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 IPR2023-00996
Patent 10,991,165

PATENT OWNER'S RESPONSE

35 U.S.C. §316(a)(8), and 37 C.F.R. §42.120

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EXHIBIT LIST

Ex.	Description
2001	Petitioner's Preliminary Invalidity Contentions
2002	Memorandum from Katherine K. Vidal on Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)
2003	Lex Machina, Patent Cases (All Judges) Time to Trial, U.S. District Court for the Western District of Texas, September 9, 2023
2004	Lex Machina, Patent Cases (Judge Alan D. Albright) Time to Trial, U.S. District Court for the Western District of Texas, September 9, 2023
2005	Declaration of Dr. Nenad Medvidović
2006	"Software Architecture in Industrial Applications," Soni et al., International Conference on Computer Engineering 1995, Seattle, Washington, USA, published by the Association for Computing Machinery
2007	Merriam-Webster's Collegiate Dictionary 10th Edition, Merriam-Webster Incorporated, United States, 2001
2008	Microsoft Computer Dictionary, Copyright 2002, 5th edition, Microsoft Press, a Division of Microsoft Corporation, One Microsoft Way, Redmond Washington 98052-6399
2009	Not filed.
2010	Declaration of Marc A. Brockhaus.
2011	Transcript of Deposition of David Crane, Part 1, 02-24-2024.
2012	Transcript of Deposition of David Crane, Part 2, 02-29-2024.
2013	Transcript of Deposition of Alexander Harry, 02-27-2024.
2014	https://www.mobygames.com/game/3341/microsoft-flight-simulator-2000/screenshots/windows/351054/

2015	Claim Construction Order dated 10/20/2023, *Quantum Imaging LLC v. Sony Group Corporation et al.*, No. 1:23-cv-01212-ADA-DTG (W.D. Tex.), Document 159.

I. INTRODUCTION

Pursuant to 37 C.F.R. §42.120, Patent Owner, Quantum Imaging, LLC ("Patent Owner"), submits this Patent Owner Response to Sony Interactive Entertainment LLC's ("Petitioner") June 6, 2023, Petition for *Inter Partes* Review ("IPR") of U.S. Patent No. 10,991,165 (the "'165 Patent") challenging claims 1-3, 5-8, 10-12, and 18 as allegedly obvious under 35 U.S.C. §103 over PCT Patent Publication No. WO02/062436 ("Pisanich") in view of the knowledge of a person of ordinary skill in the art ("POSITA") (Ground 1), and as being allegedly obvious over Phantasy Star Online Manual ("Manual") in view of the knowledge of a POSITA (Ground 2).

According to Petitioner's own declarant, Mr. David Crane ("Crane"), Patent's Owner's claimed Quantum Imagining Environment ("QIE Module') is a major industry breakthrough–i.e., a "Holy Grail," to whit:

> If [Patent Owner] had managed to develop a universal translator that could change the game -- could present the game -- manipulate the data and present the game on any device, that would be game changing in the industry. It would be -- I called it the Holy Grail because I know that people are spending hundreds of millions of dollars trying to achieve that. But I would certainly expect [Patent Owner] to explain how it is she did it, because everybody else is having trouble doing it. Ex-2011, 115:25-116:9; Ex-2010, ¶6.

All of the challenged claims include a QIE Module defined as "a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types [two or more] of devices for use within the virtual thematic environment."

As Crane requested in the excerpt above, Patent Owner described how to make and use the QIE Module in the '165 Patent. For example, as described in the specification, the QIE Module "includes an interpreter that will allow data to be transmitted to any device, and is the basis for the design structure and layout for applications." Ex-1001, 15:56-58; Ex-2005, ¶34. Further, the QIE Module "is an interpreter that will take all of the rich content, interpret the information into objects to be manipulated and accessed via any device and place these objects or information in the appropriate format that is designed or will be designed by the developer." Ex-1001, 15:66-16:3; Ex-2005, ¶34. Despite characterizing the QIE Module as an industry "Holy Grail" during his cross-examination testimony, Crane urges the Board to rely upon his Declaration (Ex-1004) to find that the entirety of the challenged claims (all of which include the QIE Module) would be obvious to a POSITA over singular references–i.e. PCT Patent Application Publication No. WO02/062436 to Pisanich (Ex-1007) and the Manual (Ex-1008). As will be explained below, this is only one of many contradictions that Crane's cross-examination testimony exposed, which presumably explains why his declaration is

replete with unsupported and conclusory statements regarding the obviousness of the claims of the '165 Patent.

As will be explained in detail below, the conventional methods of translating content disclosed by both Pisanich and the Manual, as explained by Crane in his declaration and during his cross-examination, are fundamentally different from the Patent Owner's claimed QIE Module–i.e., 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. For example, presuming that the POSITA wanted to make a particular game available on different types of devices (such as an Apple II computer and a TRS-80 computer), the conventional methods disclosed by both Pisanich and the Manual, as testified to by Crane, required the POSITA to manually rewrite the game's software for each different type of device on which the software was to be executed and played. These conventional methods do not disclose, teach, suggest, or even imply using 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–i.e., the claimed QIE Module. As explained by Patent Owner's expert Dr. Medvidović (Ex-2005, ¶¶74-85) and testified to by Crane in his cross-examination (quoted above), the claimed QIE Module differs significantly from and would not be obvious over the conventional methods disclosed by the relied-upon

prior art. Therefore, the Patent Owner's claimed QIE Module represents a significant and nonobvious innovation within the industry–i.e., a "Holy Grail."

Pisanich and the Manual do not teach the challenged claims' QIE Module. See Sections II(A) and III(A). Neither reference relied upon by Petitioner explicitly addresses making a game accessible on different types of devices. Indeed, as explained by Petitioner's expert, the common knowledge at the time of the invention was to create separate and different software versions of the game for each specific separate type of device (see Ex-1004 ¶¶82-84, Ex-2011, 131:24-133:7 and 133:14-134:2) or "different systems" (see Ex-1004, ¶102). Creating separate and distinct versions of a game to be played on different types of devices is radically different from a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types of devices (i.e., two or more different types of devices; such as a PC and a mobile computing device) for use within a virtual thematic environment. See Sections (II(A)); and (III(A)).

Patent Owner's Response demonstrates multiple reasons why either ground urged by Petitioner does not render any of the challenged claims obvious, as supported by (1) the opinions of Patent Owner's expert, Professor Nenad Medvidović ("Medvidović") of the Computer Science Department at the University of Southern California, and (2) admissions made by Petitioner's expert, Crane, under cross-examination.

For all of the foregoing reasons, and as described in more detail below, Petitioner has failed to meet its burden to prove the unpatentability of the challenged claims.

II. LEVEL OF ORDINARY SKILL

As explained in the Declaration of Dr. Medvidović (Ex-2005), a person of ordinary skill in the art ("POSITA") at the time of the effective filing date of the application that led to the '165 Patent is someone who would have had a bachelor degree in computer engineering, computer science, or a similar discipline, and 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. Ex-2005, ¶¶22, 47. A POSITA would have at least a general knowledge of 3D rendering. *Id.*

Medvidović determined the level of skill of a person of ordinary skill in the art by reviewing the '165 Patent and considering the type of problems encountered in the art. Ex-2005, ¶48. The Petitioner's definition of a POSITA includes a general knowledge of advertising and virtual reality, but these backgrounds do not specifically apply to the '165 Patent at issue, and Patent Owner is unaware why Petitioner would include them in their definition of a POSITA. *Id.*

III. CLAIM CONSTRUCTION

Consistent with *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) and its progeny, as of the filing date of the Petition (Paper 2; "Pet."), the standard for claim construction in *inter partes* review before the Board is as follows:

> In an inter partes review proceeding, a claim of a patent, or a claim proposed in a motion to amend under § 42.121, shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the inter partes review proceeding will be considered.
>
> 37 C.F.R. § 42.100(b) (effective November 13, 2018).

In a Related Matter, the District Court of the 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."

In another Related Matter, the District Court of the Western District of Texas issued a claim construction order (Ex-2015; Ex-2010, ¶10) on October 20, 2023, in *Quantum Imaging, LLC v. Sony Group Corporation et al.*, No 1:23-CV-1212-ADA-DTG, in which they adopted the same claim constructions as used in the Northern District of California for the terms "graphics user interface (GUI) module" and "quantum imaging environment (QIE) module" and "virtual thematic environment" for the '165 Patent involved in this *Inter Partes* Review. *See* Ex-2015, pp.2-4.

In formulating its Petition, Petitioner provided the Board with the claim construction order from the District Court of Northern District of California. See Pet. 10-11. The Petitioner used the District Court for the Northern District of California's claim constructions in formulating its Grounds 1 and 2. *Id*. at 11.

Accordingly, for purposes of this *inter partes* review and consistency with the District Courts for the Western District of Texas and the Northern District of California, Patent Owner requests that the Board consider and expressly adopt the district courts' claim construction for the following terms: graphics user interface (GUI) module, quantum imaging environment (QIE) module, and virtual thematic environment.

Further, for purposes of this proceeding, Patent Owner requests that the Board adopt the following claim constructions for certain other terms found in the claims of the '165 Patent, which are in accordance with the ordinary and customary meaning of such terms, as would have been understood by a POSITA, in light of the specification.

The term "type" is defined as a particular kind, class, or group. See Ex-2005, ¶61, citing Ex-2007, p.1274; Ex-2010, ¶4. Consequently, the term "types" (as used in the challenged claims) is plural and includes at least two particular kinds, classes, or groups. Ex-2005, ¶61. The proposed construction is consistent with the interpretation that the skilled artisan would provide based on a reading of the specification. *Id.* In particular, the specification explains that:

> [T]he client may be a PC, a mobile terminal, such as a mobile computing device, a mobile phone, or a mobile data organizer (PDA), operated by the user accessing the program remotely from the client

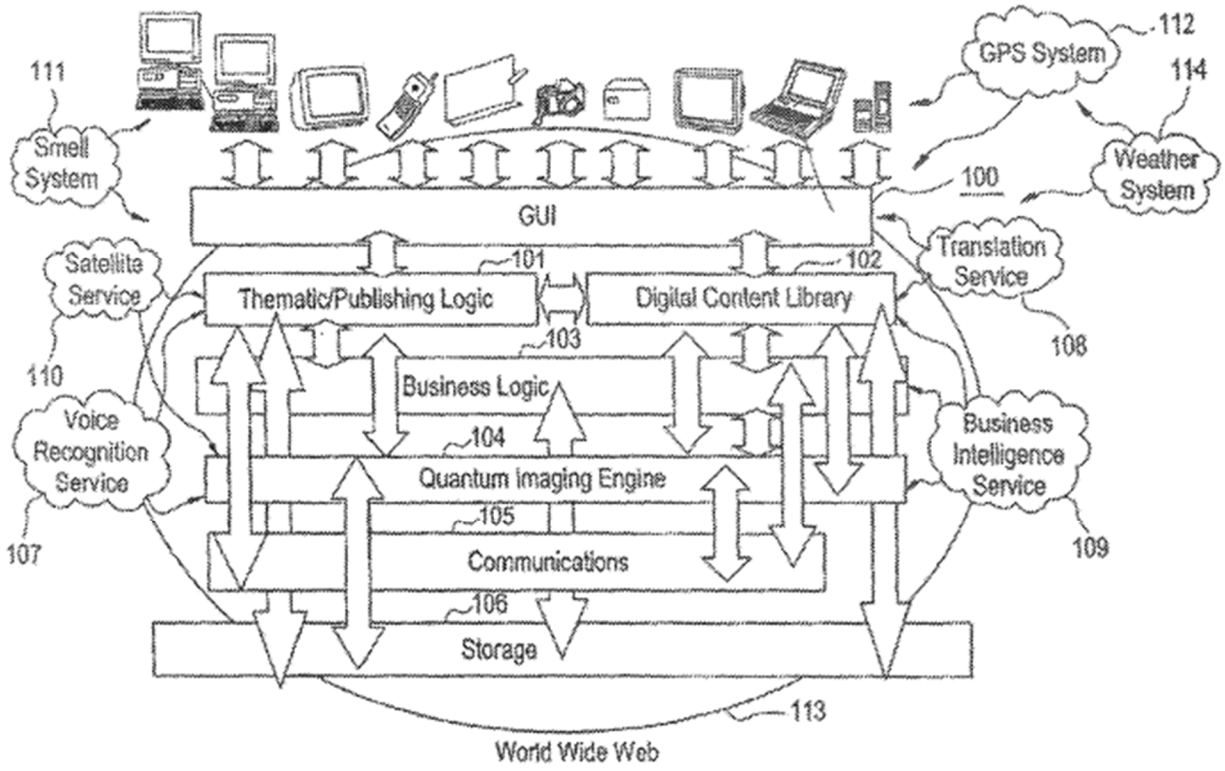
> (see FIG. 1), or any other digital device that has a screen and storage. Ex-1001 at 13:7-12.

The specification refers to multiple different kinds of devices. Ex-2005, ¶62. The PC, for example, is one kind of device. *Id.* The mobile terminal, for example, is another kind of device. *Id.* In the context of the phrase "different types of devices," this refers to at least two devices, with the first device being of a first kind, group, or class (e.g., a PC) and the second device being of a second kind, group, or class (e.g., a mobile terminal). *Id.*

A software layer is used to guide the partitioning of a system's functionality into modules, where the modules assigned to one layer interact only with those that are assigned to adjacent layers. Ex-2005, ¶63 discussing, Ex-2006, pp.199,203; Ex-2010, ¶3. Separating a system's functionality into layers allows changes to be made, therefore, to modules in one layer without affecting the modules of the other layers. *Id.* It also provides application independence from evolving hardware. *Id.* The specification supports these constructions, explaining that:

> The six layers of the virtual platform include 1) a graphical user interface (GUI) 100, 2) a Thematic/Publishing Logic 101 and a Digital Content Library 102, 3) a Business Logic 103, 4) a thematic or zone application builder and interpreter (i.e., a Quantum Imaging Engine 104), 5) Communications 105, and 6) a Data Storage 106.

Id. at 11:62-67. These six layers are shown in FIG. 1 of Ex-1001, represented below.



The terms "client" and "server" refer to a client-server computer architecture. Medvidović explains this would be a POSITA's understanding of this term at the time of the invention. Ex-2005, ¶66. This construction is also supported by the Specification (Ex-1001, 14:51-58), which explains that:

> c. Client-Server Environment
>
> Specifically, in one embodiment, the present invention may be presented in a client-server arrangement (see FIG. 3), with a client system 200 including components such as a GUI 201, and which may contain a Quantum Imaging Environment (QIE) 202, and Thematic/Application Publishing Logic Libraries 203. The client system 200 interacts with the server system 205 via an Application Interface 204.

As such, the Patent Owner urges the Board to expressly adopt the constructions of the terms as outlined above.

IV. THE PETITION FAILS TO PROVIDE AN ADEQUATE SHOWING OF OBVIOUSNESS REQUIRED IN ORDER FOR THE CHALLENGED CLAIMS TO BE FOUND TO BE UNPATENTABLE

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406. The question of obviousness is resolved based on underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17– 18 (1966).

Petitioner relies for its obviousness analysis nearly solely on its expert declarant, Crane, who, when pressed on cross-examination, did not appear to have meaningfully (or at all) addressed the second *Graham* factor. As he testified, Crane did not analyze the differences between the claims and the cited references; rather, he only analyzed <u>similarities</u> between the challenged claims and the prior art references. *See*, for example, Ex-2011, 156:2-7, in which he stated:

> The process that I performed was to go through each of the asserted claims and look at the patent and Pisanich. And I don't recall any particular place where I specifically call down and say these are different, instead pointing out that they are, you know, obvious under the knowledge of a POSITA.

See also, Ex-2011, 159:8-11, in which Crane stated:

> My testimony is that my analysis was to determine if Pisanich did disclose the elements in the claims that are asserted, not an analysis of what they didn't disclose.

And, *see* also, Ex-2011, 159:13-160:2:

> Q. Again, I'll just turn you back to paragraph 27 at page 9 of your declaration, those obviousness factors. You were instructed and you understood that you were to evaluate obviousness, second one, the difference or differences between each claim of the patent, and the prior art. Are you -- is it your testimony that you did not perform that step?
>
> MR. WOO: Objection. Form.
>
> THE DEPONENT: My testimony is that I looked for similarities. Similarities are the opposite of differences. So to that extent, if I'm analyzing similarities, I'm analyzing differences at the same time, just not documenting them as differences.

Crane's summary conclusions regarding the obviousness of the challenged claim terms can, therefore, be given little or no weight since he did not follow the well-understood test for obviousness laid out in *Graham*.

Presently, the Petition alleges that Pisanich or the Manual individually teaches every element of the challenged claims.[1] The Petition fails, however, to describe any differences between the claimed subject matter and the prior art as required by *Graham*. *See, Graham v. John Deere Co*., 383 U.S. 1, 17–18 (1966). Given the Petition's failure to describe any differences between the claimed subject matter and the prior art, the Petition could not and does not meaningfully address any apparent reason why a POSITA would combine and/or modify the prior art as necessary to arrive at the challenged claims. While Crane's declaration is extensive, it fails to perform the very basic steps necessary to meaningfully explain why the challenged claims are unpatentable according to the test of *Graham*. Such failure is but one of the reasons why Crane's testimony should be given little or no weight. "Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight." 37 C.F.R. § 42.65(a).

Further, the Crane Declaration is riddled with wholly unsupported, conclusory statements as to the knowledge of a POSITA. It is entitled to little or no evidentiary weight, therefore, on the ultimate issues of whether the claims are obvious over Pisanich or the Manual in view of the knowledge of a POSITA. *Xerox Corp. v.*

[1] Crane makes this statement after each section of his declaration, but fails to state what the Pisanich or Manual do not teach that has to come from the knowledge of a POSITA.

Bytemark, Inc., IPR2022-00624, Paper 9 at 15 (precedential) (citing 37 C.F.R. §42.65(a)). The *Xerox* opinion explains (citing *KSR*, 550 U.S. at 421 (2007)) on page 16: "This is particularly problematic in cases where, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art." Emphasis added. *See also Arendi S.A.R.L. v. Apple, Inc*., 832 F.3d 1355, 1361–62 (Fed. Cir. 2016), holding that reliance on common sense in an obviousness analysis is "typically invoked to provide a known motivation to combine, not to supply a missing claim limitation." Emphasis added.

Also, as explained in the "Updated Guidance for Making a Proper Determination of Obviousness" from the USPTO (89 FR 14449 at 14453), "an expert's conclusory opinion about a matter relevant to the obviousness inquiry may be unavailing unless accompanied by factual support."

In this case, one example of unsupported, conclusory statements, is in the Crane Declaration which states that, "Pisanich taught a 'Game Data Server 108' module that taught the features of a QIE module in the claimed server system, configured to interpret content such that the content was manipulated to be served into different games, presumably on different devices." Ex-1004, ¶130. However, there is nothing in Pisanich or Crane's declaration that explains why a POSITA would presume that the different games of Pisanich were on different types of

devices. Ex-2005, ¶94. Simply having different games does not mean a POSITA would infer that they were or could be played on different types of devices. *Id*. Pisanich is silent on this issue, and a POSITA at the time of the invention would understand that the disclosure of playing different games in Pisanich would be on the same type of device and not on different types of devices. *Id.* This is but one example of Crane filling in elements missing in the relied upon prior art through unsupported (and likely unsupportable) statements of what a POSITA would know. Additional examples of Crane's improper testimony and analysis are discussed hereinbelow. Again, given the prohibition of 37 C.F.R. §42.6(a)(3), the Board should give the arguments in the Crane declaration no weight when it is not fully set forth, explained, or otherwise analyzed within the Petition itself.

Finally, "[a]rguments must not be incorporated by reference from one document into another document." 37 C.F.R. §42.6(a)(3). The "practice of citing the Declaration to support conclusory statements that are not otherwise supported in the Petition also amounts to incorporation by reference." *Cisco Systems, Inc. v. C-Cation Techs*., IPR2014-00454, Paper 12 at 9 (PTAB. Aug. 29, 2014) (designated informative) (emphasis added). The Petition impermissibly incorporated by reference large portions of Crane's Declaration (Ex-1004). As one example, the Petition at pages 15-16 has a single paragraph describing its assertion that element 1[preamble] is disclosed, but incorporates by reference ¶122 of the Crane

Declaration, which then references five more paragraphs (¶¶88-92). Similarly, the Petition at pages 19-20, in addressing element 1[b], cites to ¶¶126-132, which internally references ¶¶53, 83 and the entirety of "Section A.2" of Crane's declaration. Under 37 C.F.R. §42.6(a)(3), the Board should give the incorporated arguments from the Crane declaration no weight when they are not fully set forth, explained, or otherwise analyzed within the Petition itself.

V. PETITIONER FAILS TO DEMONSTRATE THAT THE CHALLENGED CLAIMS ARE OBVIOUS OVER PISANICH WITH THE KNOWLEDGE OF A POSITA (FIRST GROUND)

Petitioner fails to establish obviousness as to at least three different limitations present in each of the challenged claims of the '165 Patent: (1) providing a quantum imaging environment (QIE) module in one of the client or server system; (§IV(A)); (2) "enabling the user to control the at least one secondary application through a second user interface" (§IV(B)); and (3) "providing a primary application in the client system" (§IV(C)). Each limitation is discussed below in §IV(A-C).

A. Pisanich and the Knowledge of a POSITA Do Not Teach the Claimed QIE Module.

As discussed above, the ordinary and customary meaning of the term "QIE module" is "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." Contrary to the Petition's assertions,

Pisanich in view of the knowledge of a POSITA does not teach this claim element for the following reasons.

1. Pisanich and the Knowledge of a POSITA Do Not Teach that the QIE Module is a Software Layer.

All of the challenged claims require that the QIE Module be a software layer that 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. Petitioner incorrectly alleges that Pisanich teaches this limitation. Pet. 19.

First, Petitioner asserts that Pisanich's game data server 108 is the QIE Module of claim 1. *Id.* In particular, Petitioner alleges that the "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." Petition pp.19-20. This argument fails because Petitioner does not address the requirement that the QIE module is "a software layer." Further, the game data server 108 cannot be a "QIE module," nevermind that the QIE module is "a software layer." As explained by Medvidović, a software layer is used to guide the partitioning of a system's functionality into modules, where the modules assigned to one layer interact only with those that are assigned to adjacent layers. Ex-2005, ¶63 discussing, Ex-2006, pp. 199, 203. The separation of a system's functionality into layers allows

changes to be made to modules at one layer without affecting the modules of the other layers. *Id.* It also provides application independence from evolving hardware. *Id*. Pisanich's game data server 108 is constructed of separate objects using an object-oriented architecture, not a "software layer". See Ex-2005 at ¶¶74,75.

Medvidović further explains that it is not inherent, and a POSITA would not assume, that Pisanich uses a software layer for the game data server 108. Ex-2005, ¶74. Indeed, Petitioner's own expert admitted that Pisanich used an "object-oriented design," stating that:

> Figure 3 is pictured because of the citation that I make down below, and Pisanich is describing Figure 3 as being implemented using an object-oriented design.
> Ex-2011, 137:4-7.

As Medvidović explains, an object-oriented design is not a software layer. Ex-2005, ¶74.

Petitioner does not address or provide any evidence showing that Pisanich itself, or in view of the common knowledge of a POSITA, teaches that the claimed QIE Module is a software layer. Rather, the Petition makes a sweeping conclusory statement that "Pisanich discloses this limitation" (referring to the entirety of element 1[b] (Pet. 19)) but provides no explanation for where or how Pisanich discloses such a software layer. (*See Xerox Corp.* IPR2022-00624, Paper 9 at 15.)

Petitioner's own expert has admitted that Pisanich teaches an object-oriented design. An object-oriented design, however, does not teach or suggest "a software layer." Ex-2005, ¶74. An object-oriented design and a software layer design are two separate and distinct software architectures and a POSITA would not be taught, explicitly or implicitly, to implement the claimed QIE Module as a software layer architecture in light of Pisanich's clearly articulated and disclosed object-oriented architecture. See, for example, Ex-2005 ¶74, citing Ex-2006, 199, 203 and citing Ex-2008, 372, 373; Ex-2010, ¶5. Petitioner attempts to supply this deficiency by citing to Crane's conclusory statement that it would be known to a POSITA, but such an unsupported statement must be provided with little or no weight, as explained above, per 37 C.F.R. § 42.65(a).

2. Pisanich and the Knowledge of a POSITA Do Not Teach the QIE Module being a Single Software Layer That Makes the Second Content in the Same Virtual Thematic Environment Accessible on Different Types of Devices.

Not only does Petitioner fail to address the QIE Module being a software layer, the Petitioner also does not address that the claimed QIE Module is a single software layer that receives and interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the

same[2] virtual thematic environment. A POSITA would have understood that Pisanich discloses different games with each game having its own virtual thematic environment (i.e., software created specifically for each type of device), not a single software layer that receives and interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the same virtual thematic environment. Ex-2005, ¶95.

During the cross-examination of Crane, he affirmed that in order to play a flight simulator game on different types of devices, the conventional methods known to POSITA at the time of the invention required that different versions of the flight simulator game were required for each different type of device (i.e., a PC, a mobile device, etc.). See, for example, Ex-2012, 419:1-7; Ex-2010, ¶7. A QIE Module, 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, was not known prior to the Patent Owner's disclosure of same in the '165 Patent or its earliest family member. For example, Petitioner asked and Crane answered as follows:

[2] Under claim construction rules "the" virtual thematic environment should be understood to be the same virtual thematic environment when used later in the claim.

> Q. You testified that the software that runs a flight simulator on Apple II in 1984 and the software that runs a flight simulator for the TRS-80 in 1987 would be, and I quote, different computer software games. Do you recall that?
>
> A. Yes.
>
> Ex-2012, 419:1-7.

Crane compared this to how Pisanich's different games 112 and 116 functioned.

> Q. In your opinion, would a POSITA looking at Figure 1 of Pisanich understand that the other games 116 could be other versions of a flight simulator game?
>
> A. Could be.
>
> Ex-2012, 419:12-15.

The common thread in Crane's testimony is that different devices and games, even if they have a similar theme, required a different version of the game for each different type of device–i.e., the software for each type of device was programmed separately. Pisanich does not disclose, therefore, the claimed QIE Module that, as a single software layer, 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-2005, ¶95. As Crane admitted under cross-examination, therefore, Patent Owner's QIE Module was a "Holy Grail" over the common knowledge or conventional methods as of the priority date of the '165 Patent.

3. Pisanich and Knowledge of a POSITA Do Not Teach That the QIE Module Makes the Content Accessible on Different Types of Devices for Use Within the Same Virtual Thematic Environment.

Petitioner asserts that the Game Data Server 108 of Pisanich receives, interprets, and manipulates content (i.e., real world information, in real-time) to make it accessible on different types of devices for use within the game. Pet. 19. Petitioner's expert, Crane, when asked if he provided a citation showing that the games were on different devices in Pisanich, admitted that he did not "recall" if he "captured multiple devices disclosed in Pisanich." Ex-2011, 171:10-16.

Further, according to Pisanich, the 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.
> Ex-1007, 5:13-15.

Crane directly testified in his declaration and affirmed on cross-examination (Ex-1004, ¶82; and Ex-2011, 129:9-17, 130:12-19, 131:21-133:6) that the individual game 112 and the "entirely different game 116" (Ex-1007, 7:9), if played on different types of devices, would require that the game software be manually rewritten in order for the game to be able to be run and played on each different type of device. As Crane testified on cross-examination, the process of rewriting software to make it available on a different type of device is referred to in the art as a "port". Ex-2011

at 131:21-133:7. Pisanich's Game Data Server 108 does not interpret and manipulate the content to make it accessible on different types of devices. Ex-2005, ¶99. Rather, the game data server 108 simply gathers "real time" data and makes that real time data available for use in the different games referenced as 112 and 116 in Pisanich. Ex-1007, 5:13-15; Ex-2005 ¶99.

The Petition also alleges that "at least the rendering engine 316 acted as a QIE module in the client system". This argument fails because any interpretation and manipulation of the data that would be arguably performed by the rendering engine 316 (steps that are not disclosed in Pisanich) would have to be performed within each game (e.g., games 112, 116) that is being played on each device. Ex-2011 at 132:19-133:7; Ex-2005 ¶90. As such, the rendering engine 316 would be rendering the game content for a single device–not for different types of devices as required by Patent Owner's claimed QIE Module. Ex-2005, ¶90. The rendering engine 316 does not interpret content such that the content is manipulated to be accessible on different types of devices for use within the same virtual thematic environment. *Id.* When considering different types of devices, Crane admitted that conventional rendering technologies (i.e., those known as of the earliest priority date of the '165 Patent) would require each different device to run a different version of the game. Ex-2011 at 132:19-133:7 And, with respect to the rendering engine 316, this conventional rendering technology required that different programs be written and

run for each different type of device. Ex-2011 at 133:3-7. Therefore, neither the game data server 108 nor the rendering engine 316 of Pisanich teaches or suggests the claimed QIE Module, as neither the game data server 108 nor the rendering engine 316 interprets content such that the content is manipulated so as to be accessible on different types of devices. Ex-2005, ¶90.

Simply put, the QIE Module allows the same content to be displayed and interacted with by two different players of the same game using two different types of devices without having to manually rewrite the software and install the rewritten software on each device. Pisanich does not disclose, teach, suggest, imply, or otherwise even hint at the claimed QIE Module; rather, Pisanich in view of the common knowledge, simply discloses that which was commonly known and understood at the earliest priority date of the '165 Patent–i.e., the use of the conventional methods required different versions of a game be written and run on each different type of device. Ex-2005, ¶96.

Further, Crane admitted that the game 112 and the different game 116 of Pisanich would have different themes, not the same theme (Ex-1011, 171:21-172:17):

> Q. Okay. So looking at -- down below the Figure 1 of Pisanich, on page 61: "Moreover, a second player may play an entirely different game 116, for instance, a car racing game or a football game than the game

> 112 being played by the first player. However, the different game 116 may request the same type of data, weather, for example."
>
> Okay. Do you agree that a car racing game has a car racing theme?
>
> A. Generally, I would say that a car racing game has a car racing theme.
>
> Q. Okay. And do you agree that a football game generally has a football theme?
>
> A. I would say that a football game has a football theme.
>
> Q. Okay. Is a car racing theme the same as a football theme?
>
> A. Not necessarily. Probably not.
>
> Q. Probably not. That's an interesting…
>
> A. You could be playing football and having cars driving around you. It's certainly possible. But as a general rule, I would say those are different themes.

Upon recognizing the deficiencies in their Petition, Petitioners, on re-direct of Crane, attempted to get Crane to testify that the different game 116 could be "some other version of a flight simulator game" if the game 112 played by the first player is a flight simulator game. Ex-2012, 419:12-15. However, this does nothing to make up for the deficiencies in both the Petition and Pisanich's disclosure as to this claimed element. Ex-2005, ¶96. Rather, Pisanich specifically states that the game 116, played by the second player 124, is "an entirely different game 116." Ex-1007, 7:9-11,

emphasis added. Crane provides no evidence or explanation for why this explicit teaching of Pisanich should be ignored. Further, Petitioner's theory does not change the fact that Pisanich's game data server 108 simply "gathers 'real-time' data from traffic 100 and weather 104 data provider systems [and] permits data available to a game 112, 116." Neither Pisanich's game data server 108 or rendering engine 316 interprets content such that the content is manipulated so as to be accessible on different types of devices for use within the same virtual thematic environment, as described above. Ex-2005, ¶96.

Additionally, the phrase "different types of devices" should not be construed to overlook both words "different" and "type." The word "types" is plural, meaning at least two types, where "type" is defined as "a particular kind, class, or group." Ex-2005, ¶60-61, citing Ex-2007, p.1274. The word "different" means two or more of a thing, where at least a first thing is not of the same type (unlike in nature, form, or quality) as at least a second thing. Ex-2005, ¶62, citing Ex-2007, p.322. As such, Pisanich in view of the common knowledge of a POSITA does not teach or even suggest the claimed QIE Module: i.e., 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 same virtual thematic environment.

In support of Petitioner's argument, Petitioner cites to ¶¶126-32 of Crane's declaration. Pet. 20. In Ex-1004, ¶128, Crane states, "[i]t was well known in the art

as of the effective filing date of the '165 patent to interpret and manipulate video game content for use on different types of devices." In support of this statement, Crane states that Pisanich taught a rendering engine that used conventional technology to display objects internal to the cockpit and to display objects external to the aircraft in the virtual thematic environment. Ex-1004 at ¶128. Mr. Crane explains that "Said 'conventional technology' included rendering technology configured to account for differences between multiple gaming devices as needed (See ¶83) allowing the video game content to be operable on different types of devices." In context, Mr. Crane is referring to the conventional rendering technology (i.e., different versions of each game created for use with each device) that could be used to create the six different versions of the same flight simulator game referenced in paragraphs 82 and 83 (Ex-1004) of Crane's declaration, and the graphic that Crane created. For example, at Ex-2011, 131:24-133:7, Mr. Crane testified on cross-examination that:

> A. It's not a question of technology. I could use the term for the conventional method of creating different versions as what we used to call making a port, a p-o-r-t. It just stands for porting the code, converting the code over to a different console. So that's the convention method, is the port. This is rendering technology. It's unrelated. Just because they both use the term "conventional," it's unrelated.

> Q. Okay. That's what I was trying to figure out. In paragraph 84, though, it's different types – excuse me. So as to be accessible on different types of devices. What does it mean to be accessible?
>
> A. In the case of a game, it means to play the game, to view the game, to control the game.
>
> Q. Okay. So the conventional rendering technology in paragraph 84, would you say is a different way of making the game accessible on a different type of device that is from porting, as you used that term in paragraph 82?
>
> A. Well, there's certainly overlap. What you're trying to do when you port is you are making different versions for the display code and such. So the conventional rendering technology I'm talking about in paragraph 84 is primarily to make the display work on different devices.
>
> Q. Okay. And for paragraph 84, that conventional rendering technology, would it require a different version of the game for each display?
>
> A. Yeah, it's hard to explain that to a nontechnical person. But every time rendering technology is written, it uses the same procedures, the same concepts, the same techniques, but it's never the same program.

Further, at Ex-2011, 133:14-134:2, Crane also testified under cross-examination that:

> Q. …The concept in the -- in the end of paragraph 84: "The concept of -- of interpreting and manipulating content such that the content is accessible on different types of devices was well known." Do you see that –
>
> A. Yes.
>
> Q. -- sentence? Is that referring to the QIE that we discussed in paragraph 66?
>
> A. It's just a generic statement of what a person of ordinary skill in the art would have known. Interpreting and manipulating content is something that you did when making a port.

Therefore, as demonstrated by Crane and confirmed by Medvidović, a POSITA would understand that Pisanich does not teach 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 same virtual thematic environment. Ex-2005, ¶¶73-75, 84, 85, 87-89.

The Crane Declaration also identifies the "game data server 108" of Pisanich as disclosing a QIE Module. Ex-2004, ¶130. In particular, Crane points to the "game data server 108" as something that is configured to interpret content such that the content was manipulated to be served into different games, "presumably" on different devices. *Id.* Mr. Crane's presumption appears to be based on his reliance

on the following language of the Pisanich specification, which provides, in part (Ex-1007, 7:9–13):

> Moreover, a second player 124 may play an entirely different game 116 (for instance, a car racing game, or a football game) than the game 112 being played by the first player 120. However, the different game 116 may request the same type of data (weather, for example) as the first game 112. The architecture of the present invention can be extended to meet the data requirements of other games.

However, even if Pisanich discloses that content may be accessible on different games, it does not necessarily disclose that content is accessible "on different types of devices for use within the [same] virtual thematic environment," as required by the challenged claims (e.g., independent claim 1). Ex-2005, ¶87,89-94. Further, a POSITA reading Pisanich would not assume or presume, as Crane did, that "Game Data Server 108 could be connected to multiple devices playing different games, and said server interpreted and manipulated content to said multiple devices as claimed." Ex-1004, ¶153. *See, for example,* Medvidović Ex-2005 ¶88-93.

4. For the Reasons Outlined in Sections VI.A.1-VI.A.4, the Petition Does Not Meet Its Burden of Showing that the Challenged Claims Are Obvious Over Pisanich Alone or in Combination with the Common Knowledge of a POSITA.

Petitioner has not proven that Pisanich alone or in combination with the common knowledge of a POSITA teaches or suggests the "QIE module being a

software layer," or more particularly, that "the software layer" "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." Neither the Petition nor the supporting declaration of Petitioner's expert Crane, properly analyzed these claim elements showing where each was disclosed within the teachings, disclosure, or scope of the prior art as required by *Graham v. John Deere Co*., 383 U.S. 1, 17– 18 (1966). Further, the Petition and Cranes supporting declaration wholly fails to address the differences between the claim limitations and what the prior art references teach as required per *Graham*. For these reasons, Petitioner has failed to meet its burden showing that Pisanich, alone or in view of the knowledge of a POSITA, discloses all of the claimed elements of the challenged claims (e.g., the QIE Module, as construed).

B. Pisanich Alone or In Combination with the Common Knowledge of POSITA, Does Not Teach or Suggest the Challenged Claims Required Element of "Sending a Request for First Real-Time Information Via the QIE Module to The World Wide Web."

Regarding limitation 1[f], a person of ordinary skill in the art would understand that Pisanich does not teach or suggest, as a required element of the challenged claims, the step of "sending a request for first real-time information via the QIE module to the world wide web."

In support of its position regarding the unpatentability of limitation 1[f], Petitioner (Pet. 22) points to Pisanich Ex-1007, 5:13-15, which states:

> 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.

However, a POSITA would not understand that Pisanich's disclosure of a request for first real-time information via the game data server 108 would teach or otherwise disclose the step of "sending a request for first real-time information via the QIE module to the world wide web" as recited in the challenged claims. Ex-2005, ¶100. As discussed above, the game data server 108 cannot be a QIE module because the game data server 108 is an entire subsystem constructed of separate modules, not a software layer as required by the proper construction of the term "QIE Module." Ex-2005, ¶102. For example, Pisanich's game data server 108 encompasses, among other modules, two databases (Ex-1007, Pisanich Figure 2), neither of which can be construed as a software layer. As explained above in Section IV.A.1, properly construed, the term QIE Module is a software layer (see, e.g., '165 Patent, Ex-1001, FIG. 1, 11:55-67) and not the collection of separate objects, as is Pisanich's game data server 108. Ex-2005, ¶103. Further, as explained above, the game data server

108 does not interpret content such that the content is manipulated to be accessible on different types of devices. *Id.*

Further, Petitioner also appears to believe that the rendering engine 316 is also the QIE module (Pet. 24). However, the rendering engine 316 if it is requesting information at all, requests information from the "weather manager 304," and not from the world wide web. Ex-1007, 11:11–18; Ex-2005, ¶104. Also, the rendering engine 316 does not receive and interpret content such that the content is manipulated to be accessible on different types of devices for use within the virtual thematic environment.

For the foregoing reasons, Petitioner has failed to meet its burden showing that Pisanich, alone or in view of the knowledge of a POSITA, discloses all of the claimed elements of the challenged claims (e.g., the step of "sending a request for first real-time information via the QIE module to the world wide web.")

C. Pisanich Alone or In Combination with the Common Knowledge, Does Not Teach or Suggest "Sending a Request for Second Real-Time Information Via the QIE Module."

Regarding limitation 1[k], a person of ordinary skill in the art would understand that Pisanich alone or in combination with the common knowledge of a POSITA, does not teach or suggest the step of "sending a request for second real-time information via the QIE module." Emphasis added. Ex-2005, ¶105.

In support of its position regarding limitation 1[k], Petitioner (Pet. 26) refers to its earlier analysis in §§ VII.A.2(c) & (g) with respect to limitation 1[f]. However, Petitioner's analysis of limitation 1[k] in view of the prior art is incorrect for the same reasons addressed in §§VII.A-B, above. Ex-2005, ¶106.

D. Pisanich, Alone or In Combination with the Knowledge of POSITA, Does Not Teach a Method for Integrating Real-Time Information into a Virtual Thematic Environment Using a Computer System Including a Client and a Server.

On pgs. 15-16 of its Petition, Petitioner states:

> 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.

Petitioner appears to have mischaracterized Pisanich, however, as Pisanich never uses the term "client" or "client computer."

Apparently in support of its position, Petitioner relies on Ex-1004, ¶124, which states "[a] POSITA would have understood that a computer game that received information from an external server (commonly referred to as a client/server game system) included a client (the computer system upon which the game was played) and a server." This conclusory statement by Petitioner's expert is

impermissibly intended to provide an element (i.e., client or client computer) entirely missing from Pisanich without any explanation as to why it would be obvious for a POSITA to implement, change, or otherwise modify Pisanich in this manner. *See Xerox Corp. v. Bytemark, Inc*., IPR2022-00624, Paper 9 at 16 (precedential) ("This is particularly problematic in cases where, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art." Emphasis added.)

As explained by Medvidović, however, a POSITA would not explicitly or implicitly understand that the "player's computer" and the "game data server 108" disclose or teach a client system and a server system, respectively. Ex-2005 ¶115. Pisanich never uses the term "client" nor "client computing device." *Id*. Rather, Pisanich discloses a three-tier architecture rather than a client-server architecture. *Id*. A POSITA would not assume that any object communicating with a server is necessarily a client system. *Id*. For example, other objects can communicate with a server, such as another server. *Id*. A POSITA, for example, would likely believe that game 112 was another server communicating with the game server 108 to provide the simulation. *Id*. A POSITA would understand Pisanich to teach or disclose a three-tiered architecture with two servers (e.g., game data server 108 and game 112) communicating with one another as such a system architecture would be more

beneficial than a client and server system because a three-tiered architecture of Pisanich would better facilitate communications between the servers and objects. *Id*.

As such, Crane's unsupported, conclusory statement that Pisanich discloses a client-server configuration is not only improper and entitled to little or no weight pursuant to *Xerox*, it is wholly inaccurate and unsupportable by the actual teachings and disclosure of Pisanich alone or in combination of the common knowledge of POSITA.

For the foregoing reasons, Petitioner has failed to meet its burden showing that Pisanich in view of the knowledge of a POSITA discloses the claimed "client" or "client system."

VI. PETITIONER FAILS TO DEMONSTRATE THAT THE CLAIMED INVENTION IS OBVIOUS IN VIEW OF THE MANUAL ALONE OR IN COMBINATION WITH THE COMMON KNOWLEDGE OF POSITA (SECOND GROUND).

Petitioner's second ground attempts to find the elements of the challenged claims in the Manual, relying on the knowledge of a POSITA for the many missing elements not explicitly or implicitly disclosed or otherwise taught in the Manual. However, Petitioner fails to establish obviousness as to at least two different limitations present in each of the challenged claims: (1) the QIE module being "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." (§VI(A)); and (2) a "client" or "client system"" (§VI(B)). Each of these missing limitations is discussed below in §§VI(A-B).

A. The Manual Alone or In Combination with the Common Knowledge of a POSITA, Does Not Teach the Claimed QIE Module.

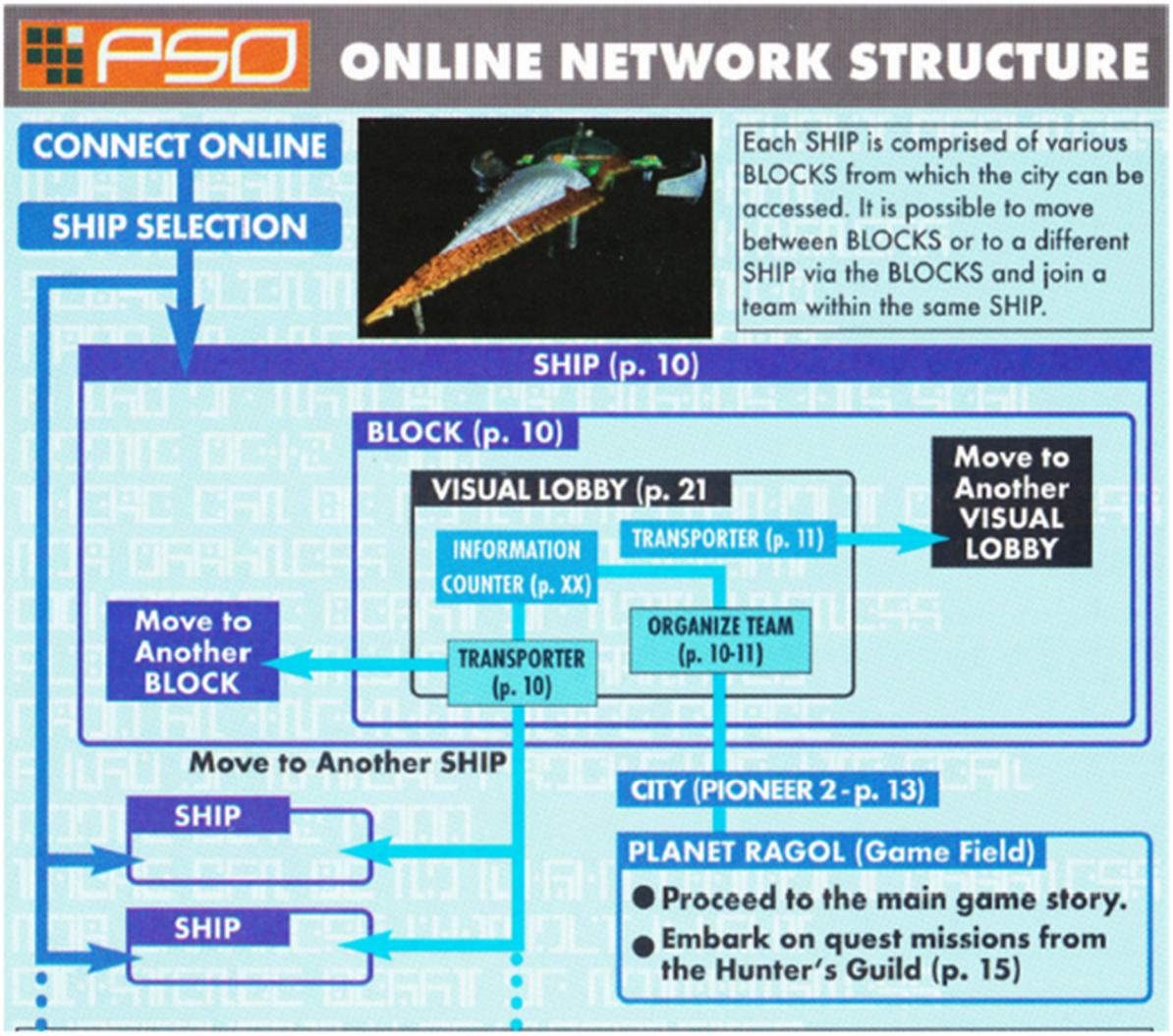
A person of ordinary skill in the art would understand that the Manual does not teach or suggest the "QIE module," or that the QIE Module is "a software layer" as required by challenged claims 1 and 18. Ex-2005, ¶120,122. The Manual describes how to play a game but it does not describe or otherwise disclose how the game is implemented in either the software or hardware architecture. Ex-2005, ¶¶117-119, 122. A POSITA would not understand from a gameplay guide or manual the underlying software or hardware architecture that allows the game to be executed or run–including, in the present case, whether or not the underlying software and hardware architecture includes a QIE module that is a software layer, for example. Ex-2005, ¶¶118, 119, 122.

As discussed above in Section IV, a software layer is used to guide the partitioning of a system's functionality into modules, where the modules assigned to one layer interact only with those that are assigned to adjacent layers. Ex-2005, ¶122, discussing, Ex-2006, pp. 199, 203. Separating a system's functionality into layers allows changes to be made to modules at one layer without affecting the modules of the other layers. *Id.* It also provides application independence from evolving

hardware. *Id.* A POSITA would recognize that many other architectural layouts were possible at the time of the priority date of the '165 Patent, and others (e.g., objects, agents, microservices, etc.) would be more beneficial for the Phantasy Star Online game (to which the Manual is directed) than the software layer architecture as disclosed and claimed in the '165 Patent. Ex-2005, ¶¶122,123.

As such, not only does the Manual not explicitly disclose a QIE Module as a software layer it also does not inherently disclose, describe, or otherwise suggest impliedly the use of a QIE Module as a software layer. Ex-2005, ¶¶122,123. Rather, the Phantasy Star Online game (to which the Manual refers) could be organized in one of many other ways, such as with objects, agents, microservices, etc. Ex-2005, ¶123.

In support of its position that the Manual discloses the claimed QIE Module, and without any explanation, the Petition cites the "Online Network Structure" diagram on page 9 of the Manual (Ex-1008, reproduced below). Pet. 45. However, the Petition never discusses whether or where the Manual or the common knowledge of a POSITA actually discloses or otherwise teaches "a software layer." For this reason alone, Petitioner's arguments that the claims would be obvious in view of the Manual, alone or in combination with the common knowledge of a POSITA, must necessarily fail.



Further, there is nothing within this diagram that teaches a software layer that 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–i.e., the claimed QIE Module. Ex-2005, ¶125. Rather, the diagram simply explains to a user how to move the user's character between city blocks or ships within the game. *Id*. The disclosure of gameplay is not the disclosure of the

software or hardware architecture that allows the gameplay to occur. Ex-2005, ¶¶118-119.

In support of its position, the Petition on page 46 refers to the Crane Declaration Ex-1004, ¶236-239, but Crane does not explain how the Manual discloses anything about the underlying game software or hardware architecture, nevermind the software layer comprising the QIE Module. Further, Crane never explains how the diagram of the "online network structure" provided in the Petition at p.45 teaches the QIE Module. Again, the Petition and Crane declaration make wholesale conclusory statements that are unsupported by any actual evidence.

The Petition also fails to address how the Manual discloses that the QIE Module is a software layer that receives and interprets content such that the content is manipulated to be accessible on different types of devices for use within the virtual thematic environment. Petitioner's supposition that "game systems sold into different countries were different systems" (Pet. 45) is without basis. Ex-2005, ¶127. Contrary to Petitioner's contention, the Manual itself explicitly teaches that it is directed to solely one type of device, i.e., the software to which the gameplay manual is directed "is designed only for use with the Dreamcast console." Ex-1008, p. 2; Ex-2005, ¶127.

A POSITA would understand from the specification of the '165 Patent, that examples of the "different types of devices" claimed include "a PC, a mobile

terminal, such as a mobile computing device, a mobile phone, or a mobile data organizer (PDA), operated by the user accessing the program remotely from the client (see FIG. 1), or any other digital device that has a screen and storage." Ex-1001, 13:9-14; Ex-2005, ¶129. A POSITA would not find any teaching or suggestion in the Manual for any other type of device other than the Dreamcast game console, as the Manual quite explicitly states that the game to which the Manual is directed can only be played on a singular device–i.e., the Sega Dreamcast console. Ex-1008, p.2; Ex-2005, ¶127.

Further, as discussed above in Section VI.A.3., the phrase "different types of devices" should be construed to include the definition of "different" and the plural of the definition "type." Ex-2005, ¶129, citing Ex-2007, pp.322,1274; Ex-2005, ¶129, citing Ex-2007, p.322. In contrast, the Manual simply discloses a single type of console: the Sega Dreamcast game console. Ex-1008, page 2. Ex-2005, ¶129.

Further, the Manual does not teach or suggest to a POSITA that the QIE Module is "a software layer which receives and interprets content such that the content is manipulated so as to be accessible on different types of devices," as required by the construed claim. Ex-2005, ¶130. Crane states that the Word Select system receives, interprets, and manipulates content "at the destination" (Ex-1004, ¶238). A POSITA would understand that the "destination" is a game console, not the claimed software layer (Ex-2005, ¶130), as urged by Crane. Ex-1004, ¶238. As

explained by Medvidović, at the game console, the software can interpret for that game console, but the software on the game console cannot interpret for any other game console type. Ex-2005, ¶130. Therefore, the software on the game console cannot be "a software layer" which receives and interprets content such that the content is manipulated to make it accessible on different types of devices. *Id.*

Further, Crane states that:

> To publish a game on different platforms, the game program had to be configured to manipulate game content to work on different devices. As was well known in the art, the conventional method of making content available on different devices involved "creating a different version of the game for each device or at least different size and resolution images."
>
> Ex-1004, ¶82, emphasis added.

With respect to Phantasy Star Online, Crane explains:

> Q. Okay. If Phantasy Star Online wanted to be played on another console at the time, what would they, Sega, had to have done?
>
> A. Sega would have had to rewrite the game for that console, adjusting for the programming language in that console, adjusting for the screen resolution of that console, the controllers, the audio system, the Sprite system, the rendering capability. All of the technical aspects of the Dreamcast would have to be rewritten, or what we would call back then ported, to a version that would work on that hypothetical next game you want to play it on, next console you want to play it on.

Ex-2011, 022624 Crane Deposition, 147:11-22.

In contrast, the claimed QIE Module is a software layer that receives and interprets content such that the content is manipulated to make it accessible on different types of devices. Ex-2005, ¶131.

Additionally, Crane stated (Ex-1004, ¶238) that:

> In addition, PSO Manual disclosed a "Word Select" feature embedded in the game (*See* ¶106) which allowed a player to construct sentences to be sent via chat to any destination around the world. The "Word Select" system at the destination received, interpreted, and manipulated the content for any device, translated into the language of the recipient.

As explained by Medvidović, a POSITA would understand that choosing a limited number of text options in the chat box that are available in other languages at the destination is NOT equivalent to a QIE Module manipulating the content so as to be accessible on different types of devices. Ex-2005, ¶133.

A person of ordinary skill in the art would understand that the Manual does not teach or suggest a QIE Module that "receives and interprets content such that the content is manipulated." Ex-2005, ¶134. Even if the Manual shows that content is being received, it does not teach or suggest that it is being interpreted and manipulated. *Id.* While the finite universe of constructed messages provided by the Word Select function may be a program to facilitate communication, (Ex-1008,

p.12) the Word Select functionality would not be understood by a POSITA as interpreting or manipulating the messages. Ex-2005, ¶134.

Additionally, even if Crane's supposition of "interpretation" of content is correct (Ex-1004, ¶238), such interpretation is not being conducted by the QIE Module (i.e., a software layer), as clearly testified to by Crane during his cross-examination. For example, the following exchange regarding the "word select" feature shown in the Manual exemplifies that the interpretation of content (allegedly disclosed by the Manual) is not being received and interpreted, such that the content is manipulated by a QIE Module:

> Q. Okay. So the content of the word select was predetermined, correct?
>
> MR. WOO: Objection. Form.
>
> THE DEPONENT: It was selected by a game player during play. How is that -- how is that predetermined?
>
> Q. Did the player select from a drop-down menu, or did they type in a phrase?
>
> A. They were selecting from a fixed set of possible chats.
>
> Q. And your statement was, the word select system at the destination received, interpreted, and manipulated the content, and my comment -- my question was, where does the PSO manual describe where those three things occurred?

> A. In the first place, it's the understanding of a person of ordinary skill in the art, if the manual says that I can chat with a person in Japan and they receive it in Japanese, that would be the disclosure you're looking for. I would have to find it. I don't know if I cite to it specifically. Yeah, up in the background section. I have to look through it though. So yes, I believe that a person of ordinary skill in the art would understand the teachings of the PSO manual that his text is manipulated and interpreted and displayed in the language of the recipient, and that would necessarily happen at the recipient computer.
>
> Q. Okay. Again, it was the word select system at the destination received it, interpreted it, and manipulated it?
>
> A. Correct.
>
> Q. My question is simply, could it have been at the originating player rather than at the destination?
>
> A. That would not be the case. The originating computer doesn't necessarily know the language of the recipient.
>
> Ex-2011, 188:3-189:13.

The above-quoted exchange demonstrates that Crane asserts that the Manual would teach a POSITA that any "interpretation" being performed by the Word Select is performed at the "destination," which is the recipient's console. As such, any interpretation by the "Word Select" feature takes place separately on each console, for only that console. Ex-2005, ¶135. Crane does not show how the "word select"

feature is a software layer that receives and interprets content such that the content is manipulated to be accessible on different types of devices for use within the virtual thematic environment. Rather, Crane stated that POSITA would understand that different hardware would require different versions of the software written for each different version of the Dreamcast consoles. Ex-2011, 129:10-17:

> Q. Okay. And is that a little bit further on in paragraph 82, that you state: "To publish a game on different platforms, the game program had to be configured to manipulate game content to work on different devices"? Is that summarizing your prior answer?
>
> A. Yes. I mean, that's not as complete as it could be because what -- those modifications are made at the game-design level, the game-programming level. So it's really what you're doing is you're writing a different version of the game for each one.
>
> Q. And that was going to be my next question, was, is that, if I have software that runs flight simulator on an Apple II in 1984, the software for the Track -- or the TRS-80, excuse me, in 1987, those would be different computer software games. Is that correct?
>
> A. Yes.

For the foregoing reasons, Petitioner has failed to meet its burden to show that the combination of the Manual with the knowledge of the POSITA discloses a QIE module that is a software layer that receives and interprets content such that the

content is manipulated to be accessible on different types of devices for use within the virtual thematic environment. Further, the Petitioner has also not met its burden to show any differences between the claimed subject matter and the prior art. Finally, Petitioner has not shown that there would be any motivation or suggestion to modify the Manual in any manner that renders independent claims 1 and 18 obvious. For these reasons, it is respectfully submitted that claims 1 and 18 are not obvious in view of the Manual.

B. The Manual Alone or In Combination with the Common Knowledge, Does Not Teach a Client or Client System.

Regarding challenged independent claims 1 and 18, a POSITA would understand that the Manual does not teach or suggest a "client" or a "client system". Ex-2005, ¶138. The Manual describes how to play a game and does not specifically teach or even suggest a "client" or a "client system". *Id.* Mr. Crane states that the Manual discloses that the Phantasy Star Online game operated in a client-server configuration because it required users to log into the "PSO server" with a serial number and access key. Ex-1008, ¶¶98, 231, 304, referring to Manual page 8. However, this disclosure does not indicate a client system and a server system architecture as a POSITA would recognize that many other architectural layouts are possible and, in fact, architectural layouts other than client and server systems would be more beneficial at that time for this type of game. Ex-2005, ¶138. For example,

the user may register with the server but then communicate directly with the other players by gaming console to gaming console. *Id*. The Manual is silent as to the choice of computer architecture. *Id.* Indeed, there are a range of possible architectural choices for such a game that were known in the relevant time frame. Ex-2005, ¶139. The game could have been implemented, among other possibilities, using an N-tiered solution (similar to Pisanich above), an event-driven architecture, a model-view-controller (MVC) based architecture, or even a straight object-oriented architecture. *Id*.

As discussed in *Arendi* and *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020), common knowledge can be used to supply a missing limitation in limited circumstances. However, these circumstances require that the missing limitation is (1) unusually simple and the technology particularly straightforward, or (2) supported by evidence and reasoned analysis. In this case, Petitioner is attempting to supply a missing limitation without providing any evidence to corroborate Crane's testimony. Further, Petitioner also provides no reasoning as to why a POSITA would find "a computer system including a "client" and a "server" as required in claim 1, or a "client system and a server system" as required in claim 18 is inherent or obvious from the disclosures of the Manual.

C. Petitioner Fails to Show That the Manual is Authenticated or is Actually a Printed Publication Under 35 U.S.C. §102 and Available as Prior Art to the '165 Patent.

Exhibit 1008, the Manual, is not properly authenticated because Petitioner has not presented evidence that the document is what Petitioner purports it to be—namely, a document shipped along with the *Phantasy Star Online* video game for Sega Dreamcast before the priority date of the '165 Patent. As such, Petitioner has failed to establish that the Manual is a prior art printed publication.

Mr. Harry's testimony is the sole basis in the record for Petitioner's assertion that (1) the Manual is prior art, and (2) Exhibit 1008 is a true and correct copy of the Manual allegedly "published" in 2000. *See* Ex-1009, ¶¶11–12. Mr. Harry describes himself as "an analyst with Global Technology Transfer Group ('GTT')" and a registered U.S. patent agent "with fifteen years of experience in the patent practice, including drafting and prosecuting patents and ensuring positive relationships, with a wide range of clients." *See, Id*. ¶2; Ex-1009. Mr. Harry is neither a records custodian for Sega nor the person responsible for archiving or retrieving Sega's video game manuals or versions thereof. Notably, Mr. Harry did not testify that he consulted with people who were records custodians of Sega in preparing his declaration. Further, Mr. Harry did not testify that he had any knowledge of Sega's video game packaging and distribution practices at the time *Phantasy Star Online* was purportedly sold or distributed.

Mr. Harry testified that he ordered a copy of the *Phantasy Star Online* videogame, which purportedly included a copy of the Manual, for the Sega Dreamcast gaming console from an individual seller on the e-commerce website eBay. *Id.* ¶6. There is nothing to suggest that the individual seller from which Petitioner obtained the video game and Manual is trustworthy. Nothing in the record indicates the individual seller's particular business practices, e.g., whether he obtains one or more items and then seals them together to create the products he sells on eBay. Mr. Harry stated in his cross-examination that he did not know the seller. Ex-2013, 26:22-24; Ex-2010, ¶8.

Additionally, Mr. Harry acknowledged that there were marks on the front and back of the Manual that could be due to wear (Ex-2013, 54:18-55:2, 61:12-62:3), contrary to his unequivocal statement that the Manual was part of an unopened game "original from the factory." Ex-1009 at ¶8. There is no known explanation for these marks besides supposition from Mr. Harry, who admitted to not having expertise beyond that of a consumer regarding the game packaging. Ex-2013, 42:2-16. Rather than this being the original manual with the game, it is equally possible that this copy of a manual was joined with a copy of a game and re-packaged sometime in the last twenty-three years since the supposed origination. There is no evidence that this particular manual was ever publicly available before the priority date of the patent at issue.

Accordingly, Mr. Harry's testimony that "the cellophane wrap appeared to be intact and original from the factory" (Ex-1009 ¶8) is not credible given the wear marks shown on the manual. Similarly, as he testified in his Declaration, Mr. Harry has no personal knowledge whether "the manual would have been provided by SEGA with all copies of PSO that were sold." Ex-1009, ¶12. To the extent that Mr. Harry is deemed competent to offer any testimony, such testimony would be limited to his opinion that Exhibit 1008 is identical to the document he received with his eBay order. Further, Mr. Harry did not confirm or deny whether multiple versions of the Manual were associated with the *Phantasy Star Online* game or whether the Manual was updated at different times to reflect corrections of errors or upgrades to the video game. Mr. Harry's testimony is incompetent to offer the Manual as prior art in this proceeding.

Further, the copyright notice relied on by the Petitioner to evidence the publication date is hearsay, not falling within any exception, and has no guarantees of trustworthiness. A copyright notice alone is insufficient to establish public accessibility as of a particular date. *See ServiceNow, Inc. v. Hewlett–Packard Co*., IPR2015–00716, Paper 13 at 17 ("[w]e are not persuaded that the presence of a copyright notice, without more, is sufficient evidence of public accessibility as of a particular date.") (citing *LG Electronics, Inc. v. Advanced Micro Devices, Inc*., IPR2015-00329, Paper 13 at 10–13).

Petitioner attempts to overcome the hearsay deficiency of its evidence by bolstering its contention with other, admittedly "circumstantial," evidence, including its reference to promotional advertising and copyright statements about the game Sonic Adventure 2, referenced on the last page of the Manual (Ex-1008 at 19), and other video game industry publications concerning *Phantasy Star Online* game. *See* Pet. 37–38, n. 4. However, this "circumstantial evidence" is unrelated to the Manual itself—i.e., the Manual and its date of existence is wholly unrelated to the Sonic Adventure 2 video game or the video game industry publications concerning the existence of the *Phantasy Star Online* game.

Moreover, the Petitioner has not submitted any evidence to establish that the Manual qualifies as a printed publication pursuant to §102. *See* MPEP §2128 ("A reference is proven to be a 'printed publication' 'upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.'"); *Elec. Frontier Foundation v. Personal Audio, LLC*, IPR2014-00070, Paper 21 at 20–24 (PTAB Apr. 18, 2014) (petitioner bears the burden of proving that a reference is a printed publication). Petitioner claims that the "PSO Manual was distributed publicly at least as early as March 31, 2001," relying on a purported copyright notice that appears near the end of the Manual. Pet. 36–37. However, Petitioner provides no proof of the publication of the Manual beyond this

copyright notice, and its attempts to prove that the Manual was available because the PSO software was allegedly sold at certain periods of time must also fail as circumstantial.

The Petition fails to identify "with particularity" the evidence it contends shows a reasonable likelihood that the Manual is a printed publication. See MPEP §2128. Petitioner's evidence lacks particularity, as Petitioner does not provide any information on how the Manual would have been disseminated or otherwise made available to the extent that a POSITA, as defined by Petitioner (Pet. 10) can locate it. Here, the Petitioner has merely produced an unclear copyright notice that appears to be referencing the game (Ex-1008 at 33), and not the Manual. As discussed above, Petitioner's other "circumstantial" evidence is also uncompelling.

Because Petitioner has failed to properly authenticate the Manual and, additionally, has failed to provide the required information to show the Manual is a prior art printed publication, Ground 2 should be denied.

VII. PETITIONER FAILS TO SHOW THAT THE ALLEGED COMMON KNOWLEDGE OF THE POSITA WAS KNOWN AT THE TIME OF THE PRIORITY DATE.

Contrary to requirements laid out in *Arendi* (948 F.3d at 1337), neither Petitioner nor Crane provided any evidence showing that the various Exhibits and discussion provided in ¶¶72-84 of Crane's Declaration (Ex-1004) as common knowledge of a POSITA were publicly available before the March 22, 2004 priority

date. Rather, Crane cited various websites such as https://www.mobygames.com" , and "https://en.wikipedia.org/wiki/Microsoft_Flight_Simulator_3.0" to support his conclusions. *See,* Footnotes 1-7 in Ex-1004 at 29-34. However, these documents should be given no weight because Petitioner has not presented evidence to show that the documents were publicly available prior to March 22, 2004.

With respect to Wikipedia, Crane testified himself that he "does not rely on it" because "I have heard that it's very open." Ex-2011 at 93:20-94:19. With respect to "MobyGames," Crane acknowledged that this website is "modified over time." Ex-2011 at 92:18. In fact, mobygames.com explicitly tracks when the various flight simulator images reproduced and referenced by Crane were actually uploaded by its users. For example, the image shown as "Microsoft Flight Simulator 2000"[3] at ¶74 of Ex-1004, was uploaded on January 19, 2009 (see Ex-2014; Ex-2010, ¶9), i.e., well after the March 22, 2004 priority date. And, while Crane testified that he has "never found anything on it that was erroneous" Ex-2011, 92:18-19, his understanding was that there are "peer reviewers" that "review that and kind of fight over it and decide what date they're going to put on it." *Id.,* 92:16-17. All of the other images in

[3] https://www.mobygames.com/game/3341/microsoft-flight-simulator-2000/screenshots/windows/351054/

¶¶74,83 of Crane's declaration were also uploaded after the priority date of the '165 Patent.

Crane's reliance on Wikipedia and Moby Games websites in an attempt to show the common knowledge of the POSITA is misplaced. More troubling, it evinces a fundamental misunderstanding of what information is available to a POSITA in making an obviousness determination. Other than Crane's apparent belief in the trustworthiness of MobyGames' unknown users, Petitioner has provided no evidence to suggest that the images he found there and excerpted in his Declaration, for example, in paragraphs 74 and 83, were publicly available before the March 22, 2004, priority date. Crane admitted that he did not cite any information to indicate that the flight simulator programs in his declaration were well-known prior to March 22, 2004. Ex-2011, 125:11-18. Crane did not testify that he had personal knowledge of these particular games/documents in the 1980s or at any time thereafter prior to March 22, 2004. In short, Petitioner has not supplied any evidence of record to corroborate Crane's testimony regarding the common knowledge of a POSITA before the priority date.

Petitioner has not supplied any evidence of record to corroborate Crane's testimony regarding the common knowledge of POSITA before the priority date and certainly not with respect to the information provided in ¶¶74, 83 in Ex-1004. For these reasons, Crane's testimony as to the knowledge of a POSITA in the relevant

time period cannot be corroborated. The Board should afford it little or absolutely no evidentiary weight. *See Xerox Corp. v. Bytemark, Inc*., IPR2022-00624, Paper 9 at 16 (precedential).

VIII. ALL REMAINING CLAIMS THAT RELY ON PISANICH AND THE MANUAL FAIL FOR THE SAME REASONS GIVEN FOR CHALLENGED INDEPENDENT CLAIM 1

Claims 2–3, 5–8, and 10–12 depend on independent claim 1. Because Pisanich and the Manual do not render obvious independent claim 1, they cannot render obvious dependent claims 2–3, 5–8, and 10–12.

IX. THE PETITION FAILS TO ADDRESS MANY ADDITIONAL ELEMENTS FOUND IN THE CHALLENGED INDEPENDENT CLAIMS THEREBY REQUIRING THE BOARD TO UPHOLD THE PATENTABILITY OF THE CHALLENGED CLAIMS

Petitioner wholly failed to address the underlined language of the following limitations/elements of claim 1 and corresponding elements in claim 18:

- Petitioner fails to address limitation 1[i] regarding "providing access to the first real-time information within the virtual thematic environment via the first user interface" in its entirety (Pet. 24). Instead, Petitioner simply refers back to its deficient analysis of claim limitations 1[e] and 1[f] (Pet. 22).
- Petitioner attempts to address limitation 1[j] regarding "providing at least one secondary application within the primary application at the client system"

(Pet. 25–26). Within its analysis, Petitioner fails to address the claim element "at the client system."

- Petitioner attempts to address limitation 1[k] regarding "sending a request for second real-time information via the QIE module" (Pet. 26). However, within its analysis, Petitioner fails to address the claim element "via the QIE module."
- Petitioner fails to address limitation 1[l] regarding "obtaining the second real-time information via the world wide web" in its entirety (Pet. 27). Instead, Petitioner simply refers back to its deficient analysis of claim limitations 1[f] and 1[k] (Pet. 25–26).
- Petitioner fails to address limitation 1[m] regarding "downloading the second real-time information into the secondary application" in its entirety (Pet. 27). Instead, Petitioner simply refers back to its deficient analysis of claim limitations 1[j] and 1[k] (Pet. 25–26).
- Petitioner attempts to address limitation 1[o] (Pet. 27), but fails to address the claim element of "enabling the user to control the at least one secondary application through a second user interface."

Therefore, Patent Owner respectfully requests that the Board find that all of the challenged claims of the '165 Patent are valid and patentable in light of the prior art cited by the Petitioner in its Petition.

X. CONCLUSION

For the reasons above, Petitioner's proposed grounds of unpatentability fail. Patent Owner requests the Board determine the challenged claims have not been shown to be unpatentable.

Date: March 18, 2024

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), the undersigned hereby certifies that the foregoing Patent Owner's Preliminary Response contains 12969 words using the word count feature of Microsoft Word.

Dated: March 18, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e), the undersigned hereby certifies that the above-captioned Patent Owner Response, and its cited exhibits, were served via electronic mail, as authorized by Petitioner's Mandatory Notices, on February 9, 2024, at the following email correspondence addresses of record:

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