APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/060,657	02/24/2011	Yigang Cai	CAI 132-16	1901

50525 7590 03/12/2018		EXAMINER
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1526 SPRUCE STREET		
SUITE 302		
BOULDER, CO 80302	ART UNIT	PAPER NUMBER
	3649	

NOTIFICATION DATE	DELIVERY MODE
03/12/2018	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte YIGANG CAI and XIANGYANG LI

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Appeal 2016-006231
Application 13/060,657
Technology Center 3600

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Before SCOTT C. MOORE, AMEE A. SHAH, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

The Appellants[2] appeal under 35 U.S.C. § 134(a) from the Examiner's

final decision rejecting claims 1, 2, 5–10, 13, 14, 17, 19, and 20, which are

all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Throughout this decision, we refer to the Appellants' Appeal Brief
("Appeal Br.," filed Oct. 15, 2015), Reply Brief ("Reply Br.," filed June 3,
2016), and Specification ("Spec.," filed Feb. 24, 2011), and to the
Examiner's Answer ("Ans.," mailed Apr. 7, 2016), and Final Office Action
("Final Act.," mailed July 16, 2015).
[2] According to the Appellants, the real party in interest is Alcatel-Lucent
USA Inc. Appeal Br. 3.

STATEMENT OF THE CASE

The Appellants' invention relates generally to "the field of communication networks and, in particular, to correlating credit requests in an Online Charging System (OCS) that are received from network elements of an IMS network to provide more accurate charging for a session." Spec. 1, ll. 6–8.

Claims 1, 9, and 17 are the independent claims on appeal. Claim 9 is exemplary of the subject matter on appeal and is reproduced below (with bracketing added for sake of reference).

> 9. A method of providing online charging for an IP Multimedia Subsystem (IMS) session in an Online Charging System (OCS), the method comprising:
>
> [(a)] receiving a first charging request for a session in the OCS from a first network element in an IMS network; rate;
>
> [(b)] determining a charging rate for the session at the OCS based on the first charging request;
>
> [(c) granting, at the OCS, a credit quota to the first network element based on the charging rate;
>
> [(d)] transmitting a first charging response from the OCS to the first network element indicating the credit quota;
>
> [(e)] receiving a second charging request in the OCS from a second network element in the IMS network that serves the session in addition to the first network element;
>
> [(f)] determining, at the OCS, that the second charging request relates to the same session as the first charging request;
>
> [(g)] correlating, at the OCS, the second charging request with the first charging request to generate correlated charging information for the session when the first and second charging requests relate to the same session;
>
> [(h)] determining an updated charging rate for the session based on the correlated charging information;

[(i)] transmitting a credit return request from the OCS to the first network element requesting that the previously-granted credit quota be returned;

[(j)] granting, at the OCS, credit quotas for the first and second network elements based on the updated charging rate that was determined based on the correlated charging information; and

[(k)] providing the credit quotas from the OCS to the first and second network elements.

Appeal Br. 24–25 (Claims App.).

REJECTIONS

Claims 1, 2, 5–10, 13, 14, 17, 19, and 20 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. Final Act. 2.

Claims 1, 2, 5, 6, 9, 10, 13, 14, 17, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over den Hartog (US 2008/0062966 A1, pub. Mar. 13, 2008) and Zhu (US 2008/0205381 A1, pub. Aug. 28, 2008). Final Act. 5.

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over den Hartog, Zhu, and Koskinen (US 2004/0167834 A1, pub. Aug. 26, 2004). Final Act. 9.

ANALYSIS
35 U.S.C. § 101 – Non-statutory Subject Matter

The Appellants argue claims 1, 2, 5–10, 13, 14, 17, 19, and 20 as a group. *See* Appeal Br. 9, 15. We select claim 9 as representative of the group with claims 1, 2, 5–8, 10, 13, 14, 17, 19, and 20 standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Under 35 U.S.C. § 101, a patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." The Supreme Court has "long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 588–89 (2013)).

The Supreme Court in *Alice* reiterated the two-step framework, set forth previously in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 78–79 (2012), "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S. Ct. at 2355. The first step in that analysis is to "determine whether the claims at issue are *directed to* one of those patent-ineligible concepts." *Id.* (citing *Mayo*, 566 U.S. at 79) (emphasis added). If so, the second step is to consider the elements of the claims "individually and 'as an ordered combination'" to determine whether the additional elements "'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo*, 566 U.S. at 79, 78).

In other words, the second step is to "search for an 'inventive concept'—*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Id.* (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73). The Court acknowledged in *Mayo*, that "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*, 566 U.S. at 71. We,

therefore, look to whether the claims focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea, and merely invoke generic processes and machinery, i.e., "whether the focus of the claims is on [a] specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016).

Under the first step of the *Mayo/Alice* framework, the Examiner determines that the claim is directed to "the concept of determining charging rate for a session based upon various attributes" (Final Act. 2; Ans. 3) and "adjusting credit quota on a generic computer" (Ans. 4). Conversely, the Appellants contend that the claims are directed to "specific ways of providing online charging for a session of an IMS network when multiple NEs of the IMS network submit charging requests to the OCS" (Appeal Br. 12) and, specifically, to a system that "correlates charging requests from multiple NEs of the IMS network for the same session, determines an updated charging rate for the session based on correlated charging information, and grants credit quotas for the first and second network elements based on the updated charging rate" (Reply Br. 4–5[3]).

Before determining whether the claims at issue are directed to an abstract idea, we must first determine what the claims are directed to.

> The "directed to" inquiry . . . cannot simply ask whether the
> claims *involve* a patent-ineligible concept, because essentially
> every routinely patent-eligible claim involving physical

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[3] We note that the pages of the Reply Brief are not numbered. We therefore consider the page that contains the title "REPLY BRIEF" page 1, and each page thereafter sequentially numbered.

> products and actions *involves* a law of nature and/or natural phenomenon—after all, they take place in the physical world. *See Mayo*, 132 S. Ct. at 1293 ("For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.") Rather, the "directed to" inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether "their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015); *see Genetic Techs. Ltd. v. Merial L.L.C.*, [818 F.3d 1369, 1375] (Fed. Cir. 2016) (inquiring into "the focus of the claimed advance over the prior art").

Enfish, 822 F.3d at 1335.

The step-one analysis requires us to consider the claims "in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Patents Corp.*, 790 F.3d at 1346. The question is whether the claims as a whole "focus on a specific means or method that improves the relevant technology" or are "directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016).

In this case, the preamble of claim 9 provides for a "method of providing online charging for an IP Multimedia Subsystem (IMS) session in an Online Charging System (OCS)." Appeal Br. 24 (Claims App.). Claim 9 recites the limitations of receiving request data from a first element in the IMS network, determining a charging rate, granting at the OCS a credit quota, transmitting first charging data from the OCS to the first element, receiving request data from a second element in the IMS network, determining that the second request data relates to same session as the first data, correlating the request data to generate correlated charging data,

determining an updated charging rate based on the correlated data,
transmitting a credit request data, granting at the OCS credit quotas based on
the updated charge rate, and providing the credit quotas to the elements. *See
id.* at 24–25. Independent claim 1 recites a system comprising a server
configured to perform the functions of claim 9, and claim 17 similarly
recites a network and system configured to perform the function of claim 9.
See id. at 22, 26.

The Specification states that the invention relates particularly to
"correlating credit requests in an Online Charging System (OCS) that are
received from network elements of an IMS network to provide more
accurate charging for a session." Spec. 1, ll. 7–8. The Specification
discusses that problems with the prior art way of "performing online
charging" included "that the IMS subscriber may be overcharged or
undercharged for the session" (*id.* at 2, ll. 28–30), and "[b]ecause the rating
engine determines a charging rate for each individual online charging
request, the rating engine is not able to determine the correct charging rate
for the overall session" (*id.* at 3, ll. 17–19). As such, the invention
"correlate[s] online charging requests that are received in the OCS so that a
correct charging rate may be determined for the overall session." *Id.* at 3,
ll. 21–22. The Specification states that the network elements can "comprise
any servers, systems, or functions operable to provide communication
services and to report charging events to OCS." *Id.* at 6, ll. 6–7. And,
similarly, the OCS is "any system, server, or function operable to perform
online charging, such as by receiving online charging requests from network
elements 112–113 that are serving a session, determining a charging rate for
the session, and granting credit quotas to the network elements 112–113 for
the session." *Id.* at 6, ll. 11–14. The Specification does not provide details

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as to how the first charging rate is determined, providing only that "[i]n determining the charging rate, rating engine 126 may process a session identifier, a service identifier, or any other desired charging information, such as the calling party number, the called party number, a media description, the time of day, an access network identifier, etc." *Id.* at 7, ll. 27–31. "To 'correlate' the online charging requests, correlation system 124 may group the online charging requests together, extract desired charging information from the online charging requests, or otherwise link the online charging requests or charging information together for processing." *Id.* at 9, ll. 4–7. For example, to correlate, the system may consolidate charging information from multiple requests in a message that includes parameters for charging information for each of the requests. *Id.* at 9, ll. 7–10. The determination of an updated charge is based on the correlated requests and stored rate rules by, for example, parsing each request and rule to determine a defined charging rate. *Id.* at 9, ll. 15–21. The Specification does not provide details on how the granted credit quota is determined, but states that the quota is "based on the new charging rate." *Id.* at 9, l. 22.

In that context, we determine that the claims are directed to determining charging rates for a communication session by correlating requests.[4] The claims are similar to those found to be abstract ideas by our reviewing court in *Versata Develop. Grp., Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1334 (Fed. Cir. 2105) (determining a price using

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[4] We note that "an abstract idea can generally be described at different levels of abstraction." *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016). The Board's "slight revision of its abstract idea analysis does not impact the patentability analysis." *Id.* at 1241.

organizational and group hierarchies), *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (gathering and analyzing information of a specified content and displaying the result), *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) ("offer-based price optimization"), and *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014) (combining and organizing information through mathematical correlations to generate information and not tied to a specific structure or machine). Here, the claim involves nothing more than a building block of receiving, determining, transmitting, correlating, and providing data and granting credit quotas in the communications area, without any particular inventive technology — an abstract idea. *See Electric Power*, 830 F.3d at 1354; *Versata*, 793 F.3d at 1333–34. As such, we find unpersuasive the Appellants' arguments that the claim is not directed to a building block and "would not hinder innovation in the area of IMS networks more that promote it" (Appeal Br. 11; Reply Br. 5), and that the Examiner mischaracterizes the claim (*see* Appeal Br. 12; Reply Br. 4).

We also find unpersuasive the Appellants' argument that the Examiner's rejection is in error because "[t]he Examiner has not set forth any articles or other references that discuss a fundamental practice involving an OCS as recited in claim 1." Appeal Br. 12. As the Appellants note (*id.*), the Examiner does provide support in citing to *Bilski v. Kappos*, 561 U.S. 593 (2010) (Final Act. 3), *Versata*, and *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014) (Ans. 4). Further, there is no such requirement that Examiners must provide "articles or other references" in every case before a conclusion can be made that a claim is directed to an abstract idea. Evidence may be helpful in certain situations where, for instance, facts are in

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dispute. But it is not always necessary, and is not necessary here. *See Mortgage Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325-26 (Fed. Cir. 2016) ("[I]t is also possible, as numerous cases have recognized, that a § 101 analysis may sometimes be undertaken without resolving fact issues.").

Under the second step of the *Mayo/Alice* framework, we agree with and find supported the Examiner's determination that the elements of the claims, individually or as an ordered combination, do not amount to significantly more than that abstract idea. *See* Final Act. 3–4; Ans. 5–6. We are not persuaded of Examiner error by the Appellants' arguments that assert the opposite. *See* Appeal Br. 13–15.

The Appellants state that the elements of the independent claims "recite an inventive concept that transforms [it] into patent-eligible subject matter" and recite the limitations of the claim. Appeal Br. 13–14. The Appellants, however, do not provide further support or reasoning as to why or how the limitations are not well-understood, routine, and conventional functions of a generic computer. As discussed above, the Specification states that the OCS that performs the functions is "any system, server, or function operable to perform online charging" (Spec. 6, ll. 11–12), i.e., a generic computer. There is no indication in the Specification that any technologically novel or inventive hardware is required. *See Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1263 (Fed. Cir. 2016); *see also Enfish*, 822 F.3d. at 1336 (focusing on whether the claim is "an improvement to [the] computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity"). Receiving, determining, transmitting, correlating, and providing charging and credit data are all routine, well-understood, and routine functions of a generic

computer and merely require generic computer implementation. *See Versata*, 793 F.3d at 1334.

The Appellants' argument that the claims recite an inventive concept because they "do not seek to pre-empt the use of charging in an IMS network or any other type of network" (Appeal Br. 13; *see also id.* at 15) is unpersuasive of error. Although the Supreme Court has described "the concern that drives this exclusionary principle [i.e., the exclusion of abstract ideas from patent eligible subject matter] as one of pre-emption" (*see Alice*, 134 S. Ct. at 2354), characterizing pre-emption as a driving concern for patent eligibility is not the same as characterizing pre-emption as the sole test for patent eligibility. "The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability" and "[f]or this reason, questions on preemption are inherent in and resolved by the § 101 analysis." *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2354). Although "preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility." *Id.* That the claims may not preempt all manners of charging in a network do not make them any less abstract. *OIP Techs.*, 788 F.3d at 1363.

We do not agree that the claim "improves the existing technology with an OCS that correlates charging requests from different NEs when determining a charging rate and generating a quota." Appeal Br. 14. Receiving, determining, transmitting, correlating, and providing charging and credit data using a generic computer, i.e., the server or system of the OCS, are not technical or technological improvements to the computer, server, or system. Rather, the claim utilizes a generic processor in its normal

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capacity to simply implement the abstract idea. *See Alice*, 134 S. Ct. at 2359.

We also do not agree with the Appellants' contention that "[t]he Office has not adequately addressed the elements of [the] claim [] to determine whether or not it transforms a potentially abstract idea." Appeal Br. 14. The Examiner analyzes the claim under the two-part *Mayo/Alice* framework and finds that the elements of the claims, considered separately and as an ordered combination,

> do not provide an improvement to another technology or technical field; do not provide an improvement to the functioning of the computer itself; do not apply the judicial exception by use of a particular machine; do not effect a transformation or reduce a particular article to a different state or thing; and do not add a specific limitation other than what is well-understood, routine and conventional in the operation of a generic computer.

Final Act. 4 (emphases omitted); *see also* Ans. 5. Reply Br. 4; Thus, the Examiner has set forth the statutory basis of the rejection in a sufficiently articulate and informative manner as to meet the notice requirement of § 132 as to why the claims are patent-ineligible. *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011); *see also Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990) (Section 132 "is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection").

We find unpersuasive the Appellants' argument that the claims are analogous to those of *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014), because they "solve a technical problem for charging in an IMS network" (Appeal Br. 14), and because the OCS does not operate "in its normal, expected manner [of] determining a charging rate based on a

charging request received from an individual NE," but rather "correlates charging requests from multiple NEs, and determines a charging rate based on the correlated charging information" (*id.* at 14–15).

In *DDR Holdings*, the Federal Circuit determined that the claims addressed the problem of retaining website visitors who, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be transported instantly away from a host's website after clicking on an advertisement and activating a hyperlink. *DDR Holdings*, 773 F.3d at 1257. The Federal Circuit, thus, held that the claims were directed to statutory subject matter because they claim a solution "necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks." *Id.* The court cautioned that "not all claims purporting to address Internet-centric challenges are eligible for patent." *Id.* at 1258. And the court contrasted the claims to those at issue in *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014) in that, in *DDR Holdings*, the computer network was not operating in its "normal expected manner" and the claims did not "recite an invention that is merely the routine or conventional use of the Internet." *Id.* at 1258–59.

In contrast, here, there is no indication here that the claimed invention claims a solution "necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks." *DDR Holdings*, at 1257. The claims address the problem of charging the correct rate for a session. *See* Spec. 3, ll. 16–18, 21–22. Although the session is network-centric, the problem of correctly charging for services is one that existed prior to the Internet. The computers and computer network still operate in their normal capacities to account for undesired/duplicate data by receiving requests, determining rates and charges based on

information, correlating requests by consolidating charging information (*see* Spec. 9, ll. 4–10), transmitting data, and granting and providing credits.

Thus, we are not persuaded of Examiner error in rejecting claim 9 under 35 U.S.C. § 101, and we sustain the Examiner's rejection of claim 9 and of claims 1, 2, 5–8, 10, 13, 14, 17, 19, and 20, which fall with claim 9.

35 U.S.C. § 103 - Obviousness

The Appellants contend that the Examiner's rejection of independent claims 1, 9, and 17 is in error because, in relevant part, the prior art does not teach correlating the requests received from a first element and a second element in a network, and determining a rate for the session based on the correlated information, as recited in limitations (e), (g), and (h) of claim 9 and similarly recited in claims 1 and 18. *See* Appeal Br. 16–18; Reply Br. 7–8. We agree.

The Examiner finds that den Hartog teaches receiving first and second charging requests from a network element, i.e., A-party with UE 1, correlating the requests, and determining a rate for the session based on the correlated requests. *See* Final Act. 5–6; Ans. 7. The Examiner acknowledges that den Hartog does not specifically teach that the second request is received from a second, different network element, i.e., den Hartog's B-party with UE 2. Final Act. 7. However, the Examiner finds that den Hartog "teaches that said correlation can be conducted for more than two communication sessions [0044], thereby suggesting communicating with a second (new) node." *Id.* at 8; *see also* Ans. 7–8. The Examiner further determines that it would have been obvious to modify den Hartog to have the functionality apply to a plurality of network elements

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"for the benefit of conducting a telephone or video conference between participants situated in different locations." Final Act. 8.

Den Hartog discloses an invention that performs a correlation check of communication sessions in a combinatorial network and determines how a subscriber is charged for that session. *See* den Hartog ¶¶ 15, 20. For example, when a subscriber, such as A-party using its user equipment, makes a voice call to another party, such as B-party, the system applies a relevant charge. *See id.* ¶ 37. After establishing the call, A-party may choose to set up an IMS session with B-party. *See id.* ¶ 38. Upon the system determining whether the voice call and IMS were part of the same session, i.e., a combinational session, the charging rate is adapted to reflect the combinational session. *See id.* ¶¶ 44, 45, 79. Thus, the invention "makes it possible for an operator to apply charging a combination of a simultaneous CS-call and a PS-session by the same subscriber and hence provides extension on prior art charging solutions where the CS-call and the PS-session, although being related to each other, were charged independently." *Id.* ¶ 80.

We agree with the Appellants that the Examiner has not adequately shown, such that one of ordinary skill in the art would understand, how den Hartog teaches or renders obvious receiving and correlating requests from two different elements to determine charges/credits for the session. *See* Reply Br. 7–8. One of ordinary skill in the art would not readily understand how communicating with another element would modify den Hartog's invention that receives and correlates requests to determine charges for one subscriber in a combination session (*see* den Hartog ¶ 80) such that the system receives and correlates requests from two subscribers in a session and determines charges for each subscriber for that session, as required by

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the claims. In other words, the Examiner does not adequately establish that correlating for one element in two sessions would be equally applicable to correlating for two elements in one session. *See* Final Act. 8.

Thus, we do not sustain the Examiner's obviousness rejection of independent claims 1, 9, and 17. We also do not sustain the obviousness rejections of dependent claims 2, 5–8, 10, 13, 14, 19, and 20, which rely on the same inadequately supported findings.

DECISION

The Examiner's rejection of claims 1, 2, 5–10, 13, 14, 17, 19, and 20 under 35 U.S.C. § 101 is AFFIRMED.

The Examiner's rejections of claims 1, 2, 5–10, 13, 14, 17, 19, and 20 under 35 U.S.C. § 103(a) are REVERSED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED