AREE WITIN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

INTELLECTUAL VENTURES I LLC AND INTELLECTUAL VENTURES II LLC, **Plaintiff,** **vs.** **AMERICAN AIRLINES, INC.,** **Defendant.**	**Civil Action No. 4:24-cv-00980** **JURY TRIAL**

DEFENDANT AMERICAN AIRLINES, INC.'S P.R. 3-3 INVALIDITY CONTENTIONS

Pursuant to P.R. 3-3, P.R. 3-4, and the Court's Scheduling Order in the above-captioned case (Dkt. 44, 49), Defendant American Airlines, Inc. ("American") serves its Preliminary Invalidity Contentions with respect to the claims identified by Plaintiff Intellectual Ventures I LLC and Intellectual Ventures II LLC (collectively "IV") in its Disclosure of Asserted Claims and Infringement Contentions, served May 23, 2025 ("Infringement Contentions").

These Preliminary Invalidity Contentions are limited to the claims asserted from the six patents identified in IV's Original Complaint (Dkt. 1). The Court has not yet ruled on IV's Opposed Motion for Leave to File an Amended Complaint. *See* Dkt. 48. If the Court grants IV's Motion, American reserves the right to supplement these contentions to raise invalidity and/or unenforceability contentions directed to any new or additional asserted claims.

I. PRELIMINARY STATEMENT AND RESERVATION OF RIGHTS

A. The Asserted Claims

IV asserts the following patents, claims, and priority dates in its Infringement Contentions, served May 23, 2025.

Asserted Patent	Asserted Claims	Asserted Priority Date(s)
'844 patent	7 and 11	December 30, 2004
'722 patent	14, 16, 17, and 18	December 18, 2000
'785 patent	30, 35, and 37	March 31, 2003
'326 patent	1, 4, and 18	January 12, 2004
'469 patent	24, 25, 26, 28, and 32	September 29, 2003
'582 patent	1, 2, 5, and 7	March 13, 2002

The patents identified in the foregoing table are collectively referred to as the "Asserted Patents," and the claims identified in the foregoing table are collectively referred to as the "Asserted Claims." Any reference to an "asserted priority date" in these Preliminary Invalidity Contentions refers to the "Asserted Priority Dates" identified in the foregoing table, and further defined below.

American contends that each of the Asserted Claims is invalid under at least one or more of 35 U.S.C. §§ 101, 102, 103, or 112. Pursuant to the Local Patent Rules, American does not provide any contentions regarding any claims not asserted by IV. To the extent that the Court permits IV to assert additional claims (or patents) against American in the future, American reserves all rights to amend or supplement these Preliminary Invalidity Contentions or to otherwise disclose new or supplemental invalidity contentions regarding such claims. Furthermore, because discovery is ongoing,[1] American reserves the right to revise, amend,

[1] Defendant's ongoing efforts include but are not limited to: serving subpoenas on prior artists and inventors regarding prior art and claim scope, seeking additional information related to the references and systems disclosed in these Preliminary Invalidity Contentions, and seeking additional information related to available prior art systems, as well as IV's Infringement

and/or supplement the information provided herein, including identifying, charting, and relying on additional references, should discovery yield additional information or references.[2]

American further reserves the right to amend these contentions in response to any claim construction rulings, as permitted by the Local Patent Rules or with permission of the Court.

The Infringement Contentions are deficient in multiple respects and do not provide American with sufficient information to understand the specific accused features and components and the alleged factual and evidentiary bases for IV's infringement allegations. Among other things, the Infringement Contentions lack the specificity required by P.R. 3-1, fail to properly identify accused instrumentalities, and fail to explain adequately IV's infringement theories for numerous limitations. IV has prejudiced American's ability to understand, for purposes of preparing these Preliminary Invalidity Contentions, what IV alleges to be the scope of the Asserted Claims. If IV modifies any assertion or contention in its Infringement Contentions, or presents any new assertion or contention relevant to these Preliminary Invalidity Contentions to the extent allowed by the Local Patent Rules or the Court, American reserves the right to supplement or otherwise amend these initial Invalidity Contentions.

B. Priority Date of the Patents-in-Suit

IV's Infringement Contentions contain allegations regarding the priority date to which IV alleges it is entitled for each of the Asserted Claims. American does not agree that IV is entitled

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Contentions and the products accused of infringing therein. No depositions have been taken as of this time, including, without limitation, depositions of any inventors, authors, or entities listed on any references or systems identified in these Preliminary Invalidity Contentions. Further, Defendant reserves the right to review and supplement these Preliminary Invalidity Contentions with respect to any additional prior art that becomes apparent as discovery proceeds.

[2] IV has failed to respond to American's Interrogatory No. 5, seeking the identification of all allegations by any Person or Entity that any claim of the Patents-in-Suit or any Related Patent is invalid or unenforceable, and Interrogatory No. 6, seeking all prior art of which IV is aware or that anyone has ever contended or asserted to be prior art to the Asserted Claims. American incorporates by reference any responses to those interrogatories IV may provide in the future.

to the Asserted Priority Dates for each of the Asserted Claims, as IV has failed to prove it is entitled to its Asserted Priority Dates. Furthermore, IV has failed to meaningfully respond to American's Interrogatory No. 7, seeking details regarding the conception and reduction to practice of the Asserted Claims.

Any reference to an "asserted priority date" in these Preliminary Invalidity Contentions refers to the priority dates identified in IV's Infringement Contentions. Reference to a "priority date" or an "asserted priority date" should not be construed to mean that American agrees that any of the Asserted Patents are in fact entitled to such priority date, or that IV has provided proper notice as to its contentions for a priority date.[3] To the extent IV alleges that any prior art relied on in these Preliminary Invalidity Contentions does not actually qualify as prior art to an Asserted Patent, American reserves the right to rebut those allegations (e.g., by demonstrating an earlier priority date for the challenged prior art and/or a later priority date for a particular Asserted Patent and/or Asserted Claim).[4] Likewise, to the extent IV successfully establishes an invention date before any of the prior-art references relied on by American, then those references serve as evidence of obviousness, particularly, contemporaneous invention by others.

C. Claim Construction

American's Preliminary Invalidity Contentions are based on (1) American's present understanding of the Asserted Claims, (2) the claim constructions IV appears to be proposing based on the Infringement Contentions, all without regard to whether American agrees with IV's apparent or expressed claim constructions. American reserves the right to supplement or otherwise amend these Preliminary Invalidity Contentions in response to any proposed claim

[3] American reserves the right to rely on additional documents and evidence, including without limitation the documents cited in IV's Infringement Contentions, in the event that IV fails to establish that any Asserted Claim of any Asserted Patent is entitled to its Asserted Priority Date.
[4] American reserves the right to rely on additional documents and evidence to rebut any efforts by IV to allege any reference was not publicly available or otherwise available as prior art.

constructions or alleged supporting evidence offered by IV, any report from any expert witness for IV regarding claim construction issues, any claim construction briefing filed by IV, and any position taken by IV concerning claim construction, infringement, or invalidity.

American takes no position on any matter of claim construction in these Preliminary Invalidity Contentions. If American's apparent claim constructions herein are consistent with any explicit, apparent, or implied claim constructions in the Infringement Contentions, no inference is intended and no inference should be drawn that American agrees with any of IV's claim constructions. Any statement herein describing or tending to describe any claim element is provided solely for the purpose of understanding and/or applying the cited prior art. American expressly reserves the right (1) to propose any claim construction American considers appropriate, (2) to contest any claim construction proposed by IV that American considers inappropriate or inaccurate, and/or (3) to take positions with respect to claim construction issues that are inconsistent with, or even contradictory to, claim construction positions expressed or implied in these Preliminary Invalidity Contentions.

Prior art not included in these Preliminary Invalidity Contentions, whether now known to American, might become relevant depending on the claim constructions proposed by American and/or the Court's claim construction rulings. American reserves all rights to supplement or modify the positions and information in these Preliminary Invalidity Contentions, including without limitation the prior art and grounds of invalidity set forth herein, pursuant to P.R. 3-6 after the Court has construed the Asserted Claims.

D. Ongoing Discovery and Supplementation

American's investigation, including its investigation of prior art and grounds for invalidity, is ongoing. Furthermore, American's invalidity positions will be the subject of expert testimony. American bases these Preliminary Invalidity Contentions on its current knowledge

and understanding of the Asserted Claims, IV's Infringement Contentions, the prior art, systems, and other facts and information available as of the date of these contentions.

American reserves the right to supplement these Preliminary Invalidity Contentions, including, without limitation, by adding additional prior art and grounds of invalidity in accordance with the Federal Rules of Civil Procedure, the Local Rules, the Local Patent Rules, the Docket Control Order, any Order issued by this Court, or otherwise.

E. Prior Art Identification and Citations Thereto

In these Preliminary Invalidity Contentions, American identifies specific portions of prior art references that disclose the elements of the Asserted Claims. While American has identified exemplary prior art references for each element, they do not necessarily identify every disclosure of the same element in each prior art reference. A person of ordinary skill in the art would read a prior art reference as a whole and in the context of other publications, literature, and general knowledge in the field and would rely upon other information including other publications and general scientific or engineering knowledge. American therefore reserves the right to rely upon other unidentified portions of the prior art references and on other publications and prior art products and expert testimony to provide context and to aid understanding and interpretation of the identified portions of the prior art.

American also reserves the right to rely upon (1) other portions of the cited prior art references, other publications, prior art products, and the testimony of experts to establish that the alleged inventions would have been obvious to a person of ordinary skill in the art, including on the basis of modifying or combining certain cited references; (2) all versions of a cited prior art publication; (3) admissions relating to prior art in the Asserted Patents or related patents, the prosecution history of the Asserted Patents or related patents, or other admissions obtained

during discovery; and (4) foreign counterparts of any U.S. patents identified in American's Preliminary Invalidity Contentions.

Where American identifies a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure as well as any text relating to the figure in the remainder of the prior art reference (e.g., for patent references, text in the specification and prosecution history). Similarly, where an identified portion of text refers to a figure or other material, the identification of the text should be understood to include the referenced figure or other material.

All related prior art references that are themselves subparts or related documents of a broader set of documents should be considered a single prior art reference, as that is how a person of ordinary skill in the art would consider such related references.

F. Invalidity, Unenforceability and/or Ineligibility Based On Non-Required Disclosure(s)

American reserves the right to prove the invalidity, unenforceability and/or ineligibility of one or more of the Asserted Claims on bases other than those required to be disclosed in these disclosures pursuant to P.R. 3-3.

G. No Patentable Weight

American reserves the right to argue that various portions of the Asserted Claims, such as an intended use or result, non-functional descriptive material, and certain preamble language, are entitled to no patentable weight. Mapping of a portion of an Asserted Claim to a prior art reference does not represent that such portion of the claim is entitled to patentable weight when comparing the claimed subject matter to the prior art.

II. INVALIDITY CONTENTIONS

As explained herein and in Exhibits A-F, American contends that each of the Asserted Claims is invalid under 35 U.S.C. §§ 101, 102, 103, and/or 112.

A. P.R. 3-3(a) – Identification of Prior Art

Pursuant to P. R. 3-3(a), and subject to American's reservation of rights as stated herein, American identifies the prior art that anticipates or renders obvious the Asserted Claims in the tables set forth below.[5] On information and belief, each listed reference qualifies as prior art to the Asserted Patents.

To the extent that any of the following are prior art, American reserves the right to rely upon foreign counterparts of the U.S. patents identified herein; U.S. counterparts of foreign patents and foreign patent applications identified herein; and U.S. and foreign patents and patent applications corresponding to articles and publications identified herein. American also reserves the right to rely upon parent or provisional patents or ancestor patents or patent applications from which any of the patents or patent applications identified herein claim priority to as continuation, divisional, or continuation-in-part applications. Identifications of dates of publication are made based on currently available information and American reserves the right to rely upon an earlier date should evidence supporting an earlier date be discovered.

[5] American also hereby identifies any systems or products that embody the technology described in any patent or publication identified in these Preliminary Invalidity Contentions. American reserves the right to rely on any documents or other evidence regarding any such systems.

1. Identification of Prior Art

a) '582 patent[6]

Patent/Publication No./Document Name	Date of Filing/Issue/Publication[7]
U.S. Patent No. 6,304,866 ("Chow")	Filed – June 27, 1997 Issued – October 16, 2001
U.S. Patent Application Publication No. 2002/0019844 ("Kurowski")	Filed – January 12, 2001 Published – February 14, 2002
U.S. Patent No. 6,330,583 ("Reiffin")	Filed – September 9, 1994 Issued – December 11, 2001
U.S. Patent No. 6,212,617 ("Hardwick")	Filed – June 30, 1998 Issued – April 3, 2001
U.S. Patent Application Publication No. 2002/0103889 ("Markson")	Filed – June 19, 2001 Published – August 1, 2002
U.S. Patent Application Publication No. 2002/0091786 ("Yamaguchi")	Filed – November 1, 2001 Published – July 11, 2002
U.S. Patent No. 5,765,146 ("Wolf")	Filed – November 4, 1993 Issued – June 9, 1998
EP Patent Application Publication No. EP0377993 ("Lorie")	Filed – December 20, 1989 Published – July 18, 1990
P. Maheshwari, "Improving task scheduling for larger grain execution of parallel functional programs," [1993] Proceedings of the Twenty-sixth Hawaii International Conference on System Sciences, Wailea, HI, USA, 1993, pp. 594-602 vol.2, doi: 10.1109/HICSS.1993.284066. ("Maheshwari")	January 8, 1993
"Analysis of First-Come-First-Serve Parallel Job Scheduling," Uwe Schwiegelshohn and Ramin Yahyapour. Proceedings of the Annual ACM-SIAM Symposium on Discrete Algorithms, pages 629-638 (1998). Available at https://dl.acm.org/doi/10.5555/314613.315031 ("Schweigelshohn")	January 1, 1998
Gamma System - University of Wisconsin-Madison	At least as early as 1990

[6] Defendant notes that there is a pending IPR (IPR2025-00785) asserting that all claims of the '582 patent are invalid. Defendant hereby incorporates by reference, in full, the Petition and the Exhibits in IPR2025-00785. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that have been or may be filed challenging the patentability of one or more Asserted Claim.

[7] For any patent that claims the benefit of a provisional application(s), American may rely on the provisional application(s) for purposes of establishing invalidity. American may also rely upon the date of filing of any issued patent or patent application to show the priority date of that reference.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication[7]
Volcano Parallel Database System - University of Wisconsin-Madison	At least as early as 1990
U.S. 6,334,137 ("Iida")	Filed – August 24, 1999 Issued – December 25, 2001
U.S. 2002/0099716 ("Thompson")	Filed – January 25, 2001 Published – July 25, 2002
JP 20003/30959 ("Aiba")	Filed – May 18, 1999 Issued – May 24, 2006
U.S. 2002/0040381 ("Steiger")	Filed – September 28, 2001 Published – April 4, 2002
U.S. 5,325,493 ("Herrell")	Filed – March 30, 1993 Issued – June 28, 1994
U.S. 5,535,393 ("Reeve")	Filed – June 5, 1995 Issued – July 9, 1996
U.S. 5,765,166 ("Gotfried")	Filed – April 23, 1996 Issued – June 9, 1998
S. Kuo, M. Winslett, Y. Chen, Y. Cho, M. Subramaniam and K. Seamons, "Parallel input/output with heterogeneous disks," Proceedings. Ninth International Conference on Scientific and Statistical Database Management (Cat. No.97TB100150), Olympia, WA, USA, 1997, pp. 79-90, doi: 10.1109/SSDM.1997.621154.	Published Aug. 11-13, 1997 Retrieved from https://ieeexplore.ieee.org/document/621154
U.S. 5,945,990 ("Morrison")	Filed – November 19, 1996 Issued – August 31, 1999
WO 03/012696 ("Smith")	Filed – July 29, 2002 Published – February 13, 2003
U.S. 6,480,876 ("Rehg")	Filed – May 28, 1998 Issued – November 12, 2002
"Some Thoughts on Parallel Processing," Lynn D. Yarbough, Communications of the ACM, Vol. 3, Issue 10, page 539, October 1, 1960 (available at: https://dl.acm.org/doi/10.1145/367415.367426).	Oct. 1, 1960
"A Survey of Some Theoretical Aspects of Multiprocessing," J. L. Baer, ACM Computing Surveys (CSUR), Volume 5, Issue 1 Pages 31 – 80, March 1, 1973 (available at: https://dl.acm.org/doi/10.1145/356612.356615)	March 1, 1973
"Parallel Sorting Algorithms for Tightly Coupled Multiprocessors," Michael J. Quinn, Parallel Computing 6 (1988) 349-357.	1988
"Removing Skew Effect in Join Operation on Parallel Processors," Ron-Chung Hu, Richard R. Muntz, Computer Science Technical Report, University of	June 1989

Patent/Publication No./Document Name	Date of Filing/Issue/Publication[7]
California, Los Angeles, June 1989.	
"Parallel Architectures for Database Systems," A.R. Hurson, L.L. Miller, S.H. Pakzad, M.H. Eich, B. Shirazi, Advances in Computers, Vol. 28, pages 107-151, 1989.	1989
"Parallel Algorithms for Merging and Sorting," Narsingh Deo, Dilip SarKar, Information Sciences, Vol. 56, pages 151-161, 1991.	1991
"Parallel Algorithms for lcast Median of Squares Regression," Chong-Wei Xu and Wei-Kei Shiue, Computational Statistics & Data Analysis, Vol. 16, pages 349-362, 1993.	1993
"On the Average Running Time of Odd-Even Merge Sort," Christine Rub, Max Plank-Institute Fur Informtik, Research Report, April 1995.	April 1995
"Parallel Algorithms," Guy E. Blelloch and Bruce M. Maggs, a chapter in "The Computer Science and Engineering Handbook." CRC Press, 1997, ISBN: 0-8493-2909-4. Available at https://dl.acm.org/doi/pdf/10.5555/1882723.1882748.	1997
"An Approach to Parallelizing Isotonic Regression," Anthony J. Kearsley, Richard A. Tapia, Michael W.Trosset, Applied Mathematics and Parallel Computing, H. Fisher et. al. (eds.), Physica-Verlag Heidelberg (1996), pages 141-147.	1996
"Part 1: The Parallel Computing Environment, Alice E. Koniges, Morris A. Jette, and David C. Eder, in "Industrial Strength Parallel Computing," Morgan Kaufmann, (2000). ISBN 9781558605404. Available at: http://wayback.cecm.sfu.ca/PSG/book/intro.html and at https://books.google.com/books?id=mWalawBciCQC&pg=PA1&source=gbs_toc_r&cad=2#v=onepage&q&f=false.	2000
GPFS: A Parallel File System, Jason Barkes, Marcelo R. Barrios, Francis Cougard, Paul G. Crumley, Didac Marin, Hari Reddy, Theerapong Thitayanun, IBM International Technical Support Organization, April 1998.	April 1998
"Analysis of First-Come-First-Serve Parallel Job Scheduling," Uwe Schwiegelshohn and Ramin Yahyapour. Proceedings of the Annual ACM-SIAM Symposium on Discrete Algorithms (1998). Available at http://dx.doi.org/10.1145/314613.315031.	1998
"Improving First-Come-First-Serve-Job Scheduling	March 30, 1998

Patent/Publication No./Document Name	Date of Filing/Issue/Publication[7]
by Gang Scheduling," Uwe Schwiegelshohn and Ramin Yahyapour. Job Scheduling Strategies for Parallel Processing, IPPS/SPDP '98 Workshop, Orlando, Florida, USA, March 30, 1998, pp. 180-198, available at https://www.academia.edu/14780669/ Improving_first_come_first_serve_job_ scheduling_by_gang_scheduling	
Bricker, et al., "Condor Technical Summary," University of Wisconsin – Madison Computer Sciences Department	Jan. 1992
W. Gentzsch, "Sun Grid Engine: Towards Creating a Compute Power Grid," Sun Microsystems, Inc.	2001
O. Sievert, "A Gentle Introduction to Globus," Prepared for Parallel Computation, CSE160/CSE260, Spring 1999	1999
Anderson, et al., "SETI@home Internet Distributed Computing for SETI," ASP Conference Series, Vol. 213	2000
Bamford, et al., "Architecture of Oracle Parallel Server," Proceedings of the 24th Very Large Database (VLDB) Conference New York, USA, 1998	1998
J. Howard, "An Overview of the Andrew File System," Carnegie Mellon University	1988
S. Hotovy, "Workload Evolution on the Cornell Theory Center IBM SP2" Cornell Theory Center	1996
Foster et al., "Wide-Area Implementation of the Message Passing Interface," Parallel Computing 24(12),1735-1749	1998
Heymann et al., "Adaptive Scheduling for Master-Worker Applications on the Computational Grid," Department of Computer Sciences University of Wisconsin – Madison	2000
D. Gelernter and N. Carriero, "How to Write Parallel Programs: A Guide to the Perplexed," *ACM Computing Surverys*, Vol. 21, No. 3	Sept. 1989

b) '722 patent[8]

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
U.S. Patent No. 5,721,825 ("Lawson")	Filed – October 3, 1996 Issued – February 24, 1998
U.S. Patent No. 6,480,883 ("Tsutsumitake")	Filed – June 29, 1999 Issued – November 12, 2002
PCT Patent Application Publication No. WO 99/26127 ("Kostes")	Filed – November 13, 1998 Published – May 27, 1999
U.S. Patent No. 6,999,991 ("Ikeda")	Filed – July 24, 2000 Issued – February 14, 2006
U.S. Patent No. 6,990,591 ("Pearson")	Filed – December 22, 1999 Issued – January 24, 2006
European Patent Application Publication No. EP1043671 ("Bird")	Filed – March 17, 2000 Published – October 11, 2000
U.S. Patent No. 6,721,740 ("Skinner")	Filed – June 5, 1998 Issued – April 13, 2004
U.S. Patent No. 6,710,702 ("Averbuch")	Filed – November 22, 1999 Issued – March 23, 2004
U.S. Patent No. 6,763,384 ("Gupta")	Filed – July 10, 2000 Issued – July 13, 2004
U.S. Patent No. 6,859,829 ("Parupudi")	Filed – February 23, 1999 Issued – February 22, 2005
U.S. Patent No. 6,216,132 ("Chandra")	Filed – November 20, 1997 Issued – April 10, 2001
U.S. Patent No. 6,910,070 ("Mishra")	Filed – January 24, 2000 Issued – June 21, 2005
U.S. Patent No. 5,754,939 ("Herz")	Filed – October 31, 1995 Issued – May 19, 1998
U.S. Patent No. 6,823,359 ("Heidingsfeld")	Filed – November 21, 2000 Issued – November 23, 2004
U.S. Patent No. 6,757,283 ("Yamanaka")	Filed – January 24, 2000 Issued – June 29, 2004
U.S. Patent No. 7,051,084 ("Hayton")	Filed – November 2, 2000 Issued – May 23, 2006
U.S. Patent No. 6,633,910 ("Rajan")	Filed – December 14, 1999 Issued – October 14, 2003
U.S. Patent No. 9,300,560 ("Leighton")	Filed – March 4, 2013

[8] American notes that there is a pending IPR asserting that all claims of the '722 patent are invalid, IPR2025-00987, and a settled IPR, IPR2025-00200. American hereby incorporates by reference, in full, the Petition and the Exhibits in both IPR2025-00987 and IPR2025-00200. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that has been or may be filed challenging the patentability of one or more Asserted Claim.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
	Issued – March 29, 2016
U.S. Patent No. 5,951,694 (“Choquier”)	Filed – February 3, 1997 Issued – September 14, 1999
PointCast System – PointCast Incorporated	At least as early as 1997
Castanet System – Marimba, Inc.	At least as early as 1996
Active Desktop System – Microsoft Corporation	At least as early as 1998
U.S. 2002/0032722 (“Baynes”)	Filed – September 12, 2001 Published – March 14, 2002
U.S. 7,103,680 (“Holdsworth”)	Filed – April 25, 2000 Issued – September 5, 2006
U.S. 6,886,044 (“Miles”)	Filed – June 30, 1999 Issued – April 26, 2005
U.S. 6,654,786 (“Fox”)	Filed – August 30, 2000 Issued – November 25, 2003
U.S. 5,913,032 (“Schwartz”)	Filed – September 30, 1996 Issued – June 15, 1999
U.S. 7,516,196 (“Madan”)	Filed – March 21, 2000 Issued – April 7, 2009
U.S. 2010/0325562 (“Andrews”)	Filed – August 27, 2010 Published – December 23, 2010
U.S. 6,643,682 (“Todd”)	Filed – February 22, 2000 Issued – November 4, 2003
JP JPH11353216A (“Masaru”)	Filed – June 8, 1998 Published – December 24, 1999
U.S. 6,694,352 (“Omoigui”)	Filed – December 16, 1999 Issued – February 17, 2004
U.S. 6,336,119 (“Banavar”)	Filed – March 30, 2000 Issued – January 1, 2002
U.S. 5,978,842 (“Noble”)	Filed – July 18, 1997 Issued – November 2, 1999
U.S. 6,760,759 (“Chan”)	Filed – May 1, 2000 Issued – July 6, 2004
GB2348025 (“Bird GB”)	Filed – March 19, 1999 Published – May 12, 1999
M. Hauswirth and M. Jazayeri, “A Component and Communication Model for Push Systems,” Proceedings of the ESEC/FSE 99 - Joint 7th European Software Engineering Conference (“Hauswirth”)	Pub. at least as early as September 6, 1999.
G. S. Barnes Nelson, “Messaging Systems: SAS® Tools for Internet-Based Communications,” Proceedings of the 25th Annual SAS Users Group International Conference (SUGI 25), Paper 288-25 (“Barnes Nelson”)	Pub. at least as early as March 19, 1999.
Segall, et al., “Content Based Routing with Elvin4,”	Pub. at least as early as June 2000.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
Proceedings of AUUG2K (No. 39) (“Segall”)	

c) ’785 patent[9]

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
U.S. Patent No. 6,970,941 (“Caronni I”)	Filed – December 10, 1999 Issued – November 29, 2005
U.S. Patent No. 7,814,228 (“Caronni II”)	Filed – February 13, 2003 Issued – October 12, 2010
U.S. Patent No. 6,766,371 (“Hipp”)	Filed – October 5, 2000 Issued – July 20, 2004
U.S. Patent Application Publication No. 2003/0028671 (“Mehta”)	Filed – June 10, 2002 Published – February 6, 2003
Huitema, C., Network Working Group Request for Comment (RFC): 1383, entitled An Experiment in DNS Based IP Routing (“RFC 1383”)	Published December 1992
U.S. Patent No. 7,133,404 (“Alkhatib”)	Filed – August 10, 2001 Issued – November 7, 2006
U.S. Patent Application Publication No. 2002/0184529 (“Foster I”)	Filed – April 19, 2002 Published – December 5, 2002
U.S. Patent Application Publication No. 2003/0208602 (“Bhalla”)	Filed – April 8, 2002 Published – November 6, 2003
U.S. Patent Application Publication No. 2002/0181395 (“Foster II”)	Filed – April 19, 2002 Published – December 5, 2002
U.S. Patent Application Publication No. 2002/0091859 (“Tuomenoksa”)	Filed – April 11, 2001 Published – July 11, 2002
U.S. Patent Application Publication No. 2004/0177136 (“Chen”)	Filed – March 3, 2003 Published – September 9, 2004
European Patent Publication No. EP1098496 (“Engmann”)	Published – October 19, 2000
U.S. Patent Application Publication No. 2002/0069278 (“Forslow”)	Filed – December 5, 2000 Published – June 6, 2002
U.S. Patent No. 6,701,437 (“Hoke”)	Filed – November 9, 1998 Issued – March 2, 2004
U.S. Patent Application Publication No. 2002/0116502 (“Iyer”)	Filed – February 22, 2001 Published – August 22, 2002
U.S. Patent Application Publication No.	Filed – September 28, 2001

[9] Defendant notes that there is a pending IPR (IPR2025-00786) asserting that all claims of the ’785 patent are invalid. Defendant hereby incorporates by reference, in full, the Petition and the Exhibits in IPR2025-00786. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that has been or may be filed challenging the patentability of one or more Asserted Claim.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
2003/0065785 ("Jain")	Published – April 3, 2003
U.S. Patent Application Publication No. 2002/0035624 ("Kim")	Filed – July 9, 2001 Published – March 21, 2002
U.S. Patent Application Publication No. 20020154635 ("Liu")	Filed – April 23, 2001 Published – October 24, 2002
U.S. Patent No. 8,068,817 ("Viswanath")	Filed – August 27, 2002 Issued – November 29, 2011
U.S. Patent Application Publication No. 2002/0116523 ("Warrier")	Filed – February 22, 2001 Published – August 22, 2002
U.S. Patent Application Publication No. 2003/0229697 ("Borella")	Filed – June 10, 2002 Published – December 11, 2003
U.S. Patent Application Publication No. 2003/0084162 ("Johnson")	Filed – October 31, 2001 Published – May 1, 2003
PCT Patent Application Publication No. WO2003088625 ("Volz")	Filed – March 28, 2003 Priority – April 8, 2002 Published – October 23, 2003
U.S. Patent Application Publication No. 2004/0098507 ("Thubert")	Filed – November 20, 2002 Published – May 20, 2004
U.S. Patent Application Publication No. 2003/0016636 ("Tari")	Filed – July 15, 2002 Published – January 23, 2003
U.S. Patent No. 8,107,483 ("Dunk")	Filed – March 12, 2010 Priority – November 27, 2002 Issued – January 31, 2012
PCT Patent Application Publication No. WO2002015014 ("Wootton")	Filed – July 31, 2001 Published – February 21, 2002
U.S. Patent Application Publication No. 2002/0038382 ("Ryu")	Filed – August 30, 2001 Published – March 28, 2002
U.S. Patent Application Publication No. 2003/0172184 ("Kong")	Filed – March 6, 2003 Published – September 11, 2003
U.S. Patent Application Publication No. 2004/0037260 ("Kakemizu")	Filed – August 7, 2003 Published – February 26, 2004
Cisco VPN Routers and Software Systems – Cisco Systems	At least as early as 2002
VMware Systems - VMware	At least as early as 2001
U.S. Patent Application Publication No. 2002/0029276 ("Bendinelli")	Filed – April 11, 2001 Published – October 7, 2003
"Virtual Enterprise Networks: The Next Generation of Secure Enterprise Networking," Proceedings of the Sixteenth Annual Computer Security Applications Conference (ACSAC'00) ("NextGen")	Date of Conference: December 11-15, 2000 Published on IEEE Xplore: August 6, 2002

d) ’844 patent[10]

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
“Optimizing the Migration of Virtual Computers,” Association for Computing Machinery, Special Interest Group on Operating Systems, Operating Systems Review, Proceedings of the 5th Symposium on Operating Systems Design and Implementation, Volume 36, Issue S1 (“Sapuntzakis”)	Published December 31, 2002
U.S. Patent No. 7,089,300 (“Birse”)	Filed – October 19, 1999 Issued – August 8, 2006
U.S. Patent Application Publication No. 2005/0283597 (“Holzmann”)	Filed – June 22, 2004 Published – December 22, 2005
U.S. Patent Application Publication No. 2002/0034105 (“Kulkarni”)	Filed – January 8, 2001 Published – March 21, 2002
U.S. Patent Application Publication No. 2005/0004925 (“Stahl”)	Filed – May 7, 2004 Published – January 6, 2005
U.S. Patent Application Publication No. 2006/0168154 (“Zhang”)	Filed – November 19, 2004 Published – July 27, 2006
U.S. Patent No. 8,001,085 (“Kiselev”)	Filed – November 25, 2003 Issued – August 16, 2011
U.S. Patent Application Publication No. 2004/0172509 (“Takeda”)	Filed – June 23, 2003 Published – September 2, 2004
U.S. Patent No. 6,671,782 (“Menon”)	Filed – March 29, 2000 Issued – December 30, 2003
U.S. Patent Application Publication No. 2003/0236850 (“Kodama”)	Filed – March 21, 2002 Published – December 25, 2003
EP Patent No. EP0604013 (“Nelson”)	Filed – November 15, 1993 Issued – February 20, 2002
PCT Application Publication No. WO 2006/074869 (“Bayer”)	Filed – January 4, 2006 Published – July 20, 2006
Shrira, Liuba et al., “Thresher: an efficient storage manager for copy-on-write snapshots,” ATEC ‘06: Proceedings of the annual conference on USENIX ‘06 Annual Technical Conference (Shrira)	Published at least by May 30, 2006
Laros, James H. et al., “Implementing Scalable Disk-Less Clusters Using The Network File	Published at least by January 2003

[10] Defendant notes that there is a pending IPR (IPR2025-00931) asserting that all claims of the ’844 patent are invalid. Defendant hereby incorporates by reference, in full, the Petition and the Exhibits in IPR2025-00931. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that has been or may be filed challenging the patentability of one or more Asserted Claim.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
System (NFS),” (“Laros”) Retrieved from: https://www.researchgate.net/publication/255223070_Implementing_scalable_disk-less_clusters_using_the_Network_File_System_NFS	
U.S. Patent Application Publication No. 2004/0153639 (“Cherian”)	Filed – February 5, 2003 Published – August 5, 2004
U.S. Patent Application Publication No. 2007/0057958 (“Bucher”)	Filed – August 9, 2006 Published – March 15, 2007
U.S. Patent No. 7,197,608 (“Mikuma”)	Filed – July 12, 2004 Issued – March 27, 2007
U.S. Patent Application Publication No. 2005/0283575 (“Kobayashi”)	Filed – August 13, 2004 Published – December 22, 2005
U.S. Patent No. 6,453,334 (“Vinson”)	Filed – June 16, 1998 Issued – September 17, 2002
U.S. Patent No. 5,930,513 (“Taylor”)	Filed – June 6, 1996 Issued – July 27, 1999
U.S. Patent Application Publication No. 2002/0002660 (“Malcolm”)	Filed – July 31, 1998 Published – January 3, 2002
U.S. Patent Application Publication No. 2002/0091763 (“Shah”)	Filed – May 15, 2001 Published – July 11, 2002
U.S. Patent No. 7,398,382 (“Rothman”)	Filed – December 29, 2004 Issued – July 8, 2008
U.S. Patent No. 6,317,826 (“McCall”)	Filed – October 19, 1998 Issued – November 13, 2001
Southwest Airlines NetApp System – NetApp/Southwest	At least as early as 2002
VMware Systems - VMware	At least as early as 2001
U.S. Patent No. 6,618,736 (“Menage”)	Filed – March 9, 2001 Issued – September 9, 2003
Apple NetBoot	At least as early as 2002
U.S. Patent Application Publication No. 2002/0186698 (“Ceniza”)	Filed – June 12, 2001 Published – December 12, 2002

e) '469 patent[11]

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
U.S. Patent No. 6,894,990 ("Agarwal")	Filed – October 13, 2000 Issued – May 17, 2005
U.S. Patent Application Publication No. 2002/0138625 ("Bruner")	Filed – March 21, 2001 Published – September 26, 2002
U.S. Patent No. 6,445,777 ("Clark")	Filed – December 12, 1998 Issued – September 3, 2002
DeSanctis, et al., "Aeronautical Communications for Personal and Multimedia Services via Satellite," AM. INST. OF AERONAUTICAL. AND ASTRONAUTICS ("DeSanctis")	Published at least by April 2003
U.S. Patent No. 6,968,394 ("El-Rafie")	Filed – March 21, 2000 Published – November 22, 2005
U.S. Patent Application No. 2002/0075844 ("Hagen")	Filed – April 10, 2001 Published -- June 20, 2002
Jahn, et al., "Dimensioning of Aeronautical Satellite Services," AM. INST. OF AERONAUTICAL. AND ASTRONAUTICS ("Jahn I")	Published at least by October 2002
Jahn, et al., "Passenger Multimedia Service Concept via Future Satellite Systems" DGLR JAHRBUCH ("Jahn II")	2002
U.S. Patent Application No. 2003/0051041 ("Kalavade")	Filed – August 6, 2002 Published – March 13, 2003
Korean Patent No. 2003/0029267 ("Lee")	Filed – October 5, 2001 Published – April 14, 2003
U.S. Patent Application No. 2007/0008937 ("Mody")	Filed – July 21, 2004 Published – January 11, 2007
U.S. Patent Application No. 2003/0055975 ("Nelson")	Filed – June 19, 2001 Published – March 28, 2003
U.S. Patent No. 6,377,981 ("Ollikainen")	Filed November 20, 1997 Published – April 23, 2002
Czech Patent No. 2,000,578 ("Rothblatt I")	Filed – August 19, 1998 Published – August 16, 2000
U.S. Patent No. 6,105,060 ("Rothblatt II")	Filed – September 5, 1997

[11] American notes that there is a pending IPR (IPR2025-00782) asserting that the asserted claims of the '469 patent are invalid. American hereby incorporates by reference, in full, the Petition and the Exhibits in IPR2025-00782. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that has been or may be filed challenging the patentability of one or more Asserted Claim.

Patent/Publication No./Document Name	Date of Filing/Issue/Publication
	Published – August 15, 2000
U.S. Patent Application No. 2004/0109449 ("Seo")	Filed – August 15, 2003 Published – June 10, 2004
Suwanateep, Manasuda, "Inflight Internet Connectivity Technology and Its Application on E-Commerce," U. OF THAILAND (2002) ("Suwanateep")	Published at least by July 2002
U.S. Patent No. 5,987,430 ("Van Horne")	Filed – August 28, 1997 Published – November 16, 1999
U.S. Patent Application Publication No. 2003/0050041 ("Wu")	Filed – September 7, 2001 Published – March 13, 2003

f) '326 patent[12]

Patent/Publication No./Document Name	Date of Issue/Publication/Priority
PCT Patent App. Pub. No. 2000/038387 ("Baldemair")	Filed – December 21, 1999 Published – June 29, 2000
U.S. Patent No. 7,418,050 ("Gardner")	Filed – February 26, 2003 Issued – August 26, 2008
U.S. Patent App. Pub. No. 2003/0022473 ("Yamaura")	Filed – June 17, 2002 Published – January 30, 2003
U.S. Patent No. 6,510,133 ("Uesugi")	Filed – May 28, 1998 Issued – January 21, 2003
JP Patent App. Pub. No. JP2002319917 ("Mori")	Filed – April 24, 2001 Published – October 31, 2002
JP Patent App. Pub. No. JP2003309533 ("Miyoshi")	Filed – April 17, 2002 Published – October 31, 2003
JP Patent App. Pub. No. JPH11113049 ("Koga")	Filed – September 30, 1997 Published – April 23, 1999
Thompson, D. E., "Modelling Adjacent Channel Interference in 3G Networks," THE INSTITUTE OF ELECTRICAL ENGINEERS (2003) ("Thompson")	2003
Weste, Neil et al., "VLSI for OFDM," IEEE COMMUNICATIONS MAGAZINE (Oct. 1998) ("Weste")	1998
"WLAN Channel Bonding: Causing Greater Problems Than It Solves" ("Texas Instruments White Paper")	Sep. 2003

[12] American notes that there is a pending IPR (IPR2025-01055) asserting that the asserted claims of the '326 patent are invalid. American hereby incorporates by reference, in full, the Petition and the Exhibits in IPR2025-01055. American further incorporates by reference any post grant review proceeding (including any IPRs or EPRs) that has been or may be filed challenging the patentability of one or more Asserted Claim.

Patent/Publication No./Document Name	Date of Issue/Publication/Priority
U.S. Patent No. 7,095,708 ("Alamouti")	Filed – June 14, 2000 Issued – August 22, 2006
U.S. Patent No. 6,975,585 ("Olafsson")	Filed – July 27, 2000 Issued – December 13, 2005

1. Identification Of Prior Art Sales/Public Uses

Item Offered for Sale and/or Publicly Used	Date of Offer/Public Use	Person or Entity Who Made and Received Offer, Made Public Use, or Made Information Known
NetApp's WAFL File System		This architecture was thoroughly documented in both U.S. Patents 5,819,292 and 7,334,095, as well as in technical literature such as "File System Design for an NFS File Server Appliance" by Dave Hitz et al.
VMware's GSX and ESX server platforms		
Sun Microsystems' diskless workstations		
The Episode File System	Early 1990s	
Petal		HP Labs
"WLAN Solutions: TNETW1130 Converged Single-Chip MAC and Baseband Processor for IEEE 802.11 a/b/g" ("TI Baseband Processor for IEEE 802.11")	2003	Texas Instruments, Inc.
Airpath Wireless Hot Spot	No later than June 2003	Airpath Wireless, Inc., Mainstream Data, Inc., Todd Meyers
Connexion	No later than June 2003	The Boeing Co., Connexion by Boeing, Scott E. Carson, Cisco Systems, Inc., American Airlines, Inc., Delta Air Lines, Inc., United Airlines, Inc., Lufthansa Group
Maritime Telecommunications Network Cruise Ship Internet Services	No later than June 2003	MTN Satellite Communications (MTN), formerly known as Maritime Telecommunications Network, PCTEL, Inc., Digital Seas International (DSI), Norwegian Cruise Line (NCL), Semester at Sea (SaS), and other cruise line customers of MTN
Stratos	No later than	Stratos Global Corporation; Inmarsat

Item Offered for Sale and/or Publicly Used	Date of Offer/Public Use	Person or Entity Who Made and Received Offer, Made Public Use, or Made Information Known
	September 2003	Global Ltd.
Tenzing Global	No later than April 2001	Tenzing Communications, Inc.; Tenzing Technologies, LLC; Airbus SE; Telia company AB, SITA, OnAir company, Cathay Pacific Airways Ltd., Singapore Airlines Ltd., Virgin Atlantic Airways Ltd.
Wireless Cabin	No later than February 2003	Inmarsat Global Ltd., Telefonaktiebolaget LM Ericsson, Siemens AG, Kid-Systeme GmbH, ESYS Consulting Ltd., Airbus SE, University of Bradford

B. P.R. 3-3(b) – Anticipation and Obviousness

Pursuant to P.R. 3-3(b), and subject to American's reservation of rights, American attaches claim charts hereto that are directed to the prior art references that anticipate each of the Asserted Claims under 35 U.S.C. §§ 102(a), (b), (e), and/or (g), either expressly or inherently, and/or the prior art references that, in the alternative, would have rendered the Asserted Claims obvious under 35 U.S.C. § 103. *See* Exhibits A-F. Some claim charts also contain explanations about the motivation to combine the references. The combinations contained in American's claim charts are exemplary. Any prior art reference cited herein may be combined with any other reference to demonstrate the invalidity of any of the Asserted Claims, as set forth below and in Exhibits A-F.

To the extent any claim limitation is construed to have a similar meaning, or to encompass similar feature(s) and/or function(s), as any other claim limitation, the citations to prior art references for each of those claim limitations in American's claim charts are incorporated by reference with respect to each other.

American's claim charts provide exemplary citations to the prior art references that teach or suggest every element of the Asserted Claims. To the extent that an element of an Asserted

Claim is not shown in a chart, the Asserted Claims would have been obvious based on a combination of one or more other prior art references, as set forth below and in Exhibits A-F.

Much of the art cited in these Preliminary Invalidity Contentions reflects common knowledge and the state of the art at the time of the earliest filing date of the Asserted Patents. American may rely on additional citations, references, expert testimony, and other material to provide context or to aid in understanding the cited portions of the references and/or cited features of the systems. American also may rely on expert testimony explaining relevant portions of references, relevant hardware or software products or systems, and other discovery regarding these subject matters. Additionally, American may rely on other portions of any prior art reference or other references relied on by the same authors or describing the same systems for purposes of explaining the background and general technical subject area of the reference.

Where an individual reference is cited with respect to all elements of an Asserted Claim, American contends that the reference anticipates the claim under 35 U.S.C. §§ 102(a), (b), (e), and/or (g) and also renders obvious the claim under 35 U.S.C. § 103, both by itself in view of the knowledge of a person of ordinary skill in the art and in combination with the other cited references to the extent the reference is not found to disclose one or more claim elements. A single prior art reference, for example, can establish obviousness where the differences between the disclosures within the reference and the claimed invention would have been obvious to one of ordinary skill in the art. For example, "[c]ombining two embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness." *Boston Scientific Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009). To the extent IV contends that an embodiment within a particular item of prior art does not fully disclose all limitations of a

claim, American accordingly reserves its rights to rely on other embodiments in that prior art reference, or other information, to show single reference obviousness under 35 U.S.C. § 103(a).

Where an individual reference is cited with respect to fewer than all elements of an Asserted Claim, American contends that the reference renders obvious the claim under 35 U.S.C. § 103(a) in view of each other reference and combination of references that discloses the remaining claim element(s), as indicated in the claim charts submitted herewith. "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)).

Exemplary motivations to combine references are discussed in the accompanying charts. American reserves the right to rely upon any references or assertions identified herein in connection with American's contentions that each Asserted Claim is invalid under 35 U.S.C. § 103 and to rely upon expert testimony addressing such references and assertions. The fact that prior art is identified to anticipate the Asserted Claims presents no obstacle in also relying on that reference as a basis for invalidity based on obviousness. It is established that "a rejection for obviousness under § 103 can be based on a reference which happens to anticipate the claimed subject matter." *In re Meyer*, 599 F.2d 1026, 1031 (C.C.P.A. 1979). To the extent any cited prior art item may not fully disclose a limitation of an Asserted Claim or is alleged by IV to lack disclosure of the limitation, such limitation is present and identified in another prior art item as shown in the attached claim charts.

Many of the cited references cite or relate to additional references and/or products, services, or projects. Many of the cited references also cite software, hardware, or systems. American might rely upon such cited additional references and/or products and copies or exemplars of such software, hardware, or systems. American will produce or make available for inspection any such cited references, products, software, hardware, or systems that it intends to rely upon. American may also rely upon the disclosures of the references cited and/or discussed during the prosecution of the Asserted Patents and/or the assertions presented regarding those references.

American reserves the right to further streamline and reduce the number of anticipation or obviousness references relied upon with respect to a given Asserted Claim and to exchange or otherwise modify the specific references relied upon for anticipation and within each obviousness combination for each Asserted Claim.

C. P.R. 3-3(c) – Claim Charts

American attaches the following claim charts pursuant to P.R. 3-3(c):

Asserted Patent	Claim Chart Exhibits
’582 patent	A1-A6
’722 patent	B1-B12
’785 patent	C1-C33
’844 patent	D1–D26; OTDP-1–OTDP-2
’469 patent	E1-E18
’326 patent	F1-F13

The attached claim charts are based, in whole or in part, on IV’s asserted theories of infringement in this case, to the extent discernible from IV’s Infringement Contentions. As an initial matter, all portions of each prior art reference cited in each of the attached claim charts are relied upon to support the disclosure of each patent claim limitation, as all portions provide general support. Representative descriptions and supporting citations are nevertheless provided but are merely exemplary; they do not necessarily reflect every instance where a particular claim

term or claim limitation may be disclosed in or taught by the prior art reference. References to figures or drawings refer to the figures/drawings themselves, as well as to any accompanying text or text necessary to understand the figures or drawings. References to text refers to the text itself, as well as the accompanying figures or drawings that accompany the text. American reserves the right to rely on additional, or different, portions of the prior art references, other publications and expert testimony to establish what these references would have taught one of ordinary skill in the art, or in what manner they would have motivated a particular combination of references. Moreover, in certain instances, representative documents for certain prior art systems are cited, but, again, they are merely exemplary; they do not necessarily reflect or include every document relating to the prior art system that exists and that discloses or teaches a particular claim term or claim limitation. American reserves the right to rely on any and all documents that describe or relate to prior art systems, including relying on the system itself. American also reserves the right to rely on the testimony of the authors, named inventors, or anyone else with knowledge of the prior art references and systems identified herein, as well as expert testimony regarding any such references or systems.

D. Obviousness and Motivation to Combine

The primary references identified above, and as further described in Exhibits A-F, each discloses, either expressly or inherently, every element of the Asserted Claims, thereby anticipating those claims. To the extent IV contends that any primary reference does not anticipate the Asserted Claims, it would have been obvious to combine or modify the primary references with concepts from other prior art, as explained herein and in Exhibits A-F.

In particular, for each limitation of the Asserted Claims that IV contends is not met by a particular primary reference, American contends that the limitation (and claim as a whole) is obvious based on a combination of that particular primary reference with (1) any other primary

reference disclosing that limitation, (2) any admitted prior art, as explained in the background of each patent or discussed in the file history, (3) any reference identified in Exhibits A-F as disclosing that limitation, and/or (4) the knowledge of a person of ordinary skill in the art and/or any of the references and concepts discussed herein regarding the relevant background and state of the art. The specific combinations of prior art that American contends render the Asserted Claims obvious are readily determinable as described herein, which is the most efficient manner of identifying the combinations in light of the fact that IV has asserted 21 claims across 6 patents. American's obviousness grounds for each dependent claim incorporate the obviousness grounds for the claim(s) from which the dependent claim depends in addition to any obviousness grounds identified in the charts for the dependent claim.

American does not yet have the benefit of IV's positions on the prior art, including what (if any) elements it contends are missing in each prior art reference, whether IV agrees that a reference is in fact prior art, and whether IV agrees that a person of ordinary skill in the art would be motivated to combine specific references. American reserves the right to supplement these obviousness positions (including identifying additional prior art combinations and the associated reasons to combine) as discovery in the case progresses, including expert discovery.

Each prior art reference may be combined with one or more other prior art references to render obvious the Asserted Claims in combination, as explained in more detail below. The disclosures of these references also may be combined with information known to persons skilled in the art at the time of the alleged invention and understood and supplemented in view of the common sense of persons skilled in the art at the time of the alleged invention, including any statements in the intrinsic record of the Asserted Patents and related applications.

A person of ordinary skill would have been motivated to combine the prior art cited in the attached claim charts based on the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. The identified prior art references, including portions cited in the claim charts, address the same or similar technical issues and suggest the same or similar solutions to those issues as the Asserted Claims. On such bases, on an element-by-element basis, American intends to combine one or more prior art references identified in the claim charts attached as Exhibits A-F with each other to address any contention from IV that a particular prior art item supposedly lacks one or more elements of an Asserted Claim. In other words, American contends that each charted prior art reference can be combined with other charted prior art references when a particular prior art item lacks or does not explicitly disclose an element or feature of an Asserted Claim.

A motivation, teaching or suggestion to combine the prior art identified exists for each obviousness combination identified in Exhibits A-F. In *KSR International Co. v. Teleflex Inc., et al.,* 550 U.S. 398 (2007), the Supreme Court held that a claimed invention can be obvious even if there is no teaching, suggestion, or motivation for combining the references to produce the claimed invention. *KSR* holds that patents that are based on new combinations of elements or components already known in a technical field may be found obvious. Specifically, the Court in *KSR* rejected a rigid application of the "teaching, suggestion, or motivation [to combine] test." *Id.* at 418-419. "In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor avowed purpose of the patentee controls. What matters is the objective reach of the claim." *Id.* at 419. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 420. The Court noted that

"[c]ommon sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 420. The Court further stated that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results" *Id.* at 416. "When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id.* at 421.

Based on *KSR,* the USPTO issued a set of Examination Guidelines. *See* Examination Guidelines for Determining Obviousness Under 35 U.S.C. §103 in view of the Supreme Court Decision in *KSR International Co. v. Teleflex, Inc.*, 72 Fed. Reg. 57526 (October 10, 2007). The Guidelines provide a variety of rationales on which to base a finding of obviousness. Those rationales are based on *KSR* and other precedent. The rationales include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) ''Obvious to try''— choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or

other market forces if the variations would have been predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Id. at 57529. American contends that one or more of these rationales apply in considering the obviousness of the Asserted Claims. A person of ordinary skill in the art at the time of the claimed invention(s) had reason to combine or modify one or more of the references listed and charted in Exhibits A-F in light of the knowledge of a person of ordinary skill at the time and information in the prior art references cited herein.

Additional evidence establishing that there would have been a motivation to combine the prior art references identified above pursuant to the Scheduling Order includes the interrelated teachings of multiple prior art references; the effects of demands known to the design community or present in the marketplace; the existence of a known problem for which there was an obvious solution encompassed by the Asserted Claims; the existence of a known need or problem in the field of the endeavor at the time of the invention(s); and the background knowledge that would have been possessed by a person having ordinary skill in the art.

Further, the prior art references explicitly or implicitly reference other prior art references, share common authors or inventors, were published in the same journals, presented at the same conferences, were presented as proposals to industry groups, and/or were developed at common companies, schools, or organizations, all of which would motivate one of skill in the art to combine them. These references are also within the field of the Asserted Patents and are directed to similar subject matter within that field. Additionally, any products, devices, or processes described in the references existed and/or were invented before or during the period in which the claimed inventions were developed, providing further motivation to combine them.

Thus, the motivation to combine the teachings of the prior art references disclosed herein is found in the references themselves and: (1) the nature of the problem being solved, (2) the express, implied and inherent teachings of the prior art, (3) the knowledge of persons of ordinary skill in the art, (4) the fact that the prior art is generally directed toward methods and systems for processing wireless signals, and (5) the predictable results obtained in combining the different elements of the prior art. Additionally, one would be motivated to address at least the alleged problems or achieve the purported objectives identified in the description of the Asserted Patents. *See, e.g.,* the exemplary modifications to combine detailed below. Moreover, the references charted in the Invalidity Contentions recognized and solved these problems.

Any reference or combination of references that anticipates or makes obvious an asserted independent claim also makes obvious any asserted claim dependent on that independent claim because every element of each dependent claim was known by a person of ordinary skill at the time of the alleged invention, and it would have been obvious to combine those known elements with the independent claims at least as a matter of common sense and routine innovation. Accordingly, American contends that each asserted claim would have been obvious not only by the combinations explicitly defined in these contentions, but also by any combination of references that renders obvious an asserted claim.

Numerous prior art references, including those identified above and in the attached claim charts reflect common knowledge and the state of the prior art prior to the priority dates of the Asserted Patents. As it would be unduly burdensome to create detailed claim charts for the thousands of invalidating combinations, American has provided illustrative examples of such invalidating combinations in the attached claim charts. For at least the reasons described above and below in the examples provided, as well as in the attached claim charts, it would have been

obvious to one of ordinary skill in the art to combine any of a number of prior art references, including any combination of those identified in the attached claim charts, to meet the limitations of the Asserted Claims. As such, American's inclusion of exemplary combinations does not preclude them from identifying other invalidating combinations as appropriate.

Secondary considerations of nonobviousness "simply cannot overcome a strong prima facie case of obviousness." *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010). For any secondary consideration to be relevant, IV must establish a nexus between the secondary consideration and the claimed inventions. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006).

IV has not provided any evidence of any secondary considerations, much less any nexus between such secondary considerations and the claimed inventions of the Asserted Patents. American contends that no secondary considerations evidence exists that supports the validity of any Asserted Claim and reserve all rights to respond to any argument or evidence presented by IV regarding any alleged secondary considerations of non-obviousness.

1. Statement Regarding Exemplary Obviousness Combinations and Motivation to Combine

The suggested obviousness combinations discussed in the attached claim charts are not to be construed to suggest that any reference included in the combinations is not anticipatory. Further, to the extent that IV contends that any of the anticipatory prior art fails to disclose one or more limitations of the Asserted Claims, American reserves the right to identify other prior art references that, when combined with the anticipatory prior art, would render the claims obvious despite an allegedly missing limitation. American will further specify the motivations to combine the prior art, including through reliance on expert testimony, at the appropriate later stage of this lawsuit.

Further, American notes that there are pending IPRs asserting that at least the asserted claims of the patents are invalid. American hereby incorporates by reference, in full the Petition and Exhibits in the following IPRs: IPR2025-00785; IPR2025-00782; IPR2025-00786; IPR2025-01055; IPR2025-00987; IPR2025-00840; and IPR2025-00931.

2. Secondary Considerations

A patentee bears the burden of production with respect to evidence of secondary considerations of non-obviousness. *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1373 (Fed. Cir. 2018). As of the date of these Preliminary Invalidity Contentions, IV has not yet identified any evidence of secondary considerations. American reserves all rights to further respond to any secondary considerations of non-obviousness raised by IV, including by updating, modifying, and/or adding to these Preliminary Invalidity Contentions. American is not aware of any unexpected results (none is mentioned in the Asserted Patents or their file histories), long felt need, commercial success (or any nexus to any allegedly successful commercial embodiment), or awards for the alleged inventions of the Asserted Patents.

E. P.R. 3-3(d): Invalidity Under 35 U.S.C. § 112

As set forth below, American contends that the Asserted Claims are invalid under 35 U.S.C. § 112 because the claims (1) are indefinite; (2) fail to satisfy the enablement requirement; and/or (3) fail to satisfy the written description requirement.

American's invalidity contentions for the Asserted Claims identified in this section are made in the alternative and do not constitute, and should not be interpreted as, admissions regarding the construction or scope of the Asserted Claims identified herein or that any of the Asserted Claims identified herein would not have been anticipated and/or obvious in light of the prior art.

IV has not yet provided a claim construction for any of the terms or phrases that American anticipates will be in dispute. American, therefore, cannot provide a complete list of § 112 defenses because American does not know whether IV will proffer a construction for certain terms and phrases that is broader than, or inconsistent with, the construction that would be supportable by the disclosure set forth in the specification. American offers these contentions without prejudice to any position they may ultimately take as to any claim construction issues.

Accordingly, American reserves the right to supplement, amend, and/or modify these § 112 invalidity contentions as discovery progresses.

1. Invalidity Under 35 U.S.C. § 112, ¶ 1

35 U.S.C. § 112, ¶ 1 requires that the specification contain a written description of the invention. "[T]he hallmark of written description is disclosure." *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1361–62 (Fed. Cir. 2011) (citation omitted). The test for whether a specification adequately describes an invention is "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date . . . . [T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art .... [It] is a question of fact." *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*); *Boston Scientific*, 647 F.3d at 1362.

The enablement requirement of Section 112 demands that the patent specification enable "those skilled in the art to make and use the full scope of the claimed invention without 'undue experimentation.'" *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). "[T]he scope of the claims must be less than or equal to the scope of the enablement." *Nat'l Recovery Tech., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196 (Fed. Cir. 1999).

American contends that the following Asserted Claims are invalid under 35 U.S.C. § 112, ¶ 1. Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under ¶ 1 because the specification of the Asserted Patent fails to provide a sufficient written description, enabling disclosure, and/or fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention the meaning of the term(s) and/or phrase(s). For each listed term or phrase, American believes the term or phrase is invalid under § 112, ¶ 1, as is any limitation including such terms or phrases, for the same reason(s).

Asserted Patent	Asserted Claim(s)	Term(s) and/or Phrase(s) Lacking Written Description and/or Enablement
'582 patent	1	• "distributing descriptions of all of said partitions to each of a plurality of subtask processors" • "generating at least one output combining all of the subtask outputs and reflecting the processing of all of said subtasks"
'722 patent	14	• "live object recognizable by the client device" • "determine a node type to which the identified category maps" • "cohesive respective application environments"
'785 patent	30	• "virtual network manager" • "DNS server for the virtual network … return a network address associated with a network route director"
'844 patent	7, 11	7: • "only additional data blocks not previously contained in said root image" 11: • "to create cohesive respective application environments" • "at an operational level between file systems"
'469 patent	24, 25, 26, 28, 32	Claim 24: • "Internet Hotspot" • "operatively coupled" • "subscriber access unit" • "authenticating"/"authenticate" • "a remote location experiencing a relatively high volume of transient traffic" • "web-ready device" Claim 25:

Asserted Patent	Asserted Claim(s)	Term(s) and/or Phrase(s) Lacking Written Description and/or Enablement
		• "the data connection is one of a wired data connection and a wireless data connection" Claim 32: • "the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network"
'326 patent	1, 4, 18	Claims 1 & 18: • "plurality of data subcarriers" • "partially filling"/ "partially fill" • "one or more guard bands" Claim 4: • "transmitting to multiple radios"

2. Invalidity Under 35 U.S.C. § 112, ¶ 2

Claims are indefinite under 35 U.S.C. § 112, ¶ 2 when they "fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 34 S. Ct. 2120, 2124 (2014). To the extent an asserted apparatus claim includes both apparatus and method limitations, that claim is invalid for indefiniteness under § 112, ¶ 2 because it fails to identify or notify the public of what constitutes direct infringement. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005).

In addition to American's reservation of rights stated above, American will present arguments as to indefiniteness will be presented at that time, i.e., through the Markman meet and confer and briefing process.

American contends that the following Asserted Claims are invalid under 35 U.S.C. § 112, ¶ 2. Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under ¶ 2 because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, American believes the

term or phrase (as well as terms within any such phrase) is invalid under § 112, ¶ 2, and any limitation including such term or phrase is also indefinite.

Asserted Patent	Asserted Claim(s)	Indefinite Term(s) or Phrase(s)
’582 patent	1, 5	1: • “automatically determining file allocation and logically subdividing records of said input file into a plurality of partitions” • “simultaneously executing at least a respective one of the subtasks of the computer-executable process in each of at least some of said processors on a respective one of the partitions with each subtask reading and processing the respective partition so as to process the respective partition and produce respective subtask output” • “repeating step (c) in at least some of the subtask processors each with another unprocessed partition on a first-come/first-served basis” 5: • “wherein the output in step (e) is an accumulation of output records from said subtasks in an arbitrary order”
’722 patent	14	• “live object recognizable by the client device” • “gateway device ... configured to identify a category of the update message” • “determine a node type to which the identified category maps” • “cohesive respective application environments”
’785 patent	30, 37	30: • “virtual network manager” • “receive a registration request from an agent associated with a device” • “DNS server for the virtual network … return a network address associated with a network route director” 37: • “maintain data to associate a virtual network address with a device in the virtual network”
’844 patent	7, 11	7: • “only additional data blocks not previously contained in said root image” • “accessed by at least one of said compute nodes”

Asserted Patent	Asserted Claim(s)	Indefinite Term(s) or Phrase(s)
		11: • "merging the blocks of said root image with the blocks of respective leaf images" • "to create cohesive respective application environments" • "at an operational level between file systems"
'469 patent	24, 25, 26, 28, 32	Claim 24: • "Internet Hotspot" • "operatively coupled" • "subscriber access unit" • "authenticating"/"authenticate" • "a remote location experiencing a relatively high volume of transient traffic" • "web-ready device" Claim 25: • "the data connection is one of a wired data connection and a wireless data connection" Claim 32: • "the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network"
'326 patent	1, 4, 18	Claims 1 & 18: • "full spectral synthesis capability" • "combining"/"combine" • "plurality of data subcarriers" • "partially filling"/ "partially fill" • "one or more guard bands" Claim 4 • "transmitting to multiple radios"

F. Invalidity Under 35 U.S.C. § 101

The following Asserted Claims do not qualify as patent-eligible subject matter and are therefore invalid under 35 U.S.C. § 101.

Asserted Patent	Asserted Claim(s)
'582 patent	1, 2, 5, and 7
'722 patent	14, 16, 17, and 18

Asserted Patent	Asserted Claim(s)
’785 patent	30, 35, and 37
’844 patent	7, 11
’469 patent	24, 25, 26, 28, 32
’326 patent	1, 4 ,18

The Court has not yet construed the Challenged Claims. And IV has not yet provided a claim construction for any of the terms or phrases that American anticipates will be in dispute. American, therefore, cannot provide a complete list of § 101 defenses because American does not know whether IV will proffer a construction for certain terms and phrases that is broader than, or inconsistent with, the construction that would be supportable by the disclosure set forth in the specification. American offers these contentions without prejudice to any position they may ultimately take as to any claim construction issue. Accordingly, American reserves the right to supplement, amend, and/or modify these § 101 contentions as discovery progresses.

IV has not yet provided any subject matter eligibility contentions or otherwise disclosed its complete factual and legal basis in opposition to these Preliminary Invalidity Contentions. Further, to the extent related to subject matter eligibility, including describing the industry at the relevant time and each element of each Challenged Claim as found in the prior art, IV also has not provided any validity contentions under 35 U.S.C. §§ 102 or 103. IV also has not provided any expert report on the issue of subject matter eligibility, the inventors have not yet been deposed, and fact and expert discovery is at an early stage. American therefore reserves the right to further amend or supplement these Preliminary Invalidity Contentions in response to any further contentions, factual basis, legal basis, fact discovery, or expert discovery by or of IV asserting that the Challenged Claims are not ineligible under § 101, or that the prior art (as disclosed in these Preliminary Invalidity Contentions and otherwise) does not describe the industry, at the relevant time, or that any element of each Challenged Claim, both individually

and in combination with other elements, was not (i) well understood; (ii) routine; and (iii) conventional. This may include, but is not limited to, identifying additional prior art and other evidence regarding the state of the industry, providing expert testimony, and providing further factual and legal bases under ¶¶ (a)(2)(A) and (a)(2)(B) for why the Challenged Claims are invalid under 35 U.S.C. § 101.

American's § 101 contentions are made in the alternative, and they should not be interpreted, relied upon, or in any way affect the non-infringement or other invalidity arguments American has asserted. American does not infringe any of the Challenged Claims, which are also invalid under 35 U.S.C. §§ 102, 103, and/or 112.

American reserve the right to present expert evidence and testimony in further support of its contention that the Challenged Claims are ineligible under 35 U.S.C. § 101. Such testimony may include evidence and information regarding identifying each exception to eligibility, including why the Challenged Claims are directed to an abstract idea, as well as a description of the industry at the relevant time and what was well understood routine, and conventional in the industry. American specifically reserves the right to present expert testimony on any and all bases, and to do so in its opening expert report on invalidity in the time and manner required by the Court's Scheduling Order.

American incorporates by reference herein its Motion to Dismiss, including its supporting Reply. Additionally, American contends as follows:

1. The '582 patent

The Asserted Claims (claims 1, 2, 5, and 7) of the '582 patent are invalid under 35 U.S.C. § 101 because they are directed to an abstract idea—specifically, the idea of dividing a large task into subtasks and processing them using available resources on a first-come/first-served basis—and lack any inventive concept that transforms this abstract idea into patent-eligible subject

matter. The Asserted Claims of the ’582 patent therefore fail at both steps of the Alice test and are therefore invalid. *See e.g. Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014).

The ’582 patent, titled “Method for Managing Distributed Processing of Tasks in a Network,” claims a method for subtask processing in distributed computing systems. Claim 1—the only independent claim of the ’582 patent—recites:

> 1. A method of effecting on **a preexisting input file** a computer-executable process **comprised of a plurality of subtasks**, the method comprising the steps of:
>
> (a) automatically determining file allocation and **logically subdividing records of said input file into a plurality of partitions**;
>
> (b) **distributing descriptions of** all of said **partitions to** each of a plurality of **subtask processors**[;]
>
> (c) **simultaneously executing** at least a respective **one of the subtasks** of the computer-executable process in each of at least some of said processors on a respective one of the partitions with each subtask reading and processing the respective partition so as to process the respective partition and produce respective subtask output and;
>
> (d) thereafter **repeating step (c)** in at least some of the subtask processors each **with another unprocessed partition on a first-come/first-served basis**; and
>
> (e) generating at least one output **combining all of the subtask outputs** and reflecting the processing of all of said subtasks.

The patent admits that these steps mostly were well known in the art, including partitioning data, distributing tasks, parallel processing, and aggregating results. ’582 patent at 3:35-47, 3:67-4:15, 4:59-63. Partitioning (step a) relies on conventional techniques, such as byte ranges or track addresses, while subtask distribution (step b) employs generic mechanisms using control files; processing subtasks (step c) involves standard read-process-write operations, and aggregation (step e) is “of course” a conventional merging operation. *Id.* at 3:35-4:15, 4:59-63. The dependent Asserted Claims of the ’582 patent fare no better. Claim 2 merely states that a

separate processor may perform the partitioning and distribution—an obvious and conventional division of labor that lacks any inventive concept. Claim 5 recites that subtask outputs can be accumulated in arbitrary order but offers no technical detail or mechanism for doing so—just a result. Claim 7 limits the input file to being stored on a network-attached storage device, which the patent itself identifies as a well-known technology.

The claimed first-come/first-served scheduling (step d) was argued during prosecution as the "primary difference" over the prior art. *See* '582 patent, Prosecution History, Mar. 2, 2007 Remarks. According to the applicant, the prior art used "load information to distribute the load between processors," whereas:

> *With the instant invention … load information is not created* …. Instead, the load sharing is done as a byproduct of the fact that *the load-sharing process take parts of the load on a first-come/first-served basis*. A comparison would be to a road intersection where, according to the prior art, there is a traffic light that determines who can go when. The instant invention is more like such an intersection with a four-way stop so that the individual drivers determine who can go and when.

Id. The patentee's admission about the "primary difference" between the claimed invention and the prior art is critical in two ways. First, by pinpointing the "first available" assignment technique as the point of novelty, the inventors have defined what the claimed invention is "directed to" for purposes of the *Alice* Step 1 inquiry. *See Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257–58 (Fed. Cir. 2016) ("The 'abstract idea' step of the inquiry calls upon us to look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter."). Second, by the simple comparison between the invention and the managing of traffic loads at a street intersection, the inventor acknowledged that his "invention" merely applies a longstanding method of organizing human activities to computers.

The methods described in the ’582 patent implement that abstract concept using generic computing components, such as processors and memory, which are standard elements in distributed systems. The claims use simple functional language to describe desired outcomes—partitioning, distributing, processing, scheduling, and aggregating—without detailing how these operations are performed or improved. Consequently, the Asserted Claims of the ’582 patent fail at both steps of the Alice test and are therefore invalid.

a) The Asserted Claims of the ’582 patent recite an abstract scheduling technique.

The Asserted Claims of the ’582 patent are directed to the abstract idea of dividing a large task into subtasks and processing them using available resources on a first-come/first-served basis. Claim 1 of the ’582 patent—the only independent claim of the ’582 patent—comprises five steps: (a) “logically subdividing records . . . into a plurality of partitions,” (b) distributing descriptions of those partitions to multiple “subtask processors,” (c) “simultaneously executing” at least one “subtask” on each of the subtask processors, (d) thereafter allocating any remaining “unprocessed partition” to the subtask processors “on a first-come/first-served basis,” and (e) aggregating “all of the subtask outputs” into a final combined output. Stripped of jargon, Claim 1 covers the basic concept of splitting up a task and distributing the work, then collecting the results.

Claim 1’s distributed task management approach is an abstract idea that humans have long practiced without computers; it is akin to breaking a large job into smaller tasks, handing those tasks out to a group of workers, giving each new work as they free up, and then assembling the final product. The practice of breaking up a large job into discrete tasks, passing out a first round of assignments to team members, instructing them to ask for a new assignment when finished, and then combining the results has been employed by humans since the building of the

Egyptian pyramids. The Federal Circuit has consistently held that processes based on such fundamental organizational practices are abstract. *See, e.g.*, *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015) (organizing, storing, and retrieving information held abstract); *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307 (Fed. Cir. 2016) (automatically organizing information into wanted and unwanted categories and discarding the unwanted information held abstract).

"[T]here is a critical difference between patenting a particular concrete solution to a problem and attempting to patent the abstract idea of a solution to the problem in general." *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016). The Asserted Claims of the '582 patent fall on the latter side of that line: they seek to monopolize the general idea of a solution (parallel task processing with on-the-fly scheduling) rather than a concrete technological solution. The Asserted Claims of the '582 patent do not improve computer technology or solve a specific technical problem in how computers operate but instead apply conventional and common-sense workload management ideas to distributed computing. Partitioning data, distributing tasks, processing in parallel, and aggregating results are standard operations in distributed computing systems. '582 patent at 3:35–4:15, 4:59–63. Simply executing a known business/workflow practice on generic computers is not a patentable improvement to those computers.

The '582 patent's recitation of assigning work using first-come/first-served scheduling—a ubiquitous method of task processing akin to queue management (e.g., a line at a concession stand or a four-way stop)—demonstrates its abstract nature. Claim 1 applies this principle to parallel computer processing without offering any new technological innovation. Moreover, The Asserted Claims of the '582 patent use abstract functional language to describe desired

outcomes—such as "logically subdividing," "distributing," and "aggregating"—without detailing how these steps are performed. This kind of result-oriented claiming that specifies an outcome (efficient parallel processing) without limiting the claim to any innovative technique for achieving it is a hallmark of an abstract idea. Thus, the '582 patent "merely applies a well-known idea using generic computers 'to the particular technological environment of the Internet.'" *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1314 (Fed. Cir. 2016). In *Two-Way Media*, the Federal Circuit held that reciting a series of steps to achieve a desired result, without specifying how those steps are performed, renders the claim abstract. *See Two-Way Media Ltd. v. Comcast Cable Commc'ns*, LLC, 874 F.3d 1329, 1337–38 (Fed. Cir. 2017) ("routing" and "accumulating records" held abstract and invalid). Even though the specification describes conventional methods for these operations, the Asserted Claims of the '582 patent do not specify how data is partitioned, how partitioned subtasks are distributed, or how results are aggregated. '582 patent at 3:35–4:15, 4:59–63. Such high-level, results-oriented language underscores the claim's abstract nature. As the Federal Circuit noted in *Electric Power*, claims that focus on the outcome of data processing without specifying the means to achieve it are abstract and invalid. 830 F.3d at 1356.

The '582 patent are not directed to an improvement in data processing because using multiple computers in parallel may increase the speed of execution of processes and balances the load on resources. Dkt. 28 at 9-10. To the extent that the claimed method achieves these benefits, it only does so by applying the abstract idea of task partitioning and parallel execution on generic computers, rather than by reciting a new technology. Improved speed and load balancing are expected results of running a workload in parallel; they are performance outcomes, not inventive technical means. The '582 patent claims do not improve the internal operation of the computer

processors or change how the network functions—they just use more computing power in a straightforward way. Merely accelerating an existing process via parallelization is akin to the scenario in S*AP America v. InvestPic*, where claims "selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis" were held abstract. 898 F.3d 1161, 1167-1168 (Fed. Cir. 2018). Indeed, the claims of the '582 patent "fit into the familiar class of claims that do not 'focus ... on [] an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.'" *Id.* at 1168 (quoting *Electric Power*, 830 F.3d at 1354). Furthermore, IV's reliance on *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016), is misplaced. Unlike *Enfish*, where the claims improved database memory structure, the '582 patent does not specify any new hardware or improvement to system architecture—it merely applies a standard method of parallelization to a computing process.

Because the Asserted Claims of the '582 patent of the '582 patent are directed to a fundamental method for organizing and processing tasks, it falls squarely within the category of claims deemed ineligible under Step 1 of the *Alice* framework.

b) The '582 patent lacks an inventive concept.

As to *Alice* Step 2, The Asserted Claims of the '582 patent recite only conventional steps and generic components without introducing any meaningful technical improvements or innovations. The claim elements, individually and in combination, reflect routine operations in distributed computing, as explicitly acknowledged in the specification. Partitioning input data into subsets, distributing tasks to processors, and processing tasks in parallel were standard techniques for optimizing workload distribution at the time. '582 patent at 3:35-4:15, 4:59-63.

The first-come/first-served scheduling technique, likewise, is a well-established method for processing tasks based on availability, like the applicant's example of the four-way stop sign.

The Asserted Claims of the ’582 patent “merely appl[y] [this] well-known idea using generic computers.” *Symantec*, 838 F.3d at 1314. The specification does not describe any modification, improvement, or adaptation of this scheduling technique to make it unique or unconventional in the context of distributed computing. The Asserted Claims of the ’582 patent simply apply this known concept predictably to allocate unprocessed subtasks, a principle embedded in all multi-threaded and distributed computing architectures and offers no specific mechanisms or technical enhancements. Thus, the Asserted Claims of the ’582 patent are “directed to a result or effect that itself is the abstract idea and merely invoke[s] generic processes and machinery” rather than “a specific means or method that improves the relevant technology.” *Yu v. Apple Inc.*, 1 F.4th 1040, 1043 (Fed. Cir. 2021). “What is claimed is simply a generic environment in which to carry out the abstract idea.” *Id.*

Confirming the routine nature of the claimed methods, both the specification and the Asserted Claims of the ’582 patent rely entirely on generic computing components, such as processors, memory, and standard network architecture. ’582 patent at 4:27–36; *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1364, 1366–67 (Fed. Cir. 2023) (generic computer components such as “processors” and “memory” insufficient to add an inventive concept). The patent does not propose any novel configurations or functionalities for these components but instead recites conventional “functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over conventional computer and network technology.” *Elec. Power*, 830 F.3d at 1351.

For example, Claim 1’s reliance on functional language—such as “automatically determining,” “logically subdividing,” “distributing,” “executing,” and “combining”—describes desired outcomes without specifying how those outcomes are achieved. It does not explain how

data is partitioned into subsets, how subtasks are allocated, how unallocated tasks are managed, or how results are aggregated into a final output. ’582 patent at 6:47–4:15, 4:59–63. This lack of specificity leaves the claim framed at a high level of abstraction, with no concrete implementation details that could transform the method into a patent-eligible application. The dependent Asserted Claims of the ’582 patent fare no better. Claim 2 merely delegates partitioning and distribution to another processor, without explaining how that processor performs the task. Claim 5 generically allows output in arbitrary order but lacks any technical detail on how that’s achieved. Claim 7 limits the input file to network-attached storage—a conventional environment the patent admits was already well known.

Courts have consistently held analogous claims ineligible under Step 2 of the Alice framework. In *Content Extraction*, 776 F.3d at 1348, the court found “no ‘inventive concept’” in the use of generic computer components to perform routine activities. Similarly, in *Symantec Corp.*, 838 F.3d at 1320, the Federal Circuit emphasized that for a computer-implemented invention to be patent-eligible, it must involve more than well-understood, routine, and conventional activities. Like the claims in these cases, the Asserted Claims of the ’582 patent merely apply abstract principles of task management to distributed computing using conventional techniques, which does not suffice to render it patent-eligible.

The patent’s description of using heterogeneous computers and balancing load is not evidence that the claims capture a technical innovation. As detailed above, the combination of steps in the Asserted Claims of the ’582 patent are entirely conventional—they are the standard recipe for parallel processing (split, distribute, process, repeat, merge). There is no inventive coordination or unconventional synergy arising from the arrangement of these steps; each step does what one would normally expect, and together they achieve the expected outcome of

parallel execution. The Asserted Claims of the ’582 patent simply assemble known techniques to carry out an abstract goal. Combining conventional steps in a computer environment, without more, does not create an inventive concept. IV emphasizes that the patent describes using multiple heterogeneous computers and optimizing execution, but those aspects were already familiar in distributed computing.

Viewed as a whole, the Asserted Claims of the ’582 patent combine conventional steps in a predictable manner to achieve the abstract goal of managing distributed tasks. They offer no technological advancements or inventive concepts beyond the abstract idea itself. Accordingly, the ’582 patent fails to meet the requirements for patent eligibility under 35 U.S.C. § 101.

2. The ’722 patent

The Asserted Claims (claims 14, 16, 17, and 18) of the ’722 patent recite the abstract idea of receiving information, identifying relevant content, registering interest, and disseminating updates to interested parties. This is a long-standing and fundamental practice in organizing and distributing information—not a technological improvement or specific technical solution. Because the claims implement an abstract idea using only generic networking and data-handling functions without reciting any technological improvement or unconventional hardware, the claims fail both steps of the *Alice* framework.

a) The Asserted Claims of the ’722 patent are Directed to an Abstract Idea

The Asserted Claims of the ’722 patent are directed to the abstract idea of receiving information, identifying relevant content, registering interest, and disseminating updates to interested parties. Claim 14—the only representative independent claim—describes a method for enabling dynamic updates to “live objects” displayed on a client device through a structured communication framework involving a source device, a routing network, and intermediary

nodes. An input source sends a data representation to a client device via a routing network; this data includes at least one live object—an identifiable element capable of receiving updates. The client device recognizes the live object, determines its identifier, and registers with the routing network to receive updates about it. This registration includes connection information, which is stored at a node in the routing network. When the input source sends an update message for the live object, the message is routed through a gateway that determines its category and selects the appropriate node type to handle it. The node then identifies the registered client and forwards the message. Upon receipt, the client updates the relevant property of the live object.

Claim 16 adds to claim 14 that the client stores metadata related to the live object, and that the update message modifies this metadata. Claim 17 adds to claim 14 that the update message includes a message type, which the client uses to determine how to apply the update. Claim 18 expands on claim 14 by allowing the client to register for multiple live objects and receive updates for each.

What the Asserted Claims of the ’722 patent effectively describe is a rules-based information forwarding mechanism, based on identifiers and interest registration—a framework that has existed in mailrooms, subscription services, and newsrooms long before the advent of digital networks. Its implementation using computers and a “routing network” merely automates this longstanding human practice.

Stripped of jargon, the Asserted Claims of the ’722 patent describe a familiar, abstract pattern: sending information, having a recipient identify what is relevant, and distributing future updates to those who have expressed interest. This pattern is not new or technological. It is, for example, identical in substance to how a traditional newsroom operates. A journalist (the “input source”) provides a summary of several developing stories (the “data representation”) to a

central bulletin board in the newsroom. Each story on the board is a "live object" in the sense that it may be updated. Editors (the "client devices") review the bulletin board and mark their interest in particular stories. When updates come in from the field, a receptionist (the "gateway device") categorizes the update and determines which editor (the "node") should receive it. The update is then delivered to the relevant editor, who revises the draft story accordingly.

This real-world newsroom example illustrates that the Asserted Claims of the '722 patent merely recite an abstract method of organizing and delivering information—a practice that has been implemented manually for decades. The fact that the '722 patent describes this process in the context of a computing environment does not render it any less abstract. Claims directed to abstract frameworks for information delivery—like updating content in response to user interaction or preference—have repeatedly been held patent-ineligible. *See, e.g.*, *Broadband iTV, Inc. v. Amazon.com, Inc.*, No. 6:20-CV-00921-ADA, 2022 WL 4703425, at *11 (W.D. Tex. Sept. 30, 2022) (J. Albright), *aff'd,* 113 F.4th 1359 (Fed. Cir. 2024); *see also Broadband iTV, Inc. v. Oceanic Time Warner Cable, LLC*, 135 F. Supp. 3d 1175, 1178 (D. Haw. 2015) (claims directed to abstract idea of "using the same hierarchical ordering based on metadata to facilitate the display and locating of video content" ineligible under § 101). Because the Asserted Claims of the '722 patent focus on the result of an implementing an abstract idea—delivering updated content to interested recipients—rather than a specific technological means of achieving that result, they fail at *Alice* step one.

The specification attempts to present these steps as an improvement over prior art by claiming to enhance network efficiency through dynamic client registration and message routing. It asserts that the use of node specialization and dynamic mapping reduces unnecessary message traffic. The routing network purportedly eliminates the need for the input source to track which

clients are displaying the live objects by maintaining a registry of registered clients. The system is described as being useful for applications where content on client devices must be updated dynamically based on changes in data, such as stock prices or sports scores. However, the specification itself reveals that the claimed methods are implemented using conventional networking techniques. The routing network, which consists of nodes and gateways, is built using generic computing components, including single-processor computer systems running common operating systems like Linux. The specification indicates that the system utilizes existing messaging protocols, such as HTTP, and known client-server architectures. Furthermore, the patent acknowledges that the basic concepts of client registration and update handling were already present in existing methods that included client-driven approaches, applets, and server-driven updates using TCP/IP connections.

b) The Asserted Claims of the ’722 Patent Do Not Recite an Inventive Concept

Step 2 of *Alice* cannot save the Asserted Claims of the ’722 patent from ineligibility under 35 U.S.C. § 101. The Asserted Claims of the ’722 patent do no more than implement the abstract idea of selectively distributing content updates to interested recipients using generic computing components performing routine, conventional functions. The purported improvement—routing update messages based on client registration—does not introduce any new computing technology or method of enhancing network efficiency. Instead, it merely applies well-known client-server communication techniques to the problem of distributing data updates. The specification itself discloses that the system utilizes conventional networking components and known data transmission protocols without any significant modification.

Claim 14 recites basic components: an “input source,” a “client device,” a “routing network,” “nodes,” and “gateways.” But none of these are claimed in a specific or inventive

configuration. The specification describes the input source as a web server or dynamic content provider, the client device as a browser-enabled device such as a PC or mobile phone, and the routing network as an internet-based message delivery structure. The "gateway" and "node" elements, while given roles in the message flow, are described in general terms that mirror conventional content delivery mechanisms—such as proxies, relays, load balancers, or intermediate servers.

There is no technical detail in the claim about how messages are classified, how registration is implemented, or how update routing is performed. The claim merely recites the expected result: that a client receives an update for a live object it previously registered for. Courts have routinely held that such claims, which rely on routine network behavior and leave implementation to the practitioner, do not supply an inventive concept. *See, e.g.*, *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) ("The claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result.").

The specification itself confirms that the invention is designed to operate on existing infrastructure and leverages known technologies. Client devices are said to use standard web browsers with existing support for Java, JavaScript, or plug-ins. Update messages are transmitted over HTTP and are parsed using client-side scripts. The routing network is implemented using conventional clusters, nodes, and gateways, and messages are routed using category/type mappings or registry lookups—well-understood design patterns in networked systems. The so-called "live objects" are simply HTML elements or other page components that can be identified by an ID and updated via DOM manipulation or script execution, which common techniques in web development since at least the late 1990s. The use of an "activation module" to register

interest in updates is just another name for client-side code that subscribes to a push service—an architecture long practiced in content syndication and notification systems. Nothing in Claim 14 requires, or even enables, a novel technical implementation of these mechanisms.

None of the limitations in claims 16, 17, or 18 inject any inventive concept into the '722 patent:

- **Claim 16**'s mention of metadata storage and update is a routine feature of client-side state tracking. Web applications and software clients have long-maintained associated metadata (e.g., timestamps, tags, formatting) alongside core content.
- **Claim 17** introduces a message type field used to determine how to process an update. But conditional logic based on message types is a staple of basic programming and messaging protocols. This is no more inventive than a "switch" statement tied to a message header.
- **Claim 18** expands registration to multiple live objects, which is a straightforward extension of the core idea. There is no novel mechanism for batch registration, grouping, or prioritization; the claim merely allows more than one subscription, a feature inherent in any scalable publish-subscribe system.

Thus, the dependent claims likewise apply well-known programming constructs and user-experience features without claiming how any of them are implemented in a novel or unconventional manner.

Furthermore, the combination of client registration and dynamic message routing was not an inventive concept at the time of the alleged invention. Technologies such as IP Multicast, Java Message Service (JMS), and CORBA Event Services were already implementing message routing based on client registration well before the priority date. The combination of these

known elements does not produce unexpected results or provide a technological improvement. Here, the claimed method merely takes existing client registration and message routing techniques and applies them in a straightforward, predictable way.

The Asserted Claims of the ’722 patent therefore do not improve any specific computer functionality or solve any technical problem in a new way—they merely implement a conventional information delivery model using abstract functional language and general-purpose computing components. As such, the Asserted Claims of the ’722 patent fail *Alice* step two and are invalid under 35 U.S.C. § 101.

* * *

The Asserted Claims of the ’722 patent are invalid under 35 U.S.C. § 101 because they fail both prongs of the *Alice* framework. At step one, these claims are directed to the abstract idea of distributing updates about selected content to interested recipients—an organizing principle that has long been practiced by humans and implemented in conventional information systems. These claims describe this idea at a high level of generality, using functional language untethered to any specific improvement in technology or network design. At step two, the claims do not recite any inventive concept sufficient to transform this abstract idea into a patent-eligible application. The components are generic, the operations are conventional, and the implementation relies entirely on known computing techniques. These claims simply automate a familiar content delivery paradigm using routine architecture, offering no technical advancement over the prior art.

3. The ’844 patent

The Asserted Claims (claims 7, 11) of the ’844 patent recite the abstract idea of organizing and storing information using a “root-leaf” structure. This is a long-standing and fundamental practice in organizing and distributing information—not a technological

improvement or specific technical solution. Because the claims implement an abstract idea using only generic networking and data-handling functions without reciting any technological improvement or unconventional hardware, the claims fail both steps of the *Alice* framework.

a) The Asserted Claims of the '844 Patent are Directed to an Abstract Idea

The Asserted Claims of the '844 patent are directed to the abstract idea of organizing and storing information using a "root-leaf" structure. Although applied to a computer network, the method steps of independent claim 7—storing root and leaf images and caching accessed blocks—mirror basic data collection and organization practices, analogous to longstanding human activities. The patent attempts to claim the concept of storing some information in a central repository for permanent storage and common use (a root image), storing other non-identical data locally for faster retrieval and personal use (leaf images), and keeping recently used items temporarily on hand (cached). Such abstract ideas for how to organize and store data on computer systems are one of "the 'basic tools of scientific and technological work' that are free to all men and reserved exclusively to none." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016) (quoting *Alice*, 573 U.S. at 216). Courts have consistently held such practices abstract. *See Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1327 (Fed. Cir. 2017) (organizing and accessing data held abstract); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (data collection and storage held abstract); *Kaavo Inc. v. Amazon.com Inc.*, 323 F. Supp. 3d 630, 641 (D. Del. 2018) ("setting up and managing a cloud computing environment" held abstract); *Versata Software, Inc. v. NetBrain Techs., Inc.*, No. 13-676-LPS-CJB, 2015 WL 5768938, at *7 (D. Del. Sept. 30, 2015) ("representing information in a hierarchy amounts to an abstract idea.").

The specification confirms that the described components and techniques, including root-leaf storage systems and caching mechanisms, were well understood at the time of the invention. Dkt. 1-1 at 1:31–45, 6:37–7:5. The Asserted Claims of the '844 patent provide no specifics on storage structures/hardware, caching algorithms/techniques, or other technical improvements, relying instead on functional language that describes high-level results without specific implementation details. *See ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 769 (Fed. Cir. 2019) ("Even a specification full of technical details about a physical invention may nonetheless conclude with claims that claim nothing more than the broad law or abstract idea underlying the claims.").

Claim 7's scant details about what data gets saved where are inherently abstract. *See Content Extraction*, 776 F.3d at 1347 ("The concept of data collection, recognition, and storage is undisputedly well-known. Indeed, humans have always performed these functions."). "This type of activity, *i.e.*, organizing and accessing [data], includes longstanding conduct that existed well before the advent of computers and the Internet." *Erie Indem.*, 850 F.3d at 1327. Claim 7 includes no purportedly novel technical details for cluster computing—just an abstract idea for how to organize and store data. In the end, the claim is little different from a librarian storing different types of books and papers in different sections of a library. Claim 7 therefore fails *Alice* Step 1 because it recites a conventional root-leaf storage system using a high-level abstract concept to organize and store data without any specific technological improvement recited in the claim. Claim 11 fares no better; it merely adds a generic "merging" step—joining the blocks of the root and leaf images to "create cohesive respective application environments"—without describing *how* that merging is performed or any technical rules guiding it. Claim 11 therefore provides no new or inventive mechanism for merging, just the result.

b) The Asserted Claims of the ’844 Patent Do Not Recite an Inventive Concept

The Asserted Claims of the ’844 patent likewise fail Step 2, in part, because “these claims use generic computers to perform generic computer functions.” *Symantec*, 838 F.3d at 1315. The specification concedes that the claimed methods are standard, including storing root images on a first storage unit, leaf images on second storage units, and caching accessed blocks. Dkt. 1-1 at 2:14–21, 6:38–67. Thus, even if the specification discloses ideas that could be applied to useful ends, claims 7 and 11 “contain[] no restriction on how the result is accomplished.” *Symantec*, at 1316.

The claimed steps are described at a high level of generality, with no new algorithms, configurations, or technological improvements. Generic terms like “providing,” “storing,” and “caching” describe desired outcomes without specifying any “inventive concept” for how these tasks are performed. *See BSG Tech*, 899 F.3d at 1290-91 (“If a claim’s only ‘inventive concept’ is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-eligible application of an abstract idea”); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (drawing the “distinction between ends sought and particular means of achieving them, between desired results (functions) and particular ways of achieving (performing) them”).

Breaking down each element of the Asserted Claims of the ’844 patent reveals how each element is conventional:

Claim 7:

- **“storing blocks of a root image of said compute nodes on a first storage unit”**

  This is conventional. Shared read-only root images were routinely stored on

central storage devices, as used in Sun's diskless workstations and LTSP environments. (*See* Hitz et al.; NetApp WAFL).

- **"storing leaf images for respective compute nodes on respective second storage units…"** This element is likewise conventional. Systems such as VMware and Episode stored deltas or overlays for individual machines using CoW. These deltas excluded unchanged base data, which was referenced from the shared root image.
- **"caching blocks of said root image that have been accessed…"** This element is likewise conventional. Caching mechanisms, including block-level caching and LRU algorithms, were widely used by 2004 in both operating systems and storage appliances (*see* NetApp; LTSP).

Claim 11:

- **"merging said blocks of the root image and said leaf images…"**

  The element recited by Claim 11 is similarly conventional and routine. The merging recited by Claim 11 had been widely implemented in systems such as VMware's and NetApp's platforms.

Courts have invalidated analogous claims. In *Symantec Corp.*, 838 F.3d 1307, the Federal Circuit invalidated claims for managing email messages using conventional computer components. Similarly, the court in *Content Extraction*, 776 F.3d 1343, held claims for data recognition and storage invalid because they relied on routine computing methods. The Asserted Claims of the '844 patent fall into the same category, as they merely recite routine computing techniques and hardware.

The Asserted Claims of the ’844 patent offer no inventive step, combining conventional techniques predictably to achieve abstract goals. They rely on generic computing elements and routine data management practices, failing *Alice* Step 2. Thus, The Asserted Claims of the ’844 patent are ineligible under §101.

* * *

Nonetheless, at their core, claims 7 and 11 are directed to the abstract idea of organizing and storing data using a hierarchical structure of a shared base and individualized overlays. The ’844 patent relies entirely on general-purpose computing devices with generic storage media (Dkt. 1-1 at 4:27–56), and unclaimed components, such as “Union Block Devices” (UBDs), described as low-level drivers with no disclosed novel functionality (*id.* at 5:19–64). The Asserted Claims of the ’844 patent likewise employ broad functional language like “providing,” “storing,” and “caching,” without specifying any improved algorithms, hardware, or software. Thus, the Asserted Claims of the ’844 patent merely recite an abstract idea for organizing and storing data without any inventive concept, thereby failing at both steps of the *Alice* test.

4. The ’785 patent

The Asserted Claims (claims 30, 35, and 37) of the ’785 patent recite the abstract idea of membership management and address look-up in a communications network. This is a long-standing and fundamental practice in administrative tasks—not a technological improvement or specific technical solution. Because the claims implement an abstract idea using only generic administrative functions without reciting any technological improvement or unconventional hardware, the claims fail both steps of the *Alice* framework.

a) The Asserted Claims of the ’785 Patent are Directed to an Abstract Idea

The Asserted Claims of the ’785 patent are directed to the abstract idea of membership management and address look-up in a communications network—mere administrative tasks performed every day by receptionists, security personnel, and bouncers. Stripped of jargon, the claimed elements in independent claim 30 are basic administrative functions involved in setting up and maintaining a private communication network—operations that map directly onto longstanding abstract concepts such as maintaining a directory of users, assigning identifiers, and responding to queries with directing information. Claim 35 builds on claim 30 by adding a “join module” that receives join and leave requests—analogous to a sign-in/sign-out log for network members. Claim 37 further adds that the join module maintains a mapping between virtual addresses and devices—a conventional association table akin to a user directory or ARP (address resolution protocol) table.

The Asserted Claims of the ’785 patent all reflect the abstract idea of membership management and address look-up in a communications network—akin to a corporate office receptionist managing an internal directory. The receptionist receives visitors (devices) requesting access (registration), checks whether they’re authorized to enter (authentication), assigns them a visitor badge with an internal extension number (virtual address), and, when asked, tells other employees where to find the visitor (DNS resolution and routing). The receptionist also tracks when the visitor checks in and out (join and leave requests) and keeps a temporary log mapping badge numbers to visitors (address-device association). These are routine administrative functions that merely facilitate communication within a defined space—just as the Asserted Claims do within a virtual network. There is no innovation in how the receptionist performs these tasks, and these tasks have been performed by humans for centuries. Likewise,

the Asserted Claims do not improve any underlying networking technology or propose any inventive technical implementation. The Asserted Claims of the '785 patent are simply automating a familiar organizational role using conventional computing tools, rendering them abstract under *Alice* step one.

Tellingly, the method of originally filed claim 64 (which issued as claim 48) did not include any requirement that the steps of the claim be performed by a computer. On February 4, 2009 (5 years before the *Alice* decision), the Examiner rejected claim 64 under 35 U.S.C. § 101, applying the *Bilski* "machine-or-transformation" test for patentable subject matter that existed in 2009. In other words, without the recitation of a "machine" (*i.e.*, a computer), the claims were not patentable under § 101. In response to the Section 101 rejection, the Applicants amended claim 64 to be "computer-implemented," as none of the originally-filed claims required the use of a computer. Although an amendment requiring that the method be performed by a computer was sufficient in 2009-2010 to overcome the Examiner's Section 101 rejections, this is not the case today. Under current Supreme Court and Federal Circuit law, the *Alice* steps apply.

The '785 patent applicants' computer-implemented amendment to independent claim 64 crystallizes two points. First, the amendment demonstrates that the Applicants understood that the method described in the '785 patent and claimed in the originally-filed claim 64 could be practiced without the use of a computer, *i.e.*, the method could be performed in the human mind, or by a human using a pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "unpatentable mental process[]"); *Elec. Power Grp.*, 830 F.3d at 1355 ("[C]laims focusing on organizing, characterizing, and/or sorting information are patent-ineligible because they are not significantly

differentiable from ordinary mental processes."). Second, this amendment demonstrates that the focus of the claims of the '785 patent is not on any specific asserted improvement in computer capabilities. *In re TLI Commc'ns L.L.C. Pat. Litig.*, 823 F.3d at 612 ("[T]he claims were not directed to specific improvement to computer functionality. Rather, they are directed to the use of conventional or generic technology in a nascent but well-known environment, without any claim that the invention reflects an inventive solution to any problem presented by combining the two.").

Under *Alice*, a claim that is unpatentable without the recitation of a computer does not become patentable by reciting a computer. That the claims of the '785 patent merely implement the non-statutory subject matter on a generic computing device is plain from the fact that the originally-filed claims did not require that the claimed systems and methods include or be performed by a computer, respectively. Thus, the language of the Asserted Claims, their prosecution history, and the change in the law demonstrate that the Asserted Claims of the '785 patent are directed to an abstract administrative idea applied to a communications network.

b) The Asserted Claims of the '785 Patent Do Not Recite an Inventive Concept

The Asserted Claims of the '785 patent fail at *Alice* step 2 because they do not recite anything beyond generic computer functions performed using conventional components. The specification confirms that the system is built using well-known networking elements (*e.g.*, processors, memory, interfaces, DNS servers, NAT traversal techniques, virtual IP addressing) without any specialized circuitry, protocol, or configuration.

The '785 patent itself acknowledges that the components and methods it employs were conventional at the time of invention. For example, the specification discusses the use of Network Address Translation (NAT) and virtual addresses to facilitate secure communication,

but these techniques were already well-known in the field of networking. The patent does not propose any novel way of utilizing NAT or managing virtual addresses beyond their ordinary and conventional uses.

Claim 30, for instance, merely describes using a DNS server to resolve device addresses within a virtual network, which is a standard function of DNS servers generally. The idea of assigning virtual addresses to devices and resolving these addresses through DNS lookups is not unique or inventive. Instead, the patent recites high-level results—such as secure communication—without specifying how these results are technologically achieved. There is no disclosed protocol, no new addressing scheme, no algorithm for conflict resolution, and no structural innovation in how devices are registered or managed. The system instead relies on existing IP, UDP, NAT, and IPsec technologies. The claims are results-oriented: "register the device," "assign an address," "respond to a DNS query"—without any accompanying inventive technical solution.

The claim elements—processor, memory, network interface, modules—are standard hardware or logical software components performing their expected functions. There is no claim that the invention requires new hardware, reconfigured components, or even custom protocols. The Asserted Claims of the '785 patent are therefore equivalent to the claims in *BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1291 (Fed. Cir. 2018), where the claims at issue merely limited an abstract idea to a particular technological environment and were held ineligible. Similarly, in *ChargePoint, Inc. v. SemaConnect, Inc.*, the court invalidated claims that combined generic networking capabilities with existing concepts without adding any inventive technology. 920 F.3d 759, 774 (Fed. Cir. 2019) ("But network control is the abstract idea itself, and 'a claimed invention's use of the ineligible concept to which it is directed cannot supply the

inventive concept that renders the invention 'significantly more' than that ineligible concept.'") (quoting *BSG Tech*, 899 F.3d at 1290). The Asserted Claims of the '785 patent follow the same pattern by applying well-understood networking techniques without advancing the state of the art.

* * *

The Asserted Claims of the '785 patent are invalid under 35 U.S.C. § 101. They are directed to abstract administrative operations for managing virtual networks and fail to recite any inventive concept in either their individual components or overall arrangement. They do not improve any underlying technology, nor do they disclose a novel technical mechanism for achieving the stated goals. As such, they fail both steps of the *Alice* test and are ineligible for patent protection.

5. The '326 patent

a) The Asserted Claims of the '326 Patent are Directed to an Abstract Idea

The Asserted Claims of the '326 patent recite the abstract idea of combining channels to increase data throughput (claims 1 and 18) and transmitting data to multiple radios (claim 4). These claims fail Step 1 of *Alice*. *See Alice*, 573 U.S. at 216-17. They recite long-standing and fundamental practices in sending and receiving information over a network—not a technological improvement or specific technical solution. There is nothing to the patent beyond the concept of combining two data transmission channels together, including the space between them, to yield a larger channel.

Channel bonding and transmitting data to multiple radios is an abstract idea as claims directed to sending and receiving data are abstract in nature. *See, e.g., Affinity Labs of Texas, LLC. v. DIRECTTV, LLC*, 838 F.3d 1253, 1261 (Fed. Cir. 2016) (explaining that patents directed

to "the conveyance and manipulation of information using wireless communication and computer technology" do not disclose eligible subject matter). Claims directed to formatting data are also abstract. *See Dropbox, Inc. v. Synchronoss Techs., Inc.*, 815 F. App'x 529, 537 (Fed. Cir. 2020) (finding claims ineligible that were directed, in part, to "formatting data"). Additionally, the Asserted Claims of the '326 patent are directed towards manipulating data subcarriers, filling frequency gaps, and operations such as Fast Fourier Transforms, all of which are fundamentally mathematical operations. The Asserted Claims are thus invalid, as "[p]urely conventional or obvious pre-solution activity is normally not sufficient to transform an unpatentable law of nature into a patent-eligible application of such a law." *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66, 79, (2012) (cleaned up); *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) ("Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.").

b) The '326 Patent Claims Lack an Inventive Concept.

Step 2 of *Alice* does save the Asserted Claims of the '326 patent from ineligibility under 35 U.S.C. § 101. The Asserted Claims of the '326 patent do no more than implement the abstract idea of increasing data throughput by using generic computing components performing routine, conventional functions. Namely, channel bonding (claims 1 and 18) and transmitting data to multiple radios (claim 4) lack an inventive concept because such claims amount only to generic components and fail to demonstrate unconventionality. See *Dropbox*, 815 F. App'x at 537 (finding that "data transfer connection[s] are generic computer-related concepts as they literally are just data transfer modalities" and are thus not inventive concepts).

The Asserted Claims of the '326 patent are invalid under 35 U.S.C. § 101. They are directed to the abstract idea of transferring data over a network and fail to recite an inventive

concept. Because the claims implement an abstract idea using only generic networking and data-handling functions without reciting any technological improvement or unconventional mechanisms, the claims fail both steps of the Alice framework.

6. ’469 patent

a) The Asserted Claims of the ’469 Patent recite the business practice of placing a paid hotspot in a “transient location”

Each of the Asserted Claims of the ’469 patent are invalid under 35 U.S.C. § 101 because the claims are directed to an abstract idea and fail to describe an inventive concept. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216-17 (2014). For example, all of the Asserted Claims of the ’469 patent are generally directed to an abstract idea for Section 101 purposes and under Intellectual Venture’s apparent constructions. The sole asserted independent claim, claim 24, concerns placing a known composition of commercial components in a “remote location” to establish a subscribers-only internet hotspot. The specification also makes clear that the invention of the Asserted patent is the idea of placing paid hotspots where users would otherwise not have Internet access:

> The present invention provides rural “Hotspots” (such as Wi-Fi access, for example) to enable wireless and hardwired, satellite distributed Internet access for anyone with a PC or other web-ready device (wireless ready or cabled) and a valid credit card.

’469 patent at 1:34-38. The concept of charging people money for internet access in a “transient location” like a restaurant or motel is merely a business idea. Paying for services is a “fundamental economic practice long prevalent in our system of commerce” and, “as such, is a patent ineligible abstract idea.” *W. Express Bancshares, LLC v. Green Dot Corp*., 816 F. App’x 485, 487 (Fed. Cir. 2020).

Applying this fundamental economic practice to tangible components such as commercially available network equipment does not alter the fact that the claims are directed to

"an art or principle in the abstract, and not for any particular method or machinery." *ChargePoint, Inc. v. SemaConnect, Inc*., 920 F.3d 759, 769-70 (Fed. Cir. 2019) (quoting *Wyeth v. Stone*, 30 F. Cas. 723 (C.C.D. Mass. 1840)) ("In short, the inventors here had the good idea to add networking capabilities to existing charging stations to facilitate various business interactions. But that is where they stopped, and that is all they patented. We therefore hold that claim 1 is 'directed to' an abstract idea"). The patentee's implementation rests wholly on the existing knowledge of a person of skill in the art: "The Hotspot 10 comprises all the equipment installed at the rural location that is necessary to provide Internet access via satellite." '469 patent at 4:18-21 (emphasis added). "The Ethernet wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard." '469 patent at 5:19-25 (emphasis added). The Federal Circuit has "repeatedly found the concept of controlling access to resources via software to be an abstract idea." *Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd*., 955 F.3d 1317, 1327 (Fed. Cir. 2020); see also *Smartflash LLC v. Apple Inc*., 680 F. App'x 977 (Fed. Cir. 2017).

b) The Asserted Claims of the '469 patent lack an inventive concept.

The specification provides no solution to overcome technical challenges associated with "remote"-ness, or a "high volume of transient traffic" or "subscriber access." The claims of the Asserted Patent are results-driven and fail to overcome ineligibility. Each limitation recites generic components which are "capable of" performing connectivity, routing, and authorization using any method whatsoever. As set forth above and in the attached claim charts, paid Internet hotspots were very well known and widely used at the time of the Asserted Patent. Placing a paid Internet hotspot in "a remote location" is insufficient to render the claims eligible where no

particular improvement is recited to, for example, teach how a subscriber access unit is "capable of" authorizing payments in "a remote location." *Universal Secure Registry LLC v. Apple Inc.,* 10 F.4th 1342, 1346 (Fed. Cir. 2021); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) ("limiting the claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform them into patent-eligible applications of the abstract idea at their core."). The "essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101, especially in the area of using generic computer and network technology to carry out economic transactions."

Each of the asserted dependent claims likewise recite the use of conventional components or processes to achieve results for which those components are designed. '469 patent, claim 25 ("a wired data connection" "a wireless data connection"); claim 26 ("a plurality of users may access the Internet simultaneously," "at the remote location," "establishing data connections with the router via their web-ready devices"); claim 28 ("the data connections include wireless data connections"); claim 32 ("the wireless connection," "802.11a wireless area network," "802.11b wireless area network," "802.11g wireless area network," "802.11n wireless area network"). See also *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370-73 (Fed. Cir. 2011) (a method of verifying the validity of credit card transactions over the Internet held patent-ineligible as directed to an abstract idea); *buySAFE, Inc. v. Google, Inc.,* 765 F.3d 1350, 1354-55 (Fed. Cir. 2014) (guaranteeing performance in an Internet transaction was patent-ineligible); *TLI Communications LLC Patent Litigation*, 823 F.3d 607, 615 (Fed. Cir. 2016) ("vague, functional descriptions of server components are insufficient to transform the abstract idea into a patent-eligible invention."). The claimed steps are described at a high level of generality, using generic terms, confirming the '469 is ineligible under 35 U.S.C. §101.

G. Invalidity Based on Obviousness-Type Double Patenting

1. Obviousness-Type Double Patenting of the ’844 Patent in View of U.S. Patent No. 7,721,282

American provides further notice to Plaintiffs that the asserted claims of the ’844 patent are invalid under the doctrine of obviousness-type double patenting (“OTDP”) in view of claim 15 of U.S. Patent No. 7,721,282 (the “’282 patent”). Because the asserted claims of the ’844 patent are directed to the same invention recited by claims presented in the ’282 patent, and because any differences in the asserted claims of the ’844 patent are, at most, obvious modifications of claims in the ’282 patent, the asserted ’844 patent claims are invalid. *See AbbVie Inc. v. Mathilda & Terrence Kennedy Inst. of Rheumatology Tr.*, 764 F.3d 1366, 1373 (Fed. Cir. 2014).

The ’282 patent is available as an OTDP reference against the ’844 patent. The ’282 patent was filed on March 30, 2006, issued on May 18, 2010, and is set to expire on December 19, 2027. The ’844 patent was filed on February 21, 2007, issued on December 11, 2012, and is set to expire on April 6, 2028. Thus, the ’282 patent was filed earlier than the ’844 patent, issued earlier than the ’844 patent, and is set to expire earlier than the ’844 patent.

As is the case here, where “the applicant chooses to file separate applications for overlapping subject matter . . . the doctrine of obviousness-type double patenting ensures that a particular invention (and obvious variants thereof) does not receive an undue patent term extension.” *AbbVie*, 764 F.3d at 1373. Therefore, the earlier-filed, earlier-issued, and earlier-expiring ’282 patent qualifies as a double patenting reference.

Given that the ’844 patent and the reference ’282 patent share at least one common inventor and common ownership, determining whether a patent claim is invalid for OTDP entails two steps. *See id.* at 1374. The first step determines the differences between the respective claims

of the two patents. The second step determines whether those differences render the later-expiring set of claims sufficiently different to be patentably distinct. *Id.* "The second part of this analysis is analogous to the obviousness inquiry under 35 U.S.C. § 103 in the sense that if an earlier claim renders obvious or anticipates a later claim, the later claim is not patentably distinct and is thus invalid for obviousness-type double patenting." *UCB, Inc. v. Accord Healthcare, Inc.*, 890 F.3d 1313, 1323 (Fed. Cir. 2018) (citation omitted). The disclosure of the reference patent may be used to determine whether the claims merely define an obvious variation of what is disclosed and claimed in the reference patent. *Abbvie*, 764 F.3d at 1381.

The attached claim chart in Exhibit 844-OTDP-1 demonstrates that, to the extent there are any differences between the asserted claims of the '844 patent and claims of the '282 patent, these differences are not patentably distinct. The charts provide reasons why a person of ordinary skill in the art would conclude that the alleged invention defined in the asserted claims of the '844 patent would have been an obvious variation of the alleged invention defined in the corresponding claim or claims of the '282 patent.

2. Obviousness-Type Double Patenting of the '844 Patent in View of U.S. Patent No. 7,870,106

American provides further notice to Plaintiffs that the asserted claims of the '844 patent are invalid under the doctrine of obviousness-type double patenting ("OTDP") in view of claim 1 of U.S. Patent No. 7,870,106 (the "'106 patent"). Because the asserted claims of the '844 patent are directed to the same invention recited by claims presented in the '106 patent, and because any differences in the asserted claims of the '844 patent are, at most, obvious modifications of claims in the '106 patent, the asserted '844 patent claims are invalid. *See AbbVie Inc. v. Mathilda & Terrence Kennedy Inst. of Rheumatology Tr.*, 764 F.3d 1366, 1373 (Fed. Cir. 2014).

The ’106 patent is available as an OTDP reference against the ’844 patent. The ’106 patent was filed on February 2, 2006, issued on January 11, 2011, and is set to expire on May 18, 2027. The ’844 patent was filed on February 21, 2007, issued on December 11, 2012, and is set to expire on April 6, 2028. Thus, the ’106 patent was filed earlier than the ’844 patent, issued earlier than the ’844 patent, and is set to expire earlier than the ’844 patent.

As is the case here, where “the applicant chooses to file separate applications for overlapping subject matter . . . the doctrine of obviousness-type double patenting ensures that a particular invention (and obvious variants thereof) does not receive an undue patent term extension.” *AbbVie*, 764 F.3d at 1373. Therefore, the earlier-filed, earlier-issued, and earlier-expiring ’106 patent qualifies as a double patenting reference.

Given that the ’844 patent and the reference ’106 patent share at least one common inventor and common ownership, determining whether a patent claim is invalid for OTDP entails two steps. *See id.* at 1374. The first step determines the differences between the respective claims of the two patents. The second step determines whether those differences render the later-expiring set of claims sufficiently different to be patentably distinct. *Id.* “The second part of this analysis is analogous to the obviousness inquiry under 35 U.S.C. § 103 in the sense that if an earlier claim renders obvious or anticipates a later claim, the later claim is not patentably distinct and is thus invalid for obviousness-type double patenting.” *UCB, Inc. v. Accord Healthcare, Inc.*, 890 F.3d 1313, 1323 (Fed. Cir. 2018) (citation omitted). The disclosure of the reference patent may be used to determine whether the claims merely define an obvious variation of what is disclosed and claimed in the reference patent. *Abbvie*, 764 F.3d at 1381.

The attached claim chart in Exhibit 844-OTDP-2 demonstrates that, to the extent there are any differences between the asserted claims of the ’844 patent and claims of the ’106 patent,

these differences are not patentably distinct. The charts provide reasons why a person of ordinary skill in the art would conclude that the alleged invention defined in the asserted claims of the '844 patent would have been an obvious variation of the alleged invention defined in the corresponding claim or claims of the '106 patent.

American reserves the right to assert any other double patenting challenges against any of the Asserted Patents.

III. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to P.R. 3-4(a), American is producing documentation in its possession that shows the operation of any aspects or elements of each Accused Instrumentality identified by IV in its P.R. 3-1(c) charts. *See, e.g.,* AA_IV_0002168 – AA_IV_0074538. However, American does not make any of the technologies accused of infringement. Moreover, for certain allegations, American has not identified any allegedly infringing use of the technologies based on IV's infringement allegations. American has collected certain source code in its possession relevant to the accused technologies and will make that code available pursuant to the source code provisions of the Protective Order, once entered by the Court. However, American does not represent that any of the code in its possession is relevant to IV's infringement allegations (to the extent that those allegations can be understood to identify an accused product).

Additionally, pursuant to P.R. 3-4(b), American is producing herewith a copy of each prior art reference identified above pursuant to P.R. 3-3(a) which does not appear in the file histories of the Asserted Patents, as well as additional prior art references. To the extent any such prior art reference is not in English, American has produced to IV or will produce to IV an English translation of the portion(s) of the non-English prior art reference(s) relied upon by American.

Dated: June 20, 2025

/s/ *John B. Campbell*

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ATTORNEYS FOR DEFENDANT
AMERICAN AIRLINES, INC.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been served on all counsel of record via email on June 20, 2025.

/s/ John B. Campbell
John B. Campbell

EXHIBIT E-2

Exhibit E-2 to American's Preliminary Invalidity Contentions

Airpath Wireless Hot Spot

Airpath Wireless Hot Spot by Airpath Wireless Inc., was known in this country, used in public, sold or offered for sale no later than June 2003, as demonstrated by at least the materials cited herein or the testimony of knowledgeable witnesses and corroborating documents.[1] Specifically, based on information currently available, Airpath Wireless Hot Spot was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) in public use or on sale in this country more than one year before the filing date of the patent, or (3) invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. Thus, Airpath Wireless Hot Spot anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) and (g).

At least the following documents describe the relevant functionality disclosed by Airpath Wireless Hot Spot:

- https://www.lightreading.com/cable-technology/airpath-offers-wlan-billing;
- https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp;
- https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp;
  https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp;
- https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp;
  This webpage was available as early as October 10, 2002
  https://web.archive.org/web/20021010094910/http://www.airpath.com:80/hsbs.asp
- https://web.archive.org/web/20030608122038/http://www.airpath.com/Programs/Hardware/hardware.htm;
  This webpage was available as early as March 20, 2003
  https://web.archive.org/web/20030320015442/http://airpath.com:80/Programs/Hardware/hardware.htm
- https://web.archive.org/web/20030622174302/http://airpath.com/;
  This webpage was available as early as March 21, 2003
  https://web.archive.org/web/20030321035109/http://www.airpath.com:80/
- https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm;
  This webpage was available as early as April 2, 2003

[1] Defendant's invalidity charts, in some instances, rely at least in part on Plaintiff's apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant's understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff's infringement contentions, or information obtained during discovery as the case proceeds.

https://web.archive.org/web/20030402025905/http://airpath.com:80/Services/instanthsp_details.htm

- https://web.archive.org/web/20030819115347/http://www.mainstreamdata.com/content/_soln/soln3.html;
  This webpage was available as early as June 4, 2002
  https://web.archive.org/web/20020604105336/http://www.mainstreamdata.com:80/content/_soln/soln3.html
- https://web.archive.org/web/20030214104612/http://www.airpath.com/;
  This webpage was available as early as August 2, 2022
  https://web.archive.org/web/20020802120424/http://www.airpathwireless.com:80/
- https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.html;
  This webpage was available as early as June 3, 2002
  https://web.archive.org/web/20020603231413/http://www.mainstreamdata.com:80/content/_soln/soln0.html
- https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html;
  This webpage was available as early as August 10, 2002
  https://web.archive.org/web/20020810054500/http://www.mainstreamdata.com:80/content/_abtm/abtm0.html
- https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html;
  This webpage was available as early as August 8, 2003. *See*
  https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html
- https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html;
  This webpage was available as early as June 3, 2002
  https://web.archive.org/web/20020603231413/http://www.mainstreamdata.com:80/content/_soln/soln0.html
- https://web.archive.org/web/20040416153332/http://www.mainstreamdata.com/content/_abtm/abtm2.html.
  This webpage was available as early as June 4, 2002
  https://web.archive.org/web/20020604092315/http://www.mainstreamdata.com:80/content/_abtm/abtm2.html

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Airpath Wireless Hot Spot include at least persons involved in the Airpath Wireless Hot Spot, and their testing and commercial use, including at least Airpath Wireless, Inc., Mainstream Data, Inc., and Todd Meyers. The conception of Airpath Wireless Hot Spot occurred at least as early as 2003.

American offers this invalidity chart based on its current understanding of Airpath Wireless Hot Spot. American's investigation of this system is ongoing. American may rely on materials produced by Plaintiffs or by third parties regarding Airpath Wireless Hot Spot and related software to demonstrate invalidity of the asserted claims. American has not had an opportunity to review source code for Airpath Wireless Hot Spot. American may rely on source code, when available, implementing the functionality described herein, or other source code implementing substantially similar functionality, to demonstrate the invalidity of the asserted claims.

EXHIBIT E-2

To the extent Plaintiff alleges Airpath Wireless does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Airpath Wireless or combine the teachings of Airpath Wireless with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to any combination of the following:

- Invalid under 35 U.S.C. § 102 by Airpath Wireless Hot Spot;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 6,968,394 to El-Rafie ("El-Rafie") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2002/0075844 to Hagen ("Hagen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of Korean Patent No. 2003/0029267 to Hyunwoo Lee ("Lee") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 6,377,981 to Ollikainen et al. ("Ollikainen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of Czech Patent No. 2,000,578 to Martine Rothblatt ("Rothblatt I") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 6,105,060 to Martine Rothblatt ("Rothblatt II") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent No. 5,987,430 to Van Horne et al. ("Van Horne") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of Connexion by Boeing ("Connexion by Boeing") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of MTN Cruise Ship Internet Services ("MTN Cruise Ship Internet Services") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of StratosNet ("Stratos") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of Tenzing Global ("Tenzing Global") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of Wireless Cabin ("Wireless Cabin") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of "Aeronautical Communications for Personal and Multimedia Services via Satellite" by M. DeSanctis et al. ("DeSanctis") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of "Dimensioning of Aeronautical Satellite Services" by Jahn et al. ("Jahn I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of "Passenger Multimedia Service Concept via Future Satellite Systems" by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner ("Jahn II") and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Airpath Wireless Hot Spot in view of "Inflight Internet Connectivity Technology and Its Application on E-Commerce," by Manasuda Suwanateep ("Suwanateep") and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int'l Co. v. Teleflex, Inc.*, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. 398, 416 (2007). The Supreme Court further held: "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a

different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 417. The Supreme Court further held: "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

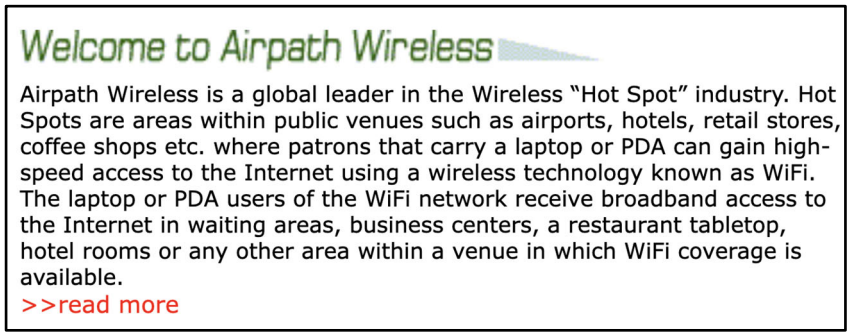
Claim	Airpath Wireless Hot Spot
[24] An Internet Hotspot comprising:	To the extent the preamble is limiting, Airpath Wireless Hot Spot discloses an Internet Hotspot:  https://web.archive.org/web/20030622174302/http://airpath.com/ ; ●○ https://web.archive.org/web/20030321035109/http://www.airpath.com:80/

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot
	Airpath Wireless provides WiFi Back-Office infrastructure solutions needed to enable WISPs, carriers, and venue owners to rapidly deploy and operate Hot Spots. By utilizing our powerful back-office solutions, our clients can enter the WiFi industry quickly as an independent provider of Hot Spot services. We offer turn-key solutions for new Hot Spot providers and all of our back-office systems are hardware independent, so legacy providers can utilize our out-sourced services. Our roaming services unite otherwise disparate networks of Hot Spots together through our centralized Network Operations Center, which creates a seamless experience for end users and creates a larger WiFi Wireless LAN footprint. Our solutions are perfect for those venues desiring to offer WiFi Hot Spot services such as airports, hotels, restaurants, and other public areas. https://web.archive.org/web/20030214104612/http://www.airpath.com/ ; ●○ https://web.archive.org/web/20020802120424/http://www.airpathwireless.com:80/ **ABOUT AIRPATH WIRELESS, INC.** Airpath Wireless, Inc. provides hosted Wi-Fi management software which enables WISPs, telco carriers, and venue owners to rapidly deploy, operate and manage Wi-Fi Hot Spots. By utilizing the Airpath managed solutions, its provider customers can enter the public Wi-Fi industry quickly while Airpath acts as a managed operator behind the scenes. Airpath also offers turn-key solutions for new Hot Spot providers and its scaleable, hosted software solutions interoperate with legacy hardware and software. Additional information is available at www.airpath.com. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html;

Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html "Mainstream's satellite offering is an ideal solution for Hot Spot providers looking for carrier class service, and is a very cost effective alternative for our providers in locations where terrestrial offerings are non-existent or cost prohibitive." said Todd Myers, Chairman and CEO of Airpath. "Our providers can now expand their Hot Spot build-outs throughout North America and beyond the reach of traditional telco circuits." Scott Calder, President and CEO of Mainstream commented, "We believe that Wi-Fi is a major step forward in the quest for ubiquitous connected computing and are pleased to be able to play an important role in making that happen. We are excited to be working with Airpath to expand the number of locations where always-on broadband connections are available to those equipped with Wi-Fi." https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	Airpath Wireless Hot Spot discloses "a satellite dish communicating with the Internet via one or more data links with a satellite." *See, e.g.*, **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot

Satellite

Mainstream satellite solutions provide the most cost-effective alternative for delivering real-time, high-bandwidth streaming media. Mainstream uses FM-squared, SCPC/MCPC, and DVB satellite technologies to distribute information at speeds up to 40 Mbps.

https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; ●○

https://web.archive.org/web/20020603231413/http://www.mainstreamdata.com:80/content/_soln/soln0.html

Mainstream was founded in 1985 and pioneered the use of FM radio data broadcasting. Mainstream's FM data network quickly replaced costly telephone-based solutions in seventeen of the largest metropolitan areas in the United States. As the company's customers demanded broader geographic coverage, Mainstream responded by incorporating satellite technologies in 1987.

By 1989, Mainstream provided total U.S. coverage with a then state-of-the-art VSAT (very small aperture terminal) satellite system. By 1991, Mainstream Data had built its first European satellite network, followed by an Asian network in 1996. Today, Mainstream provides global coverage for its customers using the latest in satellite and Internet technologies.

https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html; ●○

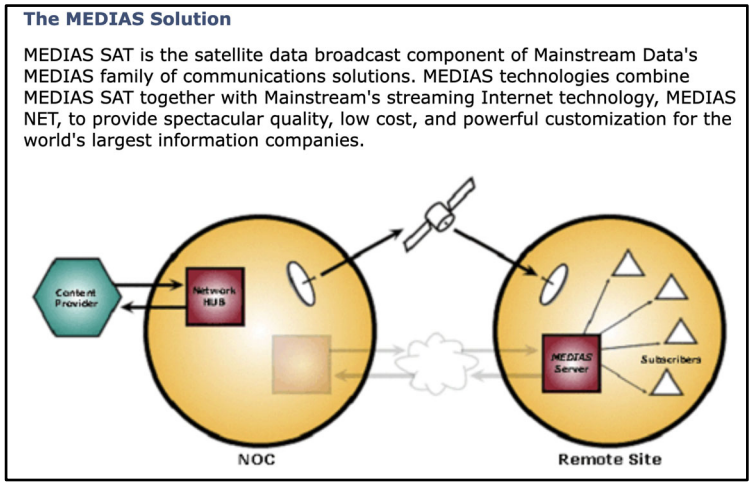
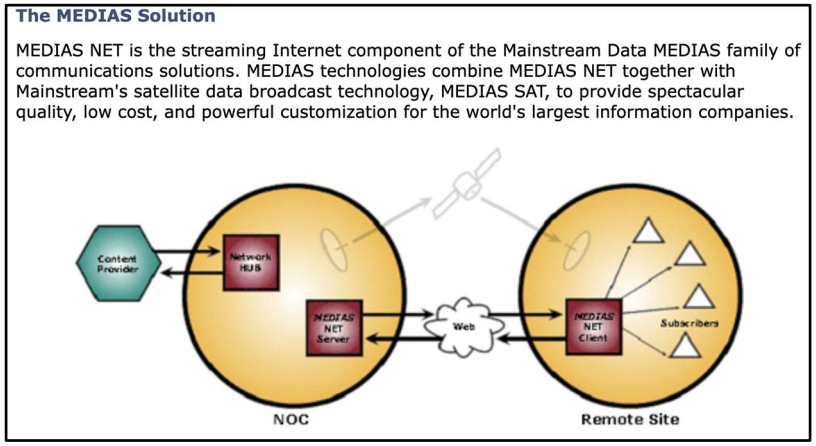
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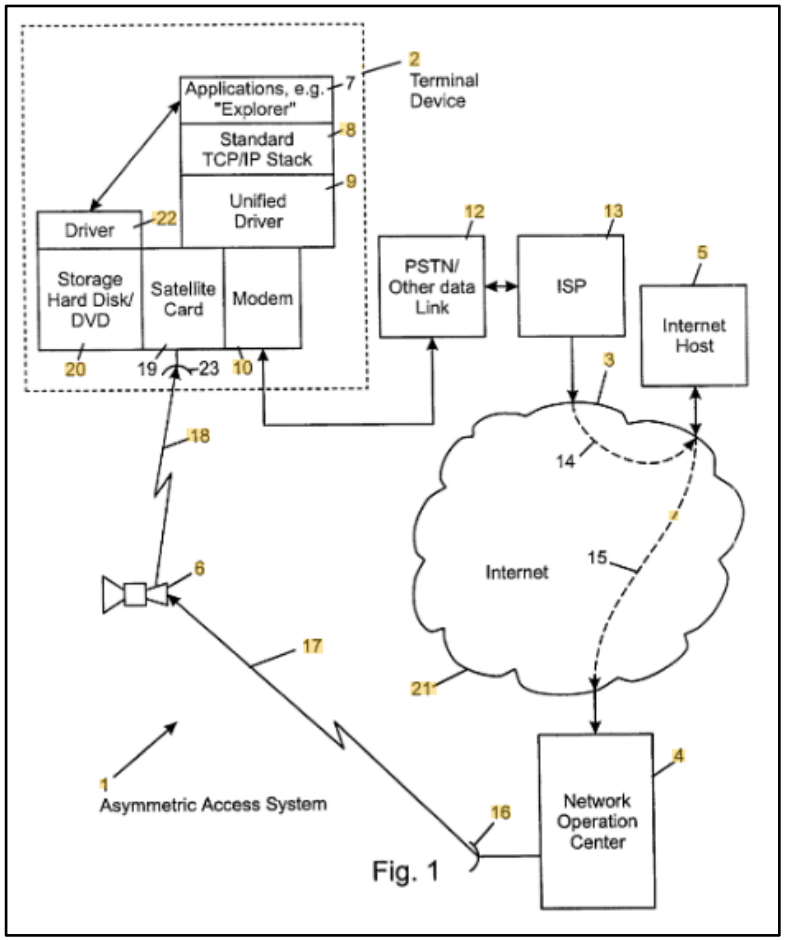
https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; ●○

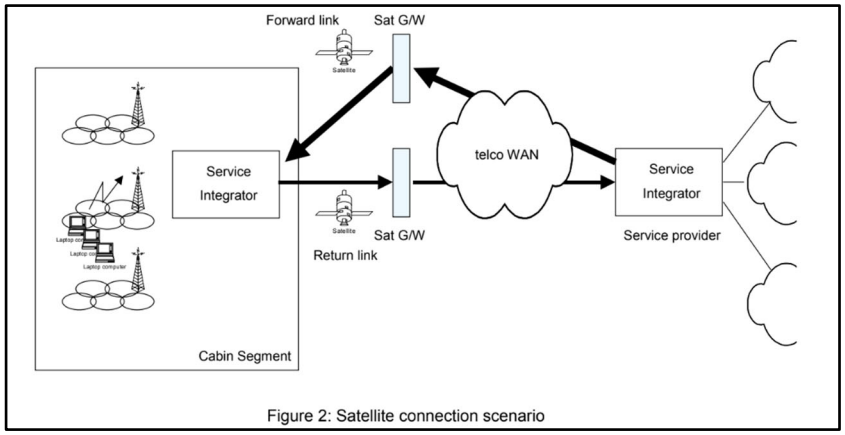
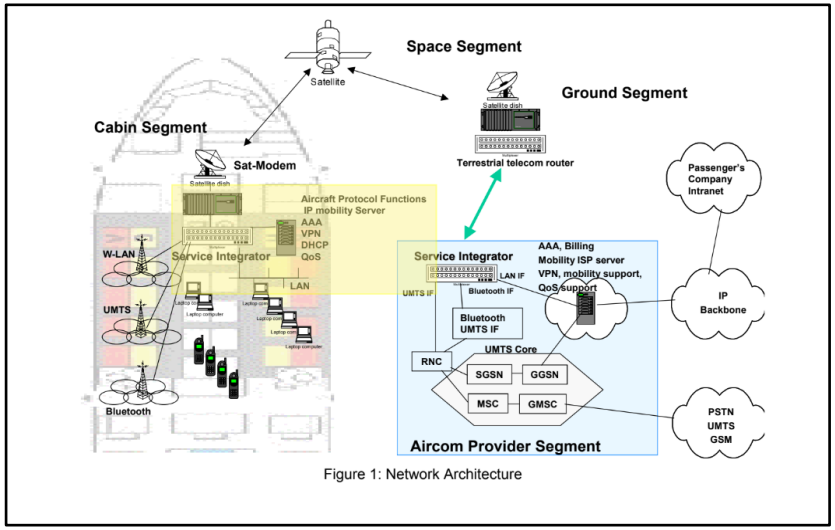
EXHIBIT E-2

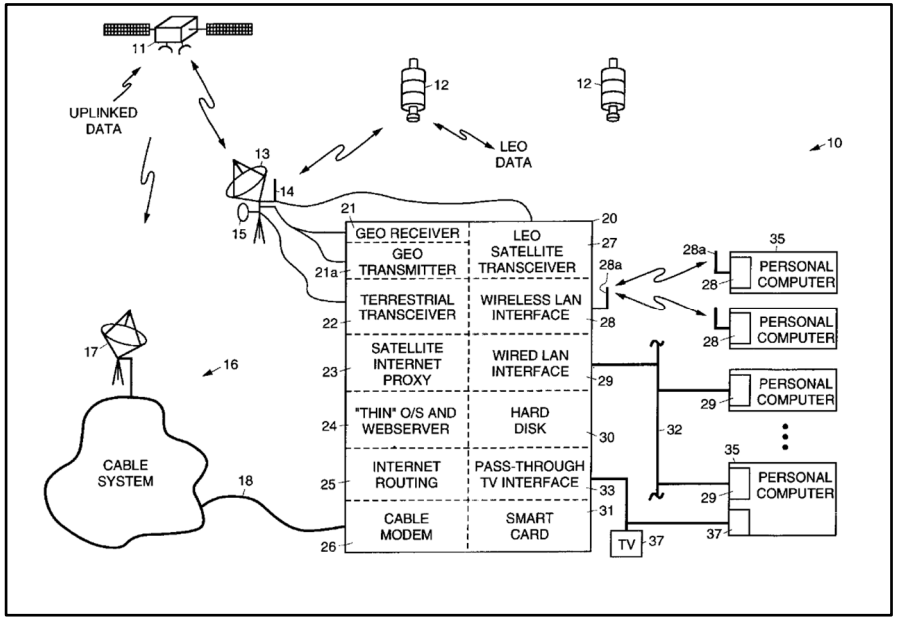
Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20020603231413/http://www.mainstreamdata.com:80/content/_soln/soln0.html Using the integrated solution, Airpath Providers will be able to expand to include locations that have ideal traffic patterns for a Hot Spot, but were previously impractical due to a lack of Internet infrastructure or the high cost of telephone data circuits. Remote marinas, truck-stops, campgrounds, resorts, and hotels located in rural areas are just some of the locations to which Airpath's providers will now be able to supply affordable Hot Spot services. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html **Hardware** Mainstream is a leading provider of multimedia capable satellite receivers, with more than 115,000 installed worldwide. And Mainstream's new MEDIAS information servers provide the most economical means for distributing high-quality multimedia to networked desktops, information kiosks, and retail locations. https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.html; ●○ https://web.archive.org/web/20020603231413/http://www.mainstreamdata.com:80/content/_soln/soln0.html

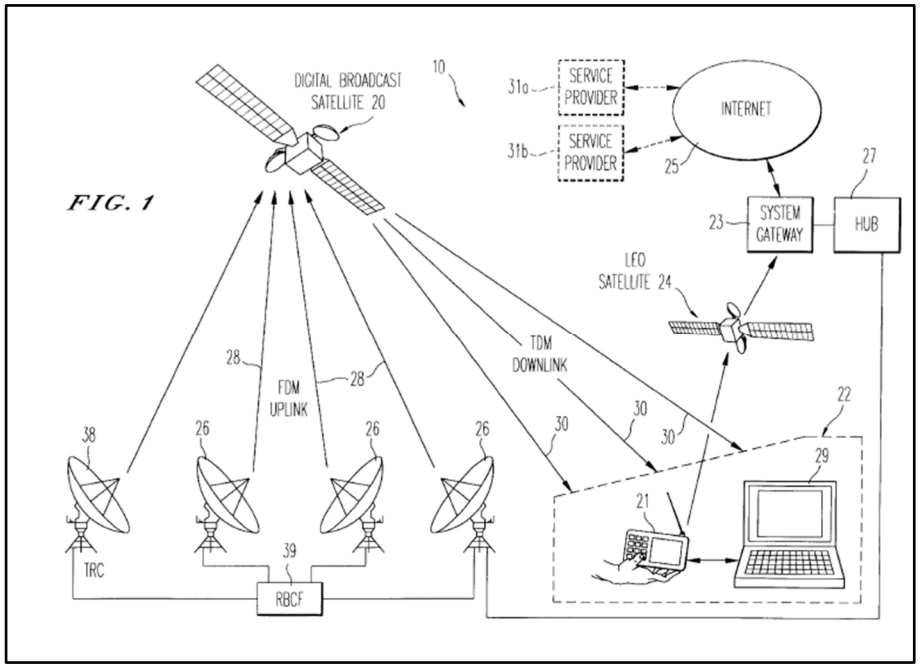
Claim	Airpath Wireless Hot Spot
	 https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/_soln/soln2.html  https://web.archive.org/web/20030819115347/http://www.mainstreamdata.com/content/_soln/soln3.html;

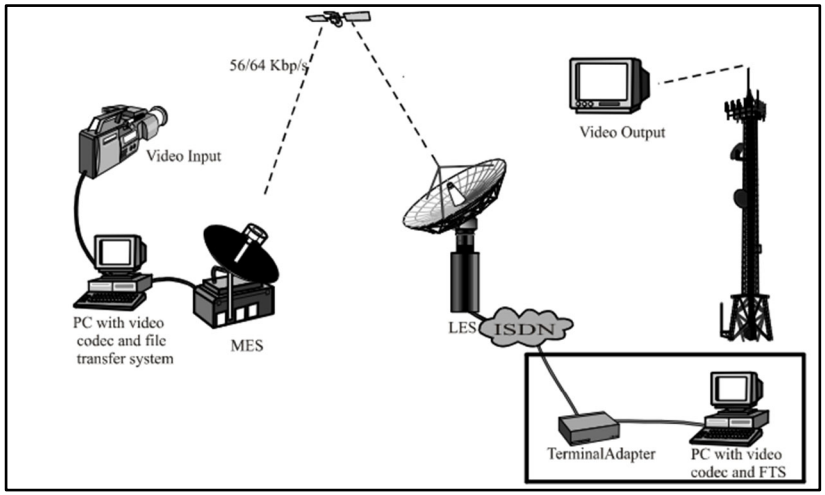
Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20020604105336/http://www.mainstreamdata.com:80/content/_soln/soln3.html To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos. Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and/or Stratos would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, or Stratos, for example, to incorporate this limitation. *See, e.g.*, > Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, *e.g.*, 10 or 20, and can also be used to connect corporate sites. Agarwal at 3:38-41; *see also* Agarwal at FIG. 1, 3:18-20, 3:38-63. > For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications. Bruner at [0080], [0035] ("Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft."); *see also*

Claim	Airpath Wireless Hot Spot
	Bruner at [0015], [0018], [0021], [0035], [0080].  El-Rafie at FIG. 1; *see also* El-Rafie at 4:56-5:19.

Claim	Airpath Wireless Hot Spot
	 Figure 2: Satellite connection scenario Jahn I at FIG. 2; *see also* Jahn I at 1-3, FIG. 1.  Figure 1: Network Architecture Jahn II at FIG. 1; *see also* Jahn II at 2-4. The system architecture 600 further includes on the aircraft a DSS receiver/decoder and

Claim	Airpath Wireless Hot Spot
	antenna (not shown) to help facilitate the broadband service. Nelson at [0056]; *see also* Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.  Ollikainen at FIG. 1; *see also* Ollikainen at 2:58-3:45; 3:65-4:17.

Claim	Airpath Wireless Hot Spot
	 Rothblatt I & II at FIG. 1; *see also* Rothblatt I at FIGs. 3, 5, 1-2, 5, 8-9; Rothblatt II at FIGs. 3, 5, 2:16-21, 2:46-64, 3:12-15, 6:20-27.

Claim	Airpath Wireless Hot Spot
	 Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; .https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine,

Claim	Airpath Wireless Hot Spot
	with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that satellite dishes were a routine and commercially available component of satellite-enabled multi-user wireless Internet architecture. *See, e.g.,* Clark at Cover.
[24.b] at least one router operatively coupled to the satellite dish;	Airpath Wireless Hot Spot discloses "at least one router operatively coupled to the satellite dish." *See, e.g.*,  https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp

EXHIBIT E-2

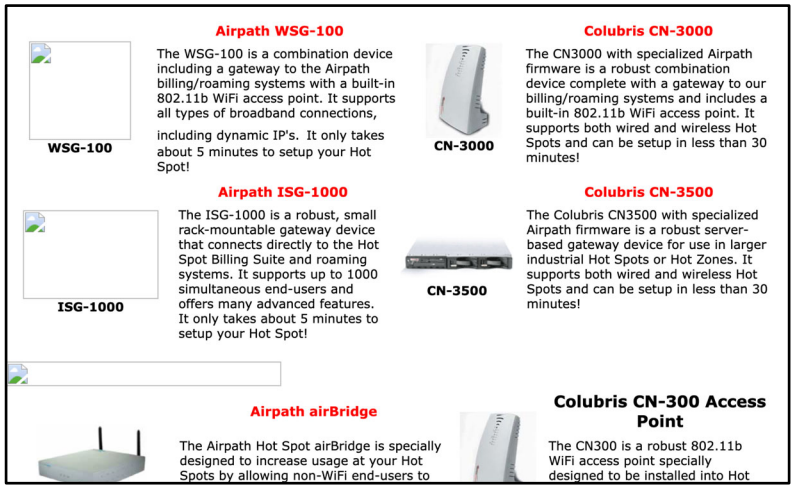
Claim	Airpath Wireless Hot Spot
	 https://web.archive.org/web/20030608122038/http://www.airpath.com/Programs/Hardware/hardware.htm;https://web.archive.org/web/20030320015442/http://airpath.com:80/Programs/Hardware/hardware.htm **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot

Satellite

Mainstream satellite solutions provide the most cost-effective alternative for delivering real-time, high-bandwidth streaming media. Mainstream uses FM-squared, SCPC/MCPC, and DVB satellite technologies to distribute information at speeds up to 40 Mbps.

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https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; ●○

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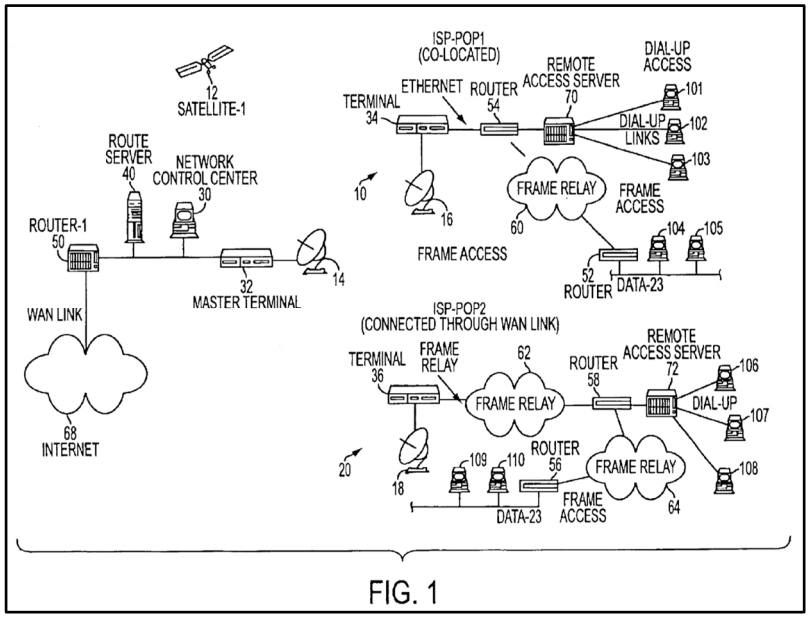
Mainstream was founded in 1985 and pioneered the use of FM radio data broadcasting. Mainstream's FM data network quickly replaced costly telephone-based solutions in seventeen of the largest metropolitan areas in the United States. As the company's customers demanded broader geographic coverage, Mainstream responded by incorporating satellite technologies in 1987.

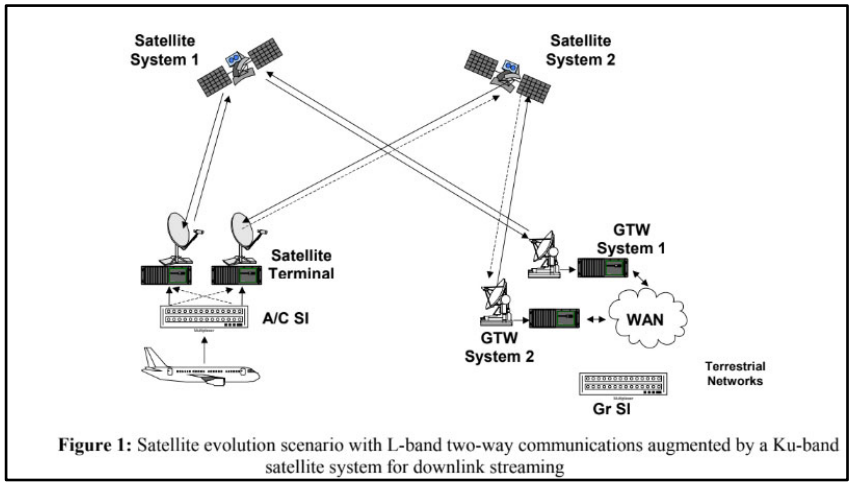
By 1989, Mainstream provided total U.S. coverage with a then state-of-the-art VSAT (very small aperture terminal) satellite system. By 1991, Mainstream Data had built its first European satellite network, followed by an Asian network in 1996. Today, Mainstream provides global coverage for its customers using the latest in satellite and Internet technologies.

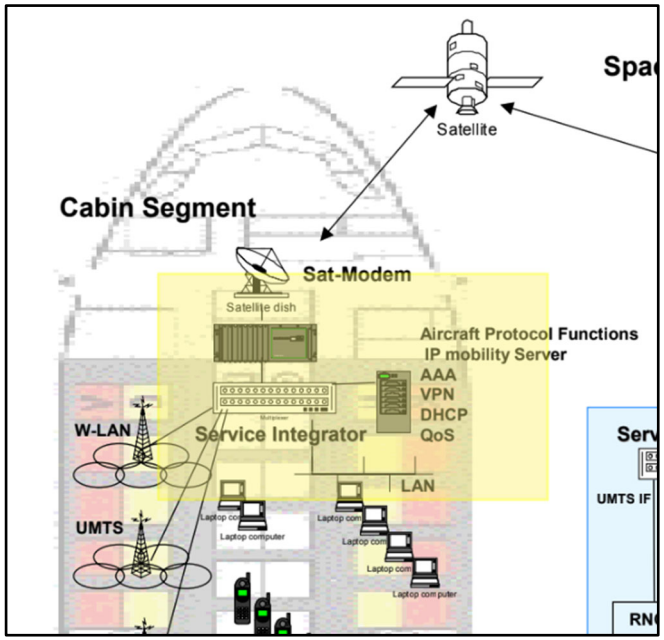
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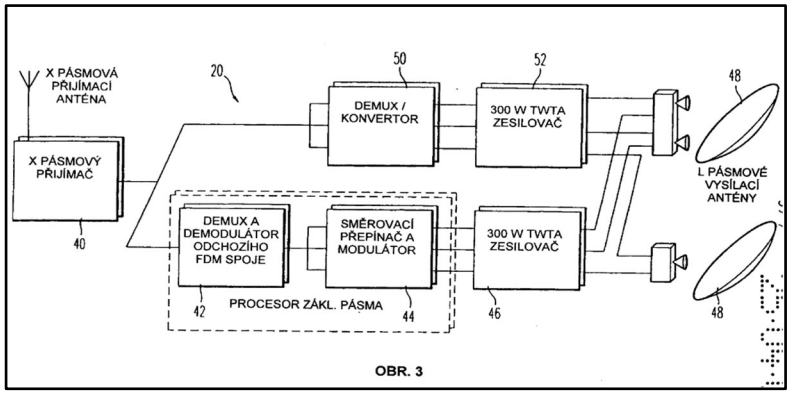
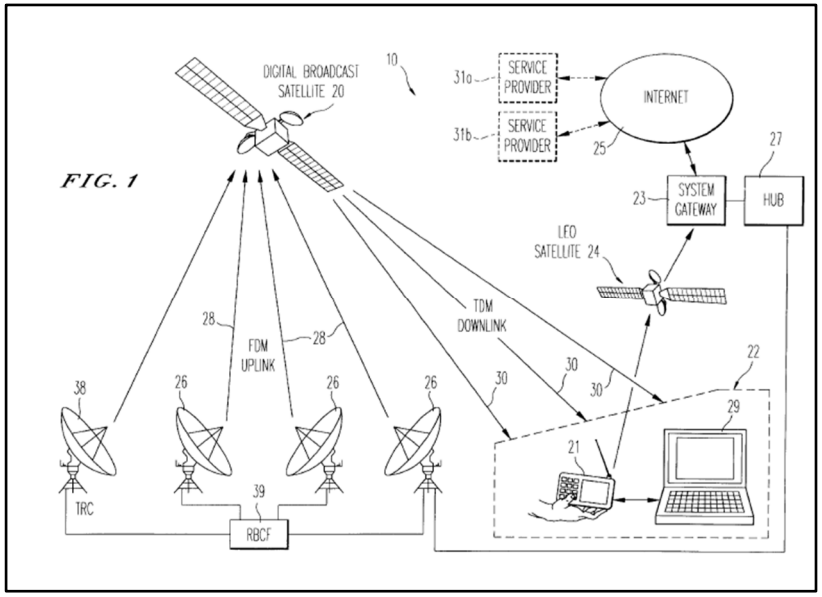
https://web.archive.org/web/20020810054500/http://www.mainstreamdata.com:80/conte

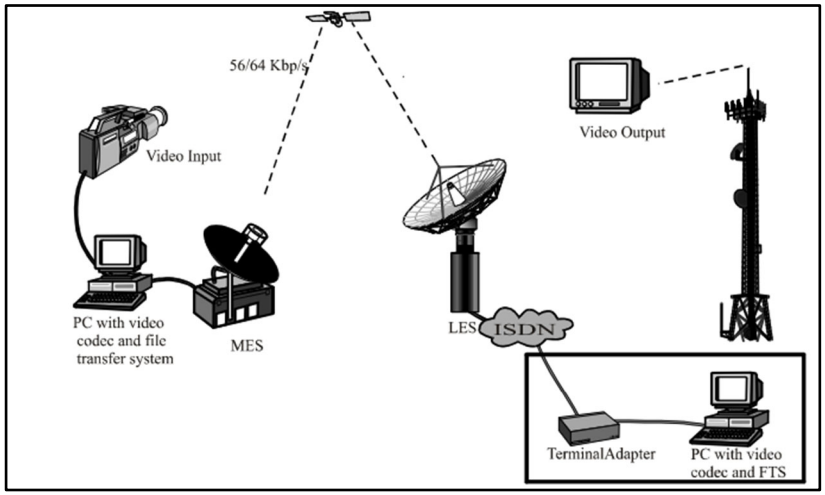
Claim	Airpath Wireless Hot Spot
	nt/_abtm/abtm0.html To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu. Airpath Wireless Hot Spot, Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*,

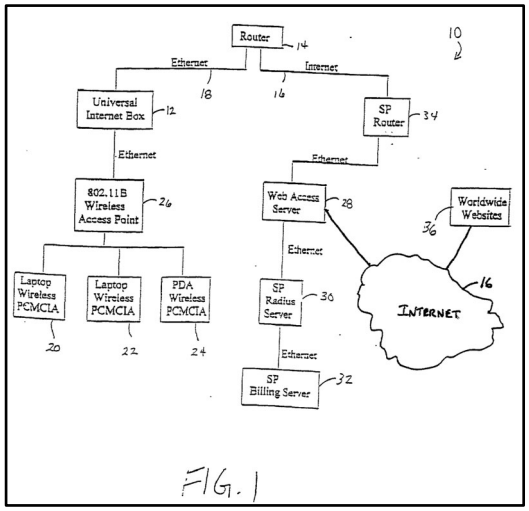
Claim	Airpath Wireless Hot Spot
	 FIG. 1 Agarwal at FIG. 1; *see also* Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.

Claim	Airpath Wireless Hot Spot
	 **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at 3-4, *see also* DeSanctis at FIG. 2.

Claim	Airpath Wireless Hot Spot
	 Jahn I at 2, FIG. 1 (excerpt); *id*. ("The WirelessCabin architecture and its components are conceptually depicted in Figure 1."); *see also* Jahn I at 2-4, FIG. 2. In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.

Claim	Airpath Wireless Hot Spot
	 Rothblatt I at FIG. 3; *see also* Rothblatt I at FIG. 5, 2, 12.  Rothblatt II at FIG. 1, *see also* Rothblatt II at FIG. 5, 3:20-23, 11:55-65, 16:28-48; 17:9-16.

Claim	Airpath Wireless Hot Spot
	The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; *see also* Seo at [0033], [0026]-[0027], [0049]-[0051].  Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

Claim	Airpath Wireless Hot Spot
	 Wu at FIG. 1. Wu at [0021] ("FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention"); *see also* Wu at [0058]-[0059]. It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. *See, e,g*. "Going WiFi" at 140 ("since a router can be configured, its functions can be customized to meet a network's demands, including a roaming user-base"). To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[24.c] a subscriber access unit operatively coupled between the satellite dish and the at	Airpath Wireless Hot Spot discloses "a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating

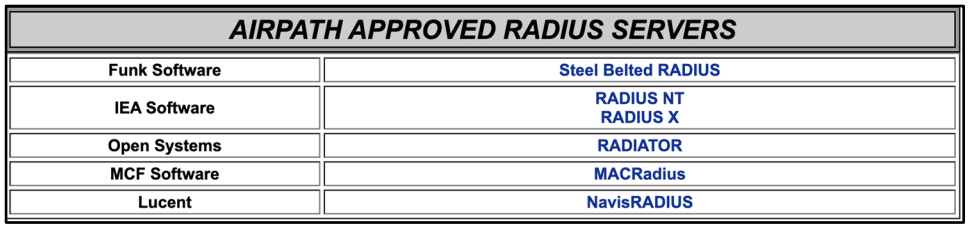
Claim	Airpath Wireless Hot Spot
least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet; and	a subscription account associated with a user prior to allowing the user access to the Internet." *See, e.g.*, Airpath's Hot Spot Billing Suite™ provides back office processing including authentication, accounting, subscriber management, and roaming settlement while Mainstream's network provides cost effective high-speed IP connectivity using two-way satellite coverage. The combined solution seamlessly integrates the technologies and services of Airpath and Mainstream into a scalable and extremely cost effective package. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html **Hot Spot Billing Suitetm:** Airpath's Hot Spot Billing Suite is a powerful centralized web-based application that performs the arduous back-office tasks necessary to operate and maintain public Internet access services for Hot Spots and Hot Zones, such as subscriber management, provisioning, billing (AAA), transaction processing, branding, reporting and network management. https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; https://web.archive.org/web/20021010094910/http://www.airpath.com:80/hsbs.asp ***INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT***  Powered By Airpath **Airpath Exclusive ISG-1000 Subscriber Gateway** • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! More Details Price/Order https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot

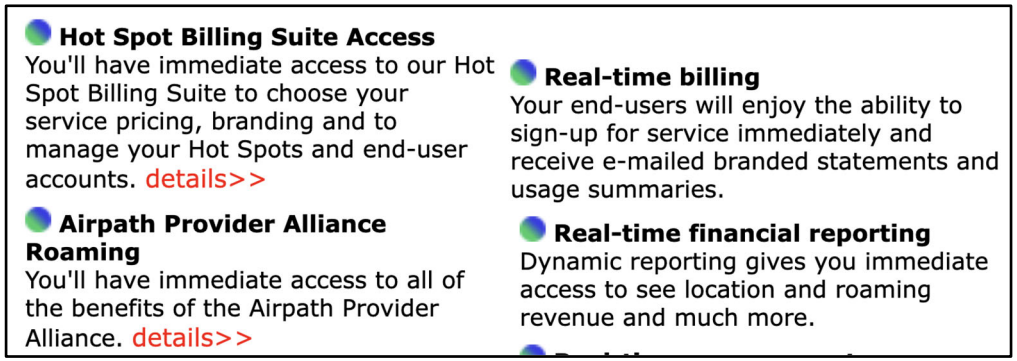


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AIRPATH APPROVED RADIUS SERVERS	
Funk Software	Steel Belted RADIUS
IEA Software	RADIUS NT RADIUS X
Open Systems	RADIATOR
MCF Software	MACRadius
Lucent	NavisRADIUS

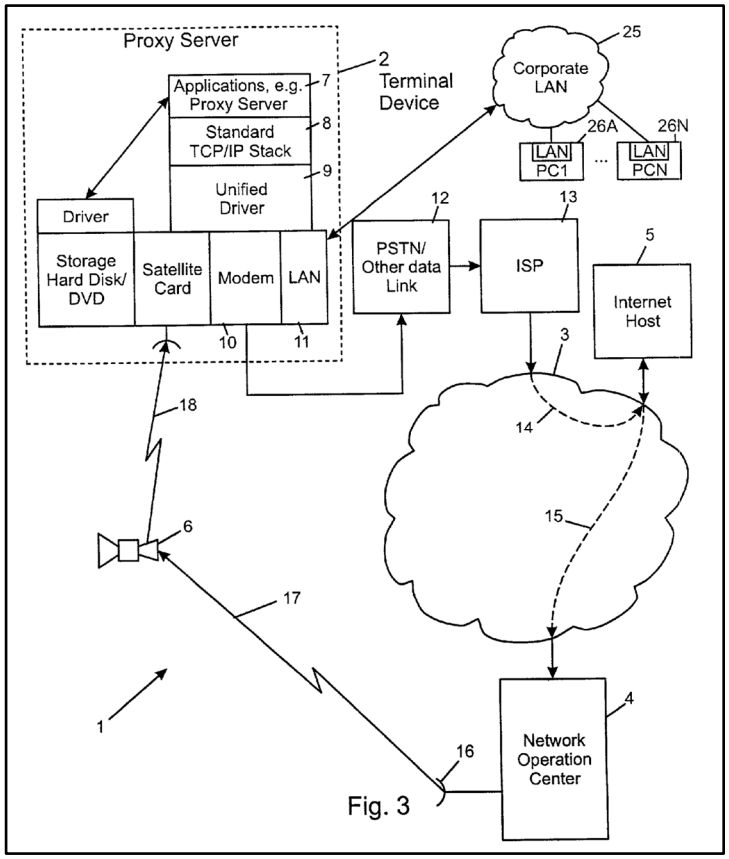
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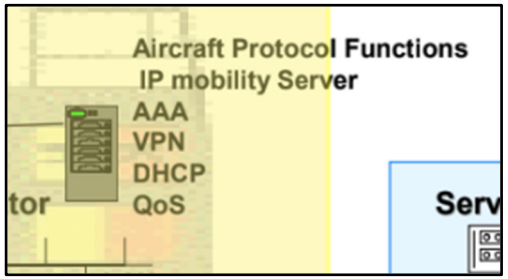


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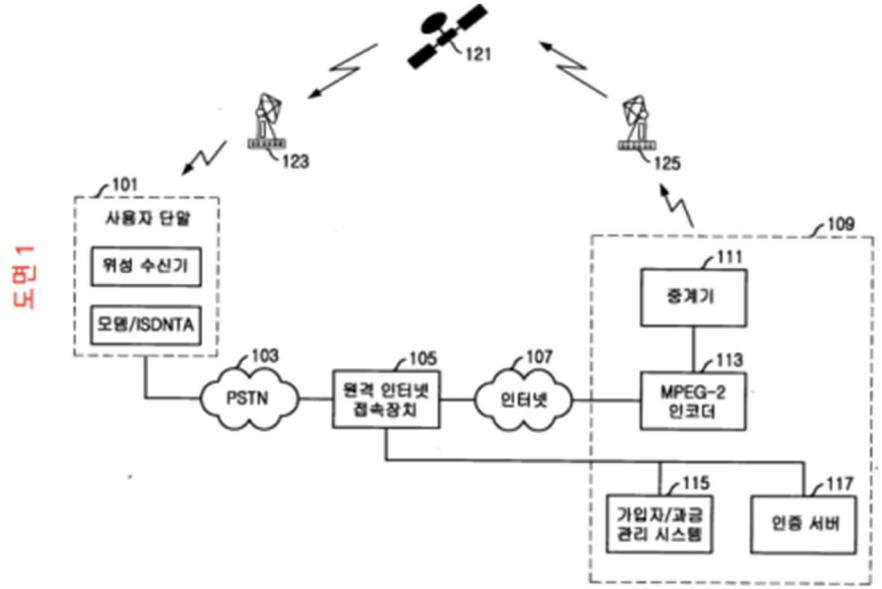
Claim	Airpath Wireless Hot Spot
	TOLEDO, Ohio -- Airpath Wireless, Inc., a recognized leader in the Wi-Fi industry, just released its latest upgrade to its back-end services. The latest upgrade will allow Airpath to empower Hot Spot operators globally, by offering multi-currency and multi-lingual capabilities.Airpath is focused on offering solutions that empower Wi-Fi providers such as telco carriers, ISPs, franchise chains, and venue owners. Airpath currently provides back-end services for over 110 such HotSpot providers, a number which has grown from 23 as of September 30, 2002.The Hot Spot Billing Suite is Airpath's powerful centralized web-based application that performs back-office activities necessary to operate and maintain public Internet access services for Hot Spot and Hot Zone providers. These activities include provider-branded subscriber management, provisioning, billing (AAA), transaction processing, reporting, and network management. Tim Barrett, President and co-founder said, "Airpath has really found its niche forging the "Intel Inside" or Ingredient Brand approach to Wi-Fi. We provide the solutions that can be branded to the venue owner, the telco, or the Wireless Internet Service Provider. We sit in the background and empower our provider customers with solutions to use without them worrying about losing their hard-earned end-user base."With the multi-currency and multi-lingual upgrades, the Hot Spot Billing Suite will now also be able to provide Wi-Fi providers with a solution that meets the needs of their end-users in that local market. "Our provider customers will now be able to offer their end-users Wireless Hot Spot access that is in their own home language and home currency," stated Todd Myers, CEO and co-founder of Airpath, "Airpath is focused on providing solutions that are flexible enough to meet the needs of our provider customers."Airpath Wireless Inc. https://www.lightreading.com/cable-technology/airpath-offers-wlan-billing To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Lee, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu. Airpath Wireless Hot Spot, Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu concern the

Claim	Airpath Wireless Hot Spot
	similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, or Wu, for example, to incorporate this limitation. *See, e.g.*, > The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. Bruner at [0023]; *see also* Bruner at FIGs. 2-3, [0021]-[0032], [0080].

Claim	Airpath Wireless Hot Spot
	 El-Rafie at FIG. 3; *see also* El-Rafie at 4:50-67. Thus, as described in detail herein, the NAS performs registration, authentication, and other functions necessary to provide visiting mobile terminals with access to the public network 16, while simultaneously controlling access by such visitors to the local private network 10, whose public network connection resources are being used to provide such access. Hagen [0043]; *see also* Hagen at [0011] - [0013], [0048], [0050], [0059], [0066], [0093].

Claim	Airpath Wireless Hot Spot
	 Jahn I at 2, FIG. 1 (excerpt); *see also* Jahn I at 2-3. It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 8; *id*. at 2-3, 7. One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network. Kalavade at [0056]; *id.* at [0207] ("The access server at the hotspot, such as, *e.g.*, a Cisco Router

Claim	Airpath Wireless Hot Spot
	or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.

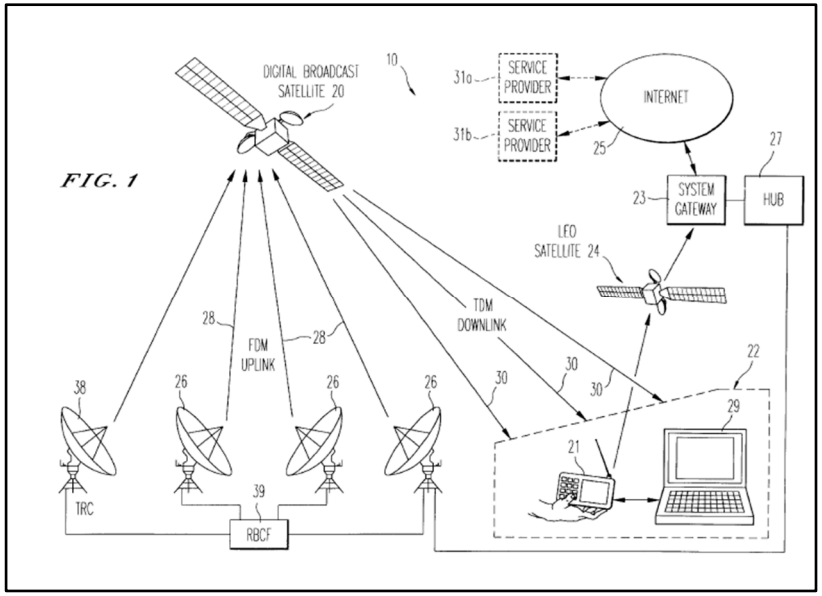


Lee at FIG. 1; *see also* Lee at [0001], [0003], [0015] - [0016], [0018] - [0019], [0025] - [0035], [0037], FIG. 1, FIG. 3.

> When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18_1, 18_2, . . . 18_n) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance,

Claim	Airpath Wireless Hot Spot
	pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (*e.g.*, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN Mody at [0019]; *see also* Mody at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.

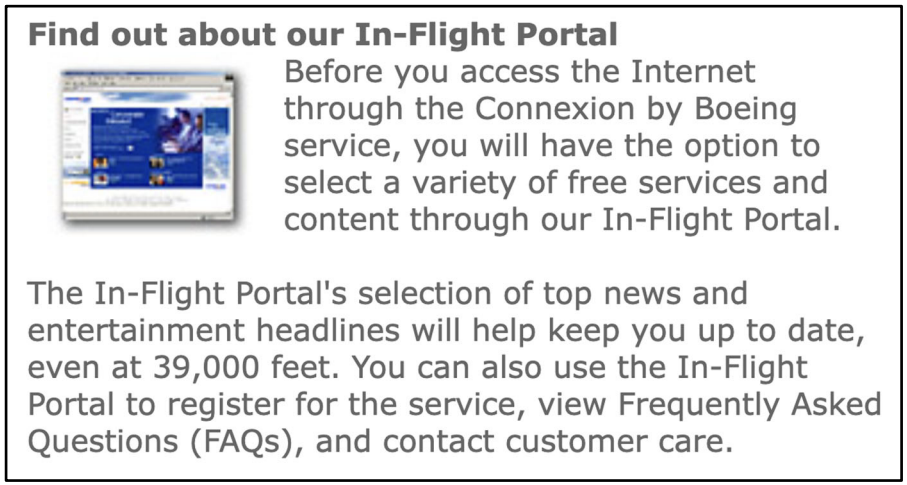
Claim	Airpath Wireless Hot Spot
	The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. *See also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm. The cyberstation 20 provides continuous connectivity to satellite-based data delivery services with a full-time low-bandwidth LEO return path to support information requests, feedback delivery, data billing and status/diagnostic reporting.

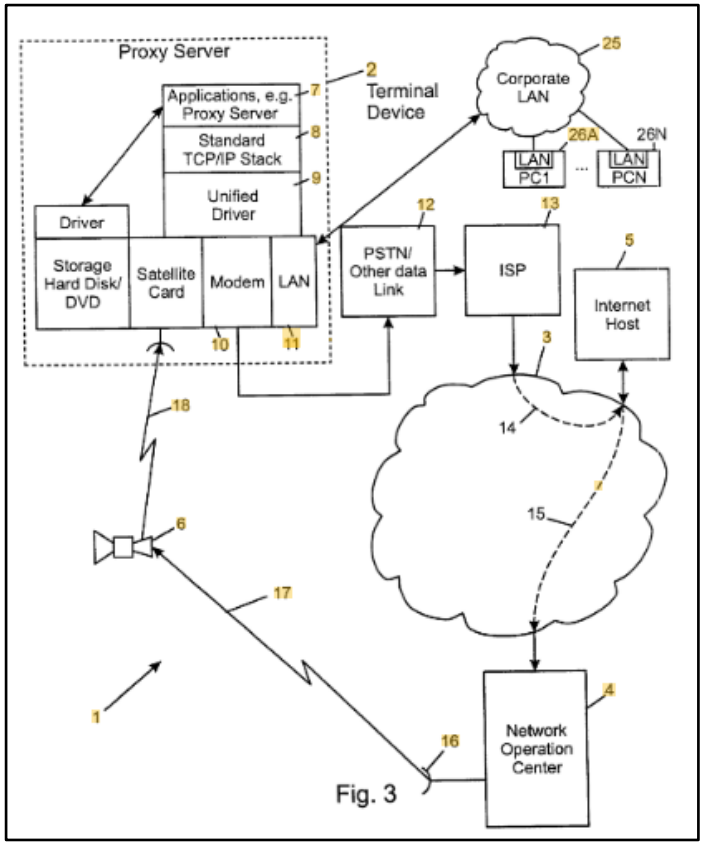
Claim	Airpath Wireless Hot Spot
	Ollikainen at 3:6-23; *see also* Ollikainen at 4:24-31. The identification code is preferably assigned to the user by the ISP when the user subscribes to the Internet via the user terminal 22. The ISP may assign the user an identification code, password, or both, and require that the user be for example, it sends to the user terminal 22 an Internet browser screen, one or both of these identifiers entered via a keyboard 122 or a card reader 126. Alternatively, the LEO transceiver 84 may include a wireless modem, which may be recognized by the ISP upon initiation of the login sequence from the user terminal 22. Rothblatt I at 10; *see also* Rothblatt I at 2, 11-12, FIGs. 1, 5.  Rothblatt II at FIG. 1; *see also* Rothblatt II at FIG. 5, 3:20-23, 3:62-4:3, 11:55-65, 14:59-68, 15:32-65. A subscriber authenticated as a predetermined multicast group connects with the

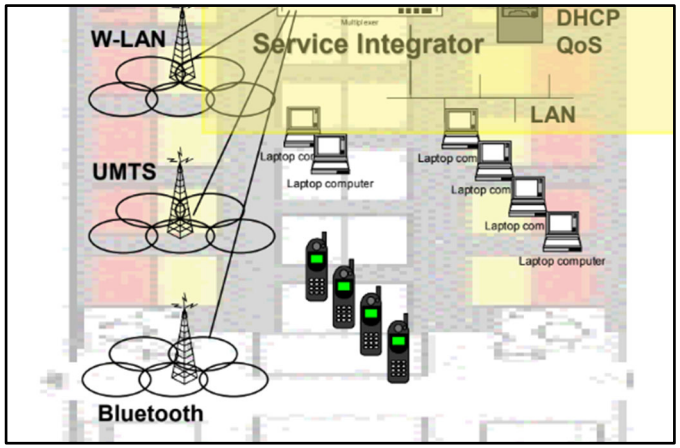
Claim	Airpath Wireless Hot Spot
	management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; *see also* Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d. Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html; https://web.archive.org/web/20060320175337/http://www.stratosglobal.com/documents/factSheets/sdx1100_userGuide_overview.pdf; https://web.archive.org/web/20120413092410/http://www.stratosglobal.com:80/About%20Stratos/~/media/Documents/Corp/Public/corp/corp_financial/corp_financial_annualReport2002FinancialsOnly.ashx. In the next step, the client software determines if billing information has been pre-stored in memory. Preferably the user has pre-stored such billing information, such as during the

Claim	Airpath Wireless Hot Spot
	set-up process and this information is read from memory. The software 90 checks for stored billing information. If there is pre-stored billing information, "yes" is returned in step 648. If there is no pre-stored billing information, processing proceeds to a series of billing information requests (steps 649-653) in which billing information is requested from the user. In an alternative embodiment, billing is not required and processing proceeds to step 665. Van Horne at 8:66-9:9; *see also* Van Horne at 11:3-17, 12:29-43, 16:49-17:30. The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; *see also* Wu at [0010]-[0019] ("querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check."), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063]. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. *See* "Going WiFi" Glossary ("AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill

Claim	Airpath Wireless Hot Spot
	for services.").
[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;	Airpath Wireless Hot Spot discloses "a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet." *See, e.g.*, **The Instant Hot Spot Provider Program is perfect for:** o **Entrepreneurs** wanting to get in on the ground floor of a HUGE market potential. o **Venue owners/managers** such as coffee houses, hoteliers, retail, convention centers or any other place the public congregates with laptops or PDA's. o Existing **service providers** wanting to add value to their existing subscriber base. o **System Integrators/Consultants** wanting to add value to their existing service offerings. https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu. Airpath Wireless Hot Spot, Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, or Wu, for example, to incorporate this limitation. *See, e.g.*,

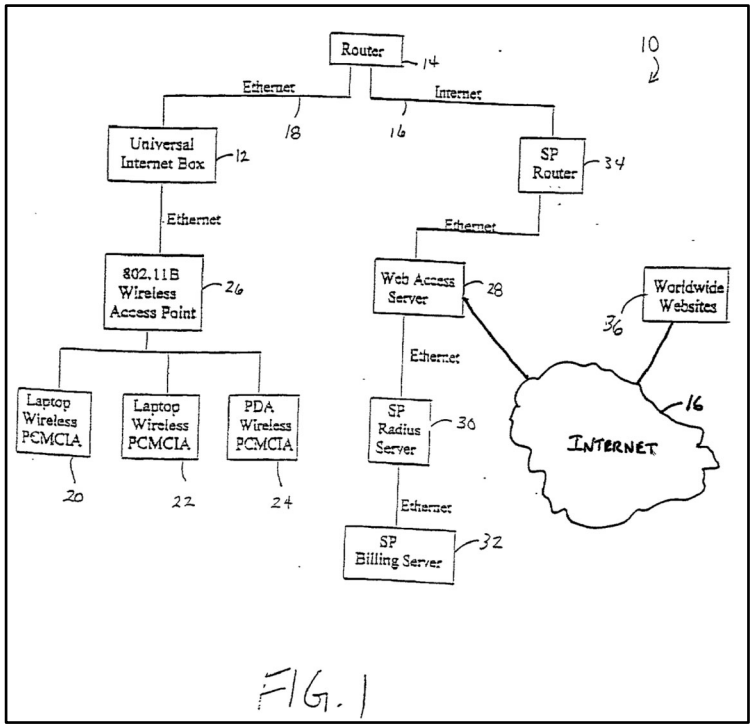
Claim	Airpath Wireless Hot Spot
	The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. Bruner at [0021] *see also* Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] ("Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems."), [0029]-[0030] [0070], [0076], [0078], [0079].  Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln

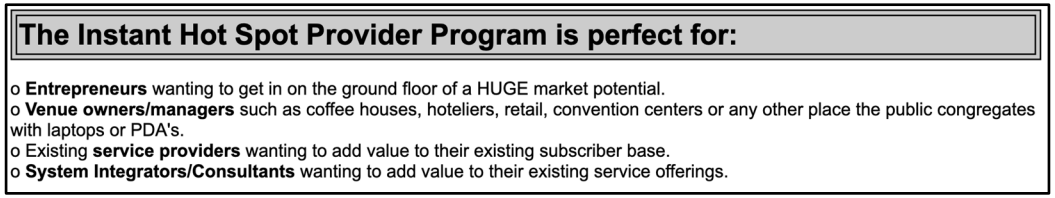
Claim	Airpath Wireless Hot Spot
	av=4; Suwanateep at 9; *see also* Suwanateep at 12, 16-17, 32-33; Jones 755-56; Abarbanel at 6.  El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25.

Claim	Airpath Wireless Hot Spot
	 Jahn I at 2, FIG. 1; *see also* Jahn I at 1-2. Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a **wireless access** solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). Jahn II at 1; *see also* Jahn II at FIGs. 1-2, 5, Abstract, 1-2. In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface. Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through

Claim	Airpath Wireless Hot Spot
	his laptop.”). When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. Internet routing software 25 provides the services of a router to route incoming broadcast and interactive data to the appropriate personal computer 35. Ollikainen at 3:31-44; *see also* Ollikainen at FIG. 1. In another aspect, the invention is directed to a method of providing global Internet access for inexpensive portable user devices. The method comprises the steps of generating an Internet access request in a portable -user terminal and sending a request to an Internet service provider via a first communication link. The ISP then determines whether the user terminal has access to the Internet and then provides the screens and multimedia data required by the user terminal to the broadcast station. The transmitting station transmits the screens and data to the user terminal via a satellite-based radio system. The user terminal either reproduces or processes the data according to the user's wishes. The user terminal continues to send responses and requests to the Internet service provider over the communications link and receive broadcast screens and multimedia data from the satellite until the Internet connection is terminated. Rothblatt I at 10; *see also* Rothblatt I at 1-2, 10-12, FIG. 1. If the user is authorized to have Internet access, the system gateway 23 sends an Internet homepage or Web browser information to the user terminal via an FDM uplink 28 of the direct radio broadcast system.

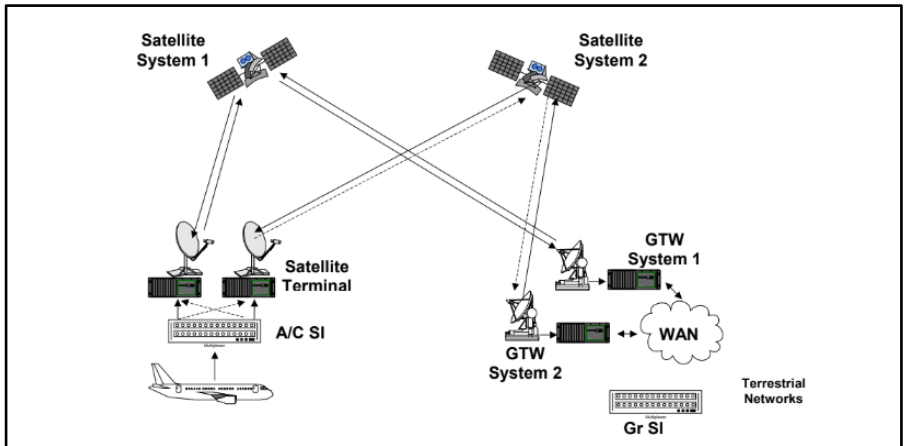
Claim	Airpath Wireless Hot Spot
	Rothblatt II at 16:57-61; *see also* Rothblatt II at 3:62-4:3, 15:57-61, 16:49-56, FIG. 1. **Optional Web Browsing** Standard Internet service normally includes Internet e-mail, as well as the capability to browse the web. *StratosNet* can do this as well, along with an FTP (File Transfer Protocol) capability, however, we also realize that some satellite terminals may not want the ability to browse the web to be available to users of their satellite phone. Therefore, Stratos offers the option to disable web browsing on your *StratosNet* account. Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; *see also* Stratos at https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://web.archive.org/web/20040612173303/http://www.stratosglobal.com:80/documents/factSheets/stratosNet_tc.pdf; https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html; https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

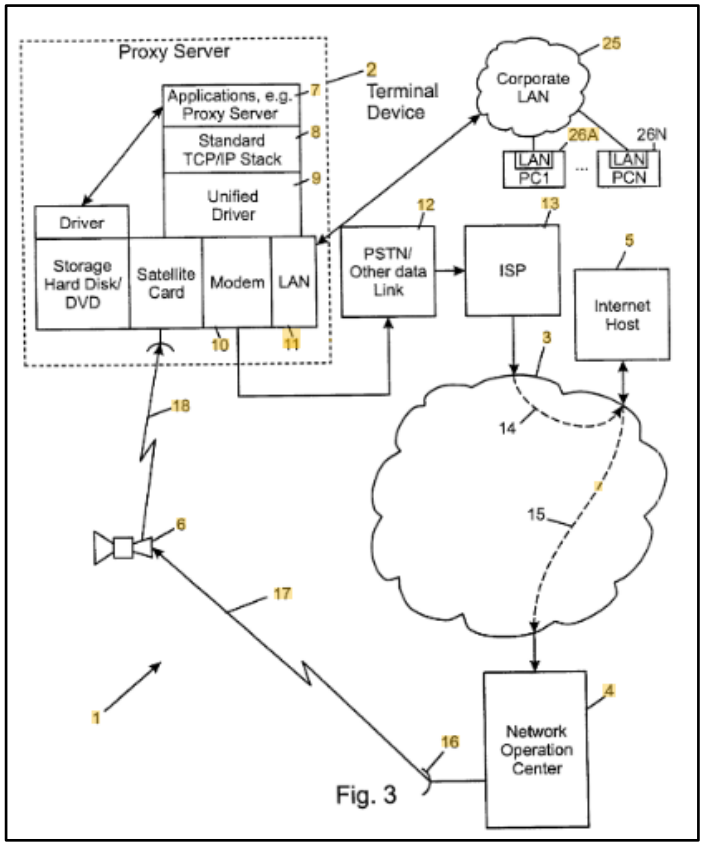
Claim	Airpath Wireless Hot Spot
	 Wu at FIG. 1. Wu at [0038] ("The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like."); *see also* Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063]. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

Claim	Airpath Wireless Hot Spot
[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;	Airpath Wireless Hot Spot discloses "wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic." *See, e.g.*,  **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. Using the integrated solution, Airpath Providers will be able to expand to include locations that have ideal traffic patterns for a Hot Spot, but were previously impractical due to a lack of Internet infrastructure or the high cost of telephone data circuits. Remote marinas, truck-stops, campgrounds, resorts, and hotels located in rural areas are just some of the locations to which Airpath's providers will now be able to supply affordable Hot Spot services. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html  **The Instant Hot Spot Provider Program is perfect for:** o **Entrepreneurs** wanting to get in on the ground floor of a HUGE market potential. o **Venue owners/managers** such as coffee houses, hoteliers, retail, convention centers or any other place the public congregates with laptops or PDA's. o Existing **service providers** wanting to add value to their existing subscriber base. o **System Integrators/Consultants** wanting to add value to their existing service offerings. https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other

Claim	Airpath Wireless Hot Spot
	references, such as Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu. Airpath Wireless Hot Spot, Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*, > Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110. Agarwal at 3:38-44; *see also* Agarwal at 3:18-20, 3:45-63, FIG. 1. > Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-commerce") from a remote location 14, such as during the course of an airline flight. . . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]; *see also* Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].

Claim	Airpath Wireless Hot Spot
	FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7; *see also* Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37. **HOW IT WORKS** Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations. Connexion by Boeing at Carol Ellison, *Unwire Everywhere*, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; *see also* Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.

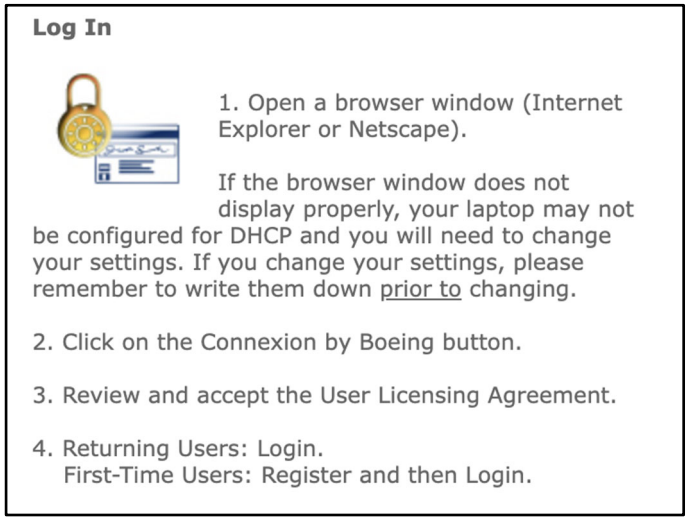
Claim	Airpath Wireless Hot Spot
	 **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at FIG. 2, 2-3.

Claim	Airpath Wireless Hot Spot
	 El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25. ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure. Jahn I at 1; *see also* Jahn I at 1-2.

Claim	Airpath Wireless Hot Spot
	The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. Jahn II at 2; *see also* Jahn II at 3, 7, 6, 8, FIGs. 1, 5. **Wireless** Check E-Mail, surf the web or play games ….from anywhere on the ship! Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access. A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_0

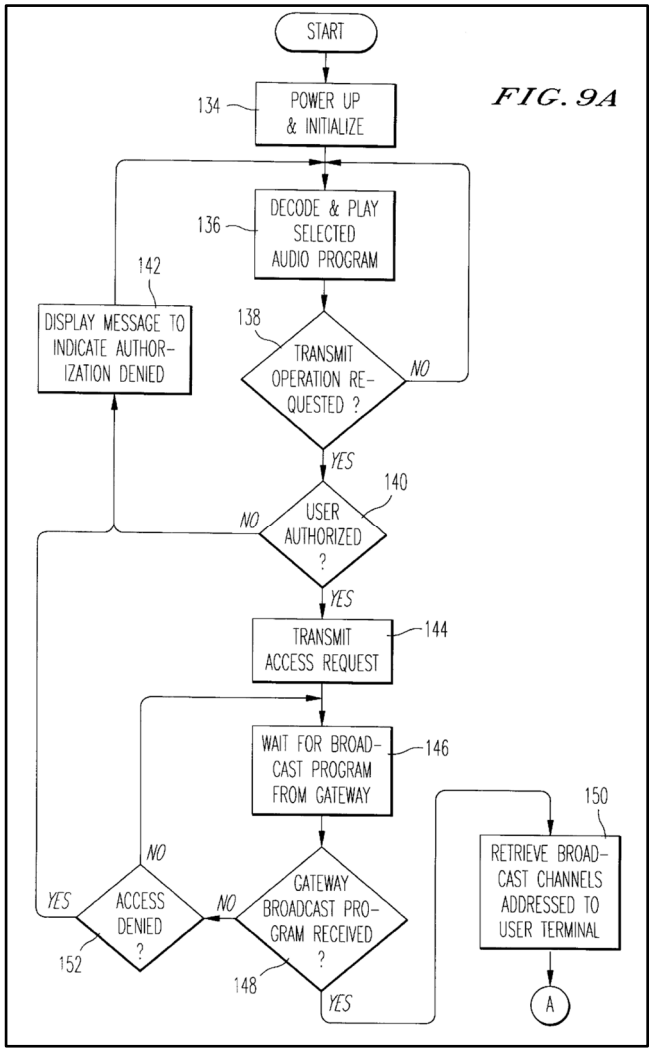
Claim	Airpath Wireless Hot Spot
	91702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html. The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like. Wu at [0006]; *see also* Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041]. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine,

Claim	Airpath Wireless Hot Spot
	with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu. Airpath Wireless Hot Spot, Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, or Wu, for example, to incorporate this limitation. *See, e.g.*, From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative

Claim	Airpath Wireless Hot Spot
	embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. Bruner at [0023]; *see also* Bruner at [0028] ("Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password."), [0021], [0029], [0078], [0079].  Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9. For these users, the only point of access to the private network 10 is through the network's own router 14, which is easily secured by the network administrator. At the same time, private network users/clients may be permitted to access the private network 10 via wireline network connections or via wireless mobile terminals 23 through private WAPs 21. Private WAPs are preferably maintained at locations that are not publicly

Claim	Airpath Wireless Hot Spot
	accessible or are otherwise configured to limit access to authorized clients of the private network 10. These users can then gain access to the public network through the private network's router 14. Hagen at [0060]; *see also* Hagen at [0059], [0185], FIG. 14. The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers. Jahn I at 3; *see also* Jahn I at 1-3, FIG. 1. Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 7-8; *see also* Jahn II at 3, FIGs. 1, 5. On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard. The Wi Fi network card costs $10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; *see also* MTN Cruise Ship Internet Services at

Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805. For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information. Nelson at [0107]; *see also* Nelson at FIG. 17, [0105]-[0106]. These and other objects of the invention are achieved in part by providing remote users with user terminals having both a receiver for receiving satellite direct radio broadcasting and a communication device for communicating with an Internet service provider via a communication link that is from a satellite direct radio system broadcast separate. Rothblatt I at 12; *see also* Rothblatt I at 10-12, FIGs. 1, 9A, 9B,

Claim	Airpath Wireless Hot Spot
	 *FIG. 9A* Rothblatt II at FIG. 9A; *see also* Rothblatt II at 2:30-35, 3:20-23, 14:59-68, 15:32-65, 17:3-24; FIGs. 1, 5, 9B.

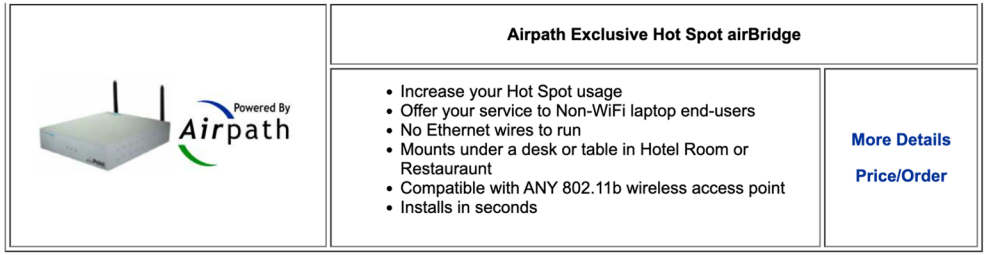
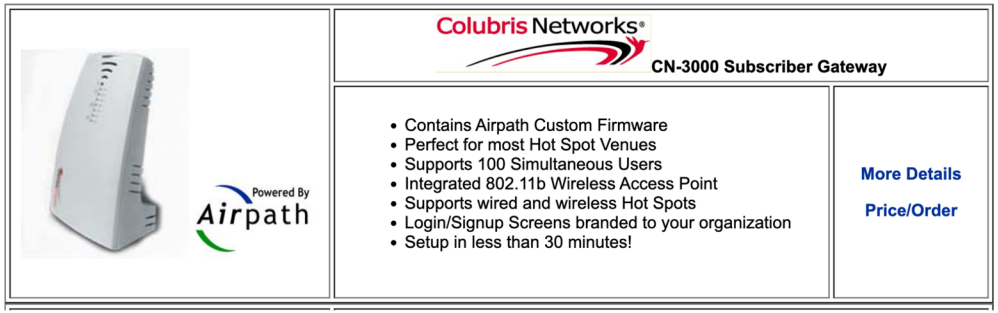
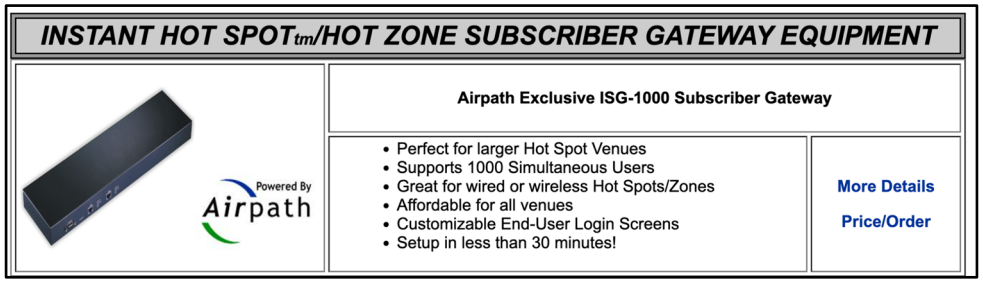
Claim	Airpath Wireless Hot Spot
	The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client." Wu at [0009]; *see also* Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.	Airpath Wireless Hot Spot discloses "The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection." *See, e.g.*,  https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot
	 https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp  https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp

Claim	Airpath Wireless Hot Spot
	 **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. Using the integrated solution, Airpath Providers will be able to expand to include locations that have ideal traffic patterns for a Hot Spot, but were previously impractical due to a lack of Internet infrastructure or the high cost of telephone data circuits. Remote marinas, truck-stops, campgrounds, resorts, and hotels located in rural areas are just some of the locations to which Airpath's providers will now be able to supply affordable Hot Spot services. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu. Airpath Wireless Hot Spot, Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*,

Claim	Airpath Wireless Hot Spot

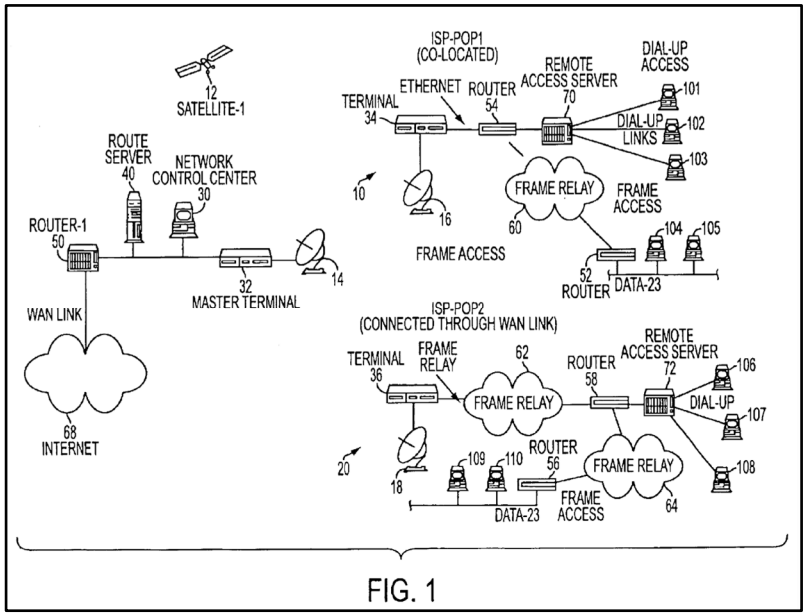


FIG. 1

Agarwal at FIG. 1; *see also* Agarwal at 3:18-20; 3:38-63.

> The primary purpose of the system 100 is to provide mobile, wireless terminals 1 with access to network resources, although it can also provide such access to fixed or mobile terminals over wireline connections as well. Mobile, wireless terminal as used herein means any mobile, wireless terminal having a MAC or other unique equipment address, such as a digital cellular handset, wireless PIA or PDA, or a computer with a wireless network adaptor.

Hagen at [0040]; *see also* Hagen at [0039], [0041], [0042], [0045], [0056], [0162].

> Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired

Claim	Airpath Wireless Hot Spot
	architecture in an aircraft, but as a complementary service for the passengers. Jahn I at 2; *see also* Jahn I at 1-4. Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. Jahn II at Abstract; *see also* Jahn II at 3 ("The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers."). The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used. Nelson at [0035]; *see also* Nelson at [0028], [0034], [0043], FIG. 1. Furthermore, the cyberstation includes subsystems that permit it to communicate with the personal computers using wireless or optional wired connections. Ollikainen at 1:66 - 2:5; *see also* Ollikainen at 2:6-15, 2:16-26, 3:45-65, 3:66 - 4:16, 4:58 - 5:9. The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.

Claim	Airpath Wireless Hot Spot
	Wu at [0023]; *see also* Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063]. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.	Airpath Wireless Hot Spot discloses "The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices." *See, e.g.*, **Mainstream Data and Airpath Wireless expand Wi-Fi coverage with two-way satellite network** **Salt Lake City, UT and Toledo, OH - June 25, 2003** - Mainstream Data and Airpath Wireless announced today that they have created a joint solution to offer carrier-class satellite Internet connectivity for Hot Spot providers in need of broadband connectivity in remote or cost-prohibitive Hot Spot locations. As part of the arrangement, Mainstream is supplying Airpath's provider customers access to its high quality two-way VSAT network, which allows them to order low-cost broadband access anywhere in North America. Using the integrated solution, Airpath Providers will be able to expand to include locations that have ideal traffic patterns for a Hot Spot, but were previously impractical due to a lack of Internet infrastructure or the high cost of telephone data circuits. Remote marinas, truck-stops, campgrounds, resorts, and hotels located in rural areas are just some of the locations to which Airpath's providers will now be able to supply affordable Hot Spot services. https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot

The Instant Hot Spot Provider Program is perfect for:

o **Entrepreneurs** wanting to get in on the ground floor of a HUGE market potential.
o **Venue owners/managers** such as coffee houses, hoteliers, retail, convention centers or any other place the public congregates with laptops or PDA's.
o Existing **service providers** wanting to add value to their existing subscriber base.
o **System Integrators/Consultants** wanting to add value to their existing service offerings.

https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp

INSTANT HOT SPOT$_{tm}$/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT



Powered By Airpath

Airpath Exclusive ISG-1000 Subscriber Gateway

- Perfect for larger Hot Spot Venues
- Supports 1000 Simultaneous Users
- Great for wired or wireless Hot Spots/Zones
- Affordable for all venues
- Customizable End-User Login Screens
- Setup in less than 30 minutes!

More Details

Price/Order

https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp



Powered By Airpath

Colubris Networks®

CN-3000 Subscriber Gateway

- Contains Airpath Custom Firmware
- Perfect for most Hot Spot Venues
- Supports 100 Simultaneous Users
- Integrated 802.11b Wireless Access Point
- Supports wired and wireless Hot Spots
- Login/Signup Screens branded to your organization
- Setup in less than 30 minutes!

More Details

Price/Order

https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp

Claim	Airpath Wireless Hot Spot
	TOLEDO, Ohio -- Airpath Wireless, Inc., a recognized leader in the Wi-Fi industry, just released its latest upgrade to its back-end services. The latest upgrade will allow Airpath to empower Hot Spot operators globally, by offering multi-currency and multi-lingual capabilities.Airpath is focused on offering solutions that empower Wi-Fi providers such as telco carriers, ISPs, franchise chains, and venue owners. Airpath currently provides back-end services for over 110 such HotSpot providers, a number which has grown from 23 as of September 30, 2002.The Hot Spot Billing Suite is Airpath's powerful centralized web-based application that performs back-office activities necessary to operate and maintain public Internet access services for Hot Spot and Hot Zone providers. These activities include provider-branded subscriber management, provisioning, billing (AAA), transaction processing, reporting, and network management. Tim Barrett, President and co-founder said, "Airpath has really found its niche forging the "Intel Inside" or Ingredient Brand approach to Wi-Fi. We provide the solutions that can be branded to the venue owner, the telco, or the Wireless Internet Service Provider. We sit in the background and empower our provider customers with solutions to use without them worrying about losing their hard-earned end-user base."With the multi-currency and multi-lingual upgrades, the Hot Spot Billing Suite will now also be able to provide Wi-Fi providers with a solution that meets the needs of their end-users in that local market. "Our provider customers will now be able to offer their end-users Wireless Hot Spot access that is in their own home language and home currency," stated Todd Myers, CEO and co-founder of Airpath, "Airpath is focused on providing solutions that are flexible enough to meet the needs of our provider customers."Airpath Wireless Inc. https://www.lightreading.com/cable-technology/airpath-offers-wlan-billing To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Airpath Wireless Hot Spot, Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from

Claim	Airpath Wireless Hot Spot
	their homes or offices. Modifying Airpath Wireless Hot Spot with Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. *See, e.g.*, > It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]; *see also* Bruner at [0011], [0021], Bruner at FIG. 1. > The service scenario considers travellers in aircraft on the move. In the future, airliners will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services. Jahn I at 1; *see also* Jahn I at FIG. 1, 1-3, 5.

Claim	Airpath Wireless Hot Spot

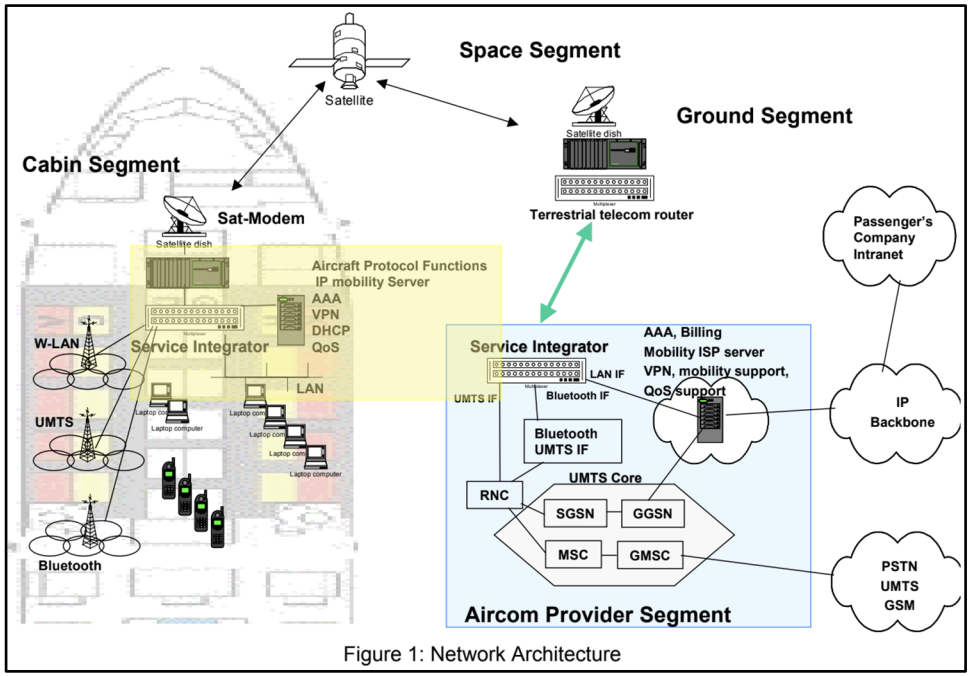


Figure 1: Network Architecture

Jahn II at 2, FIG. 1; *see also* Jahn II at 1-3, FIGs. 3-4.

> MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.

MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;

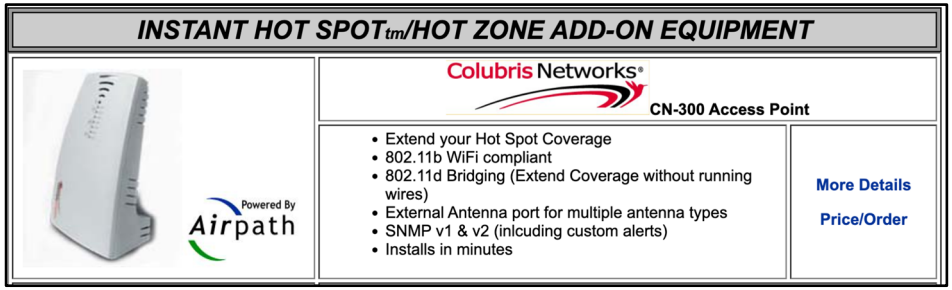
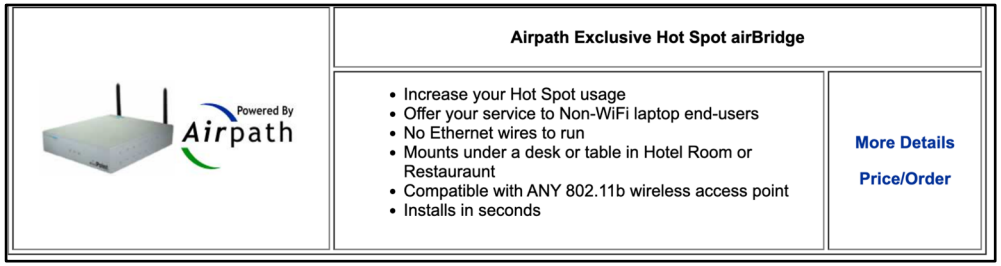
Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). > System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. Nelson at [0032]; *see also* Nelson at [0028], [0034]. > Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; *see also* Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058]. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.	Airpath Wireless Hot Spot discloses "The Internet Hotspot of claim 26, wherein the data connections include wireless data connections." *See, e.g.*, **ABOUT AIRPATH WIRELESS, INC.** Airpath Wireless, Inc. provides hosted Wi-Fi management software which enables WISPs, telco carriers, and venue owners to rapidly deploy, operate and manage Wi-Fi Hot Spots. By utilizing the Airpath managed solutions, its provider customers can enter the public Wi-Fi industry quickly while Airpath acts as a managed operator behind the scenes. Airpath also offers turn-key solutions for new Hot Spot providers and its scaleable, hosted software solutions interoperate with legacy hardware and software. Additional information is available at www.airpath.com.

Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808000849/http://www.mainstreamdata.com:80/content/_news/news0.html **The Instant Hot Spot Provider Program is perfect for:** o **Entrepreneurs** wanting to get in on the ground floor of a HUGE market potential. o **Venue owners/managers** such as coffee houses, hoteliers, retail, convention centers or any other place the public congregates with laptops or PDA's. o Existing **service providers** wanting to add value to their existing subscriber base. o **System Integrators/Consultants** wanting to add value to their existing service offerings. https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp ***INSTANT HOT SPOT™/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT***  Powered By Airpath **Airpath Exclusive ISG-1000 Subscriber Gateway** • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! **More Details** **Price/Order** https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp  Powered By Airpath Colubris Networks® **CN-3000 Subscriber Gateway** • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! **More Details** **Price/Order**

Claim	Airpath Wireless Hot Spot
	https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu. Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*, > The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site. Jahn I at 4; *see also* Jahn I at 1-2, 4. > When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Jahn II at 2-3, FIGs. 3-4.

Claim	Airpath Wireless Hot Spot
	MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see generally id.* The cyberstation thus provides a means for implementing a variety of customized stand-alone receiver-transmitter stations that can provide service to multiple household or business personal computers using wireless or optional wire local area networks as a local communication system. Ollikainen at 2:16-26. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037]; *see also* Wu at [0029], [0040], [0049], FIG. 1. To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot
[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.	 https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp  https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp To the extent Airpath Wireless Hot Spot does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Airpath Wireless Hot Spot further renders the limitation obvious in light of other references, such as Clark, Hagen, Jahn I, Jahn II, Nelson, and Wu. Airpath Wireless Hot Spot, Clark, Hagen, Jahn I, Jahn II, Nelson, and Wu concern the similar subject matter as Airpath Wireless Hot Spot, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Airpath Wireless Hot Spot with Clark, Hagen, Jahn I, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Airpath Wireless Hot Spot with those of Clark, Hagen, Jahn I,

Claim	Airpath Wireless Hot Spot
	Jahn II, Nelson or Wu, for example, to incorporate this limitation. *See, e.g.*, In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9. The system 100 generally comprises one or more geographically dispersed network access points, which in this embodiment are radio frequency wireless access points (WAP) 3, 4. The WAPs 3, 4 may be conventional devices equipped with wireless network adaptors embodying the IEEE 802.11 Wireless LAN or Bluetooth wireless network communications standards, or other devices providing similar functionality. Examples of such devices include the Home Wireless Gateway product sold by 3COM Corporation, the Spectrum High Rate AP 41X1 Ethernet Access Point product sold by Symbol Technologies, and the Aironet 340 Series Access Points product sold by Cisco Systems. Hagen at [0042]; *see also* Hagen at [0039], [0041], [0042], [0045]. When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Jahn I at 2; *see also* Jahn I at 1-2. Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN." Jahn II at 3. The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to

Claim	Airpath Wireless Hot Spot
	the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; *see also* Nelson at FIG. 1, [0028], [0110]. The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; *see also* Wu at FIG. 1, [0052]-[0054]. It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The '469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the "wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard." '469 patent at 5:19-25. It was well understood that "each new 'flavor' of the technology results in a new suffix to 802.11." "Going WiFi" at 82; *see also id.* at 133 ("The fundamental components of a WLAN are clear-cut. And it's relatively easy to describe the 802.11 suite in basic networking terms."). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. *See also* "Going Wifi" at 116-117 ("The 802.11n Task Group is *working on a high-speed variant* of the existing 802.11 standards . . . However, don't expect to see these newer, faster standards for a number of years."). To the extent that Airpath Wireless Hot Spot does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Airpath Wireless Hot Spot, those elements, as known to them or as

EXHIBIT E-2

Claim	Airpath Wireless Hot Spot
	disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

EXHIBIT E-3

Exhibit E-3 to American's Preliminary Invalidity Contentions

U.S. Patent Application No. 2002/0138625 ("Bruner")

U.S. Patent Application No. 2002/0138625 ("Bruner") titled "Method and Apparatus for Inflight Electronic Commerce" was filed by David Bruner, et al. on March 21, 2001, and published on September 26, 2002.[1] Bruner is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a), (b), (e) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Bruner does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Bruner or combine the teachings of Bruner with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to any combination of the following:

- Invalid under 35 U.S.C. § 102 by Bruner;
- Invalid under 35 U.S.C. § 103 by Bruner and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 6,968,394 to El-Rafie ("El-Rafie") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2002/0075844 to Hagen ("Hagen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;

[1] Defendant's invalidity charts, in some instances, rely at least in part on Plaintiff's apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant's understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff's infringement contentions, or information obtained during discovery as the case proceeds.

- Invalid under 35 U.S.C. § 103 by Bruner in view of Korean Patent No. 2003/0029267 to Hyunwoo Lee ("Lee") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 6,377,981 to Ollikainen et al. ("Ollikainen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of Czech Patent No. 2,000,578 to Martine Rothblatt ("Rothblatt I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 6,105,060 to Martine Rothblatt ("Rothblatt II") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent No. 5,987,430 to Van Horne et al. ("Van Horne") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of Airpath Wireless Hot Spot ("Airpath Wireless Hot Spot") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of Connexion by Boeing ("Connexion by Boeing") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of MTN Cruise Ship Internet Services ("MTN Cruise Ship Internet Services") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of StratosNet ("Stratos") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of Tenzing Global ("Tenzing Global") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of Wireless Cabin ("Wireless Cabin") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of "Aeronautical Communications for Personal and Multimedia Services via Satellite" by M. DeSanctis et al. ("DeSanctis") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Bruner in view of "Dimensioning of Aeronautical Satellite Services" by Jahn et al. ("Jahn I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Bruner in view of "Passenger Multimedia Service Concept via Future Satellite Systems" by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner ("Jahn II") and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Bruner in view of "Inflight Internet Connectivity Technology and Its Application on E-Commerce," by Manasuda Suwanateep ("Suwanateep") and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int'l Co. v. Teleflex, Inc.*, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. 398, 416 (2007). The Supreme Court further held: "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 417. The Supreme Court further held: "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id.* at 421.

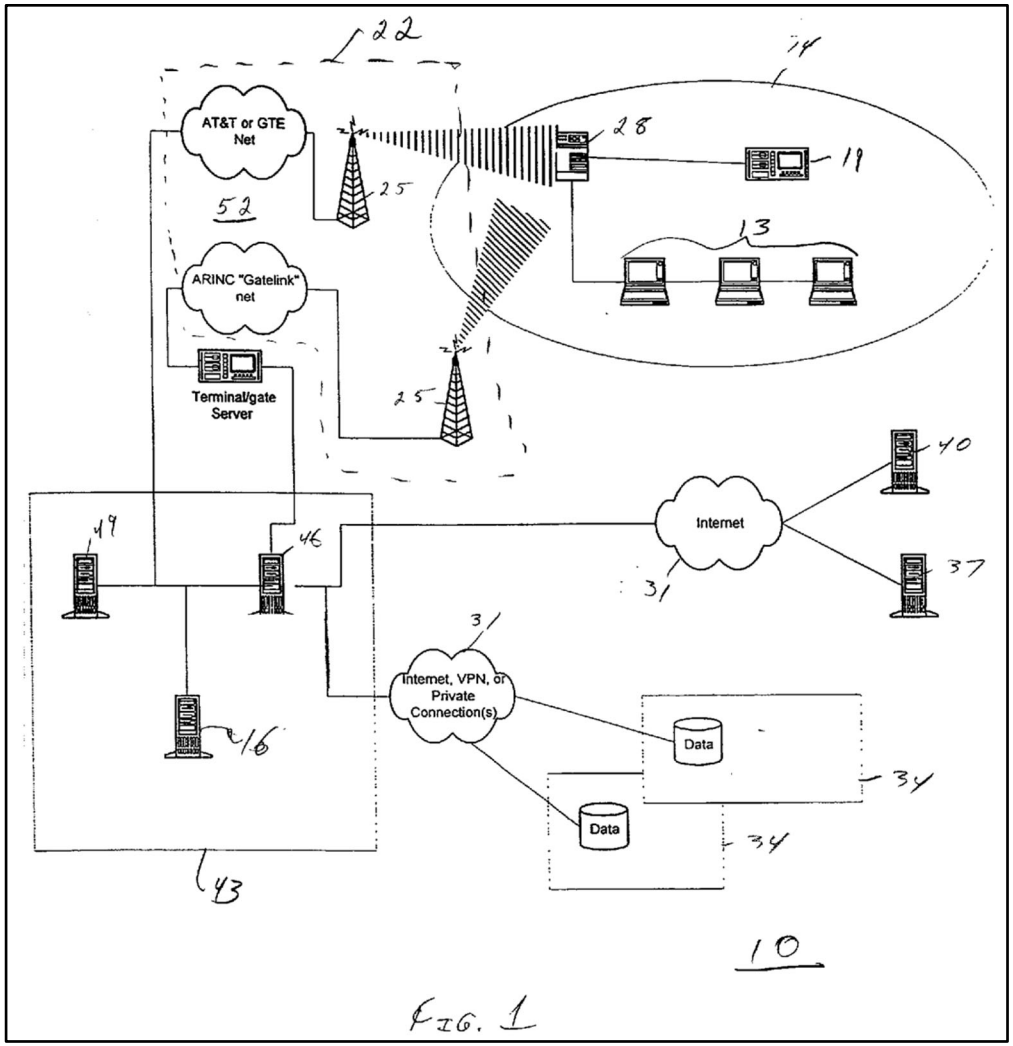
Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	**U.S. Patent Application No. 2002/0138625 ("Bruner")**
[24] An Internet Hotspot comprising:	To the extent the preamble is limiting, Bruner discloses: The present invention is directed to a method and apparatus for providing electronic on-line commerce, and more particularly to a airline-based system for providing electronic commerce to passengers during flights. While the invention is described with specific reference to an in-flight intranet system, it will be understood by those skilled the art that the invention is generally applicable to any remote vehicle or building including aircraft, ships, trains and hotels.

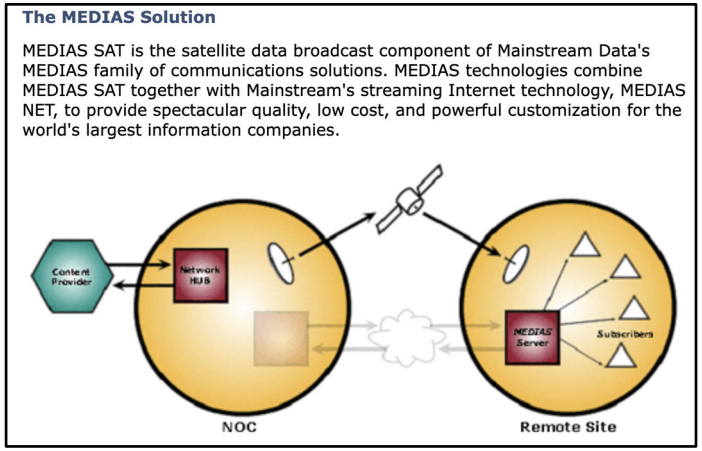
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Bruner at [0002]. The increasing use of the Internet and the World Wide Web as an electronic information source and means for purchase of goods and services is becoming more and more common. Users of the web can access information and merchant sites at any location, such as the home and office. Moreover, laptop computers and handheld palm computers give individuals increased mobility allowing access to the Internet almost anywhere. A significant limitation to this access to the Internet occurs while users are in transit from one location to another, and more particularly during airline flights. Bruner at [0004]. It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]. Thus the present invention utilizes intelligent caching and communication to provide effective internet access to remote users. In a presently preferred embodiment, the system comprises a remote server computer located within the aircraft to control the operations of the system for the passengers in their seats at terminals or phone connections mounted in their seat location. The remote aircraft server is in effective communication with a land-based central server computer for the exchange of information between the central land-based and the remote in-flight aircraft. The connection is provided to the remote intranet system of the present invention to allow airline passengers to browse through information or purchase produces much in the same manner as they do with their ground-based home or office computer. Bruner at [0011].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	The manner in which a passenger accesses the remote server can be of various means. Such connection may be accomplished via an installed telephone network as set forth above. Alternatively, the service may be installed on an aircraft's inflight entertainment network which provides a user screen and input device not connected via telephone lines. In either type of connection, the present invention facilitates loading of data to the remote server, updating with new data and real-time processing of transactions as normally occurs with a conventional land-based internet connection. Bruner at [0012]. In a method of connecting remote internet users with a central telecommunications network, the said method comprises the steps of providing a remote internet server including means for connecting a remote internet user with the remote internet server, providing a ground based internet server for connection to the central telecommunications network and connecting the mobile internet server with said ground based internet server. Bruner at [0014]. Thus, the system of the present invention allows airline passengers to scan the Internet, including accessing informational resources, viewing entertainment, shopping on-line through electronic commerce, purchasing products and accessing e-mail while in flight. Bruner at [0022]. Because smaller remote servers 19 and smaller remote communication systems 28 can therefore be utilized, the remote internet system 10 can be implemented in a more practical and cost effective manner. Bruner at [0078]. In effect, the remote server 19 acts much like a local internet on the remote location 14, be it a moving vehicle like an airplane or ship or a land-based remote location.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Bruner at [0079].
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	Bruner discloses "a satellite dish communicating with the Internet via one or more data links with a satellite." *See, e.g.*, The present invention delivers high-speed connections and uses a combination of existing satellite systems and ground technologies to update information on the onboard server. Bruner at [0015].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Bruner at FIG. 1; *Id.* at [0018] ("FIG. 1 shows a schematic diagram of the hardware used to

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	operate the system according to the present invention"). Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-commerce") from a remote location 14, such as during the course of an airline flight. The system topology as shown in FIG. 1 comprises a central website server 16 which preferably supports all ground based visitors traffic and transactions, as well as supporting the routing, tracking and management of traffic and transactions routed from the remote airborne users 13. The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. By using a communications network 22, such as provided by ground-based radio towers 25 and/or satellite based remote communication systems, the airborne based remote equipment 19 communicates with the network on the ground based central system 16. The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]. Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft. Bruner at [0035]. For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications. Bruner at [0080]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos. Bruner, Airpath Wireless Hot Spot, Agarwal, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Airpath Wireless Hot Spot, Agarwal, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and/or Stratos would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Airpath Wireless Hot Spot, Agarwal, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, or Stratos, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/_soln/soln2.html;*see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html;https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.html. Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, *e.g.*, 10 or 20, and can also be used to connect corporate sites. Agarwal at 3:38-41; *see also* Agarwal at FIG. 1, 3:18-20, 3:38-63.

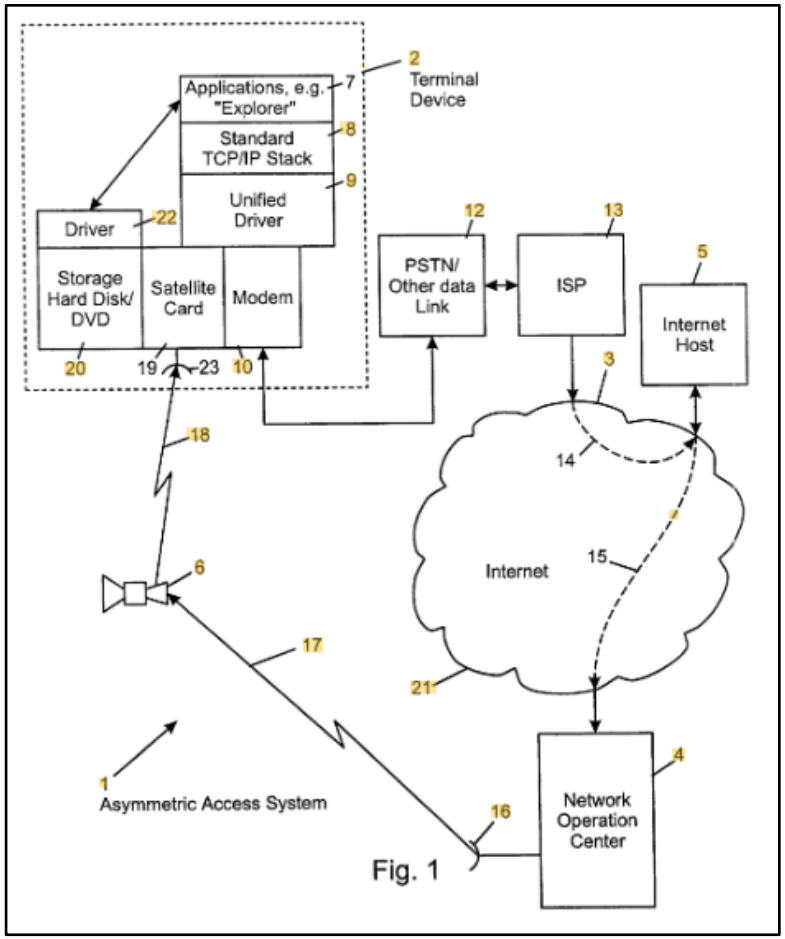
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 El-Rafie at FIG. 1; *see also* El-Rafie at 4:56-5:19.

EXHIBIT E-3

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")

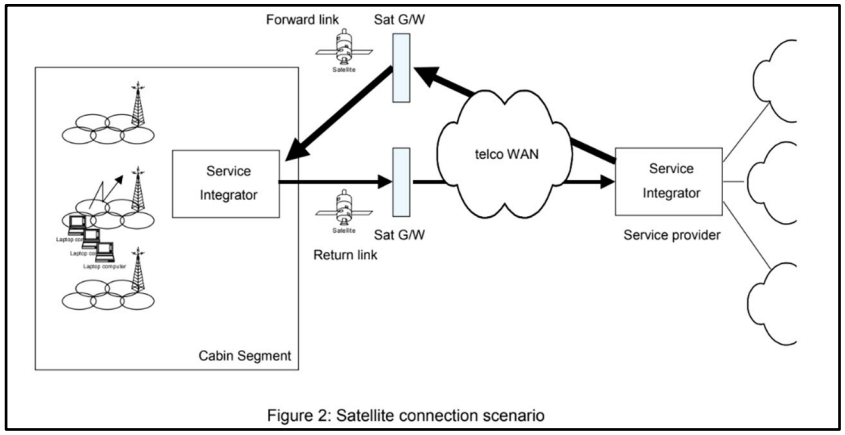


Figure 2: Satellite connection scenario

Jahn I at FIG. 2; *see also* Jahn I at 1-3, FIG. 1.

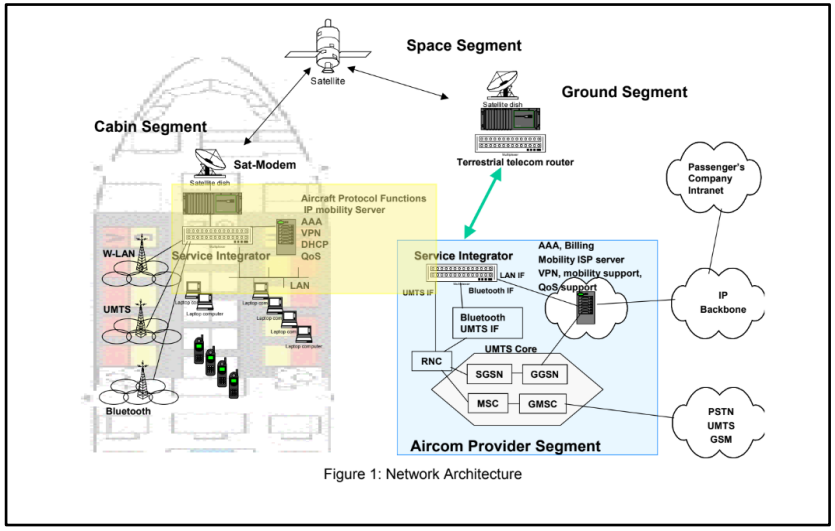
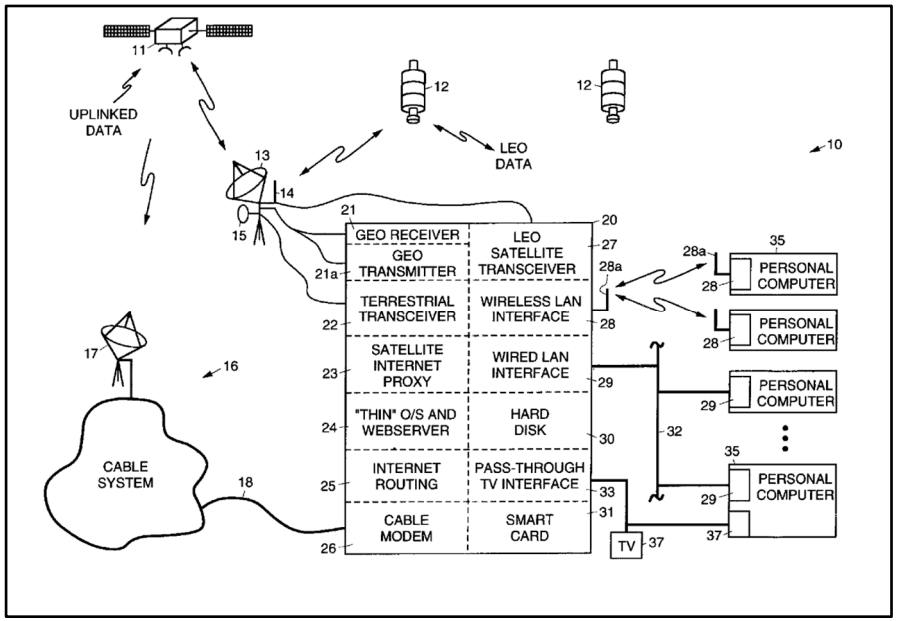
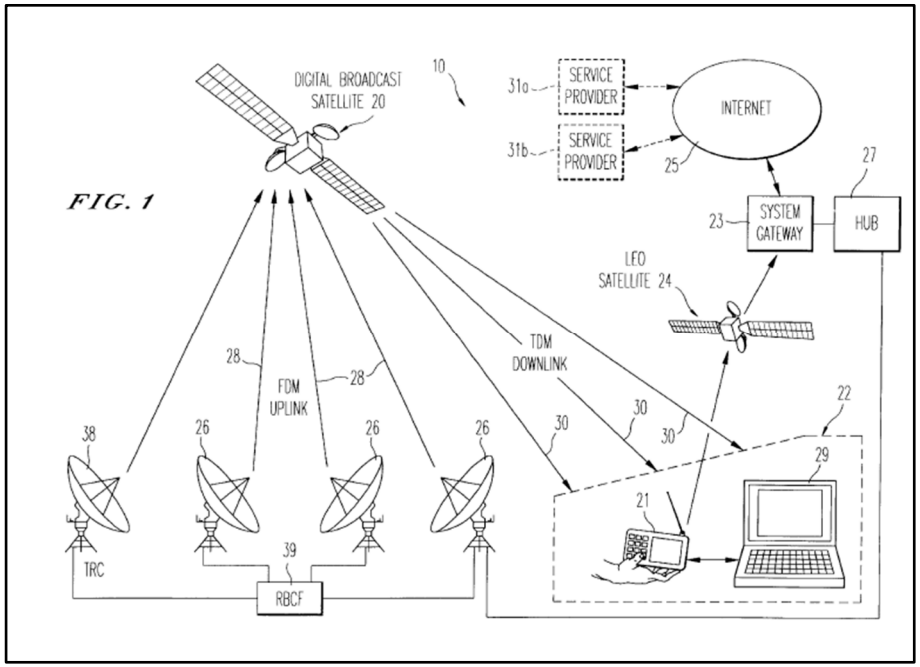
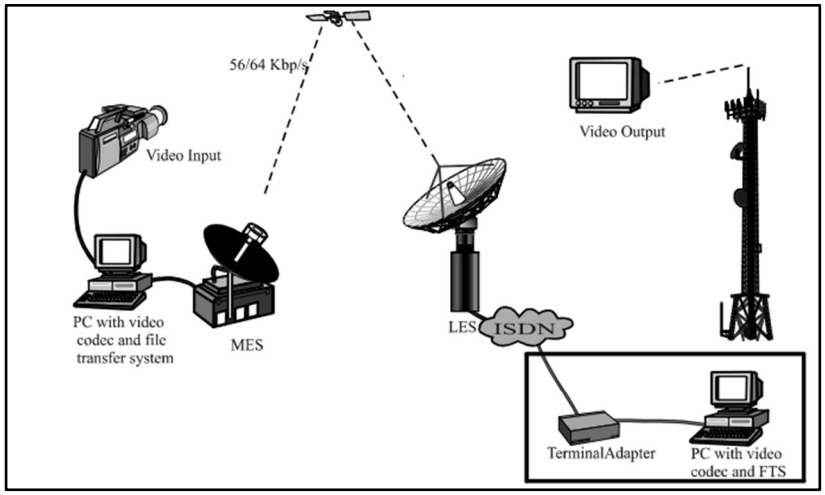


Figure 1: Network Architecture

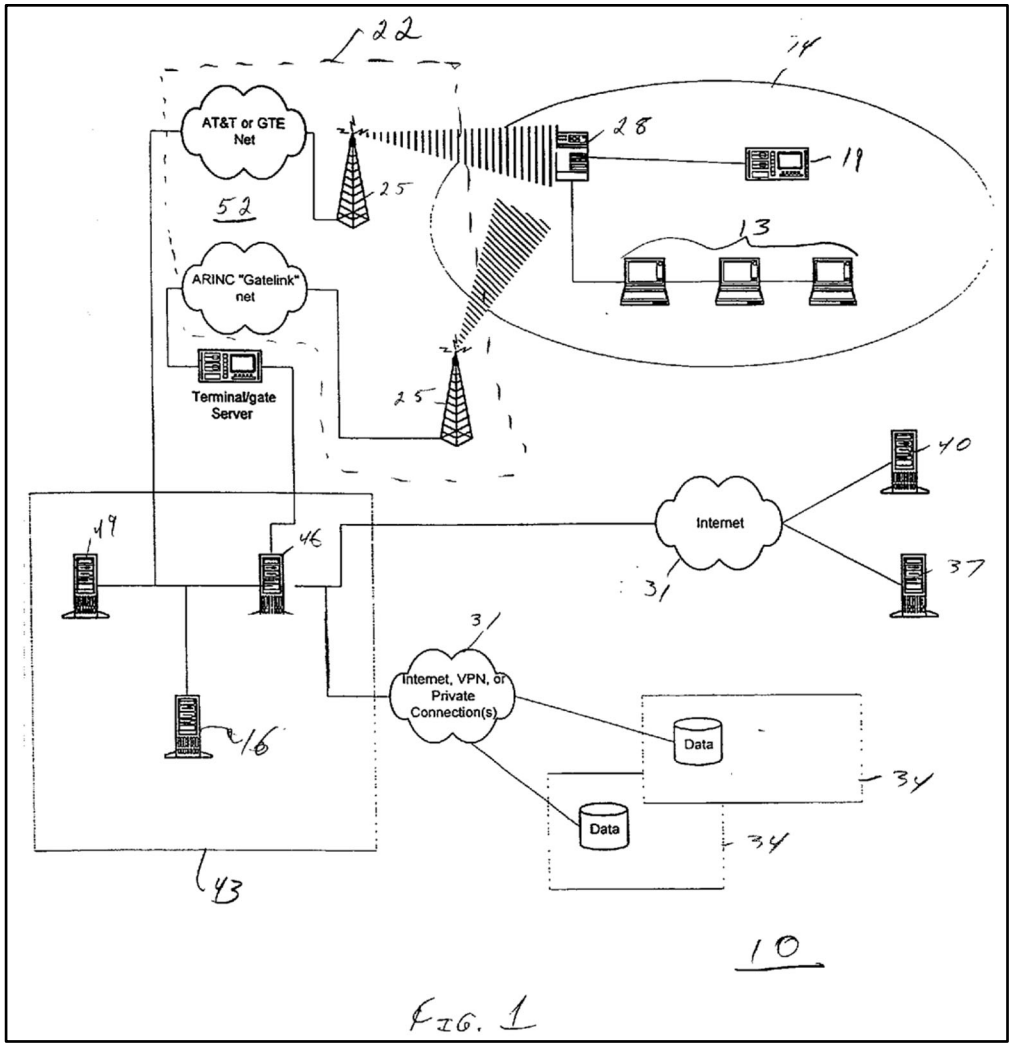
Jahn II at FIG. 1; *see also* Jahn II at 2-4.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service. Nelson at [0056]; *see also* Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.  Ollikainen at FIG. 1; *see also* Ollikainen at 2:58-3:45; 3:65-4:17.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Rothblatt I & II at FIG. 1; *see also* Rothblatt I at FIGs. 3, 5, 1-2, 5, 8-9; Rothblatt II at FIGs. 3, 5, 2:16-21, 2:46-64, 3:12-15, 6:20-27.

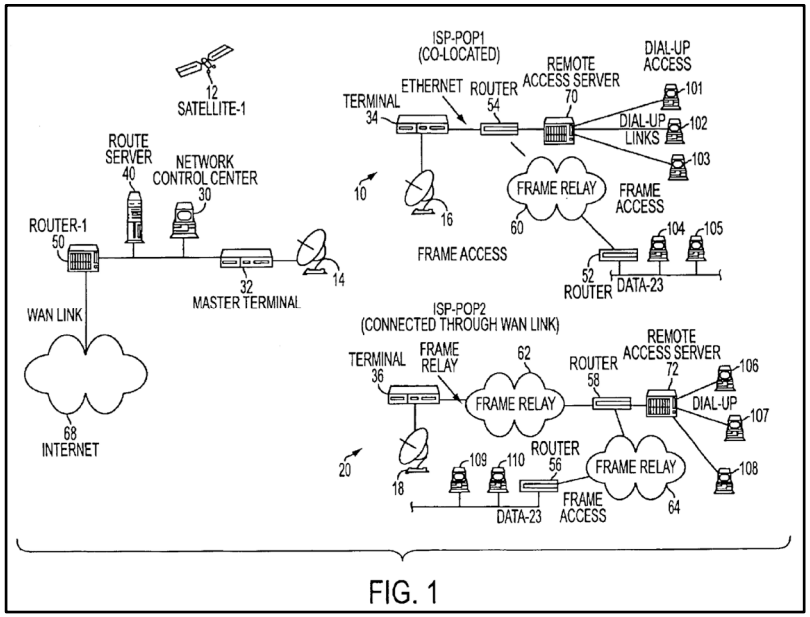
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; .https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete. To the extent that Bruner does not disclose any elements of this claim limitation, it would have

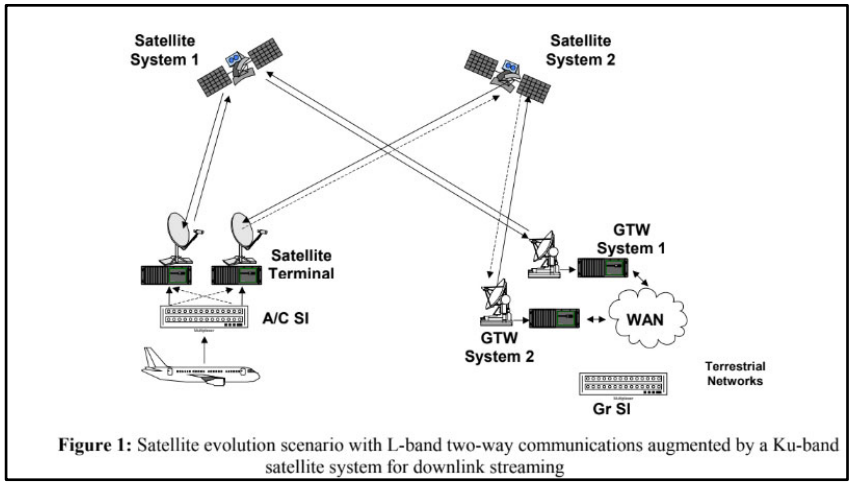
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that satellite dishes were a routine and commercially available component of satellite-enabled multi-user wireless Internet architecture. *See, e.g.,* Clark at Cover.
[24.b] at least one router operatively coupled to the satellite dish;	Bruner discloses "at least one router operatively coupled to the satellite dish." *See, e.g.*,

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Bruner at FIG. 1; *Id.* at [0018] ("FIG. 1 shows a schematic diagram of the hardware used to

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	operate the system according to the present invention"). The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. By using a communications network 22, such as provided by ground-based radio towers 25 and/or satellite based remote communication systems, the airborne based remote equipment 19 communicates with the network on the ground based central system 16. The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]. The GSN 43 preferably comprises a set of distributed servers 46, in addition to the central server 16, that are responsible for the deployment of content, synchronization of data to and from the ADS, and to enhance communications performance. The central site network 43 supports all ground based visitor traffic and transactions, as well as supporting the routing, tracking, and management of traffic and transactions routed from airborne users. Bruner at [0024]. With the system 10 of the present invention, airborne users do not communicate directly with the ground network 43 but use the remote ADS server 19 as a router. Bruner at [0025]. The Systems' GSN 43 detects changes on the ground sites that need to be synchronized with the aircraft or ship to provide the most up-to-date information. In addition to determining the best method to update the ship or airborne server, the ground center performs the following functions: a) supports routing, tracking and management of traffic and transactions from airborne or at sea users;

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Bruner at [0027]. In addition, the user can gain access to his or her land based e-mail system 64 and or an aircraft's intranet 67, which is a system accessible only by those members on the flight or, more generally, those connected to the remote server 19, wherever it may be located. Within the intranet, users may be engaged in conversations or chat with other passengers on the flight, engage in on-flight activities such as games or browsing through activities provided on the ADS server. The intranet also provides access to the internet through the ground based GSN 43. Bruner at [0030]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu. Bruner, Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*,

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 FIG. 1 Agarwal at FIG. 1; *see also* Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at 3-4, *see also* DeSanctis at FIG. 2.

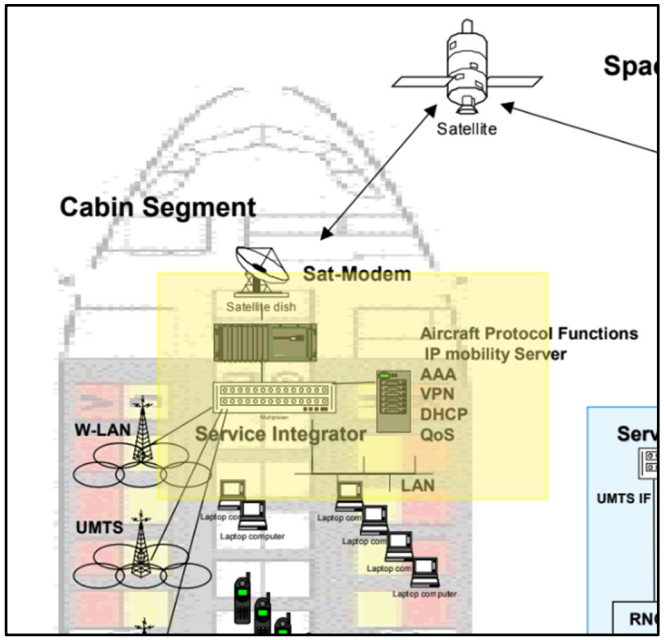
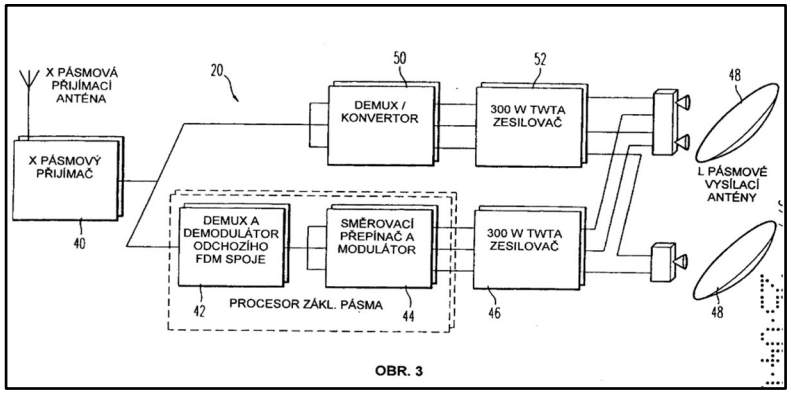
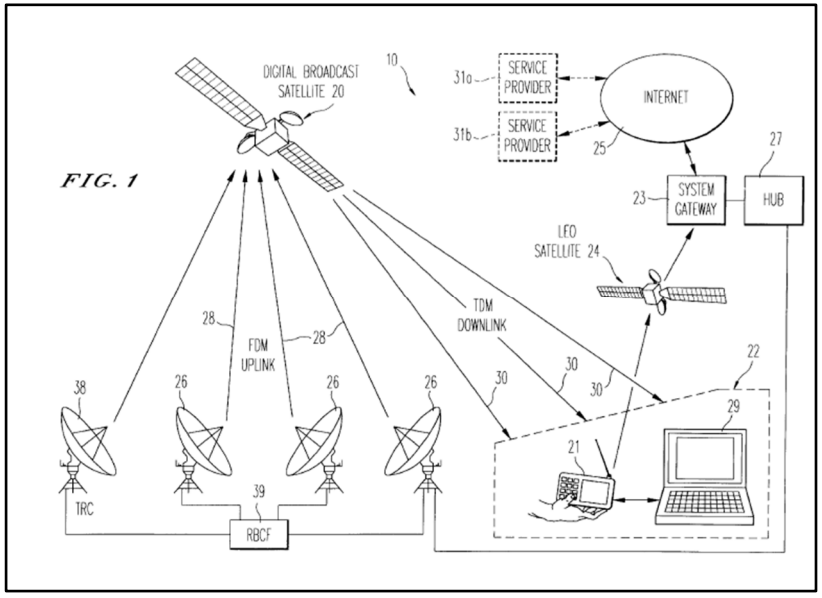
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Jahn I at 2, FIG. 1 (excerpt); *id*. ("The WirelessCabin architecture and its components are conceptually depicted in Figure 1."); *see also* Jahn I at 2-4, FIG. 2. In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.

EXHIBIT E-3

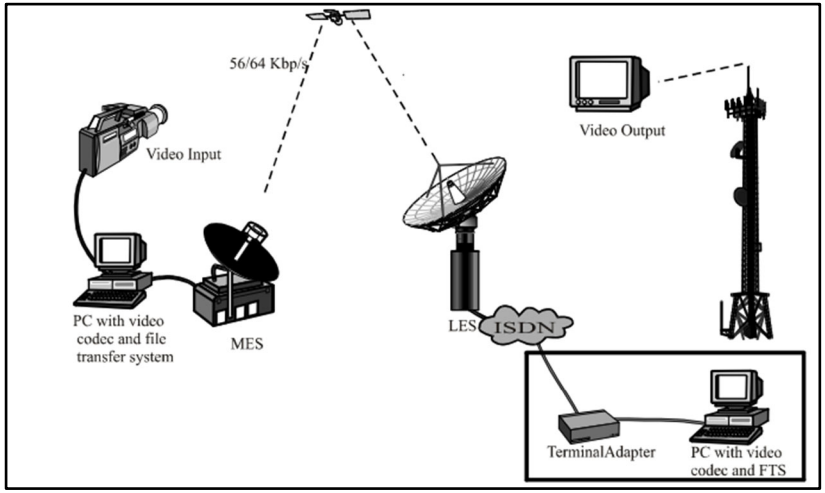
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")

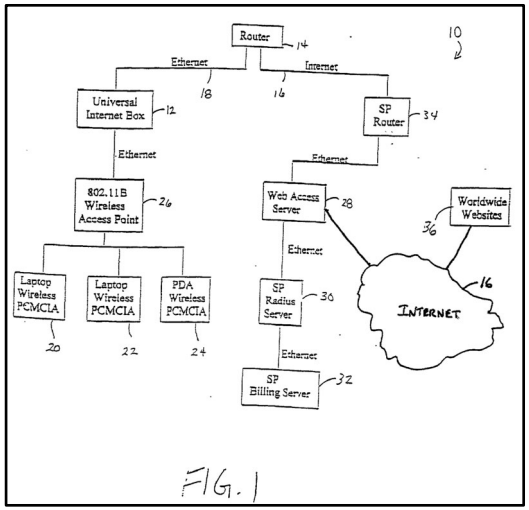


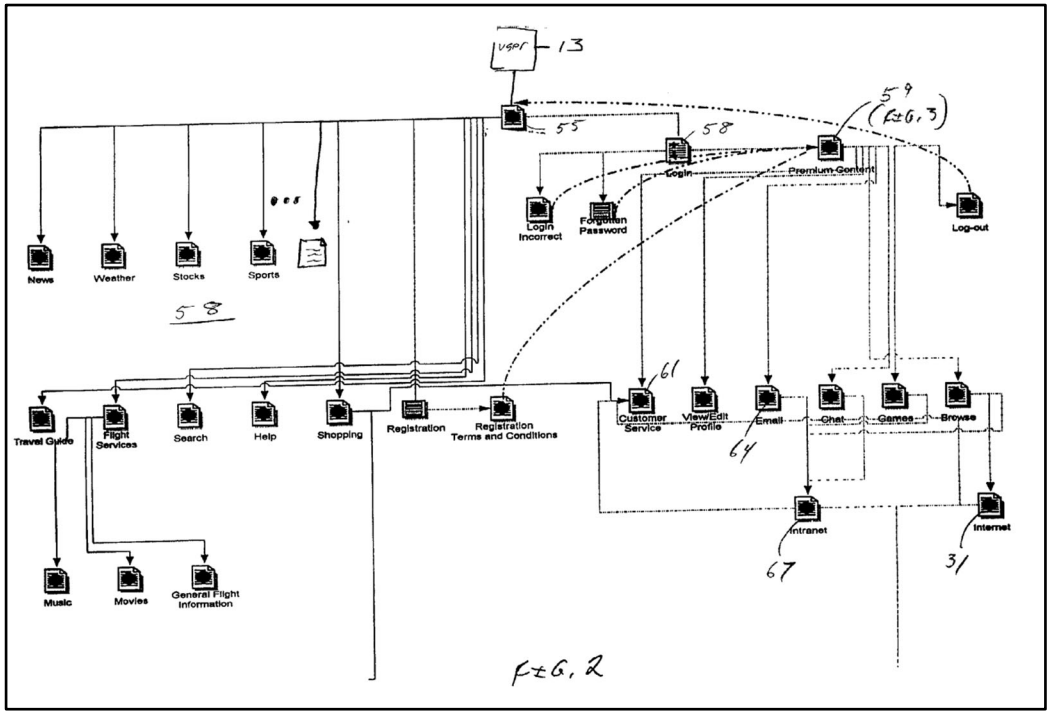
Rothblatt I at FIG. 3; *see also* Rothblatt I at FIG. 5, 2, 12.



Rothblatt II at FIG. 1, *see also* Rothblatt II at FIG. 5, 3:20-23, 11:55-65, 16:28-48; 17:9-16.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; *see also* Seo at [0033], [0026]-[0027], [0049]-[0051].  Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Wu at FIG. 1. Wu at [0021] ("FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention"); *see also* Wu at [0058]-[0059]. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that satellite dishes were a routine and commercially available component of satellite-enabled multi-user wireless Internet architecture. *See, e.g.,* Clark at Cover.
[24.c] a subscriber access unit operatively coupled between the satellite dish and the at	Bruner discloses "a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account

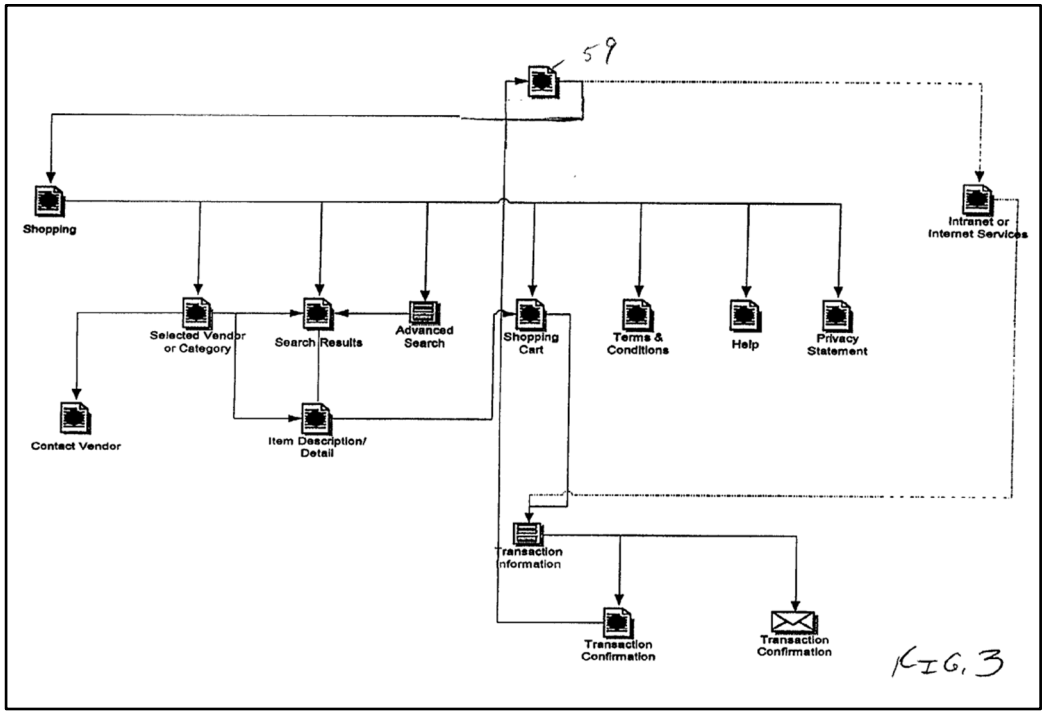
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet; and	associated with a user prior to allowing the user access to the Internet." *See, e.g.*,  Bruner at FIG. 2; *id.* at [0019] ("FIG. 2 shows a homepage initial site map for airline passengers logging into the inflight Internet system"). The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]. The systems 10 topology is divided into three separate but interconnected components: the Ground Server Network (GSN) 43, the central home web server site 16; and the

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Airborne Data Server (ADS). The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. . . The web application will validate the user, and provide him or her additional content and offer commerce functionality. Preferably all data required for support of the application is stored within the database server 49, and security restrictions are in place to verify that only those persons with appropriate rights can view the data and access system functionality. Bruner at [0023]. All data required for support of applications is stored within the database server 49, and security restrictions are in place to verify that only those persons with appropriate rights can see the data. Preferably, profile and registration information for users 13 are stored on the database server 49. Bruner at [0024]. With the system 10 of the present invention, airborne users do not communicate directly with the ground network 43 but use the remote ADS server 19 as a router. . . Altering of connections can be configured to allow only communication to and from the ground distribution servers 46 and the central site 14. This provides protection from any unwanted traffic on the telecommunications network 22, as well as preventing users from bypassing the log-in and accounting services involved with the ADS or gateway.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Bruner at [0025]. Access to ground based internet content, whether e-commerce or e-mail, is preferably via an application layered gateway or proxy, present on the airborne Server 19. Such a System provides that the proxy Services insure that all air to ground traffic may be logged and billed accordingly. Such a System also permits prioritization and queuing to be applied to the data flow. The web proxy also allows for additional cache data retrieval, conserving bandwidth. An example of Such an open Source proxy is Squid Version 2.2.4 which provides HTTP, FTP, and Gopher proxying and caching. Bruner at [0026]. The Systems' GSN 43 detects changes on the ground sites that need to be synchronized with the aircraft or ship to provide the most up-to-date information. In addition to determining the best method to update the ship or airborne server, the ground center performs the following functions: a) supports routing, tracking and management of traffic and transactions from airborne or at sea users; b) supplies billing functionality, including real time credit card processing for inflight transactions; c) Manages and stores user profiles, enabling metrics, personalized web experiences and redundancy; d)stores data for all applications and ensures regular synchronization with partner content sites to provide the most up-to-date information; and e) Provide security to verify that only those persons with appropriate rights can see the data. Bruner at [0027]. Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	known to those skilled in the art in providing internet based commerce systems. Bruner at [0028]. By way of brief example, the user provides basic information, such as name, e-mail address, and any other personal information that the operator of the site wishes to capture for future reference. . . This user profile information is then stored on the database server 49. Thus the next time the user accesses the site, that user inputs the log-in information and is then given access to the full content of the system 10. . . In addition to the traditional e-commerce activities of information and product purchasing, the user can also access a customer service area 61 of the remote inflight internet system so as to perform routine functions such as viewing and editing the users profile and getting general help from the operator of the inflight service. Bruner at [0029]. In addition, the user can gain access to his or her land based e-mail system 64 and or an aircraft's intranet 67, which is a system accessible only by those members on the flight or, more generally, those connected to the remote server 19, wherever it may be located. Within the intranet, users may be engaged in conversations or chat with other passengers on the flight, engage in on-flight activities such as games or browsing through activities provided on the ADS server. The intranet also provides access to the internet through the ground based GSN 43. Bruner at [0030].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")



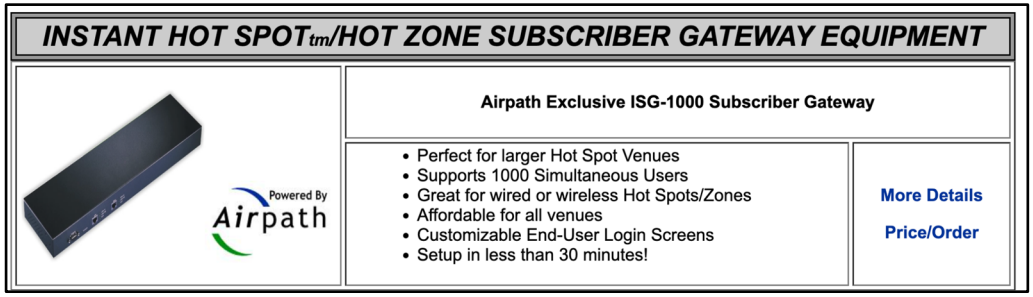
Bruner at FIG. 3; *id.* at [0020] ("FIG. 3 shows a typical menu for a premium electronic commerce system provided to inflight airline passengers according to the present invention").

> As shown in FIG. 3, the inflight premium service **59** gives the remote user **13** access to additional e-commerce activities.

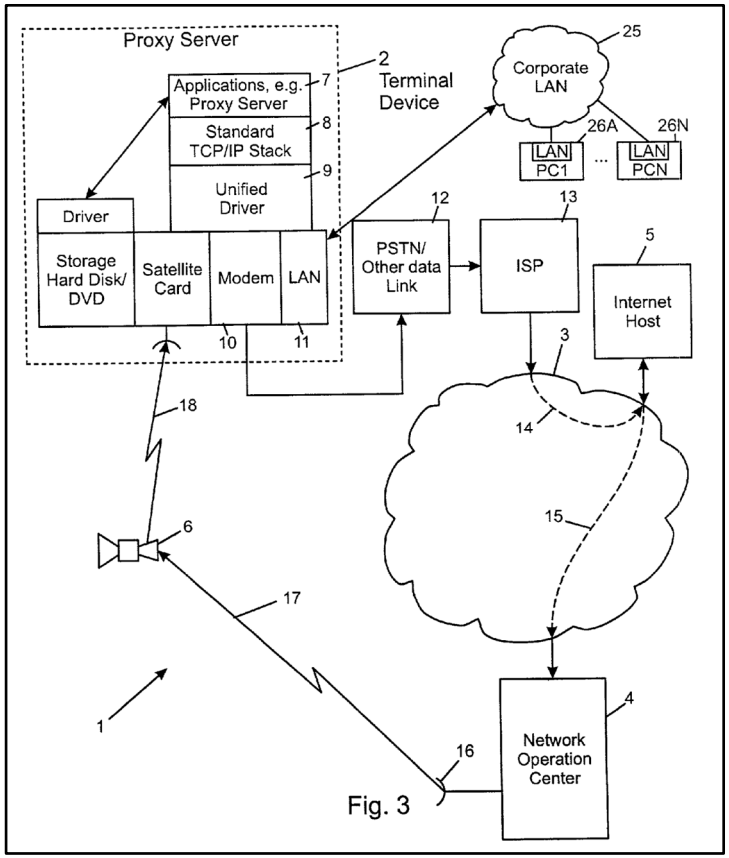
Bruner at [0031].

> By providing a user profile through the registration process, the user can input information which becomes preexisting validated account information such that the user has prior credit approval, personal shopping information and can also input important

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	date reminders so that the user can be notified at any time of appointments and meetings that may be scheduled while performing normal functions such as retrieving e-mail. Bruner at [0032]. The software and data management system of the present invention is designed to integrate with existing hardware and communications systems on existing aircraft or ships, maximize the effectiveness of these systems and allow users to access their existing e-mail accounts in a cost effective and intuitive manner. For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications. Bruner at [0080]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, El-Rafie, Hagen, Jahn I, Jahn II, Lee, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu. Bruner, Airpath Wireless Hot Spot, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Airpath Wireless Hot Spot, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Airpath Wireless Hot Spot, El-Rafie, Hagen, Jahn

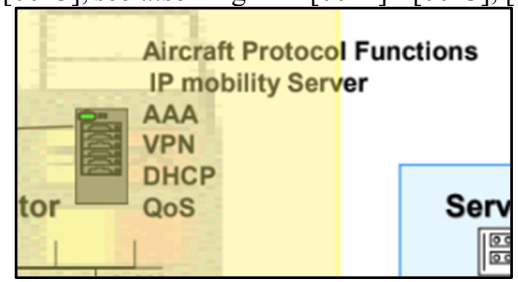
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, or Wu, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; *see also* https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm.

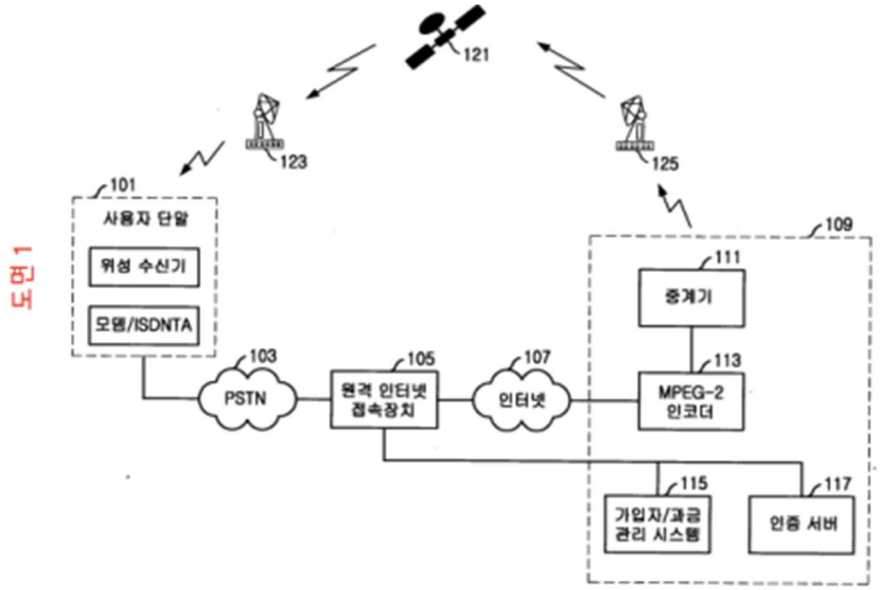
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")



El-Rafie at FIG. 3; *see also* El-Rafie at 4:50-67.

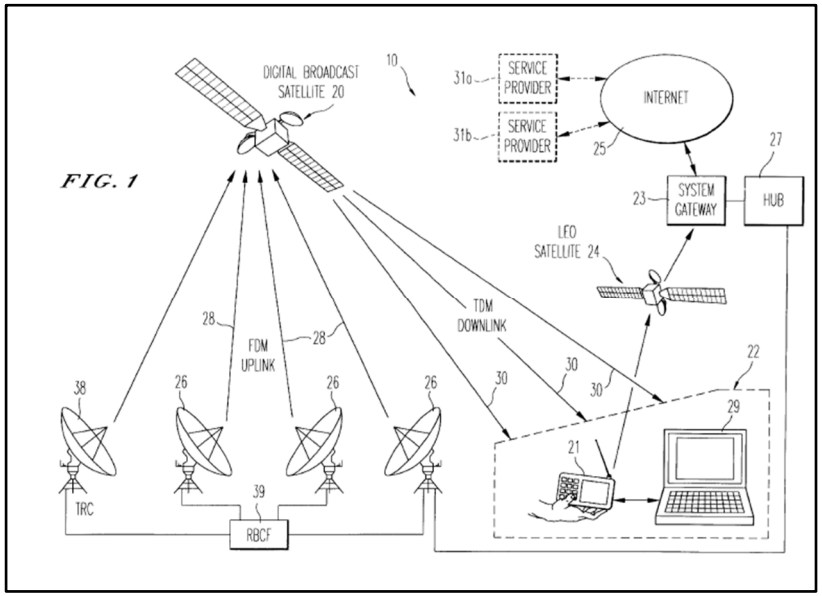
Thus, as described in detail herein, the NAS performs registration, authentication, and other functions necessary to provide visiting mobile terminals with access to the public network 16, while simultaneously controlling access by such visitors to the local private network 10, whose public network connection resources are being used to provide such access.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Hagen [0043]; *see also* Hagen at [0011] - [0013], [0048], [0050], [0059], [0066], [0093].  Jahn I at 2, FIG. 1 (excerpt); *see also* Jahn I at 2-3. It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 8; *id*. at 2-3, 7. One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Kalavade at [0056]; *id.* at [0207] ("The access server at the hotspot, such as, *e.g.*, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.  Lee at FIG. 1; *see also* Lee at [0001], [0003], [0015] - [0016], [0018] - [0019], [0025] - [0035], [0037], FIG. 1, FIG. 3. When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18_1, 18_2, . . . 18_n) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (*e.g.*, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN Mody at [0019]; *see also* Mody at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.

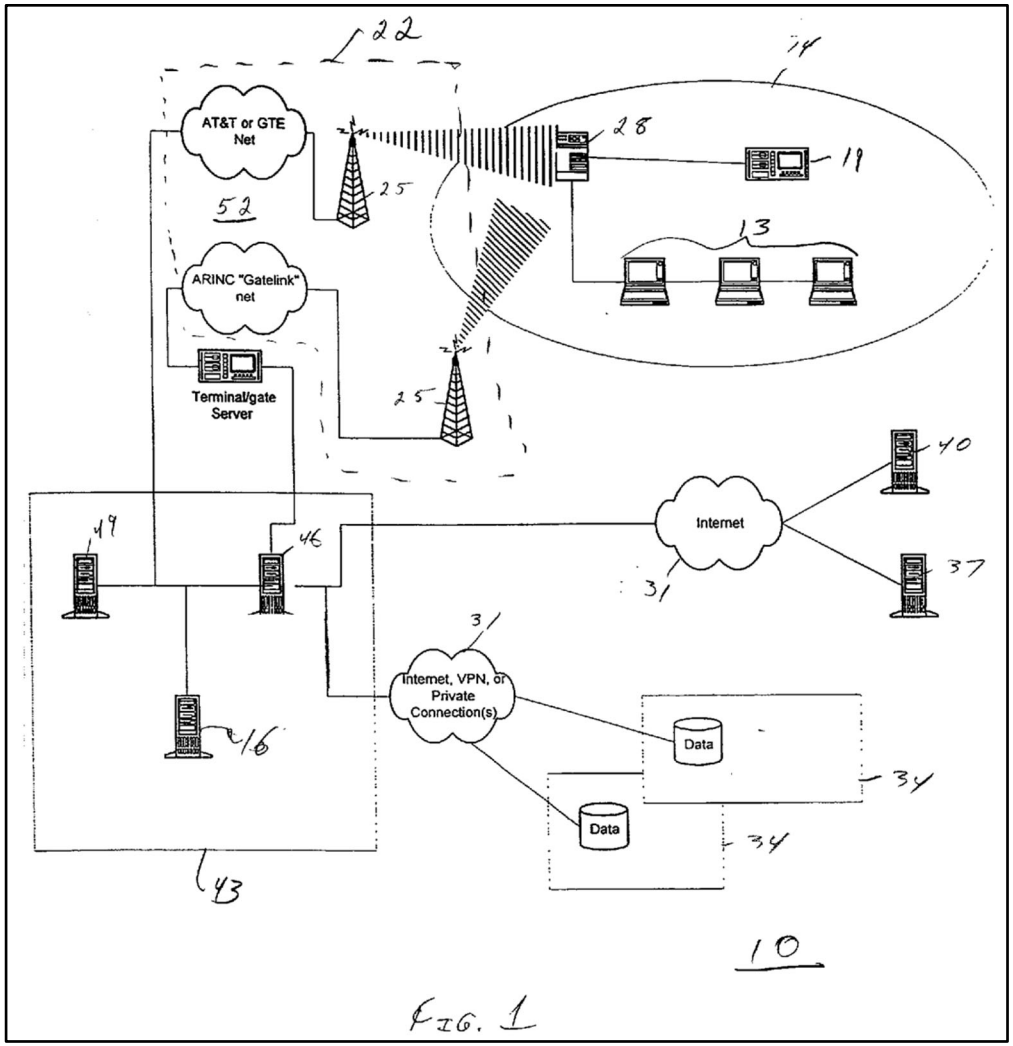
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. *See also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm. The cyberstation 20 provides continuous connectivity to satellite-based data delivery services with a full-time low-bandwidth LEO return path to support information requests,

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	feedback delivery, data billing and status/diagnostic reporting. Ollikainen at 3:6-23; *see also* Ollikainen at 4:24-31. The identification code is preferably assigned to the user by the ISP when the user subscribes to the Internet via the user terminal 22. The ISP may assign the user an identification code, password, or both, and require that the user be for example, it sends to the user terminal 22 an Internet browser screen, one or both of these identifiers entered via a keyboard 122 or a card reader 126. Alternatively, the LEO transceiver 84 may include a wireless modem, which may be recognized by the ISP upon initiation of the login sequence from the user terminal 22. Rothblatt I at 10; *see also* Rothblatt I at 2, 11-12, FIGs. 1, 5.  Rothblatt II at FIG. 1; *see also* Rothblatt II at FIG. 5, 3:20-23, 3:62-4:3, 11:55-65, 14:59-68, 15:32-65.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; *see also* Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d. Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html; https://web.archive.org/web/20060320175337/http://www.stratosglobal.com/documents/factSheets/sdx1100_userGuide_overview.pdf; https://web.archive.org/web/20120413092410/http://www.stratosglobal.com:80/About%20Stratos/~/media/Documents/Corp/Public/corp/corp_financial/corp_financial_annualReport2002Financial

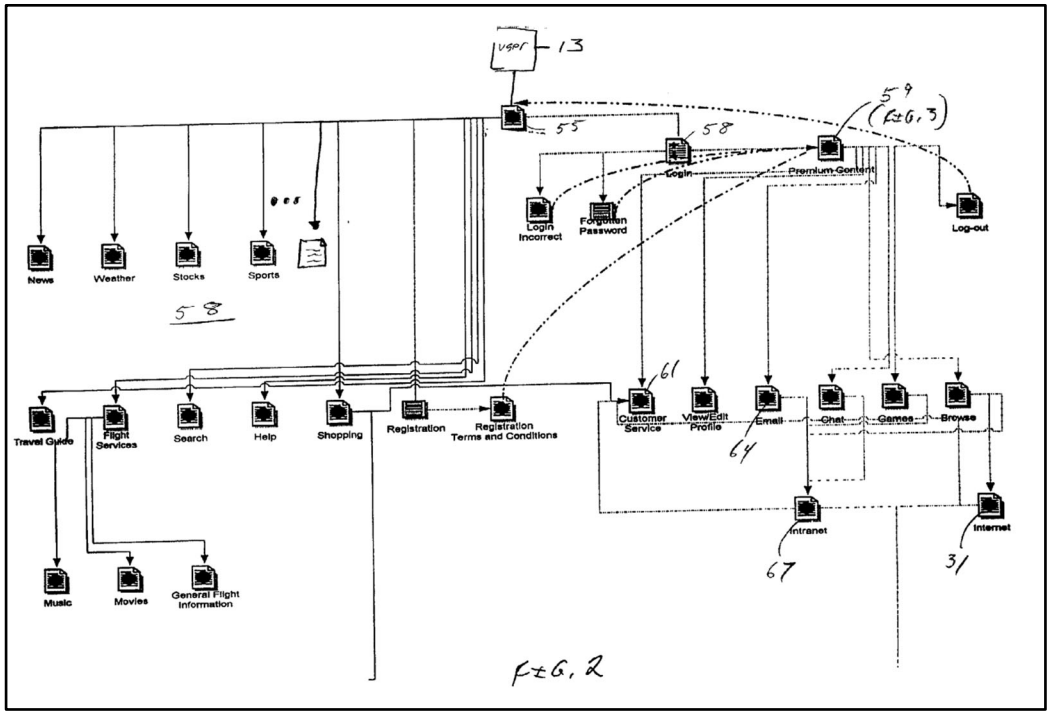
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	sOnly.ashx. > In the next step, the client software determines if billing information has been pre-stored in memory. Preferably the user has pre-stored such billing information, such as during the set-up process and this information is read from memory. The software 90 checks for stored billing information. If there is pre-stored billing information, "yes" is returned in step 648. If there is no pre-stored billing information, processing proceeds to a series of billing information requests (steps 649-653) in which billing information is requested from the user. In an alternative embodiment, billing is not required and processing proceeds to step 665. Van Horne at 8:66-9:9; *see also* Van Horne at 11:3-17, 12:29-43, 16:49-17:30. > The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; *see also* Wu at [0010]-[0019] ("querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check."), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063]. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. *See* "Going WiFi" Glossary ("AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.").
[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;	Bruner discloses "a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet." *See, e.g.*,

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Bruner at FIG. 1; *id.* at [0018] ("FIG. 1 shows a schematic diagram of the hardware used to

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	operate the system according to the present invention"). Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-commerce") from a remote location 14, such as during the course of an airline flight. The system topology as shown in FIG. 1 comprises a central website server 16 which preferably supports all ground based visitors traffic and transactions, as well as supporting the routing, tracking and management of traffic and transactions routed from the remote airborne users 13. The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. By using a communications network 22, such as provided by ground-based radio towers 25 and/or satellite based remote communication systems, the airborne based remote equipment 19 communicates with the network on the ground based central system 16. The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]. Thus, the system of the present invention allows airline passengers to scan the Internet, including accessing informational resources, viewing entertainment, shopping on-line through electronic commerce, purchasing products and accessing e-mail while in flight. Bruner at [0022]. The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. Bruner at [0023]. The central site network 43 supports all ground based visitor traffic and transactions, as well as supporting the routing, tracking, and management of traffic and transactions routed from airborne users. Bruner at [0024].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Bruner at FIG. 2; *id.* at [0019] ("FIG. 2 shows a homepage initial site map for airline passengers logging into the inflight Internet system"). The systems 10 topology is divided into three separate but interconnected components: the Ground Server Network (GSN) 43, the central home web server site 16; and the Airborne Data Server (ADS). The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13,

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	such as in the seatback or in the armrest of the airline passengers seat. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. The web application will validate the user, and provide him or her additional content and offer commerce functionality. Bruner at [0023]. Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems. Bruner at [0028]. By way of brief example, the user provides basic information, such as name, e-mail address, and any other personal information that the operator of the site wishes to capture for future reference. For example, it may be desired to know certain demographic data about the user, such as age, sex, and home location, in order to be able to provide designated information to users who fit profiles of generally recognized demographic information. This user profile information is then stored on the database server 49. Thus the next time the user accesses the site, that user inputs the log-in information and is then given access to the full content of the system 10. Bruner at [0029]. Within the intranet, users may be engaged in conversations or chat with other passengers on the flight, engage in on-flight activities such as games or browsing through activities

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	provided on the ADS server. The intranet also provides access to the internet through the ground based GSN 43. Bruner at [0030]. The ability to synchronize part or all of the data between the GSN and the ADS systems includes the ability to make incremental or single record updates (for updating customer profiles), full table updates, and updates to files in the file hierarchy. Bruner at [0070]. For those passengers that simply must have direct access to the Internet, the system needs a object caching server to provide rapid access to frequently accessed sites. The proxy/object cache should be capable of linking into an existing object cache hierarchy, or setting up one of its own. Cache nodes would exist on both the ADS and servers in the GSN. Squid is one possibility, MS proxy is another. Bruner at [0076]. In operation, the remote user 13 is presented the look and feel of being connected directly to the internet and merchant websites. Via the communication link 22 between the remote server 19 and the central server 16, the central server preferably periodically transmits updated website information from merchant websites to the remote server. . . Because smaller remote servers 19 and smaller remote communication systems 28 can therefor be utilized, the remote internet system 10 can be implemented in a more practical and cost effective manner. Bruner at [0078]. Since the remote server 16 has stored therein actual partner website 34 information, and not merely cached or static information, the remote user 13 can dynamically interact with the partner website 34 as if the remote user 13 were connected directly to the internet

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	from his or her land based personal computer. . . In effect, the remote server 19 acts much like a local internet on the remote location 14, be it a moving vehicle like an airplane or ship or a land-based remote location. Bruner at [0079]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu. Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, or Wu, for example, to incorporate this limitation. *See, e.g.*,

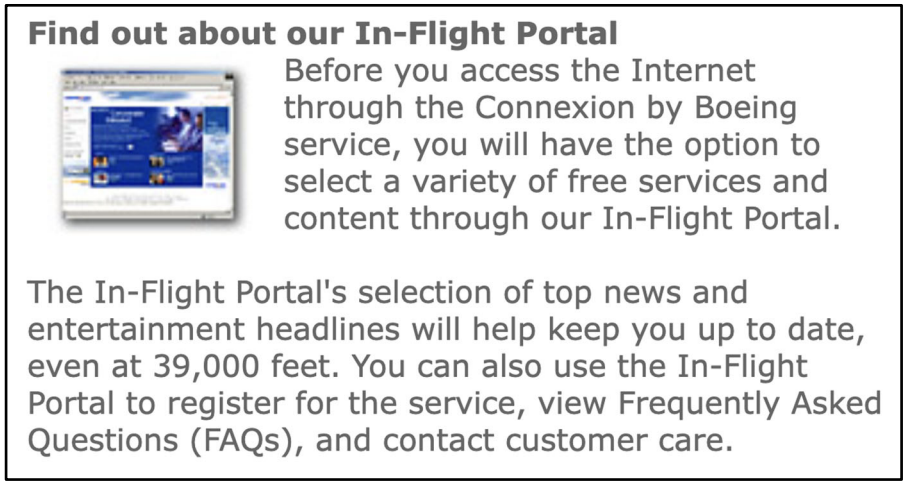
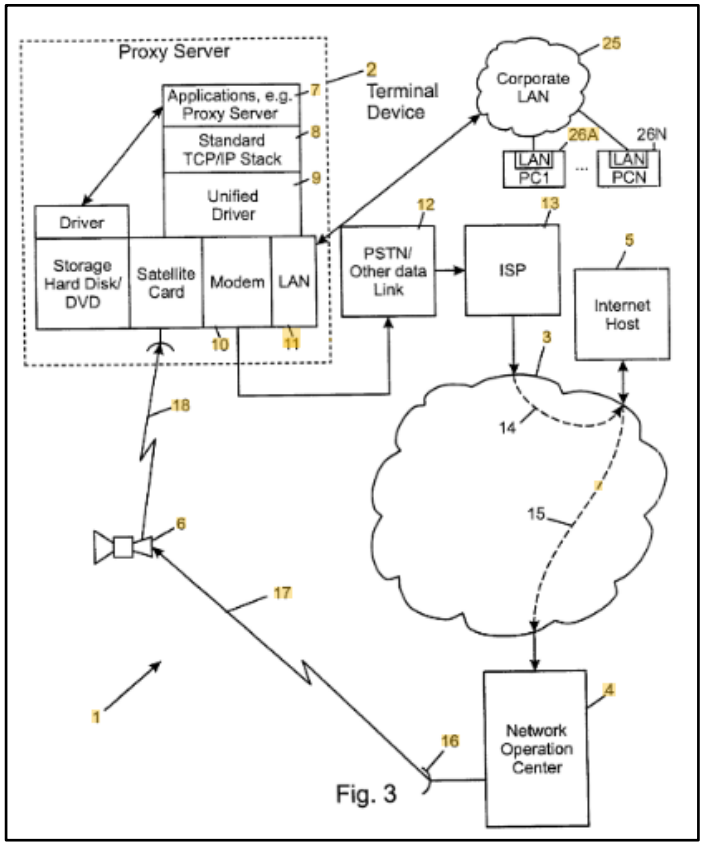
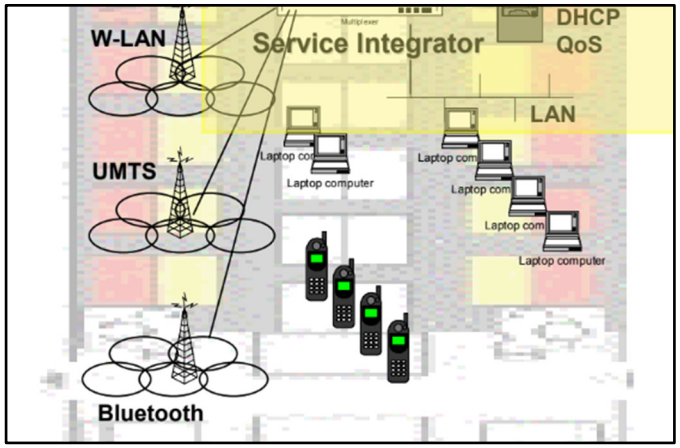
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9; *see also* Suwanateep at 12, 16-17, 32-33; Jones 755-56; Abarbanel at 6.

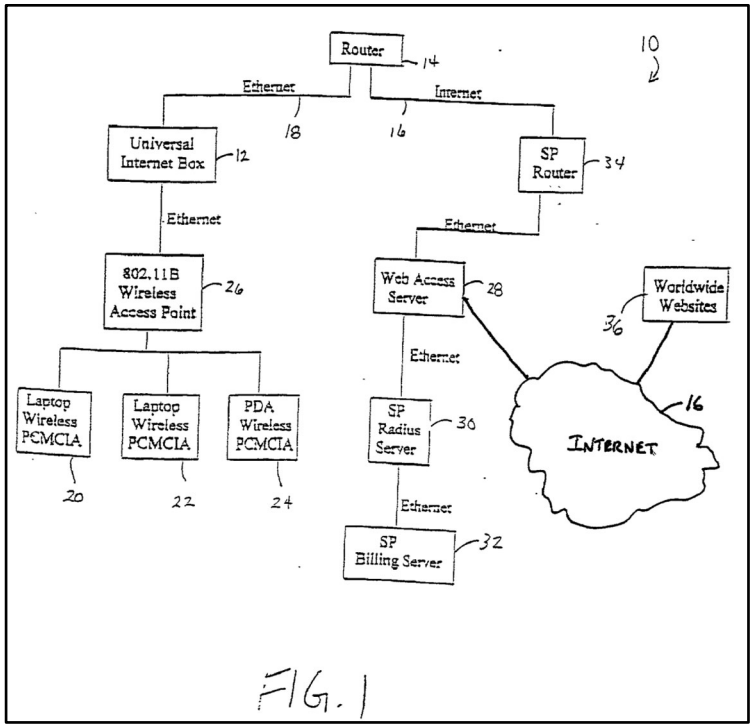
EXHIBIT E-3

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Jahn I at 2, FIG. 1; *see also* Jahn I at 1-2. Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a **wireless access** solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). Jahn II at 1; *see also* Jahn II at FIGs. 1-2, 5, Abstract, 1-2. In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Kalavade at [0071], [0072] ("A user comes to a hotspot and starts accessing the Internet through his laptop."). When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. Internet routing software 25 provides the services of a router to route incoming broadcast and interactive data to the appropriate personal computer 35. Ollikainen at 3:31-44; *see also* Ollikainen at FIG. 1. In another aspect, the invention is directed to a method of providing global Internet access for inexpensive portable user devices. The method comprises the steps of generating an Internet access request in a portable -user terminal and sending a request to an Internet service provider via a first communication link. The ISP then determines whether the user terminal has access to the Internet and then provides the screens and multimedia data required by the user terminal to the broadcast station. The transmitting station transmits the screens and data to the user terminal via a satellite-based radio system. The user terminal either reproduces or processes the data according to the user's wishes. The user terminal continues to send responses and requests to the Internet service provider over the communications link and receive broadcast screens and multimedia data from the satellite until the Internet connection is terminated. Rothblatt I at 10; *see also* Rothblatt I at 1-2, 10-12, FIG. 1. If the user is authorized to have Internet access, the system gateway 23 sends an Internet

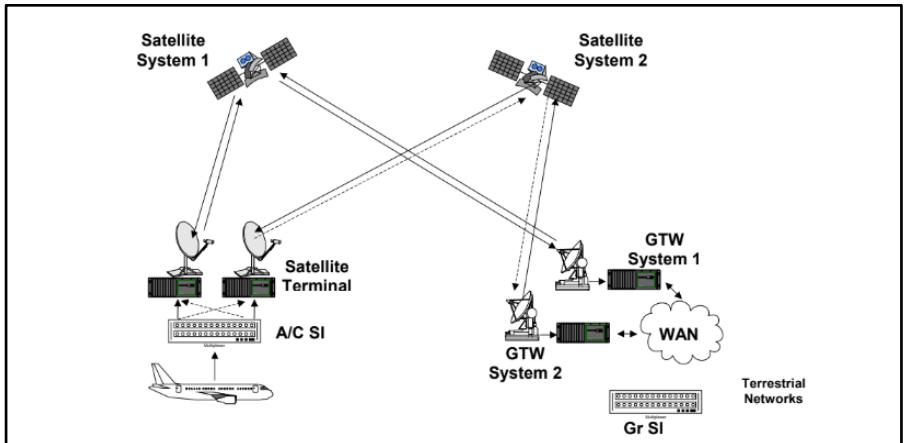
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	homepage or Web browser information to the user terminal via an FDM uplink 28 of the direct radio broadcast system. Rothblatt II at 16:57-61; *see also* Rothblatt II at 3:62-4:3, 15:57-61, 16:49-56, FIG. 1. **Optional Web Browsing** Standard Internet service normally includes Internet e-mail, as well as the capability to browse the web. *StratosNet* can do this as well, along with an FTP (File Transfer Protocol) capability, however, we also realize that some satellite terminals may not want the ability to browse the web to be available to users of their satellite phone. Therefore, Stratos offers the option to disable web browsing on your *StratosNet* account. Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; *see also* Stratos at https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://web.archive.org/web/20040612173303/http://www.stratosglobal.com:80/documents/factSheets/stratosNet_tc.pdf; https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html; https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

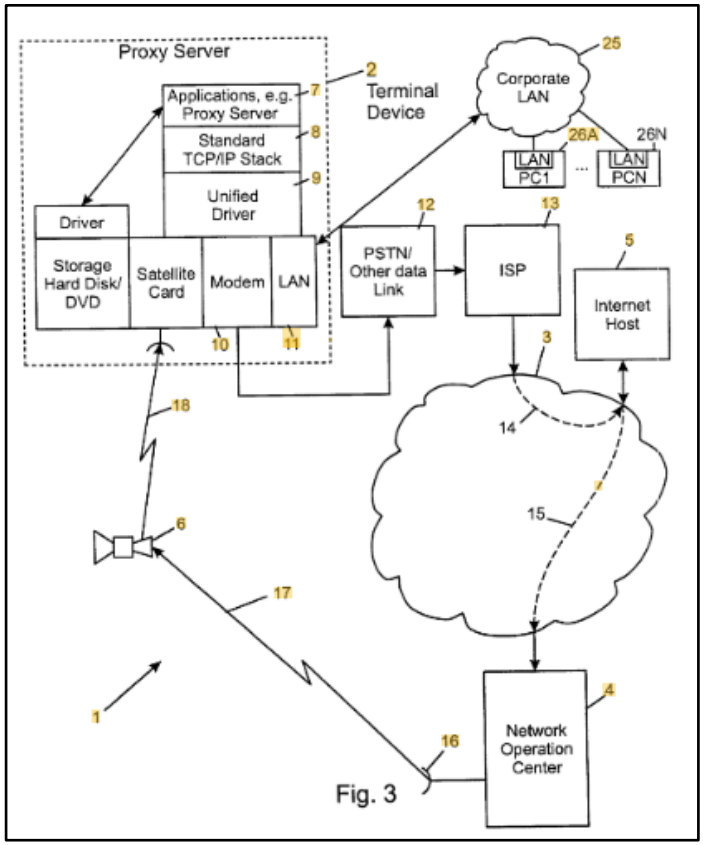
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Wu at FIG. 1. Wu at [0038] ("The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like."); *see also* Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063]. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	pleading to Defendant's Invalidity Contentions.
[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;	Bruner discloses "wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic." *See, e.g.*, While the invention is described with specific reference to an in-flight intranet system, it will be understood by those skilled the art that the invention is generally applicable to any remote vehicle or building including aircraft, ships, trains and hotels. Bruner at [0002]. The present invention is directed to an environment where communications with the world wide web are bandwidth limited, expensive or intermittent. Bruner at [0011]. The invention comprises a system for remote users to access a telecommunications network. . . Bruner at [0013]. In a method of connecting remote internet users with a central telecommunications network, the said method comprises the steps of providing a remote internet server including means for connecting a remote internet user with the remote internet server, providing a ground based internet server for connection to the central telecommunications network and connecting the mobile internet server with said ground based internet server. Bruner at [0014]. Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	commerce") from a remote location 14, such as during the course of an airline flight. . . By using a communications network 22, such as provided by ground-based radio towers 25 and/or satellite based remote communication systems, the airborne based remote equipment 19 communicates with the network on the ground based central system 16. The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]; *see also id.* at FIG. 1. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Agarwal, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu. Bruner, Agarwal, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Agarwal, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Agarwal, Clark, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*, Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Agarwal at 3:38-44; *see also* Agarwal at 3:18-20, 3:45-63, FIG. 1. FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7; *see also* Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37. **HOW IT WORKS** Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations. Connexion by Boeing at Carol Ellison, *Unwire Everywhere*, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; *see also* Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at FIG. 2, 2-3.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25. ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure. Jahn I at 1; *see also* Jahn I at 1-2.

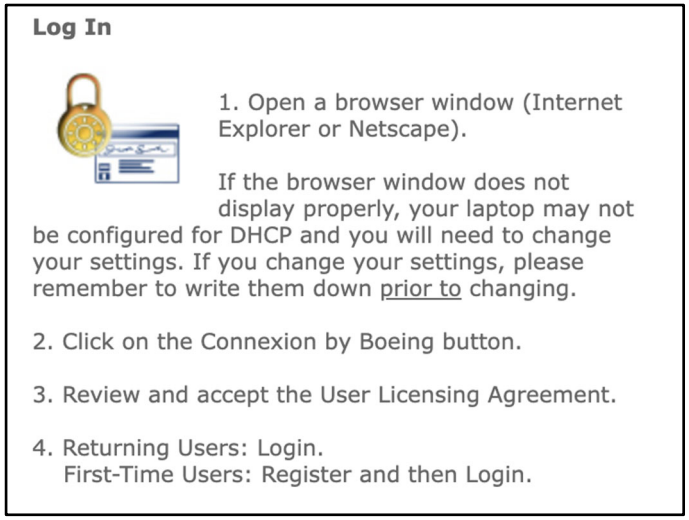
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. Jahn II at 2; *see also* Jahn II at 3, 7, 6, 8, FIGs. 1, 5. **Wireless** Check E-Mail, surf the web or play games ….from anywhere on the ship! Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access. A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; *see also* MTN Cruise Ship Internet Services at

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html. The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like. Wu at [0006]; *see also* Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	Bruner discloses "wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router." *See, e.g.*, The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. By using a communications network 22, such as provided by ground-based radio towers 25 and/or satellite based remote communication systems, the airborne based remote equipment 19 communicates with the network on the ground based central system 16. The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Also the ground based systems are interconnected with website containing data 31 which are preferably operated by partners 34 with the system 10 of the present invention. The system also has access to non-partner websites 37 to allow the airborne based user 13 to access information from other websites, or to browse the users e-mail server 40 so as to provide communication between the remote traveler 13 and his or her home system 40 via the internet. Bruner [0021]. The systems 10 topology is divided into three separate but interconnected components: the Ground Server Network (GSN) 43, the central home web server site 16; and the Airborne Data Server (ADS). The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground

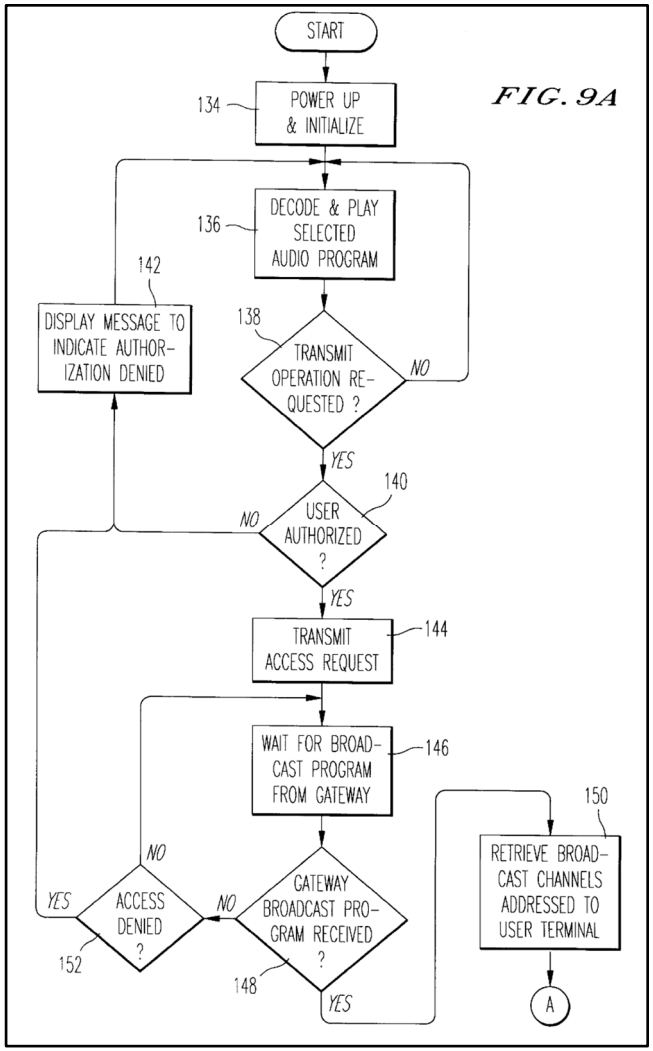
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. Bruner at [0023]. Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. Bruner at [0028]. By way of brief example, the user provides basic information, such as name, e-mail address, and any other personal information that the operator of the site wishes to capture for future reference. For example, it may be desired to know certain demographic data about the user, such as age, sex, and home location, in order to be able to provide designated information to users who fit profiles of generally recognized demographic information. This user profile information is then stored on the database server 49. Thus the next time the user accesses the site, that user inputs the log-in information and is then given access to the full content of the system 10. Bruner at [0029].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	In operation, the remote user 13 is presented the look and feel of being connected directly to the internet and merchant websites. Via the communication link 22 between the remote server 19 and the central server 16, the central server preferably periodically transmits updated website information from merchant websites to the remote server. Bruner at [0078]. When the remote user 13 has completed the transactions with the partner website 34, the remote server 19 transmits this transaction information to the central server 16. Similarly, the central server 16 transmits this transaction information to the partner website 34 which fulfills transactions executed by the remote user 13. In effect, the remote server 19 acts much like a local internet on the remote location 14, be it a moving vehicle like an airplane or ship or a land-based remote location. Bruner at [0079]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu. Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, or Wu, for example, to incorporate this limitation. *See, e.g.*,

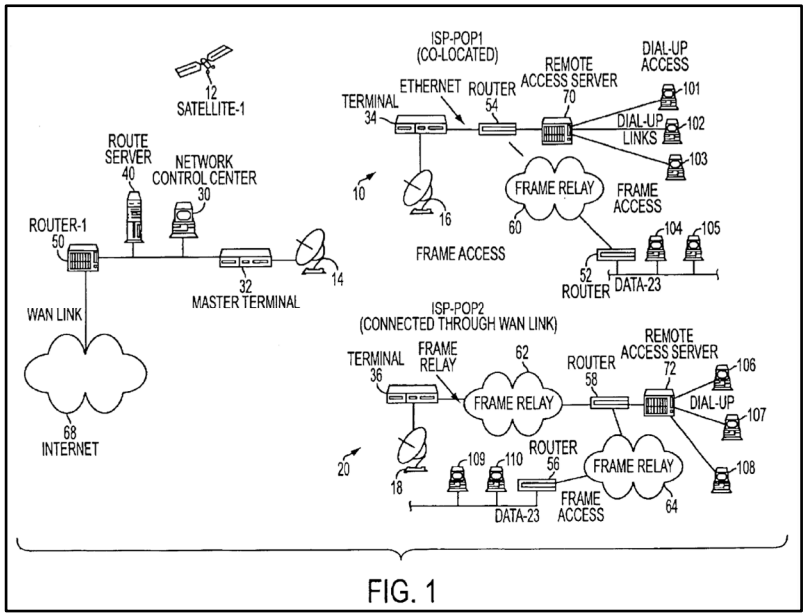
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	 Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9. > For these users, the only point of access to the private network 10 is through the network's own router 14, which is easily secured by the network administrator. At the same time, private network users/clients may be permitted to access the private network 10 via wireline network connections or via wireless mobile terminals 23 through private WAPs 21. Private WAPs are preferably maintained at locations that are not publicly accessible or are otherwise configured to limit access to authorized clients of the private network 10. These users can then gain access to the public network through the private network's router 14. Hagen at [0060]; *see also* Hagen at [0059], [0185], FIG. 14.

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	The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers. Jahn I at 3; *see also* Jahn I at 1-3, FIG. 1. Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 7-8; *see also* Jahn II at 3, FIGs. 1, 5. On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard. The Wi Fi network card costs $10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_09

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	1702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805. For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information. Nelson at [0107]; *see also* Nelson at FIG. 17, [0105]-[0106]. These and other objects of the invention are achieved in part by providing remote users with user terminals having both a receiver for receiving satellite direct radio broadcasting and a communication device for communicating with an Internet service provider via a communication link that is from a satellite direct radio system broadcast separate. Rothblatt I at 12; *see also* Rothblatt I at 10-12, FIGs. 1, 9A, 9B,

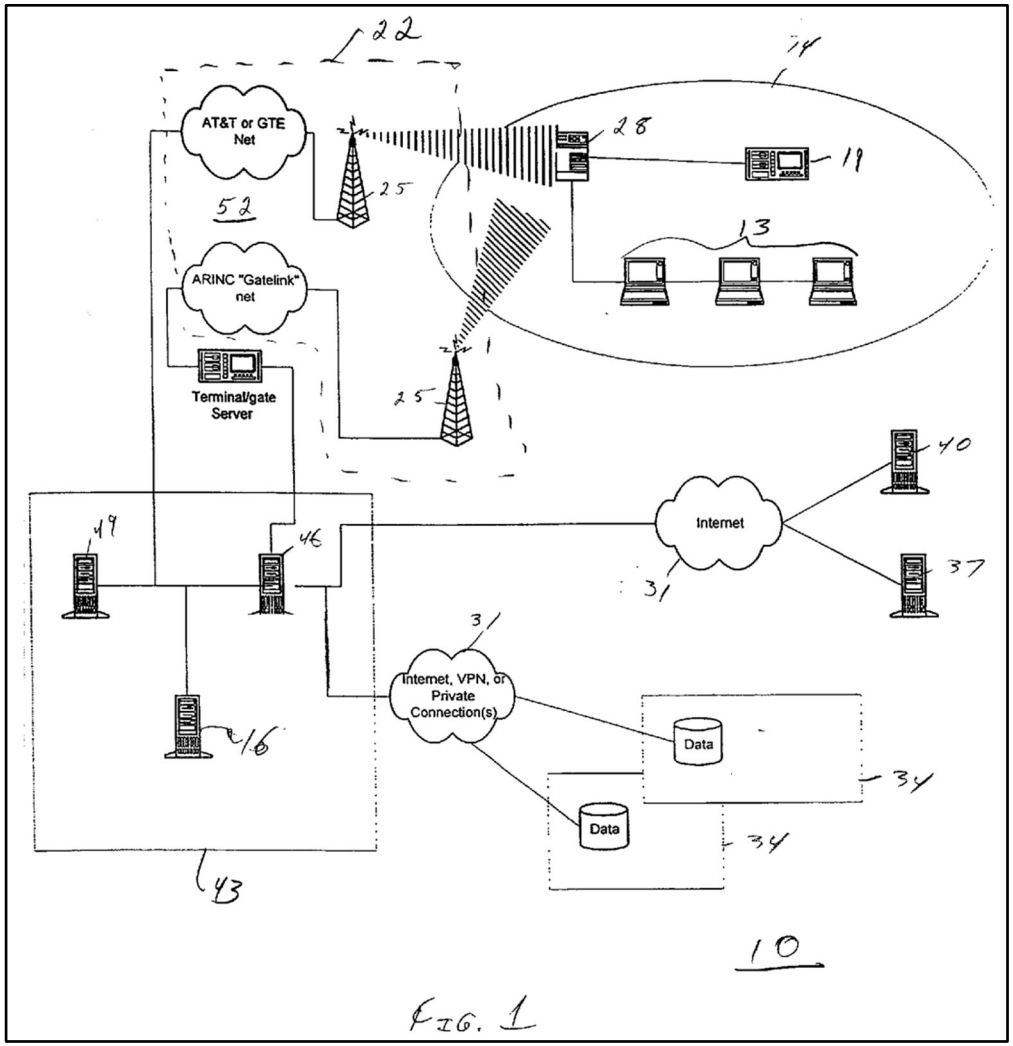
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Rothblatt II at FIG. 9A; *see also* Rothblatt II at 2:30-35, 3:20-23, 14:59-68, 15:32-65, 17:3-24; FIGs. 1, 5, 9B. > The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client." Wu at [0009]; *see also* Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.	Bruner discloses "wherein the data connection is one of a wired data connection and a wireless data connection." *See, e.g.*, > In a presently preferred embodiment, the system comprises a remote server computer located within the aircraft to control the operations of the system for the passengers in their seats at terminals or phone connections mounted in their seat location. Bruner at [0011].

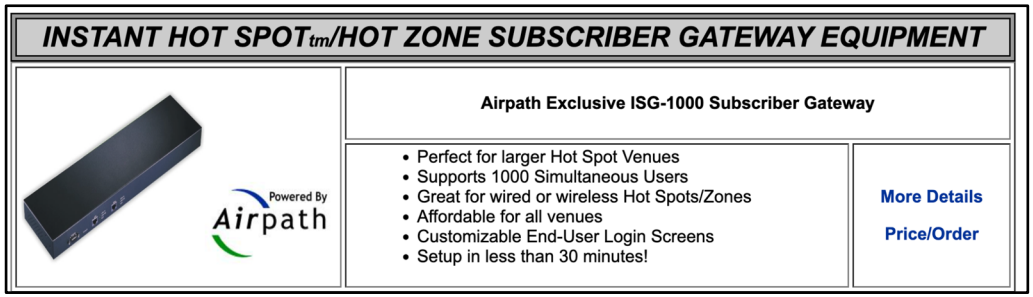
Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu. Bruner, Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*,  FIG. 1

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Agarwal at FIG. 1; *see also* Agarwal at 3:18-20; 3:38-63. The primary purpose of the system 100 is to provide mobile, wireless terminals 1 with access to network resources, although it can also provide such access to fixed or mobile terminals over wireline connections as well. Mobile, wireless terminal as used herein means any mobile, wireless terminal having a MAC or other unique equipment address, such as a digital cellular handset, wireless PIA or PDA, or a computer with a wireless network adaptor. Hagen at [0040]; *see also* Hagen at [0039], [0041], [0042], [0045], [0056], [0162]. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers. Jahn I at 2; *see also* Jahn I at 1-4. Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. Jahn II at Abstract; *see also* Jahn II at 3 ("The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers."). The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area

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	network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used. Nelson at [0035]; *see also* Nelson at [0028], [0034], [0043], FIG. 1. Furthermore, the cyberstation includes subsystems that permit it to communicate with the personal computers using wireless or optional wired connections. Ollikainen at 1:66 - 2:5; *see also* Ollikainen at 2:6-15, 2:16-26, 3:45-65, 3:66 - 4:16, 4:58 - 5:9. The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publicly accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations. Wu at [0023]; *see also* Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063]. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-	Bruner discloses "The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices." *See, e.g.*,

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ready devices.	 Bruner at FIG. 1; *id.* at [0018] ("FIG. 1 was a schematic diagram of the hardware used to operate

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	the system according to the present invention"). It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]. The above objects are attained by the present invention, according to which, briefly stated, a system is provided to allow remotely located Internet users, such as airline passengers, to conduct electronic commerce from the remotes location, for example, from their seats during the course of an airline flight. . . Thus the present invention utilizes intelligent caching and communication to provide effective internet access to remote users. In a presently preferred embodiment, the system comprises a remote server computer located within the aircraft to control the operations of the system for the passengers in their seats at terminals or phone connections mounted in their seat location. . . The connection is provided to the remote intranet system of the present invention to allow airline passengers to browse through information or purchase produces much in the same manner as they do with their ground-based home or office computer. Bruner at [0011]. Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-commerce") from a remote location 14, such as during the course of an airline flight. Bruner at [0021]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Bruner, Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.

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> The service scenario considers travelers in aircraft on the move. In the future, airliners will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travelers will soon be demanding wireless access to communication services.

Jahn I at 1; *see also* Jahn I at FIG. 1, 1-3, 5.

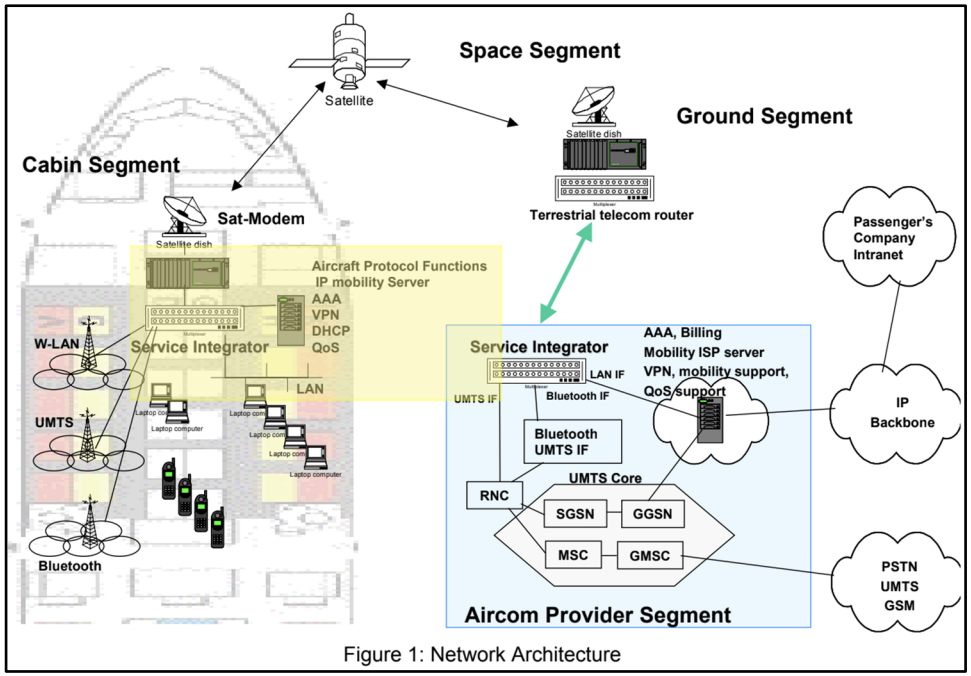
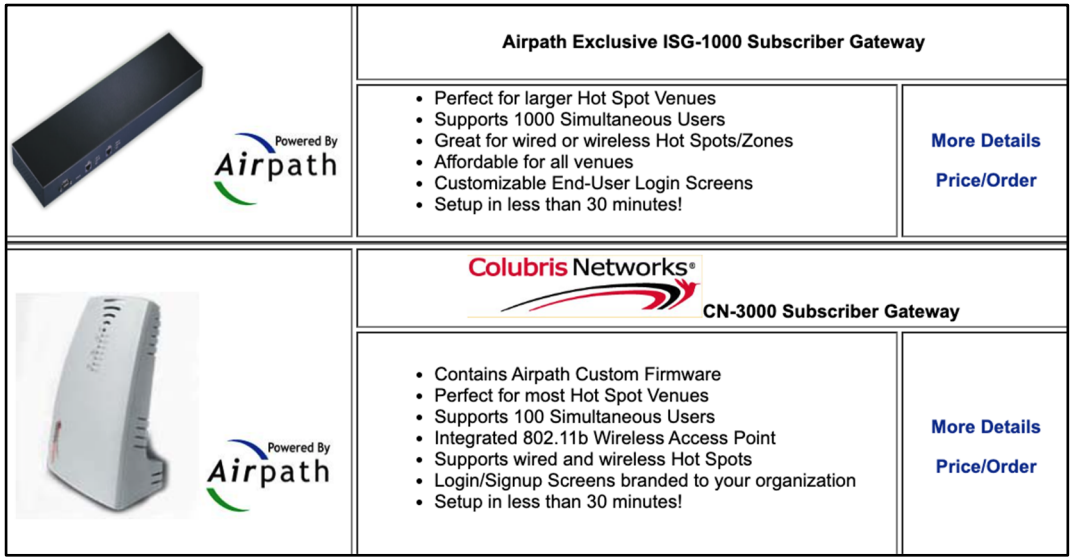


Figure 1: Network Architecture

Jahn II at 2, FIG. 1; *see also* Jahn II at 1-3, FIGs. 3-4.

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. Nelson at [0032]; *see also* Nelson at [0028], [0034]. Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; *see also* Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058]. To the extent that Bruner does not disclose any elements of this claim limitation, it would have

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.	Bruner discloses "The Internet Hotspot of claim 26, wherein the data connections include wireless data connections." *See, e.g.*, > The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. . . After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. Bruner at [0023]. > In addition, the user can gain access to his or her land based e-mail system 64 and or an aircraft's intranet 67, which is a system accessible only by those members on the flight or, more generally, those connected to the remote server 19, wherever it may be located. Bruner at [0030]. > In effect, the remote server 19 acts much like a local internet on the remote location 14, be it a moving vehicle like an airplane or ship or a land-based remote location. Bruner at [0079]. To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Airpath Wireless Hot

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu. Bruner, Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp. The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site. Jahn I at 4; *see also* Jahn I at 1-2, 4. When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Jahn II at 2-3, FIGs. 3-4. MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see generally id.* The cyberstation thus provides a means for implementing a variety of customized stand-alone receiver-transmitter stations that can provide service to multiple household or business personal computers using wireless or optional wire local area networks as a local

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	communication system. Ollikainen at 2:16-26. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037]; *see also* Wu at [0029], [0040], [0049], FIG. 1. To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.	Bruner discloses "The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network." *See, e.g.*, The mobile users are connected to a remote server which is in wireless communication with a central, land-based server. Bruner at Abstract. With the system 10 of the present invention, airborne users do not communicate directly with the ground network 43 but use the remote ADS server 19 as a router. Instead, all services are provided via a proxy or gateway services. Bruner at [0025].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	To the extent Bruner does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Bruner further renders the limitation obvious in light of other references, such as Clark, Hagen, Jahn I, Jahn II, Nelson, and Wu. Bruner, Clark, Hagen, Jahn I, Jahn II, Nelson, and Wu concern the similar subject matter as Bruner, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Bruner with Clark, Hagen, Jahn I, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Bruner with those of Clark, Hagen, Jahn I, Jahn II, Nelson or Wu, for example, to incorporate this limitation. *See, e.g.*, In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9. The system 100 generally comprises one or more geographically dispersed network access points, which in this embodiment are radio frequency wireless access points (WAP) 3, 4. The WAPs 3, 4 may be conventional devices equipped with wireless network adaptors embodying the IEEE 802.11 Wireless LAN or Bluetooth wireless network communications standards, or other devices providing similar functionality. Examples of such devices include the Home Wireless Gateway product sold by 3COM Corporation, the Spectrum High Rate AP 41X1 Ethernet Access Point product sold by Symbol Technologies, and the Aironet 340 Series Access Points product sold by Cisco Systems. Hagen at [0042]; *see also* Hagen at [0039], [0041], [0042], [0045].

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Jahn I at 2; *see also* Jahn I at 1-2. Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN." Jahn II at 3. The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; *see also* Nelson at FIG. 1, [0028], [0110]. The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; *see also* Wu at FIG. 1, [0052]-[0054]. It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The '469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the "wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or

Claim	U.S. Patent Application No. 2002/0138625 ("Bruner")
	future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard." '469 patent at 5:19-25. It was well understood that "each new 'flavor' of the technology results in a new suffix to 802.11." "Going WiFi" at 82; *see also id.* at 133 ("The fundamental components of a WLAN are clear-cut. And it's relatively easy to describe the 802.11 suite in basic networking terms."). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. *See also* "Going Wifi" at 116-117 ("The 802.11n Task Group is *working on a high-speed variant* of the existing 802.11 standards . . . However, don't expect to see these newer, faster standards for a number of years."). To the extent that Bruner does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Bruner, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

EXHIBIT E-4

Exhibit E-4 to American's Preliminary Invalidity Contentions

U.S. Patent No. 6,445,777 ("Clark")

U.S. Patent No. 6,445,777 ("Clark") titled "Mobile Tele-computer Network" was filed by Curtis Clark on December 21, 1998, and granted on September 3, 2002.[1] Clark is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a), (b), (e) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Clark does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Clark or combine the teachings of Clark with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to any combination of the following:

- Invalid under 35 U.S.C. § 102 by Clark;
- Invalid under 35 U.S.C. § 103 by Clark and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent No. 6,968,394 to El-Rafie ("El-Rafie") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2002/0075844 to Hagen ("Hagen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;

[1] Defendant's invalidity charts, in some instances, rely at least in part on Plaintiff's apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant's understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff's infringement contentions, or information obtained during discovery as the case proceeds.

- Invalid under 35 U.S.C. § 103 by Clark in view of Korean Patent No. 2003/0029267 to Hyunwoo Lee ("Lee") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent No. 6,377,981 to Ollikainen et al. ("Ollikainen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of Czech Patent No. 2,000,578 to Martine Rothblatt ("Rothblatt I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent No. 6,105,060 to Martine Rothblatt ("Rothblatt II") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent No. 5,987,430 to Van Horne et al. ("Van Horne") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of Airpath Wireless Hot Spot ("Airpath Wireless Hot Spot") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of Connexion by Boeing ("Connexion by Boeing") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of MTN Cruise Ship Internet Services ("MTN Cruise Ship Internet Services") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of StratosNet ("Stratos") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of Tenzing Global ("Tenzing Global") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of Wireless Cabin ("Wireless Cabin") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of "Aeronautical Communications for Personal and Multimedia Services via Satellite" by M. DeSanctis et al. ("DeSanctis") and the knowledge of a person of ordinary skill in the art;

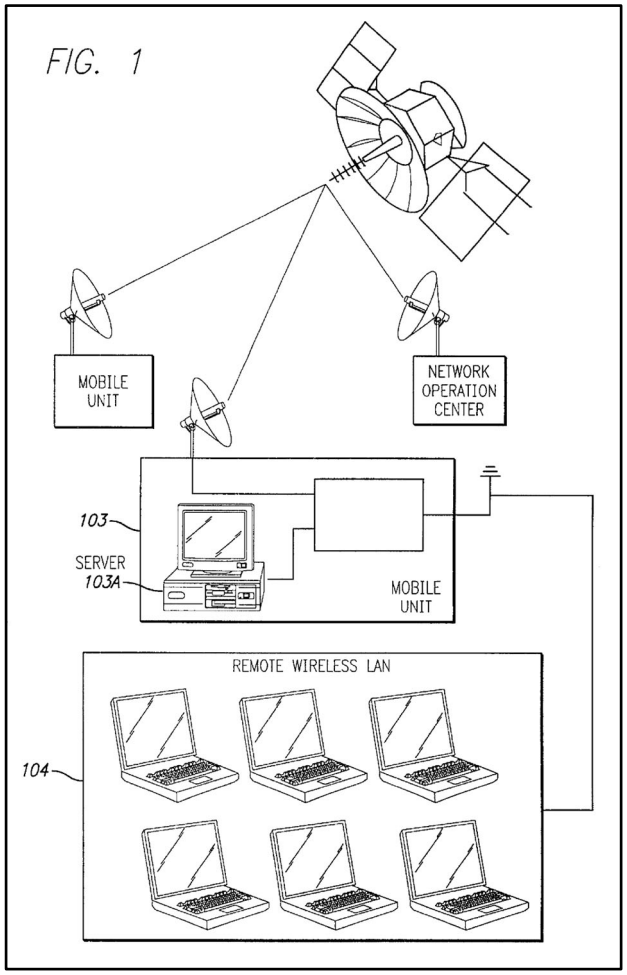
- Invalid under 35 U.S.C. § 103 by Clark in view of "Dimensioning of Aeronautical Satellite Services" by Jahn et al. ("Jahn I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Clark in view of "Passenger Multimedia Service Concept via Future Satellite Systems" by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner ("Jahn II") and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Clark in view of "Inflight Internet Connectivity Technology and Its Application on E-Commerce," by Manasuda Suwanateep ("Suwanateep") and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int'l Co. v. Teleflex, Inc.*, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. 398, 416 (2007). The Supreme Court further held: "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 417. The Supreme Court further held: "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id.* at 421.

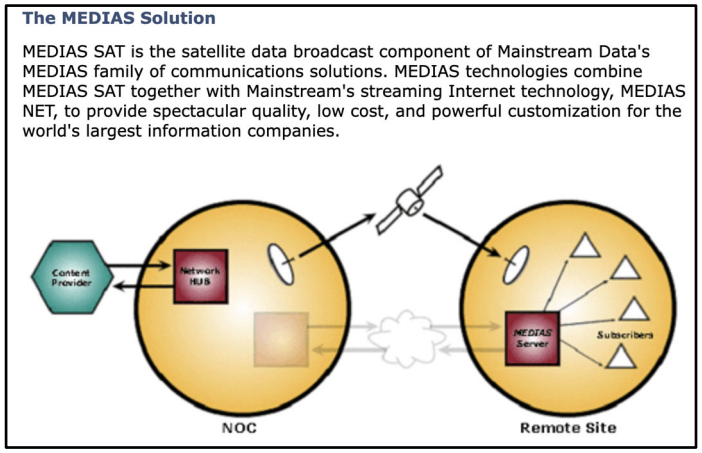
Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	U.S. Patent No. 6,445,777 ("Clark")
[24] An Internet Hotspot comprising:	To the extent the preamble is limiting, Clark discloses an Internet Hotspot. *See, e.g.*, A telecomputer network is described. The network of the present invention includes a wireless voice and data wide area network (WAN) comprises a digital satellite communications system with a network operations center that controls voice and data traffic. The network also comprises at least one mobile communication hub and a wireless local area network (LAN). Clark at 2:8-14.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	A tele-computing network architecture is described. In one embodiment, the network comprises a wireless local area network (LAN), at least one mobile hub, and a wireless wide area network (WAN) that includes a satellite communication System with a network operations center to control Voice and data traffic. Clark at 2:53-57. Wireless LANs at individual locations are linked to the Satellite communications System of the present invention. In one embodiment, the LAN 104 is a wireless ethernet LAN connecting multiple remote personal computers (PCs) as nodes. In one embodiment, the LAN 104 covers an "on site' radius of up to /2 mile at 2 Mbps from a mobile hub station, Strategically placed at the designated location, Such as mobile vehicle 103. For instance, the LAN 104 may be at the production's location LAN to service the location tele computing communication needs of a film or TV production unit, even when shooting on a Stage or Studio lot. Clark at 4:7-17. Acting as a "gateway" onto the full range of public Internet Services, clients access any part of the Internet from their remote location nodes connected through one of a wireless LANs of the present invention, as well as from any conventional or cellular phone connection. Clark at 5:16-21.
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	Clark discloses "a satellite dish communicating with the Internet via one or more data links with a satellite." *See, e.g.*,

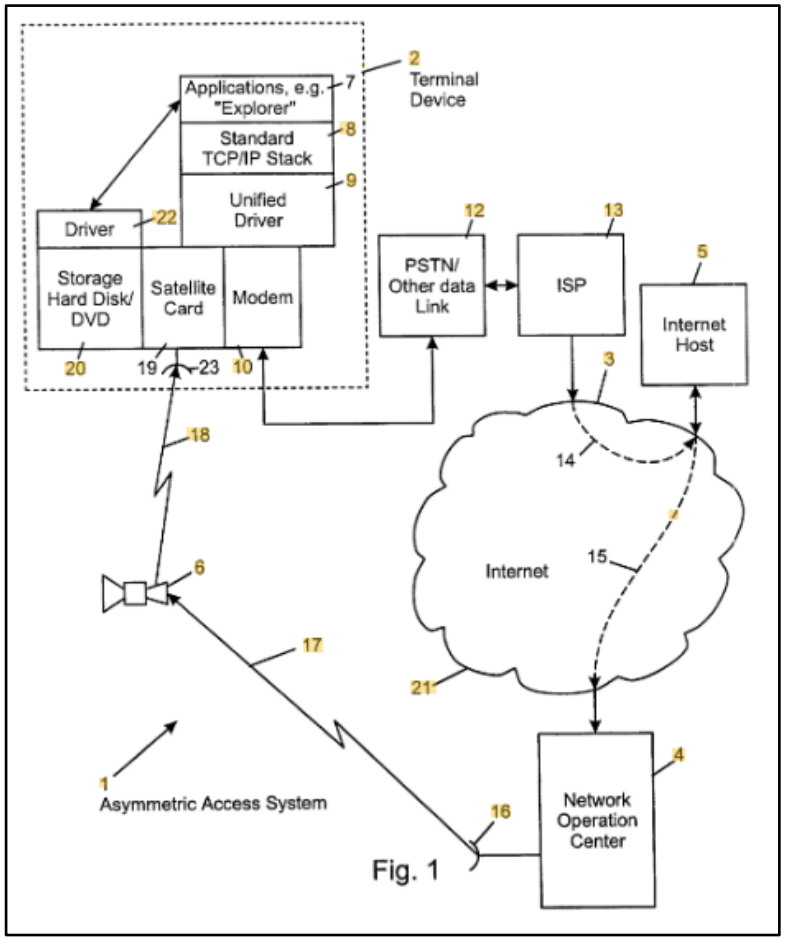
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention."). In one embodiment, the Satellite and terrestrial microwave communication System

Claim	U.S. Patent No. 6,445,777 ("Clark")
	transfers information using a Satellite transponder or fixed terrestrial microwave radio via an ethernet packet Switching protocol Such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World WideWeb. Clark at 3:1-6. FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos. Clark, Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and/or Stratos would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, or Stratos, for example, to incorporate this limitation. *See, e.g.*,

Claim	U.S. Patent No. 6,445,777 (“Clark”)
	 Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/_soln/soln2.html;*see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html;https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.html. Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes

Claim	U.S. Patent No. 6,445,777 ("Clark")
	14, 16, 18 to Internet Service Providers, *e.g.*, 10 or 20, and can also be used to connect corporate sites. Agarwal at 3:38-41; *see also* Agarwal at FIG. 1, 3:18-20, 3:38-63. For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications. Bruner at [0080], [0035] ("Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft."); *see also* Bruner at [0015], [0018], [0021], [0035], [0080].

EXHIBIT E-4

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 El-Rafie at FIG. 1; *see also* El-Rafie at 4:56-5:19.

Claim	U.S. Patent No. 6,445,777 ("Clark")

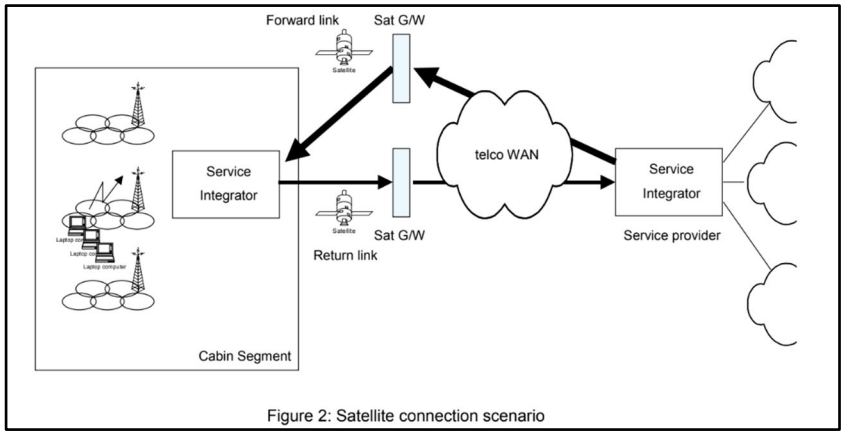


Figure 2: Satellite connection scenario

Jahn I at FIG. 2; *see also* Jahn I at 1-3, FIG. 1.

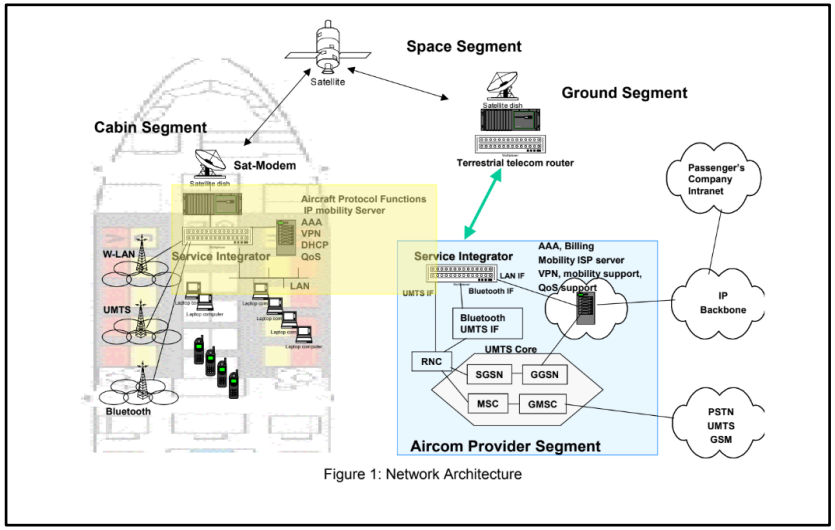
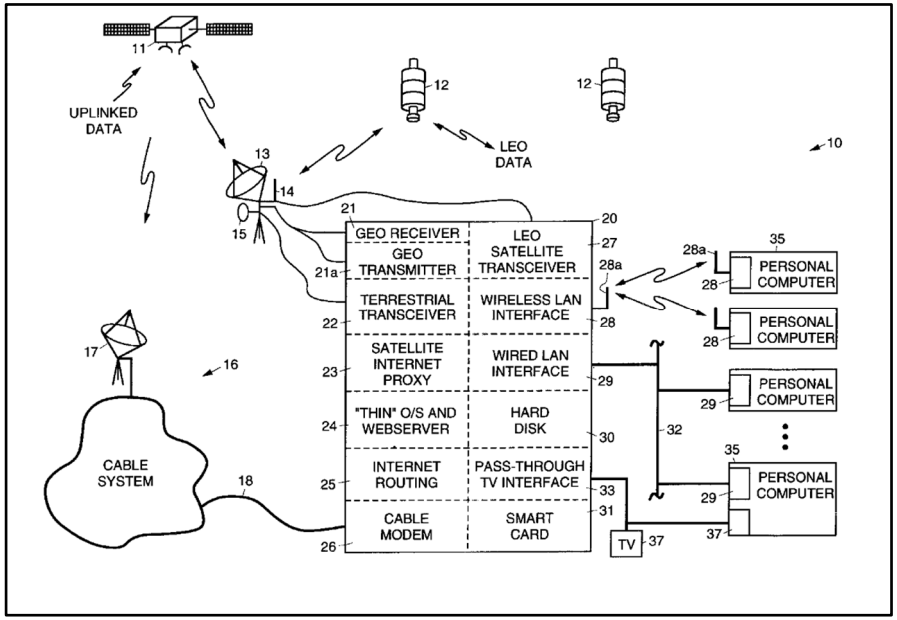
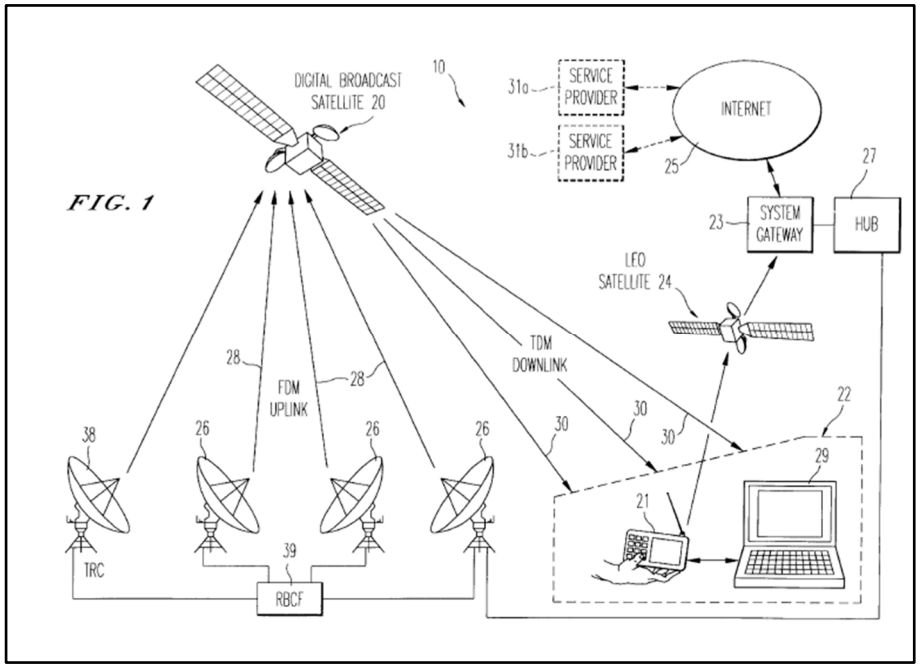


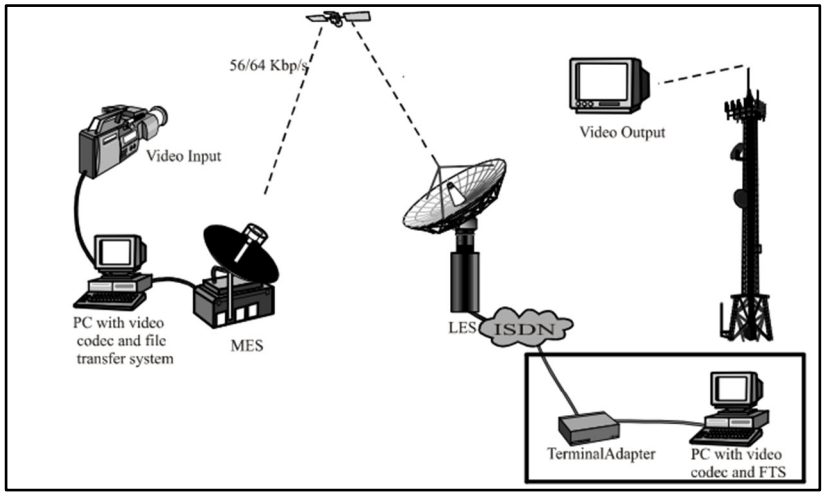
Figure 1: Network Architecture

Jahn II at FIG. 1; *see also* Jahn II at 2-4.

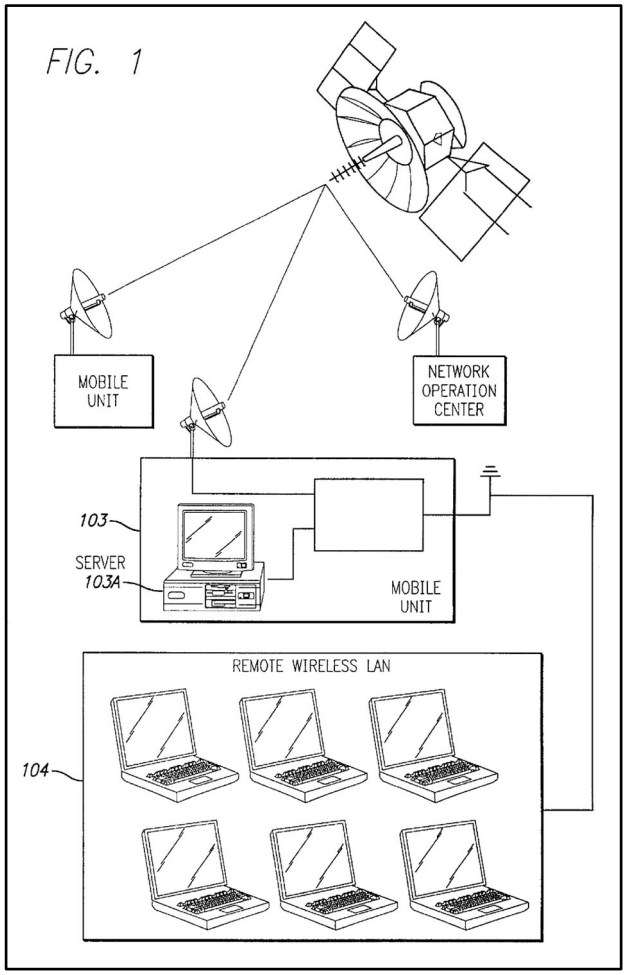
The system architecture 600 further includes on the aircraft a DSS receiver/decoder and

Claim	U.S. Patent No. 6,445,777 ("Clark")
	antenna (not shown) to help facilitate the broadband service. Nelson at [0056]; *see also* Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.  Ollikainen at FIG. 1; *see also* Ollikainen at 2:58-3:45; 3:65-4:17.

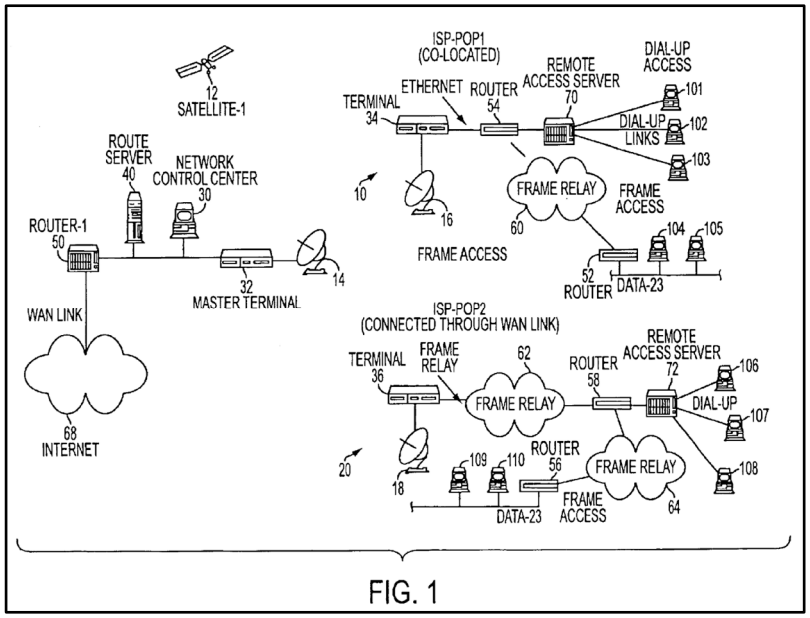
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Rothblatt I & II at FIG. 1; *see also* Rothblatt I at FIGs. 3, 5, 1-2, 5, 8-9; Rothblatt II at FIGs. 3, 5, 2:16-21, 2:46-64, 3:12-15, 6:20-27.

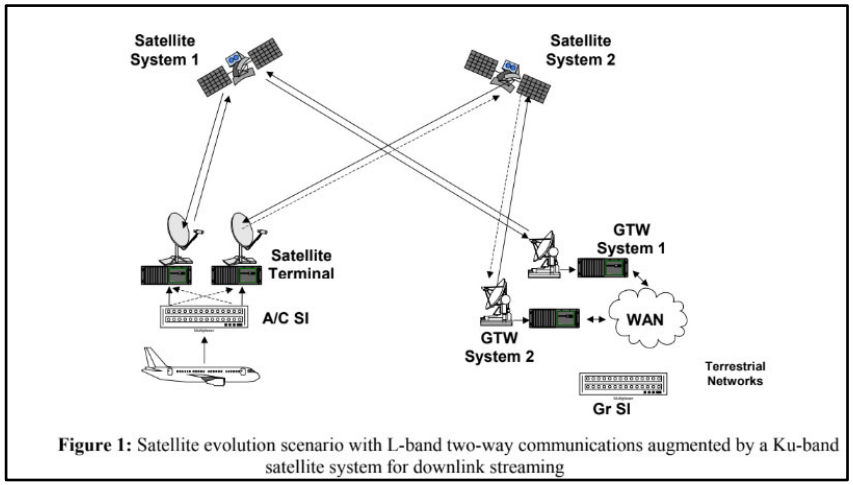
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; .https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark,

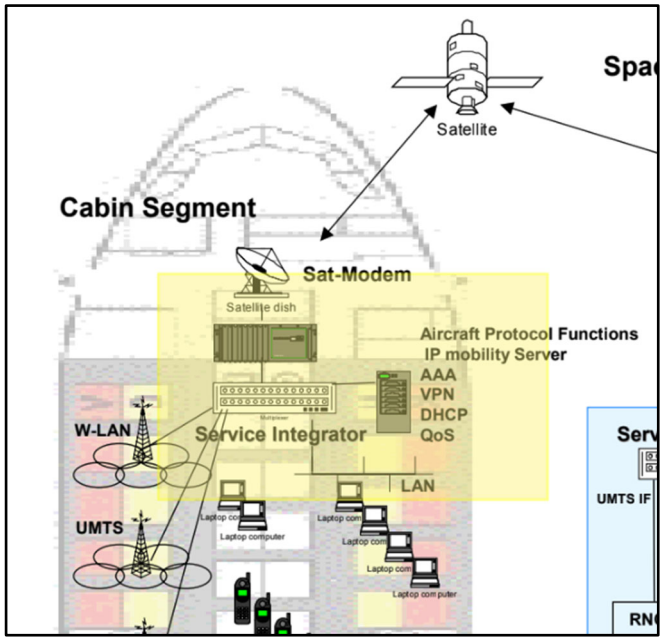
Claim	U.S. Patent No. 6,445,777 ("Clark")
	those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that satellite dishes were a routine and commercially available component of satellite-enabled multi-user wireless Internet architecture. *See, e.g.,* Clark at Cover.
[24.b] at least one router operatively coupled to the satellite dish;	Clark discloses "at least one router operatively coupled to the satellite dish." *See, e.g.*,

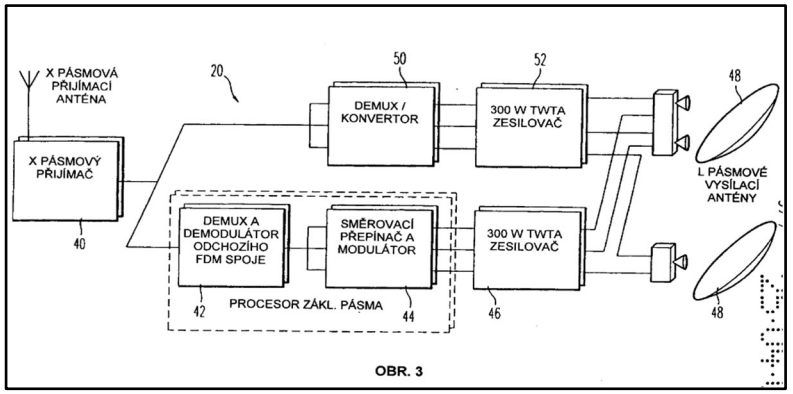
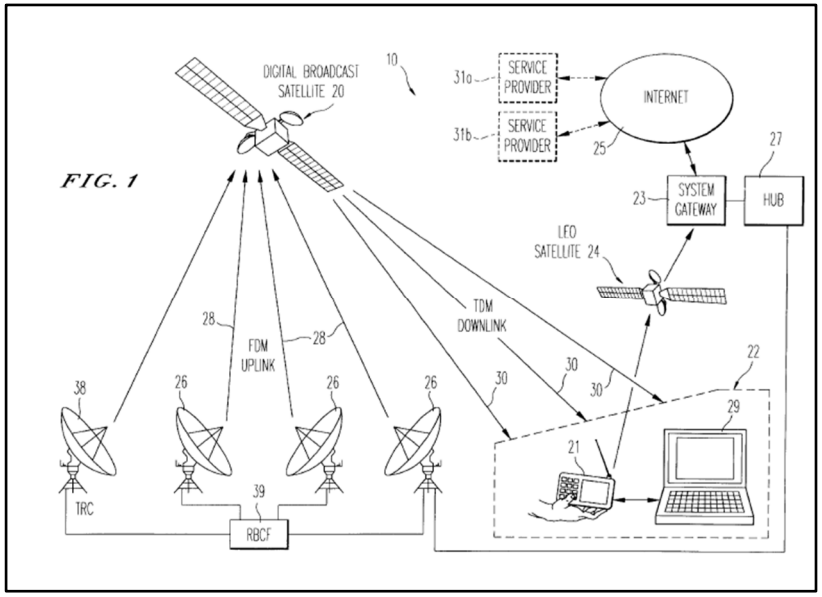
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention."). FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the

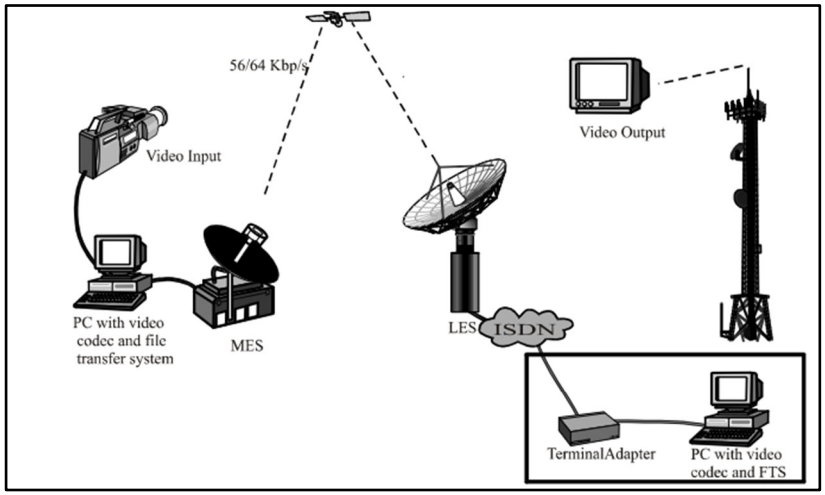
Claim	U.S. Patent No. 6,445,777 ("Clark")
	system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7. 13. A telecomputer network system comprising: a satellite communications system; a wireless local area network (LAN); and a mobile hub station configured to transfer information as a single nomadic transmission/reception point between the satellite communication system and the wireless LAN, such that information is transferred over the network using ethernet packet switching protocol. Clark at 9:34-42. 17. The network defined claim 13 wherein the satellite communication system comprises a network operations center, a plurality of hubs, wherein each hub comprises a wireless router and a relay station to relay information between hubs. Clark at 9:51-55. 18. The network defined claim 13 wherein the mobile hub station comprises an uplink to the satellite communication system. Clark at 10:1-3. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu. Clark, Agarwal, DeSanctis, Jahn I,

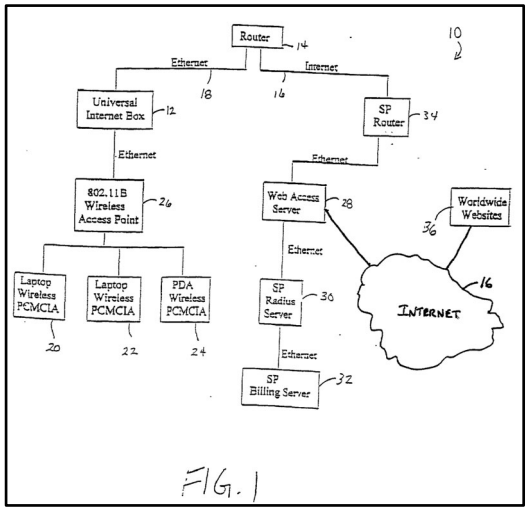
Claim	U.S. Patent No. 6,445,777 ("Clark")
	Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Agarwal, DeSanctis, Jahn I, Jahn II, Rothblatt I, Rothblatt II, Seo, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*,  FIG. 1 Agarwal at FIG. 1; *see also* Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at 3-4, *see also* DeSanctis at FIG. 2.

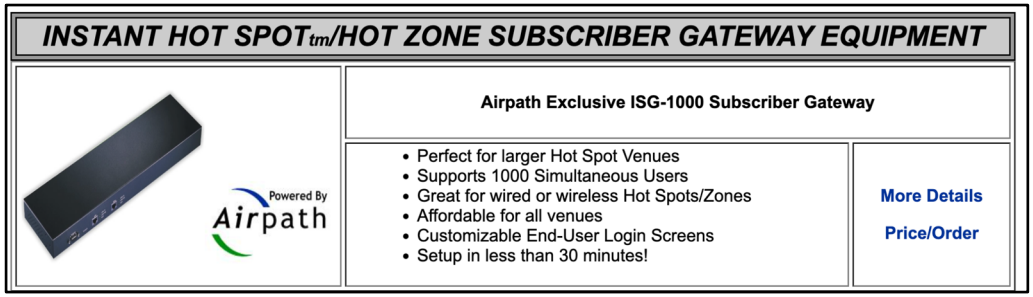
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Jahn I at 2, FIG. 1 (excerpt); *id*. ("The WirelessCabin architecture and its components are conceptually depicted in Figure 1."); *see also* Jahn I at 2-4, FIG. 2. In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Rothblatt I at FIG. 3; *see also* Rothblatt I at FIG. 5, 2, 12.  Rothblatt II at FIG. 1, *see also* Rothblatt II at FIG. 5, 3:20-23, 11:55-65, 16:28-48; 17:9-16.

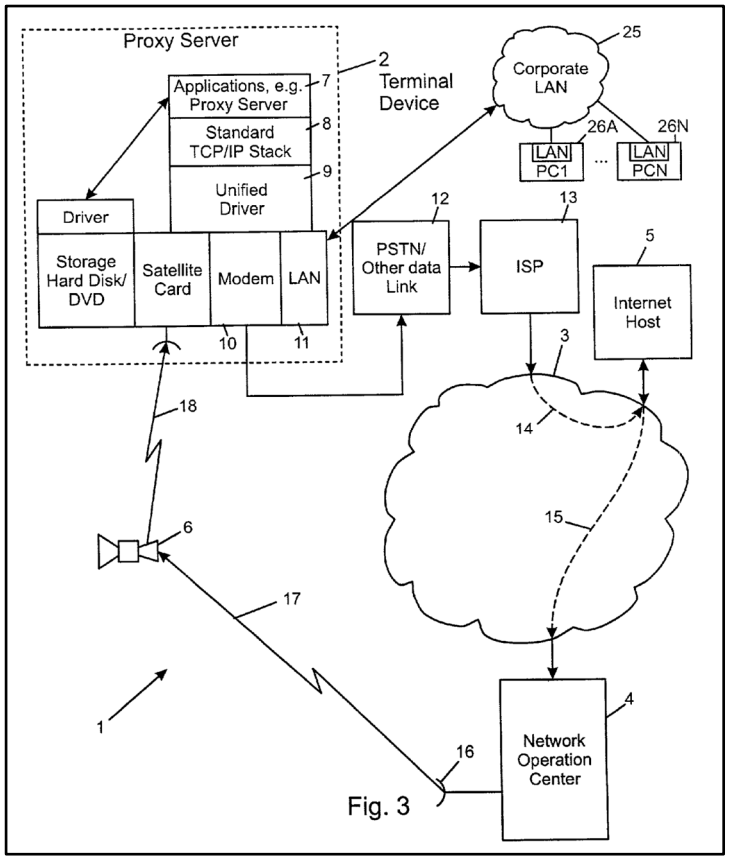
Claim	U.S. Patent No. 6,445,777 ("Clark")
	The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; *see also* Seo at [0033], [0026]-[0027], [0049]-[0051].  Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Wu at FIG. 1. Wu at [0021] ("FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention"); *see also* Wu at [0058]-[0059]. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that satellite dishes were a routine and commercially available component of satellite-enabled multi-user wireless Internet architecture. *See, e.g.,* Clark at Cover.
[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit	Clark discloses "a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet." *See, e.g.*,

Claim	U.S. Patent No. 6,445,777 ("Clark")
being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet; and	The wireless WAN is preferably a secure network. In such a case, software programs provide a secure "fire wall" to bar unauthorized entry from the public Internet. In one embodiment, access codes and passwords are used to control access to data available through the network. In one embodiment, encryption is used on all data traffic between designated locations and our secured intranet servers and the high speed wireless digital network. Such security in the form of software is well-known in the art. Clark at 3:36-44. In one embodiment the LAN is secure. The LAN may employ Standard encryption or logging on Security. In an alternate embodiment, the LAN includes Video conferencing capabilities. Clark at 4:18-21. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Lee, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu. Clark, Airpath Wireless Hot Spot, Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Airpath Wireless Hot Spot, Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Airpath Wireless Hot Spot, Bruner, El-Rafie, Hagen, Jahn I, Jahn II, Mody, MTN Cruise Ship Internet Services, Ollikainen, Rothblatt I, Rothblatt II, Seo, Stratos, Van Horne, or Wu, for example, to incorporate this

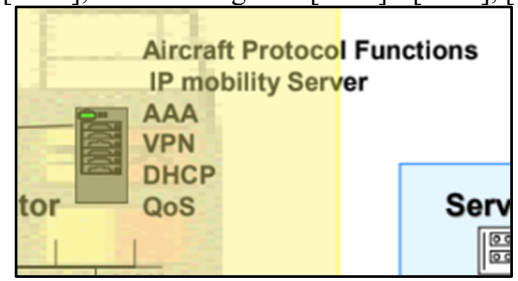
Claim	U.S. Patent No. 6,445,777 ("Clark")
	limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; *see also* https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm. > The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. Bruner at [0023]; *see also* Bruner at FIGs. 2-3, [0021]-[0032], [0080].

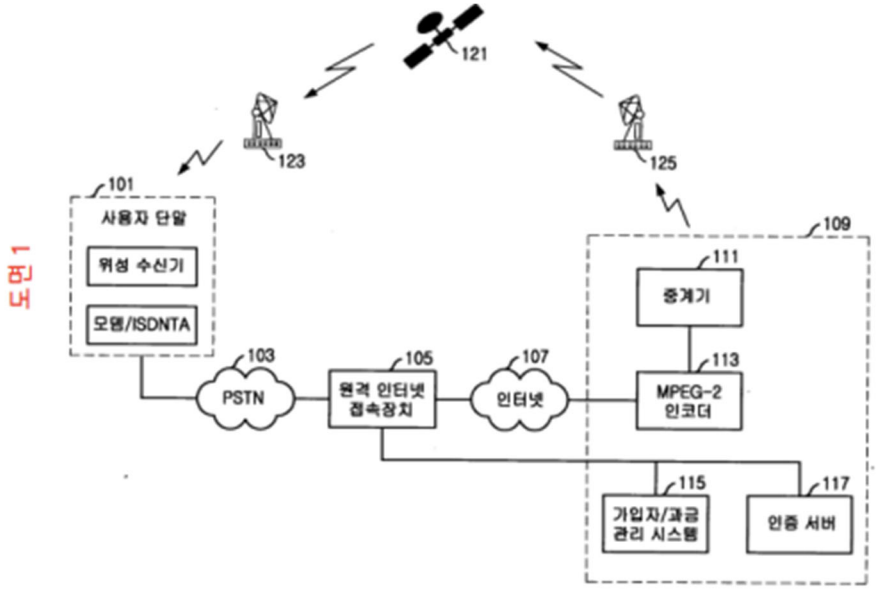
Claim	U.S. Patent No. 6,445,777 ("Clark")



El-Rafie at FIG. 3; *see also* El-Rafie at 4:50-67.

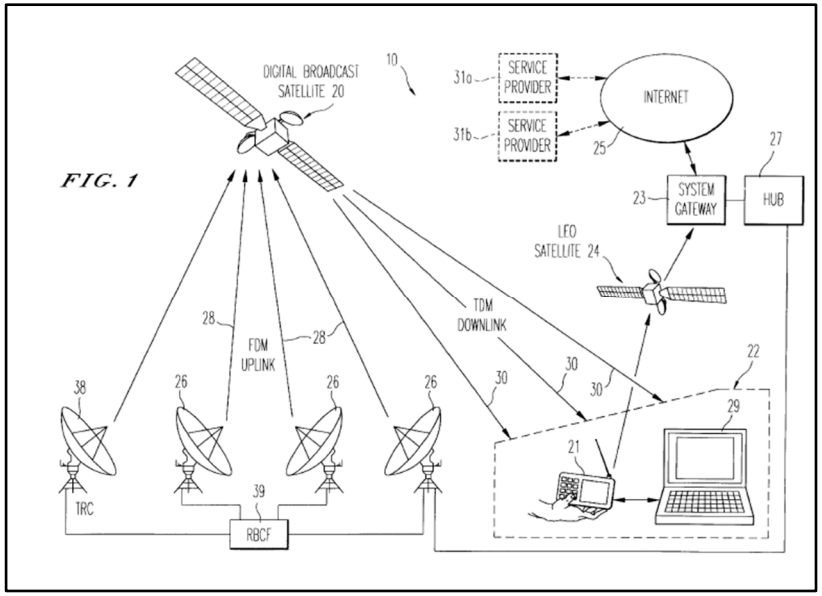
Thus, as described in detail herein, the NAS performs registration, authentication, and other functions necessary to provide visiting mobile terminals with access to the public network 16, while simultaneously controlling access by such visitors to the local private network 10, whose public network connection resources are being used to provide such

Claim	U.S. Patent No. 6,445,777 ("Clark")
	access. Hagen [0043]; *see also* Hagen at [0011] - [0013], [0048], [0050], [0059], [0066], [0093].  Jahn I at 2, FIG. 1 (excerpt); *see also* Jahn I at 2-3. It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 8; *id*. at 2-3, 7. One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	Kalavade at [0056]; *id.* at [0207] ("The access server at the hotspot, such as, *e.g.*, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.  Lee at FIG. 1; *see also* Lee at [0001], [0003], [0015] - [0016], [0018] - [0019], [0025] - [0035], [0037], FIG. 1, FIG. 3. When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18_1, 18_2, . . . 18_n) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20

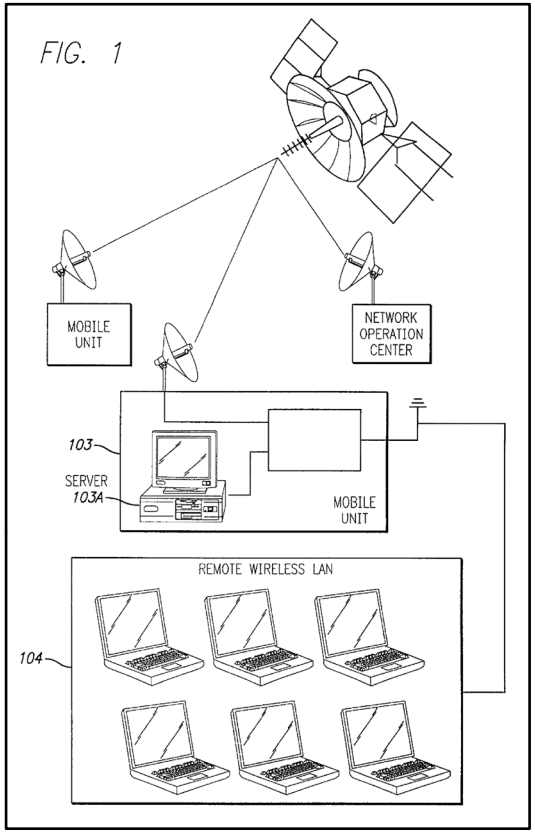
Claim	U.S. Patent No. 6,445,777 ("Clark")
	configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (*e.g.*, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN Mody at [0019]; *see also* Mody at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. *See also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm. The cyberstation 20 provides continuous connectivity to satellite-based data delivery services with a full-time low-bandwidth LEO return path to support information requests, feedback delivery, data billing and status/diagnostic reporting.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	Ollikainen at 3:6-23; *see also* Ollikainen at 4:24-31. The identification code is preferably assigned to the user by the ISP when the user subscribes to the Internet via the user terminal 22. The ISP may assign the user an identification code, password, or both, and require that the user be for example, it sends to the user terminal 22 an Internet browser screen, one or both of these identifiers entered via a keyboard 122 or a card reader 126. Alternatively, the LEO transceiver 84 may include a wireless modem, which may be recognized by the ISP upon initiation of the login sequence from the user terminal 22. Rothblatt I at 10; *see also* Rothblatt I at 2, 11-12, FIGs. 1, 5.  FIG. 1 Rothblatt II at FIG. 1; *see also* Rothblatt II at FIG. 5, 3:20-23, 3:62-4:3, 11:55-65, 14:59-68, 15:32-65. A subscriber authenticated as a predetermined multicast group connects with the

Claim	U.S. Patent No. 6,445,777 ("Clark")
	management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; *see also* Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d. Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html; https://web.archive.org/web/20060320175337/http://www.stratosglobal.com/documents/factSheets/sdx1100_userGuide_overview.pdf; https://web.archive.org/web/20120413092410/http://www.stratosglobal.com:80/About%20Stratos/~/media/Documents/Corp/Public/corp/corp_financial/corp_financial_annualReport2002FinancialsOnly.ashx. In the next step, the client software determines if billing information has been pre-stored in memory. Preferably the user has pre-stored such billing information, such as during the

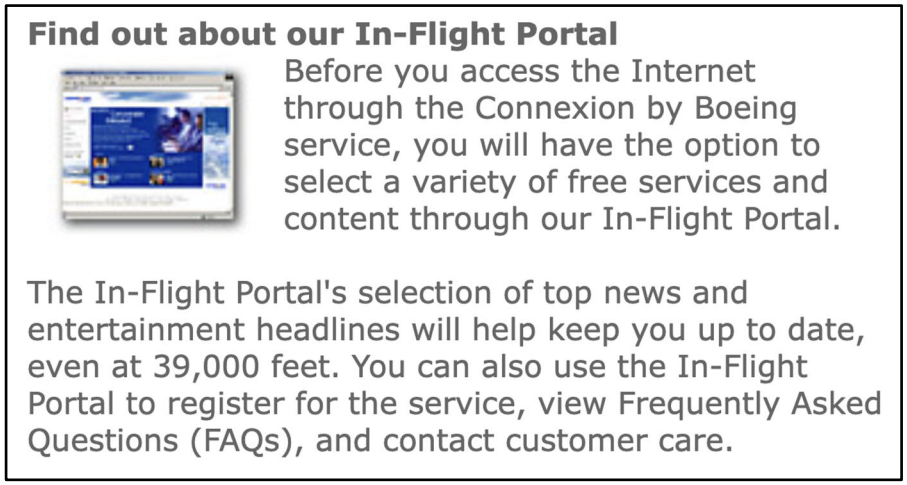
Claim	U.S. Patent No. 6,445,777 ("Clark")
	set-up process and this information is read from memory. The software 90 checks for stored billing information. If there is pre-stored billing information, "yes" is returned in step 648. If there is no pre-stored billing information, processing proceeds to a series of billing information requests (steps 649-653) in which billing information is requested from the user. In an alternative embodiment, billing is not required and processing proceeds to step 665. Van Horne at 8:66-9:9; *see also* Van Horne at 11:3-17, 12:29-43, 16:49-17:30. The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; *see also* Wu at [0010]-[0019] ("querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check."), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063]. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions. It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. *See* "Going WiFi" Glossary ("AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for

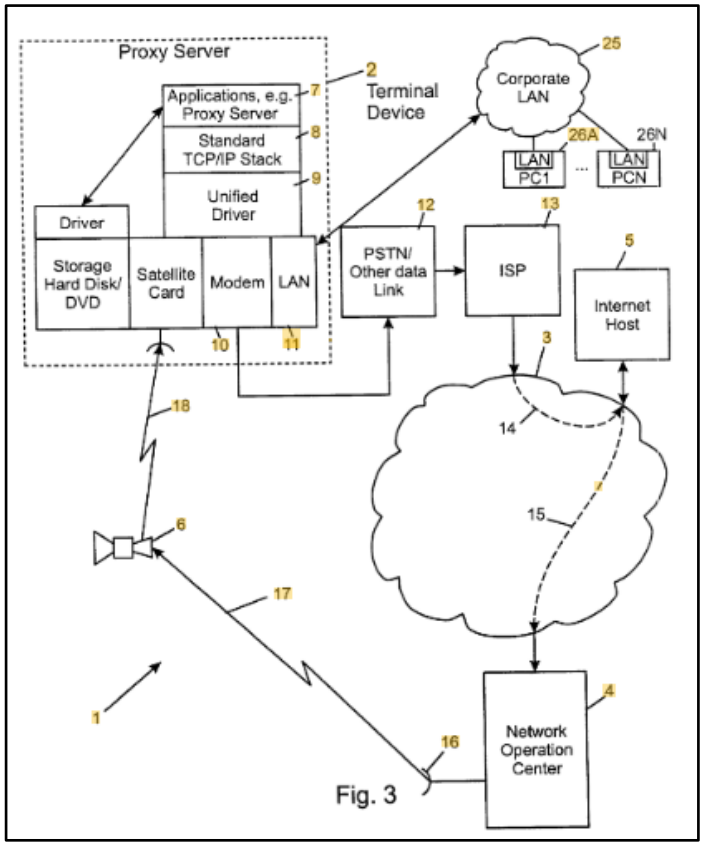
Claim	U.S. Patent No. 6,445,777 ("Clark")
	services.").
[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;	Clark discloses "a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet." *See, e.g.*,  Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention."). FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the

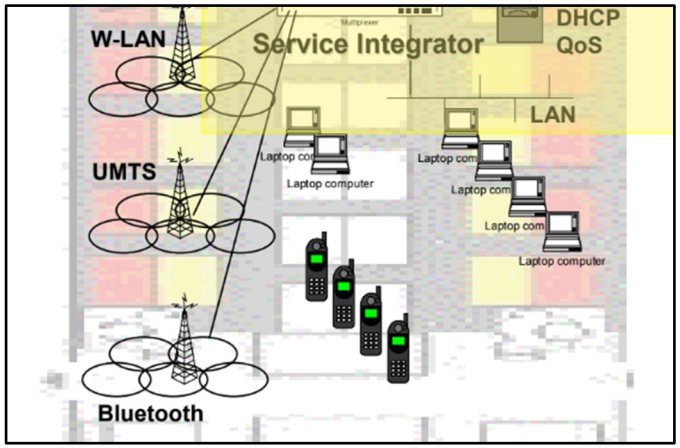
Claim	U.S. Patent No. 6,445,777 ("Clark")
	system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7. In one embodiment, incorporated within its Web-based software applications, the service provides e-mail, downloading or uploading files from the FTP sites and Internet Relay Chat (IRC), as well as video conferencing. The system of the present invention may also offer the latest developments in "Web phone" voice communications and switched telephony from within the LAN to any telephones covered by local microcells outside the range of the LAN. This replaces conventional cellular phone connections and is seamlessly integrated with the Intranet's multi-media environment. Acting as a "gateway" onto the full range of public Internet services, clients access any part of the Internet from their remote location nodes connected through one of a wireless LANs of the present invention, as well as from any conventional or cellular phone connection. Clark at 5:6-21. Wireless local LAN connectivity and wireless phone Systems may be provided for personal mobility. It may be equipped with two fully automated antenna Systems for image delivery and production Intranet Services. Other functionalities, as described below, may be included for full wireless connectivity. Optional items include: Portable NT Graphics Workstation and/or Portable SGI Graphics Workstation Collaborative Videoconferencing (High Quality System) Real-time 4:2:2 NTSC/PAL digital video and audio Portable Digital Video Assist Recorder Additional Notebooks Clark at 7:21-33.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu. Clark, Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Bruner, Connexion by Boeing, El-Rafie, Jahn I, Jahn II, Kalavade, Ollikainen, Rothblatt I, Rothblatt II, Stratos, Suwanateep, or Wu, for example, to incorporate this limitation. *See, e.g.*, > The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. Bruner at [0021] *see also* Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] ("Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems."), [0029]-[0030] [0070], [0076], [0078], [0079].

EXHIBIT E-4

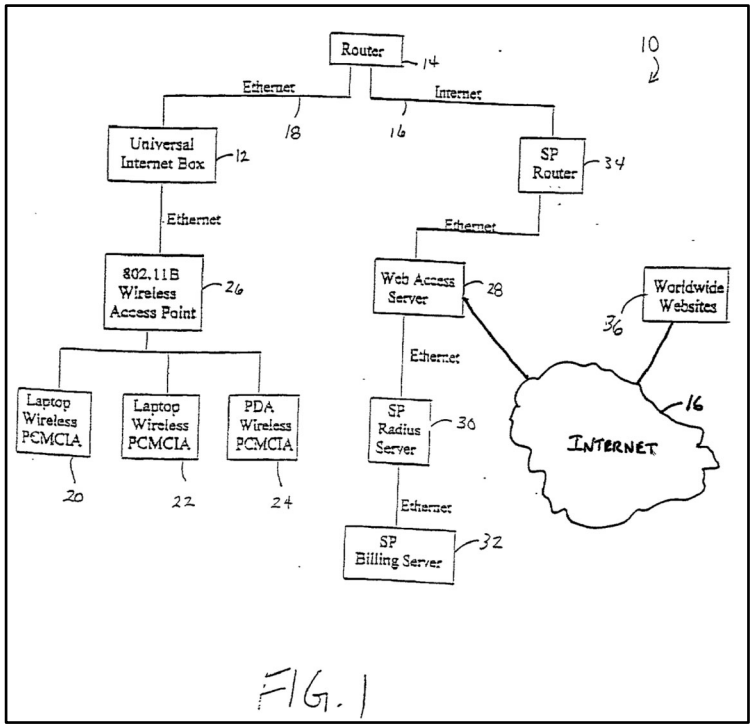
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9; *see also* Suwanateep at 12, 16-17, 32-33; Jones 755-56; Abarbanel at 6.

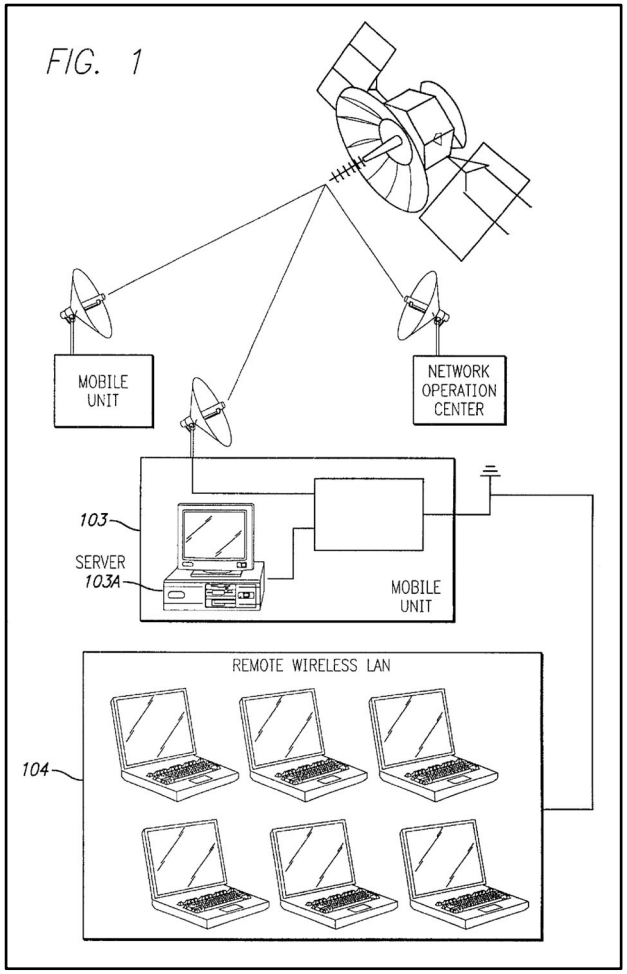
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Jahn I at 2, FIG. 1; *see also* Jahn I at 1-2. Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a **wireless access** solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). Jahn II at 1; *see also* Jahn II at FIGs. 1-2, 5, Abstract, 1-2. In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface. Kalavade at [0071], [0072] ("A user comes to a hotspot and starts accessing the Internet through

Claim	U.S. Patent No. 6,445,777 ("Clark")
	his laptop."). When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. Internet routing software 25 provides the services of a router to route incoming broadcast and interactive data to the appropriate personal computer 35. Ollikainen at 3:31-44; *see also* Ollikainen at FIG. 1. In another aspect, the invention is directed to a method of providing global Internet access for inexpensive portable user devices. The method comprises the steps of generating an Internet access request in a portable -user terminal and sending a request to an Internet service provider via a first communication link. The ISP then determines whether the user terminal has access to the Internet and then provides the screens and multimedia data required by the user terminal to the broadcast station. The transmitting station transmits the screens and data to the user terminal via a satellite-based radio system. The user terminal either reproduces or processes the data according to the user's wishes. The user terminal continues to send responses and requests to the Internet service provider over the communications link and receive broadcast screens and multimedia data from the satellite until the Internet connection is terminated. Rothblatt I at 10; *see also* Rothblatt I at 1-2, 10-12, FIG. 1. If the user is authorized to have Internet access, the system gateway 23 sends an Internet homepage or Web browser information to the user terminal via an FDM uplink 28 of the direct radio broadcast system.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	Rothblatt II at 16:57-61; *see also* Rothblatt II at 3:62-4:3, 15:57-61, 16:49-56, FIG. 1. **Optional Web Browsing** Standard Internet service normally includes Internet e-mail, as well as the capability to browse the web. *StratosNet* can do this as well, along with an FTP (File Transfer Protocol) capability, however, we also realize that some satellite terminals may not want the ability to browse the web to be available to users of their satellite phone. Therefore, Stratos offers the option to disable web browsing on your *StratosNet* account. Stratos at https://web.archive.org/web/20030313230837/http://www.commswest.com:80/Stratos/stratos_net.pdf; *see also* Stratos at https://web.archive.org/web/20030312185057/http://home.stratosnet.com:80/appnotes/sn_ie.pdf; https://web.archive.org/web/20040612173303/http://www.stratosglobal.com:80/documents/factSheets/stratosNet_tc.pdf; https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030726011831/http://www.stratosglobal.com/solutions/environment/air/inmarsat/stratosNet.html; https://web.archive.org/web/20031009070733/http://www.stratosglobal.com/solutions/environment/land/inmarsat/bgan.html.

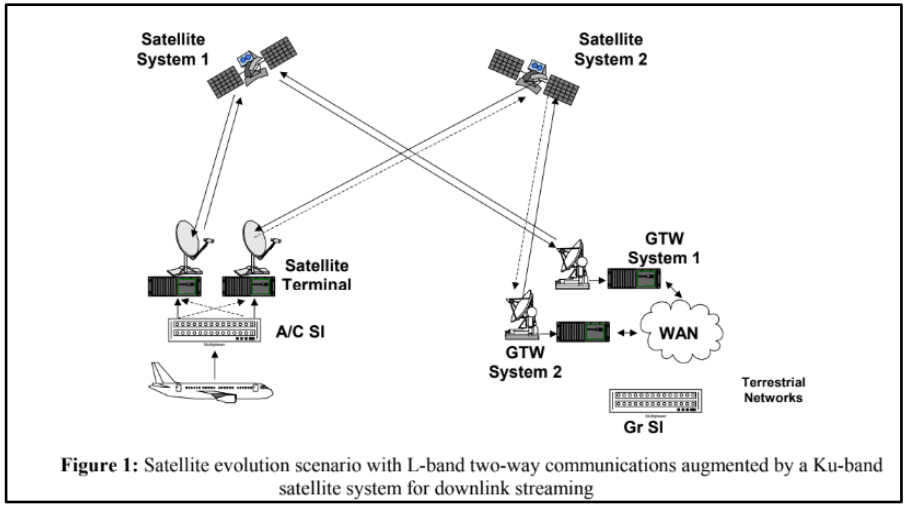
Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Wu at FIG. 1. Wu at [0038] ("The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like."); *see also* Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063]. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

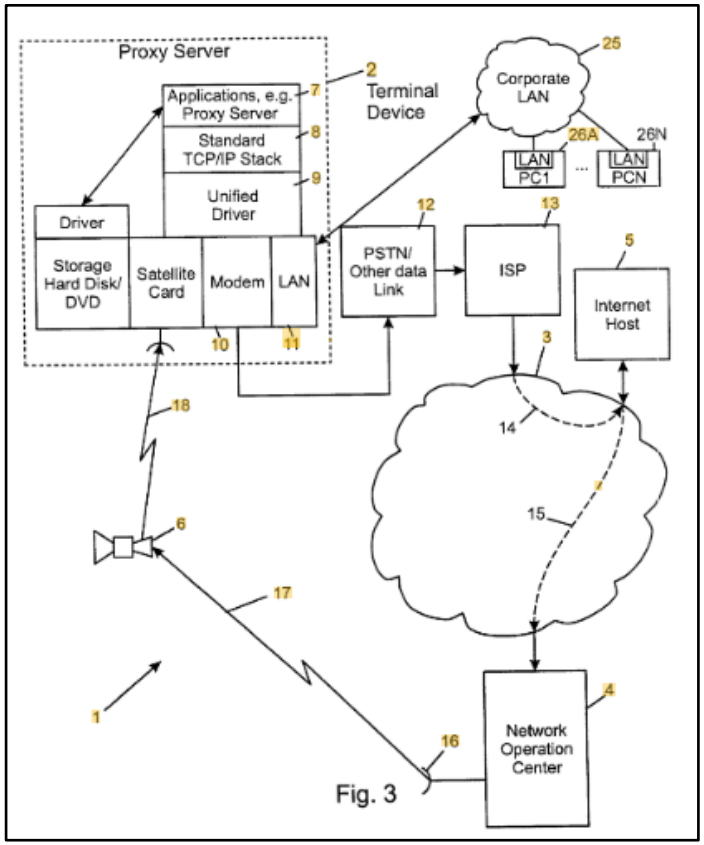
Claim	U.S. Patent No. 6,445,777 ("Clark")
[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;	Clark discloses "wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic." *See, e.g.*,  Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention.").

Claim	U.S. Patent No. 6,445,777 ("Clark")
	FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7. The integration of wireless LAN ethernet technology with a satellite voice and data communications system provides broadband, high speed wireless connections between locations and fixed sites, which supports, for example, industries such as the Motion Picture, Television, and TV Advertising industries. The high bandwidth and fast data rate wireless mobility also enable a custom designed, fully integrated mobile computer network system. The use of point-to-point digital terrestrial microwave links provides transmission reception between fixed sites and the master network operations center at high data rates. Clark at 3:49-59. Wireless LANs at individual locations are linked to the satellite communications system of the present invention. In one embodiment, the LAN 104 is a wireless ethernet LAN connecting multiple remote personal computers (PCs) as nodes. In one embodiment, the LAN 104 covers an "on site" radius of up to ½ mile at 2 Mbps from a mobile hub station, strategically placed at the designated location, such as mobile vehicle 103. For instance, the LAN 104 may be at the production's location LAN to service the location tele-computing communication needs of a film or TV production unit, even when shooting on a stage or studio lot. Clark at 4:8-17.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	In one embodiment the LAN is secure. The LAN may employ standard encryption or logging on security. In an alternate embodiment, the LAN includes video conferencing capabilities. Clark at 4:18-21. In one embodiment, the LAN 104 transfers data at 1 to 100 megabits per second to single or multiple points in the network infrastructure, which is the mobile hub station such as the mobile unit 103 described below. In one embodiment, the mobile hub station is housed in a custom fitted motor home (e.g., vehicle, van) that not only links the location LAN 104 to the Internet backbone via the satellite communications system (i.e., the wireless WAN) but also to single or multiple points in the network infrastructure. Clark at 4:22-30. The System may be used in oil and gas exploration. Content that may be carried as traffic on the mobile tele computing network oil and gas exploration, construction and any other industries requiring nomadic communications systems Clark at 6:45-49. In one embodiment, a portale location Scout and pre production package is included, which is a smaller version of the Portable Production Intranet Package scaled-down to fit inside a car trunk or small van. It may be light enough for one person to carry and have a small automatically aligning antenna system. It may deliver data from remote locations at speeds up to 1.5 megabits per second. A notebook computer with a wireless LAN connection may be included in the package along with a small satellite phone. Clark at 8:29-37. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Agarwal, Bruner,

Claim	U.S. Patent No. 6,445,777 ("Clark")
	Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu. Clark, Agarwal, Bruner, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Agarwal, Bruner, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Agarwal, Bruner, Connexion by Boeing, DeSanctis, El-Rafie, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Stratos, or Wu, for example, to incorporate this limitation. *See, e.g.*, > Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110. Agarwal at 3:38-44; *see also* Agarwal at 3:18-20, 3:45-63, FIG. 1. > Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce ("e-commerce") from a remote location 14, such as during the course of an airline flight. . . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22. Bruner at [0021]; *see also* Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].

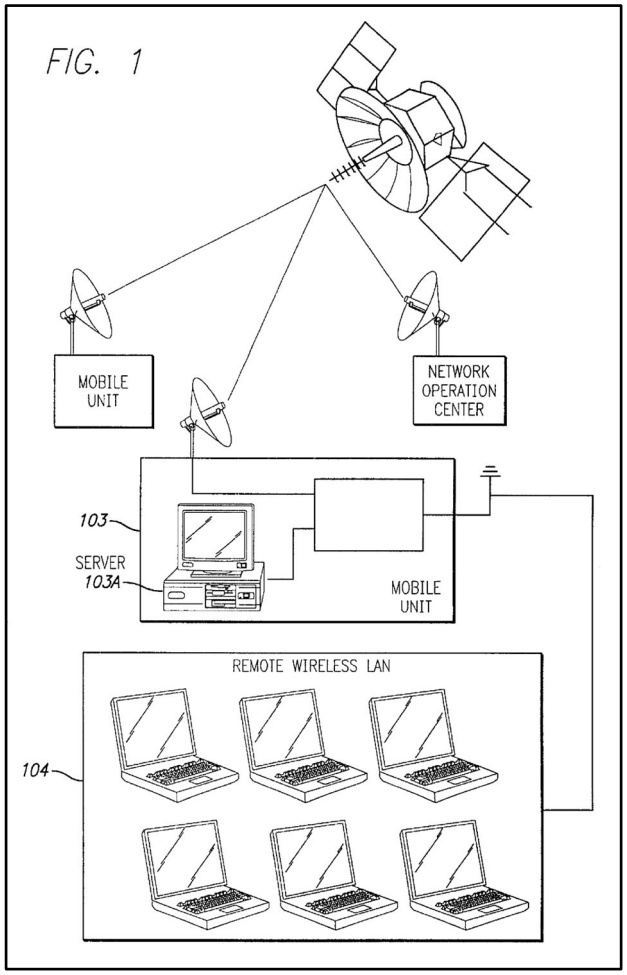
Claim	U.S. Patent No. 6,445,777 ("Clark")
	HOW IT WORKS Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations. Connexion by Boeing at Carol Ellison, *Unwire Everywhere*, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; *see also* Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.  **Figure 1:** Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming DeSanctis at FIG. 1; *see also* DeSanctis at FIG. 2, 2-3.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 El-Rafie at FIG. 3; *see also* El-Rafie at 8:9-25. ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure. Jahn I at 1; *see also* Jahn I at 1-2.

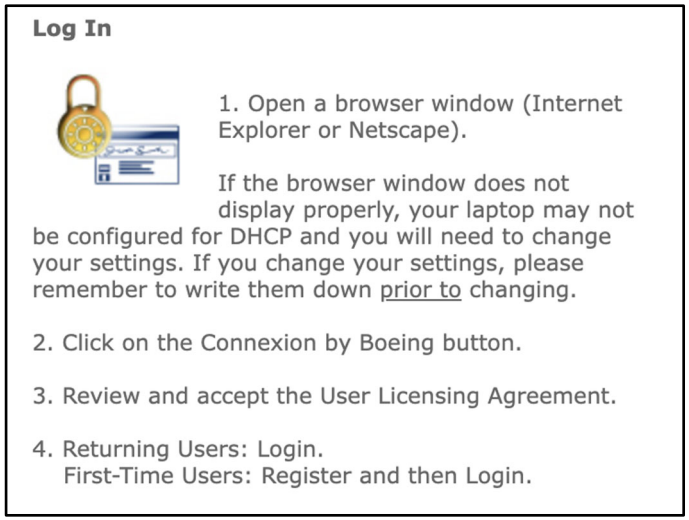
Claim	U.S. Patent No. 6,445,777 ("Clark")
	The service scenario considers travelers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. Jahn II at 2; *see also* Jahn II at 3, 7, 6, 8, FIGs. 1, 5. **Wireless** Check E-Mail, surf the web or play games ….from anywhere on the ship! Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access. A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard. MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;

Claim	U.S. Patent No. 6,445,777 ("Clark")
	https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). Other computer access systems are routers (connected directly or via a PC), PABXs (fax and voice sharing), POTS (phones, cordless phones, DECT phones and facsimiles), USB support (offered by manufacturers as an alternative to RS232 and RJ45 for accessing MPDS or ISDN services) and PCMCIA (an interface supplied to provide enhancements like Bluetooth, 802.11b or Secure STU capabilities). Stratos at https://moodle.lnu.se/pluginfile.php/275910/mod_resource/content/1/Inmarsat/Maritime_Handbook.pdf; *see also* Stratos https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html; https://americantower.gcs-web.com/news-releases/news-release-details/maritime-telecommunications-network-offers-complete; https://web.archive.org/web/20030806202148/http://www.stratosglobal.com/solutions/product/fixedSatelliteServices/index.html. The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like. Wu at [0006]; *see also* Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041]. To the extent that Clark does not disclose any elements of this claim limitation, it would have

Claim	U.S. Patent No. 6,445,777 ("Clark")
	been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	Clark discloses "wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router." *See, e.g.*, In one embodiment, the satellite communication system and the wireless LAN transfer information using an ethernet packet switching protocol, such as an Internet protocol (e.g., the TCP/IP protocol). The mobile hub may be in the form of a mobile vehicle (e.g., van) configured to transfer information as a single nomadic transmission/reception point between the satellite communication system (i.e., the wireless WAN) and the wireless LAN. Clark at 2:22-29; *see also* Clark at 2:58-64. The wireless WAN is preferably a secure network. In such a case, software programs provide a secure "fire wall" to bar unauthorized entry from the public Internet. In one embodiment, access codes and passwords are used to control access to data available through the network. In one embodiment, encryption is used on all data traffic between designated locations and our secured intranet servers and the high speed wireless digital network. Such security in the form of software is well-known in the art. Clark at 3:36-44.

Claim	U.S. Patent No. 6,445,777 ("Clark")
	 Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention."). FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the

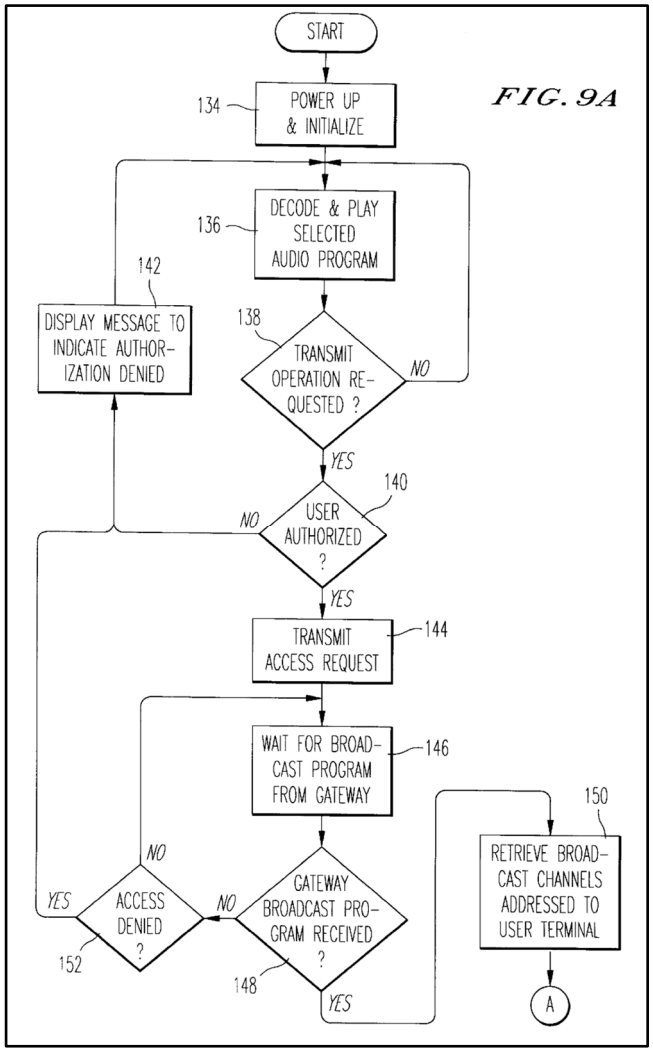
Claim	U.S. Patent No. 6,445,777 ("Clark")
	system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu. Clark, Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Bruner, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Bruner, Jahn I, Jahn II, Connexion by Boeing, Hagen, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, Rothblatt I, Rothblatt II, or Wu, for example, to incorporate this limitation. *See, e.g.*, From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS

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	server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. Bruner at [0023]; *see also* Bruner at [0028] ("Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password."), [0021], [0029], [0078], [0079].  Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; *see also* Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9. For these users, the only point of access to the private network 10 is through the network's

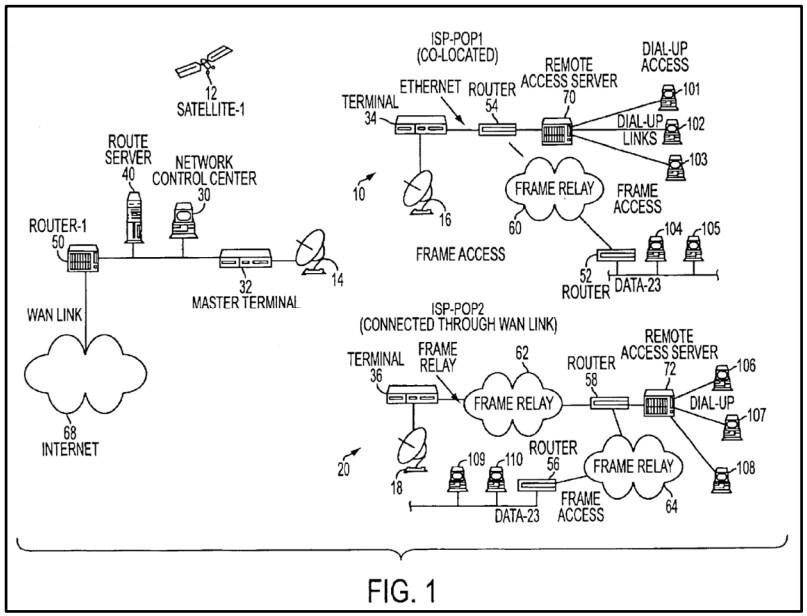
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	own router 14, which is easily secured by the network administrator. At the same time, private network users/clients may be permitted to access the private network 10 via wireline network connections or via wireless mobile terminals 23 through private WAPs 21. Private WAPs are preferably maintained at locations that are not publicly accessible or are otherwise configured to limit access to authorized clients of the private network 10. These users can then gain access to the public network through the private network's router 14. Hagen at [0060]; *see also* Hagen at [0059], [0185], FIG. 14. The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers. Jahn I at 3; *see also* Jahn I at 1-3, FIG. 1. Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 7-8; *see also* Jahn II at 3, FIGs. 1, 5.

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	> On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard. The Wi Fi network card costs $10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805. > For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information. Nelson at [0107]; *see also* Nelson at FIG. 17, [0105]-[0106].

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	These and other objects of the invention are achieved in part by providing remote users with user terminals having both a receiver for receiving satellite direct radio broadcasting and a communication device for communicating with an Internet service provider via a communication link that is from a satellite direct radio system broadcast separate. Rothblatt I at 12; *see also* Rothblatt I at 11-12.

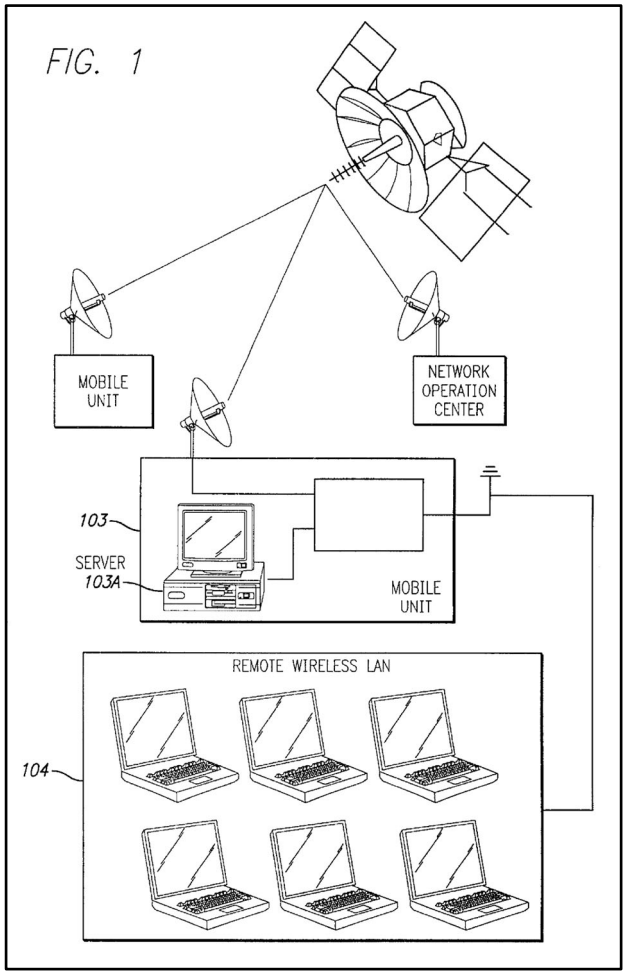
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	 *FIG. 9A* Rothblatt II at FIG. 9A; *see also* Rothblatt II at FIG. 9B, 15:32-65.

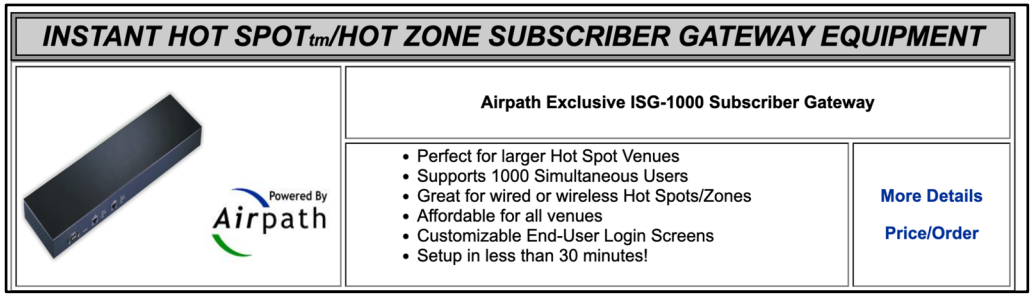
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	The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client." Wu at [0009]; *see also* Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.	Clark discloses "The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection." *See, e.g.*, In one embodiment, the LAN 104 transfers data at 1 to 100 megabits per second to single or multiple points in the network infrastructure, which is the mobile hub station such as the mobile unit 103 described below. In one embodiment, the mobile hub station is housed in a custom fitted motor home (e.g., vehicle, van) that not only links the location LAN 104 to the Internet backbone via the satellite communications system (i.e., the wireless WAN) but also to single or multiple points in the network infrastructure. Clark at 4:22-30. To the extent Clark does not expressly or inherently disclose this limitation, it would have been

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	obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu. Clark, Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Agarwal, Hagen, Jahn I, Jahn II, Nelson, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*,  FIG. 1 Agarwal at FIG. 1; *see also* Agarwal at 3:18-20; 3:38-63.

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	The primary purpose of the system 100 is to provide mobile, wireless terminals 1 with access to network resources, although it can also provide such access to fixed or mobile terminals over wireline connections as well. Mobile, wireless terminal as used herein means any mobile, wireless terminal having a MAC or other unique equipment address, such as a digital cellular handset, wireless PIA or PDA, or a computer with a wireless network adaptor. Hagen at [0040]; *see also* Hagen at [0039], [0041], [0042], [0045], [0056], [0162]. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers. Jahn I at 2; *see also* Jahn I at 1-4. Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. Jahn II at Abstract; *see also* Jahn II at 3 ("The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers."). The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.

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	Nelson at [0035]; *see also* Nelson at [0028], [0034], [0043], FIG. 1. > Furthermore, the cyberstation includes subsystems that permit it to communicate with the personal computers using wireless or optional wired connections. Ollikainen at 1:66 - 2:5; *see also* Ollikainen at 2:6-15, 2:16-26, 3:45-65, 3:66 - 4:16, 4:58 - 5:9. > The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations. Wu at [0023]; *see also* Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063]. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.	Clark discloses "The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices." *See, e.g.*,

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	 Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention.").
	5. The system defined claim 1 wherein the wireless LAN comprises a plurality of nodes

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	with at least one personal computer at each of the plurality of nodes. Clark at 9:3-5. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Clark, Airpath Wireless Hot Spot, Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Airpath Wireless Hot Spot, Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Airpath Wireless Hot Spot, Bruner, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/ne

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	ws0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]; *see also* Bruner at [0011], [0021], Bruner at FIG. 1. The service scenario considers travelers in aircraft on the move. In the future, airliners will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travelers will soon be demanding wireless access to communication services. Jahn I at 1; *see also* Jahn I at FIG. 1, 1-3, 5.

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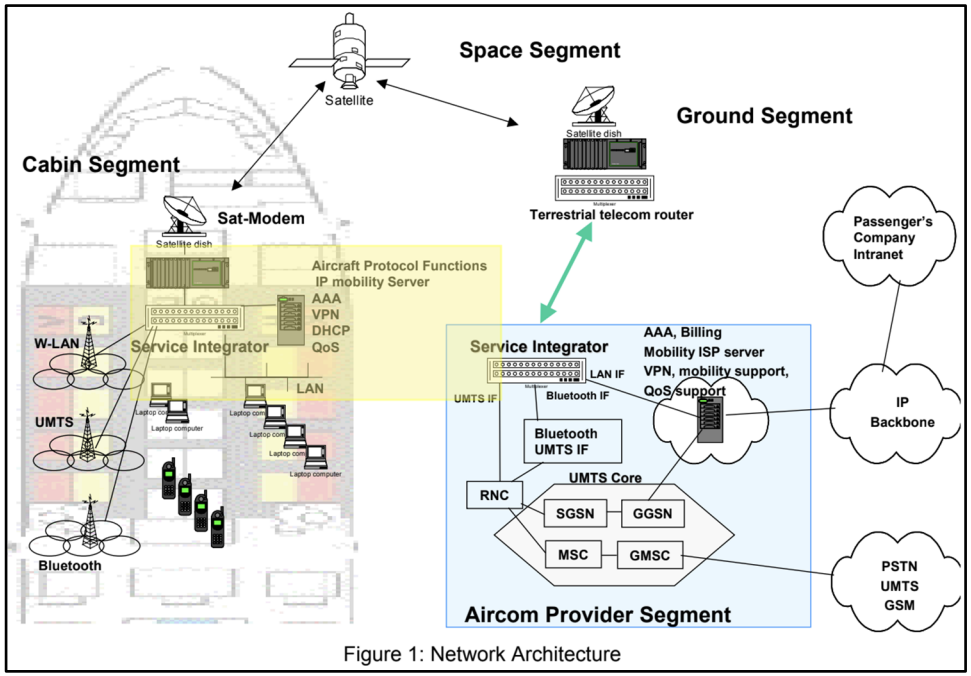


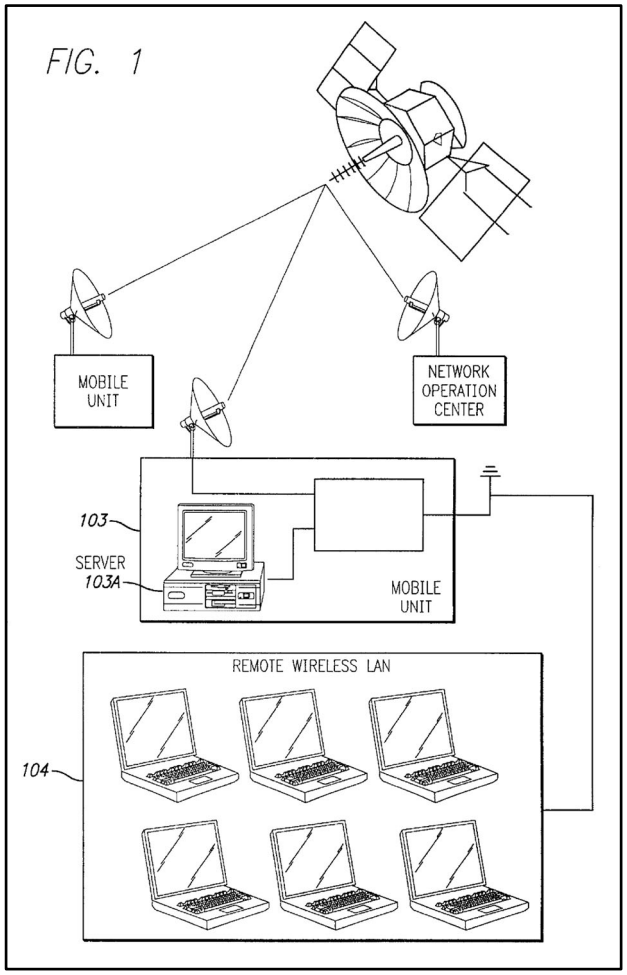
Figure 1: Network Architecture

Jahn II at 2, FIG. 1; *see also* Jahn II at 1-3, FIGs. 3-4.

> MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.

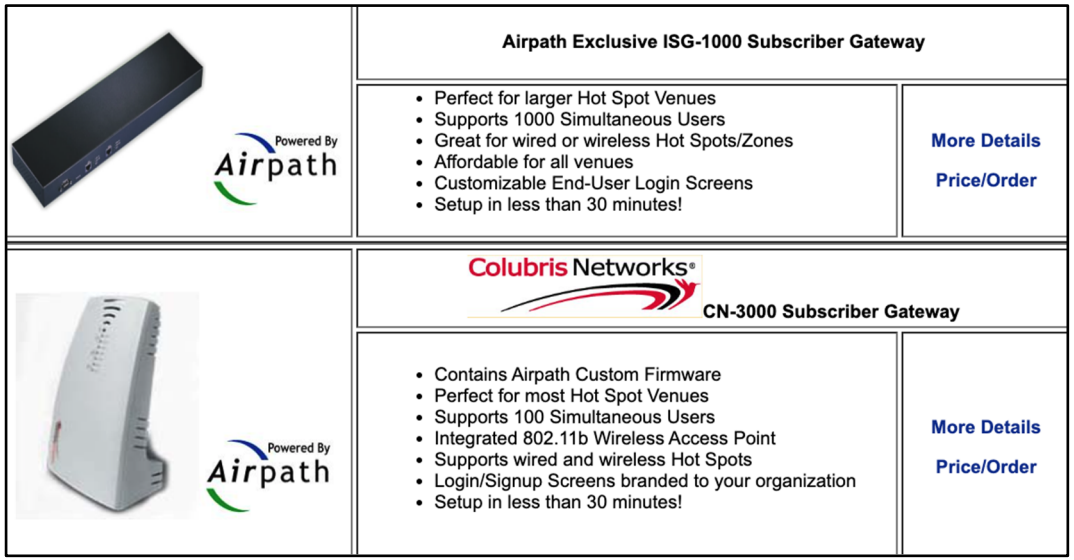
MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;

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	https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; "At Sea But Never Out Of Touch," CRUISE INDUSTRY QUARTERLY (Summer 2003). > System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. Nelson at [0032]; *see also* Nelson at [0028], [0034]. > Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; *see also* Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058]. To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.	Clark discloses "The Internet Hotspot of claim 26, wherein the data connections include wireless data connections." *See, e.g.*,

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	 Clark at FIG. 1. Clark at 2:39-40 ("FIG. 1 is a block diagram of one embodiment of the system of the present invention."). Wireless LANs at individual locations are linked to the satellite communications system of the present invention. In one embodiment, the LAN 104 is a wireless ethernet LAN

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	connecting multiple remote personal computers (PCs) as nodes. In one embodiment, the LAN 104 covers an "on site" radius of up to ½ mile at 2 Mbps from a mobile hub station, strategically placed at the designated location, such as mobile vehicle 103. For instance, the LAN 104 may be at the production's location LAN to service the location tele-computing communication needs of a film or TV production unit, even when shooting on a stage or studio lot. Clark at 4:8-17. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu. Clark, Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Airpath Wireless Hot Spot, Jahn I, Jahn II, MTN Cruise Ship Internet Services, Ollikainen, or Wu, for example, to incorporate this limitation. *See, e.g.*,

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Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.

> The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.

Jahn I at 4; *see also* Jahn I at 1-2, 4.

> When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies

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	will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Jahn II at 2-3, FIGs. 3-4. MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see generally id.* The cyberstation thus provides a means for implementing a variety of customized stand-alone receiver-transmitter stations that can provide service to multiple household or business personal computers using wireless or optional wire local area networks as a local communication system. Ollikainen at 2:16-26. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037]; *see also* Wu at [0029], [0040], [0049], FIG. 1. To the extent that Clark does not disclose any elements of this claim limitation, it would have

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	been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.	Clark discloses "The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network." *See, e.g.*, In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. By using the ethernet packet communication, multiple applications may access the satellite communications network or terrestrial communications network. The wireless LAN also utilizes the ethernet protocol to transfer information. Clark at 3:1-9. To the extent Clark does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Clark further renders the limitation obvious in light of other references, such as Hagen, Jahn I, Jahn II, Nelson, and Wu. Clark, Hagen, Jahn I, Jahn II, Nelson, and Wu concern the similar subject matter as Clark, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Clark with Hagen, Jahn I, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Clark with those of Hagen, Jahn I, Jahn II, Nelson or Wu, for example, to incorporate this limitation. *See, e.g.*, The system 100 generally comprises one or more geographically dispersed network access points, which in this embodiment are radio frequency wireless access points

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	(WAP) 3, 4. The WAPs 3, 4 may be conventional devices equipped with wireless network adaptors embodying the IEEE 802.11 Wireless LAN or Bluetooth wireless network communications standards, or other devices providing similar functionality. Examples of such devices include the Home Wireless Gateway product sold by 3COM Corporation, the Spectrum High Rate AP 41X1 Ethernet Access Point product sold by Symbol Technologies, and the Aironet 340 Series Access Points product sold by Cisco Systems. Hagen at [0042]; *see also* Hagen at [0039], [0041], [0042], [0045]. When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Jahn I at 2; *see also* Jahn I at 1-2. Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN." Jahn II at 3. The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; *see also* Nelson at FIG. 1, [0028], [0110]. The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; *see also* Wu at FIG. 1, [0052]-[0054].

Claim	U.S. Patent No. 6,445,777 ("Clark")
	It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The '469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the "wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard." '469 patent at 5:19-25. It was well understood that "each new 'flavor' of the technology results in a new suffix to 802.11." "Going WiFi" at 82; *see also id.* at 133 ("The fundamental components of a WLAN are clear-cut. And it's relatively easy to describe the 802.11 suite in basic networking terms."). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. *See also* "Going Wifi" at 116-117 ("The 802.11n Task Group is *working on a high-speed variant* of the existing 802.11 standards . . . However, don't expect to see these newer, faster standards for a number of years."). To the extent that Clark does not disclose any elements of this claim limitation, it would have been obvious to a person having ordinary skill in the art to combine, with the teachings of Clark, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

EXHIBIT E-5

Exhibit E-5 to American's Preliminary Invalidity Contentions

Connexion by Boeing

Connexion by Boeing was known in this country, used in public, sold or offered for sale no later than April 27, 2000, as demonstrated by at least the materials cited herein or the testimony of knowledgeable witnesses and corroborating documents.[1] Specifically, based on information currently available, Connexion by Boeing was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) in public use or on sale in this country more than one year before the filing date of the patent, or (3) invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. Thus, Connexion by Boeing anticipates the asserted claims under at least 35 U.S.C. §§ 102(a), (b) and (g).

At least the following documents describe the relevant functionality disclosed by Connexion by Boeing:

- "Airlines, Boeing, Take Internet to the Skies," COMPUTERWORLD (June 18, 2001), *available at* https://books.google.co.jp/books?id=yvF7lF11OecC&pg=PA10;
- The Boeing Company Annual Report (2003), *available at* https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf;
- Cisco Systems, Inc., "Connexion by Boeing Successfully Launches Broadband In-Flight Internet Access," *available at* https://www.cisco.com/c/dam/en_us/about/ac79/docs/wp/Boeing_CSS_0602.pdf;
- Ellison, Carol, "Unwire Everywhere," PC MAGAZINE (Special Wireless Issue 2003) at 97-104, *available at* https://books.google.co.jp/books?id=zW2x_V_Ye78C;
- Johnston, Margret, "Boeing to launch in-flight 'Net connections,'" NETWORK WORLD (May 8, 2000) at 78, *available at* https://books.google.co.jp/books?id=wBkEAAAAMBAJ&pg=PA78 ("Johnston");
- Shim, Richard, "Boeing aims to connect the friendly skies," ZDNET NEWS (Apr. 27, 2000), *available at* https://web.archive.org/web/20010625185126/http://www.zdnet.com/zdnn/stories/news/0,4586,2556871,00.html;
- Suwanateep, Manasuda, "Inflight Internet Connectivity Technology and Its Application on E-Commerce," ASSUMPTION U. OF THAILAND (2002) ("Suwanateep");

[1] Defendant's invalidity charts, in some instances, rely at least in part on Plaintiff's apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant's understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff's infringement contentions, or information obtained during discovery as the case proceeds.

- https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4;
- https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2;
- https://web.archive.org/web/20011121062449fw_/http://active.boeing.com/connexion/SitePage.cfm?left=2a;
- https://web.archive.org/web/20030201120351/http://www.connexionbyboeing.com/index.cfm?Lnav=0;
- https://web.archive.org/web/20031208140018/http://www.boeing.com/news/releases/2001/q4/nr_011211a.html;
    - This webpage was available as early as December 12, 2001
    - https://web.archive.org/web/20011212053030/http://www.boeing.com:80/news/releases/2001/q4/nr_011211a.html
- https://web.archive.org/web/20030208000909/http://www.connexionbyboeing.com/index.cfm?Lnav=1&#e1;
- https://web.archive.org/web/20030208001408/http://www.connexionbyboeing.com/index.cfm?Lnav=3;
- https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1;
    - This webpage was available as early as December 24, 2002
    - https://web.archive.org/web/20021224153554/http://www.connexionbyboeing.com:80/index.cfm?Lnav=1
- William Jones, "Connexion by Boeing – Broadband Satellite Communication System for Mobile Platforms," IEEE (October 2001),
- *available at* https://ieeexplore.ieee.org/document/985939?partnum=985939&searchProductType=IEEE%20Conferences
- ("Jones"); and
- Ben Abarbanel, Global Network Mobility, NANOG 31 (May 24, 2004), *available at* https://archive.nanog.org/meetings/nanog31/agenda.html ("Abarbanel").

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Connexion by Boeing include at least persons involved in the Connexion by Boeing and their testing and commercial use, including at least The Boeing Company, Connexion by Boeing, Scott E. Carson, Cisco Systems, Inc., American Airlines, Inc., Delta Air Lines, Inc., United Airlines, Inc. and Lufthansa Group. The conception of Connexion by Boeing occurred at least as early as April 2000.

American offers this invalidity chart based on its current understanding of Connexion by Boeing. American's investigation of this system is ongoing. American may rely on materials produced by Plaintiffs or by third parties regarding Connexion by Boeing and related software to demonstrate invalidity of the asserted claims. American has not had an opportunity to review source code for Connexion by Boeing. American may rely on source code, when available, implementing the functionality described herein, or other source code implementing substantially similar functionality, to demonstrate the invalidity of the asserted claims.

To the extent Plaintiff alleges Connexion by Boeing does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469

EXHIBIT E-5

Patent to modify Connexion by Boeing or combine the teachings of Connexion by Boeing with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to any combination of the following:

- Invalid under 35 U.S.C. § 102 by Connexion by Boeing;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 6,968,394 to El-Rafie ("El-Rafie") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2002/0075844 to Hagen ("Hagen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of Korean Patent No. 2003/0029267 to Lee Hyunwoo ("Lee") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 6,377,981 to Ollikainen et al. ("Ollikainen") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of Czech Patent No. 2,000,578 to Martine Rothblatt ("Rothblatt I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 6,105,060 to Martine Rothblatt ("Rothblatt II") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent No. 5,987,430 to Van Horne et al. ("Van Horne") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of Airpath Wireless Hot Spot ("Airpath Wireless Hot Spot") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of MTN Cruise Ship Internet Services ("MTN Cruise Ship Internet Services") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of StratosNet ("Stratos") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of Tenzing Global ("Tenzing Global") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of Wireless Cabin ("Wireless Cabin") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of "Aeronautical Communications for Personal and Multimedia Services via Satellite" by M. DeSanctis et al. ("DeSanctis") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of "Dimensioning of Aeronautical Satellite Services" by Jahn et al. ("Jahn I") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of "Passenger Multimedia Service Concept via Future Satellite Systems" by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner ("Jahn II") and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Connexion by Boeing in view of "Inflight Internet Connectivity Technology and Its Application on E-Commerce," by Manasuda Suwanateep ("Suwanateep") and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int'l Co. v. Teleflex, Inc*., "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. 398, 416 (2007). The Supreme Court further held: "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id*. at 417. The Supreme Court further held: "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of

ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id*. at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

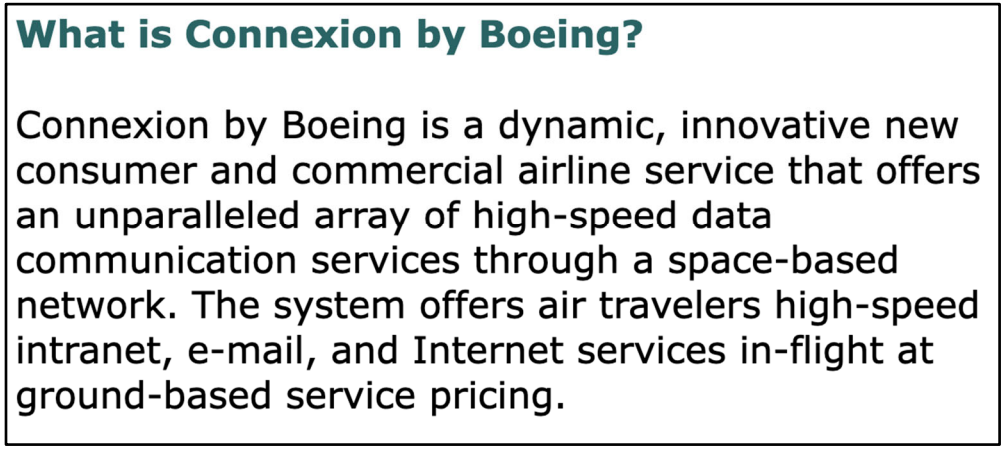
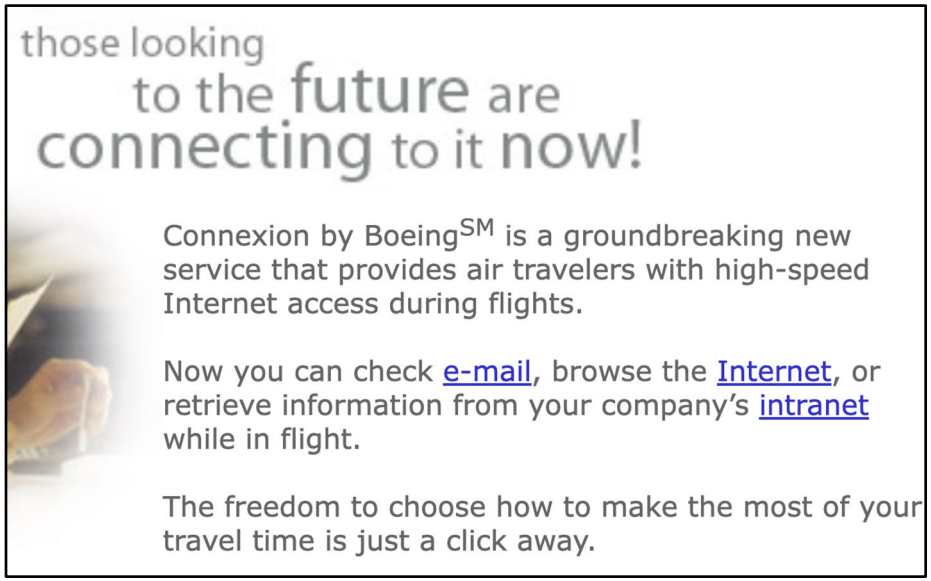
Claim	Connexion by Boeing
[24.pre] An Internet Hotspot comprising:	To the extent the preamble is limiting, Connexion by Boeing discloses an Internet Hotspot. *See, e.g.*,  https://web.archive.org/web/20011121062449fw_/http://active.boeing.com/connexion/SitePage.cfm?left=2a

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Claim	Connexion by Boeing
	 https://web.archive.org/web/20030201120351/http://www.connexionbyboeing.com/index.cfm?Lnav=0

Claim	Connexion by Boeing
	Review System Description  Connexion by Boeing is a mobile information services provider providing real-time, high speed performance to all onboard users. Each plane equipped with Connexion by Boeing houses a server with an Ethernet Local Area Network (LAN) connecting passengers' laptops to the Internet via a satellite link. The network's broadband speeds are comparable to a modern home or office environment. The Connexion by Boeing system also is designed to be compatible with wireless 802.11b networks, as well as Internet-enabled Personal Digital assistant (PDA)s in the future. Return to Top https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5 ; ●○ https://web.archive.org/web/20021224153554/http://www.connexionbyboeing.com:80/index.cfm?Lnav=1 **What is Connexion by Boeing?** Connexion by Boeing is a dynamic, innovative new consumer and commercial airline service that offers an unparalleled array of high-speed data communication services through a space-based network. The system offers air travelers high-speed intranet, e-mail, and Internet services in-flight at ground-based service pricing.

Claim	Connexion by Boeing
	https://web.archive.org/web/20011121062449fw_/http://active.boeing.com/connexion/SitePage.cfm?left=2a **What types of services are offered through Connexion by Boeing?** Connexion by Boeing is a common carrier service available to all aircraft passengers. The services provided on the carrier include: • Real-time, two-way open access to the Internet https://web.archive.org/web/20011121062449fw_/http://active.boeing.com/connexion/SitePage.cfm?left=2a The satellite-based architecture is developed by Boeing Company, the biggest aircraft maker and the best in aviation technology, and with joint ventures to make the Internet most compatible while inflight. The system blends proprietary software, satellite and land networking, and onboard LANs. With satellite enhancement, the first technology uses a full-capacity telecommunication infrastructure to offer a real-time, high speed, truly broadband cable-quality Internet service equivalent to what users have on the ground. The system provides Internet and company Intranet access, unlimited connectivity to airborne environment. Suwanateep at 5. The cabin file server (Figure 2.3) allows the same type of Local Area Network. It is designed for the unique requirements of the aircraft environment. Its small size and minimum cooling requirements allows it to be mounted in any convenient location in the cabin. The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for

Claim	Connexion by Boeing
	commercial airline customers. Seats are configured for connectivity: Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line Simultaneously. Suwanateep at 8-9. When a laptop computer and a network interface card· is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to· the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD-ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II · PCMCIA slots. Suwanateep at 9. These new wireless networks. standard known as Wi-Fi have no encryption protections, making them. vulnerable to even unsophisticated hackers. The company should not be responsible for security on its networks because the Internet carries security risks. For Internet security, users should install personal firewall. Wireless LAN manufacturers readily acknowledge the security problems with the IEEE 802.1 lB standard and have recently taken steps to strengthen their security. Suwanateep at 25. Connexion One provides a dedicated environment for demonstrating the robustness and inflight operability of the Connexion service. The cabin is equipped with onboard server, router and service-analysis equipment and, also, is outfitted to demonstrate security enhancement capabilities the venture is pursuing for commercial airline customers. Seats are configured for demonstrating connectivity to the Connexion service. On the exterior, the top of the aircraft

Claim	Connexion by Boeing
	fuselage is outfitted with phased array antennas to enable real-time, Ku satellite-based data transmission and reception. The aircraft permits the airline evaluators assessing the enhanced consumer 39,000 feet and operational benefits of real-time broadband services to personally test the service by having it perform multiple, simultaneous high~bandwidth tasks ranging from data transfer and full-featured e-mail to streaming video and global web site access. Airline technical teams have foundd the service to be as robust or superior to the high-speed connections they enjoy at home or in the office. Suwanateep at 26-27. The Connexion by BoeingSM (CBB) system will provide broadband communication capabilities enabling Internet services and live TV reception for users on mobile platforms. The program represents a new direction for Boeing into information systems and a new role as a service provider. What makes the Boeing system unique is the use of broadband satellite links at Ku- band for both the forward and return links. The initial system will provide up to 20 Mbps of data rate to, and up to 1 Mbps of data rate from, each mobile platform. Other announced commercial ventures have proposed narrow-band return links from mobile platforms using either L-band satellite links or terrestrial cellular telephone links that only function over land. Mobile users will access the CBB system using a laptop computer, PDA or other computing device. The system will also be capable of conveying real-time platform and crew information. Jones at 755.
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	Connexion by Boeing discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” *See, e.g.*,

Claim	Connexion by Boeing
	The technology Boeing developed to support the system includes a phased array antenna that is mounted on top of the aircraft's fuselage. The antenna, which is less than 2 inches high, 44 inches wide and 55 inches long, is fixed and doesn't interfere with the plane's aerodynamics or communications systems. Johnston at 78. Electronic modules inside the antenna move to maintain the connection to satellites at a maximum transmission speed of 5M bit/sec for downloading data and 1.5M bit/sec for uploading it. However, speed slows as more users log on. The system will be available to commercial airlines operating in the continental U.S. in the fourth quarter of 2001. Johnston at 78.

Claim	Connexion by Boeing
	The robustness of the Connexion by Boeing service was initially demonstrated during a 2.5-hour test flight earlier this year, when an e-mail with digital photo attachment was transmitted from 33,000 feet. The e-mail was received moments later on the ground, where a return reply was composed, sent and promptly received by the airborne team. System validation testing continues under experimental licenses granted by the Federal Communications Commission (FCC) that allow the Connexion by Boeing service to operate above U.S. territory and waters. Recently, the Connexion One Team demonstrated the long-range capability of the phased array antennas during a test flight from Seattle to Hawaii when continuous transmission capability was maintained up to 1,150 miles offshore. Boeing has been granted a commercial receive-only license from the FCC that allows the transmission of satellite-based data onto mobile aeronautical platforms using the12 GHz Ku bandwidth. Boeing also has applied for a two-way service license, which is hoped for in the near-term. Data gathered during Connexion One flight tests also is being used to demonstrate that the Connexion by Boeing service can operate without causing harmful interference to other spectrum users, in support of domestic and international two-way license applications and other ongoing international regulatory activities and study groups. https://web.archive.org/web/20031208140018/http://www.boeing.com/news/releases/2001/q4/nr_011211a.html; ●○ https://web.archive.org/web/20011212053030/http://www.boeing.com:80/news/releases/2001/q4/nr_011211a.html

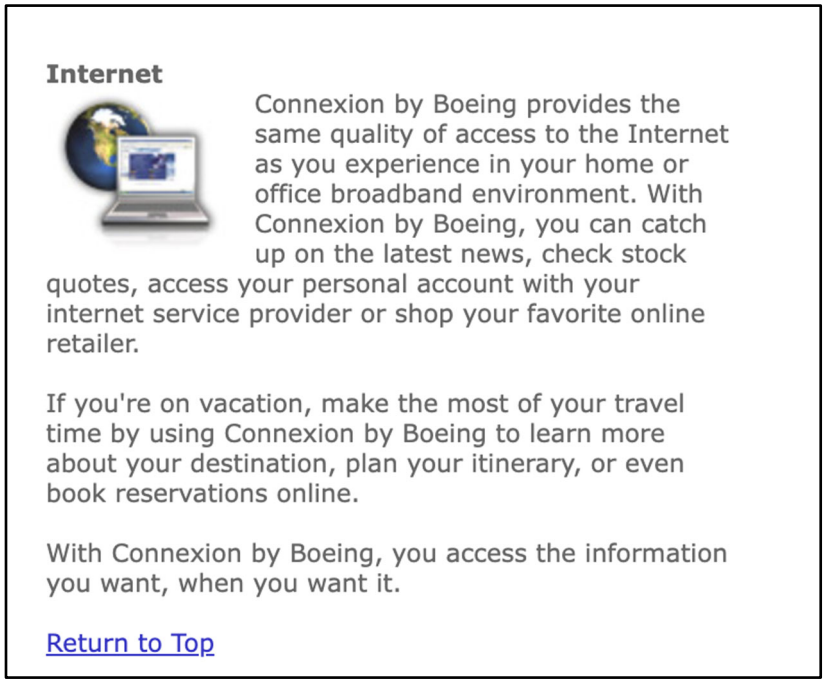
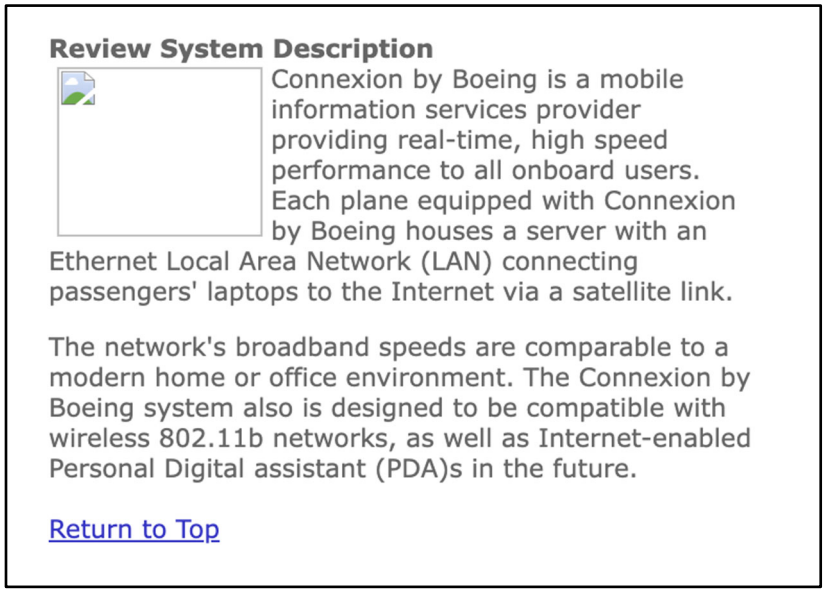
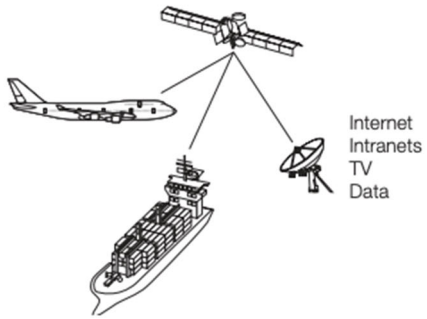
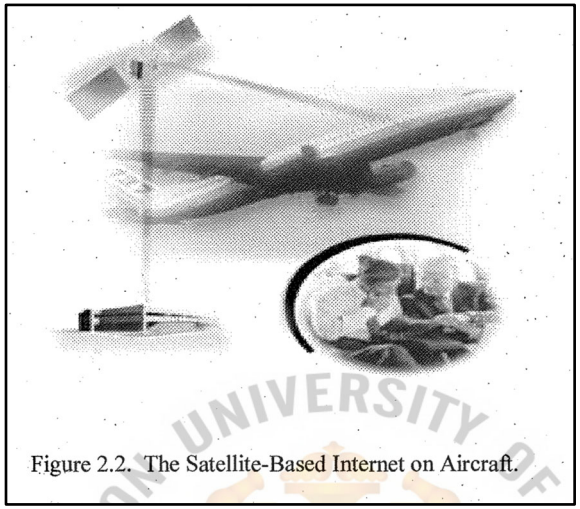
Claim	Connexion by Boeing
	 https://web.archive.org/web/20030208000909/http://www.connexionbyboeing.com/index.cfm?Lnav=1&#e1

EXHIBIT E-5

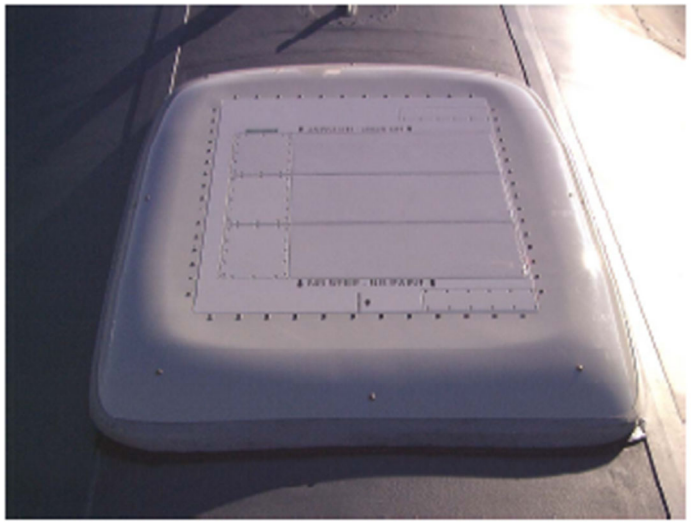
Claim	Connexion by Boeing
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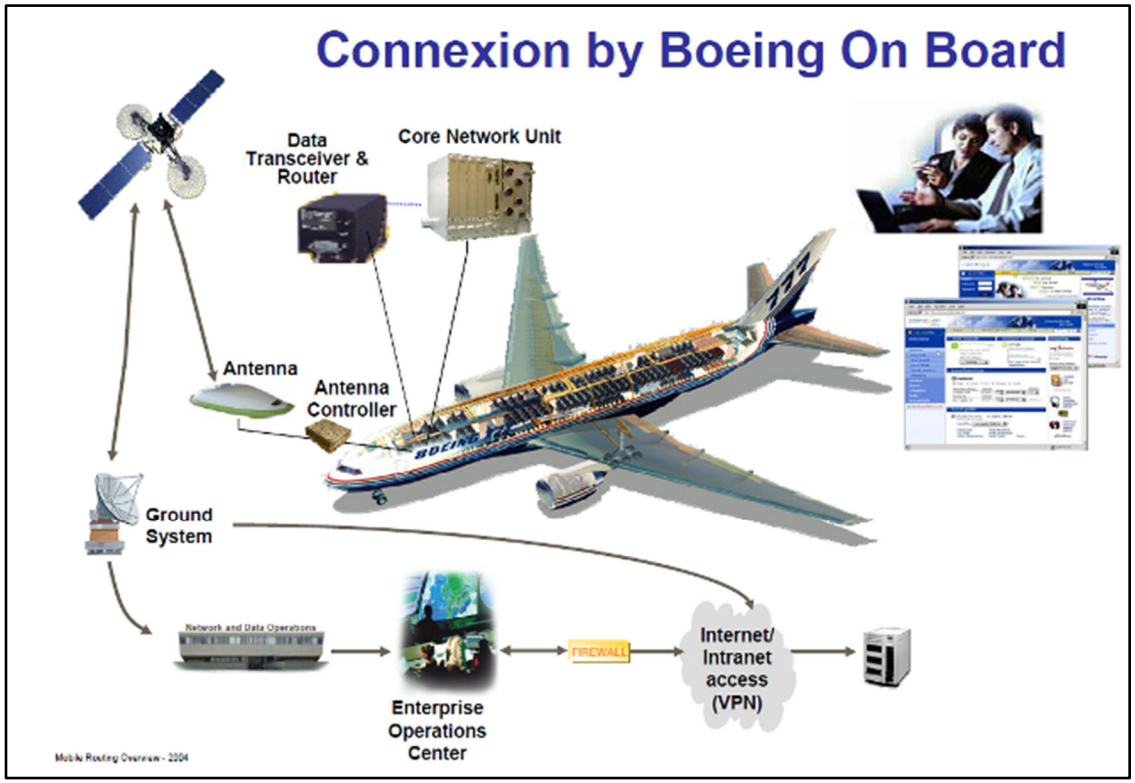
Claim	Connexion by Boeing
	 Connexion by Boeing provides high-speed broadband communication services to mobile platforms, including aircraft and maritime vessels. Through the service, connectivity is delivered directly to laptops and personal digital assistants (PDAs) in flight, providing airline passengers and operators of executive aircraft for government and the private sector with personalized and secure real-time access to the Internet, company intranets and television and news content. The Connexion by Boeing broadband approach also permits applications to link aircraft data systems with airline operations, enhancing aircraft operational efficiency on the ground and in the air.

Claim	Connexion by Boeing
	The Boeing Company Annual Report (2003), *available at* https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.  Figure 2.2. The Satellite-Based Internet on Aircraft. Suwanateep at 6, FIG. 2.2. In 1986, Boeing has developed a proprietary solid-state phased array, transceiver antenna that is the key enabler for the two-way broadband communications service. The new design will improve system performance and overall capability. Proprietary Boeing technology, in particular a satellite antenna developed originally for military command and control centers, will provide a virtual pipe to the Internet-enabled aircraft. Suwanateep at 7. The flat, two-inch antenna and additional wiring would be attached to each top of aircraft, stretching 55 inches across the top of a plane upper fuselage with which commercial aircraft already in service would need to be retrofitted. The phased array antenna provides enhanced response to directional changes by steering signals·

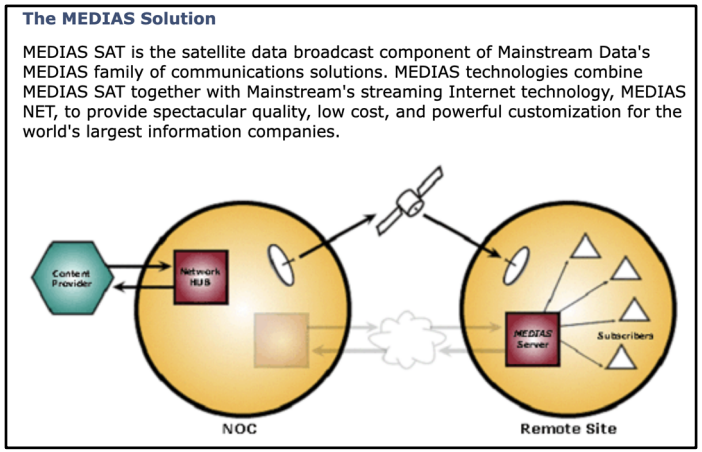
Claim	Connexion by Boeing
	electronically vs. mechanically, permitting instantaneous and continuous connections between satellites and customer aircraft. The device adjusts to keep in touch with the nearest satellite. That helps avoid interruptions. Suwanateep at 7-8. The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers. Seats are configured for connectivity. Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously. Suwanateep at 9. Space System is consisted of Satellite Transponders. The service uses Ku-band satellite transponders. Once in orbit, the satellite will be parked in an orbital slot located at 63 degrees West longitude and provide air travelers with the first real-time broadband Internet access over the North Atlantic. Suwanateep at 10. The satellite-based architecture is developed by Boeing Company, the biggest aircraft maker and the best in aviation technology, and with joint ventures to make the Internet most compatible while inflight. The system blends proprietary software, satellite and land networking, and onboard LANs. Suwanateep at 5. With satellite enhancement, the first technology uses a full-capacity telecommunication infrastructure to offer a real-time, high speed, truly broadband cable-quality Internet service equivalent to what users have on the ground. The system provides Internet and company Intranet access, unlimited connectivity to airborne environment. Suwanateep at 5.

Claim	Connexion by Boeing
	In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology. Suwanateep at 12. Connexion One provides a dedicated environment for demonstrating the robustness and inflight operability of the Connexion service. The cabin is equipped with onboard server, router and service-analysis equipment and, also, is outfitted to demonstrate security enhancement capabilities the venture is pursuing for commercial airline customers. Seats are configured for demonstrating connectivity to the Connexion service. On the exterior, the top of the aircraft fuselage is outfitted with phased array antennas to enable real-time, Ku satellite-based data transmission and reception. The aircraft permits the airline evaluators assessing the enhanced consumer 39,000 feet and operational benefits of real-time broadband services to personally test the service by having it perform multiple, simultaneous high-bandwidth tasks ranging from data transfer and full-featured e-mail to streaming video and global web site access. Airline technical teams have found the service to be as robust or superior to the high-speed connections they enjoy at home or in the office. Suwanateep at 26-27. For initial CONUS service, Boeing will offer mobile users electronically-scanned transmit and receive phased array antennas that mount flat on the crown of the aircraft to provide low drag. Due to the small form factor and low weight, these same antennas may also be mounted flat on wide variety of marine vessels and land vehicles. These antennas are being designed and manufactured by Boeing's Electronic Systems Division in Kent, Washington. The CBB system will initially use leased Ku-band transponders to provide service over land. While transponder coverage is usually not available over popular ocean routes, Boeing has

Claim	Connexion by Boeing
	contracted with Space Systems Loral to provide North Atlantic coverage using a "piggyback" payload added to production satellite (Estrela do Sol). CONUS service is planned for late 2001, with expansion to the Atlantic & Pacific Oceans, Europe, Canada and South/Central America in 2003. Service to Asia and Africa is planned for 2004. Jones at 755.  Figure 5. Photo of Boeing receive phased array antenna mounted on an aircraft fuselage. Jones at 758.

Claim	Connexion by Boeing
	 Abarbanel at 6.

Claim	Connexion by Boeing
	Table 4.1. Summary of Connexion Technology. **Connexion** by BOEING **Technology Partner** Airia, InFlight Network (IFN) by Rockwell, Collins/News Corp./Globalstar, Thomson, CSF Sextant and Astrium, CNN inflight, ESPN, CNBC, Eurosport Satellite Inmarsat, Loral Space and Communications, Mitsubishi Electronic Corporation (MELCO) group, Finmeccanica and Alenia Aerospazio **Feature** Provide two-way broadband data services to passengers and crew at 5 Mbps to receive communications and 1.5 Mbps for outbound transmissions, company. The service uses Loral Skynet's Ku-band transponders and proprietary phased array antennas. With advancements in new technologies. Connexion speed 128 kilobytes; most of US$100 million Airborne antennas, Airborne Cabin File Server, Routers and Associated Wiring, Network Operations Center(NOC) Airborne antennas At 5 Mbps and support responses at T1 rates; 55 inches stretch across the top of a plane's upper fuselage. That helps avoid interruptions. The phased array antenna locks on a satellite by steering its signals electronically. There are no moving parts. The antenna remains in constant contact with the satellite. Airborne Cabin File Server Support the interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. Space System Satellite transponders of Ku-band Loral Skynet. **Availability** North American airline customers at first. Late 2003, in Europe, over the Atlantic and Pacific oceans and Asia. Internet Fee The pricing remains open to change. Free of charge or paid TV programme. Approximately $17.50 per hour For internet access, flat-rate options for each leg of a trip. Suwanateep at Table 4.1. To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos. Connexion by Boeing, Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and Stratos concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, and/or Stratos would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of

Claim	Connexion by Boeing
	Airpath Wireless Hot Spot, Agarwal, Bruner, El-Rafie, Jahn I, Jahn II, Nelson, Ollikainen, Rothblatt I, Rothblatt II, or Stratos, for example, to incorporate this limitation. *See, e.g.*,  Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/_soln/soln2.html;*see also* Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.htm