs 1 through 152.

154. Microsoft has and continues to directly infringe one or more claims of the '621 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '621 Patent, including, for example, claim 1, via its use of Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '621 Patent via Accused Instrumentalities is attached as **Exhibit 15** and incorporated herein by reference.

155. Additionally, Microsoft has and continues to indirectly infringe the '621 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase the Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '621 Patent (e.g., claim 1 as illustrated by **Exhibit 15**).

156. Microsoft has had, or should have had, knowledge of the '621 Patent and its infringements since before this lawsuit was filed at least based investigation(s) of the '621 Patent at the time of Microsoft's and the PTO's identification of patents and applications from which the

'621 Patent stems between August 23, 2016 (when the '621 Patent issued) and February 2019 (when Microsoft identified the '568 Patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953). *See* paragraphs 92-96, above. Microsoft also has knowledge of the '621 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

157. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '621 Patent (e.g., claim 1 as illustrated by **Exhibit 15**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

158. To the extent Microsoft denies it had knowledge of the '621 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '621 Patent and its infringement (e.g., as illustrated in **Exhibit 15**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was (and is) well aware of the family of patents and applications comprising the '621 Patent (the "'621 Patent Family"); as discussed above, Microsoft and the PTO identified (on numerous occasions) patents and applications from which the '621 Patent stems as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '621 Patent Family is relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '621 Patent. Microsoft's failure to have its patent counsel or employees

review the '621 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

159. Despite having knowledge of the '621 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '621 Patent as illustrated by **Exhibit 15**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '621 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317-explaining-microsoft-remotefx>; <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also* **Exhibit 15** and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '621 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

160. As a result of Microsoft's infringement of the '621 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

COUNT VIII – INFRINGEMENT OF THE '490 PATENT

161. IGS incorporates herein the allegations made in paragraphs 1 through 160.

162. Microsoft has and continues to directly infringe one or more claims of the '490 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States infringing products including, but not limited to, the Accused

Instrumentalities. For example, Microsoft has and continues to directly infringe one or more claims of the '490 Patent, including, for example, claim 1, via its use of Accused Instrumentalities in conjunction with its Azure cloud services platform, including Azure's virtual desktop infrastructure (VDI) and virtual apps services. An exemplary claim chart demonstrating Microsoft's and others' infringement of the '490 Patent via Accused Instrumentalities is attached as **Exhibit 16** and incorporated herein by reference.

163. Additionally, Microsoft has and continues to indirectly infringe the '490 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Accused Instrumentalities and/or by instructing others how to use Accused Instrumentalities in a way that directly infringes claims of the '490 Patent (e.g., claim 1 as illustrated by **Exhibit 16**).

164. Microsoft has had, or should have had, knowledge of the '490 Patent and its infringements since before this lawsuit was filed at least based investigation(s) of the '490 Patent at the time of Microsoft's and the PTO's identification of patents and applications from which the '490 Patent stems between December 26, 2017 (when the '490 Patent issued) and February 2019 (when Microsoft identified the '568 Patent on an Information Disclosure Statement during prosecution of U.S. Application No. 16/148,953). *See* paragraphs 92-96, above. Microsoft also has knowledge of the '490 Patent and its infringement based on filing and service of IGS's Original Complaint and this First Amended Complaint.

165. Microsoft has knowledge that the purchase and use of its products by others results in infringement of the '490 Patent (e.g., claim 1 as illustrated by **Exhibit 16**). Microsoft has had such knowledge since at least filing and service of IGS's Original Complaint. Microsoft has also had such knowledge based on this First Amended Complaint and based on IGS providing Microsoft with claim charts illustrating its infringement.

166. To the extent Microsoft denies it had knowledge of the '490 Patent or its infringements prior to or after this lawsuit was filed, and in the alternative to actual knowledge, IGS contends that Microsoft is, and has been, willfully blind to the '490 Patent and its infringement (e.g., as illustrated in **Exhibit 16**). Microsoft knew of T5 Labs, T5 Labs' technology, and T5 Labs' patents/patent applications based on conversations between Graham Clemie and Neal Margulis beginning in 2005. Microsoft was (and is) well aware of the family of patents and applications comprising the '490 Patent (the "'490 Patent Family"); as discussed above, Microsoft and the PTO identified (on numerous occasions) patents and applications from which the '490 Patent stems as relevant to the technology disclosed and claimed by Microsoft's own patent applications. *See* paragraphs 92-96, above. Despite having knowledge that the '490 Patent Family is relevant to Microsoft technology and products, Microsoft has deliberately avoided having its patent counsel or employees review the '490 Patent. Microsoft's failure to have its patent counsel or employees review the '490 Patent or related Patents-in-Suit reflects a policy or practice of not reviewing the patents of others.

167. Despite having knowledge of the '490 Patent and its infringements, or being willfully blind to the same, Microsoft has continued to market and sell Accused Instrumentalities to end users and provide support materials to end users that instruct end users to use Accused Instrumentalities in a way that results in infringement of the Accused Instrumentalities by end users (e.g., claim 1 of the '490 Patent as illustrated by **Exhibit 16**). For example, Microsoft offers its customers and users of the Accused Instrumentalities extensive customer support and instruction that instruct and encourage users of the Accused Instrumentalities to infringe the '490 Patent via at least their use of the Accused Instrumentalities. *See, e.g.,* <https://docs.microsoft.com/en-us/virtualization/community/team-blog/2010/20100317->

[explaining-microsoft-remotefx](#); <https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/deploy/deploy-graphics-devices-using-remotefx-vgpu>; *see also*

Exhibit 16 and materials cited therein. Microsoft's ongoing actions represent a specific intent to induce infringement of at least claim 1 of the '490 Patent. Microsoft knew or should have known that its actions would induce actual infringements.

168. As a result of Microsoft's infringement of the '490 Patent, IGS has suffered and is owed monetary damages adequate to compensate it for the infringement under 35 U.S.C. § 284, but in no event less than a reasonable royalty.

WILLFULNESS

169. IGS incorporates herein the allegations made in paragraph 1 through 168.

170. Prior to the filing of the Original Complaint, as discussed above, Microsoft knew or should have known of the Patents-in-Suit and knew or should have known that it infringed the Patents-in-Suit.

171. In particular, on April 7, 2005, Neil Margulis learned of the technology developed by T5 Labs and claimed in the Patents-in-Suit when he met with Mr. Clemie, one of the named inventors on the Patents-in-Suit, at the offices of Balderton.

172. Mr. Clemie informed Mr. Margulis about the technology developed and being worked on by T5 Labs and that T5 Labs had patents pending on this technology.

173. Following this meeting, Mr. Margulis filed his own patent applications based, at least in part, on the technology disclosed to him by Mr. Clemie at that April 7, 2005 meeting.

174. Mr. Margulis went on to form Calista, whose products were based, at least in part, on the technology developed by T5 Labs, disclosed to Mr. Margulis, and claimed in the Patents-in-Suit.

175. Mr. Margulis subsequently sold Calista to Microsoft, reportedly for \$125 million, and took a position with Microsoft as General Manager, Desktop Virtualization.

176. On information and belief, Mr. Margulis held that position from March 2008 to February 2010.

177. On information and belief, via its acquisition of Calista, and its employment of Mr. Margulis and other individuals from Calista, Microsoft knew or should have known of T5 Labs pending patents, including the Patents-in-Suit.

178. On information and belief, Microsoft has had, or should have had, knowledge of the Patents-in-Suit since on or about their respective issue dates.

179. To the extent Microsoft was not aware of the '147 Patent on or about the time it issued, Microsoft has had, or should have had, knowledge of the '147 Patent since at least on or about March 18, 2014, when it was cited during Microsoft's prosecution of its U.S. Application No. 12/022,297.

180. To the extent Microsoft was not aware of the '147 Patent, the '192 Patent, the '568 Patent, the '922 Patent, the '146 Patent, and/or the '285 Patent on or about the time they issued, Microsoft has had, or should have had, knowledge of these patents since at least on or about January 7, 2016, April 6, 2016, and/or April 7, 2016 when Microsoft disclosed the '568 Patent to the PTO on Information Disclosure Statements during prosecution of U.S. Patent Application Nos. 14/990,623, 15/089,310, and 14/603,213, respectively.

181. To the extent Microsoft was not aware of the '621 Patent and/or the '490 Patent on or about the time they issued, Microsoft has had, or should have had, knowledge of these patents since on or about July 18, 2018 or February 19, 2019 when Microsoft disclosed the '568 Patent to

the PTO on Information Disclosure Statements during prosecution of U.S. Patent Application Nos. 14/744,860 and 16/148,953, respectively.

182. At a minimum, as discussed above, Microsoft exercised willful blindness to the existence of the Patents-in-Suit and took deliberate wrongful steps to ignore infringement of the Patents-in-Suit. *See* paragraphs 110, 118, 126, 134, 142, 150, 158, and 166, above.

183. Despite having knowledge of the Patents-in-Suit and knowledge that it was and continues to directly and/or indirectly infringe one or more claims of each Patent-in-Suit, or being willfully blind to the same, Microsoft has nevertheless proceeded to infringe the Patents-in-Suit, and induce others to do the same, with knowledge of, or willful blindness to, the applicability of the Patents-in-Suit to the Accused Instrumentalities, without a license and without a good faith belief that the claims of the Patents-in-Suit are not infringed. As noted above, this includes, but is not limited to, the willful blindness of Microsoft including its refusal to investigate whether the Accused Instrumentalities infringe the Patents-in-Suit.

184. For at least the reasons stated herein, Microsoft's infringing activities detailed in this Complaint and **Exhibits 9 – 16** have been, and continue to be, willful, egregious, wanton, and deliberate in disregard to T5 Labs' and IGS's rights, justifying enhanced damages under 35 U.S.C. § 284 and attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

DEMAND FOR A JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, IGS demands a trial by jury on all issues triable of right by a jury.

PRAYER FOR RELIEF

WHEREFORE, IGS respectfully requests that this Court enter judgment in its favor and grant the following relief:

- a. A judgment that Microsoft has directly and/or indirectly infringed one or more claims of each of the Patents-in-Suit;
- b. A judgment and order requiring Microsoft to pay IGS past and future damages under 35 U.S.C. § 284, including for supplemental damages arising from any continuing post-verdict infringement for the time between trial and entry of the final judgment with an accounting, as needed, as provided by 35 U.S.C. § 284;
- c. A judgment and order requiring Microsoft to pay IGS reasonable ongoing royalties on a going-forward basis after final judgment;
- d. A judgment and order requiring Microsoft to pay IGS pre-judgment and post-judgment interest on the damages award;
- e. A judgment and order that Microsoft's infringements of the Patents-in-Suit be found willful and that the Court award treble damages pursuant to 35 U.S.C. § 284;
- f. Judgment that this case be found exception under 35 U.S.C. § 285, and award to IGS its attorneys' fees and costs incurred in prosecuting this action;
- g. A judgment and order requiring Microsoft to pay IGS's costs; and
- h. Such other and further relief as the Court may deem just and proper.

Dated: July 22, 2021

Respectfully submitted,

/s/ Timothy E. Grochocinski
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CERTIFICATE OF SERVICE

Pursuant to Local Rule 5(a), I hereby certify that the foregoing document was electronically filed with the Clerk of Court using the CM/ECF filing system, which will generate and send an e-mail notification of said filing to all counsel of record, on this the 22nd day of July, 2021.

/s/ Timothy E. Grochocinski