

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY INTERACTIVE ENTERTAINMENT LLC
Petitioner,

v.

QUANTUM IMAGING LLC
Patent Owner.

Case No. IPR2023-00996
U.S. Patent No. 10,991,165

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 10,991,165**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8	1
A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))	1
B. Related Matters (37 C.F.R. § 42.8(b)(2))	1
1. Judicial Matters	1
2. Administrative Matters:	2
3. Related Patents	2
C. Lead/Back-up Counsel (37 C.F.R. § 42.8(b)(3)):.....	2
D. Notice of Service Information (37 C.F.R. § 42.8(b)(4)):.....	3
III. FEES (37 C.F.R. § 42.15(a))	3
IV. STANDING (37 C.F.R. § 42.104(a))	3
V. PRECISE RELIEF REQUESTED	3
A. Grounds for Review	3
VI. THE '165 PATENT	5
A. Summary of the '165 Patent	5
B. Prosecution History	7
C. Priority Date	8
D. Person of Ordinary Skill in the Art.....	8
E. Claim Construction.....	9
VII. EXPLANATION OF GROUNDS FOR INVALIDITY	12
A. Ground 1: Pisanich in View of the Knowledge of a POSITA Renders Obvious Challenged Claims 1-3, 5-8, 10-12, and 18	12
1. Prior Art.....	12
(a) Overview of Pisanich (Ex-1007)	12
2. Claim 1	15
(a) 1[preamble]: A method of integrating real-time information into a virtual thematic environment using a computer system including a client and a server, comprising:	15

(b) 1[a]: providing a graphics user interface (GUI) module for use in the client system;.....	16
(c) 1[b]: providing a quantum imaging environment (QIE) module in one of the client or the server system;	19
(d) 1[c]: providing a thematic/publishing logic module in one of the client or the server system;	21
(e) 1[d]: providing a primary application in the client system;.....	21
(f) 1[e]: providing a first user interface that is associated with the primary application;	22
(g) 1[f]: sending a request for first real-time information via the QIE module to the world wide web;.....	22
(h) 1[g] obtaining the first real-time information via the world wide web; 24	
(i) 1[h] downloading the first real-time information from the world wide web into the primary application;	24
(j) 1[i] providing access to the first real-time information within the virtual thematic environment via the first user interface;.....	24
(k) 1[j] providing at least one secondary application within the primary application at the client system;	25
(l) 1[k] sending a request for second real-time information via the QIE module;.....	26
(m) 1[l] obtaining the second real-time information via the world wide web; 27	
(n) 1[m] downloading the second real-time information into the secondary application;	27
(o) 1[n] enabling a user to access the at least one secondary application through the first user interface; and	27
(p) 1[o] enabling the user to control the at least one secondary application through a second user interface.....	28
3. Claim 2: The method according to claim 1, wherein said first real-time information and said second real-time information include audio, video, chronological, text, GPS, or any combination thereof.....	28
4. Claim 3: The method according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.	29

5. Claim 5: The method according to claim 3, wherein said selection mechanism is a hot click button.....	29
6. Claim 6: The method according to claim 1, wherein said first real-time information and said second real-time information are displayed within the virtual thematic environment.	30
7. Claim 7: The method according to claim 1, wherein said first real-time information and said second real-time information are provided to a user via a mobile device.	31
8. Claim 8: The method according to claim 1, wherein the first real-time information and the second real-time information are downloaded from the world wide web.	32
9. Claim 10: The method according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.....	32
10. Claim 11: The method according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.	33
11. Claim 12: The method according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.	34
12. Claim 18.....	34
(a) 18[preamble]: A computer system for integrating real-time information into a virtual thematic environment including a client system and a server system, comprising:	34
(b) 18[a]: at least one non-transitory memory device containing at least one program comprising the steps of:	35
(c) 18[b]: providing a graphics user interface (GUI) module for use in the client system;.....	35
(d) 18[c]: providing a quantum imaging environment (QIE) module in one of the client or the server system;	35

(e)	18[d]: providing a thematic/publishing logic module in one of the client or the server system;	35
(f)	18[e]: providing a primary application in the client system;.....	35
(g)	18[f]: providing a first user interface that is associated with the primary application;	36
(h)	18[g]: sending a request for first real-time information via the QIE module to the k web;.....	36
(i)	18[h]: obtaining the first real-time information via the world wide web; 36	
(j)	18[i] downloading the first real-time information from the world wide web into the primary application; providing access to the first real-time information within the virtual thematic environment via the first user interface;.....	36
(k)	18[j] providing at least one secondary application within the primary application at the client system;.....	36
(l)	18[k] sending a request for second real-time information via the QIE module;.....	36
(m)	18[l] obtaining the second real-time information via the world wide web; 36	
(n)	18[m] downloading the second real-time information into the secondary application;	36
(o)	18[n] enabling a user to access the at least one secondary application through the first user interface; and	37
(p)	18[o] enabling the user to control the at least one secondary application through a second user interface; and.....	37
(q)	18[p] one or more microprocessor running the at least one program. 37	
B.	Ground 2: PSO Manual in View of the Knowledge of a POSITA.....	37
1.	Prior Art.....	37
(a)	Overview of PSO Manual (Ex-1008)	37
2.	Claim 1	40
(a)	1[preamble]: A method of integrating real-time information into a virtual thematic environment using a computer system including a client and a server, comprising:	40

(b) 1[a]: providing a graphics user interface (GUI) module for use in the client system;.....	42
(c) 1[b]: providing a quantum imaging environment (QIE) module in one of the client or the server system;	44
(d) 1[c]: providing a thematic/publishing logic module in one of the client or the server system;	46
(e) 1[d]: providing a primary application in the client system;.....	46
(f) 1[e]: providing a first user interface that is associated with the primary application;	46
(g) 1[f]: sending a request for first real-time information via the QIE module to the world wide web;.....	47
(h) 1[g] obtaining the first real-time information via the world wide web; 47	
(i) 1[h] downloading the first real-time information from the world wide web into the primary application;	48
(j) 1[i] providing access to the first real-time information within the virtual thematic environment via the first user interface;.....	48
(k) 1[j] providing at least one secondary application within the primary application at the client system;.....	49
(l) 1[k] sending a request for second real-time information via the QIE module;.....	50
(m) 1[l] obtaining the second real-time information via the world wide web; 50	
(n) 1[m] downloading the second real-time information into the secondary application;	51
(o) 1[n] enabling a user to access the at least one secondary application through the first user interface; and	51
(p) 1[o] enabling the user to control the at least one secondary application through a second user interface.....	51
3. Claim 2: The method according to claim 1, wherein said first real-time information and said second real-time information include audio, video, chronological, text, GPS, or any combination thereof.....	51
4. Claim 3: The method according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.	52

5. Claim 5: The method according to claim 3, wherein said selection mechanism is a hot click button.....	53
6. Claim 6: The method according to claim 1, wherein said first real-time information and said second real-time information are displayed within the virtual thematic environment.	53
7. Claim 7: The method according to claim 1, wherein said first real-time information and said second real-time information are provided to a user via a mobile device.	54
8. Claim 8: The method according to claim 1, wherein the first real-time information and the second real-time information are downloaded from the world wide web.	54
9. Claim 10: The method according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.....	55
10. Claim 11: The method according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.	55
11. Claim 12: The method according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.	56
12. Claim 18.....	56
(a) 18[preamble]: A computer system for integrating real-time information into a virtual thematic environment including a client system and a server system, comprising:	56
(b) 18[a]: at least one non-transitory memory device containing at least one program comprising the steps of:	57
(c) 18[b]: providing a graphics user interface (GUI) module for use in the client system;.....	57
(d) 18[c]: providing a quantum imaging environment (QIE) module in one of the client or the server system;	57

(e)	18[d]: providing a thematic/publishing logic module in one of the client or the server system;	57
(f)	18[e]: providing a primary application in the client system;.....	57
(g)	18[f]: providing a first user interface that is associated with the primary application;	57
(h)	18[g]: sending a request for first real-time information via the QIE module to the world wide web;.....	58
(i)	18[h]: obtaining the first real-time information via the world wide web; 58	
(j)	18[i] downloading the first real-time information from the world wide web into the primary application; providing access to the first real-time information within the virtual thematic environment via the first user interface;.....	58
(k)	18[j] providing at least one secondary application within the primary application at the client system;.....	58
(l)	18[k] sending a request for second real-time information via the QIE module;.....	58
(m)	18[l] obtaining the second real-time information via the world wide web; 58	
(n)	18[m] downloading the second real-time information into the secondary application;	58
(o)	18[n] enabling a user to access the at least one secondary application through the first user interface; and	59
(p)	18[o] enabling the user to control the at least one secondary application through a second user interface; and.....	59
(q)	18[p] one or more microprocessor running the at least one program. 59	
VIII.	Discretionary Considerations.....	59
A.	Considerations under 35 U.S.C. § 325(d).....	59
B.	Considerations under 35 U.S.C. § 314(a)	59
IX.	CONCLUSION.....	64

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Apple Inc. v. Fintiv, Inc.</i> , IPR2020-00019, Paper 11 (PTAB March 20, 2020)	60, 62
<i>Apple Inc. v. Maxell, Ltd.</i> , IPR2020-00204, Paper 11 (PTAB June 19, 2020)	63
<i>Arista Networks, Inc. v. Cisco Sys., Inc.</i> , IPR2016-00244, Paper 10 (PTAB May 25, 2016)	38
<i>Barbaro Technologies, LLC v. Niantic, Inc.</i> , No. 3:18-cv-02955 (N.D. Cal.)	<i>passim</i>
<i>Cuozzo Speed Techs., LLC v. Lee</i> , 579 U.S. 261 (2016)	10
<i>Dexcom, Inc. v. AgaMatrix, Inc.</i> , No. CV 16-05947, 2018 WL 3342927 (C.D. Cal. Feb. 2, 2018), <i>aff'd</i> , 755 Fed. App'x 1016 (Fed. Cir. Mar. 7, 2019)	38
<i>Dish Network LLC v. Broadband iTV, Inc.</i> , IPR2020-01359, Paper 15 (PTAB Feb. 12, 2021)	60
<i>General Plastic Industrial CO., LTD., v. Canon Kabushiki Kaisha</i> , IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017)	60
<i>Interval Licensing LLC v. AOL, Inc.</i> , 766 F.3d 1364 (Fed. Cir. 2014)	10
<i>Mylan Pharma., Inc. v. Sanofi-Aventis Deutschland GmbH</i> , IPR2018-01680, Paper 22 (PTAB Apr. 3, 2019)	61
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (en banc)	9
<i>Rayvio Corp. v. Nitride Semiconductors Co.</i> , IPR2018-01141, Paper 14 (PTAB Dec. 4, 2018)	38

<i>Sand Revolution II LLC v. Continental Intermodal Group-Trucking LLC,</i> IPR2019-01393, Paper 24 (PTAB June 16, 2020)	60, 63
<i>Toyota Motor Corp. v. Cellport Sys., Inc.,</i> IPR2015-00633, Paper No. 11 (PTAB Aug. 14, 2015).....	9
<i>Vibrant Media v. Gen. Elec. Co.,</i> IPR2013-00172	10

Statutes

35 U.S.C. §§ 102(a) and 102(b).....	4, 5
35 U.S.C. §§ 102(a) and (b)	12
35 U.S.C. § 103	1, 4
35 U.S.C. § 112	10
35 U.S.C. § 311 <i>et seq.</i>	1
35 U.S.C. § 314(a)	59, 63
35 U.S.C. § 315(e)(2).....	62
35 U.S.C. § 316(a)(11).....	61
35 U.S.C. § 325(d)	59
KXT LAW	3, 64, 65

Other Authorities

37 C.F.R. § 42.1 <i>et seq.</i>	1
37 C.F.R. § 42.6(e) and § 42.105	66
37 C.F.R. §42.8	1, 65
(37 C.F.R. § 42.8(b)(1))	1
(37 C.F.R. § 42.8(b)(2))	1
(37 C.F.R. § 42.8(b)(3))	2

(37 C.F.R. § 42.15(a)).....	3
37 C.F.R. §42.24	65
37 C.F.R. § 42.103(a).....	3
(37 C.F.R. § 42.104(a)).....	3
37 C.F.R. § 42.106(a).....	3
37 C.F.R. § 42.108	1
83 Fed. Reg. 51,340-51,359 (Oct. 11, 2018)	9

LIST OF EXHIBITS

Exhibit #	Description
Ex. 1001	U.S. Patent No. 10,991,165 (“the ’165 Patent”)
Ex. 1002	U.S. Pat. Pub. No. US20200234505
Ex. 1003	Prosecution File History of the ’165 Patent
Ex. 1004	Declaration of David Crane
Ex. 1005	Curriculum Vitae for David Crane
Ex. 1006	Complaint for Patent Infringement, dated June 3, 2022, in the matter of <i>Quantum Imaging LLC v. Sony Group Corporation, et al.</i> , W.D. Texas, Case No. 6:22-cv-00573-ADA-DTG
Ex. 1007	U.S. Patent No. WO 02/062436 (“Pisanich”)
Ex. 1008	Phantasy Star Online Manual (“PSO Manual”)
Ex. 1009	Order Construing Claims, in <i>Barbaro Technologies, LLC v. Niantic, Inc.</i> , No. 3:18-cv-02955 (N.D. Cal.)
Ex. 1010	Amended Scheduling Order, dated February 17, 2023, in the matter of <i>Quantum Imaging LLC v. Sony Group Corporation, et al.</i>
Ex. 1011	Declaration of Alexander Harry
Ex. 1012	Declaration of Nathaniel E Frank-White

I. INTRODUCTION

Pursuant to 35 U.S.C. § 311 *et seq.* and 37 C.F.R. § 42.1 *et seq.*, Sony Interactive Entertainment LLC (“Petitioner”) hereby petitions for an *inter partes* review of United States Patent No. 10,991,165 (the “’165 Patent”). Petitioner respectfully submits that Claims 1-3, 5-8, 10-12, and 18 of the ’165 Patent (the “Challenged Claims”) are unpatentable under 35 U.S.C. § 103 in view of the prior art references discussed herein. This Petition demonstrates by a preponderance of the evidence that there is a reasonable likelihood that Petitioner will prevail with respect to at least one of these Challenged Claims. Accordingly, it is respectfully requested that the Board institute *inter partes* review of the ’165 Patent pursuant to 37 C.F.R. § 42.108.

This Petition is supported by the Declaration of David Crane (Ex-1004), who is an expert in the claimed subject matter. Ex-1004, ¶¶5-20, Ex-1005.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest in this Petition are Petitioner, Sony Interactive Entertainment Inc., Bluepoint Games, Inc., Sony Group Corporation, and Sony Corporation of America (“RPIs”).

B. Related Matters (37 C.F.R. § 42.8(b)(2))

1. Judicial Matters

As of the filing date of this Petition and to the best of Petitioner’s

knowledge, the '165 Patent is involved in the Related Matter of *Quantum Imaging LLC v. Sony Group Corporation, et al.*¹, W.D. Texas, Case No. 6:22-cv-00573-ADA-DTG (filed on June 3, 2022). *See* Ex-1006.

2. Administrative Matters:

As of the filing date of this Petition and to the best of Petitioner's knowledge, the Challenged Claims are not involved in any administrative matters.

3. Related Patents

As of the filing date of this Petition and to the best of Petitioner's knowledge, the '165 Patent is related to at least U.S. Patent Nos. 7,373,377, 8,225,220, 8,228,325, 10,255,724, 10,846,941, 11,195,333, and U.S. Pat. App. No. 15/817,815.²

C. Lead/Back-up Counsel (37 C.F.R. § 42.8(b)(3)):

Lead Counsel	Back-Up Counsel
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¹ Sony Group Corporation and Sony Corporation of America have been dismissed from the lawsuit.

² Claims 1-3, 5-8, 10-12, 15-17, 19, and 24-25 of U.S. Patent No. 7,373,377 and Claims 1, 3, and 6 of U.S. Patent No. 8,228,325 have been invalidated by the Court in *Barbaro Technologies, LLC v. Niantic, Inc.*, No. 3:18-cv-02955 (N.D. Cal.).

David T. Xue, Ph.D., Reg. No. 54,554 KXT LAW, LLP 1775 Woodside Road, Suite 204 Redwood City, California 94061 Tel: 650-239-0420 Fax: 650-249-5013 david@kxtlaw.com	Karineh Khachatourian (<i>pro hac vice</i> admission to be requested) KXT LAW, LLP 1775 Woodside Road, Suite 204 Redwood City, California 94061 Tel: 650-239-0420 Fax: 650-249-5013 karinehk@kxtlaw.com
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D. Notice of Service Information (37 C.F.R. § 42.8(b)(4)):

Please direct all correspondence to lead and back-up counsel at the above addresses. Petitioner consents to electronic service at the email addresses above.

III. FEES (37 C.F.R. § 42.15(a))

In accordance with 37 C.F.R. § 42.103(a), the Office is authorized to charge \$41,500 and any additional fees to Deposit Account No. 60-4652.

IV. STANDING (37 C.F.R. § 42.104(a))

Petitioner certifies that the Patent for which review is sought is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review of the Challenged Claims on the grounds identified herein. 37 C.F.R. § 42.104(a). This Petition is filed pursuant to 37 C.F.R. § 42.106(a).

V. PRECISE RELIEF REQUESTED

A. Grounds for Review

Petitioner respectfully requests review of the Challenged Claims of the '165 Patent, and cancellation of the Challenged Claims based on the grounds listed

below.

Ground	Claims	Reference
1	1-3, 5-8, 10-12, and 18	Pisanich in view of the knowledge of a person of ordinary skill in the art
2	1-3, 5-8, 10-12, and 18	PSO Manual in view of the knowledge of a person of ordinary skill in the art.

- Ground 1: Claims 1-3, 5-8, 10-12, and 18 are obvious under 35 U.S.C. § 103 over International Patent Publication No. WO 02/062436 to Pisanich (“Pisanich”) (Ex-1007) in view of the knowledge of a person of ordinary skill in the art. Pisanich was filed Feb. 6, 2002 and claimed priority to U.S. Pat. App. No. 09/778,185 filed Feb. 6, 2001. Pisanich was published on Aug. 15, 2002 and is thus prior art at least under pre-AIA 35 U.S.C. §§ 102(a) and 102(b) because Pisanich was published more than a year before the earliest priority date of the ’165 Patent (Mar. 22, 2004) as discussed below.
- Ground 2: Claims 1-3, 5-8, 10-12, and 18 are obvious under 35 U.S.C. §

103 over the Phantasy Star Online Manual (“PSO Manual”) (Ex-1008) in view of the knowledge of a person of ordinary skill in the art. PSO Manual was distributed publicly at least as early as December 2000/March 31, 2001 with the release of the *Phantasy Star Online* video game and is thus prior art at least under pre-AIA 35 U.S.C. §§ 102(a) and 102(b).

VI. THE ’165 PATENT

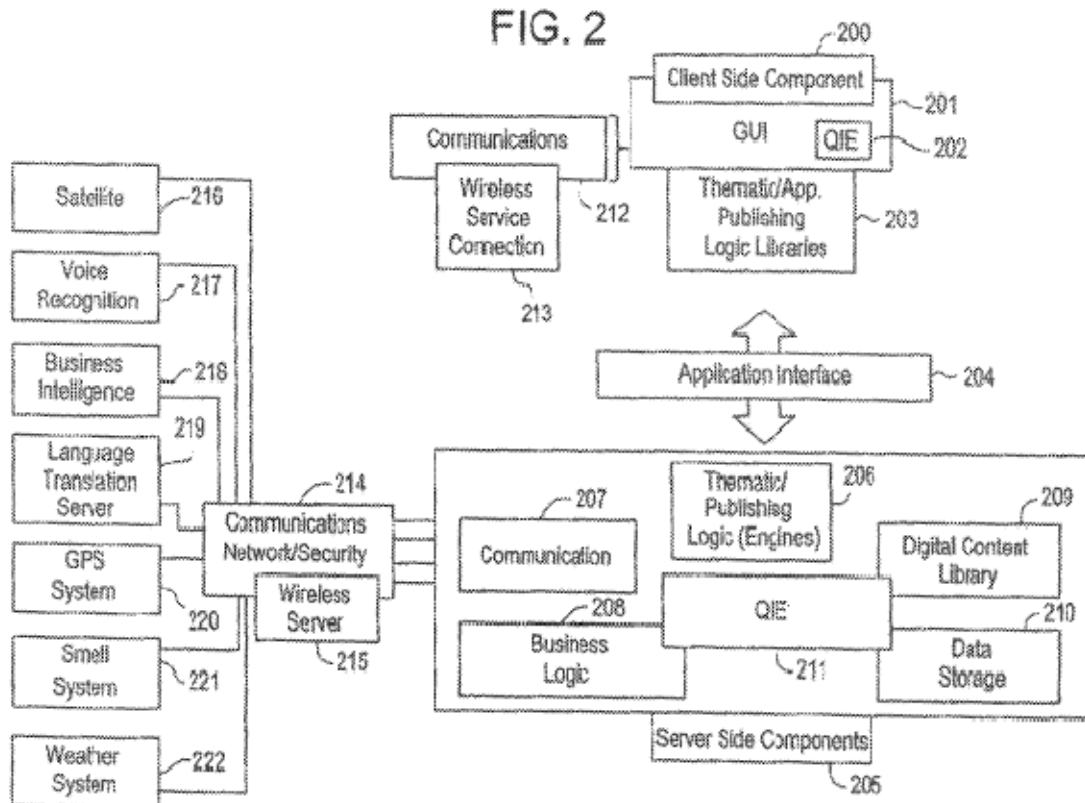
A. Summary of the ’165 Patent

The ’165 Patent shares the same title (“Interactive Virtual Thematic Environment”), abstract, specification, and figures with multiple patents in the same patent family including U.S. Patent Nos. 7,373,377, 8,225,220, 8,228,325, 10,255,724, 11,195,333, and 10,846,941. According to its “Summary of the Invention” section, the ’165 Patent alleges that its invention “is directed to an interactive software application platform which can be used in entertainment, business, publishing, and other applications to provide a virtual and real world experience to the user by integrating audio, video, two dimensional (2D), and three dimensional (3D) technology, and other applications or services.” Ex-1001, 1:52-57. Specifically, “information, including real-time information” is integrated “into a virtual thematic environment using a computer system” wherein such information is displayed “to a user within the thematic environment.” *Id.*,

Abstract.

Specific to the '165 Patent, its claimed invention is covered by method claims using a computer system. *Id.*, Claims 1-19. As shown by the example of independent claim 1, the '165 Patent claims “a method of integrating real-time information into a virtual thematic environment using a computer system including a client and a server,” comprises at least “providing a graphics user interface (GUI) module,” “providing a quantum imaging environment (QIE) module,” “providing a thematic/publishing logic module,” “providing a primary application,” “providing a first user interface,” “sending a request for first real-time information via the QIE” to the world wide web, “obtaining the first real-time information” from the world wide web, “downloading the first real-time information” from the world wide web “into the primary application,” “providing access to the first real-time information within the virtual thematic environment via the first user interface,” “providing at least one secondary application within the primary application,” “sending a request for second real-time information via the QIE,” “obtaining the second real-time information via the world wide web,” “downloading the second real-time information into the secondary application,” “enabling a user to access the at least one secondary application through the first user interface,” and “enabling the user to control the at least one secondary application through a second user interface.” These components in the interactive software application

platform are shown by FIG. 2 of the '165 Patent reproduced below:



According to the claims, the QIE module is configured to “send a request for” first and second “real-time information.” *Id.*, Claims 1, 13, 18, and 19.

B. Prosecution History

The '165 Patent was issued from U.S. Pat. App. No. 16/842,354 (“the '354 Application”), which was filed on Apr. 7, 2020, published as U.S. Pat. Pub. No. US2020/0234505 (Ex-1002) on Jul. 23, 2020, and issued on Apr. 27, 2021. During prosecution, Claims 1-19 were “rejected on the grounds of nonstatutory double patenting, as being unpatentable over claims 1-9 of U.S. Patent No. 8458028

because although the claims at issue are not identical, they are not patentably distinct from each other because they are obvious variants.” Ex-1003, p. 67. In response, the applicant filed a terminal disclaimer to U.S. Patent No. 7,373,377. *Id.*, pp. 40-45.

C. Priority Date

The ‘165 Patent is “a continuation of U.S. patent application Ser. No. 16/833,127, filed on Mar. 27, 2020, which is a continuation of U.S. patent application Ser. No. 15/348,438, filed on Nov. 10, 2016, which is a continuation of U.S. patent application Ser. No. 13/137,299, filed on Aug. 4, 2011, now U.S. Pat. No. 10,255,724; which is a divisional application of U.S. patent application Ser. No. 12/073,967, filed on Mar. 12, 2008, now U.S. Pat. No. 8,225,220; which is a divisional application of U.S. patent application Ser. No. 10/805,415 filed Mar. 22, 2004, now U.S. Pat. No. 7,373,377.” Ex-1001, 1:6-17. As such, the earliest priority date of the ‘165 Patent would be Mar. 22, 2004.

D. Person of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) is a hypothetical person who is presumed to be aware of all pertinent prior art, thinks along conventional wisdom in the art, and is a person of ordinary creativity. With respect to the ‘165 Patent, a POSITA in the March 2004 timeframe would have had bachelor degree in computer engineering, computer science, or a similar discipline, and/or two years

of professional experience in the fields of networking and network-based systems or applications, such as client-server and web-based systems, in the specific context of console and gaming or an equivalent level of skill, knowledge, and experience. A POSITA would have at least a general knowledge of online and in-game advertising methods prevalent in the field, as well as at least a general knowledge of 3D rendering and virtual reality. Ex-1004, ¶ 43.

E. Claim Construction

For IPR proceedings, the Board applies the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 83 Fed. Reg. 51,340-51,359 (Oct. 11, 2018). Under *Phillips*, claim terms are typically given their ordinary and customary meanings, as would have been understood by a POSITA, at the time of the invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1312-16. The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (PTAB Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (other citations omitted). Petitioner believes that no express constructions of the claims are necessary to assess whether the prior art reads on the Challenged Claims. Here, given the correlation between the prior art and the challenged claims, the Board

need not construe any terms of the challenged claims as any reasonable construction reads on the prior art. Petitioners expressly reserves the right to present an interpretation of a claim term in other proceedings that is different, in whole or in part, from that presented in this Petition.

Petitioner further reserves the right to assert in litigation that its proposed constructions are proper and that certain terms are indefinite. Petitioner does not concede, by seeking this Petition, that the challenged claims are of definite scope or properly described under 35 U.S.C. § 112. While the PTAB is not permitted statutorily to invalidate patents for indefiniteness in *inter partes* review (*Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 275 (2016)), the PTAB may nevertheless invalidate a potentially indefinite patent for obviousness so long as it can ascertain that the prior art falls within the scope of the patent. *Vibrant Media v. Gen. Elec. Co.*, IPR2013-00172 (Paper 50) at 11 (PTAB July 28, 2014) (*aff'd*, *Gen. Elec. Co. v. Vibrant Media, Inc.*, 626 Fed. App'x 1010 (Fed. Cir. 2015)); *see also Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1373-74 (Fed. Cir. 2014) (term may be indefinite even though examples in the specification provide some scope for prior art analysis).

In the Related Matter of district court litigation, the parties have not filed claim construction briefs and the court has not issued Claim construction order yet. However, the District Court of Northern District of California issued a claim

construction order (Ex-1009) on Feb. 12, 2020 in *Barbaro Technologies, LLC v. Niantic, Inc.*, No. 3:18-cv-02955 (N.D. Cal.) on US 7,373,377 and US 8,228,325, which are in the same patent family and share the same specification and figures with the '165 Patent. In its order, the court construed the following terms that also appear in the Challenged Claims of the '165 Patent:

- “*graphics user interface (GUI) module*” - “software that provides a graphical display and processes user inputs to allow a user to interact with the graphical display.”
- “*quantum imaging environment (QIE) module*” - “a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment.”
- “*virtual thematic environment*” – “a theme-based virtual computer interface.”

Ex-1009 at pp. 4-7, 9-11.

Without consenting to the court’s constructions of the claim terms listed above³ and for purposes of this petition only, Petitioners demonstrate below that the asserted prior art references in Grounds 1 and 2 meet the Niantic court’s construction of the claim terms.

³ Petitioner reserves the right to propose alternative constructions to the claim terms listed above in the Related Matter.

VII. EXPLANATION OF GROUNDS FOR INVALIDITY

As Mr. Crane explains in his declaration, a POSITA would have been aware of various different types of software, programming languages, and applications related to the patented subject matter of the '165 Patent before the priority date of the '165 Patent. Ex-1004, ¶¶41-44. Specifically, the Challenged Claims of the '165 Patent are rendered obvious at least by the following grounds.

A. Ground 1: Pisanich in View of the Knowledge of a POSITA Renders Obvious Challenged Claims 1-3, 5-8, 10-12, and 18

1. Prior Art

(a) Overview of Pisanich (Ex-1007)

Pisanich was filed Feb. 6, 2002 and claimed priority to U.S. Pat. App. No. 09/778,185 filed Feb. 6, 2001. Pisanich was published on Aug. 15, 2002 and thus qualifies as prior art under pre-AIA 35 U.S.C. §§ 102(a) and (b) against the '165 Patent. Like the '165 Patent, which “describes a method of integrating information, including real-time information, into a virtual thematic environment using a computer system” (Ex-1001, Abstract) where such “virtual thematic environment” can be “a game” (*Id.*, 2:26-27), Pisanich, as its title indicates, relates to “Integration of Real-Time Data into a Gaming Application.” Specifically, according to its Summary of Invention section, Pisanish discloses incorporating “real world information” “into a virtual environment provided for a game.” Ex-1007, 2:17-18. Although such real world information “may differ depending on

the nature of the game” (*Id.*, 2:21-22), it is collected and incorporated into the virtual environment “at a time period at or near to the time the information is requested” (*Id.*, 2:22 – 3:3), i.e., in real time. Figure 1 of Pisanich reproduced below “is a block diagram of a system for incorporating real-time data in accordance with the present invention” (*Id.*, 4:9-10):

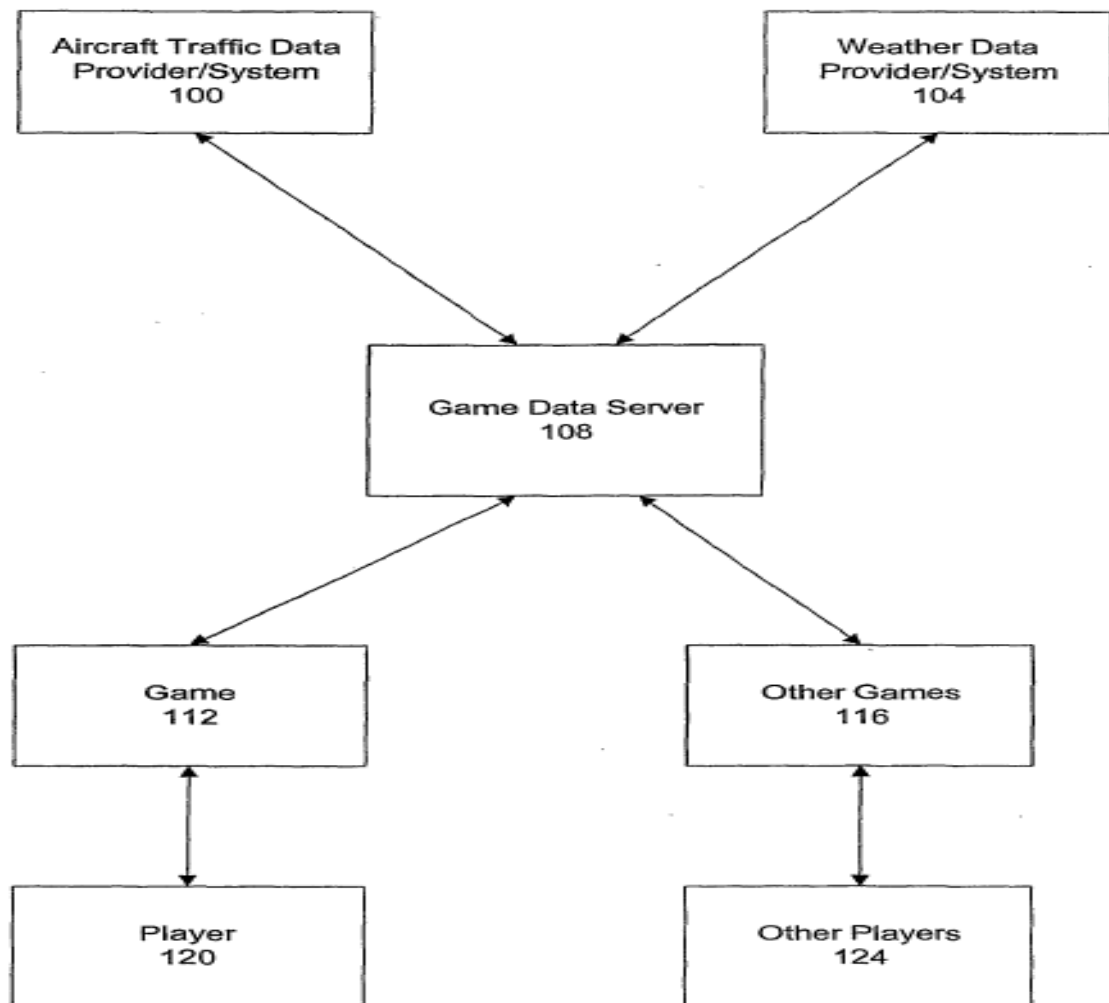


Figure 1

“Referring to Figure 1, a game data server 108 continually gathers” two

streams of “‘real time’ data from traffic 100 and a weather 104 data provider systems,” respectively. *Id.*, 5:13-14. “On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124.” *Id.*, 5:14-15. “The data providers 100, 104 are conventional and gather and encode observations about the world (weather, airplane traffic, etc.) and make it available in real-time (as quickly as it is processed and available) in a known format and structure.” *Id.*, 5:17-20. In Pisanich, “[t]he real time nature of the data is related to the rate of change of the process monitored and the frequency is which it is available for update” (*Id.*, 6:6-8) and “real-time” can be “as often as necessary to reflect the perceptible rate of change in the real world.” *Id.*, 6:12-13. Pisanich discloses collecting and incorporating multiple streams of real-time information into a game. *Id.*, 7:13-16 (“For example, in addition to weather reports, a car road racing game may generate and use a database that stores real time data about automobile traffic. A maritime game may collect and store real time data about sea conditions that could be used in the game and so forth.”).

By “integrating real world data,” which happens in real time as discussed above, “into a game to influence the player's experience of a game in a realistic and random (to the extent the real world is random) manner,” Pisanich “allows the real world weather and traffic data to affect and influence the outcome of the game.” *Id.*, 18:4-7. In the case of an aircraft simulation game, the system “provides a

realistic real-time response to real time traffic and weather conditions.” *Id.*, 44:2-5.

As such, the system, method, and apparatus of Pisanich enables “the use of real-time data to influence and drive a gaming experience.” *Id.*, 48:7-8.

As Mr. Crane explains in his declaration, Pisanich in view of the knowledge of a POSITA renders the challenged claims obvious as discussed in detail below.

Ex-1004, ¶¶ 117-21.

2. Claim 1

- (a) **1[preamble]: A method of integrating real-time information into a virtual thematic environment using a computer system including a client and a server, comprising:**

To the extent the preamble is limiting, Pisanich discloses this limitation. Claims 1-5 and 12-21 of Pisanich cover “A method for simulating a real world environment in a virtual world represented in a game.” Ex-1007, pp. 49-50, 52-53. According to the *Niantic* court’s construction, “virtual thematic environment” is a theme-based virtual computer interface. Ex-1009, at 11. A POSITA would have understood that an electronic game has a theme and is thus theme-based and it provides a virtual computer interface such as a graphical user interface to a player of the game so that the user can interact with the game. Ex-1004, ¶ 122. Pisanich further discloses “Game 112” (a computer game), as shown in Figure 1 (§ VII.A.1(a)), located on the client computer operated by “Player 120.” “Game 112” was connected to the “Game Data Server 108,” which integrates real-time

information into the game as discussed in detail below. Further, a POSITA would have understood that a computer game that received real-time information from an external server included a client (the computer system) and a server. *Id.*, ¶ 123.

(b) 1[a]: providing a graphics user interface (GUI) module for use in the client system;

Pisanich discloses this limitation. According to Niantic court’s construction, “graphics user interface (GUI) module” is “software that provides a graphical display and processes user inputs to allow a user to interact with the graphical display.” Ex-1009, at 5. As shown by the annotated Figure 3 of Pisanich reproduced below, game 112 includes a traffic manager 300 that communicates with rendering engine 316 for rendering graphical display elements onto display 332. Ex-1007, 10:17-20 (“The traffic manager 300 processes requests for air traffic data position (location, heading, altitude, speed, and identification) from the render engine 316 on a continual basis. The render engine 316 may be any conventional rendering process. This data is used to display the aircraft within the world on the game display.”). As shown by Figure 3, the force feedback engine 324 and the player control/game state manager engine 328 are configured to process user input and allow the user to interact with the game play via joystick 340 and keyboard 344, respectively. Ex-1007, 17:21 – 18:3 (“The joystick 340 allows the user to also provide input to the game via the player control/game state process 328. These inputs can include control information (yaw, pitch, and roll),

throttle position, and function selection (for example, lowering gear or flap control). The user also receives appropriate force feedback information from the game via the force feedback engine 324. The keyboard 344 is a standard computer keyboard. The player uses coded keypresses and macros to control the configuration of the game and the aircraft.”). Together, these components of the game 112 provide a graphical display and processes user inputs to allow a user to interact with the graphical display. Ex-1004, ¶¶ 124-25.

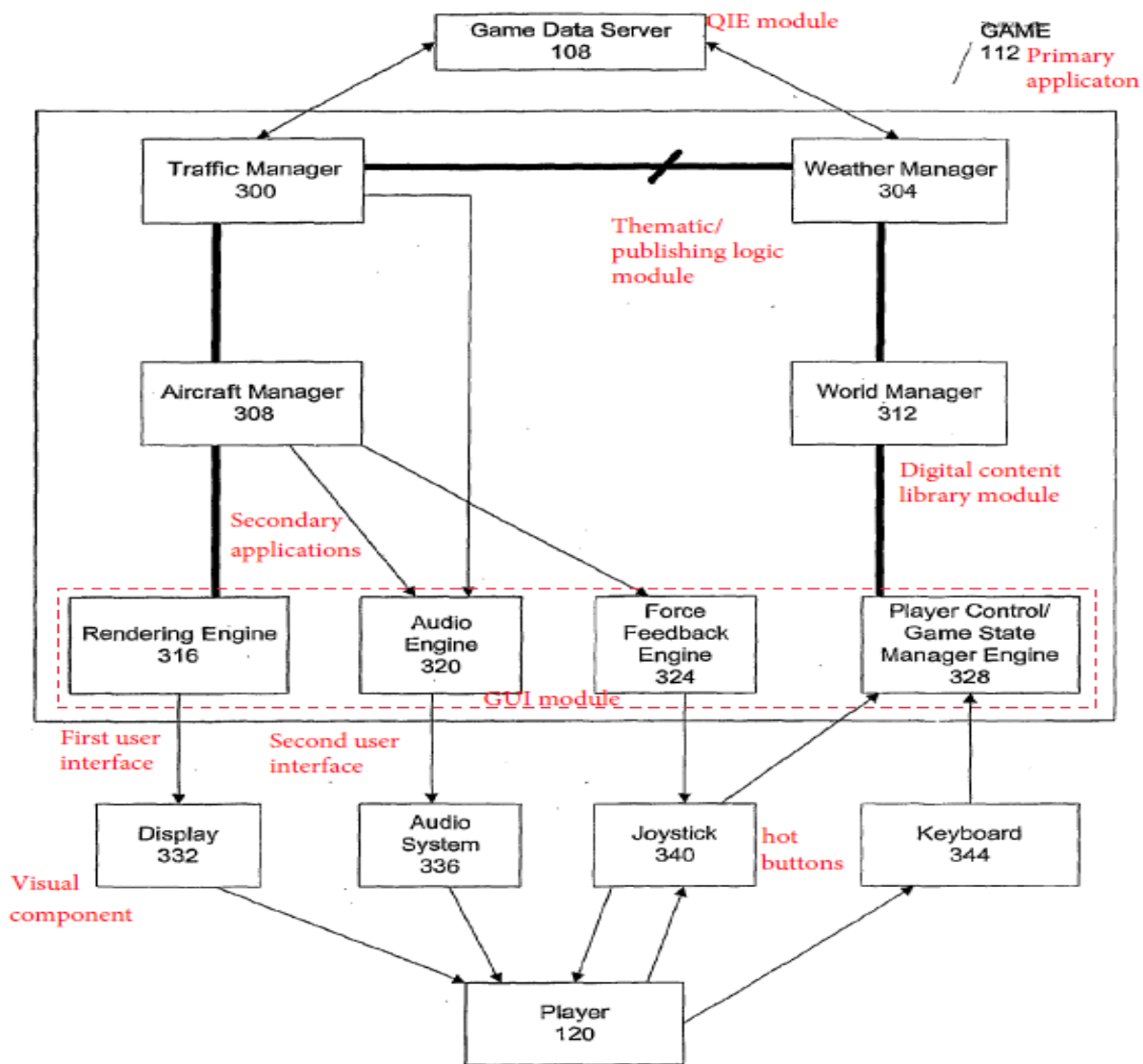


Figure 3 (Annotated)

Here, the rendering engine 316 of Pisanich provides a first user interface to the user to access the game. *Id.*, 16:10-11 (“rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the display 332 using conventional technology.”). The traffic manager 300 also provides a second user interface associated with the secondary application

through audio engine 336 and enables the user to access the secondary application through the second user interface. *Id.*, 10:20 – 11:3 (“The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands to output realistic audio communications messages to the user (for example, voice communications from air traffic control (ATC) and aircraft) based on the state of the player and other aircraft in the game. These messages include messages between ATC and the other aircraft and between ATC and the player 120.”).

(c) 1[b]: providing a quantum imaging environment (QIE) module in one of the client or the server system;

Pisanich discloses this limitation. The *Niantic* court construed the term “quantum imaging environment (QIE) module” that appeared in a related patent as “a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment.” Ex-1009, at p. 7. Furthermore, a POSITA would have understood the QIE’s function is to interpret content so it is manipulated and accessed by any device. Ex-1004, ¶ 127. Pisanich discloses that game data server 108 receives, interprets, and manipulates content, i.e., real world information, in real time so as to be accessible on different types of devices for use within the

game. Ex-1007, 5:13-15 (“a game data server 108 continually gathers ‘**real time**’ data from traffic 100 and a weather 104 data provider systems. On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124.”). A POSITA would have understood that the players 120, 124, etc. may access such content on different types of devices for use with the game. Ex-1004, ¶ 131. Specifically, “As a player 120 controls a gaming unit within a game 112, for example, an aircraft, a car, or the like, the game 112 requests data from the game data server 108 as required to provide a realistic environment for the game. The data requested by the game 112 includes data such as weather reports or air traffic in the direction that the player 120 is guiding the vehicle in the game 112.” Ex-1007, 6:18-22.

Pisanich further discloses that at least the rendering engine 316 acted as a QIE module in the client system, *i.e.*, one of the client or the server system. Specifically, Pisanich taught “[t]he rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the display 332 using conventional technology.” Ex-1007, 16:10-11. Pisanich further taught, as illustrated in Figure 1 (§ VII.A.1(a)), a “Game Data Server 108” module that described QIE module features in a server system, configured to interpret content in order to manipulate the content for different games, on different devices. Ex-1007, 7:9-16; Ex-1004, ¶¶ 126-32.

(d) 1[c]: providing a thematic/publishing logic module in one of the client or the server system;

Pisanich discloses this limitation. Pisanich discloses a game system that controls aircraft operation based on a “Rule-Based Logic Module” containing the claimed virtual thematic environment rules to coordinate actions to be taken. Ex-1007, 35:20-36:1. Pisanich further discloses that an “application module generates simulated real world constructs responsive to the real world information” into the virtual world environment. *Id.*, 3:3-4. In Pisanich, “the real world information includes weather information such as cloud cover, precipitation, wind, fog, as well as air traffic data.” *Id.*, 2:22-23. “For example, in a flight simulator game, constructs may include clouds, wind, rain, and air traffic.” *Id.*, 3:4-5. Pisanich discloses that such weather information is being construed into the virtual world environment and displayed on a visual component by a “weather manager 304” as shown by Figure 3 reproduced and annotated above. As stated above (§ VII.A.2(a)), a POSITA would have understood that a computer game that received information from an external server included a client (the computer system) and a server. Ex-1004, ¶¶ 122-23; 133-35.

(e) 1[d]: providing a primary application in the client system;

Pisanich discloses this limitation. Pisanich discloses a primary application, e.g., an electronic game, which is theme-based and provides a theme-based virtual

world environment. *See* Ex-1007, Claims 1-5, 12-21. Pisanich further discloses that the described game is to be played on a computer system, *i.e.*, client system. Ex-1004, ¶¶ 136-37.

(f) 1[e]: providing a first user interface that is associated with the primary application;

Pisanich discloses this limitation. The rendering engine 316 provides a first user interface to the user to access the game. Ex-1007, 16:10-11 (“rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the display 332 using conventional technology.”); *See also* § VII.A.2(b); Ex-1004, ¶¶ 138-39.

(g) 1[f]: sending a request for first real-time information via the QIE module to the world wide web;

Pisanich teaches this limitation. As shown by Figures 1 and 3 reproduced above, Pisanich discloses that game data server 108 receives, interprets, and manipulates real world information in real time so as to be accessible on different types of devices that may send request for it for use within the game. Ex-1007, 5:13-15 (“a game data server 108 continually gathers ‘**real time**’ data from traffic 100 and a weather 104 data provider systems. **On request**, the game data server 108 permits data available to a game 112, 116 and players 120, 124.”). A POSITA would have understood that techniques involving the transmission/sending a request and receipt of real time data over a network could be applied to the

transmission and receipt of data over the Internet and to and from the World Wide Web using web-based protocols such as HTTP and HTTPS. Further, a POSITA would have understood that to access information over the Internet required **sending a request** as claimed. A POSITA would have understood that when communicating between a game and a server (or other remote players), there is a communication channel that sends requests and receives responses. Ex-1004, ¶ 141.

Pisanich further discloses that, for a non-limiting example, the first real-time information supplied into the game can be the weather information. *Ex-1007*, 11:11-18 (“The weather manager 304 processes requests for weather state (temperature winds, precipitation, visibility) over a general area from the render engine 316 on a continual basis. This data is used to display real time changing weather within the world on the game display. The weather manager 304 also simulates realistic, changing weather based on the real time weather feed and rule-based processes within weather manager 304 itself to provide weather effects not provided for from available real world data, for example, wind gusts, thunderstorms, cloud drift rate, the intensity of any precipitation, and the like.”). A player can access such first real-time information in the game via a rendering engine. *Id.*, 16:10-11 (“rendering engine 316 displays to the user the internal (cockpit) and external (terrain, weather, other aircraft) state of the game via the

display 332 using conventional technology.”). As discussed above (§ VII.A.2(c)), Pisanich further discloses that at least the rendering engine 316 acted as a QIE module in the client system, *i.e.*, one of the client or the server system. Ex-1004, ¶¶ 140-42.

(h) 1[g] obtaining the first real-time information via the world wide web;

Pisanich teaches this limitation. *See* § VII.A.2(g). Pisanich further discloses obtaining weather information for a specific location from the Internet, which a POSITA would have understood included obtaining the information. Ex-1004, ¶¶ 143-44.

(i) 1[h] downloading the first real-time information from the world wide web into the primary application;

Pisanich teaches this limitation. *See* § VII.A.2(g). Pisanich further discloses that “Game Data Server 108” gathered and cached real-time air traffic and weather data, *i.e.*, the first real-time information, to be downloaded to Game 112. Ex-1007, 5:13-15; Ex-1004, ¶¶ 145-46.

(j) 1[i] providing access to the first real-time information within the virtual thematic environment via the first user interface;

Pisanich teaches this limitation. *See* §§ VII.A.2(f) and (g); Ex-1004, ¶¶ 147-48.

**(k) 1[j] providing at least one secondary application
within the primary application at the client system;**

Pisanich teaches this limitation. As shown by Figure 3 reproduced above, there are multiple “managers” or “engines”, i.e., secondary applications, such as the audio engine 336, that are within the primary application, i.e., game 112, which receive real-time information from, e.g., the Air Traffic Database Update Process 216 and/or Weather Database Update Process 220. *Id.* Content from the secondary application, e.g., audio messages heard while playing in the form of communications from Air Traffic Control, is integrated into the primary application. Any of the content obtained through the secondary application taught the claimed content provided by the secondary application. Ex-1004, ¶ 149. The concept of having a secondary application integrated with a primary application would have been well known to a POSITA as merely one of a variety of ways to program software to accomplish substantially the same functionality. *Id.*, ¶ 149. In the example of the flight simulator game, the “traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands to output realistic audio communications messages to the user (for example, voice communications from air traffic control (ATC) and aircraft) based on the state of the player and other aircraft in the game. These messages include messages

between ATC and the other aircraft and between ATC and the player 120.” Ex-1007, 10:20 – 11:3; Ex-1004, ¶¶ 149-50.

(l) 1[k] sending a request for second real-time information via the QIE module;

Pisanich teaches this limitation. *See* §§ VII.A.2(c) & (g). Pisanich further discloses that, for a non-limiting example, the second real-time information supplied into the game can be the real-time communication messages exchanged between the air traffic controller (ATC) and the player of the game and the player can access such real-time communication messages via an audio engine. Ex-1007, 10:20 – 11:3 (“The traffic manager 300 also simulates the communications of air traffic within the game world, based on **real time data**. The external realization of this is through communications commands that are sent to the audio engine 336. The audio engine 336 uses these commands to output realistic audio communications messages to the user (for example, voice communications from air traffic control (ATC) and aircraft) based on the state of the player and other aircraft in the game. These messages include messages between ATC and the other aircraft and between ATC and the player 120.”); *See also* Ex-1007, Claim 21 (“21. The method of claim 20 wherein the air traffic controller transmits audio messages to the player regarding the movement of real world aircraft to emulate radio traffic a real world pilot would experience.”) Further, a POSITA would have understood that accessing information from a remote data provider required sending a request.

Ex-1004, ¶¶ 151-53.

- (m) **1[l] obtaining the second real-time information via the world wide web;**

Pisanich teaches this limitation. *See* §§ VII.A.2 (g) & (l). Further, a POSITA would have understood that accessing information from a remote data provider included obtaining second real-time information. Ex-1004, ¶¶ 154-56.

- (n) **1[m] downloading the second real-time information into the secondary application;**

Pisanich teaches this limitation. *See* §§ VII.A.2(k) & (l); Ex-1004, ¶¶ 157-58.

- (o) **1[n] enabling a user to access the at least one secondary application through the first user interface; and**

Pisanich teaches this limitation. *See* § VII.A.2(b). As shown in Figure 3 above, Pisanich further discloses the location of a player's aircraft was controlled through the first user interface, which required access of the "managers" and "engines", such as "Traffic Manager 300," *i.e.*, one of the secondary applications. For example, Pisanich disclosed that the user of the exemplary Flight Simulator game controlled his or her aircraft through the game's GUI (the **claimed first user interface**) whereby "choices and control inputs by the player" determined "where and how the player 120 is flying a plane." Ex-1007, 8:13-15; Ex-1004, ¶¶ 159-61.

- (p) **1[o] enabling the user to control the at least one secondary application through a second user interface.**

Pisanich teaches this limitation. *See* § VII.A.2(b). As shown in Figure 3 above, Pisanich discloses using the “Traffic Manager 300” *i.e.*, one of the secondary application, to load the air traffic information surrounding a specific location selected by the player using the second user interface. Ex-1007, 10:11-13. Such information is then utilized to access the real time audio communications between the layer and the ATC. *Id.*, 10:20 – 11:3; Ex-1004, ¶¶ 162-64.

- 3. Claim 2: The method according to claim 1, wherein said first real-time information and said second real-time information include audio, video, chronological, text, GPS, or any combination thereof.**

Pisanich teaches this limitation. As discussed in §§ VII.A.2.(f) & (l), the first real-time information (e.g., weather information) and the second real-time information (e.g., audio messages) may include audio, video, text, or any combination thereof. Specifically, while Pisanich did not explicitly disclose the use of audio, video, or text in the weather or traffic elements it was well known in the art to include text signage in the modeling of weather, traffic and/or terrain information. A POSITA would have been motivated to combine well-known techniques to improve weather, traffic, and/or terrain realism to arrive at the subject matter of this claim element. Further, Pisanich disclosed the claimed **second real-time information**, *i.e.*, audio communications/messages. Ex-1004, ¶¶

165-72.

4. Claim 3: The method according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.

Pisanich teaches this limitation. *See* § VII.A.2. Pisanich further discloses that the player of the game selects a geographic location first, which would determine what kind of real-time information to be accessed in the game. Ex-1007, 2:18-3:3 (“an application module receives a location selection from a player. The location selection selects a geographic location within which the game is to take place. ...The application module then retrieves real world information. The real world information may differ depending on the nature of the game. For a flight simulator game, the real world information includes weather information ..., for the selected location, at a time period at or near to the time the information is requested.”). The real time communication between the ATC and the player is also determined by the location. *Id.*, 10:17-21 (“The traffic manager 300 processes requests for air traffic data position (location, heading, altitude, speed, and identification) from the render engine 316 on a continual basis. ... The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data.”); Ex-1004, ¶¶ 173-75.

5. Claim 5: The method according to claim 3, wherein said selection mechanism is a hot click button.

Pisanich teaches this limitation. *See* § VII.A.4. As shown in Figure 3

reproduced above, Pisanich discloses joystick 340 that “allows the user to also provide input to the game via the player control/game state process 328.” Ex-1007, 17:21-22. Pisanich also discloses a keyboard 344 that provides “coded keypresses and macros” as hot keys “to control the configuration of the game and the aircraft.” *Id.*, 18:2-3. As discussed above, such user input including user selection for accessing real-time information. A POSITA would have understood that a joystick typically includes a click button conveniently positioned (i.e., “hot”) on the joystick for the player to click. Ex-1004, ¶¶ 176-81.

6. Claim 6: The method according to claim 1, wherein said first real-time information and said second real-time information are displayed within the virtual thematic environment.

Pisanich teaches this limitation. *See* § VII.A.2. Pisanich further discloses that weather information, *i.e.*, first real-time information, is being construed into the virtual world environment and displayed on a visual component by a “weather manager 304” as shown by Figure 3 reproduced above according to “rule-based processes.” Ex-1007, 11:9-20. Pisanich further discloses receiving and generating audio commands and/or communications from Air Traffic Control, *i.e.*, second real-time information. A POSITA would have understood that such audio commands and/or communications can be displayed with the game, e.g., as captions. Ex-1004, ¶¶ 182-84.

7. Claim 7: The method according to claim 1, wherein said first real-time information and said second real-time information are provided to a user via a mobile device.

Pisanich teaches this limitation. *See* § VII.A.2. A POSITA would have understood that a mobile device is a computing device that can be moved from one physical location/position to another. Ex-1004, ¶ 187. Pisanich discloses that the player's location may change during game play, implying that the player is accessing the game via a mobile device. Ex-1007, 3:13-14 ("In one embodiment, the application module determines whether the information for the location has changed since it was last retrieved or if the player has moved to a new location."). Pisanich further discloses that the players may access the game remotely even via a satellite, again indicating that the player is accessing the game via a mobile device. *Id.*, 5:13-17 ("Referring to Figure 1, a game data server 108 continually gathers "real time" data from traffic 100 and a weather 104 data provider systems. On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124. The data providers 100, 104 are located remotely and are typically accessed via the internet or through some other communications means (such as a satellite, or a leased line.)"). Pisanich further discloses processing based on the location of a player's gaming unit, and that the system tracks a player's change of location. Ex-1007, 6:22-23 ("Thus, the game 112 requests data based on a current location and time of a player gaming unit), 3:13-14 ("In one embodiment,

the application module determines whether the information for the location has changed since it was last retrieved or if the player has moved to a new location.”).

A POSITA would have understood that it would be obvious for a player to access a game and its content via a mobile device. Ex-1004, ¶¶ 185-88.

8. Claim 8: The method according to claim 1, wherein the first real-time information and the second real-time information are downloaded from the world wide web.

Pisanich teaches this limitation. See § VII.A.2. As shown by Figure 3 reproduced above, the first and the second real-time information are downloaded from game server 108, which is external to the game 112. Ex-1007, 5:13-16 (“Referring to Figure 1, a game data server 108 continually gathers ‘real time’ data from traffic 100 and a weather 104 data provider systems. On request, the game data server 108 permits data available to a game 112, 116 and players 120, 124. The data providers 100, 104 are located remotely and are typically accessed **via the internet**”); Ex-1004, ¶¶ 189-91.

9. Claim 10: The method according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.

Pisanich teaches this limitation. See § VII.A.2. Pisanich further discloses that the player of the game selects a geographic location first, which would determine what kind of (first and/or second) real-time information to be accessed in the game. Ex-1007, 2:18-3:3 (“an application module receives a location

selection from a player. The location selection selects a geographic location within which the game is to take place. ...The application module then retrieves real world information. The real world information may differ depending on the nature of the game. For a flight simulator game, the real world information includes weather information ..., for the selected location, at a time period at or near to the time the information is requested.”). The real time communication between the ATC and the player, i.e. second real-time information, is also determined by the location. *Id.*, 10:17-21 (“The traffic manager 300 processes requests for air traffic data position (location, heading, altitude, speed, and identification) from the render engine 316 on a continual basis. ... The traffic manager 300 also simulates the communications of air traffic within the game world, based on real time data.”); Ex-1004, ¶¶192-94.

10. Claim 11: The method according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.

Pisanich teaches this limitation. *See* § VII.A.2. Pisanich discloses providing user with real-time weather information such as “cloud objects” within the game. Ex-1007, 23:4-7 (“Cloud coverage, important in a flight simulation game, are also preferably interpolated in accordance with the present invention. In one embodiment, cloud objects are implemented with a grid that moves when the player's aircraft moves. Cloud parameters are calculated according to real world

observation data that is interpolated for each vertex of the grid.”); Ex-1004, ¶¶ 195-98.

11. **Claim 12: The method according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.**

Pisanich teaches this limitation. As discussed in § VII.A.2.(k) above, Pisanich discloses an instant messaging application for audio message communications between an ATC and the players in real time. Ex-1004, ¶¶ 199-203.

12. Claim 18

- (a) **18[preamble]: A computer system for integrating real-time information into a virtual thematic environment including a client system and a server system, comprising:**

To the extent the preamble is limiting, Pisanich discloses this limitation. *See* § VII.A.2(a). As shown by Figure 3 reproduced above, Pisanich further discloses the game data server 108 and the client computing device running the game 112 provides a virtual thematic environment (e.g., a game) to player 120. As discussed above, the game data server 108 integrates real-time information into the game. Ex-1004, ¶¶ 204-06.

- (b) 18[a]: at least one non-transitory memory device containing at least one program comprising the steps of:**

Pisanich discloses this limitation. Claims 28-33 of Pisanich cover a “computer readable medium for integrating real world data into a game, the computer readable medium storing instructions to cause a processor to” perform various interactions with a player of the game. Ex-1007, pp. 54-56. A POSITA would have understood that the instructions are software instructions, the computer readable medium storing such software instructions can be non-transitory and the game itself is an interactive software application platform. Ex-1004, ¶¶ 207-08.

- (c) 18[b]: providing a graphics user interface (GUI) module for use in the client system;**

Pisanich teaches this limitation. *See* § VII.A.2(b).

- (d) 18[c]: providing a quantum imaging environment (QIE) module in one of the client or the server system;**

Pisanich teaches this limitation. *See* § VII.A.2(c).

- (e) 18[d]: providing a thematic/publishing logic module in one of the client or the server system;**

Pisanich teaches this limitation. *See* § VII.A.2(d).

- (f) 18[e]: providing a primary application in the client system;**

Pisanich teaches this limitation. *See* § VII.A.2(e).

- (g) 18[f]: providing a first user interface that is associated with the primary application;**

Pisanich teaches this limitation. *See* § VII.A.2(f).

- (h) 18[g]: sending a request for first real-time information via the QIE module to the k web;**

Pisanich teaches this limitation. *See* § VII.A.2(g).

- (i) 18[h]: obtaining the first real-time information via the world wide web;**

Pisanich teaches this limitation. *See* § VII.A.2(h).

- (j) 18[i] downloading the first real-time information from the world wide web into the primary application; providing access to the first real-time information within the virtual thematic environment via the first user interface;**

Pisanich teaches this limitation. *See* § VII.A.2(i); Ex-1004, ¶¶216-17.

- (k) 18[j] providing at least one secondary application within the primary application at the client system;**

Pisanich teaches this limitation. *See* § VII.A.2(j).

- (l) 18[k] sending a request for second real-time information via the QIE module;**

Pisanich teaches this limitation. *See* § VII.A.2(k).

- (m) 18[l] obtaining the second real-time information via the world wide web;**

Pisanich teaches this limitation. *See* § VII.A.2(l).

- (n) 18[m] downloading the second real-time information into the secondary application;**

Pisanich teaches this limitation. *See* § VII.A.2(m).

- (o) 18[n] enabling a user to access the at least one secondary application through the first user interface; and**

Pisanich teaches this limitation. *See* § VII.A.2(n).

- (p) 18[o] enabling the user to control the at least one secondary application through a second user interface; and**

Pisanich teaches this limitation. *See* § VII.A.2(o).

- (q) 18[p] one or more microprocessor running the at least one program.**

Pisanich teaches this limitation. Claims 28-33 of Pisanich discloses “a computer readable medium for integrating real world data into a game, the computer readable medium storing instructions to cause a processor” to perform a plurality of operations by executing the instructions, i.e., running the at least one program. Ex-1007., pp. 54-56

Also, as discussed above, Pisanich discloses client and server computers running programs. A POSITA would have known that client and server computers each include one or more microprocessors. *Ex-1004.*,. ¶¶ 224-25.

B. Ground 2: PSO Manual in View of the Knowledge of a POSITA

1. Prior Art

(a) Overview of PSO Manual (Ex-1008)

PSO Manual was published more than one year prior to the earliest priority date of the '165 Patent. PSO Manual was distributed publicly, together with the

Phantasy Star Online video game at least as early as March 31 2001, as illustrated by the following statement included in the PSO Manual, on page 33: “Copying and/or transmission of this game is strictly prohibited. Unauthorized rental or public performance of this game is a violation of applicable laws. ©SEGA CORPORATION, 2000.” Ex-1008, p. 33; *see also* Ex. 1011, ¶ 9.b. “[W]hen determining a threshold issue of whether a reference is a printed publication for purposes of a decision on institution, a copyright notice has been accepted as prima facie evidence of publication.” *Arista Networks, Inc. v. Cisco Sys., Inc.*, IPR2016-00244, Paper 10 at 19 (PTAB May 25, 2016) (“[T]he presence of a copyright notice” on a guide for a commercial product was “sufficient evidence of public accessibility as of the critical date to meet the ‘reasonable likelihood’ threshold for institution.”); *Rayvio Corp. v. Nitride Semiconductors Co.*, IPR2018-01141, Paper 14 at 26 (PTAB Dec. 4, 2018) (copyright date on standard textbook was “probative evidence that [the textbook] existed as of 1993 and was publicly available at that time” and thus was sufficient for institution); *Dexcom, Inc. v. AgaMatrix, Inc.*, No. CV 16-05947, 2018 WL 3342927, at *11-12 (C.D. Cal. Feb. 2, 2018), *aff’d*, 755 Fed. App’x 1016 (Fed. Cir. Mar. 7, 2019) (copyright notice dates and/or listed publication dates of five published prior art references established that the references were sufficiently publicly accessible at the time of the priority date for

the asserted patent).⁴

PSO Manual describes *Phantasy Star Online* as a role playing online multiplayer video game for Sega® Dreamcast,TM which takes place in a virtual science fiction and fantasy themed environment. Ex-1004, ¶¶97-87; Ex-1008, Contents & p. 2. PSO Manual was distributed publicly at least as early as March 31, 2001. *See supra* section V.A; Ex-1011, ¶¶ 9, 17. PSO Manual discloses that in

⁴ Additional circumstantial evidence confirms that PSO Manual was publicly available at least as early as March 31, 2001, including (1) a promotional advertising insert for Sonic Adventure 2 “coming 2001” with a copyright statement “SEGA/SONICTEAM,2000” (Ex-1011, ¶ 9.c); (2) a DVD titled SONIC ADVENTURE 2 THE TRIAL, which included the printed statement “SEGA/SONICTEAM, 2000” (*id.*, ¶ 9.d); (3) instructions for entry into a sweepstakes with a March 31, 2001 entry deadline (Ex-1011, ¶ 9.e); (4) a product registration form with the notice “Copyright © 2000” (*id.*, ¶ 9.f); (5) various videogame industry magazine articles dated between October 2000 and April 2001 that note the existence of the *Phantasy Star Online* video game and communications system (*Id.*, ¶¶ 13, 15-16; Ex-1012, ¶6); and (6) a Wayback machine capture of an advertisement for the *Phantasy Star Online* video game in 2001 on the public website for Sega (Ex-1011, ¶14; Ex-1012, ¶6).

Phantasy Star Online, “[a]ll menu operations take place in REAL TIME.” Ex-1008, p. 20. PSO Manual discloses various functions of the *Phantasy Star Online* video game, where players interact with a graphical user interface on their screen to access and select real-time information in the form of quest missions, items, player positions, and Guild Cards. *Id.*, pp. 10, 14, 15, 21, 25. PSO Manual further discloses that in the *Phantasy Star Online* video game, players may play online with “people from all over the world,” via a communication feature launched from within the game, used for translating and sending messages in real-time. *Id.*, p. 2.

As Mr. Crane explains in his declaration, PSO Manual in view of the knowledge of a POSITA renders the challenged claims obvious as discussed in detail below. Ex-1004, ¶¶ 226-30.

2. Claim 1

- (a) **1[preamble]: A method of integrating real-time information into a virtual thematic environment using a computer system including a client and a server, comprising:**

To the extent the preamble is limiting, PSO Manual discloses this limitation. Page 2 of PSO Manual describes *Phantasy Star Online* as a network role playing game (“RPG”), in a science fiction fantasy world, and page 3 discloses that it “is a one-player game (four-player when playing online).” Ex-1008, pp. 2-3. As discussed in § VII.A.II.(a), such online game meets Niantic court’s construction of “virtual thematic environment” as a theme-based virtual computer interface. The virtual

thematic environment of *Phantasy Star Online* can be further understood from the cover page:

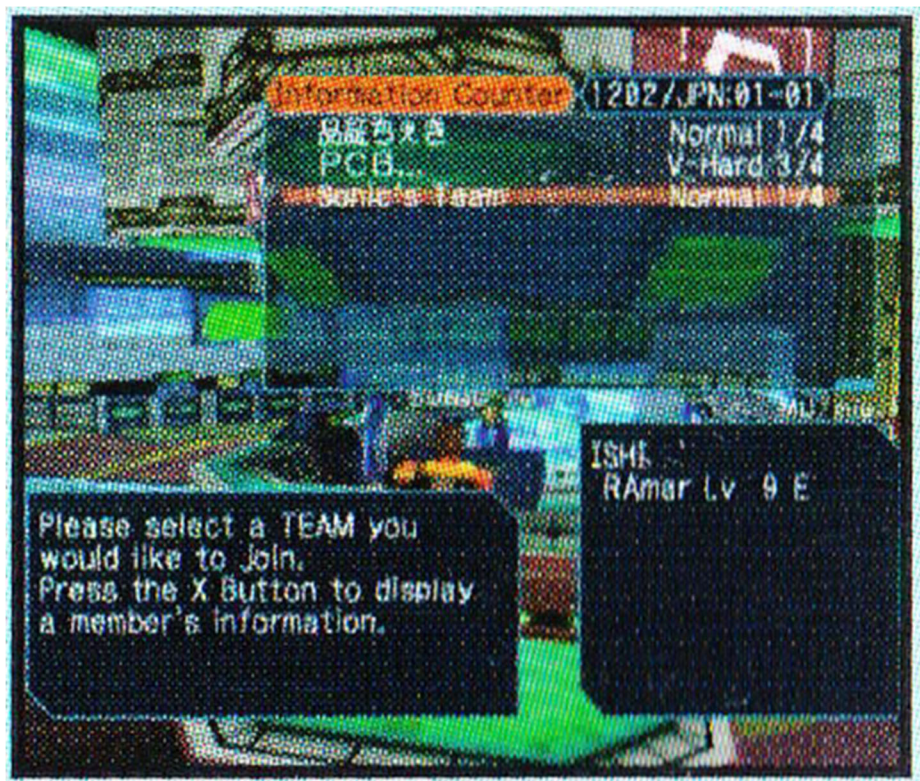
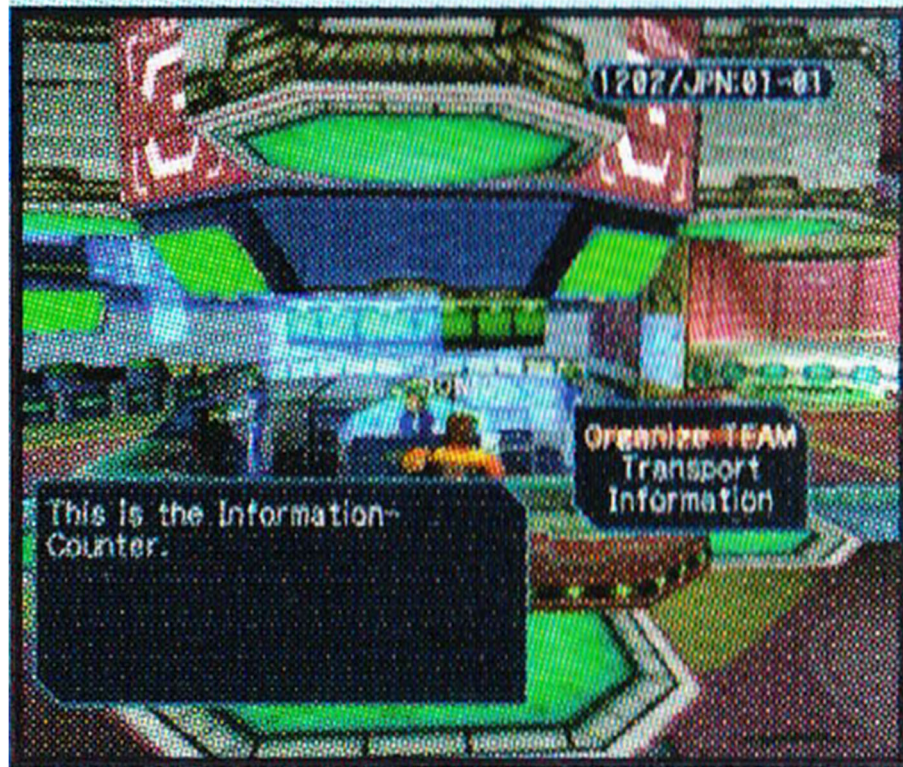


Id., Cover page. PSO Manual describes that *Phantasy Star Online* is an electronic game “designed only for use with the Dreamcast console” (Ex-1008, Contents page), which took the role of a client computer in a client/server game system

connected to the “PSO server” (Ex-1004, ¶ 232). PSO Manual further describes real-time actions, positions, and communications between players online over the game server, *i.e.*, methods for integrating real-time information into a virtual thematic environment. Ex-1008, pp. 12, 26, 31; Ex-1004, ¶¶ 231-33.

(b) 1[a]: providing a graphics user interface (GUI) module for use in the client system;

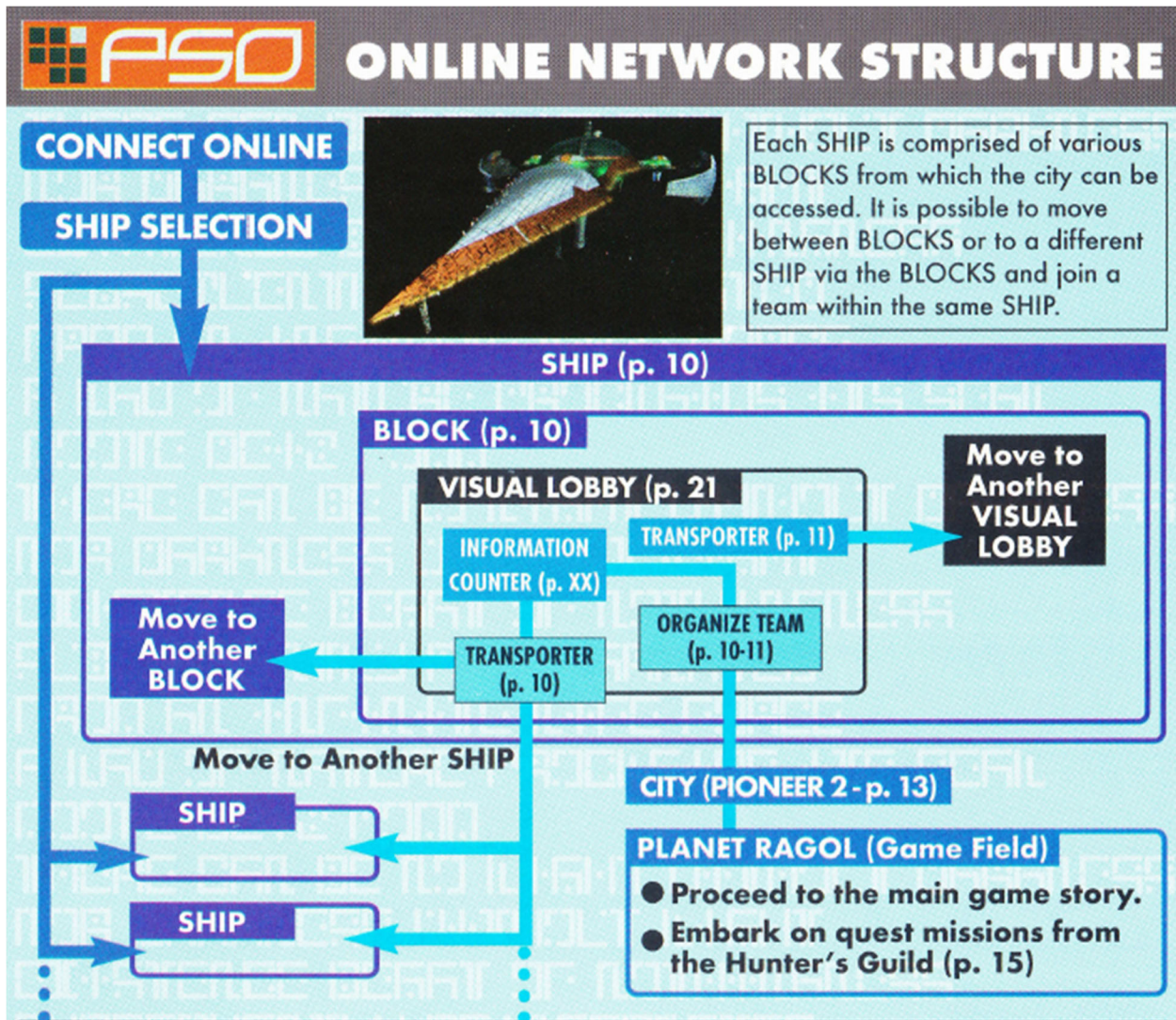
PSO Manual discloses this limitation. The *Niantic* court construed “graphics user interface (GUI) module” as “software that provides a graphical display and processes user inputs to allow a user to interact with the graphical display.” Ex-1009 at 5. *Phantasy Star Online* provides a graphical display that processes user inputs for use onto the Dreamcast, *i.e.*, a screen that allows players to interact with graphical display elements within the virtual thematic environment, including moving through the virtual world and chatting with other players. *See, e.g.*, Ex-1008, pp. 10-12. For example, PSO Manual discloses a graphical user interface displayed on the player’s screen in *Phantasy Star Online* allowing a player to interact within the virtual thematic environment by creating a team:



Ex-1008, p. 10. Ex-1004, ¶¶ 234-35.

(c) 1[b]: providing a quantum imaging environment (QIE) module in one of the client or the server system;

PSO Manual discloses this limitation. The *Niantic* court construed “quantum imaging environment (QIE) module” in a related patent as “a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the virtual thematic environment.” Ex-1009, at 7. Furthermore, a POSITA would have understood the QIE’s function is to interpret content so it is manipulated and accessed by any device. Ex-1004, ¶ 237. PSO Manual disclosed that players could play online with “people from all over the world,” on different devices. Ex-1008, p. 2. PSO Manual further described a “Word Select” feature that players could use to chat with speakers of different languages, which acted as a QIE. *Id.*; Ex-1004, ¶ 238. PSO Manual described an online network structure disclosed below:



Ex-1008, p. 9. Through this diagram, PSO Manual discloses that the *Phantasy Star Online* video game receives, interprets, and manipulates the second content, *i.e.*, real world information, in real time so as to be accessible on a player's Dreamcast game console for use while playing the *Phantasy Star Online* video game. *Id.*, p. 9 (real time information received for information counter, transporter, and organize team functions). It is also well known to a POSITA at the time that game systems sold into different countries were different systems,

including the use of different voltage sources, different language operating systems, and compatible with different television standards. Ex-1004, ¶¶ 102, 236-39.

(d) 1[c]: providing a thematic/publishing logic module in one of the client or the server system;

PSO Manual discloses this limitation. PSO Manual describes that *Phantasy Star Online* is a science fiction fantasy game to be played on the Dreamcast console, *i.e.*, published in a client/server game system. Ex-1008, Contents page. Moreover, a POSITA would have understood that a virtual world gaming environment was designed to implement game logic and rules simulating interactions with objects, terrain, weapons, or projectiles. Ex-1004, ¶ 240-41.

(e) 1[d]: providing a primary application in the client system;

PSO Manual discloses this limitation. PSO Manual discloses a primary application, the electronic video game *Phantasy Star Online*, in a client/server game system. *See* Ex-1008, cover page & pp. 2-3; Ex-1004, ¶¶ 244-45.

(f) 1[e]: providing a first user interface that is associated with the primary application;

PSO Manual discloses this limitation. *See* § VII.A.2(b). PSO Manual describes character movement throughout the *Phantasy Star Online* virtual world, *i.e.*, first user interface, using the Dreamcast Controller, which was in turn associated with *Phantasy Star Online*, *i.e.*, the primary application. Ex-1008, p.

31; Ex-1004, ¶¶ 244-45.

(g) 1[f]: sending a request for first real-time information via the QIE module to the world wide web;

PSO Manual discloses this limitation. PSO Manual discloses real-time movements of *Phantasy Star Online* remote players, non-player characters, and enemies, i.e. first real-time information, to be provided upon request. Ex-1008, p. 19. PSO Manual further described that player characters' names appeared in the virtual thematic environment floating over their heads. *Id.*, p. 12. A POSITA would have understood that techniques involving the transmission and receipt of data over a network could be applied to the transmission and receipt of data over the Internet and to and from the World Wide Web using web-based protocols such as HTTP and HTTPS. Ex-1004, ¶ 247. Furthermore, a POSITA would have understood that for data to be received in the client in a client/server game system, the data would have been requested by the client from the server via, e.g., sending a request to the server. Ex-1004, ¶ 247. Moreover, as stated above (section VII.B.2(c)), the *Phantasy Star Online* video game performed the function of the QIE module. Ex-1004, ¶¶ 246-48.

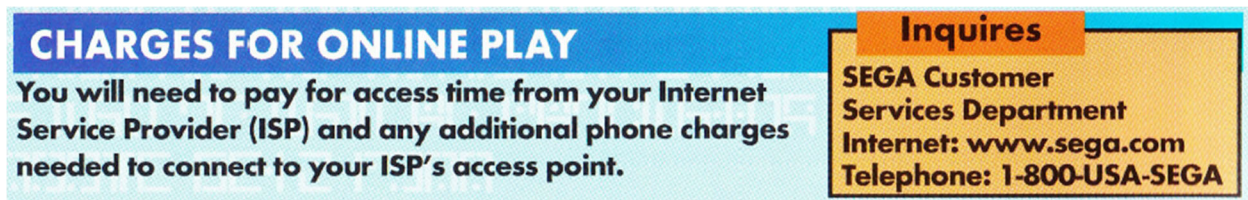
(h) 1[g] obtaining the first real-time information via the world wide web;

PSO Manual discloses this limitation. A POSITA would have understood that communication from the server of first real-time information, such as player

positions, would have been received by the client in a client/server game system (*i.e.*, *Phantasy Star Online*). Ex-1004, ¶¶ 249-50.

(i) 1[h] downloading the first real-time information from the world wide web into the primary application;

PSO Manual discloses this limitation. *See* § VII.B.2(g). PSO Manual further disclosed that the player positions, *i.e.* first real-time information, was received and accessed through the Internet (*i.e.*, the world wide web) via an Internet Service Provider (ISP):



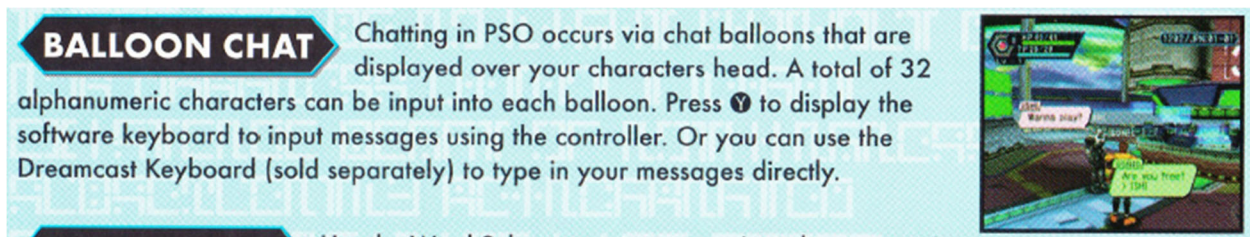
Ex-1008, p. 8. PSO Manual further disclosed that real-time information is sent from the player to the server, including player positions. Ex-1004, ¶¶ 251-52.

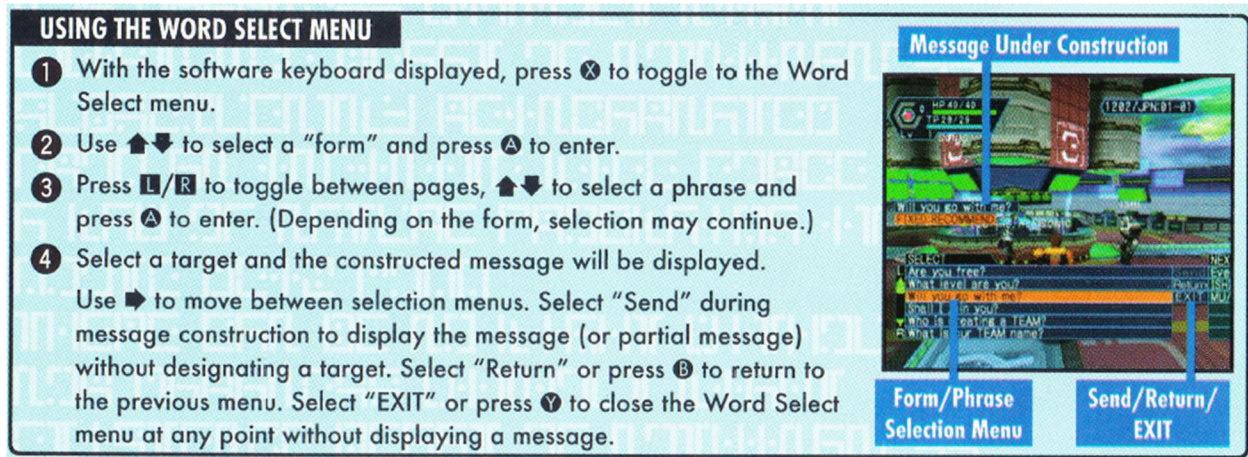
(j) 1[i] providing access to the first real-time information within the virtual thematic environment via the first user interface;

PSO Manual discloses this limitation. PSO Manual described the player's screen showing the virtual thematic environment of *Phantasy Star Online* and the respective positions of other players in the game's online world, *i.e.*, first real-time information. *See* § VII.B.2(a). PSO Manual further described the 3D game view showing other players' positions on the "Radar Map," *i.e.*, providing access. Ex-1004, ¶¶ 253-54.

(k) 1[j] providing at least one secondary application within the primary application at the client system;

PSO Manual discloses this limitation. As discussed above (§ VII.B.2(e)), PSO Manual describes *Phantasy Star Online* video game, *i.e.*, the primary application. The concept of having a secondary application integrated with a primary application would have been well known to a POSITA as merely one of a variety of ways to program software to accomplish substantially the same functionality. Ex-1004, ¶ 258. PSO Manual further describes secondary applications within the *Phantasy Star Online* video game in the form of a chat and/or mail system including “Balloon Chat,” “Symbol Chat,” and “Simple Mail.” Ex-1008, p. 11. The chat system generated content such as speech bubbles on the player’s screen within the game. *Id.* PSO Manual further described launching the chat and mail systems using the “Soft Keyboard” or a “Dreamcast Keyboard.” *Id.*, p. 25.





Id., pp. 12, 16. Players could also launch the chat or mail systems using a “Short Cut” interface. *Id.*; Ex-1004, ¶¶ 255-58.

(l) 1[k] sending a request for second real-time information via the QIE module;

PSO Manual discloses this limitation. As discussed above (§ VII.B.2(k)), PSO Manual describes secondary applications including a two-way chat and/or mail system providing chat messages, *i.e.*, second real-time information. As discussed in § VII.B.2(g), a client may receive such real-time information by sending a request to the server. Moreover, as stated above (§ VII.B.2(c)), the *Phantasy Star Online* video game performed the function of the QIE module. Ex-1004, ¶¶ 259-61.

(m) 1[l] obtaining the second real-time information via the world wide web;

PSO Manual discloses this limitation. PSO Manual discloses communications (chat or mail), *i.e.*, second real-time information, between remote players over the Internet. § VII.B.2(i); Ex-1004, ¶¶ 262-64.

(n) 1[m] downloading the second real-time information into the secondary application;

PSO Manual discloses this limitation. *See* § VII.B.2(g). PSO Manual discloses the chat system in *Phantasy Star Online* by downloading chat information, *i.e.*, second real-time information, from a server and rendering it into speech bubbles. Ex-1004, ¶¶ 265-66.

(o) 1[n] enabling a user to access the at least one secondary application through the first user interface; and

PSO Manual discloses this limitation. PSO Manual describes allowing players to access and control any of the claimed **secondary applications**, e.g, the chat systems, through a menu selection or activating a “software keyboard” via the game (the first user interface) *See also* §§ VII.B.2(f) & (k)); Ex-1004, ¶¶ 267-68.

(p) 1[o] enabling the user to control the at least one secondary application through a second user interface.

PSO Manual discloses this limitation. *See* § VII.B.2.(o).

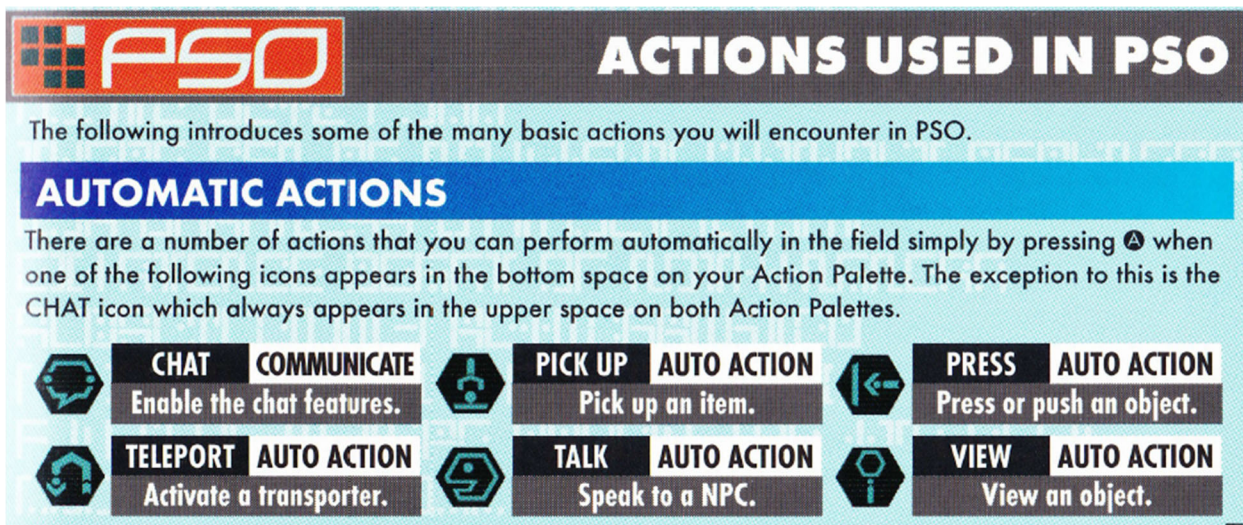
3. Claim 2: The method according to claim 1, wherein said first real-time information and said second real-time information include audio, video, chronological, text, GPS, or any combination thereof.

PSO Manual discloses this limitation. As discussed in § VII.B.2(l), the **second real-time information** are chat messages and included text. PSO Manual further described a player’s character’s name floating above its head in the game. Ex-1008, at p. 12. The **first real-time information** was information relating to

other characters that populate the virtual thematic environment, including such information as each player's position and actions within the virtual world. A POSITA would have understood such information can be in the text format. Ex-1004, ¶¶ 270-272.

4. Claim 3: The method according to claim 1, wherein said first real-time information and said second real-time information are accessed by a user selection mechanism.

PSO Manual discloses this limitation. *See* § VII.B.2. PSO Manual discloses that a *Phantasy Star Online* player uses various game displays and menus shown on their screen to access and select, using arrows and buttons on a controller, first real-time information (“All menu operations take place in REAL TIME”) such as player positions within the *Phantasy Star Online* world (“Use the item pack menu to ... view a map of the area you are currently in ...”). *See* § VII.B.2.(j); Ex-1008, p. 21. PSO Manual further discloses that a *Phantasy Star Online* player operates one of the chat interfaces (*See* § VII.B.2.(o)), *i.e.*, accessing second real-time information, by user selection. PSO Manual further discloses that there are several automatic actions a player can take to access first and second real-time information.



Ex-1008, p. 27; Ex-1004, ¶¶ 273-78.

5. Claim 5: The method according to claim 3, wherein said selection mechanism is a hot click button.

PSO Manual discloses this limitation. *See* § VII.B.4. As a further example, PSO Manual discloses the configuration of hot buttons in the form of “Short Cuts” Once configured, a short cut button click instantly invoked an operation. Ex-1004, ¶ 256; Ex-1008, p. 12. As another example, a player makes a selection to join a team. *See* § VII.B.4; Ex-1004, ¶¶ 279-83.

6. Claim 6: The method according to claim 1, wherein said first real-time information and said second real-time information are displayed within the virtual thematic environment.

PSO Manual discloses this limitation. *See* § VII.B.2. PSO Manual further disclosed the first real-time information was displayed within the virtual thematic environment in the form of other players, enemies, and NPCs appearing in the virtual world on the screen. Ex-1008, p. 19. PSO Manual further disclosed that

chat messages, i.e. the second real-time information, were displayed within the virtual thematic environment in the form of chat bubbles. *Id.*, p. 12. Ex-1004, ¶¶ 284-86.

7. Claim 7: The method according to claim 1, wherein said first real-time information and said second real-time information are provided to a user via a mobile device.

PSO Manual discloses this limitation. *See* § VII.B.2. Further, a POSITA would have understood that the teachings of PSO Manual could have applied to any networked gaming devices at the time, which would have included mobile devices. Ex-1004, ¶ 288. PSO Manual discloses that *Phantasy Star Online* can be played online from anywhere, implying that the player may play the game from a mobile device. Ex-1008, pp. 2, 9. PSO Manual further discusses that in playing a network RPG like *Phantasy Star Online*, “you will meet a variety of people from all over the world.” Ex-1008, p. 2; Ex-1004, ¶¶ 287-89.

8. Claim 8: The method according to claim 1, wherein the first real-time information and the second real-time information are downloaded from the world wide web.

PSO Manual discloses this limitation. *See* § VII.B.2. PSO Manual further discloses that the first and second real-time information were downloaded over the Internet. *See* §§ VII.B.2(i) & (m); Ex-1004, ¶¶ 290-92.

9. **Claim 10: The method according to claim 1, wherein at least one of said first real-time information and said second real-time information are automatically downloaded based on actions of the user within the virtual thematic environment.**

PSO Manual discloses this limitation. *See* § VII.B.2. PSO Manual further disclosed that players could select “Send” (or use another short cut key) to send a message (or another action) to another user’s gaming device, *i.e.*, automatically download the first and second real-time information. Ex-1008, p. 12; Ex-1004, ¶¶ 293-95.

10. **Claim 11: The method according to claim 1, wherein the user is provided with objects within the virtual thematic environment which operate in real-time with real-time information.**

PSO Manual discloses this limitation. *See* § VII.B.2. PSO Manual discloses providing a player with objects within the *Phantasy Star Online* virtual thematic environment including real-time player positions and communications. PSO Manual discloses that “[a]ll menu operations,” which includes the menus and information regarding player positions and the chat system, “take place in REAL TIME.” Ex-1008, p. 20. PSO Manual also taught the display of a real time clock showing “Internet Time” in the virtual thematic environment. *Id.*; Ex-1004, ¶¶ 296-99.

- 11. Claim 12: The method according to claim 1, wherein the at least one secondary application includes at least one of an entertainment application, a business application, a publishing application, a game application, a financial application, a music application, a graphic application, an education application, a medical application, a word processing application, an electronic mail application, a spreadsheet application, a static purchasing application, an instant messaging application, and a video messaging application.**

PSO Manual discloses this limitation. As discussed in § VII.B.2 above, PSO Manual discloses at least one secondary application, including an instant messaging application, *i.e.*, chat system, for communications between *Phantasy Star Online* players in real time. Ex-1004, ¶¶ 300-02.

12. Claim 18

- (a) 18[preamble]: A computer system for integrating real-time information into a virtual thematic environment including a client system and a server system, comprising:**

To the extent the preamble is limiting, PSO Manual discloses this limitation. See § VII.B.2. PSO Manual discloses the science fiction fantasy virtual environment, *i.e.*, the virtual thematic environment, of the online videogame *Phantasy Star Online*, which was played on the Sega® Dreamcast™ game console, *i.e.*, the client computer played in a client/server game system on the “PSO server.” Ex-1008, Contents page, pp. 2, 8. PSO Manual further disclosed that the *Phantasy Star Online* video game included real-time actions, positions, and electronic communications from remote players, *i.e.*, integrating real-time information into

the virtual thematic environment. Ex-1008, pp. 12, 26, 31; Ex-1004, ¶¶ 303-06.

- (b) 18[a]: at least one non-transitory memory device containing at least one program comprising the steps of:**

PSO Manual discloses this limitation. PSO Manual disclosed that the *Phantasy Star Online* video game was played on the Sega® Dreamcast™ game console, and stored on a GD-ROM, *i.e.*, a non-transitory memory device. Ex-1008, Contents page; Ex-1004, ¶ 307.

- (c) 18[b]: providing a graphics user interface (GUI) module for use in the client system;**

PSO Manual discloses this limitation. *See* § VII.B.2(b).

- (d) 18[c]: providing a quantum imaging environment (QIE) module in one of the client or the server system;**

PSO Manual discloses this limitation. *See* § VII.B.2(c).

- (e) 18[d]: providing a thematic/publishing logic module in one of the client or the server system;**

PSO Manual discloses this limitation. *See* § VII.B.2(d).

- (f) 18[e]: providing a primary application in the client system;**

PSO Manual discloses this limitation. *See* § VII.B.2(e).

- (g) 18[f]: providing a first user interface that is associated with the primary application;**

PSO Manual discloses this limitation. *See* § VII.B.2(f).

- (h) 18[g]: sending a request for first real-time information via the QIE module to the world wide web;**

PSO Manual discloses this limitation. *See* § VII.B.2(g).

- (i) 18[h]: obtaining the first real-time information via the world wide web;**

PSO Manual discloses this limitation. *See* § VII.B.2(h).

- (j) 18[i] downloading the first real-time information from the world wide web into the primary application; providing access to the first real-time information within the virtual thematic environment via the first user interface;**

PSO Manual discloses this limitation. *See* §§ VII.B.2(i) & (j); Ex-1004, ¶¶ 315-17.

- (k) 18[j] providing at least one secondary application within the primary application at the client system;**

PSO Manual discloses this limitation. *See* § VII.B.2(k).

- (l) 18[k] sending a request for second real-time information via the QIE module;**

PSO Manual discloses this limitation. *See* § VII.B.2(l).

- (m) 18[l] obtaining the second real-time information via the world wide web;**

PSO Manual discloses this limitation. *See* § VII.B.2(m).

- (n) 18[m] downloading the second real-time information into the secondary application;**

PSO Manual discloses this limitation. *See* § VII.B.2(n).

- (o) 18[n] enabling a user to access the at least one secondary application through the first user interface; and**

PSO Manual discloses this limitation. *See* § VII.B.2(o).

- (p) 18[o] enabling the user to control the at least one secondary application through a second user interface; and**

PSO Manual discloses this limitation. *See* § VII.B.2(p).

- (q) 18[p] one or more microprocessor running the at least one program.**

PSO Manual discloses this limitation. PSO Manual disclosed that *Phantasy Star Online* was played on the Sega® Dreamcast™ console, which a POSITA would have understood would feature one or more microprocessors running at least one program. Ex-1004, ¶¶ 324-25.

VIII. Discretionary Considerations

A. Considerations under 35 U.S.C. § 325(d)

This Petition does not present a scenario in which the “same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). None of the references relied upon in this Petition have been before the Examiner in connection with the Challenged Claims of the ’165 Patent.

B. Considerations under 35 U.S.C. § 314(a)

Denial under 35 U.S.C. §314(a) is not warranted as the application of the factors in *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha* to the

present circumstances demonstrates that the filing of the instant Petition is not abusive, that none of the Patent Owner, the PTO, or the Board has addressed the merits of the grounds in this Petition, and instituting the present proceeding is an efficient use of the Board's resources. *See* IPR2016-01357, Paper 19 at 16-18 (PTAB Sept. 6, 2017) (precedential). Petitioner has never challenged the '165 Patent in a prior petition (nor has anyone else).

Moreover, the Petition should not be denied under the discretionary factors set out in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB March 20, 2020) ("*Fintiv*"). Petitioner addresses each of those factors below:

1. Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted – No stay pending IPR has been requested by any party in the Related Matter between Patent Owner and Petitioner in the Western District of Texas. Given that a motion to stay has not yet been filed in the Related Matter depending on the outcome of the current IPR proceeding, the Board should not infer or speculate on what the outcome of such a motion would be in determining whether to institute the requested IPR. *Sand Revolution II LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020); *Dish Network LLC v. Broadband iTV, Inc.*, IPR2020-01359, Paper 15 at 11 (PTAB Feb. 12, 2021). Thus, this factor is neutral on discretionary denial.

2. Proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision – Pursuant to 35 U.S.C. § 316(a)(11), a Final Written Decision in this proceeding would issue 12 months from the institution decision, which is approximately 6 months from the filing date of the Petition. As of the filing of this Petition, the Related Matter in the Western District of Texas is at an early stage: fact discovery in the case has only just begun and no Markman hearing has been held. As the Amended Scheduling Order (Ex-1010) indicates, a trial will not occur in the Related Matter until April 2024 at the earliest. Indeed, district court trial dates shift even in normal times, much less when dealing with the voluminous patent case load accumulated during the Covid-19 pandemic. *Mylan Pharma., Inc. v. Sanofi-Aventis Deutschland GmbH*, IPR2018-01680, Paper 22 at 17 (PTAB Apr. 3, 2019). It is thus improper to assume that the district court will stick to the current trial schedule, and it is not clear whether a trial in the Related Matter will occur before the date on which a Final Written Decision in this proceeding would be expected.

Further, Petitioner has moved to transfer the Related Matter from Waco to Austin. If the transfer motion is granted, the trial date is likely to move further out. Petitioner has also filed a motion to stay the Related Matter pending disposition of the transfer motion, which could also delay the trial date.

Moreover, given the potential length of the trial, the likelihood of post-trial

motions, the pending motion to transfer, and the possibility that trial proceedings may be further delayed due to the case load caused by the Covid-19 pandemic, the likelihood is that the trial court proceeding in the Related Matter would not be completed until at or around the same time that a Final Written Decision would be due in this IPR. *Fintiv* states that this factor does not implicate the decision whether to institute “if the court’s trial date is at or around the same time as the projected statutory deadline.” IPR2020-00019, Paper 11 at 9. Thus, this factor does not support discretionary denial.

3. Investment in the parallel proceeding by the court and the parties

As discussed above, the Related Matter is in an early stage and the court has not issued any substantive ruling relating to the ’165 Patent. Further, while the Markman hearing is scheduled for September 1, 2023, that claim construction proceeding will have little bearing on this IPR proceeding because the Petitioner does not propose any claim terms for express construction in this IPR proceeding. As such, this factor weighs against discretionary denial.

4. Overlap between issues raised in the Petition and in the parallel proceedings – Instituting an IPR proceeding will allow the Board to address the prior art, and the issues will be narrowed in the Related Matter due to the estoppel provisions of 35 U.S.C. § 315(e)(2). To reduce overlap further, if the Board institutes IPR in this proceeding, Petitioner will cease asserting in the Related

Matter the prior art for the claims on which the IPR is instituted. *See Sand Revolution II*, IPR2019- 01393, Paper 24 at 11-12 (holding a similar stipulation weighs against discretionary denial); *Apple Inc. v. Maxell, Ltd.*, IPR2020-00204, Paper 11 at 15-17 (PTAB June 19, 2020) (same). The most efficient course is for the Board to address the issues before it in this Petition, and for the district court to address only the issues that would remain. This factor weighs against discretionary denial.

5. Whether the Petitioner and the defendant in the parallel proceeding are the same party – Petitioner is a defendant in the Related Matter filed by the plaintiff Patent Owner. This factor weighs against discretionary denial.

6. Other circumstances that impact the Board’s exercise of discretion, including the merits – As previously noted, neither the Petitioner nor anyone else has ever challenged the ’165 Patent in a PTAB post-issuance proceeding. Further, as discussed in detail above, the prior art references set forth in Grounds 1-2 demonstrate that the Challenged Claims 1-3, 5-8, 10-12, and 18 of the ’165 Patent are unpatentable as obvious. Given the strength of the challenge to patentability presented in this Petition, denying this petition under § 314(a) would be unfairly prejudicial to Petitioner, and this factor weighs against discretionary denial. *See Sand Revolution II*, IPR2019-01393, Paper 24 at 13; *Maxell*, IPR2020-

00204, Paper 11 at 17-19.

As such, this Petition should not be denied on discretionary factors.

IX. CONCLUSION

For the reasons set forth above, Petitioner has established a reasonable likelihood of prevailing with respect to all Challenged Claims of the '165 Patent and requests the Board institute *inter partes* review and then cancel all the Challenged Claims as unpatentable.

Dated: June 6, 2023

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. §42.24

Pursuant to 37 C.F.R. § 42.24, the undersigned certifies that the foregoing Petition for *Inter Partes* Review contains 13,021 words excluding a table of contents, a table of authorities, Mandatory Notices under § 42.8, a certificate of service or word count, or appendix of exhibits or claim listing. Petitioner has relied on the word count feature of the word processing system used to create this paper in making this certification.

Dated: June 6, 2023

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. § 42.6(e) and § 42.105 that on June 6, 2023, a true and correct copy of the **PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,991,165**, including exhibits were served Priority Mail Express® on the Patent Owner at the following correspondence address of record:

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A courtesy copy was sent to Patent Owner's litigation counsel via electronic mail:

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