

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

KAHOOT! ASA & KAHOOT EDU, INC.,
Petitioner

v.

AVIEL D. RUBIN,
Patent Owner

Inter Partes Review Case No. IPR2023-00693
Patent No. 9,064,376

**PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §§ 311-319 AND
37 C.F.R. § 42**

Mail Stop Patent Board
Patent Trial and Appeal Board
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March 10, 2023

LIST OF EXHIBITS

1001	Rubin, U.S. Patent 9,064,376 (“the ’376 patent”)
1002	Declaration of Sigurd Meldal, Dr.Scient.
1003	Prosecution History File Wrapper of the ’376 patent (excerpts)
1004	U.S. Patent 9,497,565 (“Zha”)
1005	CN 2013/10674692 (“Zha-Priority-Application”)
1006	Certified English translation of the <i>Zha-Priority-Application</i>
1007	U.S. Patent Pub. 2015/0011318 (“Takahashi”)
1008	PCT/JP2012/007595 (“Takahashi-Priority-Application”)
1009	Certified English translation of <i>Takahashi-Priority-Application</i>
1010	U.S. Patent Pub. 2014/0006485 (“Tsushima”)
1011	U.S. Patent 9,591,083 (“Gumbula”)
1012	U.S. Patent Pub. 2012/0017236 (“Stafford”)
1013	U.S. Patent 9,330,531 (“Wakeford”)
1014	Patent Owner’s Preliminary Infringement Contentions in <i>Rubin v. Kahoot! ASA et al.</i> , Civil Action No. 6:22-cv-00236 (W.D. Tex.) (Sept. 28, 2022)
1015	U.S. Patent Pub. 2012/0253841 (“’841 Application”)
1016	U.S. Patent Pub. 2012/0209770 (“’770 Application”)
1017	U.S. Patent Pub. 2014/0121015 (“Massing”)
1018	U.S. Patent Pub. 2006/0058088 (“Crawford”)

TABLE OF CONTENTS

I.	INTRODUCTORY STATEMENT.....	1
II.	REQUIREMENTS FOR REVIEW UNDER 37 C.F.R. §42.104	1
A.	Standing Under 37 C.F.R. §42.104(a).....	1
B.	Challenged Claims and Statutory Grounds Under 37 C.F.R. §42.104(b)(1)-(2).....	1
C.	37 C.F.R. §42.104(b)(4): How the Construed Claims are Unpatentable.....	2
D.	37 C.F.R. §42.104(b)(5): Supporting Evidence	3
III.	THE '376 PATENT.....	3
IV.	THE PRIOR ART.....	4
A.	<i>Zha</i> : U.S. Patent 9,497,565	4
B.	<i>Takahashi</i> : U.S. Patent Pub. 2015/0011318	4
C.	<i>Tsushima</i> : U.S. Patent Pub. 2014/0006485.....	5
D.	<i>Gumbula</i> : U.S. Patent 9,591,083.....	5
E.	<i>Stafford</i> : U.S. Patent Pub. 2012/0017236	5
V.	37 C.F.R. §42.104(B)(3): CLAIM CONSTRUCTION.....	5
VI.	LEVEL OF ORDINARY SKILL	5
VII.	RECITATION OF THE CHALLENGED CLAIMS	6
VIII.	GROUND 1: CLAIMS 1-4, 9, 13-14, 16, AND 23-25 ARE OBVIOUS IN VIEW OF <i>ZHA</i> AND <i>POSITA</i> 'S KNOWLEDGE.....	6
A.	Overview: <i>Zha</i>	6
B.	Claim 1	8
C.	Claim 2	15
D.	Claim 3	16
E.	Claim 4	17
F.	Claim 9	17

G.	Claim 13	19
H.	Claim 14	19
I.	Claim 16	19
J.	Claim 23	22
K.	Claim 24	24
L.	Claim 25	24
IX.	GROUND 2: CLAIMS 1-4, 9, 13-14, 16, AND 23-25 ARE OBVIOUS IN VIEW OF <i>ZHA</i> , POSITA’S KNOWLEDGE, AND <i>TSUSHIMA</i>	26
A.	Overview of <i>Tsushima</i>	26
B.	Claim 1	28
C.	Claims 2-4, 9, 13-14, 16, and 23-25	31
X.	GROUND 3: CLAIMS 5 AND 15 ARE OBVIOUS IN VIEW OF <i>ZHA</i> , POSITA’S KNOWLEDGE, AND <i>GUMBULA</i>	32
A.	Overview of <i>Gumbula</i>	32
B.	Motivation to Combine <i>Zha</i> , POSITA’s Knowledge, and <i>Gumbula</i>	33
C.	Claim 5	36
D.	Claim 15	37
XI.	GROUND 4: CLAIMS 5 AND 15 ARE OBVIOUS IN VIEW OF <i>ZHA</i> , POSITA’S KNOWLEDGE, <i>TSUSHIMA</i> , AND <i>GUMBULA</i>	39
XII.	GROUND 5: CLAIM 10 IS OBVIOUS IN VIEW OF <i>ZHA</i> , POSITA’S KNOWLEDGE, AND <i>STAFFORD</i>	40
A.	Overview of <i>Stafford</i>	40
B.	Claim 10	43
XIII.	GROUND 6: CLAIM 10 IS OBVIOUS IN VIEW OF <i>ZHA</i> , POSITA’S KNOWLEDGE, <i>TSUSHIMA</i> , AND <i>STAFFORD</i>	47

XIV. GROUND 7: CLAIMS 1-5, 9-10, 12-14, 16-17, AND 23-25 ARE OBVIOUS IN VIEW OF <i>TAKAHASHI</i> AND POSITA’S KNOWLEDGE.....	48
A. Overview of <i>Takahashi</i>	48
B. Claim 1	54
C. Claim 2	62
D. Claim 3	64
E. Claim 4	66
F. Claim 5	66
G. Claim 9	67
H. Claim 10	68
I. Claim 13	72
J. Claim 14	73
K. Claim 16	73
L. Claim 23	74
M. Claim 24	76
N. Claim 25	77
O. POSITA’s Knowledge.....	81
XV. GROUND 8: CLAIMS 1-5, 9-10, 12-14, 16-17, AND 23-25 ARE OBVIOUS IN VIEW OF <i>TAKAHASHI</i> , POSITA’S KNOWLEDGE, AND <i>TSUSHIMA</i>	92
A. Claims 1 & 25: “if and only if”	92
XVI. DISCRETIONARY DENIAL IS UNWARRANTED	95
XVII. CONCLUSION.....	96
XVIII.FEES.....	96
XIX. MANDATORY NOTICES UNDER 37 C.F.R. §42.8.....	96
A. Real Parties-in-Interest Under 37 C.F.R. §42.8(b)(1).....	96
B. Related Matters Under 37 C.F.R. §42.8(b)(2).....	97

C.	Lead and Back-up Counsel Under 37 C.F.R. §42.8(b)(3)	97
D.	Service Information Under 37 C.F.R. §42.8(b)(4)	98

I. INTRODUCTORY STATEMENT

Kahoot! ASA and Kahoot EDU, Inc. (“Petitioner”) petition for *Inter Partes* Review (“IPR”) under 35 U.S.C. §§311-319 and 37 C.F.R. §42.100 *et seq.* of claims 1-5, 9-10, 12-17, and 23-25 of U.S. Patent No. 9,064,376 (“the ’376 patent”) (Ex-1001), assigned to Aviel D. Rubin (“Patent Owner”). Because it is reasonably likely that Petitioner will prevail on at least one challenged claim, the PTAB should institute review. *See* 35 U.S.C. §314(a).

II. REQUIREMENTS FOR REVIEW UNDER 37 C.F.R. §42.104

A. Standing Under 37 C.F.R. §42.104(a)

Petitioner certifies the ’376 patent is eligible for IPR and Petitioner is not barred or estopped from requesting IPR.

B. Challenged Claims and Statutory Grounds Under 37 C.F.R. §42.104(b)(1)-(2)

Petitioner requests IPR and cancellation of claims 1-5, 9-10, 12-17, and 23-25 of the ’376 patent on the following grounds.¹

¹ References to 35 U.S.C. §§ 102 and 103 are to the post-AIA versions.

Ground	Basis	References	Challenged Claims
1	§103	<i>Zha</i> and POSITA's knowledge ²	1-4, 9, 13-14, 16, and 23-25
2	§103	<i>Zha</i> , POSITA's knowledge, and <i>Tsushima</i>	1-4, 9, 13-14, 16, and 23-25
3	§103	<i>Zha</i> , POSITA's knowledge, and <i>Gumbula</i>	5, 15
4	§103	<i>Zha</i> , POSITA's knowledge, <i>Tsushima</i> , and <i>Gumbula</i>	5, 15
5	§103	<i>Zha</i> , POSITA's knowledge, and <i>Stafford</i>	10
6	§103	<i>Zha</i> , POSITA's knowledge, <i>Tsushima</i> , and <i>Stafford</i>	10
7	§103	<i>Takahashi</i> and POSITA's knowledge	1-5, 9-10, 12-14, 16-17, and 23-25
8	§103	<i>Takahashi</i> , POSITA's knowledge, and <i>Tsushima</i>	1-5, 9-10, 12-14, 16-17, and 23-25

C. 37 C.F.R. §42.104(b)(4): How the Construed Claims are Unpatentable

An explanation of how claims 1-5, 9-10, 12-17, and 23-25 are unpatentable is set forth below.

² As used herein, "POSITA's knowledge" refers to a POSITA's general knowledge.

D. 37 C.F.R. §42.104(b)(5): Supporting Evidence

Petitioner relies upon the evidence in the List of Exhibits, including the Declaration of Sigurd Meldal, Dr.Scient. (Ex-1002).³

III. THE '376 PATENT

The '376 patent application was filed July 28, 2014, and issued June 23, 2015. Ex-1001, [22], [45]. The patent is entitled “Utilization of multiple devices to secure online transactions.” Ex-1001, [54]. The patent “relates generally to securing communications against malware by utilizing two devices with differential or application-specific components during an online session.” Ex-1001, 1:16-19. The patent presents an “architecture whereby a user’s interaction with an application includes a first device [and a second device, both] which can be a computer, a tablet, a smartphone or other electronic device” Ex-1001, 2:40-45. The patent “describes a system where the user has persistent use of a first device and a second device throughout the use of an online application to prevent a compromise of the transaction if malware infects either device.” Ex-1001, 2:29-32. The patent discloses a “preferred embodiment” “directed to online games” and “us[es] the game of poker as an example.” Ex-1001, 2:46-47, 2:51-54.

³ To avoid clutter, citations to the expert declaration are included at the end of paragraphs and are intended to apply to all sentences in the paragraph.

The prosecution history does not impact the Petition’s arguments. Ex-1002, ¶49.

IV. THE PRIOR ART

A. *Zha*: U.S. Patent 9,497,565

Zha is prior art under 35 U.S.C. §102(a)(2) (“§102(a)(2)”). It was effectively filed December 11, 2013, prior to the ’376 patent’s July 28, 2014 filing date. Ex-1004, [22]. Under 35 U.S.C. §102(d)(2), *Zha*’s effective filing date is based on prior-filed application CN2013/10674692 (“*Zha-Priority-Application*”). The *Zha-Priority-Application* is Ex-1005. A certified English translation of the *Zha-Priority-Application* is Ex-1006. *Zha* is entitled to the benefit of the *Zha-Priority-Application* filing date. Ex-1002 ¶51, Appendix B.

B. *Takahashi*: U.S. Patent Pub. 2015/0011318

Takahashi is prior art under §102(a)(2) because it was effectively filed November 27, 2012. Ex-1007, [22]. Under 35 U.S.C. §102(d)(2), *Takahashi*’s effective filing date is based on prior-filed application PCT/JP2012/007595 (“*Takahashi-Priority-Application*”). The *Takahashi-Priority-Application* is Ex-1008. A certified English translation of the *Takahashi-Priority-Application* is Ex-1009. *Takahashi* is entitled to the benefit of the *Takahashi-Priority-Application* filing date. Ex-1002 ¶197, Appendix C.

C. *Tsushima*: U.S. Patent Pub. 2014/0006485

Tsushima is prior art under §102(a)(2) because it was filed May 22, 2013. Ex-1010, [22].

D. *Gumbula*: U.S. Patent 9,591,083

Gumbula is prior art under §102(a)(2) because it was filed November 23, 2005. Ex-1011, [22].

E. *Stafford*: U.S. Patent Pub. 2012/0017236

Stafford is prior art under §102(a)(2) because it was filed July 13, 2010. Ex-1012, [22].

V. 37 C.F.R. §42.104(B)(3): CLAIM CONSTRUCTION

Terms should be given their plain meaning. Petitioner reserves the opportunity to respond to constructions offered by Patent Owner or adopted by the Board.

VI. LEVEL OF ORDINARY SKILL

A person of ordinary skill in the art (“POSITA”) at the time of the alleged invention of the ’376 patent would have a bachelor’s degree in electrical or computer engineering or computer science or a comparable field of study, plus approximately two years of professional experience in the field of computer and/or network design and security or other relevant industry experience. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education. Ex-1002 ¶31.

A POSITA would have had knowledge of network communication, user interfaces, and distributed architectures as well as references relating to many well-known network technologies. Ex-1002 ¶34.

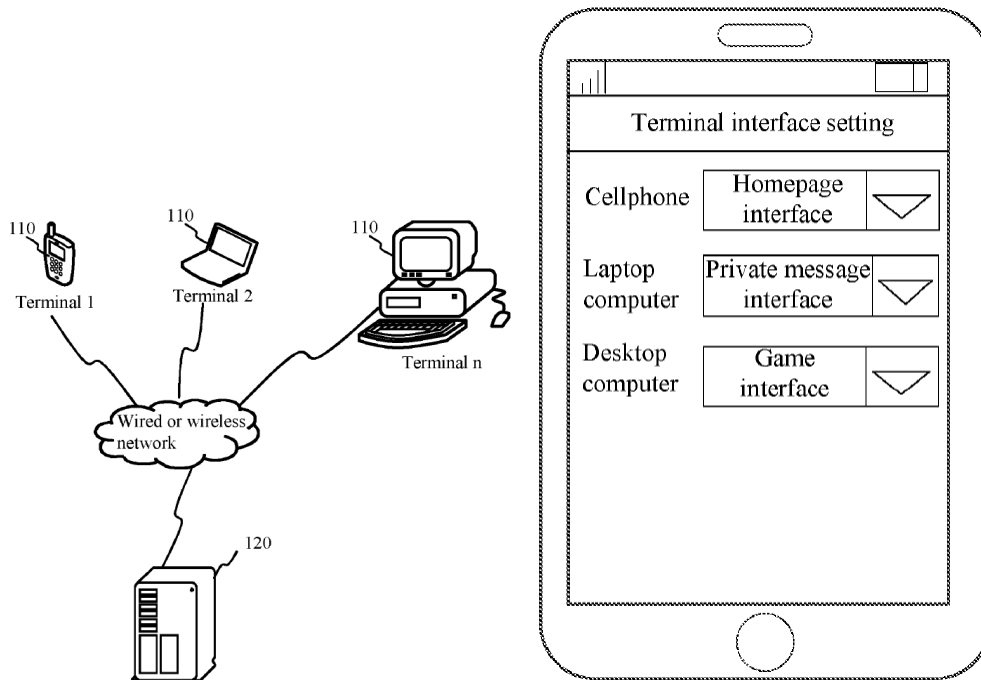
VII. RECITATION OF THE CHALLENGED CLAIMS

A recitation of the challenged claims is provided in Appendix A.

VIII. GROUND 1: CLAIMS 1-4, 9, 13-14, 16, AND 23-25 ARE OBVIOUS IN VIEW OF *ZHA* AND POSITA’S KNOWLEDGE

A. Overview: *Zha*

Zha allows a user to simultaneously log in to one application with the same account via two or more terminals. Ex-1004, 2:59-62. Ex-1002 ¶52. “[A]ccess permissions for accessing different functional interfaces are assigned to terminals which simultaneously run the same application program with the same account, and data corresponding to each of the functional interfaces is only assigned to a terminal having an access permission for accessing the functional interface.” Ex-1004, 5:45-50. The terminals may be, e.g., a cell phone, a laptop computer, or a desktop computer. Ex-1004, Figure 1. The terminals may be setup to display one or more interfaces: homepage, private message, or game interfaces.



Ex-1004, Figures 1, 5B. Ex-1002, ¶53.

In Figure 5B, upon log in, the cellphone is given homepage access, the laptop is given private message access, and the desktop computer is given game access.

Ex-1004, 7:33-44. Ex-1002, ¶54.

Zha's server ("in the form of software, hardware or a combination of both") determines where (at which terminals) the user is logged into the application and what data to transmit to each terminal. Ex-1004, 22:43-62, Figure 6B. Ex-1002 ¶55. When the user is logged into more than one terminal, the server assigns "distinct" interfaces to each terminal and transmits different data to each terminal. Ex-1004, 22:49-62. Ex-1002 ¶¶55-56.

B. Claim 1

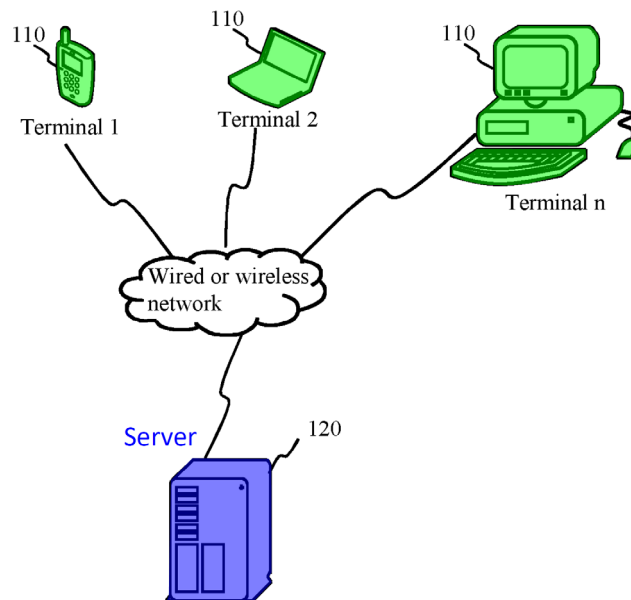
Claim 1 is rendered obvious by *Zha* and POSITA's knowledge. Ex-1002 ¶¶57-92.

1. Element [1Preamble]⁴

Zha discloses a method for sending data to first and second terminals, with reference to Figure 2B. Ex-1004, 5:10-38. Ex-1002 ¶¶57-58.

2. Element [1a]

Zha discloses this element. *Zha*'s functional interface data is "a set of information" stored at server 120. Ex-1004, 4:22-24.



⁴ Petitioner addresses preambles herein to the extent they are limiting.

Ex-1004, Figure 2 (annotated).⁵ Ex-1002 ¶59.

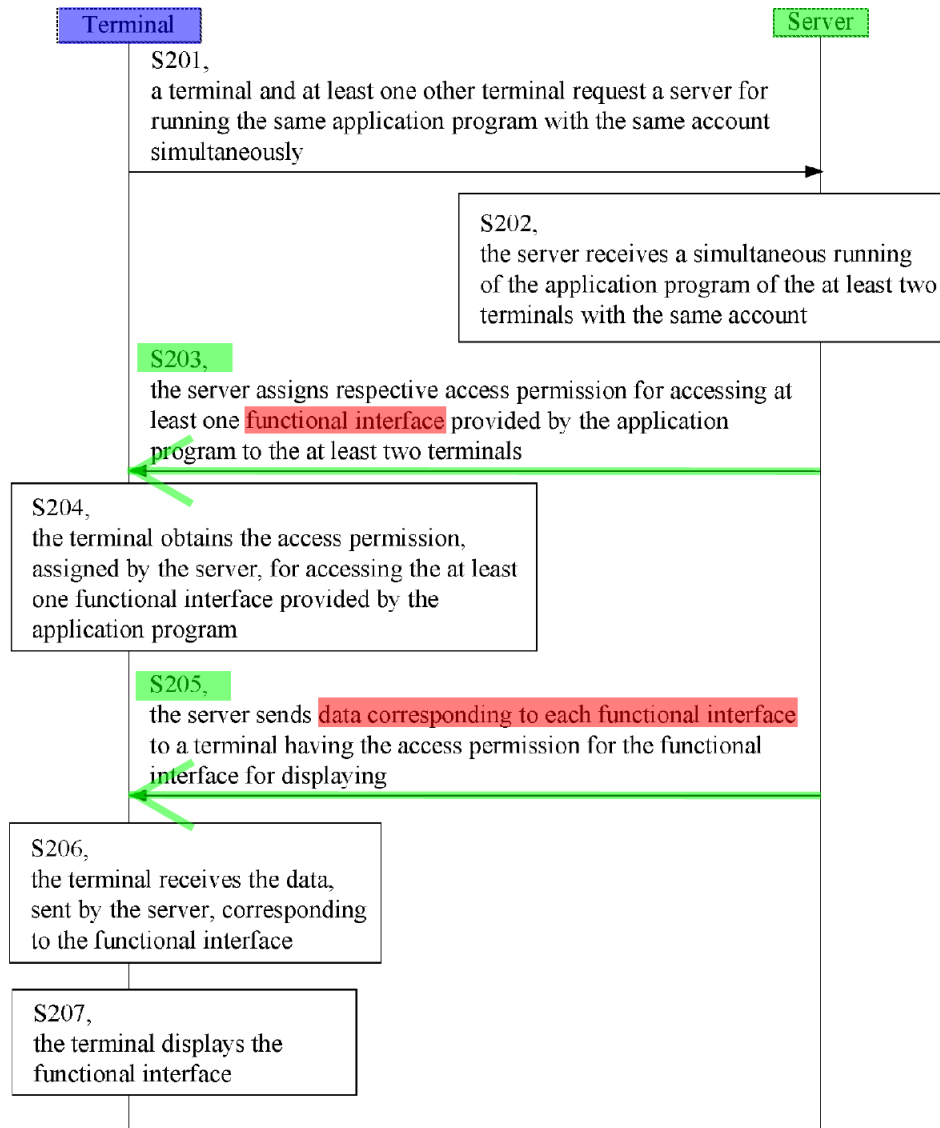
Zha's server may be software, hardware, or a combination; it sends functional interface data to the terminals. Ex-1004, 4:36-44, 5:35-37, 22:45-46, 29:11-17. The functional interface data stored at *Zha*'s server is “electronically storing a set of information at a server.” Ex-1002 ¶60.

3. Element [1b]

Zha discloses this element. Ex-1002 ¶70. *Zha* discloses identifying distinct subsets of information defined by individual functional interfaces. *Zha*'s private message interface data corresponds to the “second subset of information,” and other functional interface data (homepage and game interface data) corresponds to the “first subset of information.” Ex-1004, 18:66-19:13. Ex-1002 ¶63.

The server necessarily identifies the data subsets related to the functional interfaces prior to sending that data in step S205 in Figure 2B:

⁵ All highlighting, colors, and emphasis added to patent text or figures herein has been added by Petitioner. Any such citations should be understood to include an “(annotated)” or “(emphasis added)” parenthetical.



Ex-1004, Figure 2B, 5:22-27. Ex-1002 ¶¶64-65.

Zha's microblog application corresponds to the "same application." Ex-1004, 7:33-44, 17:48-53, 18:11-17, 19:3-13; *see also* Ex-1004, Abstract ("determining a first terminal and a second terminal currently *using the same application* with the same account;"). *Zha*'s functional interface data is "specific to that application" because the interfaces are associated with the microblog application. Ex-1002 ¶68.

Zha discloses the application at the server generates the functional interface data. Ex-1004, 18:66-19:13. Ex-1002 ¶69.

4. -Element [1c]

Zha's server determines whether a user has used one account to log into the microblog application using two terminals. "In step 202 [of Figure 2B], a server receives the simultaneous running of the same application program of the at least two terminals with the same account." Ex-1004, 5:19-21. The two terminals are "in possession of and being directly operated by" the logged in user. Ex-1002 ¶¶73-74. *Zha* discloses a login process to determine whether a single user has logged into the same microblog application at two terminals. Ex-1004, 18:41-49. *Zha*'s login process discloses a determination the two terminals are accessible "based on the first user being logged into the application at both the first and second devices." Ex-1002 ¶75.

If the Board determines otherwise, it would be obvious based on a POSITA's knowledge to include, in *Zha*, a determination "based on the first user being logged into the application at both the first and second devices." A POSITA understands *Zha*'s login process may be used with standard login processes. A POSITA would have known login processes provide access to an application administered by a server through a terminal by which the user has logged in. Ex-1002 ¶76.

Evidence of a POSITA's knowledge is provided, e.g., in prior art *Tsushima* and *Takahashi*. As explained in Grounds 2 and 8, *Tsushima* discloses a user may use account information to login to a service provided by the server through both a terminal 100 (mobile phone) and a personal computer 300 using a user ID and password. Ex-1010, [0057], [0041], Figure 7A. As explained in Ground 7, *Takahashi* also discloses a user logged in at more than one terminal. Ex-1007, [0109]-[0110], [0114]. A POSITA would have general knowledge a server could be configured to determine whether a user has successfully logged in at multiple terminals, rendering those terminals accessible, and thereafter provide one or both terminals with access to an application. Ex-1002 ¶77.

A POSITA would be successful in including the “user being logged into the application at both the first and second devices” in *Zha*'s system for myriad reasons. Ex-1002 ¶78. As an example, *Zha*'s desire to “reduc[e] the network traffic occupied in assigning the data corresponding to different functional interfaces to the terminals” (Ex-1004, 2:67-3:4) would motivate a POSITA to find other ways to reduce network traffic, such as by restricting access to the application and only sending corresponding information to logged in users. Ex-1002 ¶78.

Zha's terminals communicate with the server over a wired or wireless network, i.e., are “accessible over at least one electronic communications network.” Ex-1004, 4:22-29. Ex-1002 ¶79.

5. -Element [1d]

Zha discloses this element. *Zha* discloses transmitting distinct subsets of information defined by individual functional interfaces to both terminals if and only if both terminals are accessible by the server. *Zha*'s server sends private message interface data ("second subset of information") to a cellphone ("second device") and other functional interface data, such as for the homepage and game interfaces, ("first subset of information") to a desktop computer ("first device"). Ex-1004, 18:66-19:13. Ex-1002 ¶81.

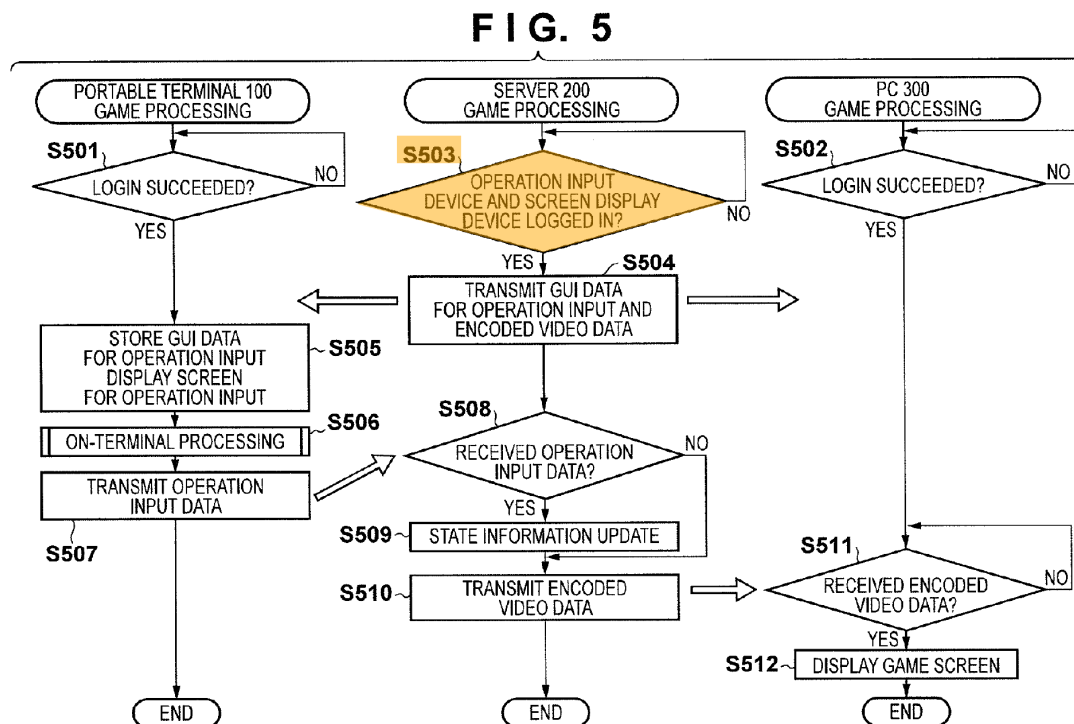
Zha's server sends a "private message only to the cellphone" but sends other non-private message data to the desktop computer. Ex-1004, 18:63-19:13. *Zha*'s "second subset of the information includes information not transmitted to the first device." Ex-1004, 19:13-19, 5:22-27, Figure 2B (S203, S205), 18:66-19:13. Ex-1002 ¶¶82-84.

Zha discloses the "if and only if" claim element because (1) *Zha*'s server transmits distinct data to both terminals when the server determines both terminals are accessible by the server (i.e., after the user has logged in with both terminals); and (2) *Zha*'s server does not transmit distinct data to both terminals when the server determines both terminals are not accessible by the server. Ex-1002 ¶¶85-86.

Zha's disclosure of sending data to only one terminal when only one terminal is accessible and logged in (Ex-1004, 8:40-44) complies with the "if and only if"

claim requirement because, in that case, (1) the condition of two terminals being accessible is not satisfied and (2) the server does not send different subsets of information to two terminals (i.e., does not perform what follows the “then:” in the claim). Ex-1002 ¶¶87.

Alternatively, it would be obvious to include the “if and only if” functionality in *Zha*’s system based on a POSITA’s knowledge. A POSITA understands that a server could be programmed to determine whether a user has successfully logged in via both terminals and refrain from transmitting data to either or both terminals until both are logged in. *Tsushima* (Ex-1010) discloses this arrangement at step S503 in Figure 5. Ex-1010, [0059], [0061]-[0063]. Ex-1002 ¶¶88-89.



Ex-1010, Figure 5.

Tsushima shows a POSITA would be successful implementing an “if and only if” function in *Zha*’s system. A POSITA would use this function in *Zha* because (1) *Zha* expressly discloses its system is directed to a user using “two or more terminals simultaneously” and (2) *Zha* sought to avoid unwanted disturbances on one or more of those devices by sending private messages to a user’s mobile terminal. Ex-1004 at 4:17-21, 19:13-19. Ex-1002 ¶90. *Zha*’s goal of reducing disturbances on the desktop computer would motivate a POSITA to implement the “if and only if” function and require both the desktop computer and the mobile computer to be logged in and accessible prior to sending any functional interface data. Ex-1002 ¶91.

Claim 1 is rendered obvious by *Zha* alone or in combination with a POSITA’s knowledge. Ex-1002 ¶92.

C. Claim 2

Zha discloses this claim. A portion of the first subset of information transmitted to the first device in claim 1 is also transmitted to the second device. Ex-1002 ¶93.

Zha’s server initially transmits “main interface” information to all terminals after a login request. Ex-1004, 18:41-49. Thereafter, the terminals make access requests and the server transmits a different functional interface to each terminal, as explained for claim 1. Ex-1002 ¶94.

The “first subset of information” in claim 1 (transmitted to the desktop computer) includes the main interface data, homepage interface data, and game interface data. The server also transmits the main interface data (a “portion” of the first subset) to the cellphone (and then transmits the private message interface data to the cellphone). Thus, “at least a portion” of the first subset of information (i.e., main interface data) is transmitted to the “second device.” Ex-1002 ¶96.

Alternatively, the first subset of information is the main interface information and is sent to both devices (e.g., the desktop computer and the cellphone). Here, “at least a portion” of the first subset is transmitted to the second device because “all” of the first subset satisfies the plain meaning of “at least a portion.” Ex-1002 ¶97.

The “only if” limitation is a subset of the “if and only if” requirement of claim 1. *Zha* renders this “only if” limitation obvious for the same reasons as discussed above for claim 1. Ex-1002 ¶98.

D. Claim 3

Zha discloses this claim. *Zha*’s private message interface data is the “sensitive information.” Ex-1004, 18:66-19:13. Private message data is inherently more sensitive than information not identified as private such as homepage information. Ex-1002 ¶99.

Zha’s server sends the private message (sensitive) to the cellphone terminal (“second device”). Ex-1004, 18:66-19:13. *Zha*’s server sends the homepage

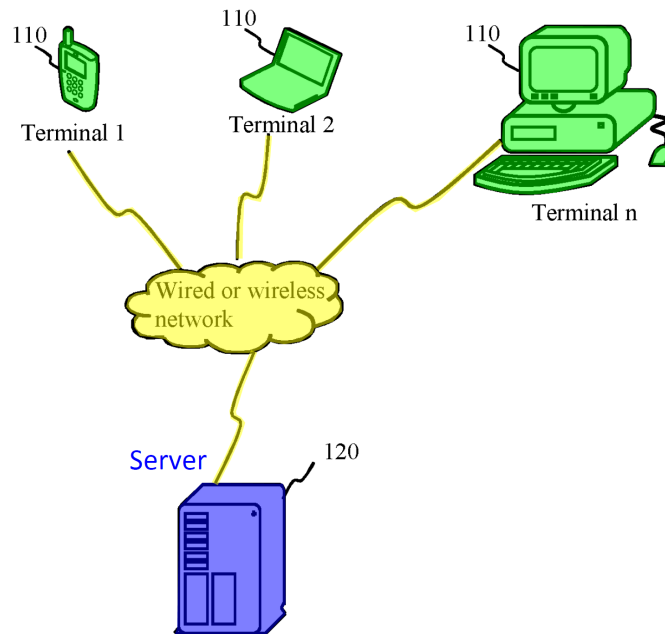
(non-sensitive) information to the desktop computer (“first device”). Ex-1004, 18:63-65, 19:4-13. Ex-1002 ¶100.

E. Claim 4

Zha discloses this claim. Each terminal only receives the data corresponding to the functional interfaces to which each terminal has access. Ex-1004, 16:62-17:1. Information that includes private message data is inherently more sensitive than information not including private message data such as homepage information. *Zha*’s server only sends the private message to the cellphone, which corresponds to the “second device,” and not to the desktop computer, which corresponds to the “first device.” Ex-1004, 18:66-19:13. The private message corresponds to the “more sensitive” information. Ex-1002 ¶101.

F. Claim 9

Zha discloses this claim. “The at least two terminals 110 may be connected with the server 120 through a *wired network or a wireless network.*” Ex-1004, 4:27-29.



Ex-1004, Figure 1. Ex-1002 ¶102.

One terminal 110 may communicate with the server 120 via a wireless network, and another terminal 110 may communicate with the server 120 via a wired network. Ex-1004, 4:25-27. A wired network is independent from a wireless network. *Zha* discloses claim 9. Ex-1002 ¶103.

Alternatively, this limitation is obvious based on a POSITA's knowledge. A cellphone communicates across a wireless network and a desktop computer ordinarily uses a wired network, which is distinct and independent of the cellular network employed by a cellphone terminal. As explained for claim 9 in Ground 7, the *Wakeford* prior art (Ex-1013) is further evidence a POSITA would know that servers in multi-client, client-server applications (such as *Zha*) are capable of

transmitting information “over independent electronic communications networks” using known techniques. Ex-1002 ¶104.

In view of *Zha*’s disclosure that “[t]he server 120 may be connected to each of the at least two terminals 110 through a **wired network or a wireless network**” (Ex-1004, 4:36-38, Figure 1) and a POSITA’s knowledge, *Zha* discloses “independent electronic communications networks.” Ex-1002 ¶105.

G. Claim 13

Zha discloses this claim. *Zha*’s desktop computer is the “first device” and the cellphone is the “second device.” Ex-1002 ¶106.

Zha also discloses displays on the desktop computer and the cellphone are exclusively viewed by the user. “In practical implementations, in a case **the user** has multiple terminals, **the user** may request the server for running an application program with **one account** in at least two terminals simultaneously.” Ex-1004, 6:53-61, 5:59-67. A POSITA would understand that the private message interface would be viewed exclusively by the single user for whom the private messages are intended. Ex-1002 ¶107.

H. Claim 14

Zha discloses this claim. *Zha* makes no reference to employing two factor authentication codes. Ex-1002 ¶108.

I. Claim 16

Zha discloses this claim. Ex-1002 ¶¶109-115.

1. Element [16Preamble]

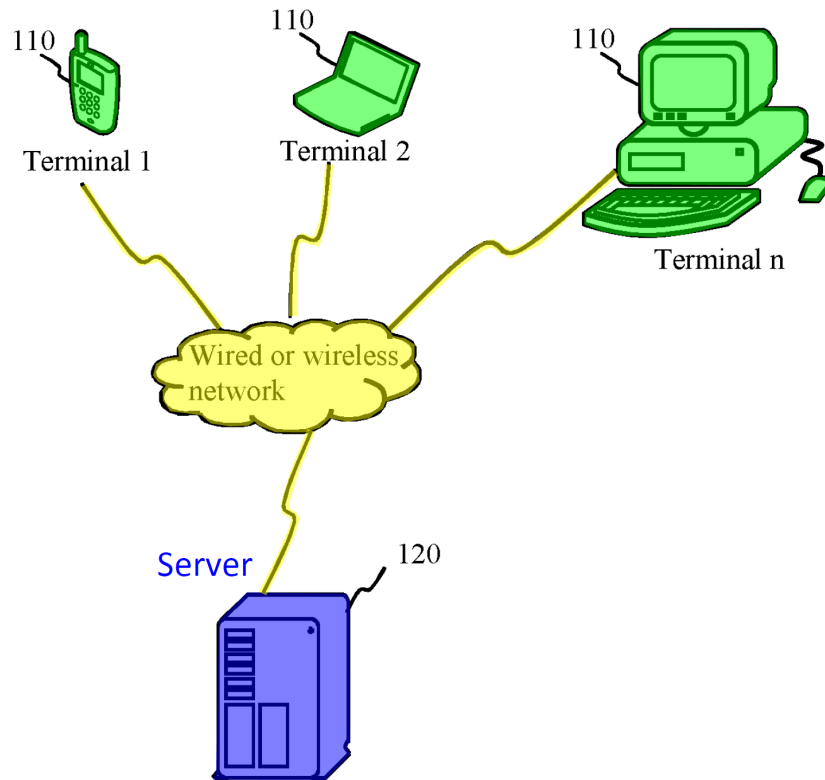
Zha discloses the method of claim 1, as discussed above. Ex-1002 ¶¶ 57-92.

2. Element [16a]

Zha discloses element [16a]. “[M]icroblog may provide a homepage functional interface, a private message functional interface and a ***game functional interface***.” Ex-1004, 7:32-44, Figure 1. *Zha* discloses a server managing an “*online*” game because the terminals are connected to the server over a network. Ex-1004, 4:27-29. Ex-1002 ¶110.

3. Element [16b]

Zha’s server is configured to communicate with “a first electronic device and a second electronic device” where “[a]t least two terminals 110, which run an application program with the same account simultaneously, and a server 120 may be included in the implementation environment, as is shown in FIG. 1.” Ex-1004, 4:22-29.



Ex-1004, Figure 1; *see also* Ex-1004, 4:36-44. Ex-1002 ¶¶110-111.

Zha discloses element [16b] where the desktop computer is the “first electronic device” and the cellphone is the “second electronic device.” Ex-1002 ¶112.

4. Element [16c]

Zha discloses element [16c]. The desktop computer is the “first electronic device [and] is primarily used to play the game” where “the server may assign an access permission for accessing the game interface to the desktop computer.” Ex-1004, 7:42-44. The desktop computer is not assigned any other functional interfaces, and thus is primarily used to play the game. Ex-1002 ¶113.

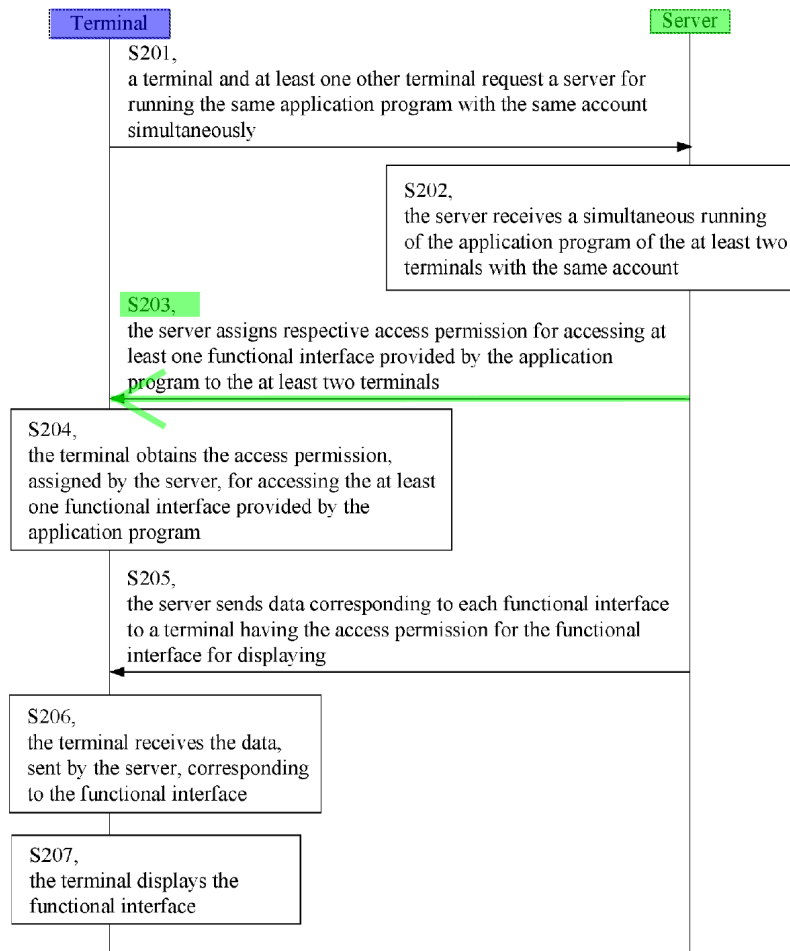
5. Element [16d]

Zha discloses element [16d]. *Zha*'s server only sends the private message to the cellphone, which corresponds to the "second device," and not to the desktop computer, which corresponds to the "first device." Ex-1004, 18:66-19:13. Private message data is inherently sensitive information and a POSITA understands message data is transmitted to be presented to the user (i.e., the message recipient). Ex-1002 ¶¶114-115.

J. Claim 23

Zha discloses this claim. An access permission corresponds to the "parameter." "[D]ata corresponding to each of the functional interfaces is only assigned to a terminal having an access permission for accessing the functional interface..." Ex-1004, 5:48-53. Ex-1002 ¶116.

The server assigns access permissions at step S203:



Ex-1004, Figure 2B. Ex-1002 ¶117.

“In step 203 [Figure 2B], the server assigns respective access permission for accessing at least one functional interface provided by the application program to the at least two terminals. A functional interface assigned to a current terminal of the at least two terminals is distinct from a functional interface assigned to any other of the at least two terminals.” Ex-1004,5:22-27. Because the access permissions are distinct for each terminal, the access permissions correspond to a “parameter”

indicating whether subsets of information are to be divided between two or more terminals. Ex-1002 ¶118.

K. Claim 24

Zha discloses this claim. Homepage, private messaging, and game functional interface data are each “subsets of information [that] are application specific” and “derive from functions within a specific application.” Ex-1002 ¶119.

Zha’s microblog application is the “specific application.” Ex-1004, 7:33-44, 17:48-53, 18:11-17, 19:3-13. *Zha*’s functional interface data is “specific to that application” because that data is part of the microblog application. That data is also “derive[d] from functions within” the microblog application, e.g., by a private messaging function, a homepage function, and a gaming function. Ex-1002 ¶¶120-121.

L. Claim 25

Zha discloses this claim. Ex-1002 ¶¶122-132.

1. Element [25Preamble]

Zha discloses this element. A server (“system”) sends data to a first terminal and a second terminal (“multiple electronic devices”). Ex-1004, 4:22-24, 22:16-33, Figure 1. Ex-1002 ¶¶122-123.

2. Element [25a]

Zha discloses this element. “[T]he server may be in the form of software, hardware or a combination of both” (Ex-1004, 22:45-47), which corresponds to the

“electronic data store.” *Zha*’s server is configured to electronically store functional interface data, i.e., “electronically storing a set of information at the server.” Ex-1004, 4:36-44, 29:11-17. Ex-1002 ¶124.

Zha discloses a “server corresponding to an application program for running the application program with an account in a terminal.” Ex-1004, 17:44-46. *Zha*’s server is configured to electronically store access permissions and functional interface data, i.e., “electronically storing a set of information at the server.” Ex-1002 ¶125.

3. Element [25b]

Notably, “the first and second subsets of information” lacks antecedent basis. If this phrase refers to “a first subset of the information” and “a second subset of the information” that appear later in the claim, *Zha* discloses this because the same limitation is found in claim 1 and a similar limitation is found in claim 24. *Zha* discloses this element as explained for claim elements [1b] and [24a]. Ex-1002 ¶¶126-127.

4. Element [25c]

Zha discloses this element. *Zha*’s server is a combination of hardware and software for running an application program (Ex-1004, 17:44-46, 22:45-47), such as microblog (Ex-1004, 1:25). *Zha*’s server corresponds to the “processor device programmed for.” A server necessarily includes a processor programmed to perform

the server's functions. Evidence of this general knowledge is throughout the other prior art references cited in this petition including, e.g., *Takahashi* (Ground 7), which discloses a processor (CPU) as part of the game server. Ex-1007, [0062]. Ex-1002 ¶¶128-129.

5. Element [25d]

This element is also found in claim 1. *Zha* discloses this element as explained for claim element [1b]. Ex-1002 ¶130.

6. Element [25e]

This element is also found in claim 1. *Zha* discloses this element as explained for claim element [1c]. Ex-1002 ¶131.

7. Element [25f]

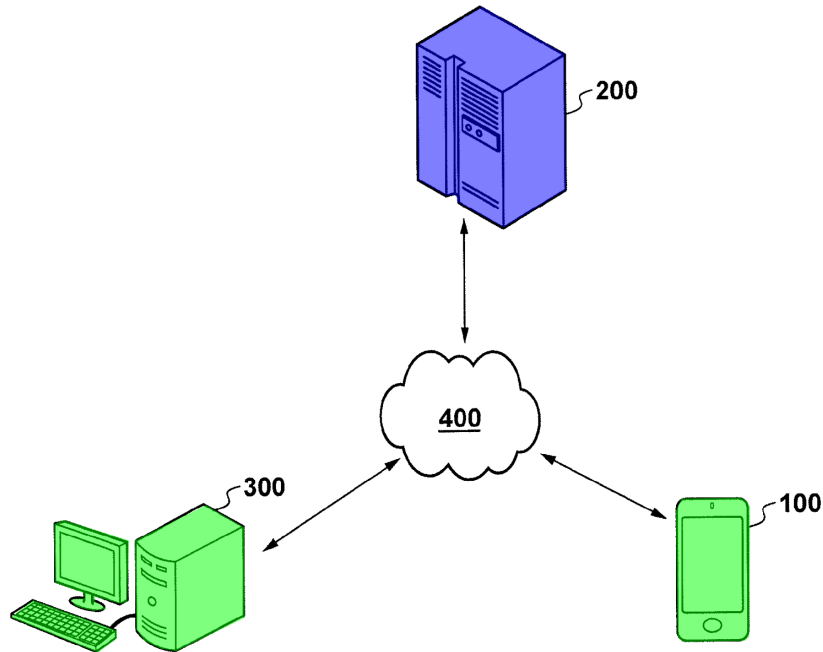
This element is also found in claim 1. *Zha* discloses this element as explained for claim element [1d]. Ex-1002 ¶132.

IX. GROUND 2: CLAIMS 1-4, 9, 13-14, 16, AND 23-25 ARE OBVIOUS IN VIEW OF *ZHA*, POSITA'S KNOWLEDGE, AND *TSUSHIMA*

A. Overview of *Tsushima*

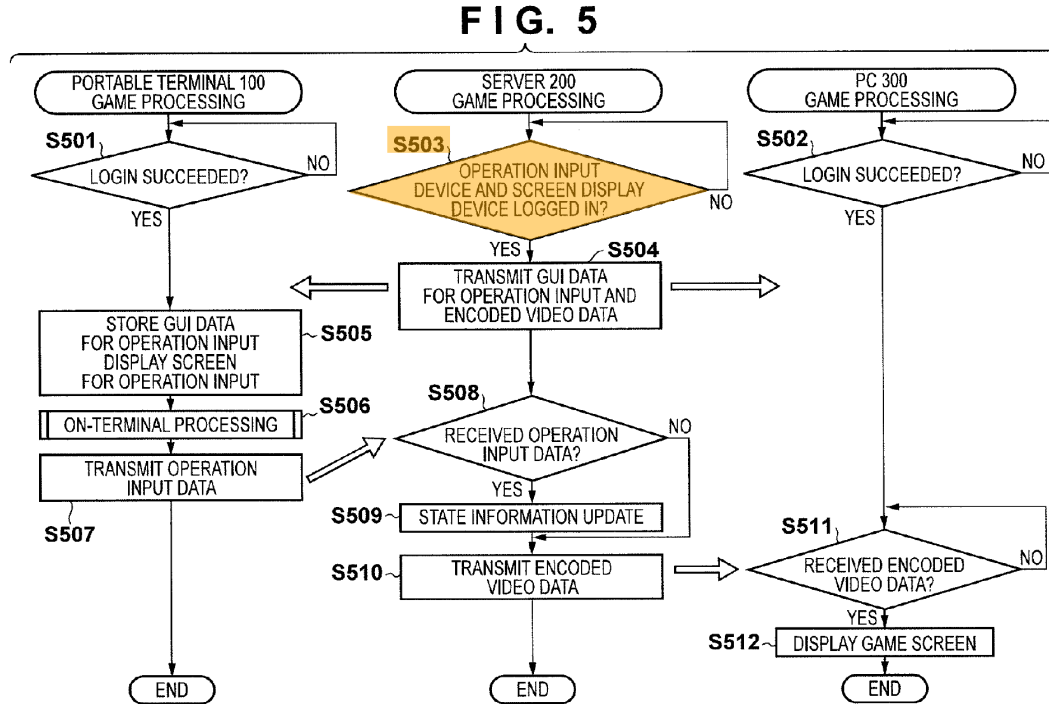
Tsushima is directed to a “content providing system and control method thereof.” Ex-1010, [54]. *Tsushima*'s Figure 1 embodiment is “a content providing system including a server 200 which distributes game content, a portable terminal 100 functioning as a first device that receives an operation input, and a PC 300 functioning as a second device that displays a screen distributed from the server.”

Ex-1010, [0022]. “[S]erver 200 and the portable terminal 100, and the server 200 and the PC 300 are connected via a network 400 such as the Internet.” Ex-1010, [0025].



Ex-1010, Figure 1. Ex-1002 ¶134.

Server 200 distributes game content, the portable terminal 100 functions as a first device that receives an operation input, and the PC 300 functions as a second device that displays a game screen distributed from the server. Ex-1010, [0022]. A user may use account information to login to a service provided by the server through both the terminal 100 and the PC 300. Ex-1010, [0057]. “In step S503 [Figure 5], the server CPU 201 determines whether or not login to a service succeeded on both an operation input device (the portable terminal 100) and a screen display device (the PC 300) for a user ID that is a target of service provision.” Ex-1010, [0059].



Ex-1010, Figure 5; Ex-1010, [0027]. Ex-1002 ¶¶135-136.

B. Claim 1

1. Elements [1Preamble]-[1c]

Zha discloses elements [1Preamble]-[1c] as noted in Ground 1. Ex-1002 ¶¶137-145.

2. Element [1d]

Zha discloses this element as noted in Ground 1. Ex-1002 ¶146.

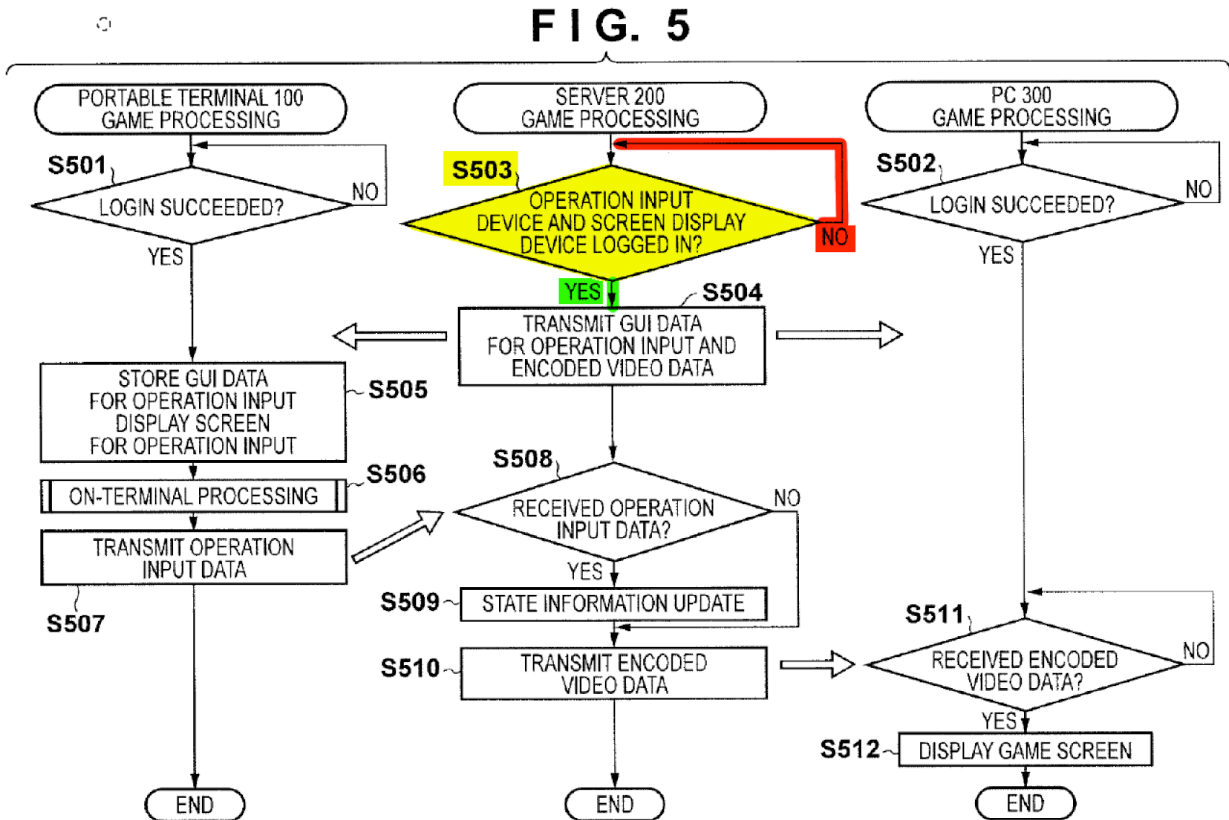
Tsushima discloses transmitting subsets of data to two terminals if and only if the server has determined the user has logged in via both terminals. It is obvious to modify *Zha* to transmit data to the first and second terminals if and only if the server has determined the user has logged in to both terminals, as disclosed by *Tsushima*. Ex-1002 ¶147.

Zha and *Tsushima* address very similar technologies. *Zha* discloses a private message interface of a microblog application program for display on a cellphone and a game interface for display on a desktop computer (Ex-1004, 7:32-44) and *Tsushima* similarly displays game screens on the PC 300 and a communication interface on the portable terminal 100. Ex-1010, [0037], [0054]. *Zha*'s terminals 110 are similar in functionality to *Tsushima*'s terminals. Likewise, *Zha*'s server is similar in functionality to *Tsushima*'s server. *Zha* discloses communication over a "wired or wireless network," and *Tsushima* discloses "a network 400 such as the Internet." Ex-1010, [0025]. Ex-1002 ¶148.

A POSITA would be motivated to modify *Zha*'s first and second terminals to include *Tsushima*'s operation input device (the portable terminal 100) and a screen display device (the PC 300) with a reasonable expectation of success. *Tsushima* provides for a game, which is executed on a PC, and another registered portable terminal, such as a mobile phone, which is used as an operation interface (Ex-1010, [0010]), by providing "different features of game content respectively to the portable terminal 100 and to the PC 300." Ex-1010, [0025]. Ex-1002 ¶149.

Tsushima discloses the "if and only if" element of claim 1. *Tsushima*'s server determines whether a user has successfully logged in at both terminals and refrains from transmitting data to either or both terminals until both are logged in. Ex-1010, [0059]. As shown in Figure 5, "when [the server] determines [at S503] that login has

not succeeded for both devices, it repeats the processing of this step.” Ex-1010, [0061] (red). Ex-1002 ¶150.



Ex-1010, Figure 5. Ex-1002 ¶150.

“If and only if” both devices have successfully logged in (e.g., “YES” [green]...), *Tsushima* expressly discloses transmitting different subsets of data in step S504 to (1) the operation input device (the portable terminal 100) and (2) a screen display device (the PC 300). Ex-1010, [0062]-[0063]. Ex-1002 ¶151.

A POSITA would have used *Tsushima*'s "if and only if" function in *Zha*'s system because (1) *Zha* expressly discloses that its system is directed to a user using "two or more terminals simultaneously" and (2) *Zha* sought to avoid unwanted disturbances on one or more of those devices by sending private messages to a user's mobile terminal. Ex-1004 at 4:17-21; Ex-1004 at 19:13-19. Ex-1002 ¶152.

Zha's goal of reducing disturbances on the desktop computer would motivate a POSITA to implement the "if and only if" function in *Zha*. A POSITA would be successful in requiring both the desktop computer and the mobile computer to be logged in prior to sending any functional interface data because *Zha* does not send data until after a user has logged in. *Tsushima*'s "if and only if" functionality is a known technique, and a POSITA would successfully implement this technique in *Zha* to yield predictable results. Ex-1002 ¶153.

Claim 1 is rendered obvious by *Zha*, a POSITA's knowledge, and *Tsushima*. Ex-1002 ¶154.

C. Claims 2-4, 9, 13-14, 16, and 23-25

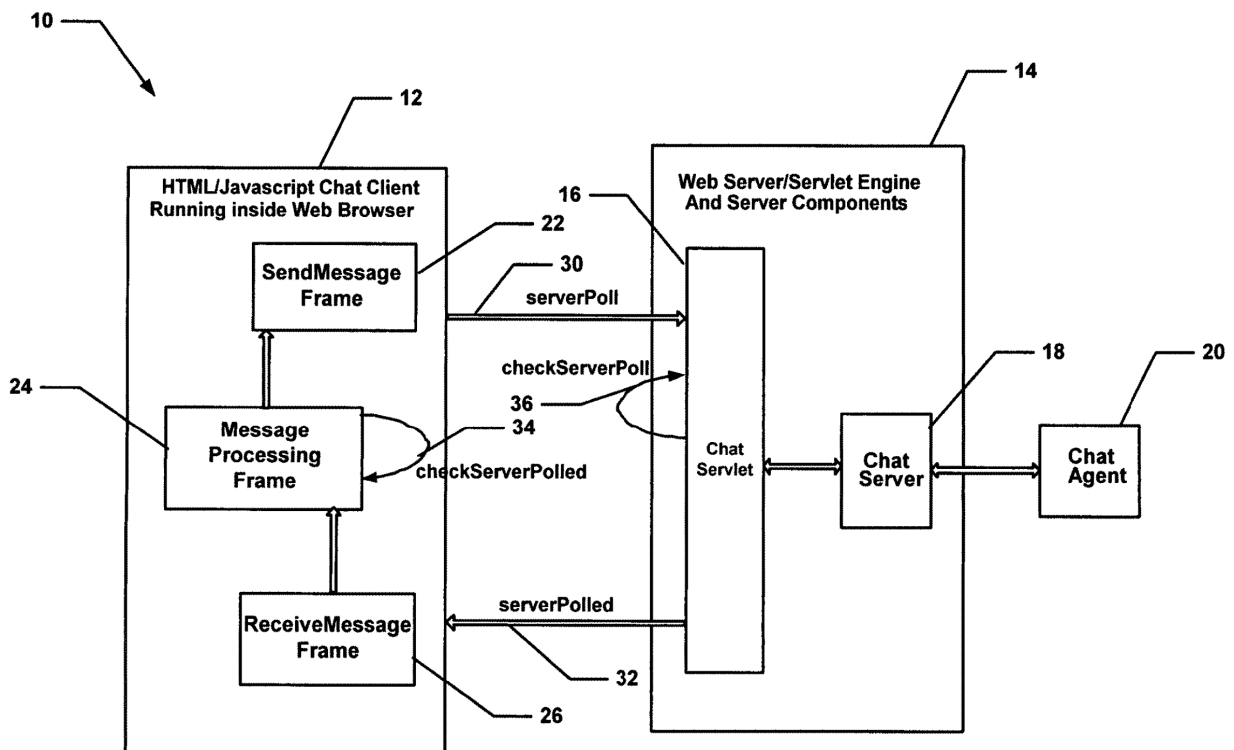
As noted in Ground 1, *Zha* discloses the elements of claims 2-4, 9, 13-14, 16, and 23-25. Alternatively, these claims are rendered obvious by the combination of *Zha*, a POSITA's knowledge, and *Tsushima*'s "if and only if" functionality. Ex-1002 ¶155.

X. GROUND 3: CLAIMS 5 AND 15 ARE OBVIOUS IN VIEW OF ZHA, POSITA’S KNOWLEDGE, AND GUMBULA

A. Overview of *Gumbula*

Gumbula discloses connection monitoring and recovery for internet-based chat sessions and text conferencing between a chat client and a server. Ex-1011, Abstract. “Heartbeat messages are exchanged between the chat client and the server at predetermined time intervals. When a failure to receive a heartbeat message for longer than one of the predetermined time intervals, then a lost connection message is provided to at least one of the server and client.” Ex-1011, Abstract. Ex-1002 ¶157.

Figure 1 of *Gumbula* shows an “environment 10 which provides connection recovery for a chat session.” Ex-1011, 3:67-4:1.



Ex-1011, Figure 1. Ex-1002 ¶158.

“The system includes a chat client 12, in this embodiment realized as an HTML/JavaScript chat client running inside a browser. ...” Ex-1011, 4:1-14. Ex-1002 ¶159. “Chat Client 12 and a Chat Servlet 16 run[] inside the Servlet Engine 14 [and] exchange heartbeat messages during a configurable poll interval. Both the client 12 and server 14 components are configured to check for the heartbeat messages every configurable check interval (greater than a poll interval).” Ex-1011, 4:26-33. Ex-1002 ¶160. “If either client 12 or the server component 14 does not see a heartbeat message during the check interval then the client 12 displays the message ‘Lost connection to the server, retrying . . .’ and the server component 14 sends a message to the agent 20 ‘Client has lost connection to the server, retrying . . .’.” Ex-1011, 4:44-49. Ex-1002 ¶161.

B. Motivation to Combine *Zha*, POSITA’s Knowledge, and *Gumbula*

It is obvious to modify with a reasonable expectation of success *Zha*’s private message functional interface (i.e., Ground 1) to include *Gumbula*’s connection monitoring and recovery for chat sessions. Ex-1002 ¶162.

Zha’s private message interface may be used to send a private message to a friend (Ex-1004, 1:28-32) and *Gumbula* similarly relates to “chat sessions [that] are a text-conferencing capability via the Internet allowing real-time communication between two users via computer.” Ex-1011, 1:7-9. A POSITA would expect success

where private messaging and chat sessions are functionally similar, *Zha*'s terminals are functionally similar to *Gumbula*'s chat client 12, and *Zha*'s server is functionally similar to *Gumbula*'s server. Moreover, *Zha* discloses communication over a “wired or wireless network” and *Gumbula* “includes recovery of the communication failures between the client running in the Internet browser and the backend server component hosted in the web server.” Ex-1011, 1:67-2:2. A POSITA would expect successful modification where *Zha* and *Gumbula* are directed to similar technological endeavors and have similar scope. Ex-1002 ¶163.

Gumbula explains that clients (terminals) in a client-server model send and receive private chat messages over a network. Ex-1011, 1:15-29. Ex-1002 ¶164.

Gumbula explains a problem in that “conventional solutions available [in 2005 did] not transparently recover a lost Hyper-Text transmission Protocol (HTTP) connection between the server and the client, nor notify the status of the connection to the parties involved.” Ex-1011, 1:56-60. A POSITA would recognize that lost connections between the server and the terminal/client diminish an ability to reliably send private messages, e.g., using *Zha*'s private message functional interface. A POSITA would be motivated to provide *Zha*'s private message functional interface with *Gumbula*'s connection monitoring and recovery for chat sessions. Ex-1002 ¶165.

A POSITA would have a reasonable expectation of success in adding *Gumbula*'s connection monitoring and recovery to *Zha*'s private message interface. *Zha*'s private message functional interface and *Gumbula*'s chat application are both based on client-server architectures. Implementing *Gumbula*'s connection monitoring and recovery in *Zha* would simply require adding *Gumbula*'s server functionality for connection monitoring and recovery to *Zha*'s server and *Gumbula*'s client functionality for connection monitoring and recovery to *Zha*'s client. The additional functionality would supplement *Zha*'s functionality and would not interfere with *Zha* because *Zha* does not address disconnection events or connection monitoring/recovery. Implementing *Gumbula*'s known technique related to chat applications would be reasonably expected to improve *Zha*'s similar private messaging application in the same way (i.e., providing connection monitoring and recovery). Ex-1002 ¶166.

In addition, because *Zha* does not disclose connection monitoring and recovery, a POSITA would recognize *Zha*'s private messaging as a system that is ready to be improved based on *Gumbula*'s disclosure that “conventional solutions today do not transparently recover a lost ... connection between the server and the client, nor notify the status of the connection to the parties involved.” Ex-1011, 1:56-60. Consequently, a POSITA would be motivated to apply *Gumbula*'s known connection monitoring and recovery technique to *Zha*'s system and would have had

a reasonable expectation of success. This combination would yield predictable results (i.e., a more robust and less frustrating private messaging system as described in *Gumbula*). Ex-1002 ¶167.

C. Claim 5

Claim 5 is obvious in view of *Zha*, a POSITA's knowledge, and *Gumbula*. Ex-1002 ¶168.

Gumbula discloses the elements of claim 5. In *Gumbula*, a disruption to the connectivity between the server and a client/terminal is determined by exchanging heartbeat messages and checking whether the heartbeat messages were exchanged successfully. Ex-1011, 4:26-29, 4:37-44. *Gumbula*'s heartbeat message exchange is “determining if connectivity between the server and the second device has been disrupted.” Ex-1002 ¶169.

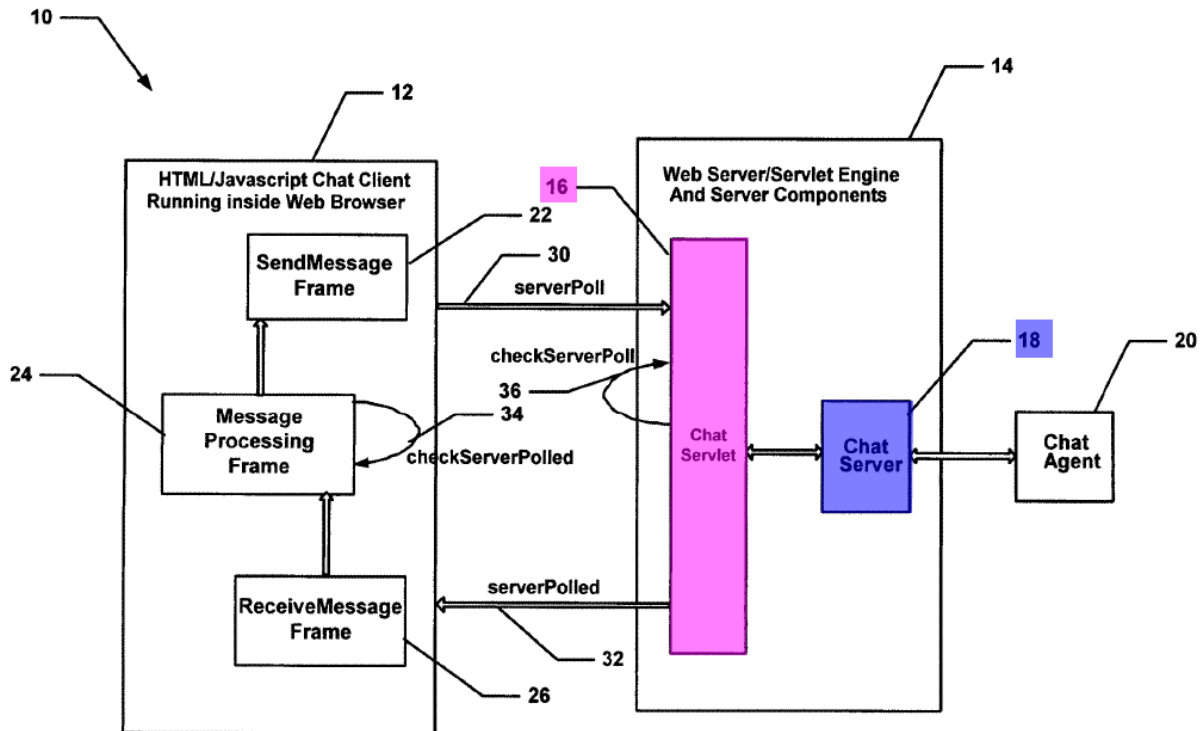
Gumbula further discloses providing a notification on the client/terminal to indicate a disruption to connectivity. “If either client 12 or the server component 14 does not see a heartbeat message during the check interval then the client 12 displays the message ‘Lost connection to the server, retrying ...’ and the server component 14 sends a message to the agent 20 ‘Client has lost connection to the server, retrying ...’.” Ex-1011, 4:44-49. *Gumbula*'s “lost connection” message “provid[es] a notification on the second device that the connectivity has been disrupted.” Ex-1002 ¶170.

It is obvious to modify *Zha*'s private message functional interface (i.e., Ground 1) to include *Gumbula*'s heartbeat messages, checking for successful message exchanges, and providing "lost connection" messages when a connection is lost. Claim 5 is rendered obvious by *Zha*, a POSITA's knowledge, and *Gumbula*. Ex-1002 ¶171.

D. Claim 15

Claim 15 is obvious in view of *Zha*, a POSITA's knowledge, and *Gumbula*. Ex-1002 ¶172.

Gumbula discloses the elements of claim 15. *Gumbula* discloses the Chat Servlet 16 is a proxy for the Chat Server 18. Figure 1 of *Gumbula* shows an "environment 10 which provides connection recovery for a chat session." Ex-1011, 3:67-4:1.



Ex-1011, Figure 1. Ex-1002 ¶173.

“The server components include a Chat Servlet 16 in communication with a Chat Server 18. ... The Chat Servlet 16 performs the server side tasks and *acts as a proxy* between the client 12 and the Chat Server 18.” Ex-1011, 4:20-22. *Gumbula’s* Chat Servlet is a “proxy server [that] emulates a client to the application server.” Ex-1002 ¶174.

For the same reasons discussed above for claim 5, it would have been obvious to modify *Zha’s* server and private message functional interface (i.e., Ground 1) to include *Gumbula’s* Chat Servlet as a proxy server that emulates a client to the application server. Ex-1002 ¶175.

XI. GROUND 4: CLAIMS 5 AND 15 ARE OBVIOUS IN VIEW OF ZHA, POSITA’S KNOWLEDGE, TSUSHIMA, AND GUMBULA

A POSITA would find claims 5 and 15 obvious in view of *Zha*, a POSITA’s knowledge, *Tsushima*, and *Gumbula*. Claims 5 and 15 depend from claim 1, and claim 1 is obvious based on *Zha*, a POSITA’s knowledge, and *Tsushima* as discussed in Ground 2. A POSITA would be motivated to combine *Gumbula* with *Zha* (from Ground 1) as discussed in Ground 3. Ex-1002 ¶176.

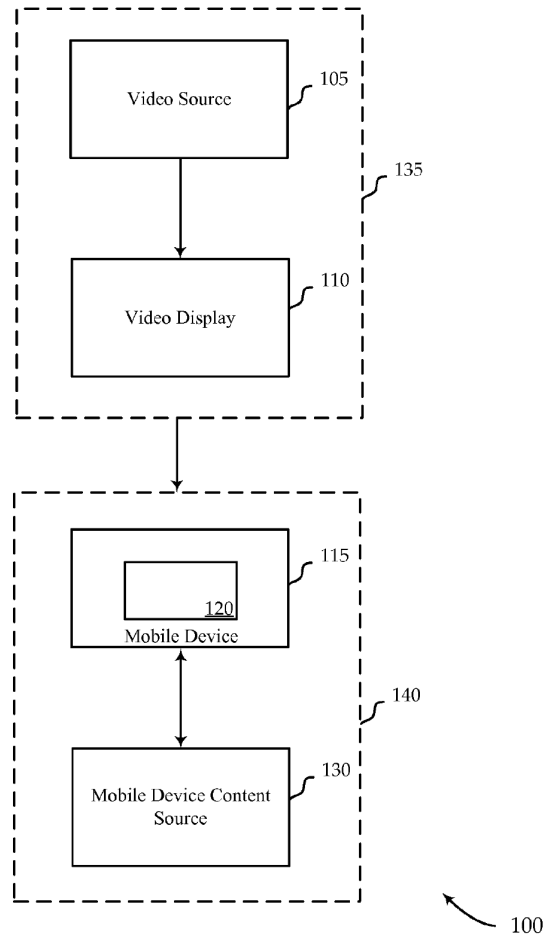
A POSITA would be motivated to combine *Gumbula* with *Zha* (as modified by a POSITA’s general knowledge and *Tsushima*) for the same reasons a POSITA would be motivated to combine *Gumbula* with *Zha* (i.e., as discussed for Ground 3). Because *Tsushima*’s addition to *Zha* relates to the “if and only if” functionality (Ground 2), the *Zha-Tsushima* combination is unaffected by and would not interfere with *Gumbula*’s connection monitoring and recovery. A POSITA would expect success when implementing the *Zha-POSITA-knowledge-Tsushima-Gumbula* combination because it is the simple use of *Gumbula*’s known technique related to chat applications to improve *Zha-Tsushima*’s similar private messaging application in the same way (i.e., providing connection monitoring and recovery and a proxy). Ex-1002 ¶177.

XII. GROUND 5: CLAIM 10 IS OBVIOUS IN VIEW OF *ZHA*, POSITA’S KNOWLEDGE, AND *STAFFORD*

A. Overview of *Stafford*

Stafford discloses simultaneously displaying primary content on a large screen device and displaying augmenting supplemental content on a mobile device. Ex-1011, Abstract. “A mobile device may include an integrated video camera to capture the [primary] video content for display with the supplemental content on [its] integrated display. The [primary] video content may include markers formatted to allow the mobile device to track the video display by capturing the marker using [its] integrated video camera.” Ex-1012, [0008]. Ex-1002 ¶179.

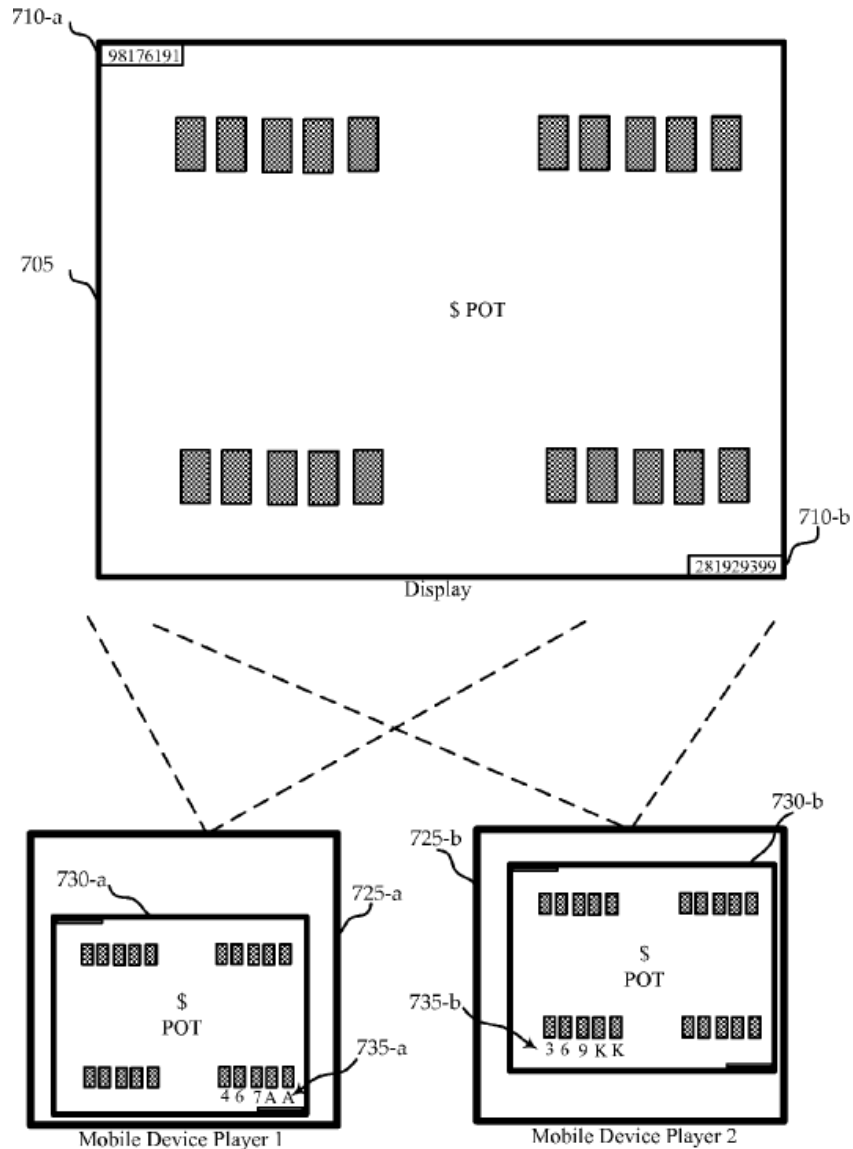
As shown in Figure 1, “the system 100 includes a video source 105, video display 110, mobile device 115, and mobile device content source 130. Each of these components of the system 100 may be in connection with each other (either directly, wirelessly, via a wired or wireless network, etc.). The mobile device 115 includes an integrated display 120.” Ex-1012, [0030].



Ex-1012, Figure 1. Ex-1002 ¶180.

In Figure 7, “image 705 is video card game on a display [110]..... In the image 705, there are markers 710 identifying binary codes placed in certain corners.”

Ex-1012, [0064].



Ex-1012, Figure 7. Ex-1002 ¶183.

“Images 725-a and 725-b illustrate captured video for different mobile devices ...: image 725-a is the image generated for player 1, image 725-b is the image generated for player 2. Images 730-a and 730-b illustrate a portion of the captured video game content from a video display (i.e., a portion of captured image 705). The

markers 710 may be processed to track images 730-a and 730-b within images 725-a and 725-b, respectively.” Ex-1012, [0065]. Ex-1002 ¶184.

Stafford discloses the mobile phones process the markers 710-a and 710-b captured from the display 705 to identify and display images 725-a and 725-b on the mobile devices. Ex-1012, [0065]. Ex-1002 ¶185.

B. Claim 10

Claim 10 is obvious in view of *Zha*, a POSITA’s knowledge, and *Stafford*. Ex-1002 ¶186.

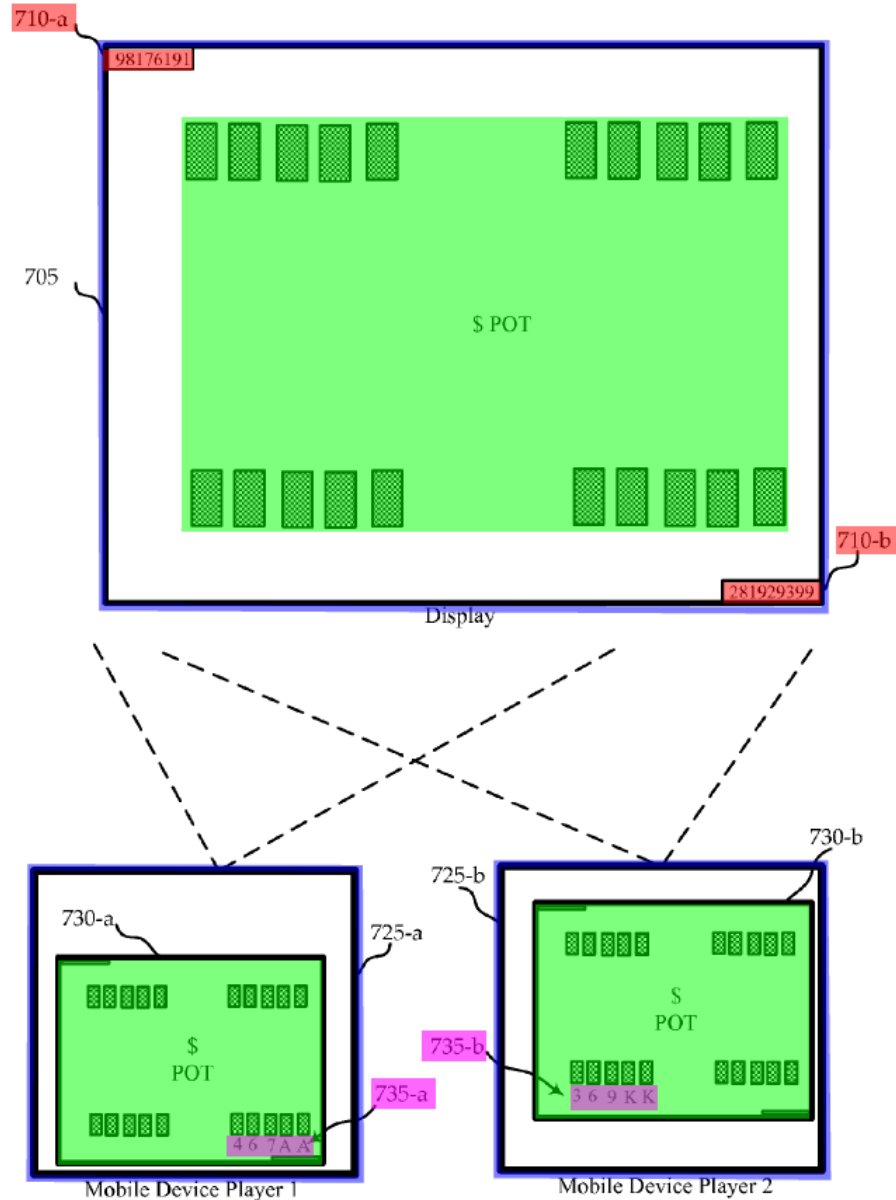
A POSITA would have a reasonable expectation of success in modifying *Zha* because *Zha* and *Stafford* are in similar fields of technology and directed to similar systems. Ex-1002 ¶187. A POSITA would view *Zha* and *Stafford* as addressing similar fields of technology because they both deal with systems where distinct information is presented to a user on two different displays. Ex-1004, 4:10-16; Ex-1012, Abstract, [0033]. Ex-1002 ¶188.

A POSITA would be motivated to modify *Zha*’s game functional interface to include *Stafford*’s markings and graphic indicators (i.e., from *Stafford*’s poker game embodiment). *Stafford* provides this motivation by explaining that “in some multiplayer games, it may be desirable for some information to be displayed to only a subset of the players.” Ex-1012, [0004]. A POSITA would be successful in

modifying *Zha* because doing so is the simple combination of prior art elements according to known methods to yield predictable results. Ex-1002 ¶189.

The problem was that in 2010 there was a “need in the art to allow supplemental content related to video content to be displayed to one or more individual viewers, without displaying the supplemental content to all of those watching the video content on the video display.” Ex-1012, [005]. A POSITA would have recognized it would be desirable to display related, but different, content on different devices. A POSITA understands that related content on one device would need to be linked to the related content on another device. Because *Stafford* provides markers and graphical indicators to link differing content on separate devices, a POSITA would be motivated to modify *Zha*’s game interface to include the markers and graphical indicators of *Stafford*. Ex-1002 ¶190.

Stafford discloses the elements of Claim 10. *Stafford*’s markers 710 (Figure 7) identify binary codes (“graphical identifiers”) displayed in corners of the display 110 (“displaying a graphical identifier on the first device”). Ex-1012, [0064].



Ex-1012, Figure 7. Ex-1002 ¶191.

Stafford displays a portion of captured image 705 on mobile devices 115, which corresponds to “displaying . . . a corresponding graphical indicator on the second device indicating a link between the information displayed on the respective devices.” Ex-1012, [0065] (“Images 730-a and 730-b illustrate a portion of the captured video game content from a video display (i.e., a portion of captured image

705).”). *Stafford* discloses the mobile devices process the markers (“identifiers”) captured from the display 705 and capture a portion of the display 705 itself. Images 725-a and 725-b (“corresponding graphical indicator”) are then displayed on the mobile devices. These contain “secret views for the players” because player 1’s mobile device (725-a) shows player 1’s cards, but not player 2’s cards (and vice versa). Ex-1012, [0065]. Ex-1002 ¶192.

The portion of the captured video indicates “a link between the information displayed on the respective devices,” because the same graphic image, i.e., (1) image 705 and (2) a portion of captured image 705, is displayed on both devices (110 and 115). Ex-1002 ¶193.

A POSITA would have reasonably expected it would be successful to modify *Zha*’s game functional interface to further include the markers (“graphical identifiers”) and corresponding graphical indicators of *Stafford* to allow supplemental content related to video content to be displayed on a cellphone where the *Zha* user simultaneously accesses the application via both a cellphone and a desktop computer, which would yield predictable results. Claim 10 is obvious in view of *Zha*, a POSITA’s knowledge, and *Stafford*. Ex-1002 ¶194.

XIII. GROUND 6: CLAIM 10 IS OBVIOUS IN VIEW OF *ZHA*, POSITA’S KNOWLEDGE, *TSUSHIMA*, AND *STAFFORD*

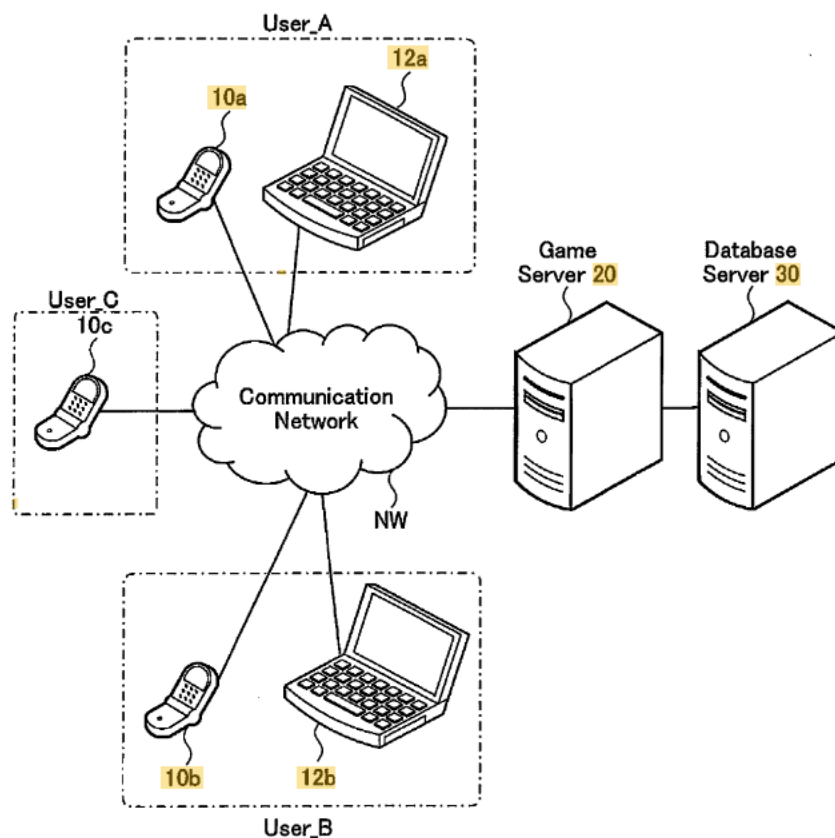
Claim 10 is obvious in view of *Zha*, a POSITA’s knowledge, *Tsushima*, and *Stafford*. Claim 10 depends from claim 1, and claim 1 is obvious based on *Zha*, a POSITA’s knowledge, and *Tsushima*, as discussed in Ground 2. Further, a POSITA would be motivated to combine *Stafford* with *Zha* (as modified by a POSITA’s general knowledge in Ground 1), as discussed in Ground 5. Ex-1002 ¶195.

As discussed in Ground 5, a POSITA would be motivated to combine *Stafford* with *Zha*. A POSITA would have reasonably expected success combining *Stafford* with *Zha* as modified by *Tsushima* because *Tsushima*’s addition to *Zha* relates to the “if and only if” functionality (Ground 2), and the *Zha-Tsushima* combination is unaffected by and would not interfere with *Stafford*’s markers (“graphical identifiers”) and graphical indicators. A POSITA would expect success when implementing the *Zha*-POSITA-knowledge-*Tsushima*-*Stafford* combination because it is the simple use of *Stafford*’s known technique related to providing graphical identifiers and indicators in a game environment to improve *Zha-Tsushima*’s game functional interface in the same way (i.e., providing graphical identifiers and indicators). Ex-1002 ¶196.

XIV. GROUND 7: CLAIMS 1-5, 9-10, 12-14, 16-17, AND 23-25 ARE OBVIOUS IN VIEW OF *TAKAHASHI* AND POSITA’S KNOWLEDGE

A. Overview of *Takahashi*

Takahashi discloses a “game control device” or an application on a server connected through a network to multiple communication terminals. Ex-1007, [0006]-[0007]. Ex-1002 ¶198.



Ex-1007, Figure 1. Ex-1002 ¶199.

The “game control device” is “configured” by game server 20 and database server 30 in Figure 1. Ex-1007, [0089]. The “game control device” is an application installed on game server 20 that utilizes information stored in ROM and in database

server 30. A web-based (i.e., HTML) game program, or “game application” embedded on game server 20. Ex-1007, [0045]. Ex-1002 ¶200.

The game server identifies a main-terminal and a sub-terminal for executing a game provided by the server. The main-terminal displays primary game images and the hand-held sub-terminal receives operational inputs from the user playing the game. Ex-1007, [0042]. Ex-1002 ¶204.

A user plays a web-based fishing game on a PC (“main-terminal”) and a mobile phone (“sub-terminal”) at the same time. Ex-1007, [0116].

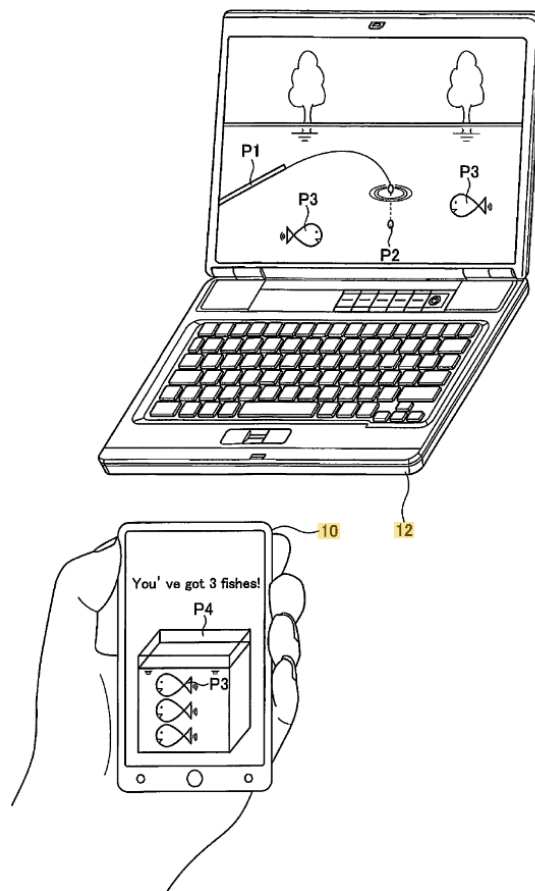
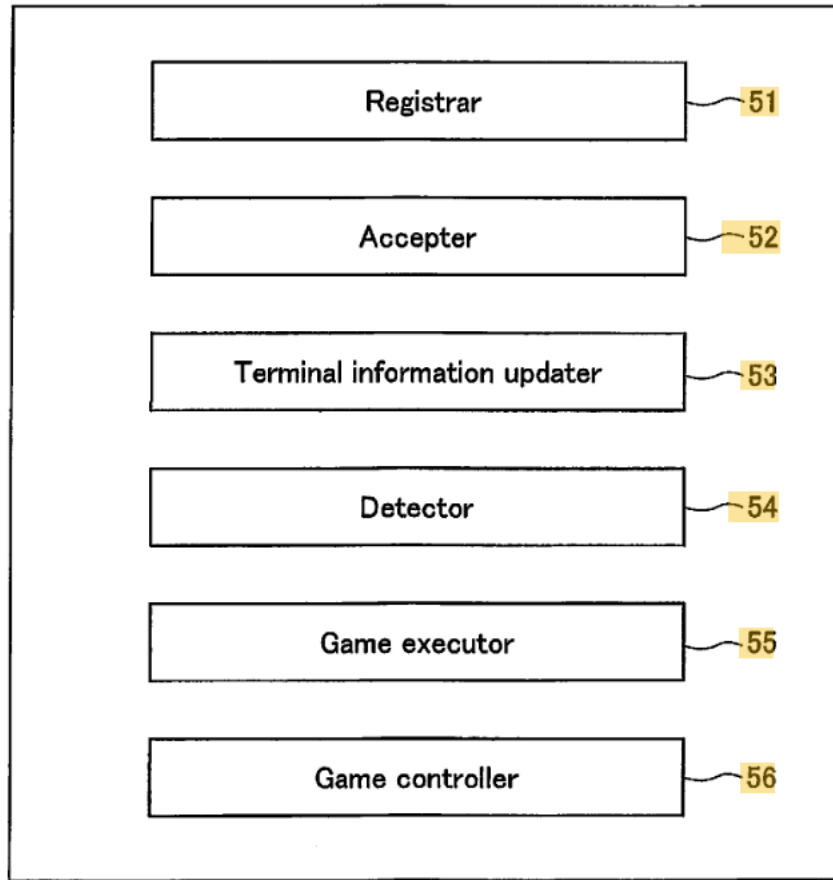


FIG.8

Ex-1007, Figure 8. Ex-1002 ¶205.

“FIG. 10 is a functional block diagram for explaining functions that play main rol[e]s in the game control device.” Ex-1007, [0028].



Ex-1007, Figure 10. Ex-1002 ¶215.

Takahashi’s “game executor” function executes game play by executing the loop shown in Figure 12 (below), taking inputs from the user (“operational inputs”), executing the game program in response to those inputs, and transmitting HTML data representing the results of executing the program to the user’s PC and mobile phone. Ex-1007, [104].

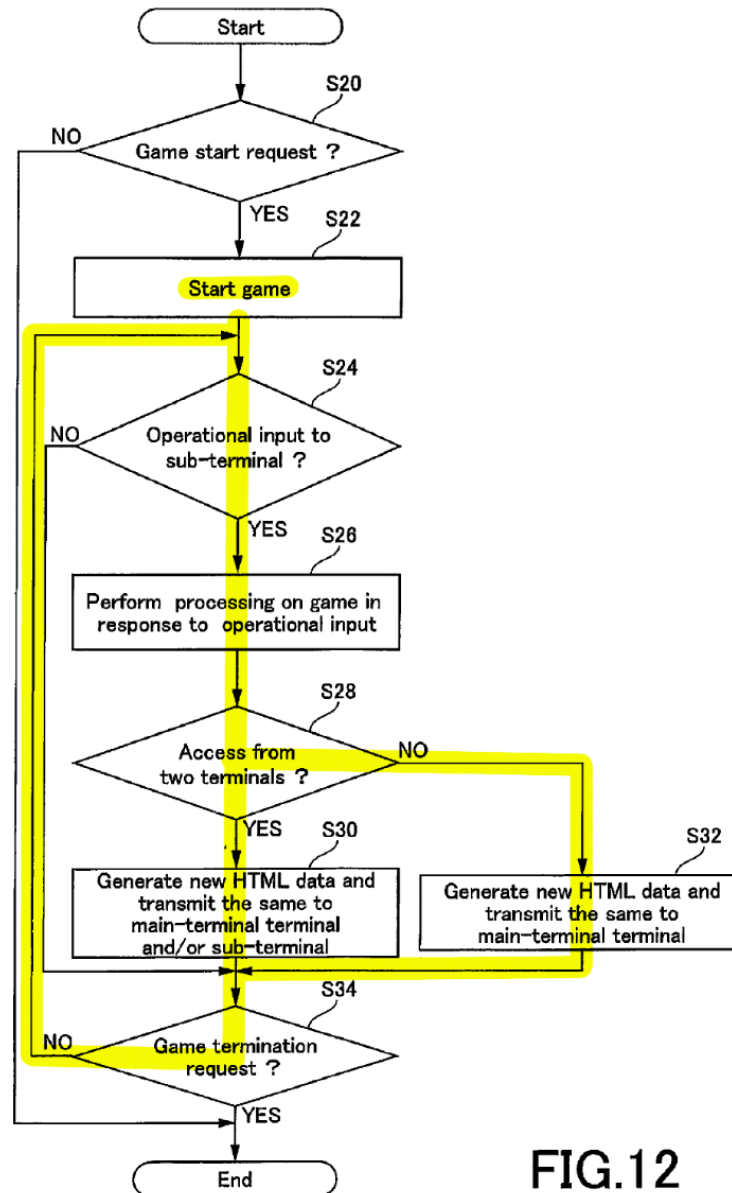


FIG.12

Ex-1007, Figure 12 (execution loop highlighted). Ex-1002 ¶224.

Takahashi's "game controller" function (element 56 in Figure 10) transmits game data (e.g., HTML) to both the main-terminal and the sub-terminal during game play. Ex-1007, [0106]-[0107]. Ex-1002 ¶225.

Figure 7 illustrates a user playing the fishing game using both a PC and a mobile phone. Ex-1007, [0081].

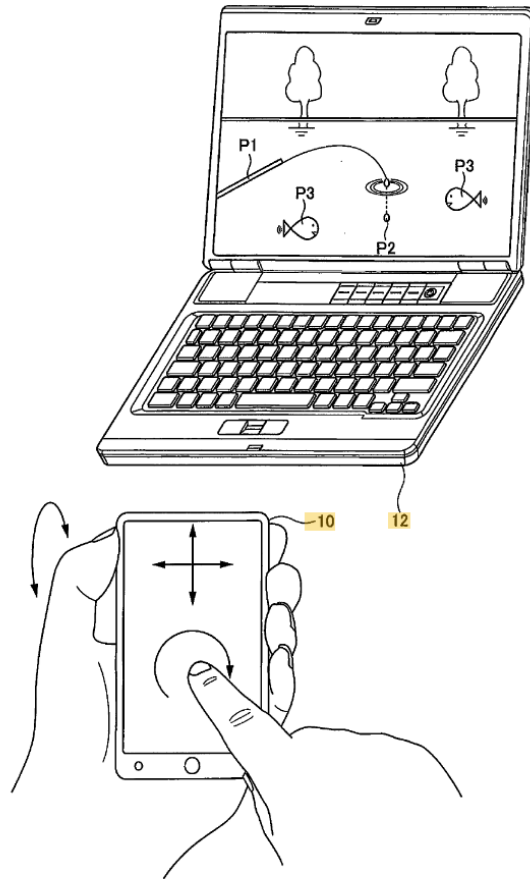


FIG. 7

Ex-1007, Figure 7. Ex-1002 ¶226.

The game image is displayed on PC 12 and includes the fishing rod (P1), bait (P2), and fish (P3) that move in the pond (the background image). The user casts the bait with the fishing rod by swinging the mobile terminal 10. The user reels in the line by using a circular motion on the touch screen. The user tries to catch fish and reel them in. Ex-1007, [0082]-[0084]. Ex-1002 ¶227.

Although the mobile phone is used to provide inputs to the game (e.g., casting), mobile phone may also be used to display user-specific information, e.g., to depict the number of fish a user has caught in the game. Ex-1007, [0085].

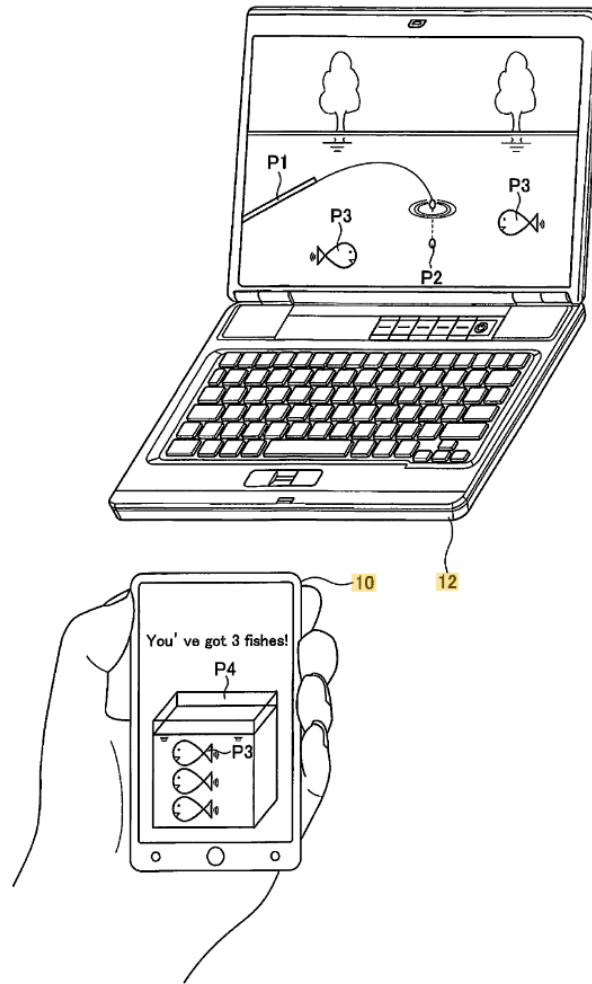


FIG.8

Ex-1007, Figure 8. Ex-1002 ¶228.

User specific information (e.g., game results, such as caught fish) is displayed on the mobile phone and different game information is displayed on the PC.

Ex-1007, [0120]. Ex-1002 ¶229.

Takahashi is not limited to fishing games but can be used with “[a]ny game that is realized using a main-terminal and a sub-terminal.” Ex-1007, [0088], [0148], [0149]. Ex-1002 ¶¶230-231.

B. Claim 1

Claim 1 is rendered obvious by *Takahashi* and a POSITA's knowledge.
Ex-1002 ¶¶232-255.

1. Element [1Preamble]

Takahashi discloses this element. *Takahashi* discloses a “game control method” where information is transmitted to a plurality of communication terminals.
Ex-1007, [0006]-[0007], [0012]. Ex-1002 ¶232.

The game control device performs the game control method and therefore discloses transmitting information (“first game data” and “second game data”) to multiple electronic devices (“first communication terminal” and “second communication terminal”). Ex-1002 ¶233.

2. Element [1a]

Takahashi discloses this element. *Takahashi*'s “set of information” includes “a plurality of hierarchically structured web pages” and associated “objects such as images” (or “compressed image data,” etc.). This set of information is stored electronically (e.g., in ROM 22) on game server 20. Ex-1007, [0062], [0105].
Ex-1002 ¶234.

Information is stored at server 20, e.g., in ROM 22, which is part of game server 20. Ex-1007, [0062]. Database server 30 (which also stores information) may be part of server 20, e.g., “a general purpose storage such as a high-capacity hard disc drive.” Ex-1007, [0068]. Ex-1002 ¶235.

3. Element [1b]

Takahashi discloses this element. Game controller 56 function transmits first and second subsets of the information, i.e., first and second subsets of the “plurality of hierarchically structured web pages” and associated “objects such as images” (or “compressed image data,” etc.). When a user is using both a main-terminal and a sub-terminal, the game controller 56 transmits “second game data” to the main-terminal and “first game data” to the sub-terminal. Ex-1007, [0107]. Ex-1002 ¶236.

Before transmitting the first and second subsets of game data to the different terminals, *Takahashi* would necessarily *identify* the first and second subsets of information. *Takahashi* discloses identifying a first subset of the information (“second game data” for the main-terminal) and identifying a second subset of the information (“first game data” for the sub-terminal). Ex-1002 ¶237.

Takahashi discloses the first and second subsets of information are generated by the same application at the server (server 20) and are specific to that application (e.g., fishing game). HTML data ultimately sent to the terminals is generated by “an application program” or “a game program” stored in ROM 22, which is part of server 20. Ex-1007, [0063], [0064]. Ex-1002 ¶238.

Takahashi’s Figures 7 and 8 depict the subsets of information identified by the game program. In Figure 7, “[t]he game image that is displayed on the display

unit of the PC 12 includes a fishing rod object P1, a bait object P2, and fish objects P3 that move in a pond which is a background image.” Ex-1007, [0082]. This is the “second game data” identified by the game controller 56 function before it is transmitted to the main terminal. *See* Ex-1007, [0107].

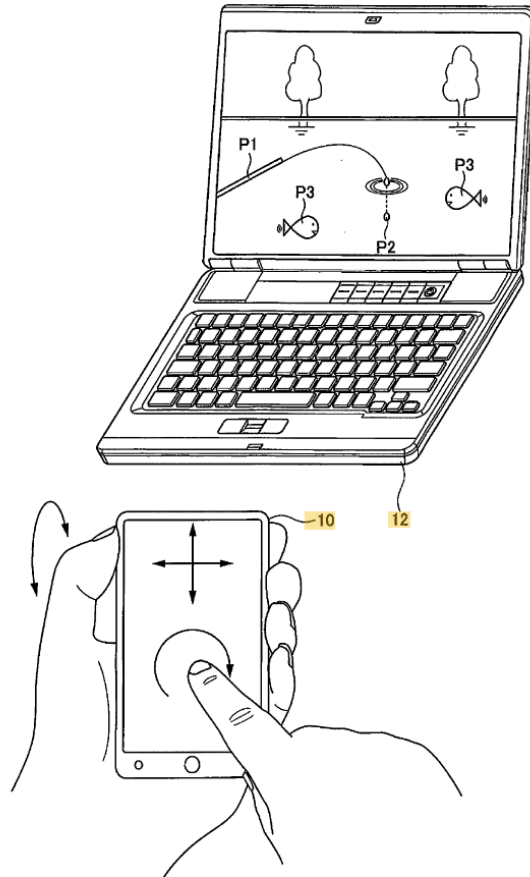


FIG.7

Ex-1007, Figure 7. Ex-1002 ¶239.

In Figure 8, the subset of information identified for the sub-terminal is the “image including a fish tank object P4.” Ex-1007, [0085]. Ex-1002 ¶240.

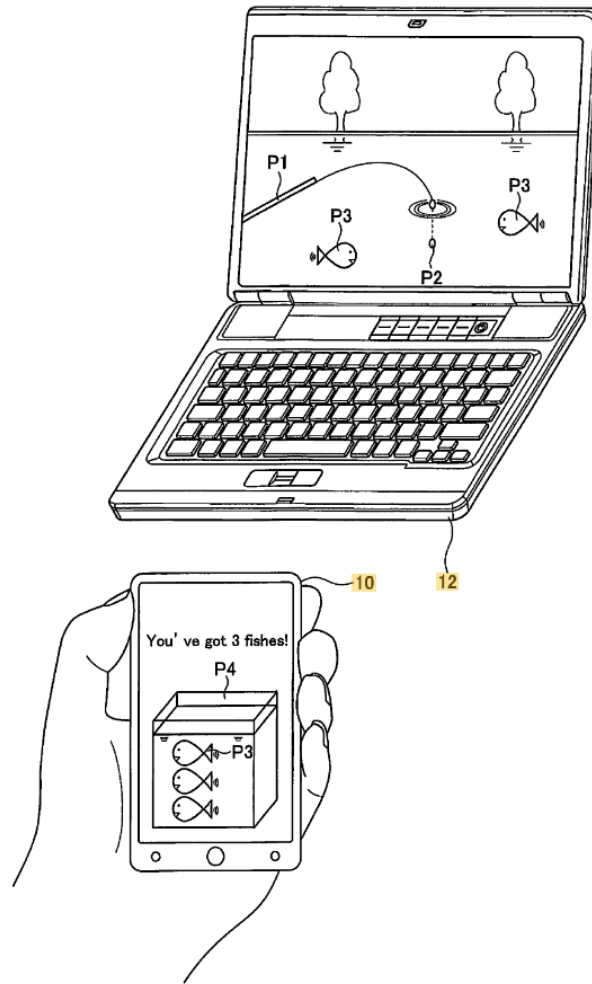


FIG.8

Ex-1007, Figure 8.

HTML data identified as first and second subsets of the information is generated at game server 20 and is specific to the fishing game application, as can be seen in the images above (e.g., Figures 7 & 8). Ex-1002 ¶241.

4. Element [1c]

Takahashi discloses this element. A first device (PC) and a second device (mobile terminal) are in possession of and being directly operated by a first user.

Specifically, “the case in which there are accesses from *a user* through *both a mobile terminal and a PC*...” Ex-1007, [0078]. Ex-1002 ¶242.

Communication terminals (e.g., the user’s PC and mobile terminal) connect to the game server using at least one electronic communications network, i.e., “a communication network NW such as the Internet.” Ex-1007, [0040]. Ex-1002 ¶243.

Takahashi discloses determining whether the first and second devices are accessible over the network based on the first user being logged into the application at both devices: “[D]etector 54 includes a function for detecting accesses from a plurality of communication terminals that are associated with an identical user ID.” Ex-1007, [0101]. Ex-1002 ¶244.

Detector 54 checks to see if the user is logged in by looking at user database 31 and, based on that information, determines whether both devices are accessible over the network. Detector 54 compares the “terminal information of main-terminal” field with the “terminal information of sub-terminal” field (in Figure 6), and if they are different for the current user, “then it is judged that there are accesses from at least two communication terminals that are associated with an identical user ID.” Ex-1007, [0102]. In this case, the user is logged into the application on both terminals. Ex-1002 ¶245.

When a user starts a game with just a single terminal (e.g., the mobile device) and then accesses (or logs in) with a second terminal in the middle of the game,

Takahashi's game server "recognizes there is an access from the PC 12" and then updates the database to reflect access by two devices. This recognition is a determination that both devices are accessible based on the first user logging into the application with both devices. Ex-1007, [0119]. Ex-1002 ¶247.

Figure 12 further discloses this limitation by determining at block S28 whether the user is accessing the game from two terminals:

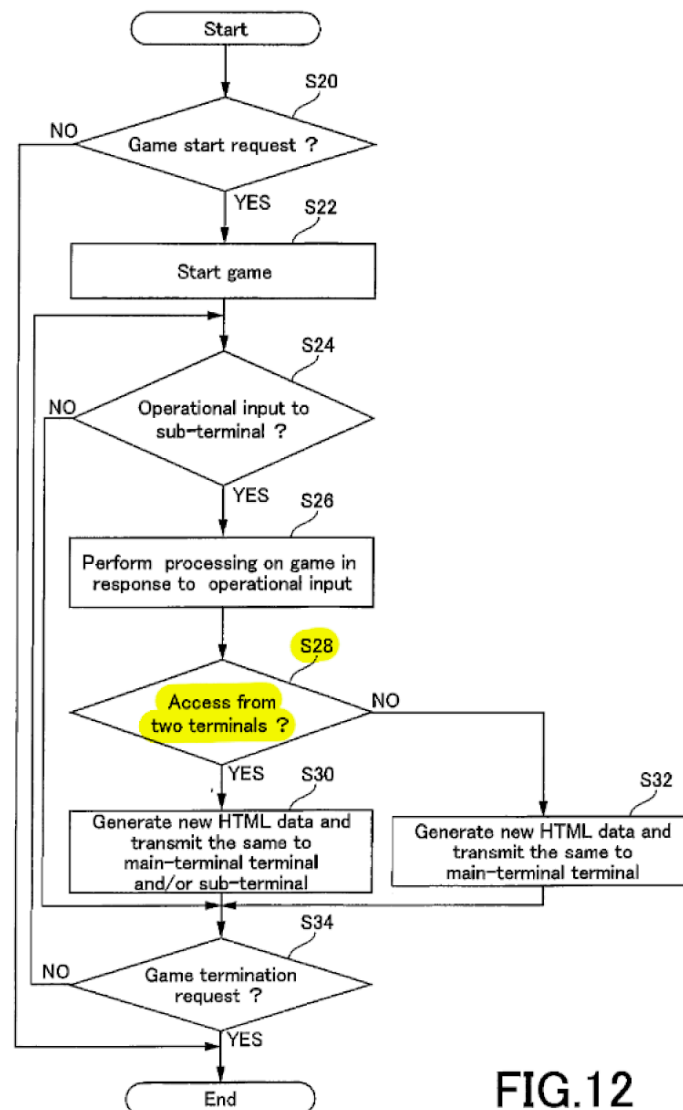


FIG.12

Ex-1007, Figure 12. Ex-1002 ¶248.

The user is logged in at both terminals at this point because *Takahashi* discloses access requests are accepted when the user has registered. Ex-1007, [0095]. Ex-1002 ¶249.

In addition, *Takahashi* expressly discloses access at the terminals based on the user's logins. Ex-1007, [0109]-[0110], [0114] (“An access is received to the game server 20 (that is, *a user logins*).”). Ex-1002 ¶250.

5. Element [1d]

Takahashi discloses this element. *Takahashi* discloses determining both the first and second devices are accessible by the server as explained above for claim element [1c]. *Takahashi* further discloses transmitting “first game data” to the sub-terminal (mobile device) and different “second game data” to the main-terminal if and only if both devices are determined to be accessible by the server. Ex-1007, [0106]-[0107]. Ex-1002 ¶251.

In Figure 12, “the game server 20 does not only transmit the HTML data to the PC 12, but it also transmits HTML data to the mobile terminal 10 as sub-terminal (Step S30). *The transmitted HTML data to the mobile terminal 10 is different from the one transmitted to the PC 12.*” Ex-1007, [0116].

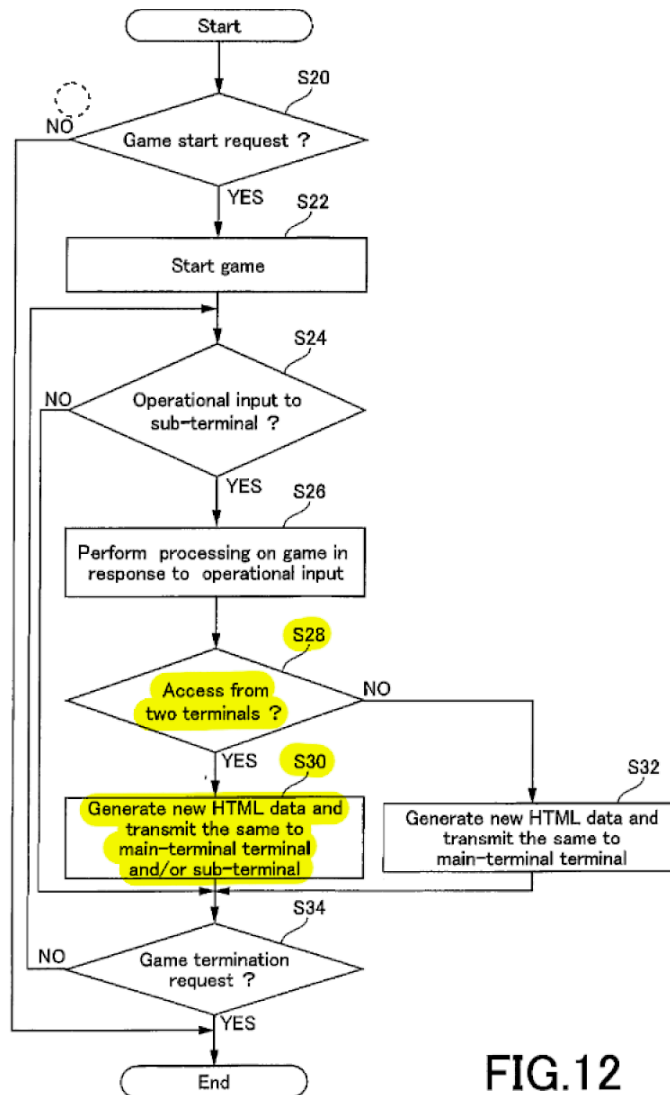


FIG.12

Ex-1007, Figure 12. Ex-1002 ¶252.

Regarding “if and only if,” *Takahashi* sends “different” HTML data to the main-terminal (PC) (“first subset”) and sub-terminal (mobile terminal) (“second subset”) when the server determines both terminals are accessible by the server, and *Takahashi* does not send different HTML data to the main-terminal (PC) and sub-terminal (mobile terminal) when the server determines both terminals are not accessible by the server. This is illustrated in block S32 in Figure 12 (above), where

the server sends HTML data to one main-terminal instead of to both the main-terminal and sub-terminal. Ex-1007, [0117]. Ex-1002 ¶253.

When *Takahashi* determines both terminals are accessible by the server, the “if and only if” requirement is satisfied because *Takahashi*’s server transmits “different” HTML data to the main-terminal and sub-terminal. Ex-1007, [0116]. Ex-1002 ¶254.

When *Takahashi* determines both terminals are not accessible by the server, the “if and only if” requirement is satisfied because *Takahashi* then does not transmit “different” HTML data to the main-terminal and sub-terminal. Rather, the server does not send anything to the sub-terminal and sends all HTML data to the main-terminal. Ex-1007, [0017]. Ex-1002 ¶255.

C. Claim 2

Takahashi discloses this claim. Claim 2 requires transmitting at least a portion of the game information that is sent to the main-terminal (first subset of information) to the sub-terminal (second device) “only if both the first and second devices are determined to be accessible by the server.” *Takahashi* discloses this claim because the game server sends the same fish object image data to both the main-terminal and the sub-terminal, e.g., as illustrated and described for Figure 8.

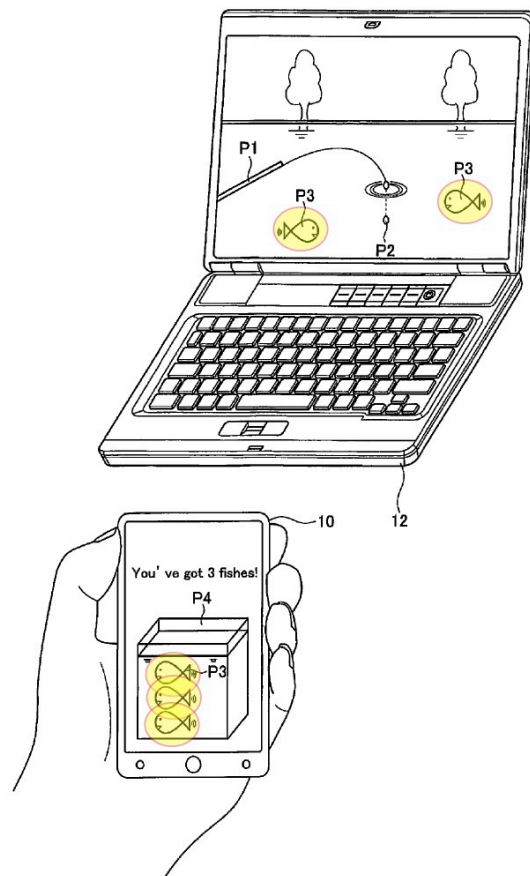


FIG.8

Ex-1007, Figure 8. Ex-1002 ¶256.

Takahashi discloses the information displayed on the user's terminals is "HTML document[s] and objects such as images" that is provided by the game server 20. Ex-1007, [0063]-[0065]. Ex-1002 ¶257.

A POSITA understands the fish objects P3 in Figure 8, because they are not text, would be image data provided to the terminal by the game server. In other words, HTML is made up of textual HTML documents that reference images (e.g.,

JPEG file, etc.). *Takahashi* discloses the game server sends those HTML documents and images to the terminals. Ex-1007, [0063]-[0065]. Ex-1002 ¶258.

The game server transmits fish object P3 to both the main-terminal (PC 12) and the sub-terminal (mobile terminal 10). The server transmits the same image data to both the main-terminal and the sub-terminal when both terminals are determined to be accessible by the server. Ex-1007, [0085]. Ex-1002 ¶259.

Regarding “only if,” a POSITA would read this limitation as effectively a subset of the “if and only if” requirement of claim 1 because the condition is essentially the same (accessibility of both devices). *Takahashi* renders this “only if” limitation obvious for the same reasons as discussed for element [1d]. Ex-1002 ¶260.

D. Claim 3

Takahashi discloses this claim. User-specific information (“sensitive information”) is part of the “second subset” of information the game server transmits to the sub-terminal (mobile device) and normal game-play information (“non-sensitive information”) is part of the first subset of information the game server transmits to the main-terminal (PC). Ex-1002 ¶261.

Takahashi discloses sensitive information, i.e., the fish objects the user has caught or “owns,” as part of the second subset of information (transmitted to mobile terminal) with respect to Figure 8: “Note that, as illustrated in FIG. 8, an image displayed on the mobile terminal 10 may be configured to be different from that

displayed on the PC 12. This allows game entertainment to be enhanced, since *information indicating game results for respective users, or items and objects, etc., which the user owns in the game*, apart from virtual game space indicating game environment, *may be able to be displayed on the mobile terminal 10 which is held by a user's hand.*” Ex-1007, [0120].

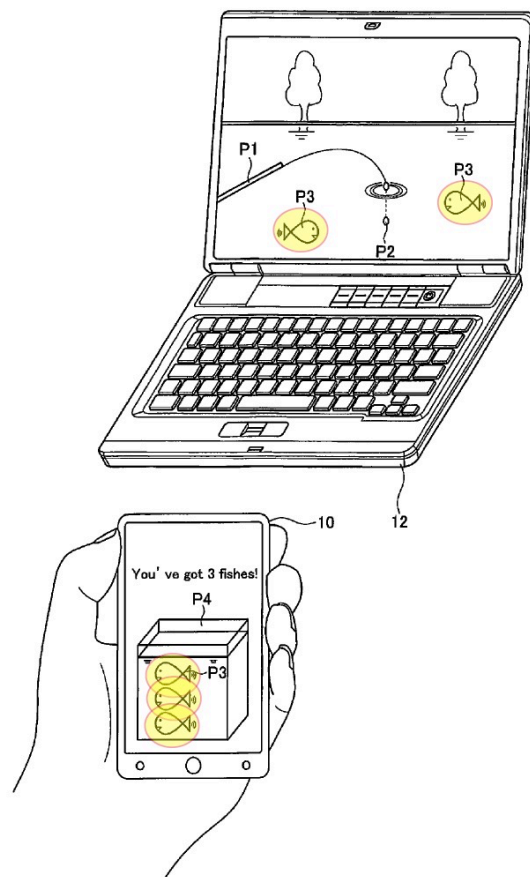


FIG.8

Ex-1007, Figure 8. Ex-1002 ¶262.

Takahashi discloses non-sensitive information, i.e., the “game environment,” as part of the first subset of information (transmitted to main terminal). Ex-1007, [0120]. Ex-1002 ¶263.

E. Claim 4

Takahashi discloses this claim. *Takahashi* discloses receiving user-specific information (“sensitive information”) at the second device (mobile terminal), as discussed above for claim 3. The user-specific information is more sensitive than the non-user-specific information that is received at the first device (PC 12). *See supra*, analysis of claim 3. Ex-1002 ¶264.

F. Claim 5

Takahashi discloses this claim. The second device (mobile terminal) utilizes a web browser to play the fishing game. Ex-1007, [0046]. Web browsers utilize the HTTP protocol. The web browser executing on the mobile terminal (second device) would determine if connectivity between the server had been disrupted when it did not receive a response to an HTTP request it sent to the game server. After determining the connection has been disrupted, the browser would provide a notification on the mobile terminal’s display (second device), e.g., an HTTP status code “503 Service Unavailable.” Further, *Gumbula* shows a POSITA has general knowledge of determining if a client-server connection is disrupted and, if so,

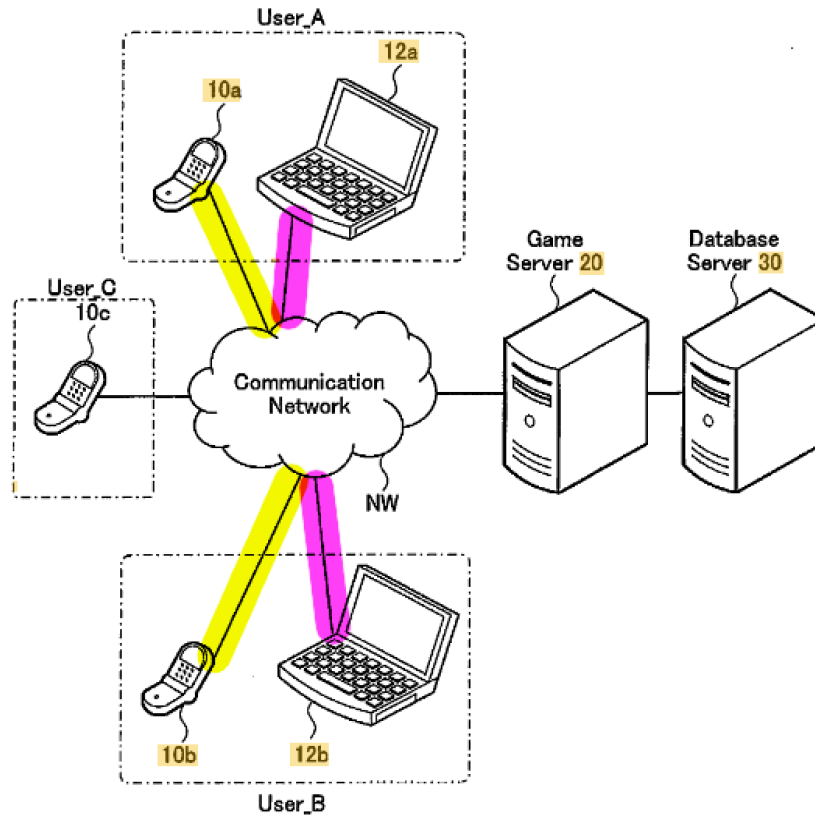
providing a notification on the client device. Ex-1011, Abstract, 1:56-60, 4:44-49. Ex-1002 ¶265.

Because *Takahashi* discloses an HTML-based game that uses web browsers for the game display, the HTTP error notification is (1) necessarily present in or (2) the natural result of the web-browser-based game system. Ex-1002 ¶266.

G. Claim 9

Takahashi discloses this claim. *Takahashi* discloses the main-terminal (first device) is a personal computer and the sub-terminal (second device) is a mobile phone. Ex-1007, [0041]. A personal computer typically connects by means of a wired or Wi-Fi network (which is an electronic communications network), distinct and independent from the cellular networks (also an electronic communications network) employed by mobile phones. Ex-1002 ¶267.

Additionally, *Takahashi*'s Figure 1 shows separate connection lines (highlighted yellow) from the mobile phones (10a, 10b) to the communication network compared to the connection lines (highlighted pink) from the personal computers (12a, 12b) to the communication network, thus confirming the use of independent communications networks:



Ex-1007, Figure 1. Ex-1002 ¶268.

H. Claim 10

Takahashi discloses this claim. *Takahashi* discloses displaying a graphical identifier (fish object) on the first device (main-terminal) and a corresponding graphical indicator (fish object) on the second device (sub-terminal) indicating a link between the information displayed on the respective devices (the link is the indication that the fish information that was first displayed on the first device (main-terminal) was caught and is now displayed in the fish tank on the second device (sub-terminal)). *See* Ex-1007, [0007].

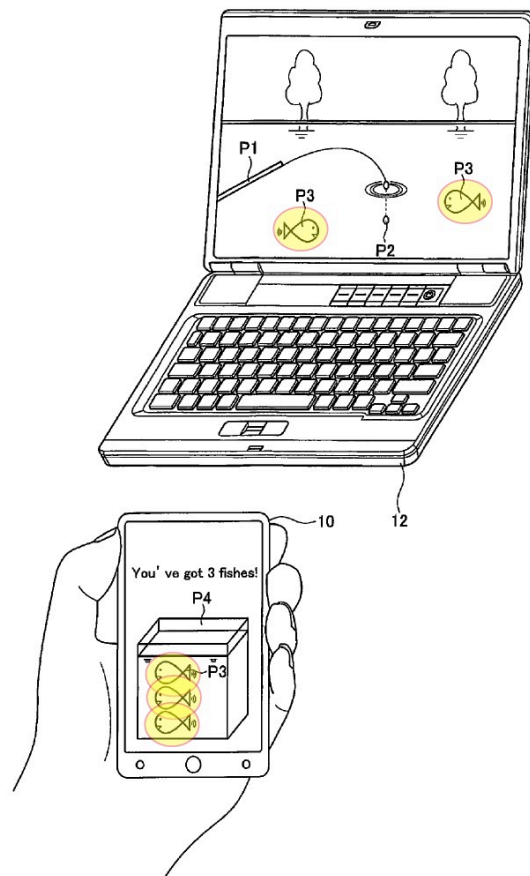
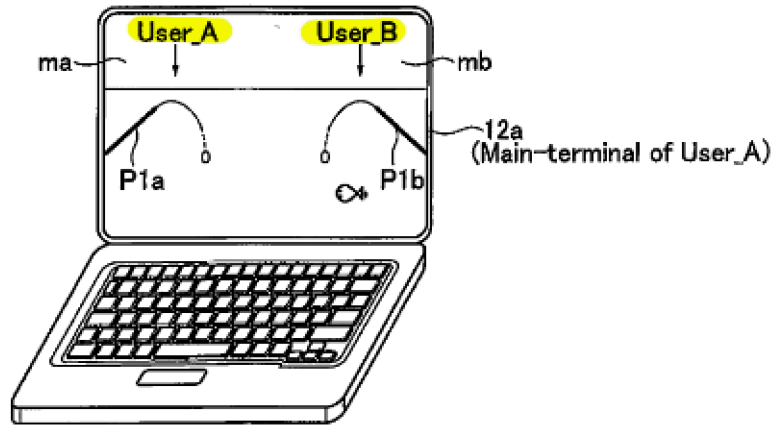


FIG.8

Ex-1007, Figure 8. Ex-1002 ¶¶269-270.

Takahashi also discloses claim 10 with respect to the two-player embodiment. Two-player mode includes graphical identifiers (“User_A” and “User_B”) on the first device (PC 12) owned by User_A:



Ex-1007, Figure 18 (excerpted). Ex-1002 ¶271.

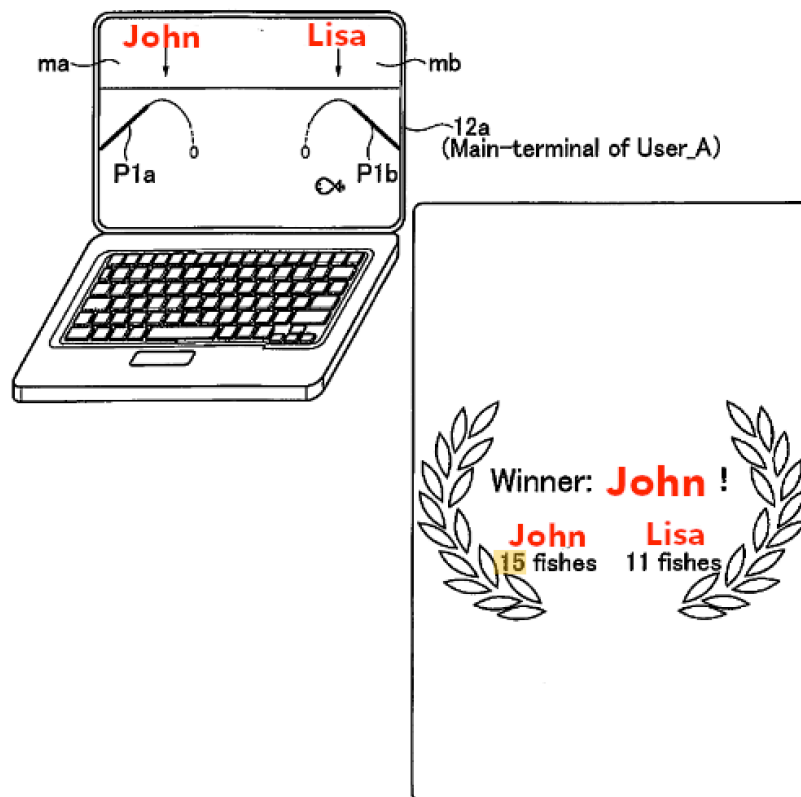
At the end of a two-player game, the game results can be presented on the second device (mobile terminal 10):



Ex-1007, Figure 16 (excerpted). Ex-1002 ¶272.

The graphical “User_A” and “User_B” on this screen (Figure 16) are graphical indicators indicating a link between the information displayed on the two devices (i.e., the winner announcement corresponds to the game between User_A and User_B that was displayed on the first device (PC 12)). Ex-1002 ¶273.

The identifier and indicators “User_A” and “User_B” may instead be usernames. Ex-1007, [0136]. In this case, the graphical identifiers and indicator (i.e., the usernames) further indicate a link between the display of the results (Figure 16) and the specific game that was displayed on the main terminal. This link is shown in the modified figures below:



Ex-1007, Figures 18 & 16 (modified). Ex-1002 ¶274.

I. Claim 13

Takahashi discloses this claim. Figure 7 “illustrates a situation in which a user plays a fishing game.” Ex-1007, [0081]. Because “a user” is singular, there is only one player and that player is viewing both displays. This is confirmed by the contrast between *Takahashi*’s (1) single-user embodiment and (2) multi-user embodiment.

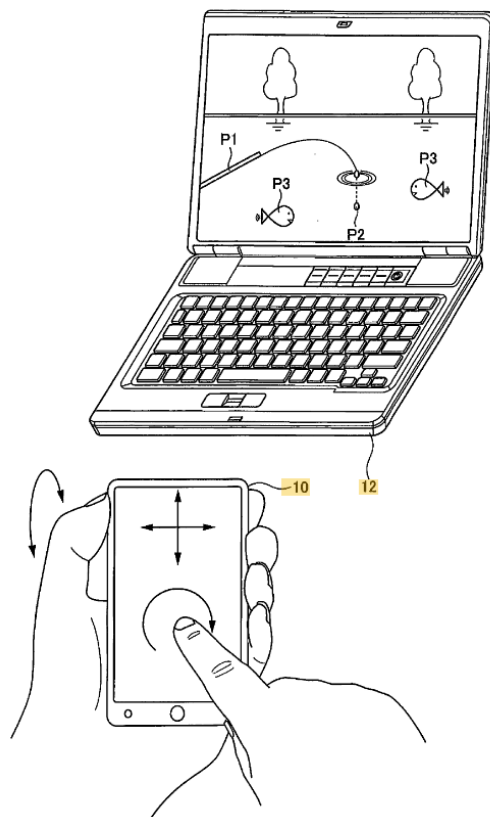


FIG.7

Ex-1007, Figure 7. Ex-1002 ¶277.

J. Claim 14

Takahashi discloses this claim. *Takahashi* makes no reference to employing two factor authentication codes. Ex-1002 ¶278.

K. Claim 16

Claim 16 is rendered obvious by *Takahashi* and a POSITA's knowledge. Ex-1002 ¶¶279-283.

1. Element [16Preamble]

Takahashi discloses “the method of claim 1,” as discussed above. Ex-1002 ¶279.

2. Element [16a]

Takahashi discloses this element. Game server 20 is configured to “manage[] a website of a game.” Ex-1007, [0062] (under heading “Game Server Configuration”). This disclosure indicates the game server was configured for managing the online fishing game. *See also*, Ex-1007, [0045]. Ex-1002 ¶280.

3. Element [16b]

Takahashi discloses this element. Game server is configured to communicate with the plurality of devices, including the first and second electronic devices (PC 12 and mobile terminal 10). Ex-1007, [0045]. Ex-1002 ¶281.

4. Element [16c]

Takahashi discloses this element. The first electronic device (PC 12) is used primarily to play the game (i.e., it is called the “main” terminal) when a user logs in

to play with both a PC and a mobile phone. Ex-1007, [0119]. *Takahashi* only describes using the first electronic device (PC 12) in the context of the game and, therefore, a person having ordinary skill in the art would have understood that, when playing the game, the first electronic device is primarily used to play the game. Ex-1002 ¶282.

5. Element [16d]

Takahashi discloses this element. As discussed above for claims 3 and 4, *Takahashi* discloses the game server communicating user-specific information to the user's mobile terminal (second electronic device) . Ex-1002 ¶283.

L. Claim 23

Takahashi discloses this claim. In *Takahashi*'s two-player embodiment, “the CPU 21 of the game server 20 recognizes that the two users are friends by referring to the user database 31” and then “transmits the HTML data to either or both of the main-terminals of the two user IDs as friends” (Ex-1007, [0126]) or alternatively, “the CPU 21 may also transmit HTML data to either or both of the sub-terminals of the two user IDs as friends. The transmitted HTML data to either or both of the sub-terminals may be different from the one transmitted to the main-terminals” (Ex-1007, [0127].) In this example, the CPU uses a parameter from the user database 31 to determine whether subsets of the information (HTML data) should be divided between two devices (the main-terminals of the two user IDs as friends) or to more

than two devices (the main-terminals and the sub-terminals for the two user IDs).
Ex-1002 ¶284.

The parameter is necessarily stored in the game server 20 since it serves as the basis for the determination of where to transmit particular information. In other words, although the parameter is also stored in user database 31 that resides on database server 30, *Takahashi*'s disclosure of the game server 20 "referring to the user database 31" means the game server necessarily obtained a copy of the parameter from the database and stored that parameter, at least temporarily, in local memory for use by its various functions (e.g., the function deciding whether subsets of the information are to be divided between two or more devices). Ex-1002 ¶285.

The above analysis for claim 23 is guided by, and is consistent with, Patent Owner's apparent understanding of this claim. Patent Owner's infringement contentions allege infringement of claim 23 because "The Kahoot! server must have information that indicates how to communicate with the shared computer and how many mobile devices are involved in the quiz. That information is a parameter indicating whether subsets of the information are to be divided between two or more devices." Ex-1014-16. Ex-1002 ¶286.

Although the two-player embodiment is used for the additional limitations of claim 23 (which depends from claim 1), the analysis of the one-player embodiment for claim 1 applies equally to the two-player embodiment because the User_A

hardware and functionality does not materially change when a second user is added for the two-player embodiment. Ex-1002 ¶287.

M. Claim 24

Claim 24 is rendered obvious by *Takahashi* and a POSITA's knowledge. Ex-1002 ¶¶288-292.

1. Element [24Preamble]

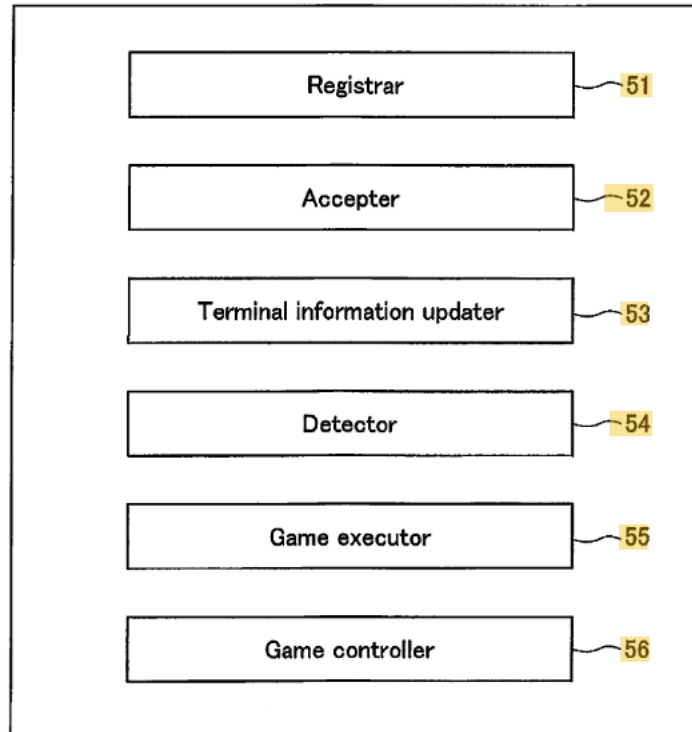
Takahashi discloses “the method of claim 1,” as discussed above. Ex-1002 ¶288.

2. Element [24a]

Takahashi discloses this element. *Takahashi* discloses the use of images specific to the application (such as the fish images in the fishing game example) that appear on both the main-terminal and the sub-terminal (e.g., Figure 8), i.e., are included in the first and second subsets of information. Ex-1007, [0085], [0063]. Ex-1002 ¶289.

3. Element [24b]

Takahashi discloses this element. *Takahashi* discloses that the first and second subsets of information derive from functions illustrated in “FIG. 10 [which] is a functional block diagram for explaining functions that play main rolls in the game control device according to the present embodiment.” Ex-1007, [0089].



Ex-1007, Figure 10. Ex-1002 ¶290.

The first and second subsets of information (for different terminals) derive from *Takahashi*'s "game controller" function (element 56 in Figure 10), which determines and transmits game data (e.g., HTML) to both the main-terminal (e.g., PC 12) and the sub-terminal (e.g., mobile terminal 10) during game play. Ex-1007, [0106]-[0107]. Ex-1002 ¶291.

The functions are part of a "specific application," i.e., the "game program." Ex-1007, [0064]. Ex-1002 ¶292.

N. Claim 25

Claim 25 is rendered obvious by *Takahashi* and a POSITA's knowledge. Ex-1002 ¶¶293-304.

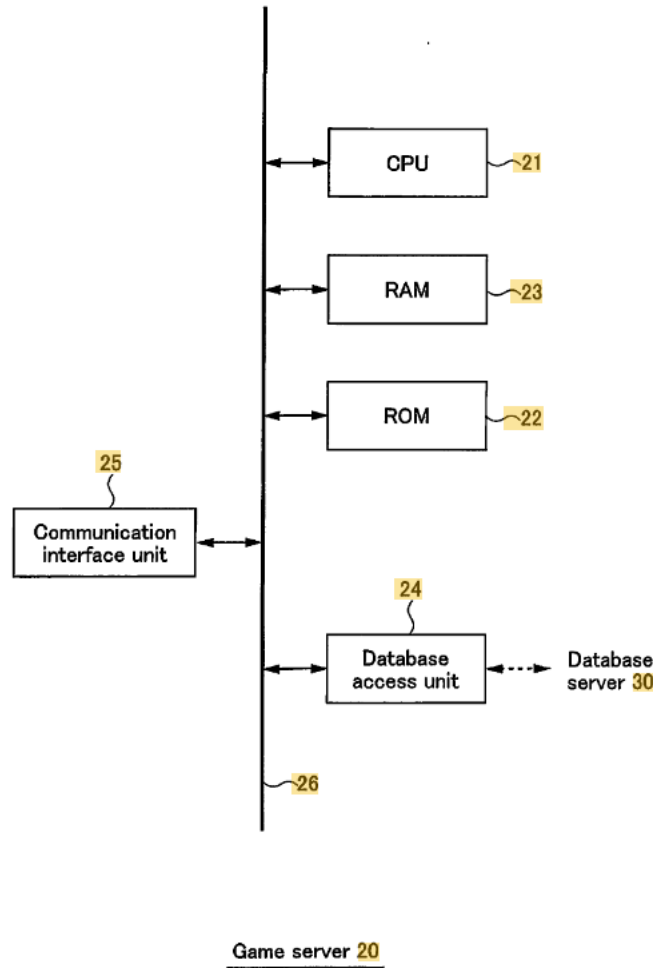
1. Element [25Preamble]

Takahashi discloses this element. *Takahashi* discloses the “game control system” of Figure 1. Ex-1007, [0018]. Ex-1002 ¶293.

Takahashi discloses that the system transmits information to a plurality of communication terminals (electronic devices). Ex-1007, [0006]-[0007], [0012]. Ex-1002 ¶294.

2. Element [25a]

Takahashi discloses this element. *Takahashi* discloses ROM 22 that is part of game server 20 that stores HTML documents and images (information). Ex-1007, [0063].



Ex-1007, Figure 4. Ex-1002 ¶295.

A POSITA understands a ROM read-only memory is an electronic data store configured for electronically storing information. Ex-1002 ¶296.

Takahashi also discloses user database 31 and game database 32 that is part of database server 30 “realized by a general purpose storage such as a high-capacity hard disc drive, a redundant array of inexpensive disks (RAID) or other form of device” that stores other information (user information and game information). Ex-1007, [0068]; Ex-1007, [0023], Figure 5. Ex-1002 ¶297.

A POSITA understands a database (e.g., user database 31, game database 32) is an electronic data store configured for electronically storing information. Ex-1002 ¶298.

3. Element [25b]

Notably, “the first and second subsets of information” lacks antecedent basis. If the phrase refers to “a first subset of the information” and “a second subset of the information” that appear later in the claim, that limitation is also found in claim 1 and a similar limitation is found in claim 24. *Takahashi* discloses this element as explained for claim elements [1b] and [24a]. Ex-1002 ¶299-300.

4. Element [25c]

Takahashi discloses this element. CPU 21 (i.e., a processor or central processing unit) is part of game server 20. Ex-1007, [0062]. Ex-1002 ¶301.

5. Element [25d]

This element is also found in claim 1. *Takahashi* discloses this element as explained for claim element [1b]. Ex-1002 ¶302.

6. Element [25e]

This element is also found in claim 1. *Takahashi* discloses this element as explained for claim element [1c]. Ex-1002 ¶303.

7. Element [25f]

This element is also found in claim 1. *Takahashi* discloses this element as explained for claim element [1d]. Ex-1002 ¶304.

O. POSITA's Knowledge

As addressed above (in this Ground 7), *Takahashi* fully discloses all elements of claims 1-5, 9-10, 13-14, 16, and 23-25. Alternatively, it is obvious to modify *Takahashi* in view of a POSITA's knowledge to achieve the features of claims 1-5, 9-10, 13-14, 16, and 23-25. Additionally, claims 12 and 17 are obvious in view of *Takahashi* and a POSITA's knowledge. Ex-1002 ¶305.

1. Claim 1 (and dependent claims) and Claim 25

a) “at a/the server”

While *Takahashi* illustrates game server 20 and database server 30 as physically separate (Ex-1007, Figure 1), the database server 30 is disclosed as being part of game server 20 (*see* discussion for element [1b]). Nevertheless, a POSITA would find it obvious to combine the functionality of database server 30 with game server 20, i.e., as a single physical unit. Ex-1002 ¶308.

Assuming *Takahashi*'s database and game servers are physically distinct (they are not), a POSITA would understand *Takahashi*'s assumed example topology is just one of many available topologies, e.g., a single server functions as both the game (application) server and the database server. A POSITA would understand that a “device” need not (nor commonly would be) monolithic. Typically, a set of components together make the “device.” Ex-1002 ¶309.

The '841 Application acknowledges application and database servers related to an application may reside on the same physical server or separate physical servers. Ex 1015, [0021]. Ex-1002 ¶310.

The '770 Application discloses an application server providing data over the internet via HTML (Ex-1016, [0133]) and further confirms that using the same or separate servers for application and database functions was well known in 2014. “It should be noted that the functions described with respect to various servers herein (e.g., application server, database server, host server, file server, etc.) can be performed by a single server and/or a plurality of specialized servers, depending on implementation-specific needs and parameters.” Ex-1016, [0134]. Ex-1002 ¶311.

Assuming *Takahashi*'s depicts two physically separate servers, that is a mere design choice and a POSITA could successfully combine game server 20 and database server 30 into a single physical server, rendering claims 1, 23, and 25 (and all claims depending from claim 1) obvious. Ex-1002 ¶312.

b) “determining [whether devices are accessible] based on the first user being logged into the application at both the first and second devices”

Determining whether first and second devices are accessible based on the first user being logged in at both devices is obvious considering a POSITA's knowledge. A POSITA would know that basing the determination on user login would reduce the load that the game server would otherwise experience if users who have not

logged in (e.g., guest users) could play games whenever they want. In addition, by basing the determination on the user being logged in, a POSITA understands the game server can save bandwidth by not attempting to transmit data to users who are no longer logged in (e.g., users who logged out). Additionally, a POSITA understands that *Takahashi*'s disclosure that the identification of a main-terminal and a sub-terminal among the single or the plurality of communication terminal(s) of the user(s) whose access request has been accepted requires that the user's identity be determined. A POSITA understands that a commonly employed basis for such a determination would be the user(s) logging into the server, thereby providing credentials sufficient to make the identification across a plurality of terminals. Evidence of this general knowledge is evident from the other prior art references discussed herein, such as *Zha* and *Tsushima*, both of which enforce a login policy so that the server can identify and access the devices seeking to use the disclosed applications. To the extent necessary, a POSITA would be motivated and would be successful in basing the determination based on the user being logged into the application at both the first and second device, rendering claim 1 and all dependent claims obvious. Ex-1002 ¶314.

c) “if and only if”

The “if and only if” limitation is obvious based on a POSITA's knowledge. A POSITA would know to modify *Takahashi* in order to save bandwidth by

transmitting information if and only if both terminals of a user are determined to be accessible. Additionally, transmitting information to terminals that are not accessible could result in error messages or other exceptions. This general knowledge is evident from the other prior art references discussed herein, such as *Tsushima*, which discloses enforcement of an “if and only if” policy at step S503 of Figure 5 (*see, e.g.*, discussion in Ground 8). Consequently, claim 1 and all dependent claims would be rendered obvious. Ex-1002 ¶315.

2. Claim 2

a) “transmitting at least a portion of the first subset of the information to the second device”

“Transmitting at least a portion of the first subset of the information to the second device” is obvious based on *Takahashi* and a POSITA’s knowledge of how HTML works. A POSITA would know that the fish objects that are displayed on both the main-terminal and the sub-terminal could use the same image file (e.g., a JPEG image). Further, a POSITA would find it desirable to use the same image file on both terminals to ensure continuity in game play and avoid confusion as to whether a particular fish was caught. Ex-1002 ¶316.

b) “only if”

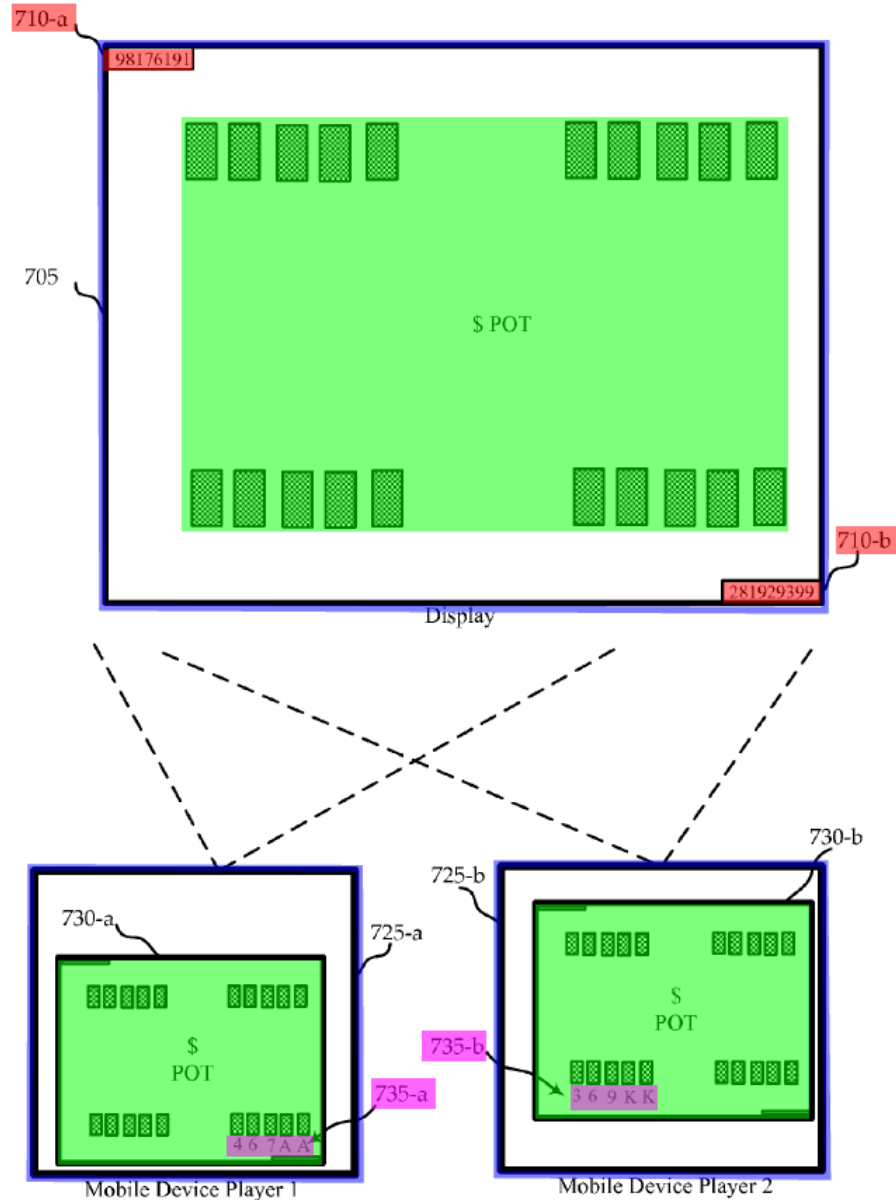
The “only if” aspect of claim 2 is obvious based on *Takahashi* and a POSITA’s knowledge for the same reasons discussed above. *See supra*, Part XIV.O.1.c. Ex-1002 ¶317.

3. Claims 3 & 4: “sensitive information,” “non-sensitive information,” and “more sensitive” information

The “sensitive information” and “non-sensitive information” limitations of claim 2 and the “more sensitive” information limitation of claim 3 are obvious based on *Takahashi* and a POSITA’s knowledge of other games that could be played using *Takahashi*’s system. Ex-1002 ¶318.

Takahashi teaches that “[a]ny game that is realized using a main-terminal and a sub-terminal may be applied.” Ex-1007, [088]. *Takahashi* suggests and encourages use with other games that require both the PC and the mobile device and, in so doing, a POSITA would look to other prior art in the same field as *Takahashi*, including *Stafford* and U.S. Patent Pub. No. 2006/0058088 (“*Crawford*”) (Ex-1018). Ex-1002 ¶319.

As discussed above in Ground 5, *Stafford* discloses using both a main terminal and a mobile terminal to play poker. In *Stafford*’s Figure 7, “image 705 is video card game on a display In the image 705, there are markers 710 identifying binary codes placed in certain corners.” Ex-1012, [0064].



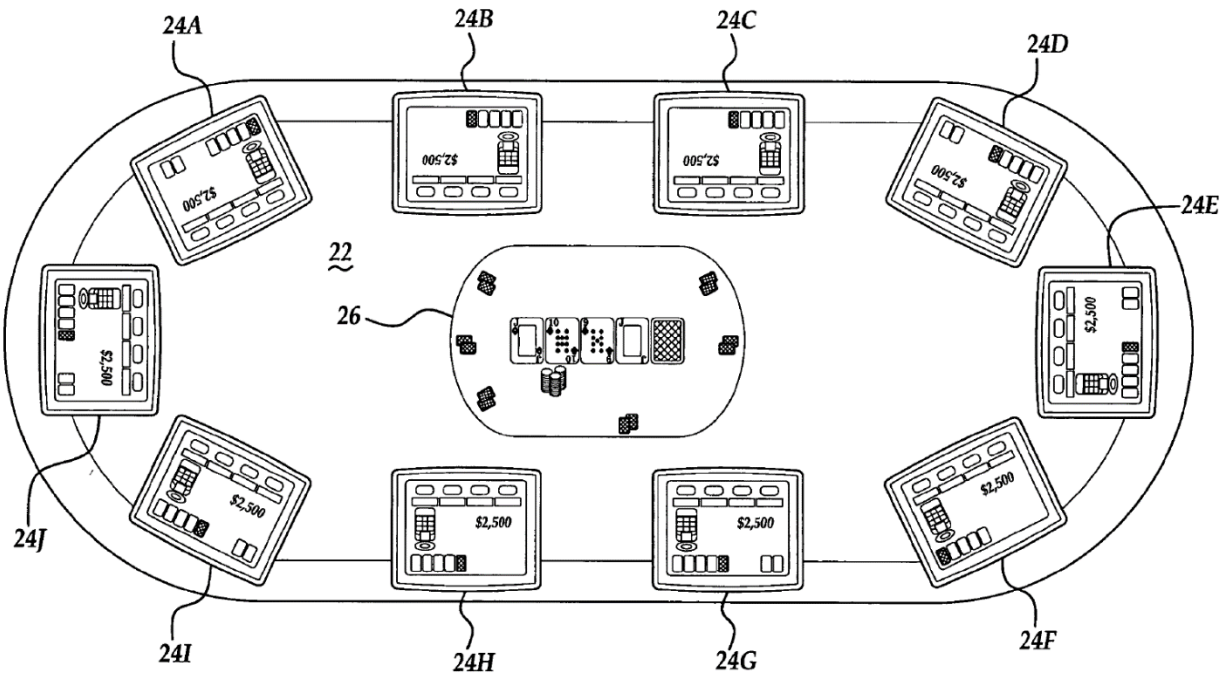
Ex-1012, Figure 7. Ex-1002 ¶320.

Stafford discloses a poker game that includes images on a main display (e.g., 705) and images on mobile devices (e.g., 725-a and 725-b) where the information displayed on the mobile devices is “secret” because it shows each individual user’s hole cards in a game of poker (e.g., 4, 6, 7, A, A for mobile device player 1 (725-a)).

Ex-1002 ¶321-323.

Crawford (Ex-1018) is prior art to the '376 patent under at least 35 U.S.C. § 102(a)(2) because it was effectively filed on November 19, 2004, almost 10 years prior to the '376 patent's filing date on July 28, 2014. Ex-1012, [22].

Crawford also discloses using both main and mobile terminals to play poker. *Crawford* discloses the “central display area” as the main terminal and “electronic player interaction area 24” as the mobile terminal (“hand-held device”) where a player's hole cards are displayed (face-down). Ex-1018, [0118], [0066].



Ex-1018, Figure 7. Ex-1002 ¶325.

Like *Stafford*, *Crawford* discloses a poker game that includes a main display (e.g., 26) and mobile devices (e.g., 24A-J) where the information displayed on the mobile devices is secret because it shows each individual user's hole cards in a game of poker. Ex-1002 ¶326.

A POSITA would have general knowledge of poker games, including those that use main and sub terminals to protect the player's sensitive hold cards at least as early as 2004 when *Crawford* was filed. Ex-1002 ¶327.

A POSITA would be motivated to implement *Crawford* and *Stafford*'s poker games such in *Takahashi*'s system because *Takahashi* expressly discloses that “[a]ny game that is realized using a main-terminal and a sub-terminal may be applied.” Ex-1007, [088]. A POSITA understands this a known technique (*Takahashi*'s system) may improve similar products (poker game products) in the same way (in *Takahashi*'s web-based client-server environment). Ex-1002 ¶328.

Crawford and *Stafford* show that a POSITA would be successful in implementing a poker game with community cards displayed on a main terminal and hole cards displayed in a mobile terminal. A POSITA may find the poker game easier to implement than the *Takahashi*'s fishing game because the poker game is relatively static whereas the fishing game requires real-time feedback to control a fishing rod in the main terminal based on a user casting via movement of the mobile terminal. Ex-1002 ¶329.

Claims 3 and 4 are obvious because a POSITA would be motivated to implement a poker game in *Takahashi*'s system. The hole cards are the “sensitive information” (claim 3) and the “more sensitive” information (claim 4). The

communal cards on the main display are the “non-sensitive information” (claim 3).
Ex-1002 ¶330.

4. Claim 12

Claim 12 is rendered obvious by *Takahashi* and a POSITA’s general knowledge. A POSITA would be motivated to implement *Stafford* and *Crawford*’s poker games in *Takahashi*’s system, and the hole cards in that online poker game would be received at the second device (user’s mobile terminal). Ex-1002 ¶331.

5. Claim 17

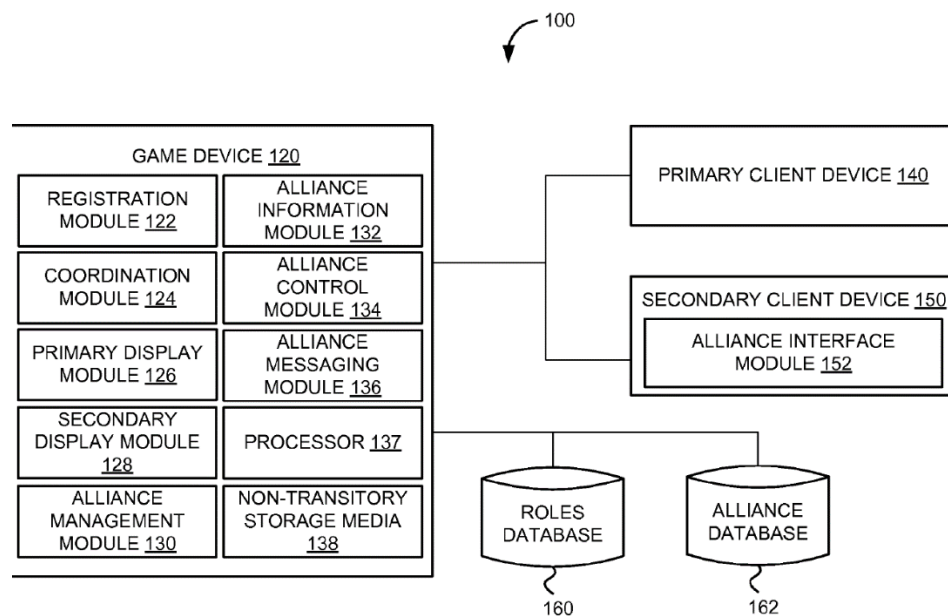
Claim 17 is rendered obvious by *Takahashi* and a POSITA’s general knowledge. A POSITA would be motivated to implement *Stafford*’s and *Crawford*’s poker games in *Takahashi*’s system, and the hole cards in that online poker game would be communicated by the game server to the second device (user’s mobile terminal). Ex-1002 ¶332.

6. Claim 9: “transmitting ... over independent electronic communications networks”

To the extent it is argued that *Takahashi* does not expressly disclose “transmitting... over independent electronic communications networks,” this is obvious based on *Takahashi* and a POSITA’s knowledge of other multi-client, client-server systems where the server transmits information to mobile devices via a cellular network and the server transmits information to personal computers via a wired network. Ex-1002 ¶333.

U.S. Patent No. 9,330,531 (“*Wakeford*”) (Ex-1013) was filed on March 14, 2013, more than a year prior to the ’376 patent’s filing date on July 28, 2014. Ex-1013, [22].

Wakeford is directed to a multi-client, client-server gaming system: “System 100 may include a game device 120, a primary client device 140, a secondary client device 150, and/or other components.” Ex-1013, 4:9-11.



Ex-1013, Figure 1. Ex-1002 ¶335.

Figure 3C “illustrates a block diagram of a second particular architecture for interacting with the game device, according to an embodiment of the invention.”

Ex-1013, 3:16-18.

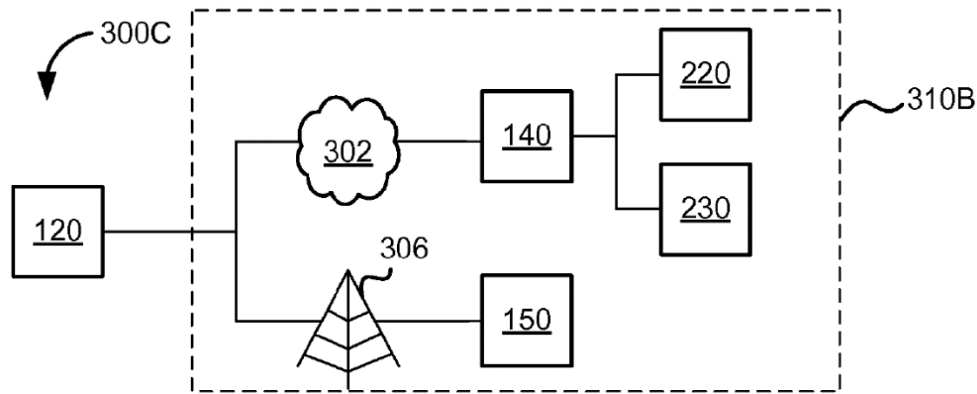


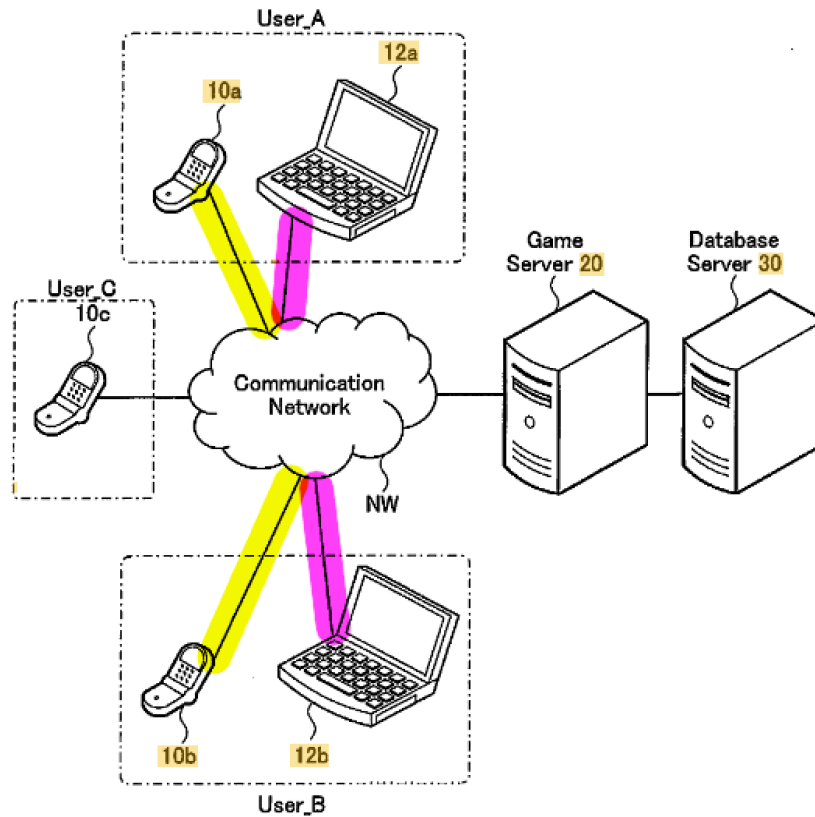
FIG. 3C

Ex-1013, Figure 3C. Ex-1002 ¶336.

In Figure 3C, “game device 120 may be configured as a networked server device that facilitates online gameplay between one or more users.” Ex-1013, 11:23-25. Figure 3C illustrates “primary client device 140” and “secondary client device 150” that are “communicably coupled” to game device 120. Ex-1013, 4:9-11, 11:13-16. *Wakeford* discloses that “instead of using the same communication channel over network 302 as primary client device 140, secondary client device 150 may use a separate network connection, such as a cellular communications network 306.” Ex-1013, 11:41-44. Ex-1002 ¶337.

Wakeford shows a POSITA would know that servers in multi-client, client-server applications are capable of transmitting information “over independent electronic communications networks” using known techniques. This general knowledge, combined with *Takahashi*’s depiction of two separate connection lines

(highlighted pink and yellow below) confirms that claim 9 would be obvious in view of *Takahashi* and a POSITA's knowledge.



Ex-1007, Figure 1. Ex-1002 ¶338.

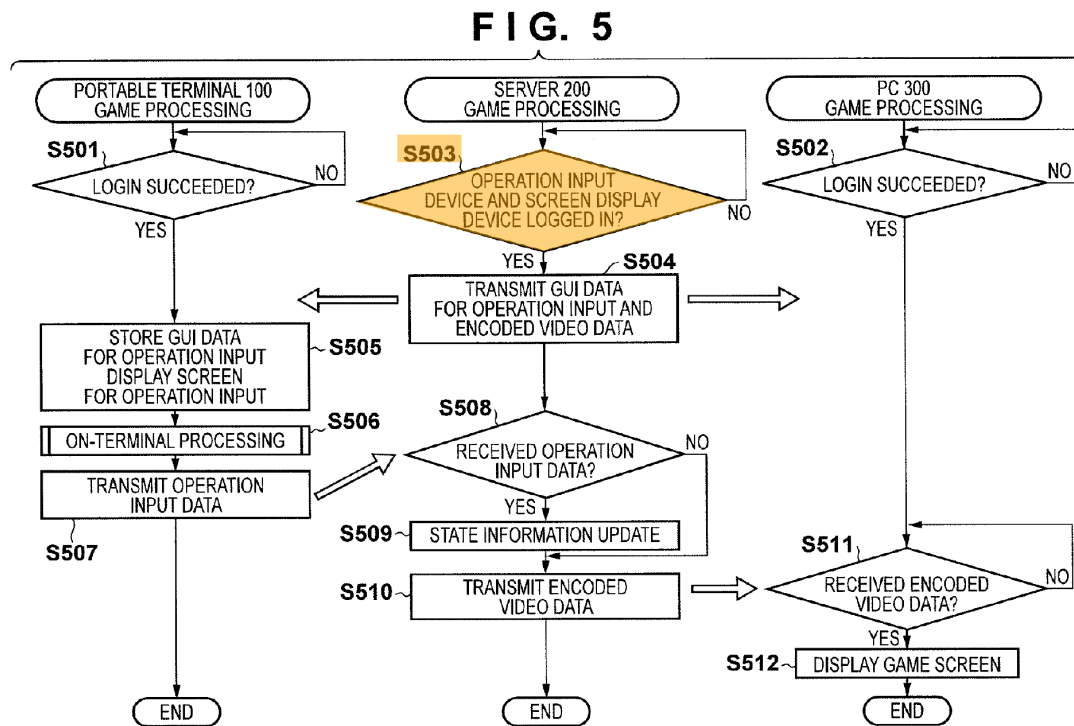
XV. GROUND 8: CLAIMS 1-5, 9-10, 12-14, 16-17, AND 23-25 ARE OBVIOUS IN VIEW OF *TAKAHASHI*, POSITA'S KNOWLEDGE, AND *TSUSHIMA*

A. Claims 1 & 25: “if and only if”

To the extent it is argued *Takahashi*, as supplemented with the general knowledge of a POSITA (Ground 7), does not render the “if and only if” condition of claims 1 & 25 obvious, *Tsushima* discloses this aspect of the claims and *Takahashi*

combined with *Tsushima* renders the “if and only if” limitation of claims 1 & 25 obvious. Ex-1002 ¶340.

Tsushima discloses “[i]n step S503, the server CPU 201 determines *whether or not login to a service succeeded on both* an operation input device (the portable terminal 100) and a screen display device (the PC 300) for a user ID that is a target of service provision.” Ex-1010, [0059].



Ex-1010, Figure 5. Ex-1002 ¶341.

Tsushima expressly discloses to transmit data to the operation input device (the portable terminal 100) and a screen display device (the PC 300) “if and only if” both devices have successfully logged in. Ex-1010, [0062]-[0063], Figure 5. Ex-1002 ¶¶342-343.

A POSITA would have considered implementing *Tsushima*'s "if and only if" condition in *Takahashi*'s game control device obvious, e.g., when implementing a game that required both the main-terminal and sub-terminal. "[G]ame server 20 is not limited to a specific type of game. Any game that is realized using a main-terminal and a sub-terminal may be applied." Ex-1007, [088]. A POSITA understands *Takahashi* could be used to implement games that require both the PC and the mobile device and, in so doing, a POSITA would look to *Tsushima*'s disclosure to ensure both devices were logged in before beginning the game and/or transmitting information to the devices. Ex-1002 ¶344.

A POSITA would look to *Tsushima* in this capacity at least because of the vast similarities between *Takahashi* and *Tsushima*. Both inventions address similar challenges with similar solutions. Ex-1002 ¶345.

For these reasons, a POSITA would consider *Tsushima* to be within the same scope and content of art as *Takahashi* and would look to *Tsushima*'s disclosure to ensure both devices in *Takahashi* are logged in when the style of game so necessitates before beginning the game and transmitting data to the devices. The "if and only if" limitation of claims 1 and 25 are rendered obvious by *Takahashi* and *Tsushima*. Ex-1002 ¶346.

XVI. DISCRETIONARY DENIAL IS UNWARRANTED

The Board should not exercise its discretion to deny institution. The *Apple v. Fintiv* (IPR2020-00019) factors weigh against discretionary denial:

Factor 1: The court scheduled a *Markman* hearing for October 11, 2023, and stayed the case “in all other respects.” *Rubin v. Kahoot! ASA*, 1:23-cv-031-LY (WDTX) (D.I. 31, 35). The court typically stays cases after an IPR petition has been filed.

Factor 2: As of filing this Petition, the parallel district court case is in its infancy. The court conducted an Initial Pretrial Scheduling Conference on February 10, 2023, entered a Scheduling Order setting a *Markman* hearing for October 11, 2023, and stayed the case in all other respects. *Id.* No trial date has been scheduled. Thus, a FWD in this IPR is likely to issue prior to the conclusion of a jury trial.

Factor 3: As of the time of this Petition, the parties and the court have made minimal investment in the parallel district court proceedings. Petitioners have answered the complaint and the court conducted an Initial Pretrial Scheduling Conference. Plaintiff served Preliminary Infringement Contentions. No other discovery has been conducted.

Factor 4: There should be no overlap between this IPR and the district court proceeding. Petitioner’s Invalidity Contentions are not due to be served in the parallel district court proceedings until June 2, 2023. *Id.*

Factor 6: The unpatentability grounds presented here are strong, and this IPR will resolve issues raised in the district court involving the challenged patent. While Petitioner is filing this petition at the end of the statutory period under § 315(b), circumstances do not represent an undue delay. Patent Owner filed its Complaint in the Waco Division of the Western District of Texas on March 3, 2022. However, after Patent Owner filed his notice of non-opposition to transfer, Judge Albright transferred the case to the Austin Division on November 18, 2022. *Rubin v. Kahoot! ASA*, 6:22-cv-00236-ADA (WDTX) (D.I. 27). Petitioner's delay resulted from Patent Owner filing its Complaint in the transferor court.

XVII. CONCLUSION

Petitioner respectfully requests a trial be instituted and claims 1-5, 9-10, 12-17, and 23-25 be cancelled.

XVIII. FEES

Petitioner has paid the filing fee via their "active" status debit card registered via the Financial Manager. Please charge any additional fees to Deposit Account No. 50-6736.

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

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

Petitioner is the real parties-in-interest. No other party had access to, control over, or contributed to funding of the preparation or filing of this Petition.

Kahoot! ASA is a company organized under the laws of Norway, with its principal place of business at Fridtjof Nansens Plass 7 Oslo, 0160 Norway. Kahoot! ASA is a provider of an online game-based learning platform.

Kahoot! EDU, Inc., a wholly-owned subsidiary of Kahoot! ASA, is a Texas corporation, with its principal place of business at 701 Brazos St., Ste. 521 Austin, TX, 78701-3258. Kahoot! EDU, Inc., is a provider of an online game-based learning platform.

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

Patent Owner sued Kahoot! ASA and Kahoot! EDU, Inc. for patent infringement. *Rubin v. Kahoot! ASA et al.*, Civil Action No. 6:22-cv-00236 (W.D. Tex.). The case has been transferred to the Austin Division and assigned to Judge Lee Yeakel. *Rubin v. Kahoot! ASA et al.*, Civil Action No. 1:23-cv-031-LY (W.D. Tex.). Petitioner is unaware of any other judicial or administrative matter that would affect, or be affected by, a decision in this proceeding.

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

Slayden Grubert Beard PLLC provides the following designation of counsel, all of whom are included in Customer No. 86,528 identified in Slayden Grubert Beard PLLC's Power of Attorney, filed concurrently herewith under 37 C.F.R. §42.10(b).

Lead Counsel	Back-up Counsel
R. William Beard, Jr. (Reg. 39,903) wbeard@sgbfirm.com Tel. 512.402.3556	Brian C. Banner (<i>Pro Hac Vice</i> motion forthcoming) bbanner@sgbfirm.com Tel. 512.402.3569

D. Service Information Under 37 C.F.R. §42.8(b)(4)

Service information for lead and back-up counsel is Slayden Grubert Beard PLLC, 401 Congress Ave., Suite 1650, Austin, Texas 78701; Tel. 512-402-3550; Fax 512-402-6865. Petitioner consents to service by electronic mail at litigation@sgbfirm.com, wbeard@sgbfirm.com, and bbanner@sgbfirm.com.

March 10, 2023
Date

/s/ R. William Beard, Jr.

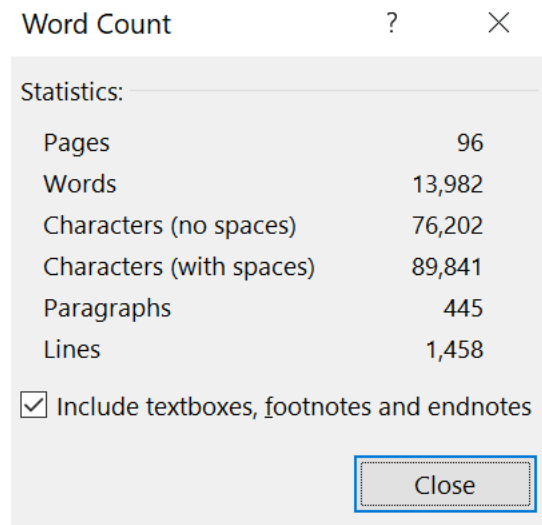
R. William Beard, Jr. (Reg. No. 39,903)
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401 Congress Avenue, Suite 1650
Austin, Texas 78701

Attorneys for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that the foregoing Petition, exclusive of the exempted portions as provided in 37 C.F.R. §42.24(a), contains 13,982 words and complies with the type-volume limitations of 37 C.F.R. §42.24(a) (fewer than 14,000). The word count was calculated by Microsoft Word.



March 10, 2023
Date

/s/ R. William Beard, Jr.

R. William Beard, Jr. (Reg. No. 39,903)
Brian C. Banner (*Pro Hac Vice*)

Slayden Grubert Beard PLLC
401 Congress Avenue, Suite 1650
Austin, Texas 78701

Attorneys for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e), the undersigned certifies that the foregoing Petition and Exhibits 1001-1018 have been served simultaneously with filing. Service is via FedEx Priority Overnight, which is at least as fast and reliable as Priority Mail Express.

Pursuant to 37 C.F.R. §42.105, service of the petition and supporting evidence has been made on the patent owner at the correspondence address of record for the '376 patent, which is:

JAMES DENARO
17012 - CipherLaw
PO Box 34783
Bethesda, MD 20827

March 10, 2023
Date

/s/ R. William Beard, Jr.

R. William Beard, Jr. (Reg. No. 39,903)
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Slayden Grubert Beard PLLC
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Attorneys for Petitioner

APPENDIX A

RECITATION OF CHALLENGED CLAIMS

1	[1preamble] — “A method for transmitting information to multiple electronic devices” [1a] — “electronically storing a set of information at a server” [1b] — “identifying a first subset of the information and identifying a second subset of the information, wherein the first and second subsets of information are generated by the same application at the server and are specific to that application” [1c] — “determining at the server whether both a first device in possession of and being directly operated by a first user and a second device also in possession of and being directly operated by the first user are accessible over at least one electronic communications network based on the first user being logged into the application at both the first and second devices” [1d] — “if and only if both the first and second devices are determined to be accessible by the server, then: transmitting a first subset of the information to the first device from the server; and transmitting a second subset of the information to the second device from the server, wherein the second subset of the information includes information not transmitted to the first device”
2	“The method of claim 1, further comprising transmitting at least a portion of the first subset of the information to the second device from the server only if both the first and second devices are determined to be accessible by the server.”
3	“The method of claim 1, wherein the first subset of the information comprises non-sensitive information; and the second subset of the information comprises sensitive information.”
4	“The method of claim 1, wherein the information received at the second device is more sensitive than the information received at the first device.”
5	“The method of claim 1, further comprising: determining if connectivity between the server and the second device has been disrupted; and

	providing a notification on the second device that the connectivity has been disrupted.”
9	“The method of claim 1, wherein the transmitting a first subset of the information to the first device from the server and transmitting a second subset of the information to the second device from the server are executed over independent electronic communications networks.”
10	“The method of claim 1, further comprising displaying a graphical identifier on the first device and a corresponding graphical indicator on the second device indicating a link between the information displayed on the respective devices.”
12	“The method of claim 1, wherein the information received at the second device is a user's private cards in an online card game.”
13	“The method of claim 1, wherein the a display on the first device is being viewed exclusively by a first user and a display on a second device is also being viewed exclusively by the first user.”
14	“The method of claim 1, wherein, neither the first subset of information nor the second subset comprise a two factor authentication code.”
15	“The method of claim 1, wherein the server is a proxy server configured to relay communications from an application server to the first and second devices wherein the proxy server emulates a client to the application server.”
16	[16preamble] — “The method of claim 1, further comprising” [16a] — “configuring the server for managing an online game, and” [16b] — “wherein the server is configured to communicate with a plurality of devices including a first electronic device and a second electronic device” [16c] — “wherein the first electronic device is primarily used to play the game, and” [16d] — “wherein in the game server communicates sensitive information to the second electronic device so that sensitive information can be presented to a user”
17	“The method of claim 16, wherein the online game is poker and wherein the information that is communicated to the second device includes hole cards.”

23	“The method of claim 1, further comprising electronically storing at the server a parameter indicating whether subsets of the information are to be divided between two or more devices.”
24	“The method of claim 1, wherein the first and second subsets of information are application-specific, and wherein the first and second subsets of information derive from functions within a specific application.”
25	[25preamble] — “A system for transmitting information to multiple electronic devices” [25a] — “an electronic data store configured for electronically storing a set of information at a server” [25b] — “wherein the first and second subsets of information are generated by the same application at the server and are specific to that application” [25c] — “a processor device programmed for:” [25d] — “identifying a first subset of the information and identifying a second subset of the information” [25e] — “determining at the server whether both a first device in possession of and being directly operated by a first user and a second device also in possession of and being directly operated by the first user are accessible over at least one electronic communications network based on the first user being logged into the application at both the first and second devices” [25f] — “if and only if both the first and second devices are determined to be accessible by the server, then: transmitting a first subset of the information to the first device from the server; and transmitting a second subset of the information to the second device from the server, wherein the second subset of the information includes information not transmitted to the first device”