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 B-9

Exhibit B-9 to Defendant's Preliminary Invalidity Contentions

PointCast System

The PointCast System was known in this country, used in public, sold or offered for sale no later than 1997, 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, PointCast System 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, the PointCast System anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) or (g).

At least the following documents describe the relevant functionality disclosed by the PointCast System:

- https://en.wikipedia.org/wiki/PointCast
- https://encyclopedia2.thefreedictionary.com/push+media;
- https://ajrarchive.org/Article.asp?id=268;
- https://web.archive.org/web/19990826121133/http://www.pointcast.com/tour/index.html?hometxt;
- https://faculty.washington.edu/wobbrock/pubs/agents.pdf;
- https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home;
- https://support.sas.com/resources/papers/proceedings/proceedings/sugi25/25/sy/25p288.pdf;
- https://www.copyright.gov/reports/thardy.pdf;
- https://www.pcmag.com/encyclopedia/term/pointcast;
- https://web.archive.org/web/19990921040538/http://www.pointcast.com/content/index.html?hometxt;
- https://web.archive.org/web/20000414133428/http://www.pointcast.com/content/cg_c02_1.html?cg;
- https://web.archive.org/web/19991110095145/http:/www.businessweek.com/1999/99_17/b3626167.htm
- https://www.lazworld.com/glossary.php;
- https://www.youtube.com/watch?v=qCqwB6sruIQ;

[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/19990824175307/http://www.pointcast.com/download/index.cgi?st=1&id=none&kt=core&os=Win32&ed=US; and
- https://www.pchelponline.com/connections/pchelp_jump.html;

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in the PointCast System include at least persons involved in the PointCast System and their testing and commercial use, including at least PointCast Incorporated and idealab! Company. The conception of the PointCast System occurred at least as early as 1997.

Defendant offers this invalidity chart based on its current understanding of the PointCast System. Defendant's investigation of this system is ongoing. Defendant may rely on materials produced by Plaintiffs or by third parties regarding the PointCast System and related software to demonstrate invalidity of the asserted claims. Defendant has not had an opportunity to review source code for the PointCast System. Defendant 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 the PointCast System does not disclose any particular limitation of the Asserted Claims of the '722 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 '722 Patent to modify the PointCast System or combine the teachings of the PointCast System with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- United States Patent No. 5,721,825 ("Lawson") – see Exhibit 722-1;
- PCT Patent Application Publication No. WO 99/26127 ("Kostes") – see Exhibit 722-2;
- United States Patent No. 6,999,991 ("Ikeda") – see Exhibit 722-3;
- United States Patent No. 6,710,702 ("Averbuch");
- United States Patent No. 6,216,132 ("Chandra");
- United States Patent No. 6,910,070 ("Mishra");
- United States Patent No. 6,757,283 ("Yamanaka");
- United States Patent No. 7,051,084 ("Hayton");
- United States Patent No. 6,633,910 ("Rajan");
- U.S. Patent No. 6,480,883 ("Tsutsumitake");
- U.S. Patent No. 5,951,694 ("Choquier");
- European Patent Application Publication No. EP1043671 ("Bird"); and/or

- U.S. Patent No. 6,990,591 ("Pearson").

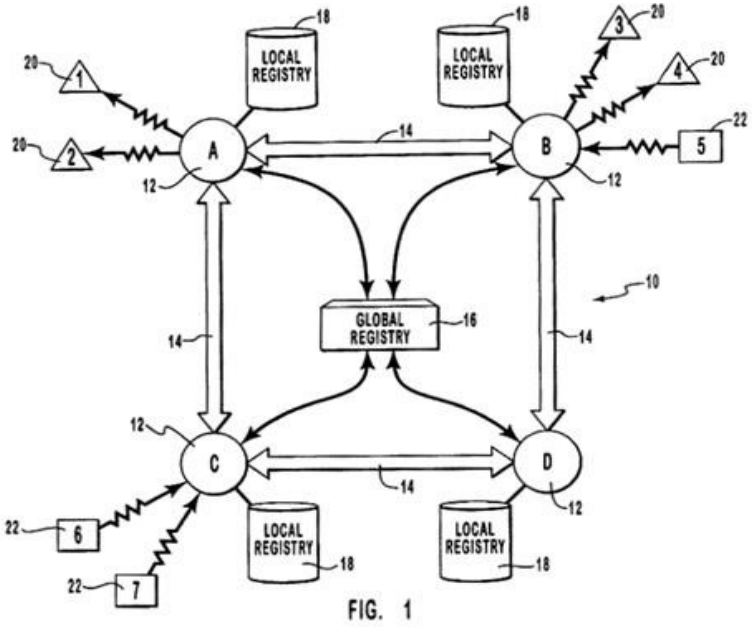
As the United States Supreme Court held in *KSR Int'l Co. v. Teleflex, Inc*., "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." 550 U.S. 398, 416 (2007). The Supreme Court further held: "[w]hen a work is available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

Claims of the '722 Patent	PointCast System
[14.0] A method comprising:	To the extent the preamble is limiting, PointCast System discloses: "PointCast Was the First In the mid-1990s, PointCast was the first Internet product to become popular for pushing selected news and stock quotes into a user's computer (see PointCast)." https://encyclopedia2.thefreedictionary.com/push+media. https://en.wikipedia.org/wiki/PointCast "PointCast offers news and information from CNN, Time, People and Money magazines, Reuters, AccuWeather and a host of local newspapers. The service allows the user to select topics of interest, delivering matching stories by displaying them as a screen saver." https://ajrarchive.org/Article.asp?id=268
[14.1] providing, using a processing device of an input source, a data representation to a client device, different from the input	PointCast System discloses or renders obvious providing, using a processing device of an input source, a data representation to a client device, different from the input source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by

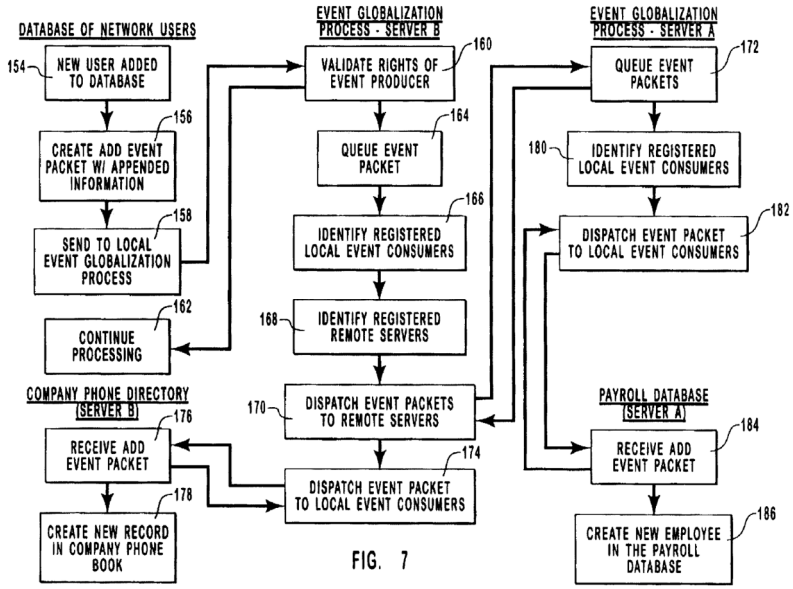
Claims of the ’722 Patent	PointCast System
source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by the client device, and	the client device. For example: PointCast delivered news, financial data, and other content that appeared as dynamic content within a graphical UI. The data was continuously refreshed (e.g., stock tickers). The input source was the various content sources that PointCast provided access to. "These days, there's so much information available via newspapers, Web and intranet sites, trade journals, online services, (you get the idea!), that just staying on top of the news can feel like a full-time job. Wouldn't it be great if you could get all the news you care about automatically delivered to you - without lifting a finger? " - https://web.archive.org/web/19990826121133/http://www.pointcast.com/tour/index.html?hometxt "PCN by PointCast – information gathering This agent-based service delivers customized information to the client desktop during idle times. It provides current information to the user’s desktop cache. The agent service requires client software for interaction with the server that actually does the information gathering" https://faculty.washington.edu/wobbrock/pubs/agents.pdf “The PointCast Network is a free Internet news service that takes the work out of staying informed by broadcasting personalized news and information directly to your computer screen. You get just the news you’re interested in from trusted sources like CNN, The Wall Street Journal, The New York Times and many more, presented in a way that’s easy-to-scan, easy-to-read and easy-to-digest.” https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home

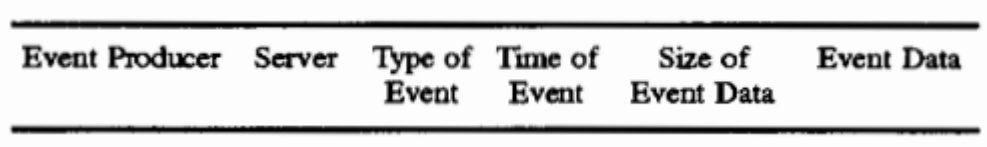
Claims of the ’722 Patent	PointCast System
	To the extent this reference does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, and/or Tsutsumitake. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and Tsutsumitake concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, updating live objects was a well-known and commonly-used technique. Modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, or Tsutsumitake for example, to incorporate this limitation. *See, e.g.*, “In FIG. 1, event consumers are illustrated by the triangular regions 20 and are numbered 1-4. Event producers are identified by rectangular regions 22 and are labeled 5-7. Event producer and event consumer are meant to be generic terms that are interpreted broadly. Event producer will be used to refer to a process, user, device, or other item that produces or generates an event. An event consumer should be broadly interpreted to refer to any process, user, device, or other item that desires notification of an event. As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below.” Lawson at 9:1-15; *see also* 1:51-60. “The presently preferred embodiment of a system for global event notification and distribution comprises a general purpose computer. The present invention, however,

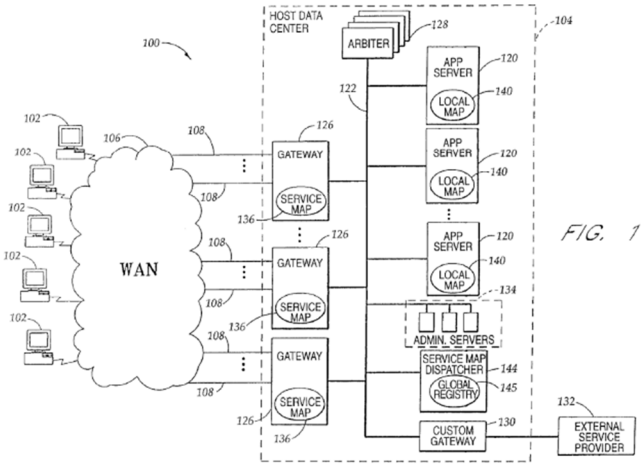
Claims of the ’722 Patent	PointCast System
	can also be used with any special purpose computer or other hardware system and all should be included within its scope. The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and input means for receiving input from a user. Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention. Embodiments within the scope of the present invention also include articles of manufacture comprising program storage means having encoded therein program code means for causing a CPU to perform certain actions. Such program storage means can be any available media which can be accessed by the processing means of a general purpose or special purpose computer.” Lawson at 7:17-39, Figs. 1-3; *see also* claims 38-39, 43-44. “Each server has running thereon a local event globalization process that registers for events desired by local event consumers. When an event consumer registers for an event, the event globalization process of the event consumer's local server places an entry into the local event registry for the local server. An entry is also placed into the global event registry for the local server where the event consumer is located. Thus, the global event registry is updated to contain an entry identifying the server where the event consumer is located and the desired event and the local event registry of that server is updated to identify the event consumer and the desired event.” Lawson at 4:54-65, 7:52-8:4; *see also* 9:16-35, 10:16-35, Fig. 2. “The present invention achieves global event notification by storing a global event registry comprising a list of events and a corresponding list of servers which need notification when the corresponding event occurs. In addition to the global registry, each server stores a local event registry comprising a list of events and a

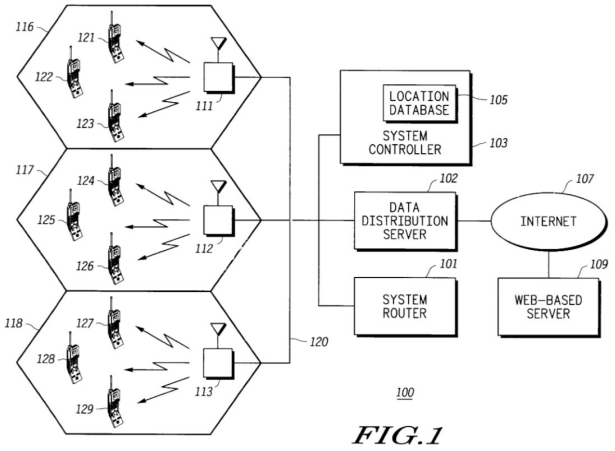
Claims of the ’722 Patent	PointCast System
	corresponding list of local event consumers that need notification when an event occurs.” Lawson at 4:45-52; *see also* 24:17-19, Figs. 3-6.  FIG. 1 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 23:64-24:1.

Claims of the ’722 Patent	PointCast System
	“Another type of filtering that may be supported by the present invention is a class based or category based filtering. A class based or category based filter identifies classes or categories of objects that are of interest to an event consumer. For example, consider an employee phone book database maintained on the network. It would be desirable to update the employee phone book database whenever a new employee was added to the system or whenever information about an existing employee was changed. In such a situation, the employee phone book database could register for notification of "a modified object" type event. The employee database could then submit a filter that filtered out modifications to any objects except employee record type objects. Then when an employee record was changed in the system, the database would receive notification that an employee record had been changed.” Lawson at 21:16-25. “As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 24:64-24:6. “In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:16-21,

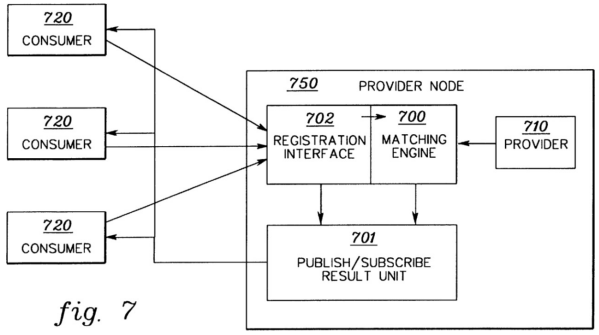
Claims of the ’722 Patent	PointCast System
	 FIG. 7 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network.” Lawson at 23:60-63. “After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the process described in FIGS. 3-6.” Lawson at 24:17-18. “For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:

Claims of the '722 Patent	PointCast System
	 In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event." Lawson at 12:3-26. "For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user computers would then receive the notification and in response run a virus scan program." Lawson at 6:4-15. "The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and

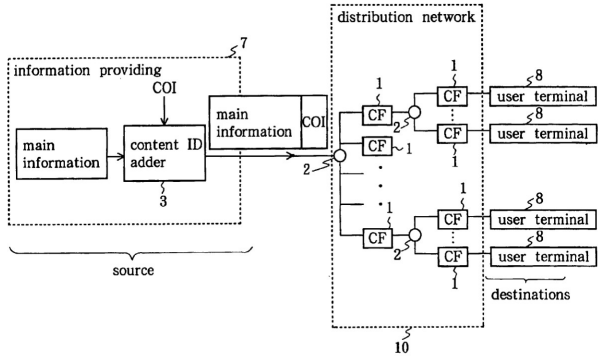
Claims of the ’722 Patent	PointCast System
	input means for receiving input from a user. Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention.” Lawson at 7:23-51. Choquier discloses a routing network in which data received by a host data center 104 is routed to client devices 102 using application servers arranged into “service groups.” Choquier at 2:1-4.  FIG. 1 Choquier at Figure 1. Data routed to the clients, coupled to the routing network, via the application servers can originate from “an external data provider connected to the host data center 104 by the Internet” (an input source). Choquier at 9:57-65.

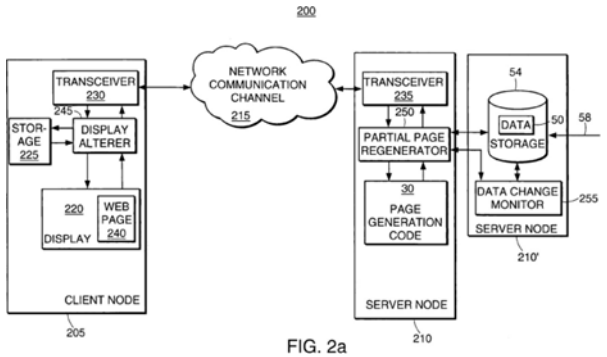
Claims of the ’722 Patent	PointCast System
	“A wireless communication system (100) employs a method and apparatus for providing information to multiple communication units (121-129). The communication system includes a communication infrastructure (101, 102, 103, 105, 111-113, 120), a data network (107) and an information source (109).” Averbuch at Abstract.  FIG.1 Averbuch at Figure 1. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a

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	communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers.” Averbuch at 4:64–5:1. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an

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	event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53. “FIG. 7 shows one example of a publish/subscribe system incorporating and using the content-based subscription of the present invention. Each provider 710 is coupled to a matching engine 700 on a provider node 750.” Chandra at 10:66–11:2. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network.” Chandra at 11:16–21.  *fig. 7* Chandra at Figure 7.

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	“The major components of the asynchronous database event notification system according to the present invention include a database 310 (an instance thereof), a channel 315 and a plurality of notification clients 370, 372, 374 and 376.” Mishra at 4:51–55. “The database 310 may be thought of as a supplier of event notifications and each of the plurality of clients 370, 372, 374 and 376 may be thought of as a consumer of such event notifications.” Mishra at 4:55–58. “Each of the clients 370, 372, 374 and 376 may be coupled to the database 310 through the channel 315 via a network 380 that may include, for example, the Internet, a leased line and/or some other public, private or hybrid network.” Mishra at 4:58–62. “For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change.” Mishra at 7:59–61. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in

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	throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract.  FIG.1 Yamanaka at Figure 1. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25.

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	“The invention relates to a method and apparatus for regenerating portions of the page that have changed and transmitting only those portions to the client for display.” Hayton at Abstract.  FIG. 2a Hayton at Figure 2a. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25. “FIG. 2a is a diagram of an exemplary client/server network embodying the principle of the invention.” Hayton at 4:10–11. “a first computing system (“client node”) 205 in communication with a second computing system (“server node”) 210 over a network 215.” Hayton at 4:67–5:2.

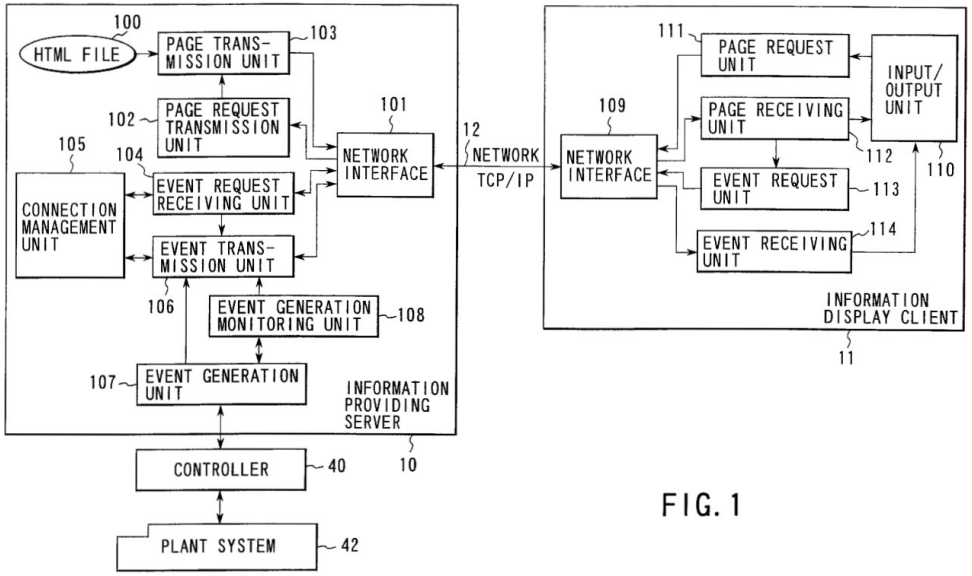
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	“The server nodes 210 and 210′ can be any computing device capable of providing the requested services” Hayton at 5:38–39. “Examples of format for the web page 240, and thus of the page portions 260, include HTML, XML, VRML, WML, (display) postscript and nroff. Each code fragment 265 generates one or more page portions 260. For example, as illustrated in FIG. 2b, code fragment 265d generates page portions 260c, 260e and 260f.” Hayton at 6:20–25. “FIG. 2b also illustrates an example of the correspondences between code fragments 265 of the page generation code 30 and the corresponding data 50a, 50b, 50c, 50d (generally referred to as 50) upon which the code fragments 265 depend.” Hayton at 6:26–30. “In addition to executing the code fragments 265 individually from and independently of other parts of the page generation code 30, the partial page generator 250 may also have to intercept access to the data 50 upon which the code fragments 265 depend. This is typically accessed via data access objects. FIG. 4c illustrates an exemplary embodiment where JAVA is used for implementation. In this embodiment, data 50 is typically accessed via one or more Java beans 100. The JAVA beans 100 themselves are logically separate from the page generation code 30 and are only responsible for managing access to the data 50. The beans 100 are not considered code fragments 265, as the do not directly generate output that produces the page 240.” Hayton at 9:48–60. “As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245

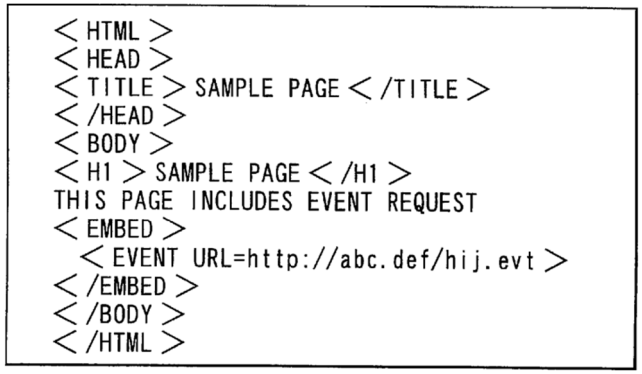
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	performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display; associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page.” Hayton at 23:46–24:3. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions

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	(NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “WWW 75 represents a source for data such as (S1-Sn) of FIG. 2, which are understood in this embodiment to be on-line data sources” Rajan at 14:30–33. “A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data” Rajan at 14:35–42. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The present invention relates generally to a client/server type system wherein an information providing server provides information upon request from an information display client, and more particularly to a real-time information transmission system for realizing novel and advantageous information transmission from an information providing server to an information display client.” Tsutsumitake at 1:6-12.

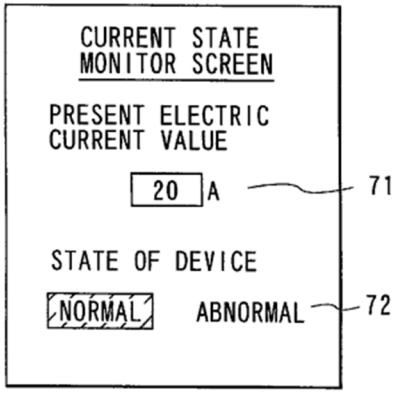
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	“In general, the server provides information to the client in units of a document called “page”. The page is an electronic file described in a format called HTML (Hypertext Markup Language). The client is normally realized with use of a software called “browser” for information display (information browsing), and the browser accesses the server to acquire and display pages including images and sounds.” Tsutsumitake at 1:22-28. “The present invention has been made in consideration of the above circumstances, and an object of the invention is to provide a real-time information transmission system for realizing real-time information transmission from a server to a client in an existing WWW framework, thereby coping with information update in the server. Another object of the invention is to proyide a real-time information transmission system, wherein even if the time interval of information update on the server side is very short or information update occurs at a non-specified time, information update on the server side can be efficiently reflected on the client side, and the reliability and stability of communication between the server and client can be enhanced. Still another object of the invention is to provide a real-time information transmission system for realizing such an exclusive control that the same page cannot simultaneously displayed on a plurality of clients excluding one client.” Tsutsumitake at 3:20-38. “The present invention provides a real-time information transmission system for transmitting information in real time from a server to a client via a network, the system comprising: determination means for determining, on the basis of an information transmission request from the client to the server, whether the request is a page request or an event request; page transmission means for transmitting, if the determination means has determined that the request is the page request, information of the requested page only once from the server to the client at an originating point of the page request; event generating means for generating events; and event transmission means for transmitting, when the determination means has determined that the request is the event request, those of the events generated by the event

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	generating means which are associated with the event request, from the server to the client at an originating point of the information transmission request in response to the event request issued once.” Tsutsumitake at 3:39-56. “A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request. The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice.” Tsutsumitake at 8:39-49. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68.

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	 FIG. 1 Tsutsumitake at FIG. 1. “The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request.” Tsutsumitake at 9:60-67; *see also* 14:3-29, Fig. 8.

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	 Tsutsumitake at FIG. 2. “The event receiving unit 114 receives the event sent from the server 10 on the basis of the request to the server 10 from the event request unit 113. The received event is sent to the input/output unit 110, where necessary. For example, if the received event is an event indicating the update of the page in the server 10, the client 11 issues a page request to the server 10 and enables the updated page to be displayed on the display screen once again (i.e. the updated content being reflected on the display). In the present embodiment, the format of the page sent from the server 10 in response to the page request from the client 11 is a normal HTML file format. Of course, another format may be adopted. FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute “URL” in a tag “EVENT” in a tag “EMBED”. The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point.” Tsutsumitake at 10:7-29.

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	“A description will now be given of a method of processing the event sent from the server 10 on the client (11) side and updating the screen image of the browser (page display screen image). FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.

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	The event processing results can be reflected on the page screen image (event screen image) by using the Java(Applet) of Sun Microsystems, JavaScript of Netscape Communications, or Dynamic HTML of Microsoft. Needless to say, the method is not limited to these. FIG. 8 shows an HTML expression of a page, on which the screen display in FIG. 7 is based. In the example of FIG. 8, the event request to the server 10 is designated by a tag “EVENT” on the page. This tag includes attributes such as a time interval (“period”) of events to be sent to the client 11 and a target (“target”) for reflecting the received event on the screen. A tag “HANDLER” is introduced as a tag for reflecting the event on the screen. This tag includes attributes such as a format (“type”) for screen display and a name (“name”). The same name as the name attribute is designated in the target attribute in the tag “EVENT”. This example of expression is merely an example, and other formats may be used.” Tsutsumitake at 13:27-14:16.  FIG. 7 Tsutsumitake at FIG. 7. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior

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	art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.2] causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network; and	The PointCast system discloses or renders obvious causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network. For example: PointCast delivered news, financial data, and other content that appeared as dynamic content within a graphical UI. The data was continuously refreshed (e.g., stock tickers). The input source was the various content sources that PointCast provided access to. "These days, there's so much information available via newspapers, Web and intranet sites, trade journals, online services, (you get the idea!), that just staying on top of the news can feel like a full-time job. Wouldn't it be great if you could get all the news you care about automatically delivered to you - without lifting a finger? " - https://web.archive.org/web/19990826121133/http://www.pointcast.com/tour/index.html?hometxt "PCN by PointCast – information gathering This agent-based service delivers customized information to the client desktop during idle times. It provides current information to the user’s desktop cache. The agent service requires client software for interaction with the server that actually does the information gathering" https://faculty.washington.edu/wobbrock/pubs/agents.pdf “The PointCast Network is a free Internet news service that takes the work out of staying informed by broadcasting personalized news and information directly to your computer screen. You get just the news you’re interested in from trusted sources like CNN, The Wall

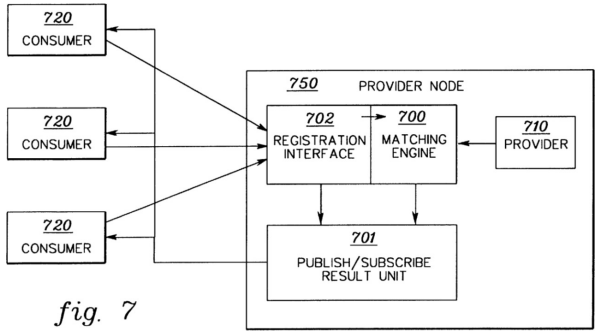
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	Street Journal, The New York Times and many more, presented in a way that's easy-to-scan, easy-to-read and easy-to-digest." https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chadra, Mishra, Yamanaka, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, Averbuch's, Chandra's, Mishra's, Yamanaka's, Rajan's, and/or Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., "When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action. In the case of one example given above, if the network was set up to notify a user when a file had finished printing, after the file had been printed, the server responsible for printing the file would generate an event notification that printing had finished. This event notification would then be passed to the user to notify the user that printing had concluded." Lawson at 1:61-63. "Event consumers which desire to receive notification of certain events "register" with the event producing system. When an event occurs, notification is sent to all registered event consumers." Lawson at 2:6-9. "When an event consumer needs to register for a new event or create a new event, the event consumer can send a 'register for event' packet or a 'create event packet' to the event globalization process on the local server. When an event is created, the event

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	globalization process will create an entry in the global event registry, as for example global event registry 68 of Fig. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of Fig. 3, identifying the event and the event consumer wishing to receive notification of the event.” Lawson at 15:41-56; *see also* 10:50-11:2, 16:41-46, 19:63-20:7, 22:27-23:2, 23:11-28, Fig. 3 #52, 76, Fig. 4 #102, claim 9. For example, “the employee phone book database could register for notification of ‘a modified object’ type event.” Lawson at 21:20-21. “Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 24:1-4; *see also* 10:20-35, 10:47-67, 12:46-52, 14:54-64, 15:35-57, 16:23-62, Figs. 1-4. “In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event.” Lawson at 12:15-20. “Although the above describes a presently preferred event packet, it should be understood that for this invention the only required field is the type of event field. The type of event field is used to extract from the global event registry, either directly or indirectly, those servers that should receive notification of the event and is used to extract from the local event registry, either directly or indirectly, those local event consumers that should receive notification of the event. In addition to the type of

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	event field, the event data should also be included so that the event information can be transferred to the appropriate recipients.” Lawson at 12:27-37. “checking a first registry comprising a list of local event consumers and an associated list of event types in order to identify which local event consumers are registered for events of the type included in said event packet.” Lawson at 27:61-64 (claim 19). “In addition to the type of event field, the event data should also be included so that the event information can be transferred to the appropriate recipients.” Lawson at 12:34-37; *see also* 21:15-26, 24:1-4. Choquier discloses various information-based updating content, like bulletin board messages, news, or stock quotes. Choquier at 6:8-22, 23:26-33. Choquier specifies that communication links are established via between clients and servers of Choquier’s network to facilitate exchange of information such as “update transactions.” Choquier at 8:8-12. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system

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	router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53.

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	“Consider a stock market example where events for executed trades include the name of the security, the price, and the volume of shares being traded. Previously, to structure the stock market example using groups a group is assigned for every security and events are published to the group associated with the appropriate security. A user wishing to view this information along a different dimension is left without adequate support. For example, consider a trader who is interested in high volume transactions, e.g., those involving over 100,000 shares. In a group-based publish/subscribe system, such a subscriber is forced to subscribe to all groups and filter out itself all events except the few the subscriber needs. With the content-based subscription of the present invention, one subscriber may specify interest in all events associated with a security, another may restrict itself to trades associated with a security, and a third subscriber may express interest in all trades over 100,000 shares regardless of security. While groups restrict subscriptions to a single dimension (i.e., the groups name), the technique of the present invention deals with multiple dimensions (in this example, security name, price, and number of shares).” Chandra at 10:44–65. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network.” Chandra at 11:8–12. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720.

Claims of the ’722 Patent	PointCast System
	However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. “Each of the notification clients 370, 372, 374 and/or 376 may subscribe to be notified upon the occurrence of one or more data or system events.” Mishra at 5:13–15. “To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses an interest in receiving notification upon the occurrence of a specified event by way of a subscription. More particularly still, an agent, acting on behalf of one of the clients 370, 372, 374 and/or 376 subscribes to one or more event names. Each event name identifies a particular data or system event within the database 310.” Mishra at 5:15–26. “The names schema 330 stores the delivery information that specifies to which client(s) 370, 372, 374 and/or 376 the notification is to be delivered and how the notification is to be sent. The updating of the names schema 330, according to the present invention, is termed the registration process.” Mishra at 5:35–40.

Claims of the ’722 Patent	PointCast System
	“The delivery information stored in the names schema 330 includes information as to where the notification is to be sent and how the notification is to be sent. For example, the delivery information provided by a particular client 370, 372, 374 or 376 may include an identification of the client process' host and port (where) and may include a callback indicating the manner in which delivery of the notification should be made (how)” Mishra at 5:40–48. “For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change.” Mishra at 7:59–61. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract.

Claims of the ’722 Patent	PointCast System
	“The principal distinguishing features of this invention are as follows. Firstly, it adds to a packet a content identifier for identifying the content, or, if a category to which the content belongs can be identified, one or both of a content identifier and a category identifier for identifying the category to which the content belongs.” Yamanaka at 2:19–24. “Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive.” Yamanaka at 2:24–29. “Furthermore, because the user registers content in the distribution network, even if the situation of a user constituting a destination is constantly changing, the source can still distribute content without having to be aware of these changes.” Yamanaka at 3:14–19. “The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means.” Yamanaka at 4:38–44. “Thus, in order to register, in the table of each decision means, content identifier related information notified by a user, it is necessary to search for a route from the information providing terminal in question to the user terminal in question, and to register, in the tables of the nodes on that route, the content identifier related information notified by the user.” Yamanaka at 4:61–67. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for

Claims of the ’722 Patent	PointCast System
	collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so.” Rajan at 14:66–15:1. “Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention.” Rajan at 15:36–43. “As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to

Claims of the ’722 Patent	PointCast System
	monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting.” Rajan at 15:49–57. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request. The event request unit 113 sends the URL of the event request to the server 10 via the network interface 109. Though not shown, the URL of the event request may not only be

Claims of the ’722 Patent	PointCast System
	delivered from the page receiving unit 112, but also it may be directly input to the input/output unit 10 by the user.” Tsutsumitake at 9:60-10:6; *see also* 9:42-10:19; 10:20-29. The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7). If an event request is not included, the page receiving unit 112 outputs the page to the input/output unit 110 (step Al2). Thus, the content of the received page is displayed on the display of the input/output unit 110. “On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:53-11:8.

Claims of the ’722 Patent	PointCast System

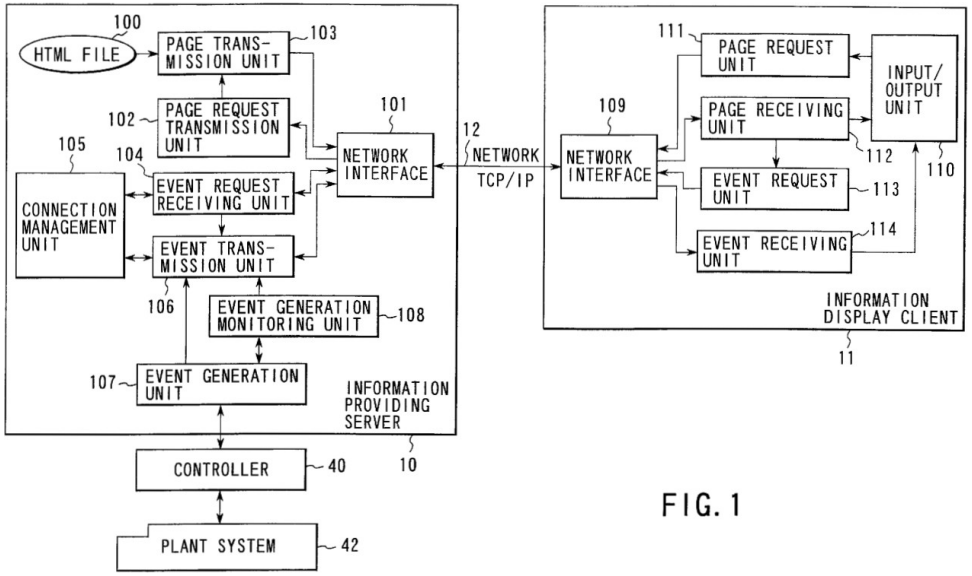
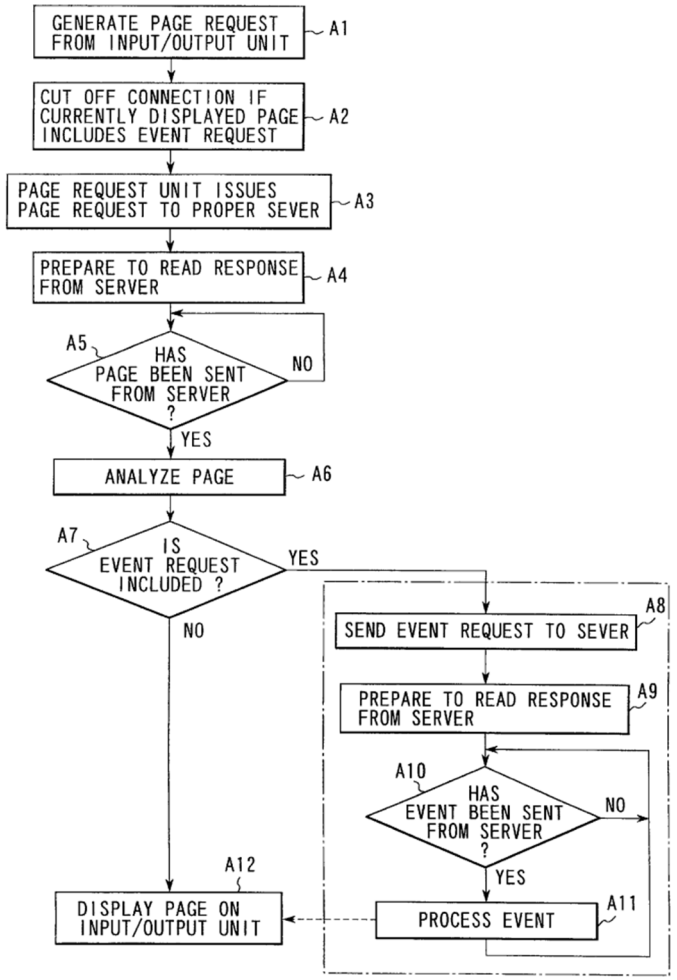


FIG. 1

Tsutsumitake at FIG. 1.

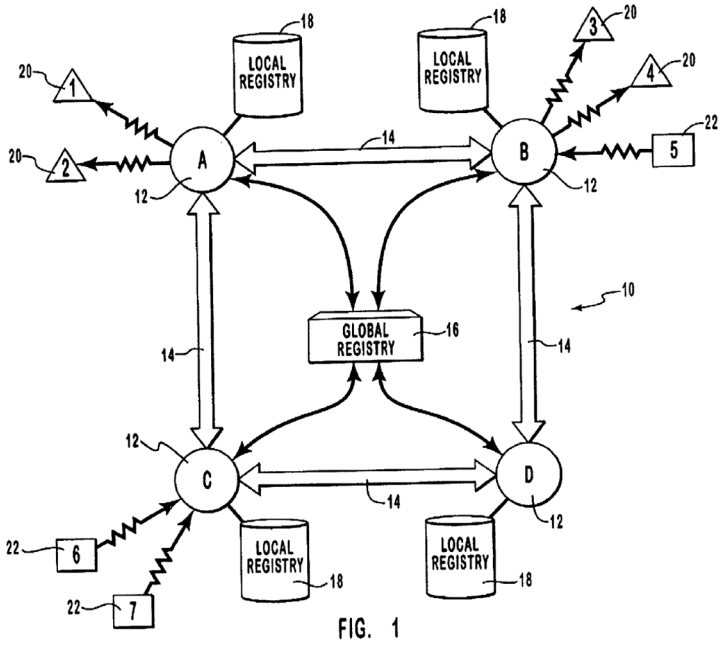
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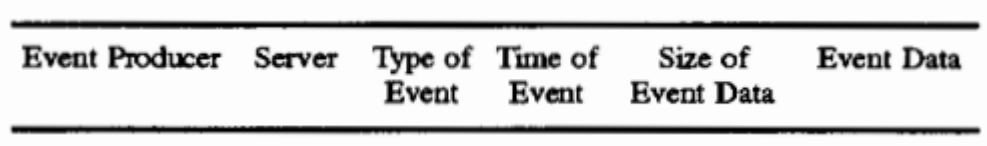
Claims of the ’722 Patent	PointCast System
	Tsutsumitake at FIG. 2.  FIG. 3

Claims of the ’722 Patent	PointCast System
	Tsutsumitake at FIG. 3. “On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55, *see also* Figs. 1, 4, 9:30-33, 12:66-67. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.3] sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object,	The PointCast system discloses or renders obvious sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object. For example: PointCast System discloses “sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object.” *See, e.g.*, Pointcast users subscribed to channels (e.g., specific news or stock feeds), which are categories. The input sources were processed by the PointCast server and an update message was sent to the client.

Claims of the ’722 Patent	PointCast System
	“An example of push would include the popular application, PointCast. PointCast was an early entrant into the push wave because it could deliver news, stock quotes and other content auto- magically throughout the day. The users simply had to tell PointCast what they were interested in, then sit back and watch.” https://support.sas.com/resources/papers/proceedings/proceedings/sugi25/25/sy/25p288.pdf The update messages are customized content sent to the users desktop, which is a live object. “PointCast is a company that assembles customized news, weather, sports, and financial information in accordance with interests specified by a PointCast user. PointCast then ensures that the user’s desktop computr is updated, at intervals the user specifies, with the latest news” https://www.copyright.gov/reports/thardy.pdf "These days, there's so much information available via newspapers, Web and intranet sites, trade journals, online services, (you get the idea!), that just staying on top of the news can feel like a full-time job. Wouldn't it be great if you could get all the news you care about automatically delivered to you - without lifting a finger? " https://web.archive.org/web/19990826121133/http://www.pointcast.com/tour/index.html?hometxt "PCN by PointCast – information gathering This agent-based service delivers customized information to the client desktop during idle times. It provides current information to the user’s desktop cache. The agent service requires client software for interaction with the server that actually does the information gathering"

Claims of the ’722 Patent	PointCast System
	https://faculty.washington.edu/wobbrock/pubs/agents.pdf To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below.” Lawson at 9:9-11.

Claims of the ’722 Patent	PointCast System
	 FIG. 1 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 23:60-24:4.

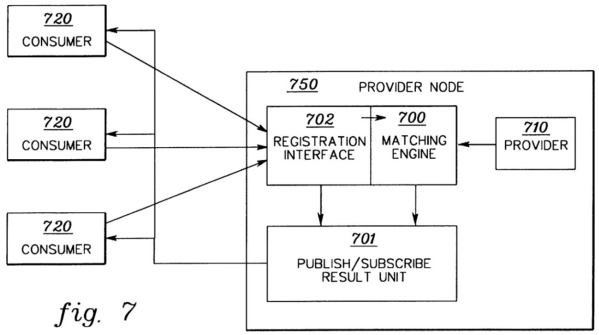
Claims of the ’722 Patent	PointCast System
	“Referring now to FIG. 7, a new user is added to the database in step 154. Assume that the addition occurred on server B. After the user has been added to the database, step 156 indicates that an event packet is created. This event packet represents any prepackaging of the event data done by the database process itself. The database process itself may generate a complete event packet as described above, or the database process may create a partial event packet which is then packaged into a complete event packet later on by the event globalization process illustrated in FIG. 3.” Lawson at 24:7-14. “For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:  In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event.” Lawson at 12:3-26.

Claims of the ’722 Patent	PointCast System
	“After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the process described in FIGS. 3-6. Remember that each server in the network has a similar process running thereon. Step 160 indicates that the event globalization process on server B validates the rights of the event producer. This corresponds to steps 104 and 106 of FIG. 4. Notice that after the rights of the event producer have been validated, the database of network users may continue processing as shown by step 162. Meanwhile, the event notification process on server B queues the event packet in step 164. These steps illustrate one feature of the present invention. Because the event notification process operates as described, the event notification process may execute separately from the database of network users. Thus, the database may return to its processing tasks without sending event notifications to each and every registered user. After the event packet has been queued, as for example in event queue 64 of FIG. 3, the registered local event consumers and registered remote servers are identified in steps 166 and 168. As described above in the embodiment in FIG. 3, these functions are performed by local event processing block 70 and remote event processing block 66 by checking local event registry 72 and global event registry 68 respectively. If the event notification process is multi-threaded, these two functions may be performed in parallel.” Lawson at 24:15-42; *see also* 4:66-5:12, 10:16-11:2. “A single event may need to be transferred to multiple event consumers.” Lawson at 22:62-63. “After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet

Claims of the ’722 Patent	PointCast System
	could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 24:59-25:7. “After the registered remote servers have been identified, step 170 dispatches the events to the remote servers. In this case, the only remote server registered for this event was server A. Thus, step 170 dispatches the events to the event globalization process running on server A. As the events are received, they are queued in the event queue on server A as indicated by step 172. At this point, the event notification process on server A and the event notification process on server B can proceed independently so that the servers are not tied up communicating with each other. Notice that server A did not validate the rights of server B. This illustrates that once the rights of an event producer are validated, they may not need to be revalidated when the event is sent to other servers. Of course, for network security reasons, server A may wish to verify that the event is coming from server B and not somewhere else.” Lawson at 24:42-58. “After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 25:4-25:7.

Claims of the ’722 Patent	PointCast System
	“Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1. In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:8-20. Choquier discloses an input source, different from a client device, can send/route an update message to Choquier’s network. In Choquier, update messages (“update transactions”) for updating services can be sent/routed from input sources such as “an external data provider connected to the host data center 104 by the Internet.” Choquier at 9:50-65, 10:4-12. Choquier’s update messages can be received by a gateway device because Choquier discloses using a gateway 130 that “links the host data center 104 to one or more external service providers 132” and Arbiter microcomputers 128 for disseminating data to appropriate server groups using service maps 120. Choquier at 6:37-47, 23:9-19. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source.

Claims of the ’722 Patent	PointCast System
	The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27 “Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers.” Averbuch at 4:64–5:1. “In the preferred embodiment, data distribution server 102 receives subscriber information from an information service (i.e., the information service provided by web-based server 109). The subscriber information, preferably packet data, is intended for subscribers to the information service.” Averbuch at 7:52–56. “producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or

Claims of the ’722 Patent	PointCast System
	more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price.” However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price. Chandra at 6:49–58. “For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15.  *fig. 7* Chandra at Figure 7. “When an event (whether data or system-related) fires a trigger among the triggers 314, a notification is generated. The notification is published to the channel 315.” Mishra at 6:11–13. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one

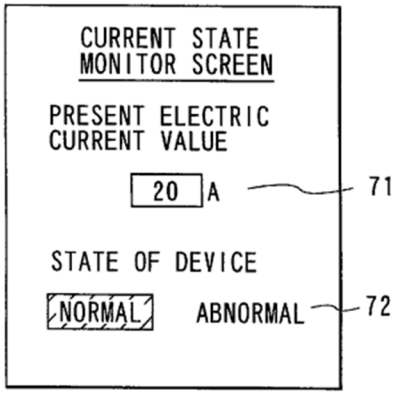
Claims of the ’722 Patent	PointCast System
	or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25.

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	“As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “When an event 360 is detected that represents a change in data 50, the partial page regenerator 250 adds the value 320 that corresponds (arrow 355, FIG. 7) to the event 360 on an invalid value list (not shown). In one embodiment, the invalid value list is part of the map of correspondences 300. The invalid value list tracks all values currently displayed on the page 240 on the client node 205 that have changed and are no longer valid. Once there is an entry on the invalid value list, the partial page regenerator 250 waits for a request to refresh the page 240 and, in response to that request, generates and transmits updates for the changed portions 260 of the page 240. The request to refresh the page 240 can be generated in many different ways. For example, the user on the client node 205 may request a refresh of the page 240. In another embodiment, the display alterer 245 may request a refresh of the page 240 periodically. In another embodiment, the partial page regenerator 250 generates the request for a refresh once a change in data 50 is detected. For example, as stated above, when the ‘feedback’ method is called on the server node 210, the partial page regenerator 250 automatically generates a request for a refresh. In another embodiment, the communication protocol between the client node 205 and the server node 210 support or simulate a server push model (i.e., server node 210 transmitting data to the client node 205 without the client node 205 initiating a request).” Hayton at 17:14–40.

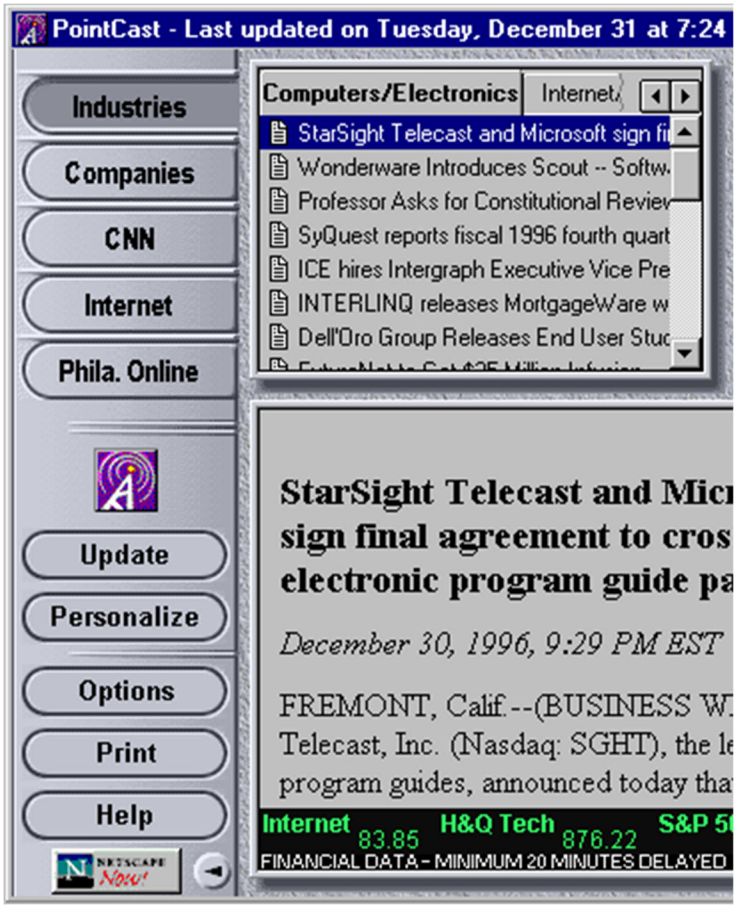
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	“1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display; associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page.” Hayton at 23:46–24:3. “A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data” Rajan at 14:35–42. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites;

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	a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The client 11 analyzes the sent page, searches for an event request described therein, and sends it to the server 10. In this case, another connection ID (Conn2) is used. If an event has occurred, the server 10 sends it to the client 11 with use of this connection ID. Subsequently, as shown in FIG. 6, each time an event has occurred, it is sent repeatedly with use of the ID (Conn2).” Tsutsumitake at 12:66-13:5; *see also* 12:10-15, Figs. 1, 5. “FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event

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	generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.” Tsutsumitake at 13:31-65. “According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point, if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side.” Tsutsumitake at 4:36-48; see also 12:23-28.

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	 FIG. 7 Tsutsumitake at FIG. 7. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.4] wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network,	The PointCast system discloses or renders obvious wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network. For example: PointCast System discloses “wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network.” *See, e.g.*,

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	The PointCast server acted as a gateway, receiving news or stock updates from external sources and associating them with specific content channels. That PointCast server/gateway identified the category of update message and then sent the update message to the appropriate node type (client). Categories are disclosed in this PC Magazine online encyclopedia:

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	 https://www.pcmag.com/encyclopedia/term/pointcast Welcome to the PointCast Network Channel Guide, a comprehensive directory of PointCast channels and content sources. The Guide is organized by information category, and then by

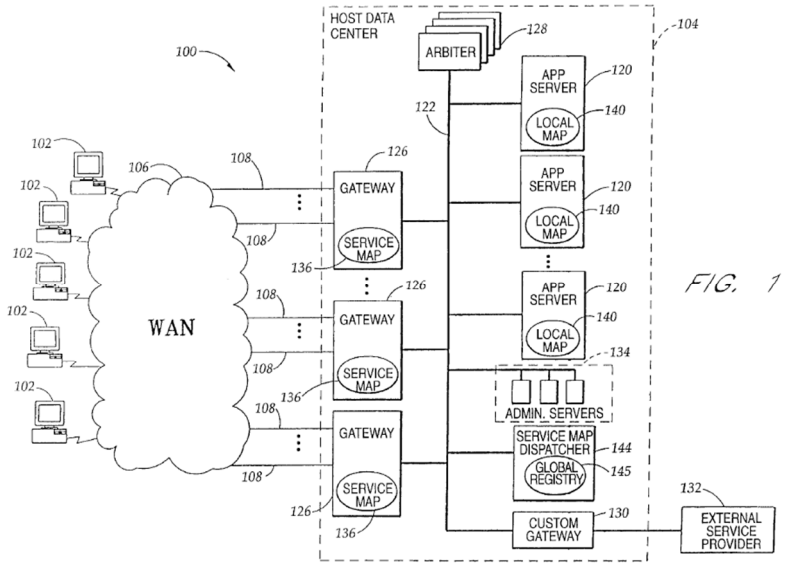
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	channel within each category. For a complete list of PointCast's more than 700 content source"  • Aggregated Industry News • Banking and Financial Services • Computers and Technology • Consumer Markets • Entertainment • Government - Federal • Healthcare • Insurance • Real Estate • Telecommunications • Utilities and Energy - https://web.archive.org/web/19990921040538/http://www.pointcast.com/content/index.html?hometxt “Get the information you need to stay on top of important U.S., Canadian, business and world news quickly and easily with the PointCast News channel. Top-line summaries give you the headlines and key facts in an easy-to-scan, easy-to-digest fashion. For all the details behind

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	the stories, the full text articles are just a click away. For even more information about a particular news item, just click on PointCast's intelligent *Related Stories* links. Plus, see exactly where news is happening around the world with colorful *Maps in the News* from Magellan Geographix. The News channel's breaking stories are provided by Reuters North American Business Report, Reuters Online Report and Reuters Canada Online News Report.” https://web.archive.org/web/20000414133428/http://www.pointcast.com/content/cg_c02_1.html?cg Categories are also disclosed in this 1999 Business Week article “PointCast recognized the power of delivering personalized information over the Net. Its software allowed consumers to customize news automatically through the push technology. Selected content would be culled from the Web and delivered to an individual's computer screen--all for free. PointCast made its money from advertisers.” https://web.archive.org/web/19991110095145/http:/www.businessweek.com/1999/99_17/b3626167.htm “PointCast offers news and information from CNN, Time, People and Money magazines, Reuters, AccuWeather and a host of local newspapers. The service allows the user to select topics of interest, delivering matching stories by displaying them as a screen saver.” - https://ajrarchive.org/Article.asp?id=268 In the mid-1990s, PointCast was the first Internet product to become popular for pushing selected news and stock quotes into a user's computer (see PointCast). See real time, BackWeb and Active Channel.” https://encyclopedia2.thefreedictionary.com/push+media

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	"Is the delivery ("pushing of") of information that is initiated by the server rather than being requested ("pulled") by a user. Pointcast is the most well known push service that pushes information based on the users profile." - https://www.lazworld.com/glossary.php One must subscribe to feeds "PointCast offers news and information from CNN, Time, People and Money magazines, Reuters, AccuWeather and a host of local newspapers. The service allows the user to select topics of interest, delivering matching stories by displaying them as a screen saver." https://ajrarchive.org/Article.asp?id=268 To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and Pearson concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, determining message categories based on input source and determining nodes to send data to was a well-known and commonly-used technique. Modifying this reference with Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson's teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, or Pearson for example, to incorporate this limitation. *See, e.g.*, "Embodiments within the scope of this invention comprise means for transferring an event to another server. In FIG. 3, such means is illustrated by remote event processing block 66. The details of remote event processing block 66 are presented

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	below. In summary, however, remote event processing block 66 monitors event queue 64 and when events are placed therein by incoming event processing block 60 that need to be transferred to other servers in the network, remote event processing block 66 will establish a connection to those servers and transfer the events to the other server. Embodiments within the scope of the present invention may, therefore, comprise means for accessing a global event registry to identify which servers should receive which events. Such means may be incorporated into remote event processing block 60. In such a case, remote event processing block 66 identifies the servers that should receive events queued in event queue 64 by checking global registry 68.” Lawson at 13:8-24; *see also* 12:12-20, 12:29-34. “As described in greater detail below, when an event is transferred from one server to another server, a connection must be established between the two servers.” Lawson at 13:25-27. “Thus, there is a possibility of events being transferred both to and from the local server. This is indicated in FIG. 3 by remote event 56 and remote event 58.” Lawson at 13:33-35. “Remote event 58 represents a local event that is transferred to another server via network connection 52. It should be pointed out that in FIG. 3 network connection 52 represents an example of the networking means for interconnect servers in the present invention.” Lawson at 11:51-56. “As previously mentioned, embodiments of the present invention may comprise means for filtering events so that an event is only transferred if the event meets designated filtering criteria. Returning to decision block 130, if an event is available for transfer to a local event consumer, the next step is to identify whether the local event meets any stored filtering criteria for that event and local event consumer. This is illustrated in FIG. 6 by decision block 136, which represents but one example of the means for filtering. As previously discussed, event consumers may submit filtering

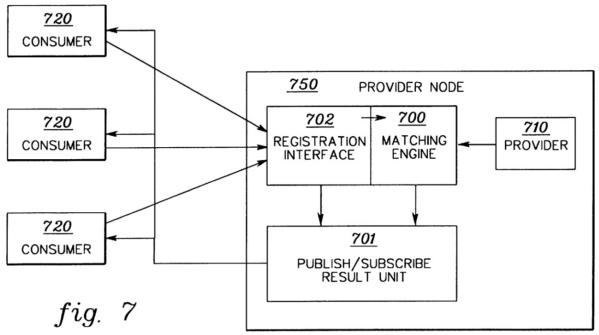
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	criteria for registered events. Such filtering criteria may be stored with the local registry or in any other manner that allows the desired information to be retrieved by a server in order to identify whether specific events meet the filtering criteria. Filtering criteria can be associated with a particular event and a particular event consumer. Furthermore, filtering can be performed on any of the information available from a particular event. The available information for an event includes not only the information available in the event data itself, but also in the event packet, such as the event packet previously described.” Lawson at 20:10-30; see also 5:26-65, 16:63-17:6, 17:67-18:3, 22:9-11, Fig. 5. “When server B recognized that event producer 42 had initiated an event, server B would check global event registry 34. Global event registry 34 would identify that server E needed notification of the event. Server B would then send the event through gateway 32 to server E.” Lawson at 10:23-28. “Furthermore, event notification was transferred from server B to server E without broadcasting the event to servers A, C and D. Thus, such a method can globalize an event to required locations while, simultaneously, reducing message traffic due to broadcast type events.” Lawson at 10:43-47; *see also* 22:62-63. “To accommodate increased numbers of BBS users, multiple BBS service groups (not shown) may be formed, with each BBS Service group handling a specific topic or Set of topics.” Choquier at 10:17-20, *see also* 2:1-4, 2:14-18, 6:8-31, 9:40-49, 11:44-47.

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	 FIG. 1 Choquier at Figure 1. “Certain types of on-line Services provide end users with access to Service-wide (or equivalently, Service-group-wide) data sets (also referred to generally as "service content data”) which change on a transaction-by-transaction basis. The BBS service is an example of such a service; each time a user posts a message, a data Set is modified Such that all users of the BBS service (regardless of the particular BBS Server to which a user is assigned) have access to the message. Transactions of this general type (i.e., transactions which affect service-wide data sets) will hereinafter be referred to as "update transactions,” and can originate from a variety of Sources. For example, an update transaction can originate from a client microcomputer 102 when an end user posts a EBS message, or can originate from an

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	external data provider that is connected to the host data center 104 by the Internet.” Choquier at 9:50-65, *see also* 21:33-53, 22:34-45. “10. Scalability An important aspect of the on-line services network 100 described above is its ability to be scaled in capacity without having to change the existing System and application Software, and without having to reconfigure existing net work components. In accordance with the architecture of the System, new Service applications can (and normally will) be written to interact with existing Gateway 126, Arbiter 128 and Service map dispatcher 144 Software components So that new Services can be added without changing these components. By way of example, because the Arbiter 128 is implemented as a generic (i.e., Service-independent) transaction replication Service, new Service applications can be written to make use of the services provided by the Arbiter 128, and no changes to the existing Arbiter software will be necessitated by the addition of Such Service applications.” Choquier at 25:5-21, *see also* 1:52-67. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the

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	subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price. However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price.” Chandra at 6:49–58. “Search module 104 searches search data structure 103 to find all filters that match the event. In particular, the search module determines which consumers specified the filters that match

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	the events by traversing the search data structure. As described above, the consumer's identity is stored in matched filter list 218.” Chandra at 7:5–10. “The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol.” Chandra at 7:11–16. “For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15. “Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network.” Chandra at 11:16–21. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.

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	 *fig. 7* Chandra at Figure 7. “Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376. Mishra at 4:67–5:4. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the

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	entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “For example, means can be provided for adding a content identifier to a packet, and the distributing means can comprise means for deciding, in accordance with the content identifier, whether or not to distribute that packet to a given user terminal.” Yamanaka at 2:54–58. “This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this.” Yamanaka at 4:67–5:3. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which

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	causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices.” Rajan at 14:23–27. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

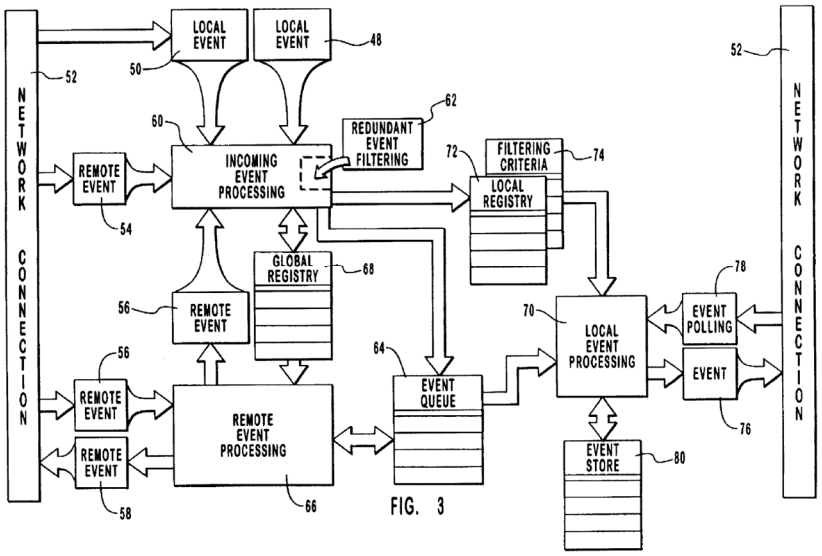
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	characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The message broker uses the topic identifier to check 210 records of subscriber requirements - determining which subscribers have registered a requirement to receive messages related to this topic and determining what specific data requirements have been specified by those subscribers. As an example, a first subscriber may have registered with the message broker with a requirement for the subscriber to be set a message whenever the message broker receives messages including a topic identifier naming the specific publisher organisation. The subscriber may also have specified that all received messages from that publisher organisation should have their image content processed to generate a derived image showing classifications of crops identifiable from the captured raw image. Furthermore, the subscriber system's capabilities may impose requirements for particular image processing operations. One example is the pixel depth of the subscriber system display, which may be bilevel, 256 level greyscale, or 24 bit colour - mapped by the broker to one of a set of pixel depth classes (High, Medium or Low). Having recognised the presence of image content, the message broker accesses the system capabilities information and user-specified requirements and then generates a task definition which describes the operations to be performed to process the received message's image content in the required way.” Bird at [0060]. “Known publish/subscribe mechanisms rely on distribution lists, typically executing very simple logic to achieve required routing of highly structured, small transactional messages. Subscriber applications can be registered to receive all messages which include a specific subject classification or keyword, such as a company name or a more specific subject, within the message header or within a particular content field of the structured message. Message dictionaries hold information about the structure of messages, providing the message broker with a definition of the structure of all messages that will pass through it and so enabling unpacking of fields from the message content for inspection. The message broker queries the message header or a field within the content to retrieve the subject classification or keyword,

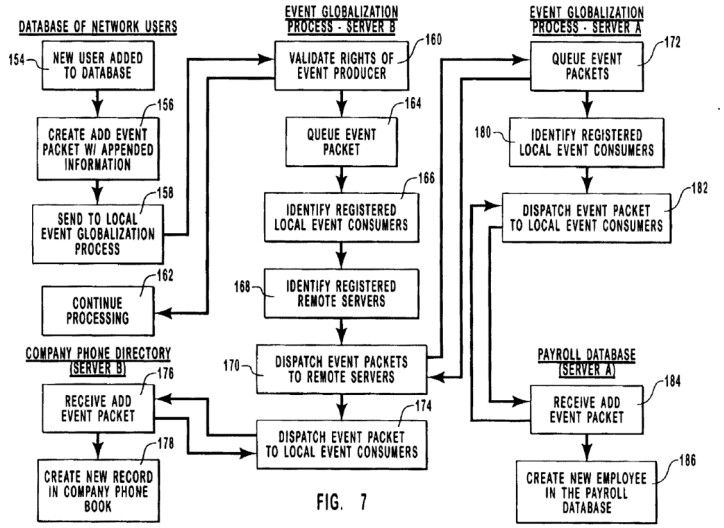
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	and this is then compared with a list of subscriber applications' information requirements and any other stored rules for routing messages to determine which applications the message should be sent to.” Bird at [0003]. “When a message is received by the message broker, a message analysis component 60 within the broker firstly investigates 180 the message header for a topic or subject identifier and/or identification of the sender, as is known in the art. A message publisher application may have identified a message topic or subject, such as by entering "STOCK/COMPUTERS/IBM" or "STOCK/AUTOS/GM" into a relevant field of the message header to indicate that the subject of the message is stock prices for IBM Corporation or General Motors respectively. The message broker includes a rules engine 40 which compares 210 any topic identifier and sender identifier retrieved from the message header of a published message with a list of subscribers' information requirements to identify which subscribers wish to receive this message.” Bird at [0044]; *see also* Bird at [0030]-[0072]. “Refer now to FIG. 9 for a discussion of the list 170 of simplified exemplary attack signatures. As described above in connection with FIG. 8, a communication device 106 constructed in accordance with the present invention is operative to store a list 170 of attack signatures, and to compare an incoming communication to entries on the list to determine if a received communication constitutes a threat event and respond accordingly. The list 170 comprises a plurality of entries, preferably arranged in a predetermined sort order to facilitate rapid access by indexing or hashing. Each exemplary entry on the list 170 comprises a header field 810, a body field 820, and a two-bit priority field 826. The priority field 826 in the disclosed embodiment is 00=ignore, 01=low priority, 10=not assigned (unused), and 11=high priority. Those skilled in the art will understand that the priority field is set in accordance with user and/or predetermined remote monitoring system preferences, for example by establishing certain predetermined priorities

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	for certain types of signatures via a high, medium, or low set policy (FIG. 4A), or by user setting of priority through the advanced options settings (FIG. 4B). The header 810 may comprise an IP address 812 and a port number 814. The IP address is the destination address of the communication device. Port numbers appear after the IP address and typically indicate a particular type of data communication service, some of which are known to be associated with security attacks, for example, a login host protocol on port 49. As will be known to those skilled in the art, Internet data communication services are provided on a particular port number of a particular server that provides that service, with the port number identifying a type of data communication service. While most Internet data communication services have standard port numbers (e.g., port 21 is for ftp (file transfer protocol) services, port 23 is for telnet services, port 25 is for smtp (e-mail), port 80 is for http (hypertext transfer protocol used for the WWW), etc.), services can also occur on non-standard ports. Those skilled in the art will understand that standard port numbers can be obtained by reference to Internet Request for Comments (RFC) 1700, Assigned Numbers, by J. Reynolds, J. Postel, July 1994. The reader should appreciate that header 810 may comprise additional elements, such as source and destination IP addresses, source and destination ports, fragmented bits and data transfer protocols, etc., which are well known to those skilled in the art.” Pearson at 18:41-19:18. “Method 900 continues from step 904 to step 906, where the intrusion detector 160 compares the communication's “header” information with entries in the list 170 of attack signatures, and passes to decision block 910. If the information in the incoming communication does not match an entry in the list 170 (e.g. the port number of the communication), control passes to step 912 and the communication is routed to its intended destination. However, if the information in the incoming communication matches an entry in the list 170, control passes to step 916 where the communication's body is disassembled. Control then passes to step 918.” Pearson at 20: 5-16; *see also* Pearson at 5:12-21:57.

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	To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.5] wherein the node is configured to identify the client device as a registered device and to route the update message to the client device, and	The PointCast system discloses or renders obvious wherein the node is configured to identify the client device as a registered device and to route the update message to the client device. For example: The server identified messages based on content type or channel ID (e.g., financial vs. news data). The messages are then sent to the client device that is registered for that content, and route the update message to that client. In Pointcast, registration is accomplished via subscription: "PointCast offers news and information from CNN, Time, People and Money magazines, Reuters, AccuWeather and a host of local newspapers. The service allows the user to select topics of interest, delivering matching stories by displaying them as a screen saver." https://ajrarchive.org/Article.asp?id=268 "Push Is the delivery ("pushing of") of information that is initiated by the server rather than being requested ("pulled") by a user. Pointcast is the most well known push service that pushes information based on the users profile."- https://www.lazworld.com/glossary.php To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with

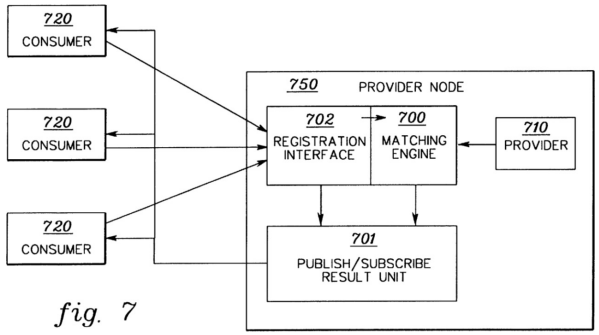
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	Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “Embodiments within the scope of this invention also comprise means for transferring an event to a local event consumer using a designated method. In FIG. 3, such means is illustrated by local event processing block 70. The details of local event processing block 70 are presented below. Briefly summarized, however, local event processing block 70 monitors event queue 64 for events that should be transferred to a local event consumer. Embodiments of the present invention may, therefore, comprise means for accessing a local event registry to identify which local event consumers should receive which events. Such means may be incorporated into local event processing block 70. In such a case, local event consumers that should receive events queued in event queue 64 are identified by checking local event registry 72 and any associated filtering criteria. Embodiments within the scope of the present invention may comprise means for filtering events so that an event is only transferred when the event meets designated filtering criteria. Such means, discussed in greater detail below, may be part of local event processing block 70. The filtering criteria is illustrated in FIG. 3 by filtering criteria block 74. Although the details of filtering are presented below, filtering criteria may be stored as part of the local event registry or may be stored in any other manner as long as a local server can access the filtering criteria and identify the local event consumer and the event type that the filtering criteria applies to.” Lawson at 13:38-64. “In FIG. 3, the process of transferring an event to a local event consumer is illustrated by event 76. Event 76 is shown going out over network connection 52. However, if the event consumer is a local process, event 76 may be transferred to the local event consumer by placing it in a common memory store, storing it on a file on the disk, or any number of other means that allow two processes running on the same computer to communicate data back and forth. If, however, an event is transferred to an event

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	consumer over network connection 52, then any number of other transfer methods may be utilized. For example, the event consumer may poll local event processing block 70. This is illustrated in FIG. 3 by event polling notification 78. Furthermore, events may be stored in an event store such as event store 80 until they are transferred to an event consumer. The transfer options between local event processing block 70 and an event consumer over network connection 52 are discussed in greater detail below." Lawson at 13:65-14:5, Fig. 3 #52, 76.  FIG. 3 "After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174." "In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process." Lawson

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	at 24:60-64, 25:16-18. *See also* 4:66-5:12, 8:58-60, 8:66-67, 10:28-36, 12:15-20, 12:29-34, 13:67-14:12, 19:63-20:9, 22:27-23:2, 25:34-36, 25:31-45, claim 9.  FIG. 7 “Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1.” Lawson at 25:8-17. Choquier discloses routing update messages to servers of particular server groups (server/node type) based on service maps that map servers to server groups associated with message categories. Choquier at 9:50-65, 10:17-20, 21:33-53, 22:34-45.

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	“Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing

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	unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53. “The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol.” Chandra at 7:11–16. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network.” Chandra at 11:8–12. “For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15.

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	“Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. “Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376.” Mishra at 4:67–5:4. “To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses

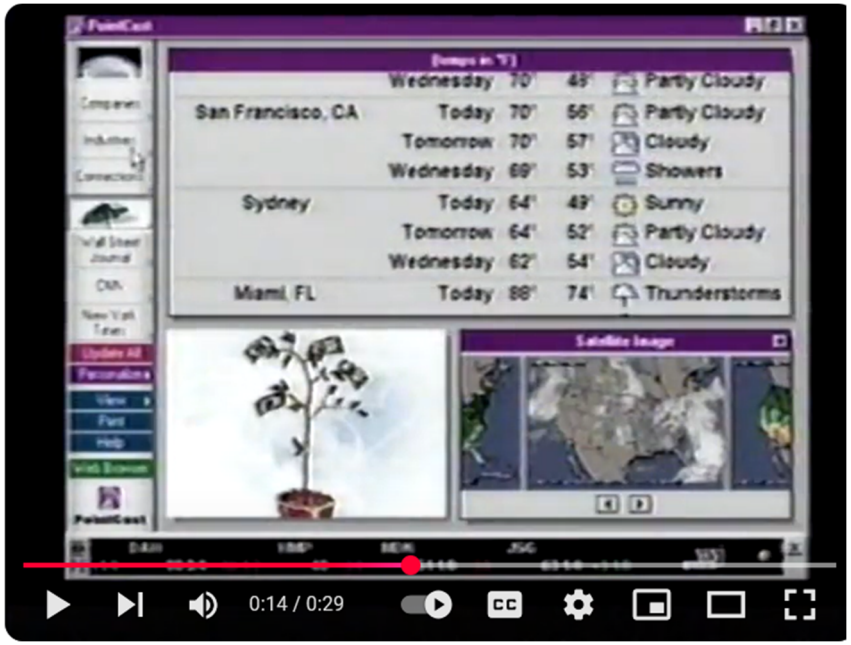
Claims of the ’722 Patent	PointCast System
	an interest in receiving notification upon the occurrence of a specified event by way of a subscription.” Mishra at 5:15–22. “The channel 315 may then utilize the registration information stored in the names schema 330 to propagate the notification to one or more of the notification clients 370, 372, 374 and/or 376.” Mishra at 6:13–16. “Thereafter, the channel 315 may send the notification to each of the clients 370, 372, 374 and/or 376 whose registration information (i.e., delivery information) has been retrieved from the names schema 330.” Mishra at 6:40–43. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract.

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	“1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive.” Yamanaka at 2:24–29. “The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means.” Yamanaka at 4:38–44. “This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this.” Yamanaka at 4:67–5:3. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in

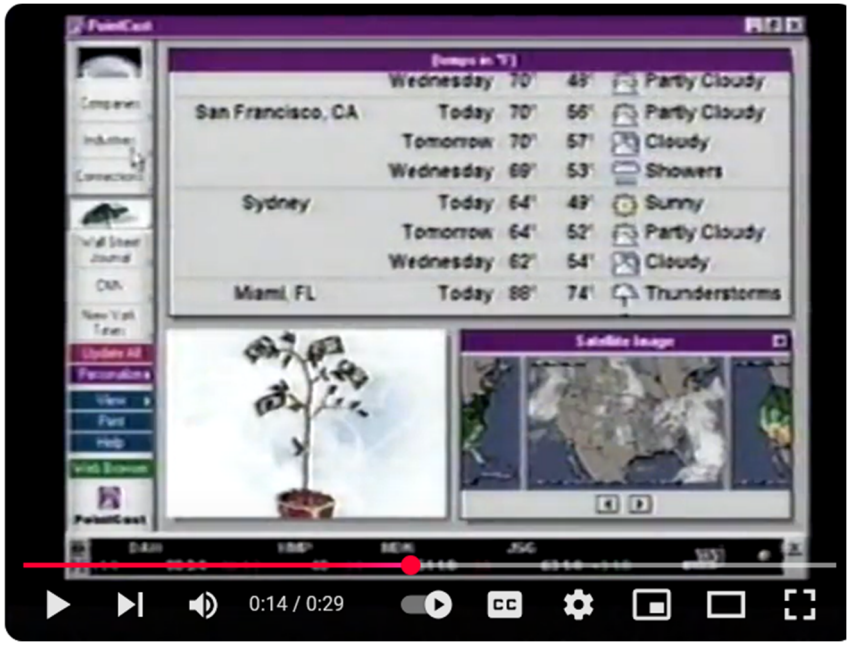
Claims of the ’722 Patent	PointCast System
	accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information.” Rajan at 11:64–12:2. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices.” Rajan at 14:23–27. “In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so.” Rajan at 14:66–15:1.

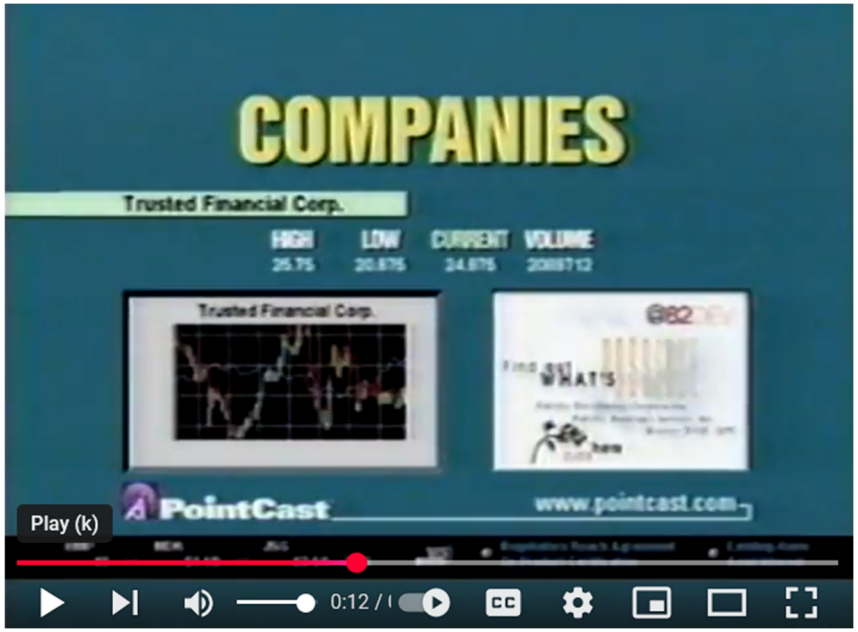
Claims of the ’722 Patent	PointCast System
	“Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention.” Rajan at 15:36–43. “As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting.” Rajan at 15:49–57. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37.

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	“According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point, if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side.” Tsutsumitake at 4:36-48; *see also* 13:1-5, 12:23- 28, 13:59-66, Figs. 6, 7. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.6] wherein the client device processes the update message upon receipt to update the property of the live object at the client device.	The PointCast system discloses or renders obvious wherein the client device processes the update message upon receipt to update the property of the live object at the client device. For example: A YouTube video from 2011 demonstrated the client device processing the update message to update the property of the live object on the client device:

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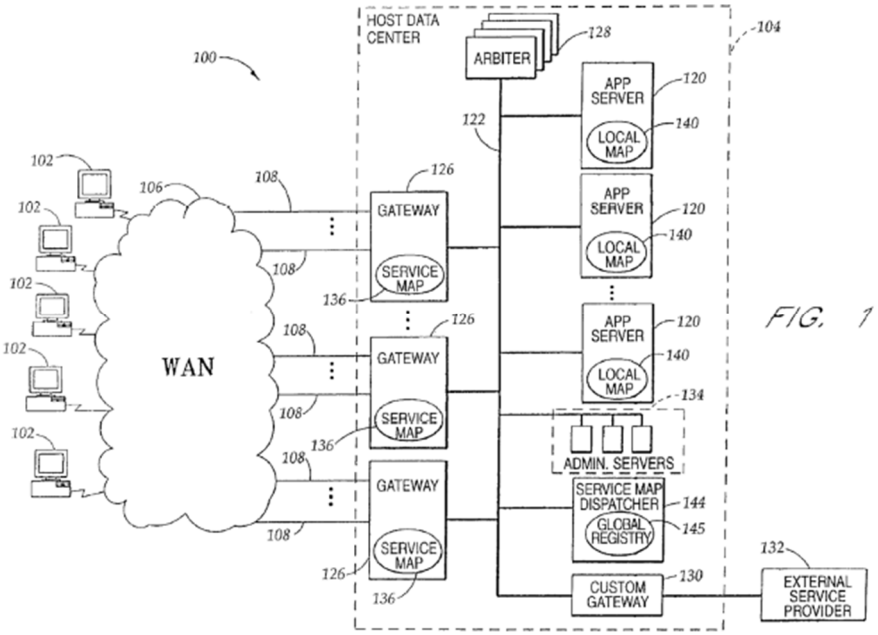
Claims of the ’722 Patent	PointCast System
	 https://www.youtube.com/watch?v=qCqwB6sruIQ Updates were pushed to clients, triggering automatic UI **refresh** to reflect the latest data. The updating of the live object (i.e. the UI Refresh) is disclosed in a 2011 commercial about PointCast https://www.youtube.com/watch?v=qCqwB6sruIQ

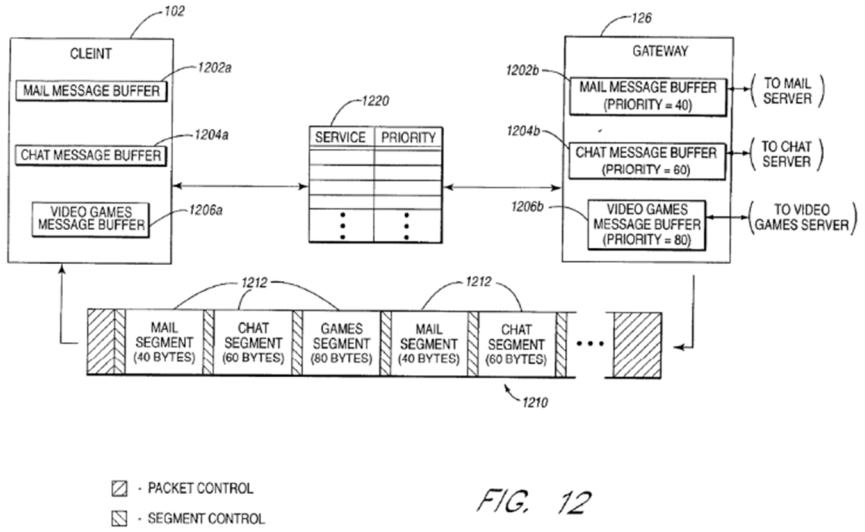
Claims of the ’722 Patent	PointCast System
	

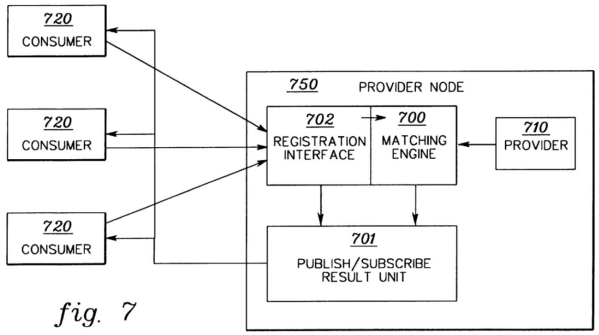
Claims of the ’722 Patent	PointCast System
	

Claims of the ’722 Patent	PointCast System
	 To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajna, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Chandra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g.,

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	“Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book.” Lawson at 23:64-65. “As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet.” Lawson at 24:64-66. “After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 25:4-6; see also 21:16-19. “In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:16-21; see also 24:1-4. Choquier discloses servers communicating with client devices, through associated gateways 126, to route updates messages from the servers to clients.

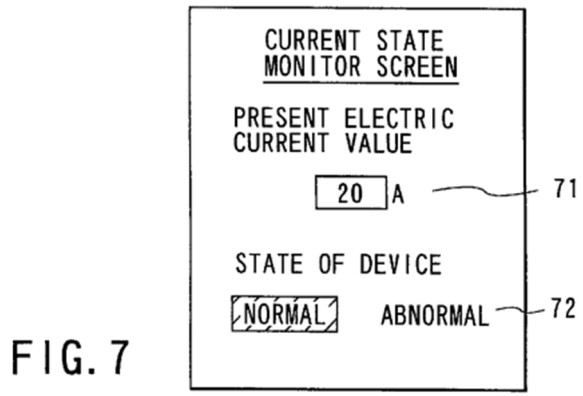
Claims of the ’722 Patent	PointCast System
	 FIG. 1 Choquier at Fig. 1. Servers and clients communicate over service instance channels which can use TCP/IP. Choquier at 8:17-24. Messages are routed to the clients in packets. Choquier at 18:24-19:60, FIGS. 11A-11B. FIG. 12 illustrates messages being sent to the client (which can be multiplexed if the client requested multiple categories). Choquier at 20:16-31.

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	 FIG. 12 Choquier at Fig. 12 “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.

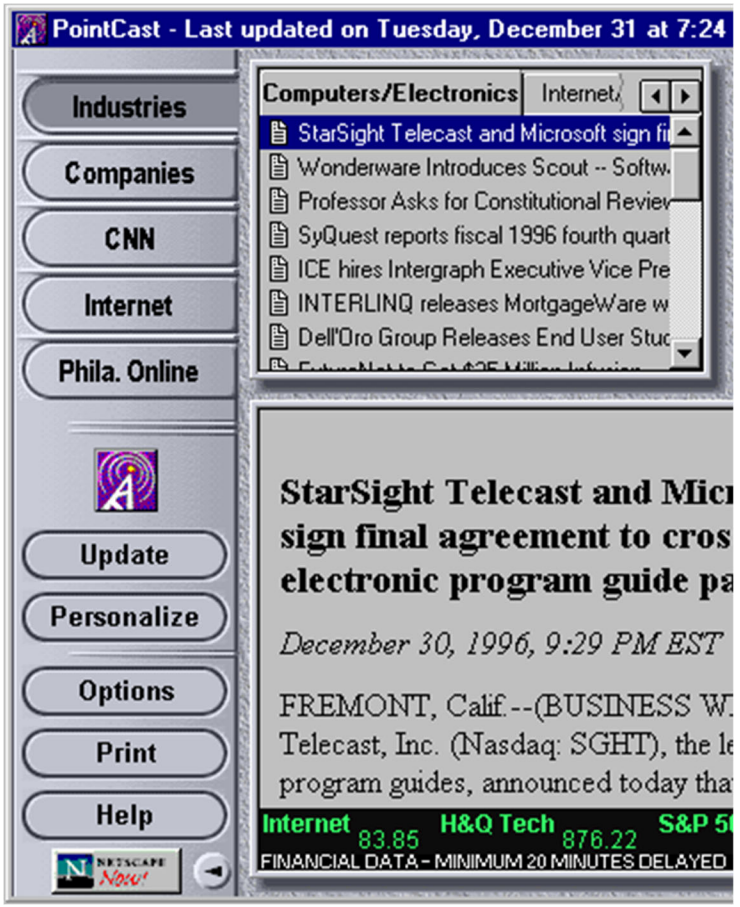
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	 *fig. 7* Chandra at Figure 7. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25. “As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the

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	display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “FIG. 9 illustrates an exemplary process by which the partial page regenerator 250 generates updates for portions 260 of the page 240 that have changed. The partial page regenerator 250 generates output for the changed page portions 260 and a modification list for instructing the display alterer 245 on how to incorporate the changed page portions 260 in the displayed page. This exemplary process minimizes the amount of data that is transmitted to the client node 205, by taking advantage of any unchanged portions currently available on the client node 205.” Hayton at 17:44–53. “In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information.” Rajan at 11:64–12:2. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

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	characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.” Tsutsumitake at 13:31-65.

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	“According to the browser screen in FIG. 7 of the electric current state monitoring page in the client 11, the user can monitor the present electric current value of the specific control device of the plant system at intervals of one second, without performing a display update operation, for example, by depressing a reload button. In addition, the user can monitor the change in state (normal/abnormal) of the control device. As has been described above, since the server continuously returns responses (generated events) to a single event request from the client 11 while the connection is being maintained, the information transmission can be efficiently carried out without increasing a communication load between the client 11 and server 10.” Tsutsumitake at 14:14-28.  FIG. 7 Tsutsumitake at Fig. 7. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior

Claims of the ’722 Patent	PointCast System
	art identified in the cover pleading to Defendant’s Invalidity Contentions.
[16.0] The method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network.	The PointCast system discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network. For example: Categories are disclosed in this PC Magazine online encyclopedia:

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	 https://www.pcmag.com/encyclopedia/term/pointcast "Welcome to the PointCast Network Channel Guide, a comprehensive directory of PointCast channels and content sources. The Guide is organized by information category, and then by

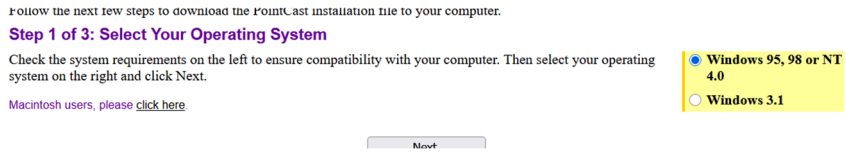
Claims of the ’722 Patent	PointCast System
	channel within each category. For a complete list of PointCast's more than 700 content source"  • Aggregated Industry News • Banking and Financial Services • Computers and Technology • Consumer Markets • Entertainment • Government - Federal • Healthcare • Insurance • Real Estate • Telecommunications • Utilities and Energy - https://web.archive.org/web/19990921040538/http://www.pointcast.com/content/index.html?hometxt

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	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63. “In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 6:2-4. “Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention” Lawson at 7:29-32. “The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action. For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user

Claims of the ’722 Patent	PointCast System
	computers would then receive the notification and in response run a virus scan program.” Lawson at 6:7. “Program code means comprises, for example, executable instructions and data which cause a general purpose computer or special purpose computer to perform a certain function or a group of functions.” Lawson at 7:48-51. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like “update transactions.” Choquier at 8:8-12.

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	“A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request. The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice.” Tsutsumitake at 8:39-49; *see also* 3:39-56. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68, 13:32-14:3, Fig. 7. “It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. "Applet" of Java developed by Sun Microsystems, or "JavaScript" developed by Netscape).” Tsutsumitake at 10:30-33. “On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:64-11:8, Figs. 1, 3.

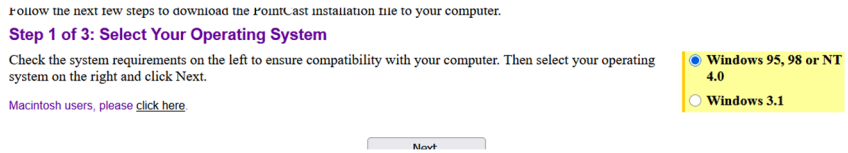
Claims of the ’722 Patent	PointCast System
	“On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55, Figs. 1, 4; *see also* 9:30-33, 12:66-67. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[17.0] The method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network	The PointCast system discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network. For example: The PointCast app itself is an activation module that is executed by the client device and registers the live object with the routing network. “Sometimes people ask us, "why do I have to download software to use PointCast when I have a Web browser?" The answer is simple: PointCast isn’t a Web site. It’s a broadcast news service.”

Claims of the ’722 Patent	PointCast System
	- https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home "PCN by PointCast – information gathering This agent-based service delivers customized information to the client desktop during idle times. It provides current information to the user’s desktop cache. ***The agent service requires client software for interaction with the server that actually does the information gathering***" -https://faculty.washington.edu/wobbrock/pubs/agents.pdf “To start receiving your up-to-the-minute news broadcasts, just download the PointCast Network. Once it's installed on your computer, PointCast replaces your screen saver with the latest headline news:” - https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home  https://web.archive.org/web/19990824175307/http://www.pointcast.com/download/index.cgi?st=1&id=none&kt=core&os=Win32&ed=US

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	Get the Latest from Our Site **Delivered Right to Your Computer!** **'Tune In" to Our PointCast Connection** To receive the latest information from our site broadcast right to your computer screen, just subscribe to our PointCast Connection by following the instructions below. **Connection Description: PCHelpOnline.com** PC-Help Online is the only website you need to ease your computer woes. We've searched and categorized PC related websites to make it easier for you to find the answers you need. **Please note:** You must have the PointCast Network software version 2.0 installed on your computer to receive this Connection. https://www.pchelponline.com/connections/pchelp_jump.html To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63.

Claims of the ’722 Patent	PointCast System
	“The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 5:66-6:4. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57; see also 7:48-51. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like updates to “update transactions” type services. Choquier at 8:8-12. “FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute “URL” in a tag

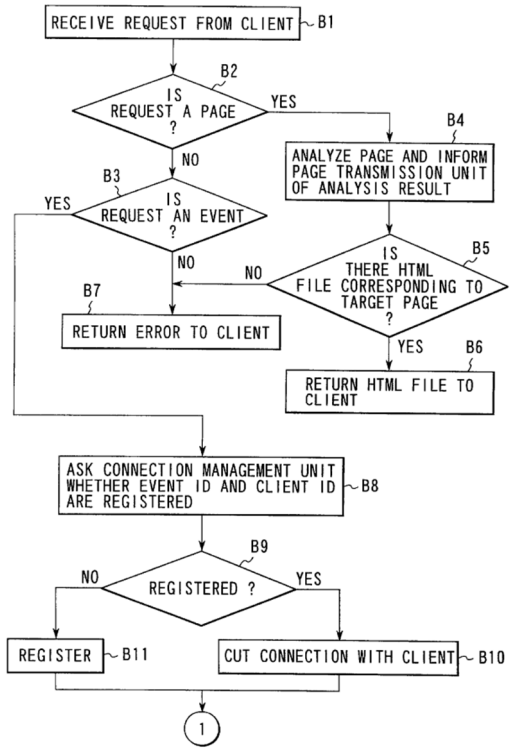
Claims of the ’722 Patent	PointCast System
	“EVENT” in a tag “EMBED”. The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point. It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. “Applet” of Java developed by Sun Microsystems, or “JavaScript” developed by Netscape).” Tsutsumitake at 10:20-33; *see also* 10:64-67, 11:45-55, Fig. 4. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[18.0] The method of claim 17, wherein providing the activation module includes providing the activation module that is configured to determine a node type that handles registration and that causes the client device to register with the node corresponding to the node type.	The PointCast system discloses or renders obvious the method of claim 17, wherein providing the activation module includes providing the activation module that is configured to determine a node type that handles registration and that causes the client device to register with the node corresponding to the node type. For example: As was discussed in reference to claim 17, the PointCast app is the activation module. It will determine the node type that handles registration (i.e. the PointCast server) and it is this app that connects the client to device to register. The PointCast app itself is an activation module that is executed by the client device and registers the live object with the routing network.

Claims of the ’722 Patent	PointCast System
	“Sometimes people ask us, "why do I have to download software to use PointCast when I have a Web browser?" The answer is simple: PointCast isn’t a Web site. It’s a broadcast news service.” - https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home "PCN by PointCast – information gathering This ***agent-based service*** delivers customized information to the client desktop during idle times. It provides current information to the user’s desktop cache. ***The agent service requires client software for interaction with the server that actually does the information gathering" -***https://faculty.washington.edu/wobbrock/pubs/agents.pdf “To start receiving your up-to-the-minute news broadcasts***, just download the PointCast Network. Once it's installed on your computer***, PointCast replaces your screen saver with the latest headline news:” - https://web.archive.org/web/19990901185816/http://www.pointcast.com/products/pcn/index.html?home  https://web.archive.org/web/19990824175307/http://www.pointcast.com/download/index.cgi?st=1&id=none&kt=core&os=Win32&ed=US

Claims of the ’722 Patent	PointCast System
	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63. “The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 5:66-6:4. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization

Claims of the ’722 Patent	PointCast System
	process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57; see also 7:48-51. “The present invention presumes an underlying event notification system which: (1) allows local event consumers to register for notification of an event; and (2) sends notification of events that occur to registered local event consumers. In addition, it is desirable for some embodiments of the present invention to allow registration of custom event types. If an underlying event notification system does not provide the ability to register locally for an event, does not send even notifications to locally registered event consumers, or does not allow registration of custom event types, then this functionality can be provided as part of the present invention.” Lawson at 4:33-44. “These corresponding event globalization processes, in ram, check their local event registries and provide the event to any event consumers identified therein. In this way, local events can be routed to any event consumer in the network without the need to register at each server.” Lawson at 5:8-12; see also 4:66-5:10. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like updates to “update transactions” type services. Choquier at 8:8-12. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29.

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	“On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:64-11:8. “On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55.

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	 FIG. 4 Tsutsumitake at Fig. 4; *see also* FIGS. 1, 3. “The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the

Claims of the ’722 Patent	PointCast System
	content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7).” Tsutsumitake at 10:53-59. To the extent that the PointCast system 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 the PointCast system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.

Exhibit B-10 to Defendant's Preliminary Invalidity Contentions

Castanet System

Castanet System was known in this country, used in public, sold or offered for sale no later than 1996, 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, Castanet System 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, Castanet System anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) or (g).

At least the following documents describe the relevant functionality disclosed by Castanet System:

- https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/;
- https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html;
- https://www.pcmag.com/encyclopedia/term/marimba;
- https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor;
- https://www.techmonitor.ai/hardware/marimba_fills_important_gaps_with_castanet_40;
- https://www.cnet.com/tech/tech-industry/marimba-adds-controls-to-castanet/;
- http://archives.cpajournal.com/1997/1197/features/F341197.htm;
- http://ndl.ethernet.edu.et/bitstream/123456789/20602/1/166.pdf;
- https://www.dlib.org/dlib/march97/03jones.html;
- https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/tuner/quickstart.html;
- https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/introducing/introducing.html; and
- https://pmc.ncbi.nlm.nih.gov/articles/PMC310693/.

[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.

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Castanet System include at least persons involved in the Castanet System and their testing and commercial use, including at least Marimba, Inc. The conception of Castanet System occurred at least as early as 1996.

Defendant offers this invalidity chart based on its current understanding of Castanet System. Defendant's investigation of this system is ongoing. Defendant may rely on materials produced by Plaintiffs or by third parties regarding Castanet System and related software to demonstrate invalidity of the asserted claims. Defendant has not had an opportunity to review source code for Castanet System. Defendant 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 Castanet System does not disclose any particular limitation of the Asserted Claims of the '722 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 '722 Patent to modify Castanet System or combine the teachings of Castanet System with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- United States Patent No. 5,721,825 ("Lawson") – see Exhibit 722-1;
- PCT Patent Application Publication No. WO 99/26127 ("Kostes") – see Exhibit 722-2;
- United States Patent No. 6,999,991 ("Ikeda") – see Exhibit 722-3;
- United States Patent No. 6,710,702 ("Averbuch");
- United States Patent No. 6,216,132 ("Chandra");
- United States Patent No. 6,910,070 ("Mishra");
- United States Patent No. 6,757,283 ("Yamanaka");
- United States Patent No. 7,051,084 ("Hayton");
- United States Patent No. 6,633,910 ("Rajan");
- U.S. Patent No. 6,480,883 ("Tsutsumitake");
- U.S. Patent No. 5,951,694 ("Choquier");
- European Patent Application Publication No. EP1043671 ("Bird"); and/or
- U.S. Patent No. 6,990,591 ("Pearson").

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

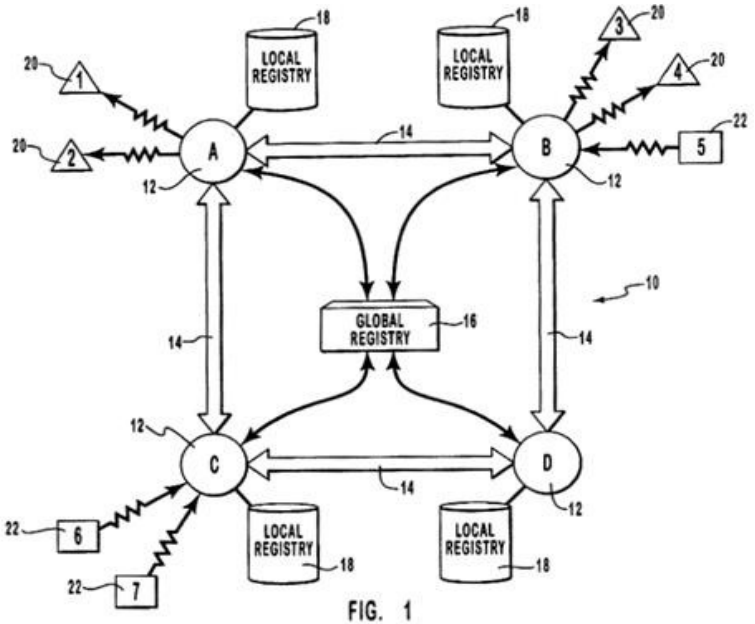
different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same 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.

Claims of the '722 Patent	Castanet System
[14.0] A method comprising:	To the extent the preamble is limiting, Castanet System discloses: ""Castanet allows users to both broadcast and receive information via online channels, and to boost efficiency of corporate intranets by permitting instant dispersal of internal data. A variety of content providers already provide material for Castanet channels, including CNNfn, Yahoo, and HotWired."" https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/
[14.1] providing, using a processing device of an input source, a data representation to a client device, different from the input source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by the client device, and	Castanet System discloses or renders obvious providing, using a processing device of an input source, a data representation to a client device, different from the input source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by the client device. For example: Castanet provides to client devices updating live objects. "Marimba Inc. today announced Castanet, a Java-based suite of tools that allows Web sites to proactively "push out" information such as news updates and upgrades to software. The suite includes client and server software and development tools that will allow for the creation of media-rich applications that do not require any specific platform or a traditional HTML framework, Marimba officials said.

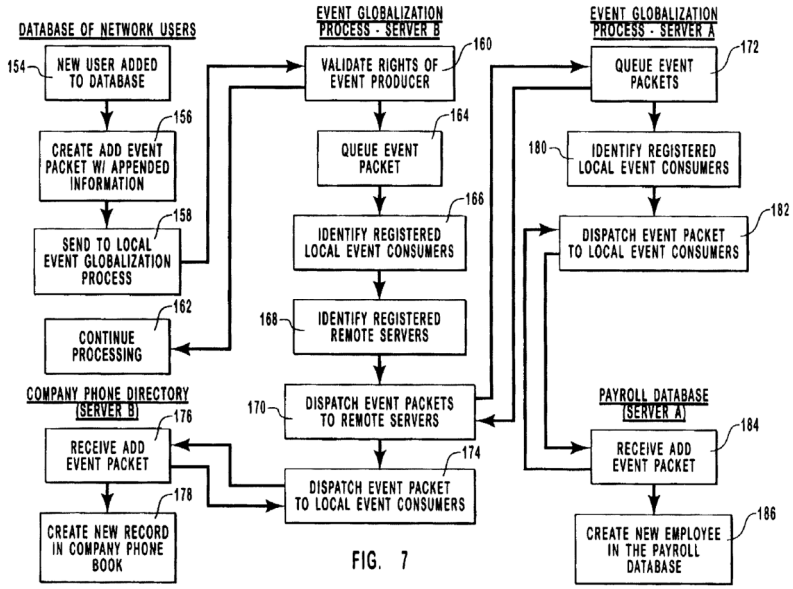
Claims of the ’722 Patent	Castanet System
	The technology can best be understood through the metaphor of radio, in which a server acts as the transmitter, sending applications or software updates over a network to a tuner located in a user’s desktop computer.” https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html “(Marimba, Inc., Palo Alto, CA) A software company founded in 1996 by four key members of Sun's original Java development team. In 1996, it introduced Castanet, a family of Java-based delivery systems for publishing and automatically distributing application updates and other published materials via the Internet and intranets. Other Marimba products addressed the key areas of security management, infrastructure management and change and configuration management.” https://www.pcmag.com/encyclopedia/term/marimba To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, and/or Tsutsumitake. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and Tsutsumitake concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, updating live objects was a well-known and commonly-used technique. Modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, or Tsutsumitake for example, to incorporate this limitation. *See, e.g.*,

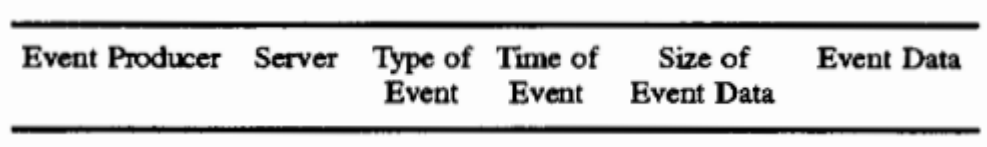
Claims of the ’722 Patent	Castanet System
	“In FIG. 1, event consumers are illustrated by the triangular regions 20 and are numbered 1-4. Event producers are identified by rectangular regions 22 and are labeled 5-7. Event producer and event consumer are meant to be generic terms that are interpreted broadly. Event producer will be used to refer to a process, user, device, or other item that produces or generates an event. An event consumer should be broadly interpreted to refer to any process, user, device, or other item that desires notification of an event. As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below.” Lawson at 9:1-15; *see also* 1:51-60. “The presently preferred embodiment of a system for global event notification and distribution comprises a general purpose computer. The present invention, however, can also be used with any special purpose computer or other hardware system and all should be included within its scope. The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and input means for receiving input from a user. Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention. Embodiments within the scope of the present invention also include articles of manufacture comprising program storage means having encoded therein program code means for causing a CPU to perform certain actions. Such program storage means can be any available media which can be accessed by the processing means of a general purpose or special purpose computer.” Lawson at 7:17-39, Figs. 1-3; *see also* claims 38-39, 43-44.

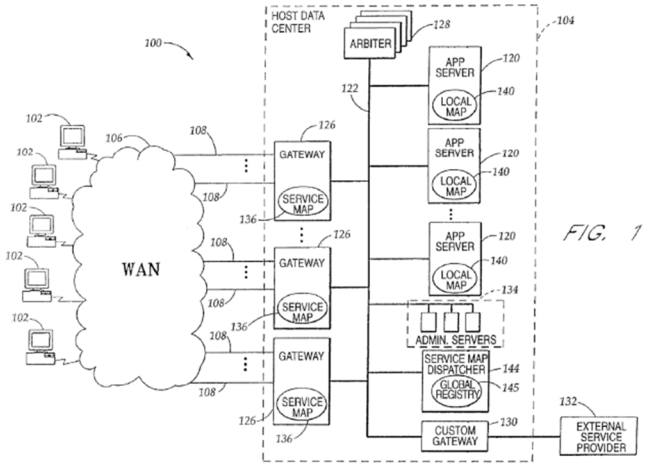
Claims of the ’722 Patent	Castanet System
	“Each server has running thereon a local event globalization process that registers for events desired by local event consumers. When an event consumer registers for an event, the event globalization process of the event consumer's local server places an entry into the local event registry for the local server. An entry is also placed into the global event registry for the local server where the event consumer is located. Thus, the global event registry is updated to contain an entry identifying the server where the event consumer is located and the desired event and the local event registry of that server is updated to identify the event consumer and the desired event.” Lawson at 4:54-65, 7:52-8:4; *see also* 9:16-35, 10:16-35, Fig. 2. “The present invention achieves global event notification by storing a global event registry comprising a list of events and a corresponding list of servers which need notification when the corresponding event occurs. In addition to the global registry, each server stores a local event registry comprising a list of events and a corresponding list of local event consumers that need notification when an event occurs.” Lawson at 4:45-52; *see also* 24:17-19, Figs. 3-6.

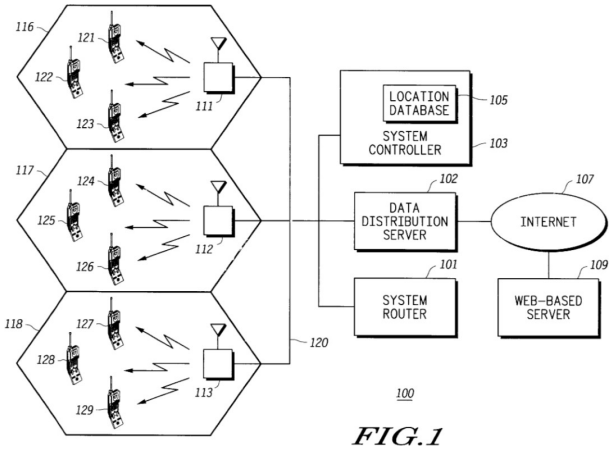
Claims of the ’722 Patent	Castanet System
	 FIG. 1 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 23:64-24:1. “Another type of filtering that may be supported by the present invention is a class based or category based filtering. A class based or category based filter identifies classes or categories of objects that are of interest to an event consumer. For example, consider an employee phone

Claims of the ’722 Patent	Castanet System
	book database maintained on the network. It would be desirable to update the employee phone book database whenever a new employee was added to the system or whenever information about an existing employee was changed. In such a situation, the employee phone book database could register for notification of "a modified object" type event. The employee database could then submit a filter that filtered out modifications to any objects except employee record type objects. Then when an employee record was changed in the system, the database would receive notification that an employee record had been changed.” Lawson at 21:16-25. “As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 24:64-24:6. “In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:16-21,

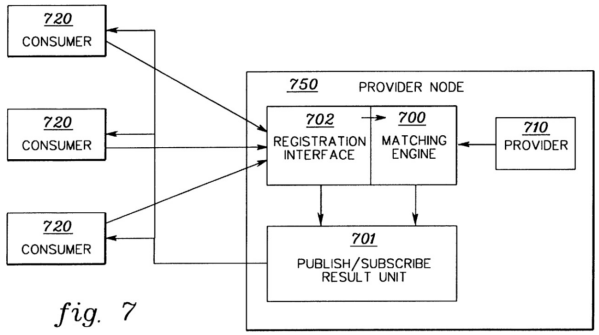
Claims of the ’722 Patent	Castanet System
	 FIG. 7 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network.” Lawson at 23:60-63. “After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the process described in FIGS. 3-6.” Lawson at 24:17-18. “For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:

Claims of the ’722 Patent	Castanet System
	 In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event.” Lawson at 12:3-26. “For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user computers would then receive the notification and in response run a virus scan program.” Lawson at 6:4-15. “The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and input means for receiving input from a user. Additionally, computers having no local program storage means and that receive

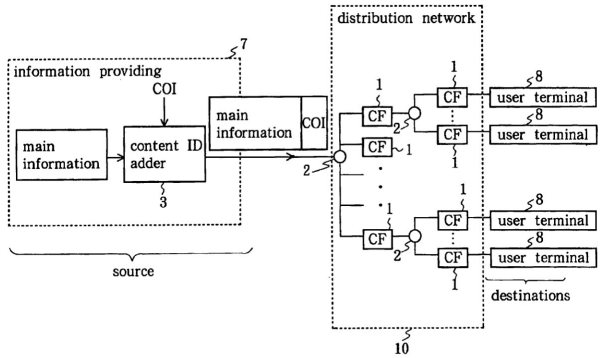
Claims of the ’722 Patent	Castanet System
	program code means across a communication link should also be included within the scope of the present invention.” Lawson at 7:23-51. Choquier discloses a routing network in which data received by a host data center 104 is routed to client devices 102 using application servers arranged into “service groups.” Choquier at 2:1-4.  FIG. 1 Choquier at Figure 1. Data routed to the clients, coupled to the routing network, via the application servers can originate from “an external data provider connected to the host data center 104 by the Internet” (an input source). Choquier at 9:57-65. “A wireless communication system (100) employs a method and apparatus for providing information to multiple communication units (121-129). The communication system includes

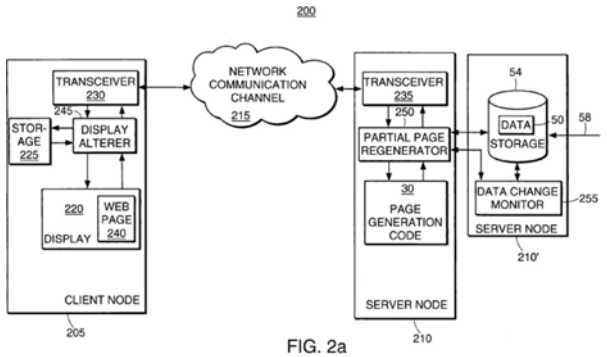
Claims of the ’722 Patent	Castanet System
	a communication infrastructure (101, 102, 103, 105, 111-113, 120), a data network (107) and an information source (109).” Averbuch at Abstract.  FIG.1 Averbuch at Figure 1. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system

Claims of the ’722 Patent	Castanet System
	router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers.” Averbuch at 4:64–5:1. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe

Claims of the ’722 Patent	Castanet System
	system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53. “FIG. 7 shows one example of a publish/subscribe system incorporating and using the content-based subscription of the present invention. Each provider 710 is coupled to a matching engine 700 on a provider node 750.” Chandra at 10:66–11:2. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network.” Chandra at 11:16–21.  *fig. 7* Chandra at Figure 7.

Claims of the ’722 Patent	Castanet System
	“The major components of the asynchronous database event notification system according to the present invention include a database 310 (an instance thereof), a channel 315 and a plurality of notification clients 370, 372, 374 and 376.” Mishra at 4:51–55. “The database 310 may be thought of as a supplier of event notifications and each of the plurality of clients 370, 372, 374 and 376 may be thought of as a consumer of such event notifications.” Mishra at 4:55–58. “Each of the clients 370, 372, 374 and 376 may be coupled to the database 310 through the channel 315 via a network 380 that may include, for example, the Internet, a leased line and/or some other public, private or hybrid network.” Mishra at 4:58–62. “For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change.” Mishra at 7:59–61. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the

Claims of the ’722 Patent	Castanet System
	entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract.  FIG.1 Yamanaka at Figure 1. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25.

Claims of the ’722 Patent	Castanet System
	“The invention relates to a method and apparatus for regenerating portions of the page that have changed and transmitting only those portions to the client for display.” Hayton at Abstract.  FIG. 2a Hayton at Figure 2a. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25. “FIG. 2a is a diagram of an exemplary client/server network embodying the principle of the invention.” Hayton at 4:10–11. “a first computing system (“client node”) 205 in communication with a second computing system (“server node”) 210 over a network 215.” Hayton at 4:67–5:2.

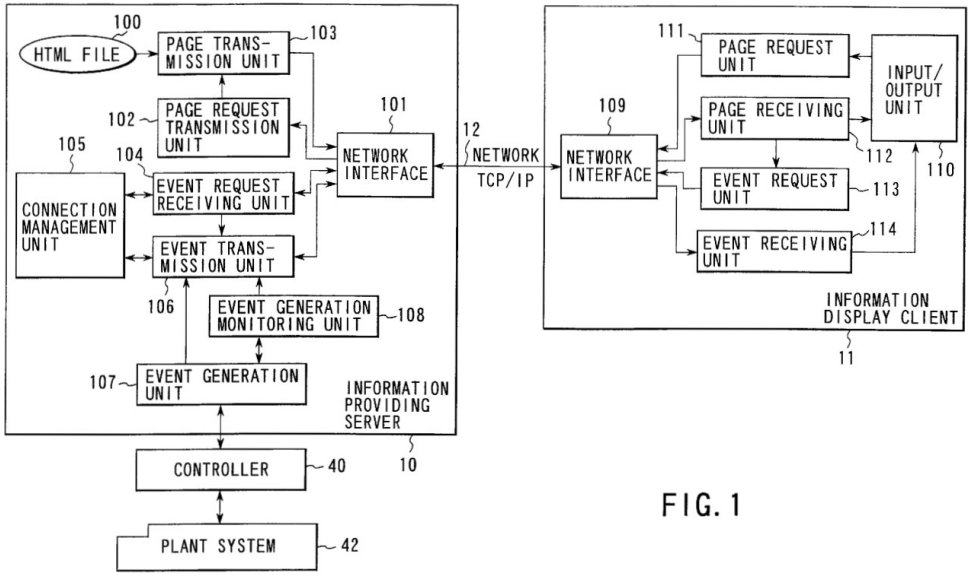
Claims of the ’722 Patent	Castanet System
	“The server nodes 210 and 210′ can be any computing device capable of providing the requested services” Hayton at 5:38–39. “Examples of format for the web page 240, and thus of the page portions 260, include HTML, XML, VRML, WML, (display) postscript and nroff. Each code fragment 265 generates one or more page portions 260. For example, as illustrated in FIG. 2b, code fragment 265d generates page portions 260c, 260e and 260f.” Hayton at 6:20–25. “FIG. 2b also illustrates an example of the correspondences between code fragments 265 of the page generation code 30 and the corresponding data 50a, 50b, 50c, 50d (generally referred to as 50) upon which the code fragments 265 depend.” Hayton at 6:26–30. “In addition to executing the code fragments 265 individually from and independently of other parts of the page generation code 30, the partial page generator 250 may also have to intercept access to the data 50 upon which the code fragments 265 depend. This is typically accessed via data access objects. FIG. 4c illustrates an exemplary embodiment where JAVA is used for implementation. In this embodiment, data 50 is typically accessed via one or more Java beans 100. The JAVA beans 100 themselves are logically separate from the page generation code 30 and are only responsible for managing access to the data 50. The beans 100 are not considered code fragments 265, as the do not directly generate output that produces the page 240.” Hayton at 9:48–60. “As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245

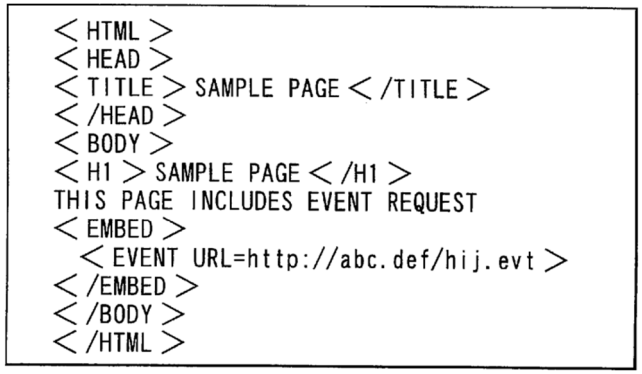
Claims of the ’722 Patent	Castanet System
	performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display; associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page.” Hayton at 23:46–24:3. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions

Claims of the ’722 Patent	Castanet System
	(NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “WWW 75 represents a source for data such as (S1-Sn) of FIG. 2, which are understood in this embodiment to be on-line data sources” Rajan at 14:30–33. “A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data” Rajan at 14:35–42. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The present invention relates generally to a client/server type system wherein an information providing server provides information upon request from an information display client, and more particularly to a real-time information transmission system for realizing novel and advantageous information transmission from an information providing server to an information display client.” Tsutsumitake at 1:6-12.

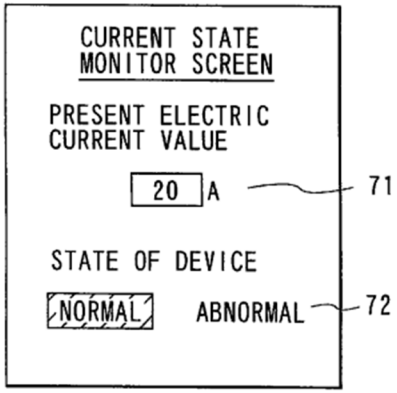
Claims of the ’722 Patent	Castanet System
	“In general, the server provides information to the client in units of a document called “page”. The page is an electronic file described in a format called HTML (Hypertext Markup Language). The client is normally realized with use of a software called “browser” for information display (information browsing), and the browser accesses the server to acquire and display pages including images and sounds.” Tsutsumitake at 1:22-28. “The present invention has been made in consideration of the above circumstances, and an object of the invention is to provide a real-time information transmission system for realizing real-time information transmission from a server to a client in an existing WWW framework, thereby coping with information update in the server. Another object of the invention is to proyide a real-time information transmission system, wherein even if the time interval of information update on the server side is very short or information update occurs at a non-specified time, information update on the server side can be efficiently reflected on the client side, and the reliability and stability of communication between the server and client can be enhanced. Still another object of the invention is to provide a real-time information transmission system for realizing such an exclusive control that the same page cannot simultaneously displayed on a plurality of clients excluding one client.” Tsutsumitake at 3:20-38. “The present invention provides a real-time information transmission system for transmitting information in real time from a server to a client via a network, the system comprising: determination means for determining, on the basis of an information transmission request from the client to the server, whether the request is a page request or an event request; page transmission means for transmitting, if the determination means has determined that the request is the page request, information of the requested page only once from the server to the client at an originating point of the page request; event generating means for generating events; and event transmission means for transmitting, when the determination means has determined that the request is the event request, those of the events generated by the event

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	generating means which are associated with the event request, from the server to the client at an originating point of the information transmission request in response to the event request issued once.” Tsutsumitake at 3:39-56. “A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request. The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice.” Tsutsumitake at 8:39-49. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68.

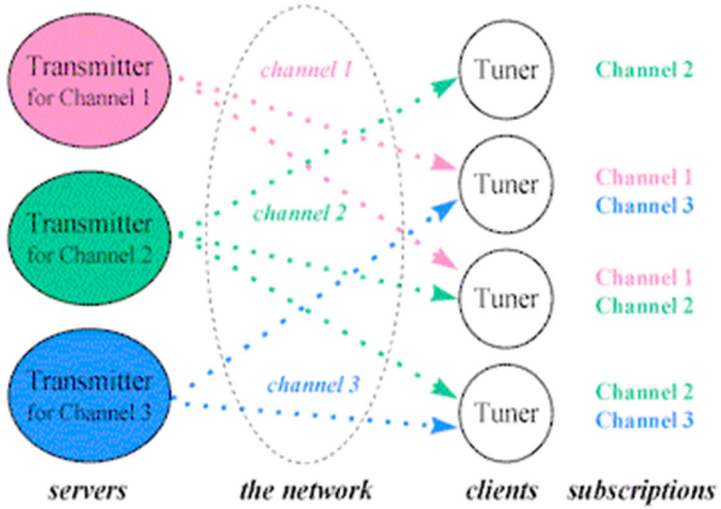
Claims of the ’722 Patent	Castanet System
	 FIG. 1 Tsutsumitake at FIG. 1. “The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request.” Tsutsumitake at 9:60-67; *see also* 14:3-29, Fig. 8.

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	 Tsutsumitake at FIG. 2. “The event receiving unit 114 receives the event sent from the server 10 on the basis of the request to the server 10 from the event request unit 113. The received event is sent to the input/output unit 110, where necessary. For example, if the received event is an event indicating the update of the page in the server 10, the client 11 issues a page request to the server 10 and enables the updated page to be displayed on the display screen once again (i.e. the updated content being reflected on the display). In the present embodiment, the format of the page sent from the server 10 in response to the page request from the client 11 is a normal HTML file format. Of course, another format may be adopted. FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute “URL” in a tag “EVENT” in a tag “EMBED”. The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point.” Tsutsumitake at 10:7-29.

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	“A description will now be given of a method of processing the event sent from the server 10 on the client (11) side and updating the screen image of the browser (page display screen image). FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.

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	The event processing results can be reflected on the page screen image (event screen image) by using the Java(Applet) of Sun Microsystems, JavaScript of Netscape Communications, or Dynamic HTML of Microsoft. Needless to say, the method is not limited to these. FIG. 8 shows an HTML expression of a page, on which the screen display in FIG. 7 is based. In the example of FIG. 8, the event request to the server 10 is designated by a tag “EVENT” on the page. This tag includes attributes such as a time interval (“period”) of events to be sent to the client 11 and a target (“target”) for reflecting the received event on the screen. A tag “HANDLER” is introduced as a tag for reflecting the event on the screen. This tag includes attributes such as a format (“type”) for screen display and a name (“name”). The same name as the name attribute is designated in the target attribute in the tag “EVENT”. This example of expression is merely an example, and other formats may be used.” Tsutsumitake at 13:27-14:16.  FIG. 7 Tsutsumitake at FIG. 7. To the extent that the Castanet system 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

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	teachings of the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.2] causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network; and	Castanet System discloses or renders obvious causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network. For example: Castanet has client devices subscribe to receives updates to content. “The tuner can be personalized so that it is “tuned in” to multiple content or application channels, allowing them to feed data to the desktop without the user having to seek out a Web site and initiate the download, officials said.” https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html “Castanet allows users to both broadcast and receive information via online channels, and to boost efficiency of corporate intranets by permitting instant dispersal of internal data. A variety of content providers already provide material for Castanet channels, including CNNfn, Yahoo, and HotWired.” https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/ “A few weeks ago a new technology was unveiled that addresses some of the problems with delivering software as applets. Marimba Inc., founded last February by four former members of the Java team at Sun, has released a beta version of a product called Castanet. Castanet enables the network delivery of bundles of software and content, which they call channels. In the first version of Castanet, a channel is either a Java program or a set of HTML pages. Clients use what Marimba calls a tuner, which allows users to subscribe to channels. The

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	server uses what Marimba calls a transmitter to manage a channel. Here's a graphical depiction of Marimba's model and terminology:”  https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor “The Castanet tuner uses the desktop metaphor rather than the browser metaphor. Channels look like regular applications on the client's desktop. Therefore, the developer has free reign in user-interface design. The *channel metaphor*, then, is one in which network-delivered applications, which are mirrored in entirety on the user's local disk, appear as desktop applications to the user. The main difference from the user's perspective between a Castanet channel and a traditional desktop application is that the channel automatically installs and evolves over time. In this regard channels behave less like traditional desktop applications and more like applets. The channel metaphor represents a new way of using the network, but looks and feels like the old way of using computers.” https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor

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	“Castanet enables the distribution and management of any type of software to large numbers of clients, update the software automatically and detect which version is being used on each client. It is based on the Transmitter server module and Tuner client module, but with a host of other modules to perform various management and production functions.” https://www.techmonitor.ai/hardware/marimba_fills_important_gaps_with_castanet_40 “Marimba will announce tomorrow version 2.0 of its Castanet software--”push” technology that delivers applications and other software updates over a network directly to users' desktops. Unlike the more generalized push features of Netscape and Microsoft's latest browsers that let users browse offline through Web content, Castanet is specifically built to distribute executable code, with its Java-built “transmitter” server and “tuner” client. For example, a bank can distribute a financial application across its network and then send updates or fixes without resending the entire application.” https://www.cnet.com/tech/tech-industry/marimba-adds-controls-to-castanet/ “Castanet offers a variety of channels, many of which contain software programs--for example, WallStreetWeb, which monitors user-defined portfolios with a number of charts is available. Another channel, go2vision is a customizable desktop window and WWW browsing companion that displays stock quotes, real-time sports scores, and headline news. It also allows users to search the Internet while browsing with other applications.” http://archives.cpajournal.com/1997/1197/features/F341197.htm To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chadra, Mishra, Yamanaka, Rajan,

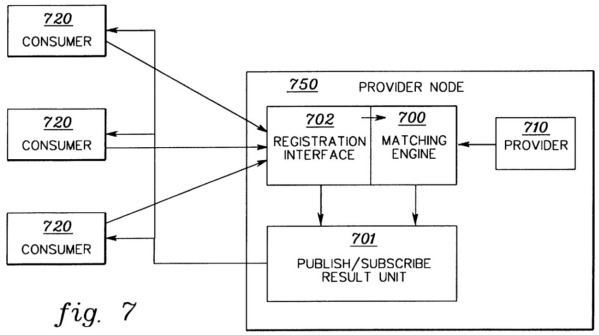
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	Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action. In the case of one example given above, if the network was set up to notify a user when a file had finished printing, after the file had been printed, the server responsible for printing the file would generate an event notification that printing had finished. This event notification would then be passed to the user to notify the user that printing had concluded.” Lawson at 1:61-63. “Event consumers which desire to receive notification of certain events "register" with the event producing system. When an event occurs, notification is sent to all registered event consumers.” Lawson at 2:6-9. “When an event consumer needs to register for a new event or create a new event, the event consumer can send a ‘register for event’ packet or a ‘create event packet’ to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of Fig. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of Fig. 3, identifying the event and the event consumer wishing to receive notification of the event.” Lawson at 15:41-56; see also 10:50-11:2, 16:41-46, 19:63-20:7, 22:27-23:2, 23:11-28, Fig. 3 #52, 76, Fig. 4 #102, claim 9. For example, “the employee phone book database could register for notification of ‘a modified object’ type event.” Lawson at 21:20-21.

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	“Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 24:1-4; see also 10:20-35, 10:47-67, 12:46-52, 14:54-64, 15:35-57, 16:23-62, Figs. 1-4. “In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event.” Lawson at 12:15-20. “Although the above describes a presently preferred event packet, it should be understood that for this invention the only required field is the type of event field. The type of event field is used to extract from the global event registry, either directly or indirectly, those servers that should receive notification of the event and is used to extract from the local event registry, either directly or indirectly, those local event consumers that should receive notification of the event. In addition to the type of event field, the event data should also be included so that the event information can be transferred to the appropriate recipients.” Lawson at 12:27-37. “checking a first registry comprising a list of local event consumers and an associated list of event types in order to identify which local event consumers are registered for events of the type included in said event packet.” Lawson at 27:61-64 (claim 19). “In addition to the type of event field, the event data should also be included so that the event information can be transferred to the appropriate recipients.” Lawson at 12:34-37; see also 21:15-26, 24:1-4.

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	Choquier discloses various information-based updating content, like bulletin board messages, news, or stock quotes. Choquier at 6:8-22, 23:26-33. Choquier specifies that communication links are established via between clients and servers of Choquier’s network to facilitate exchange of information such as “update transactions.” Choquier at 8:8-12. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The

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	subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53. “Consider a stock market example where events for executed trades include the name of the security, the price, and the volume of shares being traded. Previously, to structure the stock market example using groups a group is assigned for every security and events are published to the group associated with the appropriate security. A user wishing to view this information along a different dimension is left without adequate support. For example, consider a trader who is interested in high volume transactions, e.g., those involving over 100,000 shares. In a group-based publish/subscribe system, such a subscriber is forced to subscribe to all groups and filter out itself all events except the few the subscriber needs. With the content-based subscription of the present invention, one subscriber may specify interest in all events associated with a security, another may restrict itself to trades associated

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	with a security, and a third subscriber may express interest in all trades over 100,000 shares regardless of security. While groups restrict subscriptions to a single dimension (i.e., the groups name), the technique of the present invention deals with multiple dimensions (in this example, security name, price, and number of shares).” Chandra at 10:44–65. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network.” Chandra at 11:8–12. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.

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	 *fig. 7* Chandra at Figure 7. “Each of the notification clients 370, 372, 374 and/or 376 may subscribe to be notified upon the occurrence of one or more data or system events.” Mishra at 5:13–15. “To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses an interest in receiving notification upon the occurrence of a specified event by way of a subscription. More particularly still, an agent, acting on behalf of one of the clients 370, 372, 374 and/or 376 subscribes to one or more event names. Each event name identifies a particular data or system event within the database 310.” Mishra at 5:15–26. “The names schema 330 stores the delivery information that specifies to which client(s) 370, 372, 374 and/or 376 the notification is to be delivered and how the notification is to be sent. The updating of the names schema 330, according to the present invention, is termed the registration process.” Mishra at 5:35–40. “The delivery information stored in the names schema 330 includes information as to where the notification is to be sent and how the notification is to be sent. For example, the delivery

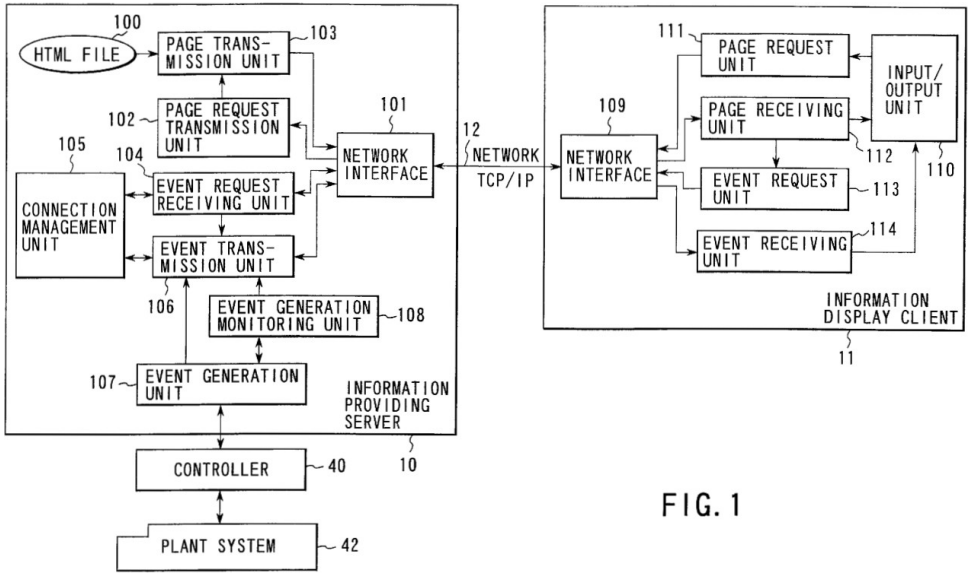
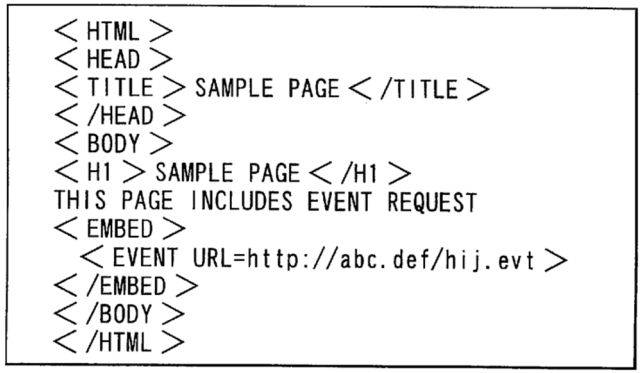
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	information provided by a particular client 370, 372, 374 or 376 may include an identification of the client process' host and port (where) and may include a callback indicating the manner in which delivery of the notification should be made (how)” Mishra at 5:40–48. “For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change.” Mishra at 7:59–61. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “The principal distinguishing features of this invention are as follows. Firstly, it adds to a packet a content identifier for identifying the content, or, if a category to which the content

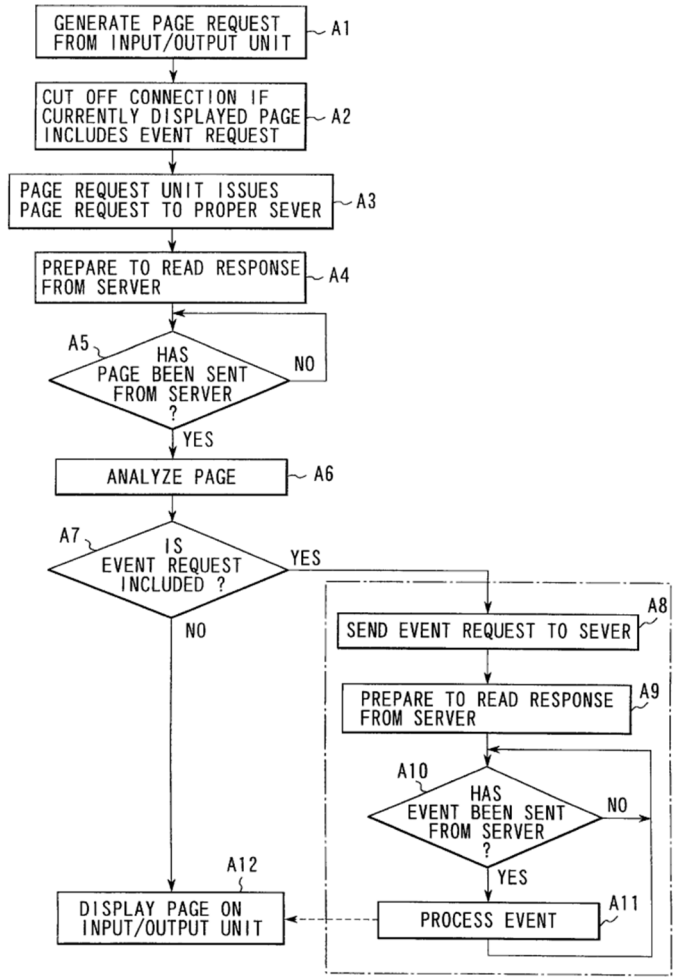
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	belongs can be identified, one or both of a content identifier and a category identifier for identifying the category to which the content belongs.” Yamanaka at 2:19–24. “Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive.” Yamanaka at 2:24–29. “Furthermore, because the user registers content in the distribution network, even if the situation of a user constituting a destination is constantly changing, the source can still distribute content without having to be aware of these changes.” Yamanaka at 3:14–19. “The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means.” Yamanaka at 4:38–44. “Thus, in order to register, in the table of each decision means, content identifier related information notified by a user, it is necessary to search for a route from the information providing terminal in question to the user terminal in question, and to register, in the tables of the nodes on that route, the content identifier related information notified by the user.” Yamanaka at 4:61–67. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in

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	accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so.” Rajan at 14:66–15:1. “Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention.” Rajan at 15:36–43. “As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each

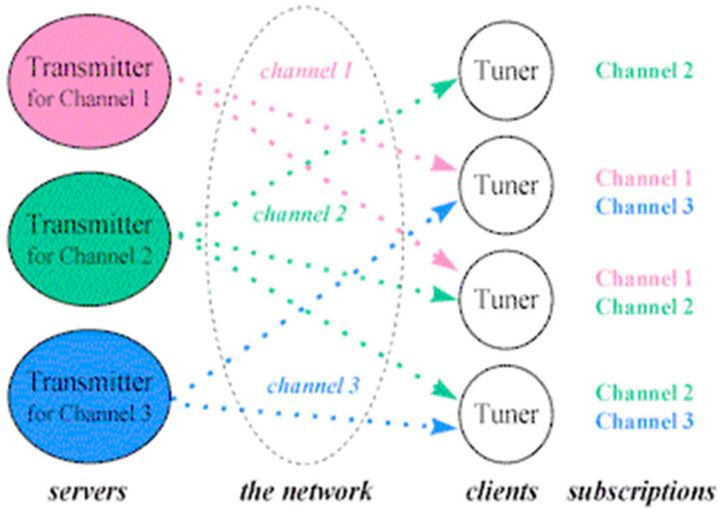
Claims of the ’722 Patent	Castanet System
	source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting.” Rajan at 15:49–57. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request. The event request unit 113 sends the URL of the event request to the server 10 via the network interface 109. Though not shown, the URL of the event request may not only be delivered from the page receiving unit 112, but also it may be directly input to the input/output unit 10 by the user.” Tsutsumitake at 9:60-10:6; *see also* 9:42-10:19; 10:20-29.

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	The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7). If an event request is not included, the page receiving unit 112 outputs the page to the input/output unit 110 (step Al2). Thus, the content of the received page is displayed on the display of the input/output unit 110. “On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:53-11:8.

Claims of the ’722 Patent	Castanet System
	 FIG. 1 Tsutsumitake at FIG. 1. 

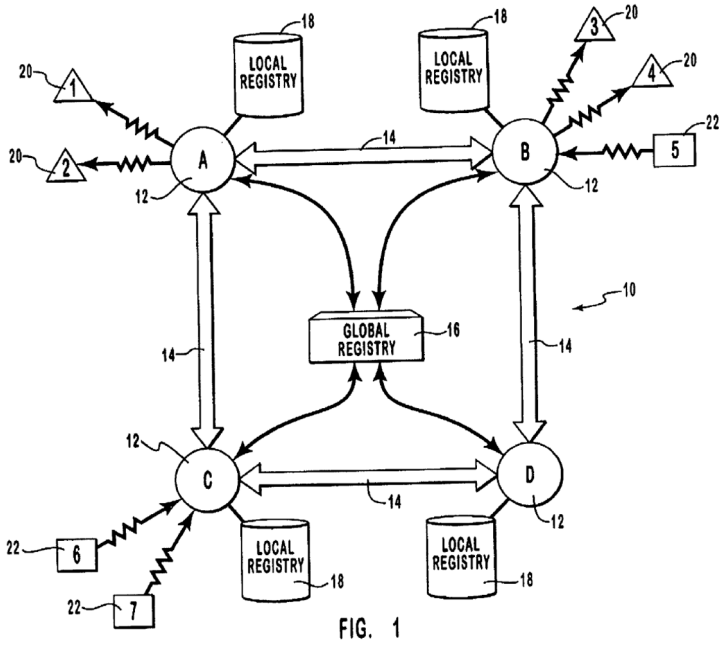
Claims of the ’722 Patent	Castanet System
	Tsutsumitake at FIG. 2.  FIG. 3

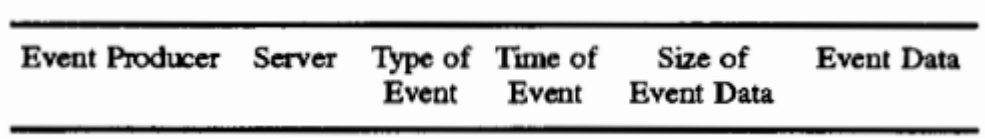
Claims of the ’722 Patent	Castanet System
	Tsutsumitake at FIG. 3. “On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55, *see also* Figs. 1, 4, 9:30-33, 12:66-67. To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.3] sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object,	Castanet System discloses or renders obvious sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object. For example: Castanet sends updates to client devices via a routing network including various channels. “The tuner can be personalized so that it is “tuned in” to multiple content or application channels, allowing them to feed data to the desktop without the user having to seek out a Web site and initiate the download, officials said.” https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html

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	“"Castanet allows users to both broadcast and receive information via online channels, and to boost efficiency of corporate intranets by permitting instant dispersal of internal data. A variety of content providers already provide material for Castanet channels, including CNNfn, Yahoo, and HotWired."” https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/ “A few weeks ago a new technology was unveiled that addresses some of the problems with delivering software as applets. Marimba Inc., founded last February by four former members of the Java team at Sun, has released a beta version of a product called Castanet. Castanet enables the network delivery of bundles of software and content, which they call channels. In the first version of Castanet, a channel is either a Java program or a set of HTML pages. Clients use what Marimba calls a tuner, which allows users to subscribe to channels. The server uses what Marimba calls a transmitter to manage a channel. Here's a graphical depiction of Marimba's model and terminology:” 

Claims of the ’722 Patent	Castanet System
	https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor “The Castanet tuner uses the desktop metaphor rather than the browser metaphor. Channels look like regular applications on the client's desktop. Therefore, the developer has free reign in user-interface design. The *channel metaphor*, then, is one in which network-delivered applications, which are mirrored in entirety on the user's local disk, appear as desktop applications to the user. The main difference from the user's perspective between a Castanet channel and a traditional desktop application is that the channel automatically installs and evolves over time. In this regard channels behave less like traditional desktop applications and more like applets. The channel metaphor represents a new way of using the network, but looks and feels like the old way of using computers.” https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor "Castanet enables the distribution and management of any type of software to large numbers of clients, update the software automatically and detect which version is being used on each client. It is based on the Transmitter server module and Tuner client module, but with a host of other modules to perform various management and production functions." https://www.techmonitor.ai/hardware/marimba_fills_important_gaps_with_castanet_40 "Marimba will announce tomorrow version 2.0 of its Castanet software--"push" technology that delivers applications and other software updates over a network directly to users' desktops. Unlike the more generalized push features of Netscape and Microsoft's latest browsers that let users browse offline through Web content, Castanet is specifically built to distribute executable code, with its Java-built "transmitter" server and "tuner" client. For example, a bank can distribute a financial application across its network and then send updates or fixes without resending the entire application." https://www.cnet.com/tech/tech-industry/marimba-adds-controls-to-castanet/

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	"Castanet offers a variety of channels, many of which contain software programs--for example, WallStreetWeb, which monitors user-defined portfolios with a number of charts is available. Another channel, go2vision is a customizable desktop window and WWW browsing companion that displays stock quotes, real-time sports scores, and headline news. It also allows users to search the Internet while browsing with other applications." http://archives.cpajournal.com/1997/1197/features/F341197.htm To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below.” Lawson at 9:9-11.

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	 FIG. 1 “Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database.” Lawson at 23:60-24:4.

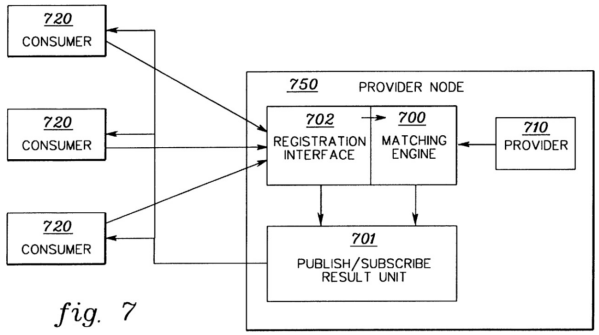
Claims of the ’722 Patent	Castanet System
	“Referring now to FIG. 7, a new user is added to the database in step 154. Assume that the addition occurred on server B. After the user has been added to the database, step 156 indicates that an event packet is created. This event packet represents any prepackaging of the event data done by the database process itself. The database process itself may generate a complete event packet as described above, or the database process may create a partial event packet which is then packaged into a complete event packet later on by the event globalization process illustrated in FIG. 3.” Lawson at 24:7-14. “For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:  In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event.” Lawson at 12:3-26. “After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the

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	process described in FIGS. 3-6. Remember that each server in the network has a similar process running thereon. Step 160 indicates that the event globalization process on server B validates the rights of the event producer. This corresponds to steps 104 and 106 of FIG. 4. Notice that after the rights of the event producer have been validated, the database of network users may continue processing as shown by step 162. Meanwhile, the event notification process on server B queues the event packet in step 164. These steps illustrate one feature of the present invention. Because the event notification process operates as described, the event notification process may execute separately from the database of network users. Thus, the database may return to its processing tasks without sending event notifications to each and every registered user. After the event packet has been queued, as for example in event queue 64 of FIG. 3, the registered local event consumers and registered remote servers are identified in steps 166 and 168. As described above in the embodiment in FIG. 3, these functions are performed by local event processing block 70 and remote event processing block 66 by checking local event registry 72 and global event registry 68 respectively. If the event notification process is multi-threaded, these two functions may be performed in parallel.” Lawson at 24:15-42; *see also* 4:66-5:12, 10:16-11:2. “A single event may need to be transferred to multiple event consumers.” Lawson at 22:62-63. “After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer

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	method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 24:59-25:7. “After the registered remote servers have been identified, step 170 dispatches the events to the remote servers. In this case, the only remote server registered for this event was server A. Thus, step 170 dispatches the events to the event globalization process running on server A. As the events are received, they are queued in the event queue on server A as indicated by step 172. At this point, the event notification process on server A and the event notification process on server B can proceed independently so that the servers are not tied up communicating with each other. Notice that server A did not validate the rights of server B. This illustrates that once the rights of an event producer are validated, they may not need to be revalidated when the event is sent to other servers. Of course, for network security reasons, server A may wish to verify that the event is coming from server B and not somewhere else.” Lawson at 24:42-58. “After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 25:4-25:7. “Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local

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	event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1. In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:8-20. Choquier discloses an input source, different from a client device, can send/route an update message to Choquier’s network. In Choquier, update messages (“update transactions”) for updating services can be sent/routed from input sources such as “an external data provider connected to the host data center 104 by the Internet.” Choquier at 9:50-65, 10:4-12. Choquier’s update messages can be received by a gateway device because Choquier discloses using a gateway 130 that “links the host data center 104 to one or more external service providers 132” and Arbiter microcomputers 128 for disseminating data to appropriate server groups using service maps 120. Choquier at 6:37-47, 23:9-19. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the

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	subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27 “Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers.” Averbuch at 4:64–5:1. “In the preferred embodiment, data distribution server 102 receives subscriber information from an information service (i.e., the information service provided by web-based server 109). The subscriber information, preferably packet data, is intended for subscribers to the information service.” Averbuch at 7:52–56. “producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price.” However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price. Chandra at 6:49–58.

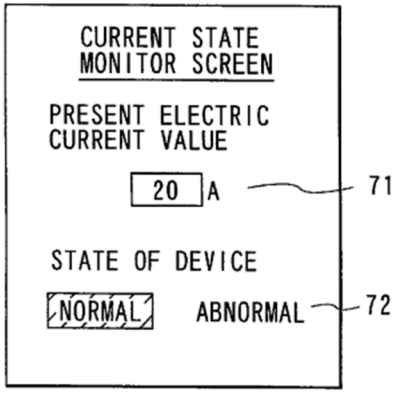
Claims of the ’722 Patent	Castanet System
	“For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15.  *fig. 7* Chandra at Figure 7. “When an event (whether data or system-related) fires a trigger among the triggers 314, a notification is generated. The notification is published to the channel 315.” Mishra at 6:11–13. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of

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	memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25. “As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions

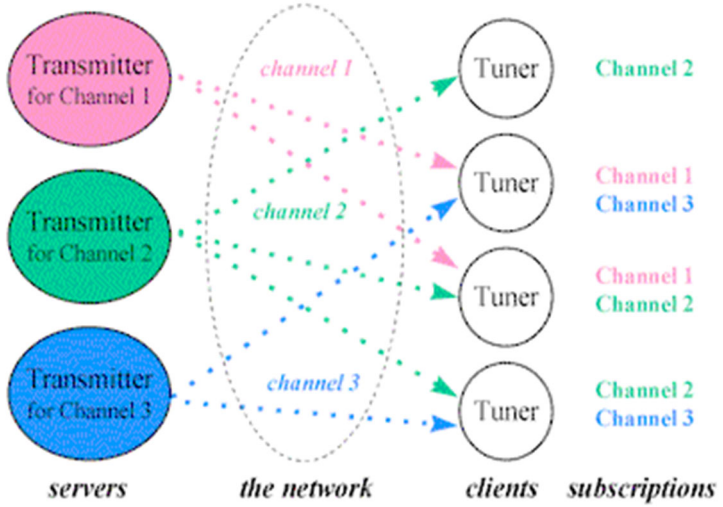
Claims of the ’722 Patent	Castanet System
	260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “When an event 360 is detected that represents a change in data 50, the partial page regenerator 250 adds the value 320 that corresponds (arrow 355, FIG. 7) to the event 360 on an invalid value list (not shown). In one embodiment, the invalid value list is part of the map of correspondences 300. The invalid value list tracks all values currently displayed on the page 240 on the client node 205 that have changed and are no longer valid. Once there is an entry on the invalid value list, the partial page regenerator 250 waits for a request to refresh the page 240 and, in response to that request, generates and transmits updates for the changed portions 260 of the page 240. The request to refresh the page 240 can be generated in many different ways. For example, the user on the client node 205 may request a refresh of the page 240. In another embodiment, the display alterer 245 may request a refresh of the page 240 periodically. In another embodiment, the partial page regenerator 250 generates the request for a refresh once a change in data 50 is detected. For example, as stated above, when the ‘feedback’ method is called on the server node 210, the partial page regenerator 250 automatically generates a request for a refresh. In another embodiment, the communication protocol between the client node 205 and the server node 210 support or simulate a server push model (i.e., server node 210 transmitting data to the client node 205 without the client node 205 initiating a request).” Hayton at 17:14–40. “1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display;

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	associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page.” Hayton at 23:46–24:3. “A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data” Rajan at 14:35–42. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

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	characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The client 11 analyzes the sent page, searches for an event request described therein, and sends it to the server 10. In this case, another connection ID (Conn2) is used. If an event has occurred, the server 10 sends it to the client 11 with use of this connection ID. Subsequently, as shown in FIG. 6, each time an event has occurred, it is sent repeatedly with use of the ID (Conn2).” Tsutsumitake at 12:66-13:5; *see also* 12:10-15, Figs. 1, 5. “FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11.

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	The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.” Tsutsumitake at 13:31-65. “According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point, if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side.” Tsutsumitake at 4:36-48; see also 12:23-28.  FIG. 7 Tsutsumitake at FIG. 7.

Claims of the ’722 Patent	Castanet System
	To the extent that the Castanet system 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 Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.4] wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network,	Castanet System discloses or renders obvious wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network. For example: Castanet identifies where to send updates on based on what the user has subscribed to (i.e. the category) which in turn is based on the input source. “The tuner can be personalized so that it is “tuned in” to multiple content or application channels, allowing them to feed data to the desktop without the user having to seek out a Web site and initiate the download, officials said.” https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html “"Castanet allows users to both broadcast and receive information via online channels, and to boost efficiency of corporate intranets by permitting instant dispersal of internal data. A variety of content providers already provide material for Castanet channels, including CNNfn, Yahoo, and HotWired."” https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/ “A few weeks ago a new technology was unveiled that addresses some of the problems with delivering software as applets. Marimba Inc., founded last February by four former members of the Java team at Sun, has released a beta version of a product called Castanet. Castanet

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	enables the network delivery of bundles of software and content, which they call channels. In the first version of Castanet, a channel is either a Java program or a set of HTML pages. Clients use what Marimba calls a tuner, which allows users to subscribe to channels. The server uses what Marimba calls a transmitter to manage a channel. Here's a graphical depiction of Marimba's model and terminology:”  https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor “The Castanet tuner uses the desktop metaphor rather than the browser metaphor. Channels look like regular applications on the client's desktop. Therefore, the developer has free reign in user-interface design. The *channel metaphor*, then, is one in which network-delivered applications, which are mirrored in entirety on the user's local disk, appear as desktop applications to the user. The main difference from the user's perspective between a Castanet channel and a traditional desktop application is that the channel automatically installs and evolves over time. In this regard channels behave less like traditional desktop applications

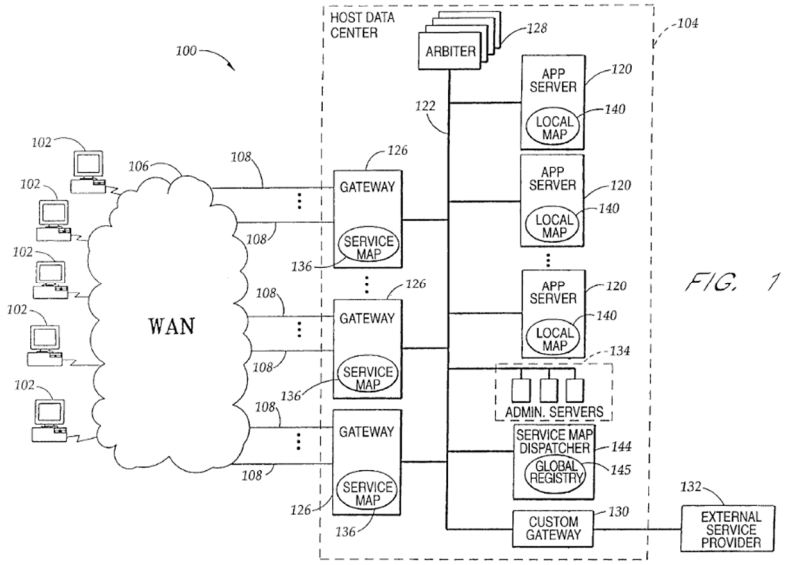
Claims of the ’722 Patent	Castanet System
	and more like applets. The channel metaphor represents a new way of using the network, but looks and feels like the old way of using computers.” https://www.artima.com/articles/java-beyond-the-browser-the-channel-metaphor "Castanet enables the distribution and management of any type of software to large numbers of clients, update the software automatically and detect which version is being used on each client. It is based on the Transmitter server module and Tuner client module, but with a host of other modules to perform various management and production functions." https://www.techmonitor.ai/hardware/marimba_fills_important_gaps_with_castanet_40 "Marimba will announce tomorrow version 2.0 of its Castanet software--"push" technology that delivers applications and other software updates over a network directly to users' desktops. Unlike the more generalized push features of Netscape and Microsoft's latest browsers that let users browse offline through Web content, Castanet is specifically built to distribute executable code, with its Java-built "transmitter" server and "tuner" client. For example, a bank can distribute a financial application across its network and then send updates or fixes without resending the entire application." https://www.cnet.com/tech/tech-industry/marimba-adds-controls-to-castanet/ "Castanet offers a variety of channels, many of which contain software programs--for example, WallStreetWeb, which monitors user-defined portfolios with a number of charts is available. Another channel, go2vision is a customizable desktop window and WWW browsing companion that displays stock quotes, real-time sports scores, and headline news. It also allows users to search the Internet while browsing with other applications." http://archives.cpajournal.com/1997/1197/features/F341197.htm

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	Castanet determines which node should receive the update message based on the categories that the user has subscribed to. This controls the amount of traffic going through a network by limiting traffic to the specific node(s) it is intended for. “The tuner can be personalized so that it is “tuned in” to multiple content or application channels, allowing them to feed data to the desktop without the user having to seek out a Web site and initiate the download, officials said.” https://www.infoworld.com/article/2170271/marimba-software-pushes-information-over-internet.html “Castanet, a product of Marimba, offers incremental software deployment services based on channels, mirroring and fingerprinting technology” http://ndl.ethernet.edu.et/bitstream/123456789/20602/1/166.pdf "Castanet allows users to both broadcast and receive information via online channels, and to boost efficiency of corporate intranets by permitting instant dispersal of internal data. A variety of content providers already provide material for Castanet channels, including CNNfn, Yahoo, and HotWired."” https://www.wired.com/1997/02/marimba-touts-partnerships-push-standard/ "Castanet offers a variety of channels, many of which contain software programs--for example, WallStreetWeb, which monitors user-defined portfolios with a number of charts is available. Another channel, go2vision is a customizable desktop window and WWW browsing companion that displays stock quotes, real-time sports scores, and headline news. It also allows users to search the Internet while browsing with other applications." http://archives.cpajournal.com/1997/1197/features/F341197.htm All network and internet traffic is routed. Castanet, routs update messages to the node type that has subscribed to that specific content.

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	“What you would really like to have happen is for a program on your computer to talk to the server on which new applications reside. That program would listen to the server for announcements of new versions of applications that you wanted on your local machine. When the server did have an update, that program would request the new version and install it for you. Ideally, all of this would not happen when you start up your machine, but a various times during the day when your computer was idle. To take this one step further, it might not even download the whole application, but only those parts, those objects that have changed. What I have described above is not from Tomorrowland, but it is a description of Marimba's Castanet. The local program is call the tuner, like a radio tuner. The tuner can be told to listen for announcements from trusted servers. Trust is important to avoid getting virii or trojan horses, whether getting applications written in Java or anyother language. This one feature can greatly reduce the amount of time, energy, and patience spent in keeping both staff and public computer access up to date and working well. For libraries with public access computers, this will be an immediate boon especially when (and I predict fairly soon) WWW browsers and helper applications are written in Java. No more rushing around to be sure that some new plugin or application is installed on each machine, or on the other hand, facing the wrath and indignation of a public or staff that insist that the network manager be aware of every new data format. Already Java applets are downloaded and discarded as needed, Castanet makes that same flexibility available to applications.” https://www.dlib.org/dlib/march97/03jones.html To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and Pearson concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, determining message categories based on input source and

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	determining nodes to send data to was a well-known and commonly-used technique. Modifying this reference with Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson’s teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, or Pearson for example, to incorporate this limitation. *See, e.g.*, “Embodiments within the scope of this invention comprise means for transferring an event to another server. In FIG. 3, such means is illustrated by remote event processing block 66. The details of remote event processing block 66 are presented below. In summary, however, remote event processing block 66 monitors event queue 64 and when events are placed therein by incoming event processing block 60 that need to be transferred to other servers in the network, remote event processing block 66 will establish a connection to those servers and transfer the events to the other server. Embodiments within the scope of the present invention may, therefore, comprise means for accessing a global event registry to identify which servers should receive which events. Such means may be incorporated into remote event processing block 60. In such a case, remote event processing block 66 identifies the servers that should receive events queued in event queue 64 by checking global registry 68.” Lawson at 13:8-24; *see also* 12:12-20, 12:29-34. “As described in greater detail below, when an event is transferred from one server to another server, a connection must be established between the two servers.” Lawson at 13:25-27. “Thus, there is a possibility of events being transferred both to and from the local server. This is indicated in FIG. 3 by remote event 56 and remote event 58.” Lawson at 13:33-35. “Remote event 58 represents a local event that is transferred to another server via network connection 52. It should be pointed out that in FIG. 3 network connection 52 represents an

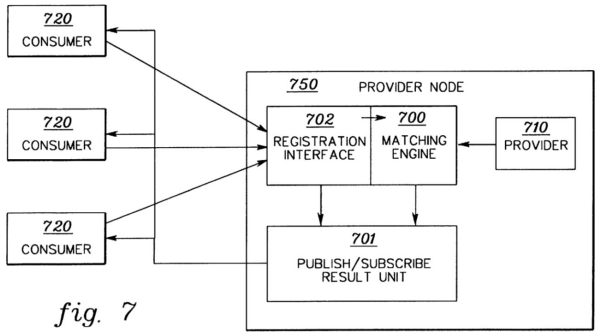
Claims of the ’722 Patent	Castanet System
	example of the networking means for interconnect servers in the present invention.” Lawson at 11:51-56. “As previously mentioned, embodiments of the present invention may comprise means for filtering events so that an event is only transferred if the event meets designated filtering criteria. Returning to decision block 130, if an event is available for transfer to a local event consumer, the next step is to identify whether the local event meets any stored filtering criteria for that event and local event consumer. This is illustrated in FIG. 6 by decision block 136, which represents but one example of the means for filtering. As previously discussed, event consumers may submit filtering criteria for registered events. Such filtering criteria may be stored with the local registry or in any other manner that allows the desired information to be retrieved by a server in order to identify whether specific events meet the filtering criteria. Filtering criteria can be associated with a particular event and a particular event consumer. Furthermore, filtering can be performed on any of the information available from a particular event. The available information for an event includes not only the information available in the event data itself, but also in the event packet, such as the event packet previously described.” Lawson at 20:10-30; see also 5:26-65, 16:63-17:6, 17:67-18:3, 22:9-11, Fig. 5. “When server B recognized that event producer 42 had initiated an event, server B would check global event registry 34. Global event registry 34 would identify that server E needed notification of the event. Server B would then send the event through gateway 32 to server E.” Lawson at 10:23-28. “Furthermore, event notification was transferred from server B to server E without broadcasting the event to servers A, C and D. Thus, such a method can globalize an event to required locations while, simultaneously, reducing message traffic due to broadcast type events.” Lawson at 10:43-47; *see also* 22:62-63.

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	“To accommodate increased numbers of BBS users, multiple BBS service groups (not shown) may be formed, with each BBS Service group handling a specific topic or Set of topics.” Choquier at 10:17-20, *see also* 2:1-4, 2:14-18, 6:8-31, 9:40-49, 11:44-47.  FIG. 1 Choquier at Figure 1. “Certain types of on-line Services provide end users with access to Service-wide (or equivalently, Service-group-wide) data sets (also referred to generally as "service content data”) which change on a transaction-by-transaction basis. The BBS service is an example of such a service; each time a user posts a message, a data Set is modified Such that all users of the BBS service (regardless of the particular BBS Server to which a user is assigned) have access to the message. Transactions of this general type (i.e., transactions which affect

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	service-wide data sets) will hereinafter be referred to as "update transactions,” and can originate from a variety of Sources. For example, an update transaction can originate from a client microcomputer 102 when an end user posts a EBS message, or can originate from an external data provider that is connected to the host data center 104 by the Internet.” Choquier at 9:50-65, *see also* 21:33-53, 22:34-45. “10. Scalability An important aspect of the on-line services network 100 described above is its ability to be scaled in capacity without having to change the existing System and application Software, and without having to reconfigure existing net work components. In accordance with the architecture of the System, new Service applications can (and normally will) be written to interact with existing Gateway 126, Arbiter 128 and Service map dispatcher 144 Software components So that new Services can be added without changing these components. By way of example, because the Arbiter 128 is implemented as a generic (i.e., Service-independent) transaction replication Service, new Service applications can be written to make use of the services provided by the Arbiter 128, and no changes to the existing Arbiter software will be necessitated by the addition of Such Service applications.” Choquier at 25:5-21, *see also* 1:52-67. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a

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	communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35. “producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price. However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price.” Chandra at 6:49–58.

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	“Search module 104 searches search data structure 103 to find all filters that match the event. In particular, the search module determines which consumers specified the filters that match the events by traversing the search data structure. As described above, the consumer's identity is stored in matched filter list 218.” Chandra at 7:5–10. “The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol.” Chandra at 7:11–16. “For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15. “Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network.” Chandra at 11:16–21. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.

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	 *fig. 7* Chandra at Figure 7. “Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376. Mishra at 4:67–5:4. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the

Claims of the ’722 Patent	Castanet System
	entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “For example, means can be provided for adding a content identifier to a packet, and the distributing means can comprise means for deciding, in accordance with the content identifier, whether or not to distribute that packet to a given user terminal.” Yamanaka at 2:54–58. “This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this.” Yamanaka at 4:67–5:3. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which

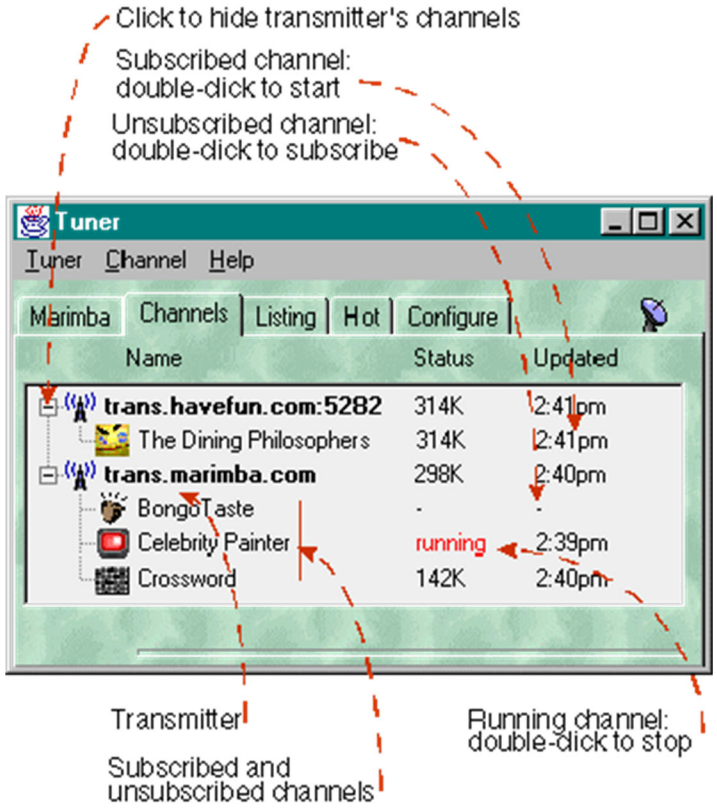
Claims of the ’722 Patent	Castanet System
	causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52. “In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices.” Rajan at 14:23–27. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

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	characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “The message broker uses the topic identifier to check 210 records of subscriber requirements - determining which subscribers have registered a requirement to receive messages related to this topic and determining what specific data requirements have been specified by those subscribers. As an example, a first subscriber may have registered with the message broker with a requirement for the subscriber to be set a message whenever the message broker receives messages including a topic identifier naming the specific publisher organisation. The subscriber may also have specified that all received messages from that publisher organisation should have their image content processed to generate a derived image showing classifications of crops identifiable from the captured raw image. Furthermore, the subscriber system's capabilities may impose requirements for particular image processing operations. One example is the pixel depth of the subscriber system display, which may be bilevel, 256 level greyscale, or 24 bit colour - mapped by the broker to one of a set of pixel depth classes (High, Medium or Low). Having recognised the presence of image content, the message broker accesses the system capabilities information and user-specified requirements and then generates a task definition which describes the operations to be performed to process the received message's image content in the required way.” Bird at [0060]. “Known publish/subscribe mechanisms rely on distribution lists, typically executing very simple logic to achieve required routing of highly structured, small transactional messages. Subscriber applications can be registered to receive all messages which include a specific subject classification or keyword, such as a company name or a more specific subject, within the message header or within a particular content field of the structured message. Message dictionaries hold information about the structure of messages, providing the message broker with a definition of the structure of all messages that will pass through it and so enabling unpacking of fields from the message content for inspection. The message broker queries the message header or a field within the content to retrieve the subject classification or keyword,

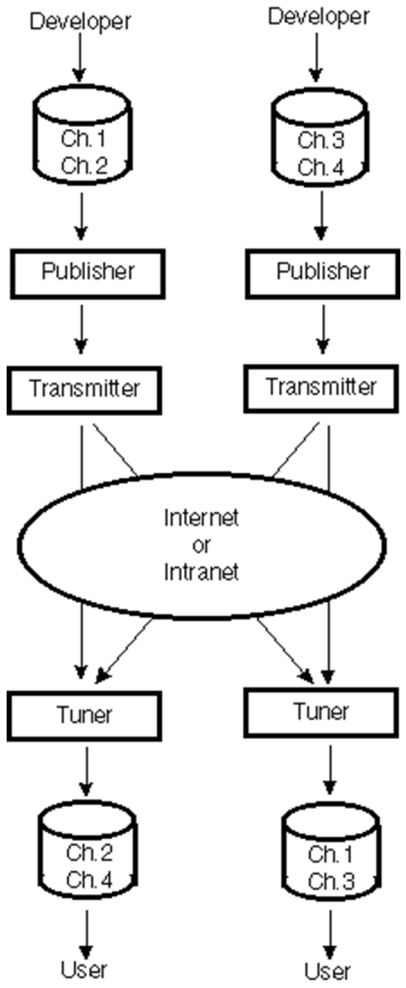
Claims of the ’722 Patent	Castanet System
	and this is then compared with a list of subscriber applications' information requirements and any other stored rules for routing messages to determine which applications the message should be sent to.” Bird at [0003]. “When a message is received by the message broker, a message analysis component 60 within the broker firstly investigates 180 the message header for a topic or subject identifier and/or identification of the sender, as is known in the art. A message publisher application may have identified a message topic or subject, such as by entering "STOCK/COMPUTERS/IBM" or "STOCK/AUTOS/GM" into a relevant field of the message header to indicate that the subject of the message is stock prices for IBM Corporation or General Motors respectively. The message broker includes a rules engine 40 which compares 210 any topic identifier and sender identifier retrieved from the message header of a published message with a list of subscribers' information requirements to identify which subscribers wish to receive this message.” Bird at [0044]; *see also* Bird at [0030]-[0072]. “Refer now to FIG. 9 for a discussion of the list 170 of simplified exemplary attack signatures. As described above in connection with FIG. 8, a communication device 106 constructed in accordance with the present invention is operative to store a list 170 of attack signatures, and to compare an incoming communication to entries on the list to determine if a received communication constitutes a threat event and respond accordingly. The list 170 comprises a plurality of entries, preferably arranged in a predetermined sort order to facilitate rapid access by indexing or hashing. Each exemplary entry on the list 170 comprises a header field 810, a body field 820, and a two-bit priority field 826. The priority field 826 in the disclosed embodiment is 00=ignore, 01=low priority, 10=not assigned (unused), and 11=high priority. Those skilled in the art will understand that the priority field is set in accordance with user and/or predetermined remote monitoring system preferences, for example by establishing certain predetermined priorities

Claims of the ’722 Patent	Castanet System
	for certain types of signatures via a high, medium, or low set policy (FIG. 4A), or by user setting of priority through the advanced options settings (FIG. 4B). The header 810 may comprise an IP address 812 and a port number 814. The IP address is the destination address of the communication device. Port numbers appear after the IP address and typically indicate a particular type of data communication service, some of which are known to be associated with security attacks, for example, a login host protocol on port 49. As will be known to those skilled in the art, Internet data communication services are provided on a particular port number of a particular server that provides that service, with the port number identifying a type of data communication service. While most Internet data communication services have standard port numbers (e.g., port 21 is for ftp (file transfer protocol) services, port 23 is for telnet services, port 25 is for smtp (e-mail), port 80 is for http (hypertext transfer protocol used for the WWW), etc.), services can also occur on non-standard ports. Those skilled in the art will understand that standard port numbers can be obtained by reference to Internet Request for Comments (RFC) 1700, Assigned Numbers, by J. Reynolds, J. Postel, July 1994. The reader should appreciate that header 810 may comprise additional elements, such as source and destination IP addresses, source and destination ports, fragmented bits and data transfer protocols, etc., which are well known to those skilled in the art.” Pearson at 18:41-19:18. “Method 900 continues from step 904 to step 906, where the intrusion detector 160 compares the communication's “header” information with entries in the list 170 of attack signatures, and passes to decision block 910. If the information in the incoming communication does not match an entry in the list 170 (e.g. the port number of the communication), control passes to step 912 and the communication is routed to its intended destination. However, if the information in the incoming communication matches an entry in the list 170, control passes to step 916 where the communication's body is disassembled. Control then passes to step 918.” Pearson at 20: 5-16; *see also* Pearson at 5:12-21:57.

Claims of the ’722 Patent	Castanet System
	To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.5] wherein the node is configured to identify the client device as a registered device and to route the update message to the client device, and	Castanet System discloses or renders obvious wherein the node is configured to identify the client device as a registered device and to route the update message to the client device. For example: Castanet then determines the client (i.e. user’s computer) to route the update message from, based on what the client has subscribed to/registered for. The user’s computer is different from the input source. “Use the Channels page to manipulate and monitor subscribed channels. The channels are arranged by transmitter in a collapsible/expandable outline format. The Status column distinguishes subscribed channels (approximate size on disk or "running"), unsubscribed channels (hyphen), channels that are being downloaded (a progress bar is displayed), and channels that were not received successfully ("error").”

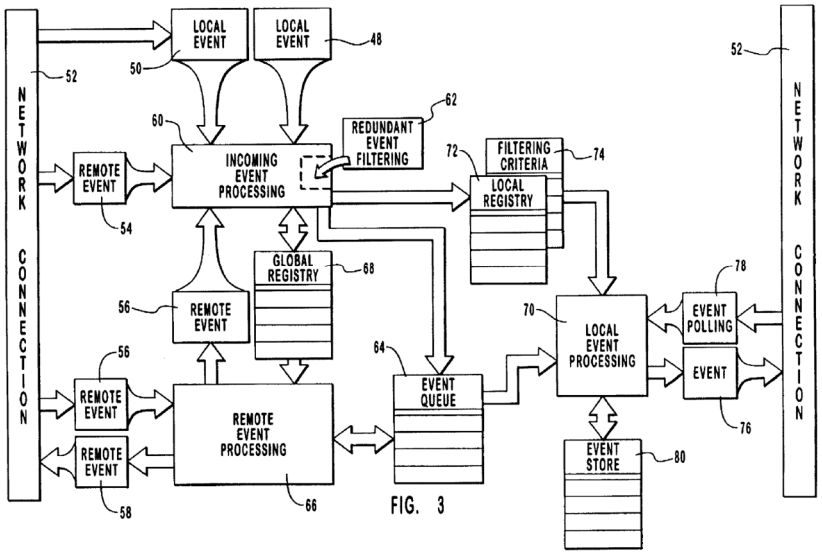
Claims of the ’722 Patent	Castanet System
	 https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/tuner/quickstart.html “Marimba's Castanet is a system for distributing, installing, and updating software and content over intranets and the Internet. Castanet's unit of distribution is called a *channel;* a channel can be a Java program or a Website. Channel developers create a channel's files with conventional programming or Website development tools. They use the Castanet *Publisher* to copy a channel's files to a Castanet *Transmitter*. Anyone can use a free Castanet *Tuner* to

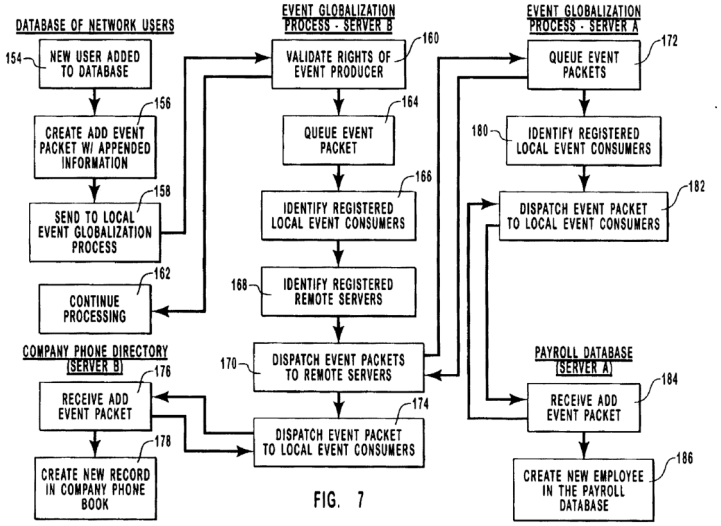
Claims of the ’722 Patent	Castanet System
	subscribe to a published channel. Subscribing downloads and installs a channel, which can then be run or displayed from the user's disk. Each channel includes a developer-provided schedule which the Tuner uses to automatically keep the channel current, downloading new and modified files as they are republished to the channel's Transmitter.”

Claims of the ’722 Patent	Castanet System
	 https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/introducing/introducing.html

Claims of the ’722 Patent	Castanet System
	All network traffic is routed, and Castanet ensures that the update message is routed to the client. “Download times for large applets have also been a concern, but new applet compression formats have alleviated this problem, and “push” technology, such as Marimba’s Castanet channels, offers intelligent local caching of applet code.” https://pmc.ncbi.nlm.nih.gov/articles/PMC310693/ To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Averbuch’s, Chandra’s, Mishra’s, Yamanaka’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “Embodiments within the scope of this invention also comprise means for transferring an event to a local event consumer using a designated method. In FIG. 3, such means is illustrated by local event processing block 70. The details of local event processing block 70 are presented below. Briefly summarized, however, local event processing block 70 monitors event queue 64 for events that should be transferred to a local event consumer. Embodiments of the present invention may, therefore, comprise means for accessing a local event registry to identify which local event consumers should receive which events. Such means may be incorporated into local event processing block 70. In such a case, local event consumers that should receive events queued in event queue 64 are identified by checking local event registry 72 and any associated filtering criteria. Embodiments within the scope of the present invention may comprise means for filtering events so that an event is only transferred when

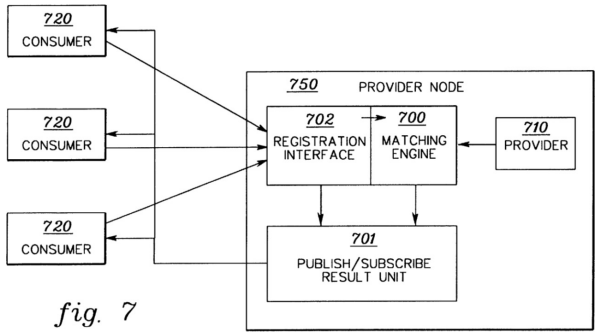
Claims of the ’722 Patent	Castanet System
	the event meets designated filtering criteria. Such means, discussed in greater detail below, may be part of local event processing block 70. The filtering criteria is illustrated in FIG. 3 by filtering criteria block 74. Although the details of filtering are presented below, filtering criteria may be stored as part of the local event registry or may be stored in any other manner as long as a local server can access the filtering criteria and identify the local event consumer and the event type that the filtering criteria applies to.” Lawson at 13:38-64. “In FIG. 3, the process of transferring an event to a local event consumer is illustrated by event 76. Event 76 is shown going out over network connection 52. However, if the event consumer is a local process, event 76 may be transferred to the local event consumer by placing it in a common memory store, storing it on a file on the disk, or any number of other means that allow two processes running on the same computer to communicate data back and forth. If, however, an event is transferred to an event consumer over network connection 52, then any number of other transfer methods may be utilized. For example, the event consumer may poll local event processing block 70. This is illustrated in FIG. 3 by event polling notification 78. Furthermore, events may be stored in an event store such as event store 80 until they are transferred to an event consumer. The transfer options between local event processing block 70 and an event consumer over network connection 52 are discussed in greater detail below.” Lawson at 13:65-14:5, Fig. 3 #52, 76.

Claims of the ’722 Patent	Castanet System
	 “After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174.” “In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process.” Lawson at 24:60-64, 25:16-18. *See also* 4:66-5:12, 8:58-60, 8:66-67, 10:28-36, 12:15-20, 12:29-34, 13:67-14:12, 19:63-20:9, 22:27-23:2, 25:34-36, 25:31-45, claim 9.

Claims of the ’722 Patent	Castanet System
	 FIG. 7 “Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1.” Lawson at 25:8-17. Choquier discloses routing update messages to servers of particular server groups (server/node type) based on service maps that map servers to server groups associated with message categories. Choquier at 9:50-65, 10:17-20, 21:33-53, 22:34-45. “Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an

Claims of the ’722 Patent	Castanet System
	information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit.” Averbuch at 3:58–4:27. “In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units.” Chandra at 4:29–35.

Claims of the ’722 Patent	Castanet System
	“Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair.” Chandra at 4:42–53. “The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol.” Chandra at 7:11–16. “Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702.” Chandra at 11:2–4. “The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network.” Chandra at 11:8–12. “For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter.” Chandra at 11:13–15. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments

Claims of the ’722 Patent	Castanet System
	some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. “Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376.” Mishra at 4:67–5:4. “To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses an interest in receiving notification upon the occurrence of a specified event by way of a subscription.” Mishra at 5:15–22.

Claims of the ’722 Patent	Castanet System
	“The channel 315 may then utilize the registration information stored in the names schema 330 to propagate the notification to one or more of the notification clients 370, 372, 374 and/or 376.” Mishra at 6:13–16. “Thereafter, the channel 315 may send the notification to each of the clients 370, 372, 374 and/or 376 whose registration information (i.e., delivery information) has been retrieved from the names schema 330.” Mishra at 6:40–43. “To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means.” Yamanaka at Abstract. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies

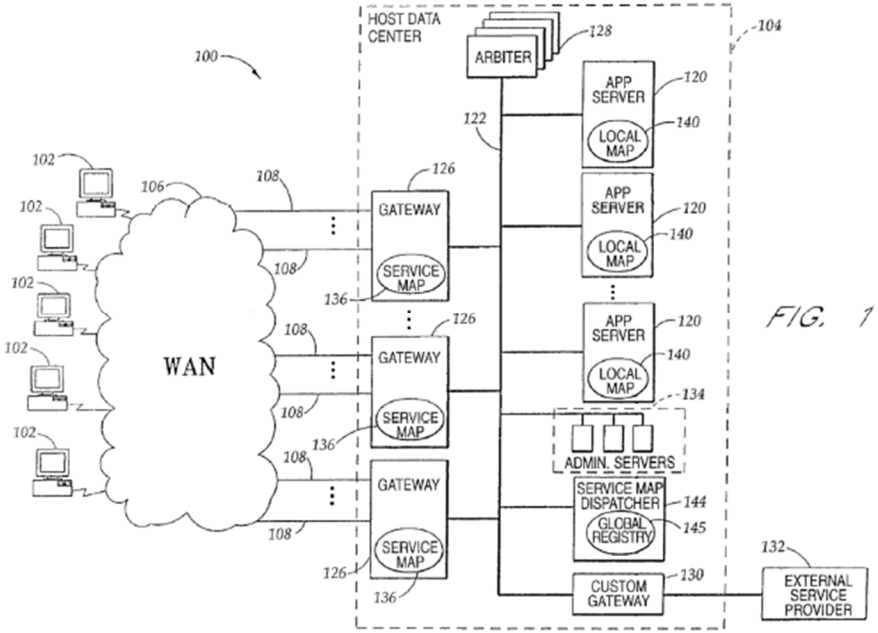
Claims of the ’722 Patent	Castanet System
	and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive.” Yamanaka at 2:24–29. “The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means.” Yamanaka at 4:38–44. “This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this.” Yamanaka at 4:67–5:3. “Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission.” Yamanaka at 6:41–52.

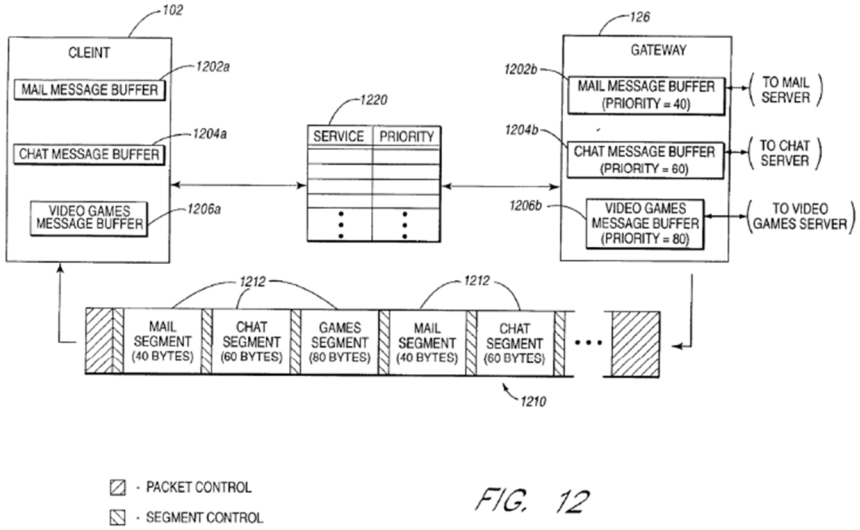
Claims of the ’722 Patent	Castanet System
	“In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention.” Rajan at 5:15–23. “In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information.” Rajan at 11:64–12:2. “In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met.” Rajan at 14:10–14. “As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices.” Rajan at 14:23–27. “In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so.” Rajan at 14:66–15:1. “Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only

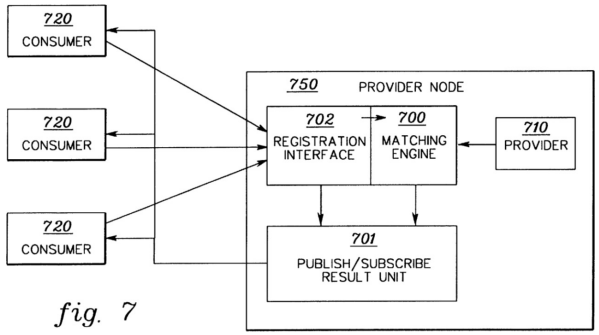
Claims of the ’722 Patent	Castanet System
	interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention.” Rajan at 15:36–43. “As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting.” Rajan at 15:49–57. “Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC.” Rajan at 16:48–55. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point,

Claims of the ’722 Patent	Castanet System
	if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side.” Tsutsumitake at 4:36-48; *see also* 13:1-5, 12:23- 28, 13:59-66, Figs. 6, 7. To the extent that the Castanet system 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 Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[14.6] wherein the client device processes the update message upon receipt to update the property of the live object at the client device.	Castanet System discloses or renders obvious wherein the client device processes the update message upon receipt to update the property of the live object at the client device. For example: The update message causes the client to update the property of the live object, and display content. “Each subscribed channel has an automatic update frequency that is specified by its developer (users can also direct the Tuner to check for updates). That frequency can be as high as every few minutes or as low as monthly. When it's time to check for updates to a channel, the Tuner contacts the channel's Transmitter, downloads and installs the updates, if any. Applet and application channels can be written to absorb updates while they are running, and channel developers can specify that a channel is to be launched automatically when the Tuner receives an update for it.” https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/introducing/introducing.html

Claims of the ’722 Patent	Castanet System
	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajna, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, Chandra’s, Yamanaka’s, Hayton’s, Rajan’s, and/or Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book.” Lawson at 23:64-65. “As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet.” Lawson at 24:64-66. “After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178.” Lawson at 25:4-6; see also 21:16-19. “In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186.” Lawson at 25:16-21; see also 24:1-4.

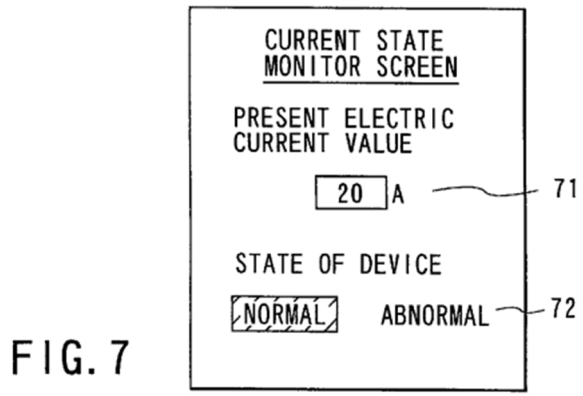
Claims of the ’722 Patent	Castanet System
	Choquier discloses servers communicating with client devices, through associated gateways 126, to route updates messages from the servers to clients.  FIG. 1 Choquier at Fig. 1. Servers and clients communicate over service instance channels which can use TCP/IP. Choquier at 8:17-24. Messages are routed to the clients in packets. Choquier at 18:24-19:60, FIGS. 11A-11B. FIG. 12 illustrates messages being sent to the client (which can be multiplexed if the client requested multiple categories). Choquier at 20:16-31.

Claims of the ’722 Patent	Castanet System
	 FIG. 12 Choquier at Fig. 12. “Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention.” Chandra at 11:23–35.

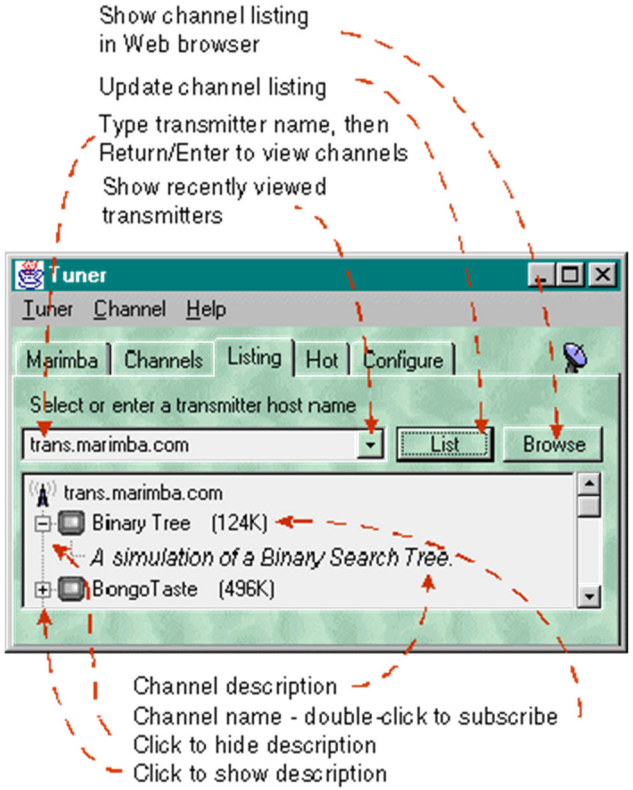
Claims of the ’722 Patent	Castanet System
	 *fig. 7* Chandra at Figure 7. “1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, “push service” signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed.” Yamanaka at 1:15–25. “The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page.” Hayton at 2:17–25. “As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the

Claims of the ’722 Patent	Castanet System
	display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list.” Hayton at 16:2–12. “FIG. 9 illustrates an exemplary process by which the partial page regenerator 250 generates updates for portions 260 of the page 240 that have changed. The partial page regenerator 250 generates output for the changed page portions 260 and a modification list for instructing the display alterer 245 on how to incorporate the changed page portions 260 in the displayed page. This exemplary process minimizes the amount of data that is transmitted to the client node 205, by taking advantage of any unchanged portions currently available on the client node 205.” Hayton at 17:44–53. “In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information.” Rajan at 11:64–12:2. “1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

Claims of the ’722 Patent	Castanet System
	characterized in that the alert includes specific data gathered from the specified Internet sites.” Rajan at 18:22–37. “FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.” Tsutsumitake at 13:31-65.

Claims of the ’722 Patent	Castanet System
	“According to the browser screen in FIG. 7 of the electric current state monitoring page in the client 11, the user can monitor the present electric current value of the specific control device of the plant system at intervals of one second, without performing a display update operation, for example, by depressing a reload button. In addition, the user can monitor the change in state (normal/abnormal) of the control device. As has been described above, since the server continuously returns responses (generated events) to a single event request from the client 11 while the connection is being maintained, the information transmission can be efficiently carried out without increasing a communication load between the client 11 and server 10.” Tsutsumitake at 14:14-28.  FIG. 7 Tsutsumitake at Fig. 7. To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior

Claims of the ’722 Patent	Castanet System
	art identified in the cover pleading to Defendant’s Invalidity Contentions.
[16.0] The method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network.	Castanet System discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network. For example: The Castanet tuner is the activation module. It is executed by the client device, and registers the live object with the routing network. “The Castanet tuner is the receiver component of the Castanet software distribution system. A tuner is a small Java application that does two main things: It subscribes to new channels, downloading and installing them on your disk. It updates subscribed channels by pulling changes from the other principal Castanet component, transmitters.”

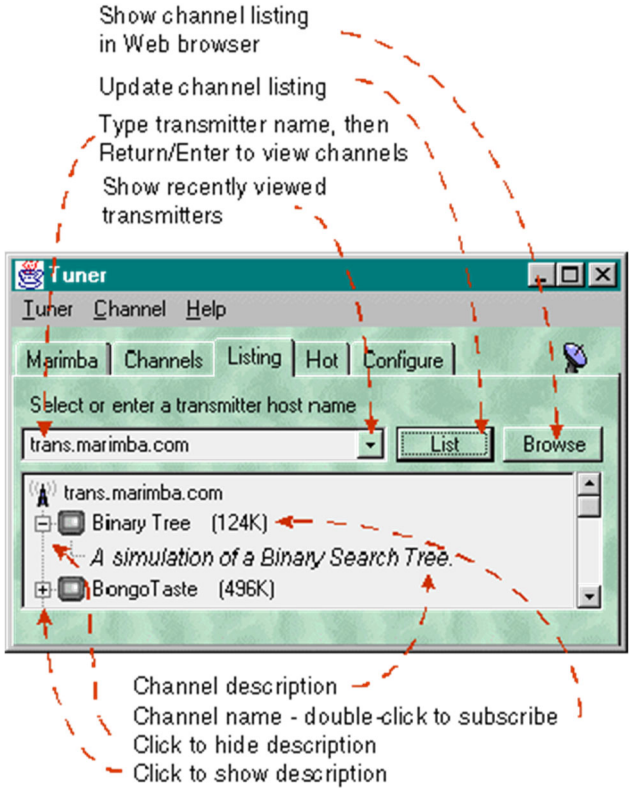
Claims of the ’722 Patent	Castanet System
	 https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/tuner/quickstart.html To the extent this reference does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with

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	Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63. “In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 6:2-4. “Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention” Lawson at 7:29-32. “The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action. For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user computers would then receive the notification and in response run a virus scan program.” Lawson at 6:7.

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	“Program code means comprises, for example, executable instructions and data which cause a general purpose computer or special purpose computer to perform a certain function or a group of functions.” Lawson at 7:48-51. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like “update transactions.” Choquier at 8:8-12. “A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request.

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	The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice.” Tsutsumitake at 8:39-49; *see also* 3:39-56. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68, 13:32-14:3, Fig. 7. “It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. "Applet" of Java developed by Sun Microsystems, or "JavaScript" developed by Netscape).” Tsutsumitake at 10:30-33. “On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:64-11:8, Figs. 1, 3. “On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of

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	the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55, Figs. 1, 4; *see also* 9:30-33, 12:66-67. To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[17.0] The method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network	Castanet System discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network. For example: The Castanet tuner is the activation module. It is executed by the client device, and registers the live object with the routing network. “The Castanet tuner is the receiver component of the Castanet software distribution system. A tuner is a small Java application that does two main things: It subscribes to new channels, downloading and installing them on your disk. It updates subscribed channels by pulling changes from the other principal Castanet component, transmitters.”

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	 https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/tuner/quickstart.html "Castanet. Marimba's Castanet requires a software package dubbed a "tuner," which is available for the asking from the company." http://archives.cpajournal.com/1997/1197/features/F341197.htm

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	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63. “The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 5:66-6:4. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization

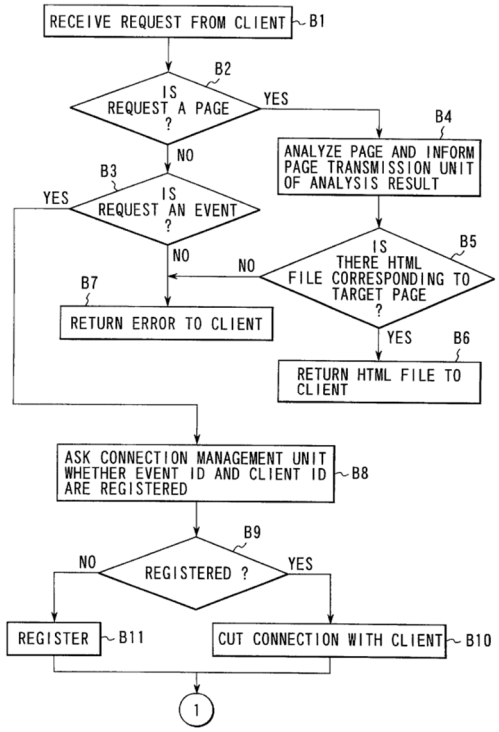
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	process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57; see also 7:48-51. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like updates to “update transactions” type services. Choquier at 8:8-12. “FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute “URL” in a tag “EVENT” in a tag “EMBED”. The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point. It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. “Applet” of Java developed by Sun Microsystems, or “JavaScript” developed by Netscape).” Tsutsumitake at 10:20-33; *see also* 10:64-67, 11:45-55, Fig. 4. To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.
[18.0] The method of claim 17, wherein providing the activation module includes	Castanet System discloses or renders obvious the method of claim 17, wherein providing the activation module includes providing the activation module that is configured to determine a node

Claims of the ’722 Patent	Castanet System
providing the activation module that is configured to determine a node type that handles registration and that causes the client device to register with the node corresponding to the node type.	type that handles registration and that causes the client device to register with the node corresponding to the node type. For example: The Castanet tuner is the activation module. It is executed by the client device, and registers the live object with the routing network. “There are presently four kinds of Castanet channels: 1. An HTML channel is a Website, meaning the files subordinate to a designated directory. 2. A presentation channel is a simple application whose graphical user interface and optional scripts are created with Marimba's Bongo presentation builder. 3. An applet channel is a Java applet. 4. An application channel is a Java application. Users subscribe to channels with a Castanet Tuner. They can launch subscribed channels either from the Tuner or from a mechanism provided by their desktop, such as choosing a channel from a menu or double-clicking on an icon representing the channel. Each subscribed channel has an automatic update frequency that is specified by its developer (users can also direct the Tuner to check for updates). That frequency can be as high as every few minutes or as low as monthly. When it's time to check for updates to a channel, the Tuner contacts the channel's Transmitter, downloads and installs the updates, if any. Applet and application channels can be written to absorb updates while they are running, and channel developers can specify that a channel is to be launched automatically when the Tuner receives an update for it.” https://web.mit.edu/outland/share/lib/castanet/tuner/lib/doc/introducing/introducing.html "Castanet. Marimba's Castanet requires a software package dubbed a "tuner," which is available for the asking from the company." http://archives.cpajournal.com/1997/1197/features/F341197.htm

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	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson’s, Choquier’s, and Tsutsumitake’s teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., “When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action.” Lawson at 1:61-63. “The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action.” Lawson at 5:66-6:4. “As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization

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	process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4.” Lawson at 15:35-57; see also 7:48-51. “The present invention presumes an underlying event notification system which: (1) allows local event consumers to register for notification of an event; and (2) sends notification of events that occur to registered local event consumers. In addition, it is desirable for some embodiments of the present invention to allow registration of custom event types. If an underlying event notification system does not provide the ability to register locally for an event, does not send even notifications to locally registered event consumers, or does not allow registration of custom event types, then this functionality can be provided as part of the present invention.” Lawson at 4:33-44. “These corresponding event globalization processes, in ram, check their local event registries and provide the event to any event consumers identified therein. In this way, local events can be routed to any event consumer in the network without the need to register at each server.” Lawson at 5:8-12; see also 4:66-5:10. Choquier specifies that communication links are established via clients with servers of Choquier’s network to facilitate exchange of information like updates to “update transactions” type services. Choquier at 8:8-12. “In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server.” Tsutsumitake at 4:22-29.

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	“On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later.” Tsutsumitake at 10:64-11:8. “On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11).” Tsutsumitake at 11:43-55.

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	 FIG. 4 Tsutsumitake at Fig. 4; *see also* FIGS. 1, 3. “The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7).” Tsutsumitake at 10:53-59.

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	To the extent that the Castanet system 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 the Castanet system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant’s Invalidity Contentions.

Exhibit B-11 to Defendant's Preliminary Invalidity Contentions

Active Desktop System

Active Desktop System was known in this country, used in public, sold or offered for sale no later than 1998, 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, Active Desktop System 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, Active Desktop System anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) or (g).

At least the following documents describe the relevant functionality disclosed by Active Desktop System:

- https://gustavus.edu/gts/Active_Desktop;
- https://web.archive.org/web/19991013012158/http://www.wired.com/wired/archive/5.03/ff_push_pr.html;
- https://www.lenovo.com/us/en/glossary/active-desktops/
- Using Windows 98 Platinum Edition (1998), page 186;
- https://www.oreilly.com/library/view/special-edition-using/0789715538/0789715538_ch21lev1sec1.html
- https://www.computerlanguage.com/results.php?definition=Active+Desktop;
- https://networkencyclopedia.com/active-desktop;
- https://www.scribd.com/document/518373326/Active-Desktop;
- https://www.theseus.fi/bitstream/handle/10024/96403/EvolutionOfUserInterfaceInMicrosoftWindowsOperatingSystems.pdf?seque;
- https://www.soundonsound.com/techniques/all-about-windows-98;
- https://web.archive.org/web/20040610054229/http://www.microsoft.com/windows/ie/previous/gallery/default.mspx;
- https://web.archive.org/web/20110912062210/http://www.nwnetworks.com/iehistory.htm;
- https://www.gannman.x10host.com/Portfolio/WindowsGUIEvol.pdf;
- http://toastytech.com/guis/win98.html; and

[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://christian-hockenberger.com/wp-content/uploads/2021/03/Operating-System-Interface-Design-Between-1981-2009-_-Webdesigner-Depot-Webdesigner-Depot-Blog-Archive.pdf.

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Active Desktop System include at least persons involved in the Active Desktop System and their testing and commercial use, including at least Microsoft Corporation. The conception of Active Desktop System occurred at least as early as 1998.

Defendant offers this invalidity chart based on its current understanding of Active Desktop System. Defendant's investigation of this system is ongoing. Defendant may rely on materials produced by Plaintiffs or by third parties regarding Active Desktop System and related software to demonstrate invalidity of the asserted claims. Defendant has not had an opportunity to review source code for Active Desktop System. Defendant 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.

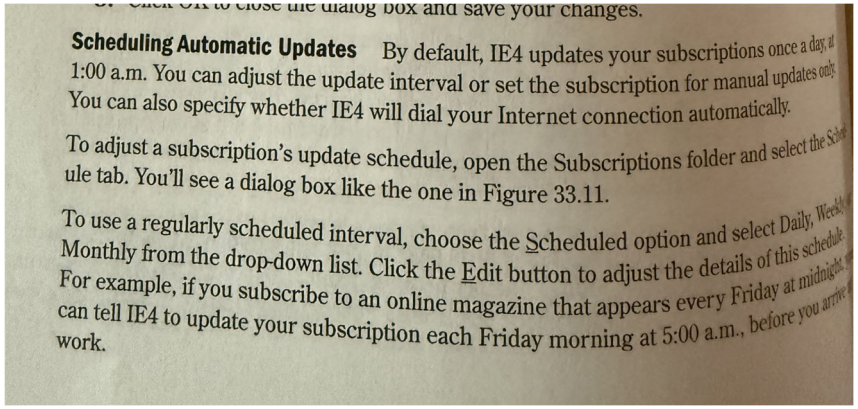
To the extent Plaintiff alleges Active Desktop System does not disclose any particular limitation of the Asserted Claims of the '722 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of 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 '722 Patent to modify Active Desktop System or combine the teachings of Active Desktop System with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- United States Patent No. 5,721,825 ("Lawson") – see Exhibit 722-1;
- PCT Patent Application Publication No. WO 99/26127 ("Kostes") – see Exhibit 722-2;
- United States Patent No. 6,999,991 ("Ikeda") – see Exhibit 722-3;
- United States Patent No. 6,710,702 ("Averbuch");
- United States Patent No. 6,216,132 ("Chandra");
- United States Patent No. 6,910,070 ("Mishra");
- United States Patent No. 6,757,283 ("Yamanaka");
- United States Patent No. 7,051,084 ("Hayton");
- United States Patent No. 6,633,910 ("Rajan");
- U.S. Patent No. 6,480,883 ("Tsutsumitake");
- U.S. Patent No. 5,951,694 ("Choquier");
- European Patent Application Publication No. EP1043671 ("Bird"); and/or
- U.S. Patent No. 6,990,591 ("Pearson").

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.

Claims	Active Desktop System
[14.0] A method comprising:	To the extent the preamble is limiting, Active Desktop System discloses: "Active Desktop is a feature built into the Microsoft Windows operating system since Windows 95 that allows users to display interactive content, such as web pages, as their desktop wallpaper." https://gustavus.edu/gts/Active_Desktop "Active desktop provides a dynamic and personalized computing experience, transforming your static desktop into an interactive hub. By embedding live web content like news feeds or weather updates directly onto your background, it keeps you informed without the need to open multiple applications. This feature enhances convenience and productivity, offering real-time information briefly. Tailoring your desktop with active desktop ensures a workspace that aligns with your preferences, making it a valuable tool for those seeking a more engaging and customized digital environment." https://www.lenovo.com/us/en/glossary/active-desktops/ "Up in Redmond, Washington, Goliath is aiming at the same bull's-eye. The busy folks at Microsoft plan to release, also in early 1997, their beta version of a new push interface, Active Desktop. The plan here is to turn every desktop window into a channel. Instead of a

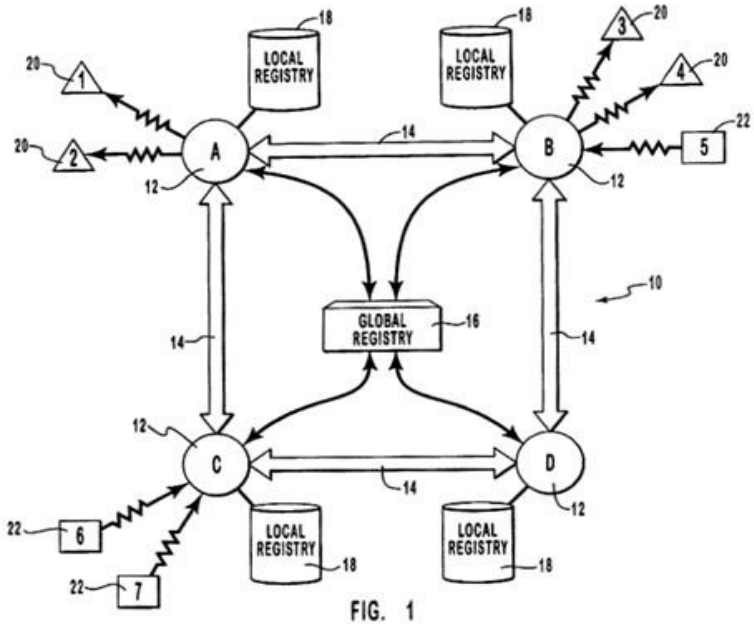
Claims	Active Desktop System
	window framing a static page, it frames an ongoing stream, a 3-D space, a game, or any media manifestation you like. Like Constellation, you don't have to launch anything to see it; the content launches itself from the level of the OS. The way they like to think about it is that Microsoft is expanding the desktop to take over the browser." https://web.archive.org/web/19991013012158/http://www.wired.com/wired/archive/5.03/ff_push_pr.html
[14.1] providing, using a processing device of an input source, a data representation to a client device, different from the input source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by the client device, and	Active Desktop System discloses or renders obvious providing, using a processing device of an input source, a data representation to a client device, different from the input source, coupled to a routing network, wherein the data representation includes at least one live object recognizable by the client device. For example: Windows Active Desktop receives news and information from a wide range of sources, these are update messages. Those update messages contain data for updating a property of the live object, the Windows Desktop. Windows Active Desktop uses update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:

Claims	Active Desktop System
	 Click OK to close the dialog box and save your changes. **Scheduling Automatic Updates** By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. "Active desktop provides a dynamic and personalized computing experience, transforming your static desktop into an interactive hub. By embedding live web content like news feeds or weather updates directly onto your background, it keeps you informed without the need to open multiple applications. This feature enhances convenience and productivity, offering real-time information briefly. Tailoring your desktop with active desktop ensures a workspace that aligns with your preferences, making it a valuable tool for those seeking a more engaging and customized digital environment." https://www.lenovo.com/us/en/glossary/active-desktops/ "On your active desktop, you can embed a variety of content, enhancing your desktop experience. Whether it's dynamic hypertext markup language (HTML) pages, captivating images, or live webcam feeds, the possibilities are vast. Infuse your workspace with personalized elements—news updates, inspiring quotes, or even your favorite social media feeds. The flexibility of active desktop empowers you to curate a digital environment that aligns with your preferences and keeps you engaged." https://www.lenovo.com/us/en/glossary/active-desktops/

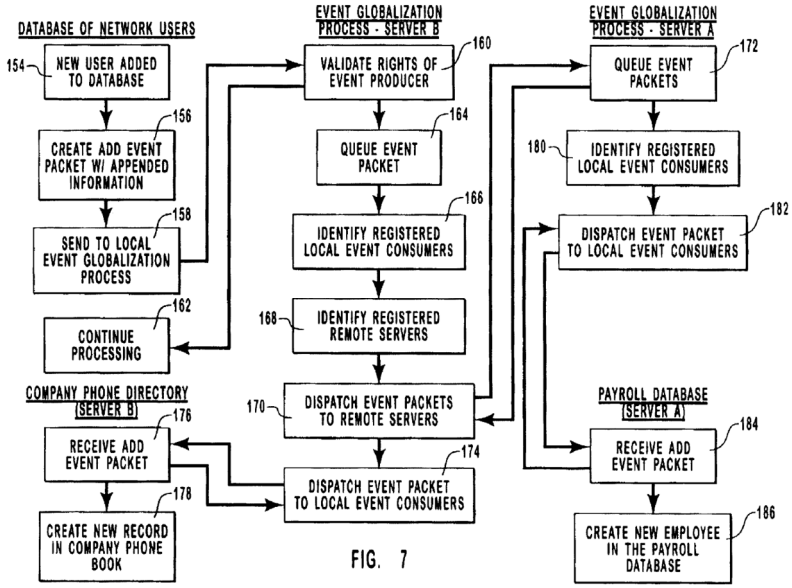
Claims	Active Desktop System
	"The Active Desktop represents a key change to the Windows interface. Whereas the classic Windows 95 interface uses the desktop simply as a holding area for icons, the Active Desktop treats the entire Windows desktop as if it were a web page. You can still store icons there, but you can also add live web pages, components written in HTML, ActiveX controls, and Java applets."  https://www.oreilly.com/library/view/special-edition-using/0789715538/0789715538_ch21lev1sec1.html To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson,

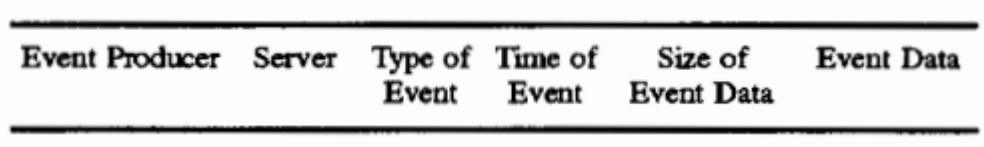
Claims	Active Desktop System
	Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, and/or Tsutsumitake. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and Tsutsumitake concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, updating live objects was a well-known and commonly-used technique. Modifying this reference with Lawson's, Choquier's, Averbuch's, Chandra's, Mishra's, Yamanaka's, Hayton's, Rajan's, and/or Tsutsumitake's teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, or Tsutsumitake for example, to incorporate this limitation. *See, e.g.*, "In FIG. 1, event consumers are illustrated by the triangular regions 20 and are numbered 1-4. Event producers are identified by rectangular regions 22 and are labeled 5-7. Event producer and event consumer are meant to be generic terms that are interpreted broadly. Event producer will be used to refer to a process, user, device, or other item that produces or generates an event. An event consumer should be broadly interpreted to refer to any process, user, device, or other item that desires notification of an event. As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below." Lawson at 9:1-15; *see also* 1:51-60. "The presently preferred embodiment of a system for global event notification and distribution comprises a general purpose computer. The present invention, however, can also be used with any special purpose computer or other hardware system and all should be included within its scope. The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means

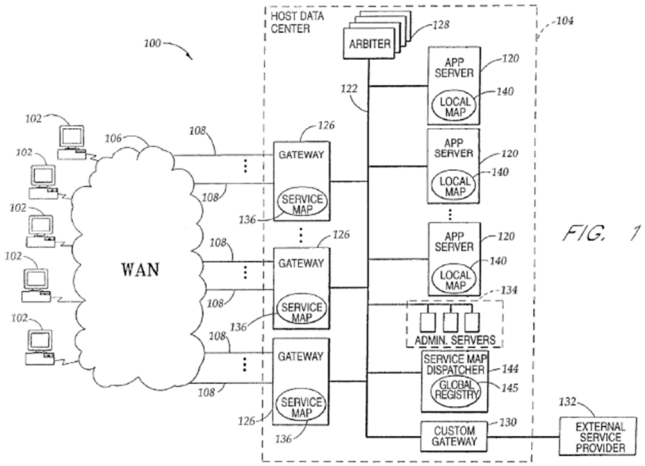
Claims	Active Desktop System
	for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and input means for receiving input from a user. Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention. Embodiments within the scope of the present invention also include articles of manufacture comprising program storage means having encoded therein program code means for causing a CPU to perform certain actions. Such program storage means can be any available media which can be accessed by the processing means of a general purpose or special purpose computer." Lawson at 7:17-39, Figs. 1-3; *see also* claims 38-39, 43-44. "Each server has running thereon a local event globalization process that registers for events desired by local event consumers. When an event consumer registers for an event, the event globalization process of the event consumer's local server places an entry into the local event registry for the local server. An entry is also placed into the global event registry for the local server where the event consumer is located. Thus, the global event registry is updated to contain an entry identifying the server where the event consumer is located and the desired event and the local event registry of that server is updated to identify the event consumer and the desired event." Lawson at 4:54-65, 7:52-8:4; *see also* 9:16-35, 10:16-35, Fig. 2. "The present invention achieves global event notification by storing a global event registry comprising a list of events and a corresponding list of servers which need notification when the corresponding event occurs. In addition to the global registry, each server stores a local event registry comprising a list of events and a corresponding list of local event consumers that need notification when an event occurs." Lawson at 4:45-52; *see also* 24:17-19, Figs. 3-6.

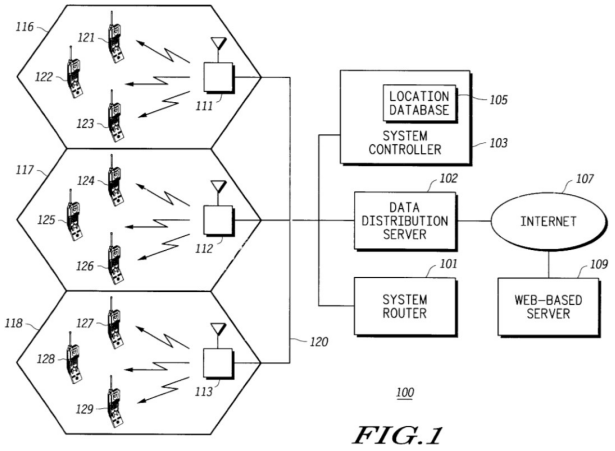
Claims	Active Desktop System
	 FIG. 1 "Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database." Lawson at 23:64-24:1. "Another type of filtering that may be supported by the present invention is a class based or category based filtering. A class based or category based filter identifies classes or categories of objects that are of interest to an event consumer. For example, consider an employee phone

Claims	Active Desktop System
	book database maintained on the network. It would be desirable to update the employee phone book database whenever a new employee was added to the system or whenever information about an existing employee was changed. In such a situation, the employee phone book database could register for notification of "a modified object" type event. The employee database could then submit a filter that filtered out modifications to any objects except employee record type objects. Then when an employee record was changed in the system, the database would receive notification that an employee record had been changed." Lawson at 21:16-25. "As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178." Lawson at 24:64-24:6. "In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186." Lawson at 25:16-21,

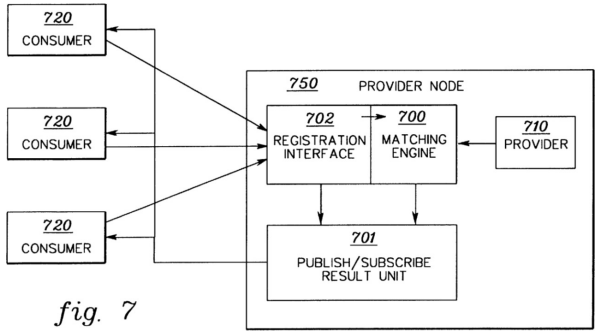
Claims	Active Desktop System
	 FIG. 7 "Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network." Lawson at 23:60-63. "After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the process described in FIGS. 3-6." Lawson at 24:17-18. "For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:

Claims	Active Desktop System
	 In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event." Lawson at 12:3-26. "For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user computers would then receive the notification and in response run a virus scan program." Lawson at 6:4-15. "The preferred general purpose computer comprises traditional computer elements such as display means for displaying information to a user, a CPU means or other processing means for processing program code means, program storage means for storing program code means executed by the CPU or other processing means, and input means for receiving input from a

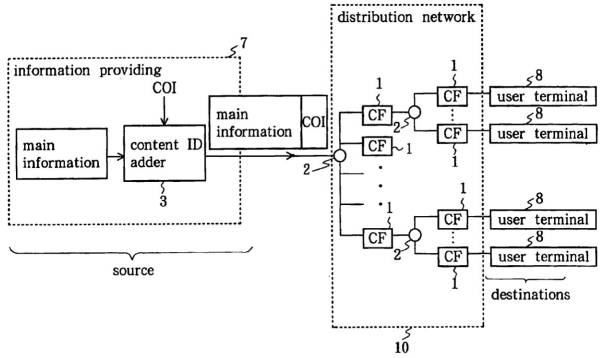
Claims	Active Desktop System
	user. Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention." Lawson at 7:23-51. Choquier discloses a routing network in which data received by a host data center 104 is routed to client devices 102 using application servers arranged into "service groups." Choquier at 2:1-4.  FIG. 1 Choquier at Figure 1. Data routed to the clients, coupled to the routing network, via the application servers can originate from "an external data provider connected to the host data center 104 by the Internet" (an input source). Choquier at 9:57-65.

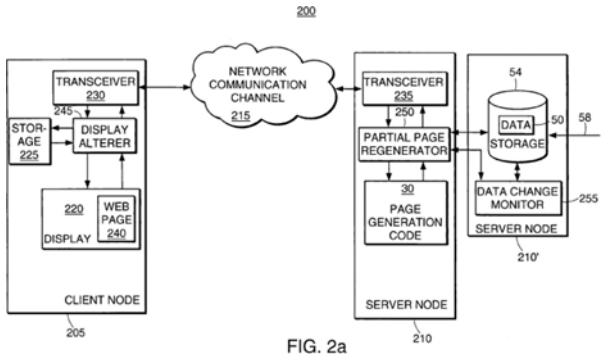
Claims	Active Desktop System
	"A wireless communication system (100) employs a method and apparatus for providing information to multiple communication units (121-129). The communication system includes a communication infrastructure (101, 102, 103, 105, 111-113, 120), a data network (107) and an information source (109)." Averbuch at Abstract.  FIG.1 Averbuch at Figure 1. "Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a

Claims	Active Desktop System
	communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit." Averbuch at 3:58–4:27. "Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers." Averbuch at 4:64–5:1. "In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units." Chandra at 4:29–35. "Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an

Claims	Active Desktop System
	event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair." Chandra at 4:42–53. "FIG. 7 shows one example of a publish/subscribe system incorporating and using the content-based subscription of the present invention. Each provider 710 is coupled to a matching engine 700 on a provider node 750." Chandra at 10:66–11:2. "Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702." Chandra at 11:2–4. "Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network." Chandra at 11:16–21.  *fig. 7* Chandra at Figure 7.

Claims	Active Desktop System
	"The major components of the asynchronous database event notification system according to the present invention include a database 310 (an instance thereof), a channel 315 and a plurality of notification clients 370, 372, 374 and 376." Mishra at 4:51–55. "The database 310 may be thought of as a supplier of event notifications and each of the plurality of clients 370, 372, 374 and 376 may be thought of as a consumer of such event notifications." Mishra at 4:55–58. "Each of the clients 370, 372, 374 and 376 may be coupled to the database 310 through the channel 315 via a network 380 that may include, for example, the Internet, a leased line and/or some other public, private or hybrid network." Mishra at 4:58–62. "For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change." Mishra at 7:59–61. "To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in

Claims	Active Desktop System
	throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means." Yamanaka at Abstract.  FIG.1 Yamanaka at Figure 1. "1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, "push service" signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed." Yamanaka at 1:15–25.

Claims	Active Desktop System
	"The invention relates to a method and apparatus for regenerating portions of the page that have changed and transmitting only those portions to the client for display." Hayton at Abstract.  FIG. 2a Hayton at Figure 2a. "The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page." Hayton at 2:17–25. "FIG. 2a is a diagram of an exemplary client/server network embodying the principle of the invention." Hayton at 4:10–11. "a first computing system ("client node") 205 in communication with a second computing system ("server node") 210 over a network 215." Hayton at 4:67–5:2.

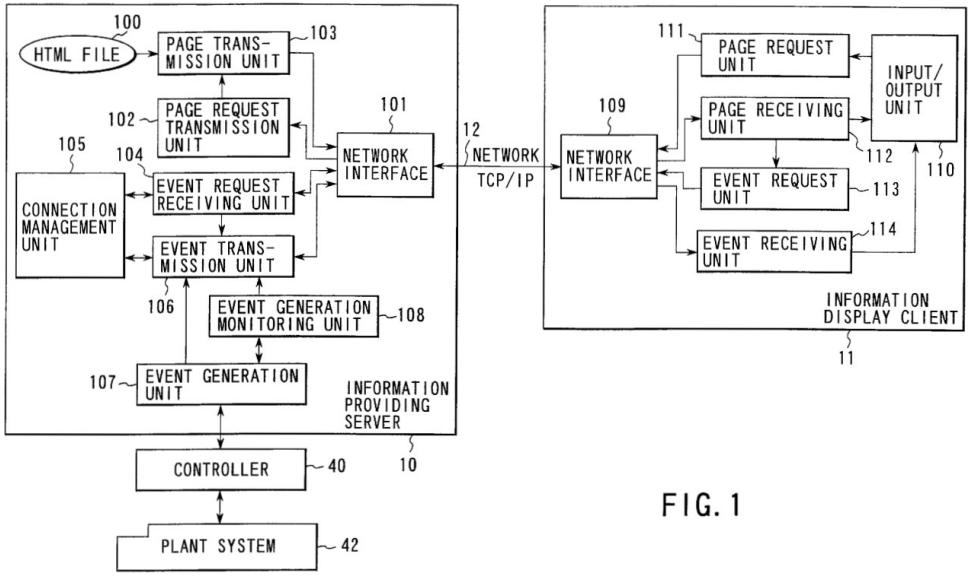
Claims	Active Desktop System
	"The server nodes 210 and 210′ can be any computing device capable of providing the requested services" Hayton at 5:38–39. "Examples of format for the web page 240, and thus of the page portions 260, include HTML, XML, VRML, WML, (display) postscript and nroff. Each code fragment 265 generates one or more page portions 260. For example, as illustrated in FIG. 2b, code fragment 265d generates page portions 260c, 260e and 260f." Hayton at 6:20–25. "FIG. 2b also illustrates an example of the correspondences between code fragments 265 of the page generation code 30 and the corresponding data 50a, 50b, 50c, 50d (generally referred to as 50) upon which the code fragments 265 depend." Hayton at 6:26–30. "In addition to executing the code fragments 265 individually from and independently of other parts of the page generation code 30, the partial page generator 250 may also have to intercept access to the data 50 upon which the code fragments 265 depend. This is typically accessed via data access objects. FIG. 4c illustrates an exemplary embodiment where JAVA is used for implementation. In this embodiment, data 50 is typically accessed via one or more Java beans 100. The JAVA beans 100 themselves are logically separate from the page generation code 30 and are only responsible for managing access to the data 50. The beans 100 are not considered code fragments 265, as the do not directly generate output that produces the page 240." Hayton at 9:48–60. "As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245

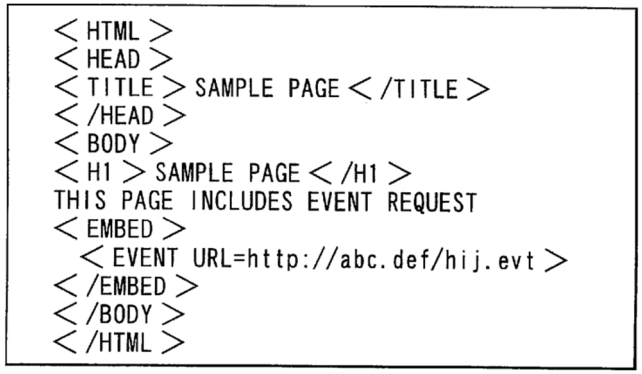
Claims	Active Desktop System
	performs the task of incorporating the transmitted page portion 260, using the modification list." Hayton at 16:2–12. "1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display; associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page." Hayton at 23:46–24:3. "In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention." Rajan at 5:15–23. "In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions

Claims	Active Desktop System
	(NC), and convenient notification may be made to user/subscribers in the event that the NCs are met." Rajan at 14:10–14. "WWW 75 represents a source for data such as (S1-Sn) of FIG. 2, which are understood in this embodiment to be on-line data sources" Rajan at 14:30–33. "A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data" Rajan at 14:35–42. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37. "The present invention relates generally to a client/server type system wherein an information providing server provides information upon request from an information display client, and more particularly to a real-time information transmission system for realizing novel and advantageous information transmission from an information providing server to an information display client." Tsutsumitake at 1:6-12.

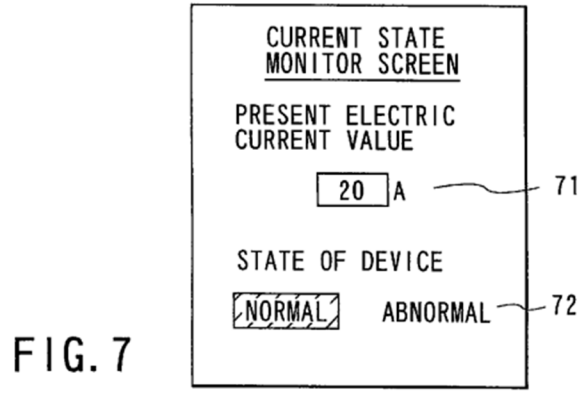
Claims	Active Desktop System
	"In general, the server provides information to the client in units of a document called "page". The page is an electronic file described in a format called HTML (Hypertext Markup Language). The client is normally realized with use of a software called "browser" for information display (information browsing), and the browser accesses the server to acquire and display pages including images and sounds." Tsutsumitake at 1:22-28. "The present invention has been made in consideration of the above circumstances, and an object of the invention is to provide a real-time information transmission system for realizing real-time information transmission from a server to a client in an existing WWW framework, thereby coping with information update in the server. Another object of the invention is to proyide a real-time information transmission system, wherein even if the time interval of information update on the server side is very short or information update occurs at a non-specified time, information update on the server side can be efficiently reflected on the client side, and the reliability and stability of communication between the server and client can be enhanced. Still another object of the invention is to provide a real-time information transmission system for realizing such an exclusive control that the same page cannot simultaneously displayed on a plurality of clients excluding one client." Tsutsumitake at 3:20-38. "The present invention provides a real-time information transmission system for transmitting information in real time from a server to a client via a network, the system comprising: determination means for determining, on the basis of an information transmission request from the client to the server, whether the request is a page request or an event request; page transmission means for transmitting, if the determination means has determined that the request is the page request, information of the requested page only once from the server to the client at an originating point of the page request; event generating means for generating events; and event transmission means for transmitting, when the determination means has determined that the request is the event request, those of the events generated by the event

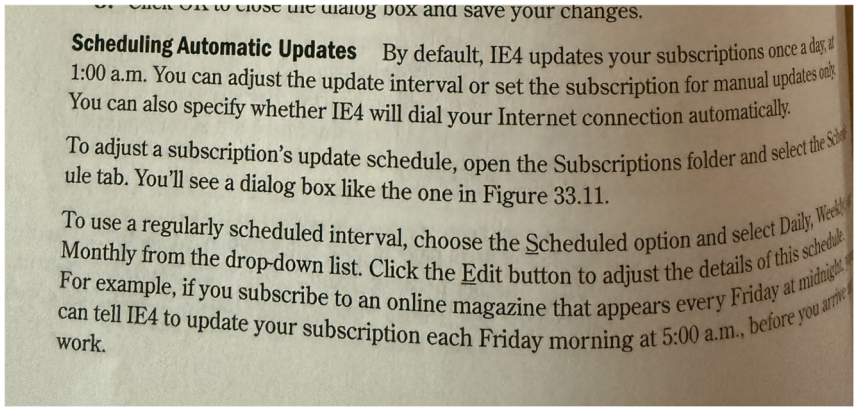
Claims	Active Desktop System
	generating means which are associated with the event request, from the server to the client at an originating point of the information transmission request in response to the event request issued once." Tsutsumitake at 3:39-56. "A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request. The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice." Tsutsumitake at 8:39-49. "In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server." Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68.

Claims	Active Desktop System
	 FIG. 1 Tsutsumitake at FIG. 1. "The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request." Tsutsumitake at 9:60-67; *see also* 14:3-29, Fig. 8.

Claims	Active Desktop System
	 Tsutsumitake at FIG. 2. “The event receiving unit 114 receives the event sent from the server 10 on the basis of the request to the server 10 from the event request unit 113. The received event is sent to the input/output unit 110, where necessary. For example, if the received event is an event indicating the update of the page in the server 10, the client 11 issues a page request to the server 10 and enables the updated page to be displayed on the display screen once again (i.e. the updated content being reflected on the display). In the present embodiment, the format of the page sent from the server 10 in response to the page request from the client 11 is a normal HTML file format. Of course, another format may be adopted. FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute “URL” in a tag “EVENT” in a tag “EMBED”. The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point.” Tsutsumitake at 10:7-29.

Claims	Active Desktop System
	"A description will now be given of a method of processing the event sent from the server 10 on the client (11) side and updating the screen image of the browser (page display screen image). FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72.

Claims	Active Desktop System
	The event processing results can be reflected on the page screen image (event screen image) by using the Java(Applet) of Sun Microsystems, JavaScript of Netscape Communications, or Dynamic HTML of Microsoft. Needless to say, the method is not limited to these. FIG. 8 shows an HTML expression of a page, on which the screen display in FIG. 7 is based. In the example of FIG. 8, the event request to the server 10 is designated by a tag "EVENT" on the page. This tag includes attributes such as a time interval ("period") of events to be sent to the client 11 and a target ("target") for reflecting the received event on the screen. A tag "HANDLER" is introduced as a tag for reflecting the event on the screen. This tag includes attributes such as a format ("type") for screen display and a name ("name"). The same name as the name attribute is designated in the target attribute in the tag "EVENT". This example of expression is merely an example, and other formats may be used." Tsutsumitake at 13:27-14:16.  FIG. 7 Tsutsumitake at FIG. 7. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as

Claims	Active Desktop System
	disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.2] causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network; and	Active Desktop System discloses or renders obvious causing the client device to respond to the live object of the data representation by determining an object identifier (ID) of the live object and to register for updates of the live object with the routing network, such that registering the client device with the routing network provides client connection information to a node in the routing network. For example: Windows Active Desktop receives news and information from a wide range of sources, these are update messages. Those update messages contain data for updating a property of the live object, the Windows Desktop. Windows Active Desktop uses update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:  Scheduling Automatic Updates By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. "Active desktop provides a dynamic and personalized computing experience, transforming your static desktop into an interactive hub. By embedding live web content like news feeds or

Claims	Active Desktop System
	weather updates directly onto your background, it keeps you informed without the need to open multiple applications. This feature enhances convenience and productivity, offering real-time information briefly. Tailoring your desktop with active desktop ensures a workspace that aligns with your preferences, making it a valuable tool for those seeking a more engaging and customized digital environment." https://www.lenovo.com/us/en/glossary/active-desktops/ "On your active desktop, you can embed a variety of content, enhancing your desktop experience. Whether it's dynamic hypertext markup language (HTML) pages, captivating images, or live webcam feeds, the possibilities are vast. Infuse your workspace with personalized elements—news updates, inspiring quotes, or even your favorite social media feeds. The flexibility of active desktop empowers you to curate a digital environment that aligns with your preferences and keeps you engaged." https://www.lenovo.com/us/en/glossary/active-desktops/ "The Active Desktop represents a key change to the Windows interface. Whereas the classic Windows 95 interface uses the desktop simply as a holding area for icons, the Active Desktop treats the entire Windows desktop as if it were a web page. You can still store icons there, but you can also add live web pages, components written in HTML, ActiveX controls, and Java applets."

Claims	Active Desktop System
	 https://www.oreilly.com/library/view/special-edition-using/0789715538/0789715538_ch21lev1sec1.html Users of Windows Active Directory subscribe to content, That content is a category coming from a particular input source. “Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content

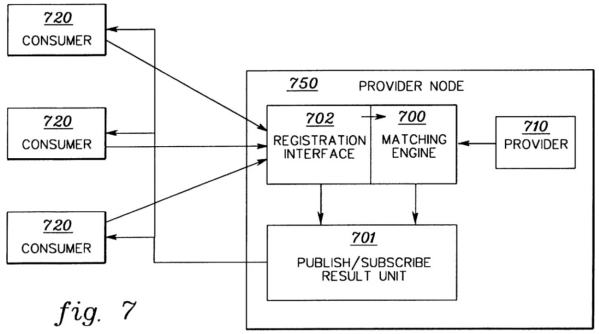
Claims	Active Desktop System
	delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it" https://www.computerlanguage.com/results.php?definition=Active+Desktop To the extent this reference does not expressly 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chadra, Mishra, Yamanaka, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, Averbuch's, Chandra's, Mishra's, Yamanaka's, Rajan's, and/or Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., "When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action. In the case of one example given above, if the network was set up to notify a user when a file had finished printing, after the file had been printed, the server responsible for printing the file would generate an event notification that printing had finished. This event notification would then be passed to the user to notify the user that printing had concluded." Lawson at 1:61-63. "Event consumers which desire to receive notification of certain events "register" with the event producing system. When an event occurs, notification is sent to all registered event consumers." Lawson at 2:6-9. "When an event consumer needs to register for a new event or create a new event, the event consumer can send a 'register for event' packet or a 'create event packet' to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry

Claims	Active Desktop System
	68 of Fig. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of Fig. 3, identifying the event and the event consumer wishing to receive notification of the event." Lawson at 15:41-56; *see also* 10:50-11:2, 16:41-46, 19:63-20:7, 22:27-23:2, 23:11-28, Fig. 3 #52, 76, Fig. 4 #102, claim 9. For example, "the employee phone book database could register for notification of 'a modified object' type event." Lawson at 21:20-21. "Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database." Lawson at 24:1-4; *see also* 10:20-35, 10:47-67, 12:46-52, 14:54-64, 15:35-57, 16:23-62, Figs. 1-4. "In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event." Lawson at 12:15-20. "Although the above describes a presently preferred event packet, it should be understood that for this invention the only required field is the type of event field. The type of event field is used to extract from the global event registry, either directly or indirectly, those servers that should receive notification of the event and is used to extract from the local event registry, either directly or indirectly, those local event consumers that should receive notification of the event. In addition to the type of event field, the event data should also be included so that the event information can be transferred to the appropriate recipients." Lawson at 12:27-37.

Claims	Active Desktop System
	"checking a first registry comprising a list of local event consumers and an associated list of event types in order to identify which local event consumers are registered for events of the type included in said event packet." Lawson at 27:61-64 (claim 19). "In addition to the type of event field, the event data should also be included so that the event information can be transferred to the appropriate recipients." Lawson at 12:34-37; *see also* 21:15-26, 24:1-4. Choquier discloses various information-based updating content, like bulletin board messages, news, or stock quotes. Choquier at 6:8-22, 23:26-33. Choquier specifies that communication links are established via between clients and servers of Choquier's network to facilitate exchange of information such as "update transactions." Choquier at 8:8-12. "Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the

Claims	Active Desktop System
	subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit." Averbuch at 3:58–4:27. "In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units." Chandra at 4:29–35. "Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair." Chandra at 4:42–53.

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	"Consider a stock market example where events for executed trades include the name of the security, the price, and the volume of shares being traded. Previously, to structure the stock market example using groups a group is assigned for every security and events are published to the group associated with the appropriate security. A user wishing to view this information along a different dimension is left without adequate support. For example, consider a trader who is interested in high volume transactions, e.g., those involving over 100,000 shares. In a group-based publish/subscribe system, such a subscriber is forced to subscribe to all groups and filter out itself all events except the few the subscriber needs. With the content-based subscription of the present invention, one subscriber may specify interest in all events associated with a security, another may restrict itself to trades associated with a security, and a third subscriber may express interest in all trades over 100,000 shares regardless of security. While groups restrict subscriptions to a single dimension (i.e., the groups name), the technique of the present invention deals with multiple dimensions (in this example, security name, price, and number of shares)." Chandra at 10:44–65. "Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702." Chandra at 11:2–4. "The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network." Chandra at 11:8–12. "Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720.

Claims	Active Desktop System
	However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention." Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. "Each of the notification clients 370, 372, 374 and/or 376 may subscribe to be notified upon the occurrence of one or more data or system events." Mishra at 5:13–15. "To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses an interest in receiving notification upon the occurrence of a specified event by way of a subscription. More particularly still, an agent, acting on behalf of one of the clients 370, 372, 374 and/or 376 subscribes to one or more event names. Each event name identifies a particular data or system event within the database 310." Mishra at 5:15–26. "The names schema 330 stores the delivery information that specifies to which client(s) 370, 372, 374 and/or 376 the notification is to be delivered and how the notification is to be sent. The updating of the names schema 330, according to the present invention, is termed the registration process." Mishra at 5:35–40.

Claims	Active Desktop System
	"The delivery information stored in the names schema 330 includes information as to where the notification is to be sent and how the notification is to be sent. For example, the delivery information provided by a particular client 370, 372, 374 or 376 may include an identification of the client process' host and port (where) and may include a callback indicating the manner in which delivery of the notification should be made (how)." Mishra at 5:40–48. "For example, a client 370, 372, 374 or 376 may subscribe to receive notifications from a stock ticker application that sends out frequent notifications, as stock prices change." Mishra at 7:59–61. "To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means." Yamanaka at Abstract.

Claims	Active Desktop System
	"The principal distinguishing features of this invention are as follows. Firstly, it adds to a packet a content identifier for identifying the content, or, if a category to which the content belongs can be identified, one or both of a content identifier and a category identifier for identifying the category to which the content belongs." Yamanaka at 2:19–24. "Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive." Yamanaka at 2:24–29. "Furthermore, because the user registers content in the distribution network, even if the situation of a user constituting a destination is constantly changing, the source can still distribute content without having to be aware of these changes." Yamanaka at 3:14–19. "The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means." Yamanaka at 4:38–44. "Thus, in order to register, in the table of each decision means, content identifier related information notified by a user, it is necessary to search for a route from the information providing terminal in question to the user terminal in question, and to register, in the tables of the nodes on that route, the content identifier related information notified by the user." Yamanaka at 4:61–67. "Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for

Claims	Active Desktop System
	collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission." Yamanaka at 6:41–52. "In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention." Rajan at 5:15–23. "In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met." Rajan at 14:10–14. "In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so." Rajan at 14:66–15:1. "Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention." Rajan at 15:36–43. "As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to

Claims	Active Desktop System
	monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting." Rajan at 15:49–57. "Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC." Rajan at 16:48–55. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37. "The page receiving unit 112 receives a response from the server 10 to the page request, that is, the requested page, via the network interface 109. The received page is displayed on the display of the input/output unit 110. There is a case where the page received from the server 10 includes a description for issuing an event request to the server 10. In such a case, the page receiving unit 112 informs an event request unit 113 of the URL of the event request. The event request unit 113 sends the URL of the event request to the server 10 via the network interface 109. Though not shown, the URL of the event request may not only be

Claims	Active Desktop System
	delivered from the page receiving unit 112, but also it may be directly input to the input/output unit 10 by the user." Tsutsumitake at 9:60-10:6; *see also* 9:42-10:19; 10:20-29. The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7). If an event request is not included, the page receiving unit 112 outputs the page to the input/output unit 110 (step Al2). Thus, the content of the received page is displayed on the display of the input/output unit 110. "On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later." Tsutsumitake at 10:53-11:8.

Claims	Active Desktop System

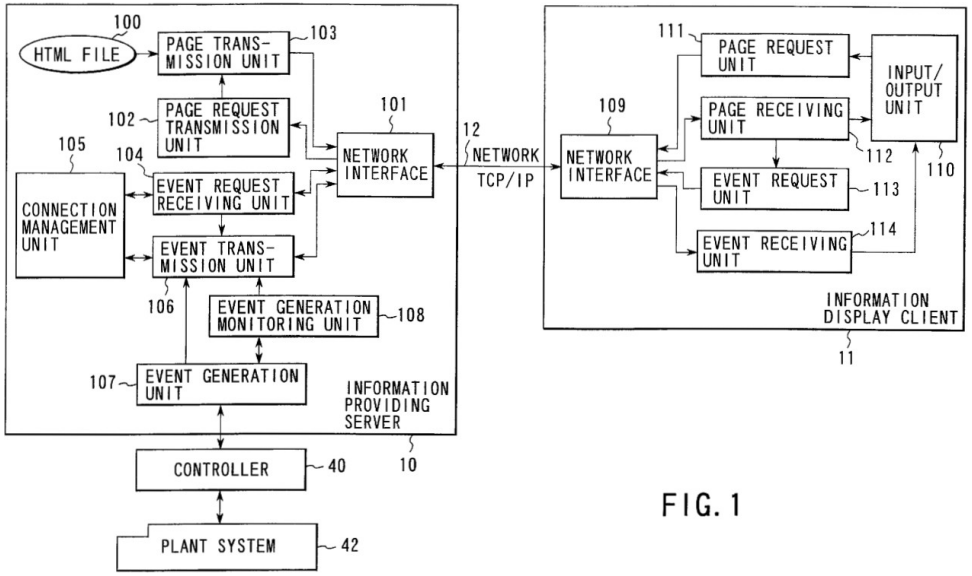


FIG. 1

Tsutsumitake at FIG. 1.

```
<HTML>
<HEAD>
<TITLE>SAMPLE PAGE</TITLE>
</HEAD>
<BODY>
<H1>SAMPLE PAGE</H1>
THIS PAGE INCLUDES EVENT REQUEST
<EMBED>
  <EVENT URL=http://abc.def/hij.evt>
</EMBED>
</BODY>
</HTML>
```

Claims	Active Desktop System
	Tsutsumitake at FIG. 2.

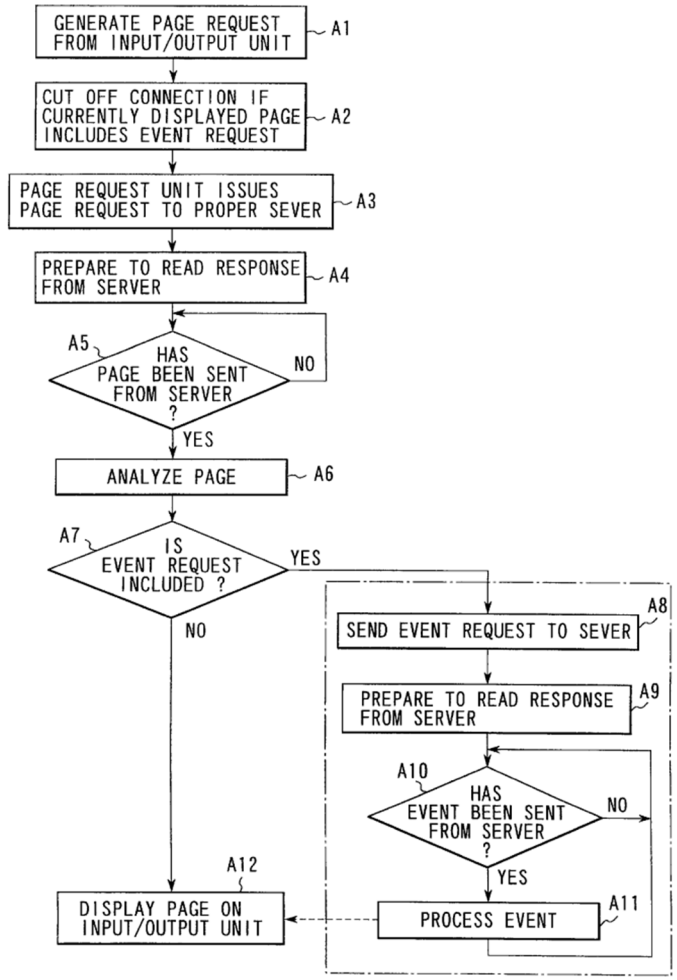
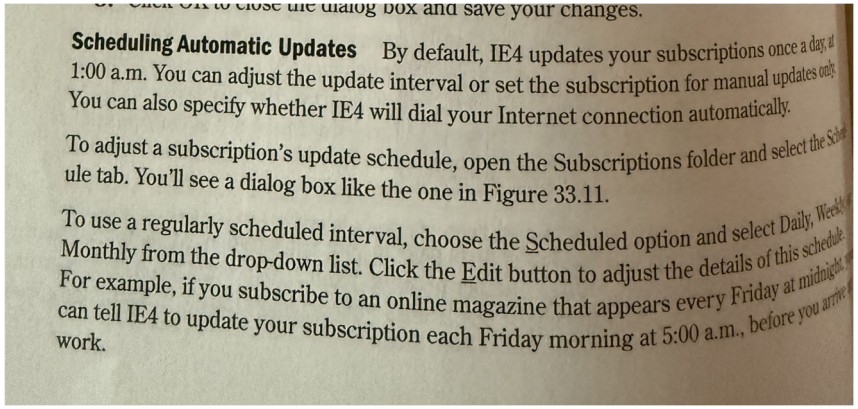


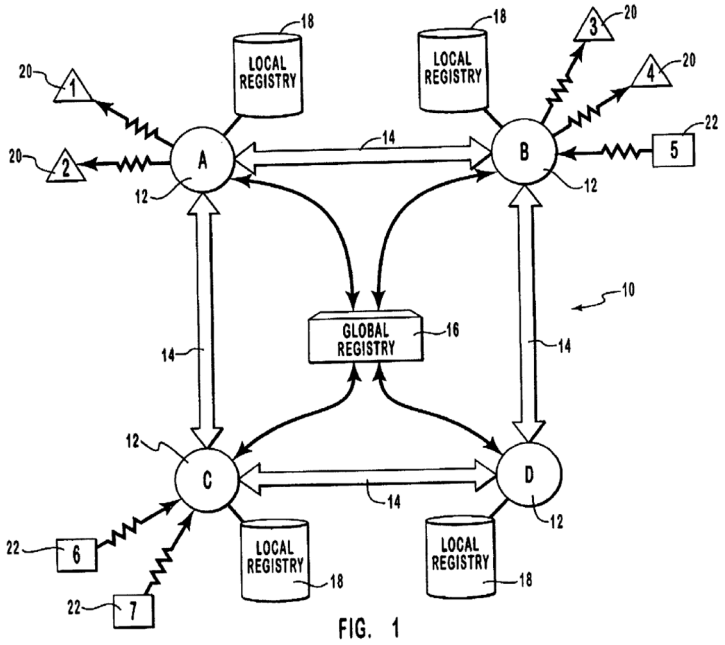
FIG. 3

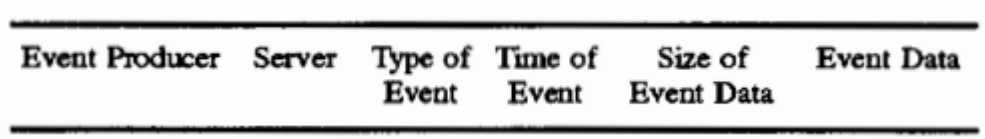
Claims	Active Desktop System
	Tsutsumitake at FIG. 3. "On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11)." Tsutsumitake at 11:43-55, *see also* Figs. 1, 4, 9:30-33, 12:66-67. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.3] sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object,	Active Desktop System discloses or renders obvious sending, using the processing device of the input source, an update message to the routing network, wherein the update message identifies the live object and contains update data that updates a property of the live object. For example: Windows Active Desktop uses update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:

Claims	Active Desktop System
	 **Scheduling Automatic Updates** By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. "Active desktop provides a dynamic and personalized computing experience, transforming your static desktop into an interactive hub. By embedding live web content like news feeds or weather updates directly onto your background, it keeps you informed without the need to open multiple applications. This feature enhances convenience and productivity, offering real-time information briefly. Tailoring your desktop with active desktop ensures a workspace that aligns with your preferences, making it a valuable tool for those seeking a more engaging and customized digital environment." https://www.lenovo.com/us/en/glossary/active-desktops/ "On your active desktop, you can embed a variety of content, enhancing your desktop experience. Whether it's dynamic hypertext markup language (HTML) pages, captivating images, or live webcam feeds, the possibilities are vast. Infuse your workspace with personalized elements—news updates, inspiring quotes, or even your favorite social media feeds. The flexibility of active desktop empowers you to curate a digital environment that aligns with your preferences and keeps you engaged." https://www.lenovo.com/us/en/glossary/active-desktops/

Claims	Active Desktop System
	"The Active Desktop represents a key change to the Windows interface. Whereas the classic Windows 95 interface uses the desktop simply as a holding area for icons, the Active Desktop treats the entire Windows desktop as if it were a web page. You can still store icons there, but you can also add live web pages, components written in HTML, ActiveX controls, and Java applets."  https://www.oreilly.com/library/view/special-edition-using/0789715538/0789715538_ch21lev1sec1.html Users of Windows Active Directory subscribe to content. That content is a category coming from a particular input source.

Claims	Active Desktop System
	"Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it" https://www.computerlanguage.com/results.php?definition=Active+Desktop To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Hayton, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, Averbuch's, Chandra's, Mishra's, Yamanaka's, Hayton's, Rajan's, and/or Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., "As used throughout this application, event notification will refer to not only notification of an event but also distribution of information associated with that event. The details of how event information is distributed in conjunction with notification in one preferred embodiment is described in greater detail below." Lawson at 9:9-11.

Claims	Active Desktop System
	 FIG. 1 "Turning now to FIG. 7, an example of how the present invention works is presented. The network topology used for this example is presented in FIG. 1. Assume for this example that event producer 5 added a new user to a database stored on the network. Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book. Further, assume that event consumer 1 is a payroll database that has also registered for the add user event so that information can be extracted to update the employee payroll database." Lawson at 23:60-24:4.

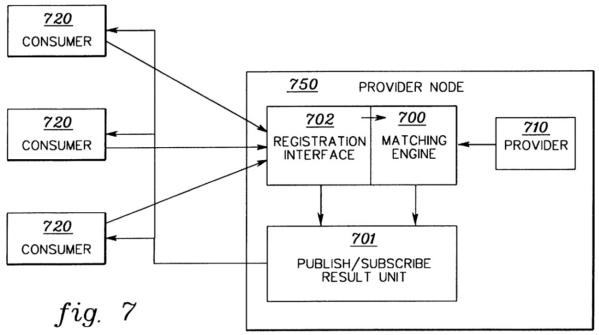
Claims	Active Desktop System
	"Referring now to FIG. 7, a new user is added to the database in step 154. Assume that the addition occurred on server B. After the user has been added to the database, step 156 indicates that an event packet is created. This event packet represents any prepackaging of the event data done by the database process itself. The database process itself may generate a complete event packet as described above, or the database process may create a partial event packet which is then packaged into a complete event packet later on by the event globalization process illustrated in FIG. 3." Lawson at 24:7-14. "For most events, packaging event data into an event packet has the benefit of adding data that may be useful in processing the event. In one embodiment, an event packet comprises:  In the above event packet, the event producer field is an identifier that identifies the process, device, user, etc., which generated the event. The server field identifies the server location where the event was produced. The type of event field is an identifier describing the type of event which occurred. This identifier preferably identifies an event in the global event registry and/or local event registry so that appropriate servers or event consumers can be identified to receive the event. The time of event field is a time stamp indicating the time that the event occurred. This time stamp is preferably a network time that can be referenced by each server in the network, although this is not strictly required. The size of event data is a field indicating the size of the attached event data field. The event data is the data associated with the event." Lawson at 12:3-26. "After the event packet has been created, the event is sent to the local event globalization process. This is illustrated in FIG. 7 by step 158. The local event globalization process is the

Claims	Active Desktop System
	process described in FIGS. 3-6. Remember that each server in the network has a similar process running thereon. Step 160 indicates that the event globalization process on server B validates the rights of the event producer. This corresponds to steps 104 and 106 of FIG. 4. Notice that after the rights of the event producer have been validated, the database of network users may continue processing as shown by step 162. Meanwhile, the event notification process on server B queues the event packet in step 164. These steps illustrate one feature of the present invention. Because the event notification process operates as described, the event notification process may execute separately from the database of network users. Thus, the database may return to its processing tasks without sending event notifications to each and every registered user. After the event packet has been queued, as for example in event queue 64 of FIG. 3, the registered local event consumers and registered remote servers are identified in steps 166 and 168. As described above in the embodiment in FIG. 3, these functions are performed by local event processing block 70 and remote event processing block 66 by checking local event registry 72 and global event registry 68 respectively. If the event notification process is multi-threaded, these two functions may be performed in parallel." Lawson at 24:15-42; *see also* 4:66-5:12, 10:16-11:2. "A single event may need to be transferred to multiple event consumers." Lawson at 22:62-63. "After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer

Claims	Active Desktop System
	method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178." Lawson at 24:59-25:7. "After the registered remote servers have been identified, step 170 dispatches the events to the remote servers. In this case, the only remote server registered for this event was server A. Thus, step 170 dispatches the events to the event globalization process running on server A. As the events are received, they are queued in the event queue on server A as indicated by step 172. At this point, the event notification process on server A and the event notification process on server B can proceed independently so that the servers are not tied up communicating with each other. Notice that server A did not validate the rights of server B. This illustrates that once the rights of an event producer are validated, they may not need to be revalidated when the event is sent to other servers. Of course, for network security reasons, server A may wish to verify that the event is coming from server B and not somewhere else." Lawson at 24:42-58. "After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174. In this case, the only registered local event consumer is event consumer 4 which is the company phone directory process. As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet. The event packet could be transferred to event consumer 4 using any of the previously identified event transfer methods or with another appropriate event transfer method. After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178." Lawson at 25:4-25:7. "Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local

Claims	Active Desktop System
	event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1. In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186." Lawson at 25:8-20. Choquier discloses an input source, different from a client device, can send/route an update message to Choquier's network. In Choquier, update messages ("update transactions") for updating services can be sent/routed from input sources such as "an external data provider connected to the host data center 104 by the Internet." Choquier at 9:50-65, 10:4-12. Choquier's update messages can be received by a gateway device because Choquier discloses using a gateway 130 that "links the host data center 104 to one or more external service providers 132" and Arbiter microcomputers 128 for disseminating data to appropriate server groups using service maps 120. Choquier at 6:37-47, 23:9-19. "Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the

Claims	Active Desktop System
	subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit." Averbuch at 3:58–4:27 "Also coupled to Internet 107 is an information source 109, preferably a web-based information server. Web-based server 109 includes an Internet information service that generates subscriber information for subscribers to the service, i.e., information subscribers." Averbuch at 4:64–5:1. "In the preferred embodiment, data distribution server 102 receives subscriber information from an information service (i.e., the information service provided by web-based server 109). The subscriber information, preferably packet data, is intended for subscribers to the information service." Averbuch at 7:52–56. "producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price." However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price. Chandra at 6:49–58.

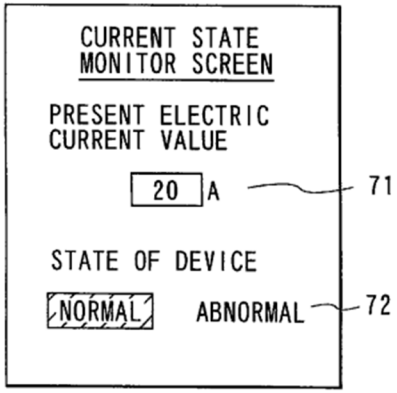
Claims	Active Desktop System
	"For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter." Chandra at 11:13–15.  *fig. 7* Chandra at Figure 7. "When an event (whether data or system-related) fires a trigger among the triggers 314, a notification is generated. The notification is published to the channel 315." Mishra at 6:11–13. "To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of

Claims	Active Desktop System
	memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means." Yamanaka at Abstract. "1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, "push service" signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed." Yamanaka at 1:15–25. "The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page." Hayton at 2:17–25. "As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page 240 that have been modified, along with the modification list for those particular portions

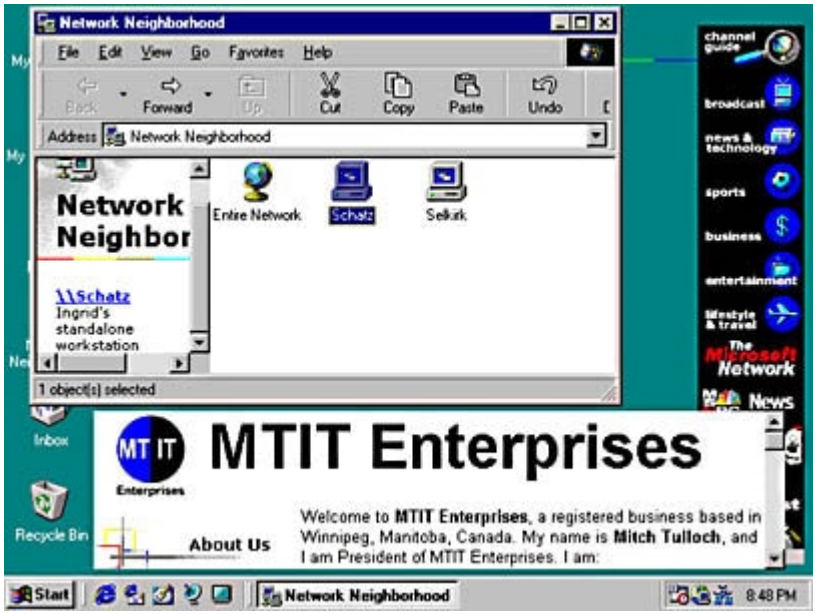
Claims	Active Desktop System
	260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list." Hayton at 16:2–12. "When an event 360 is detected that represents a change in data 50, the partial page regenerator 250 adds the value 320 that corresponds (arrow 355, FIG. 7) to the event 360 on an invalid value list (not shown). In one embodiment, the invalid value list is part of the map of correspondences 300. The invalid value list tracks all values currently displayed on the page 240 on the client node 205 that have changed and are no longer valid. Once there is an entry on the invalid value list, the partial page regenerator 250 waits for a request to refresh the page 240 and, in response to that request, generates and transmits updates for the changed portions 260 of the page 240. The request to refresh the page 240 can be generated in many different ways. For example, the user on the client node 205 may request a refresh of the page 240. In another embodiment, the display alterer 245 may request a refresh of the page 240 periodically. In another embodiment, the partial page regenerator 250 generates the request for a refresh once a change in data 50 is detected. For example, as stated above, when the 'feedback' method is called on the server node 210, the partial page regenerator 250 automatically generates a request for a refresh. In another embodiment, the communication protocol between the client node 205 and the server node 210 support or simulate a server push model (i.e., server node 210 transmitting data to the client node 205 without the client node 205 initiating a request)." Hayton at 17:14–40. "1. A method for partial page regeneration of a transmitted page by a server, said method comprising: receiving at a server, page generation code that generates a page, the page comprising a plurality of dynamic portions; transmitting, from the server, said page to a client for display;

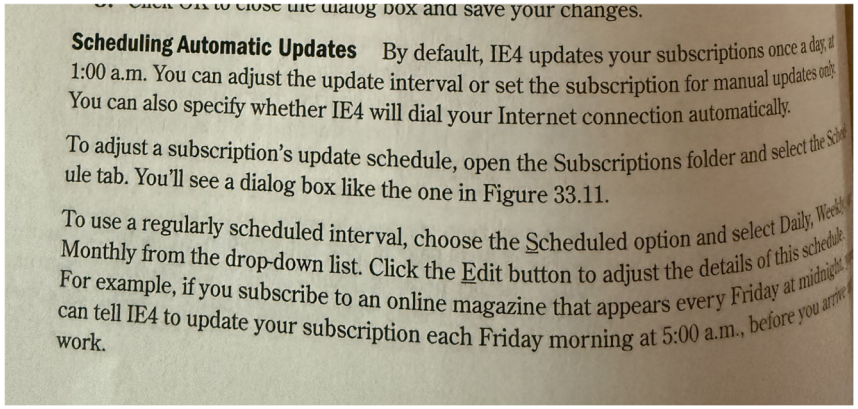
Claims	Active Desktop System
	associating, by the server, a portion of said received page generation code with data and an executable code fragment; receiving, by the server, a notification of a change in the data associated with the portion of the received page generation code; executing, by the server in response to receiving the notification of the change, said associated executable code fragment of said code to produce a modified version of one of the plurality of dynamic portions of said displayed page; and transmitting to the client the modified version of the one of the plurality of dynamic portions and a command for instructing the client to replace the one of the plurality of dynamic portions specified by an identifier using the modified versions of the one of the dynamic portions without transmitting a modified version of the entire displayed page." Hayton at 23:46–24:3. "A Gathering Sub-System (GSS) 77 is provided as part of software 76 and adapted to perform the navigation to various sources in cloud 75 for the purpose of parsing and obtaining data from them based on the scripting and template methods taught above and in related cross-referenced patent applications. Any new data found in source sites that does not match a last input template used at the source site is regarded as new data or a change in data" Rajan at 14:35–42. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification;

Claims	Active Desktop System
	characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37. "The client 11 analyzes the sent page, searches for an event request described therein, and sends it to the server 10. In this case, another connection ID (Conn2) is used. If an event has occurred, the server 10 sends it to the client 11 with use of this connection ID. Subsequently, as shown in FIG. 6, each time an event has occurred, it is sent repeatedly with use of the ID (Conn2)." Tsutsumitake at 12:66-13:5; *see also* 12:10-15, Figs. 1, 5. "FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11.

Claims	Active Desktop System
	The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72." Tsutsumitake at 13:31-65. "According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point, if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side." Tsutsumitake at 4:36-48; see also 12:23-28.  FIG. 7 Tsutsumitake at FIG. 7.

Claims	Active Desktop System
	To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.4] wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network,	Active Desktop System discloses or renders obvious wherein a gateway device at the routing network is configured to identify a category of the update message based on the input source, to determine a node type to which the identified category maps, and to route the update message to the node, having the node type, at the routing network. For example: Users of Windows Active Directory subscribe to content. That content is a category coming from a particular input source. "Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it" https://www.computerlanguage.com/results.php?definition=Active+Desktop "Active Desktop was a feature first introduced with Microsoft Internet Explorer version 4.0 that enables active content from Web sites or channels to be displayed directly on your desktop. This includes content such as graphics, HTML pages, Microsoft ActiveX controls, Java applets, and channels. For example, you could have a stock ticker applet placed directly on your desktop that updates its information continually using a live Internet connection."

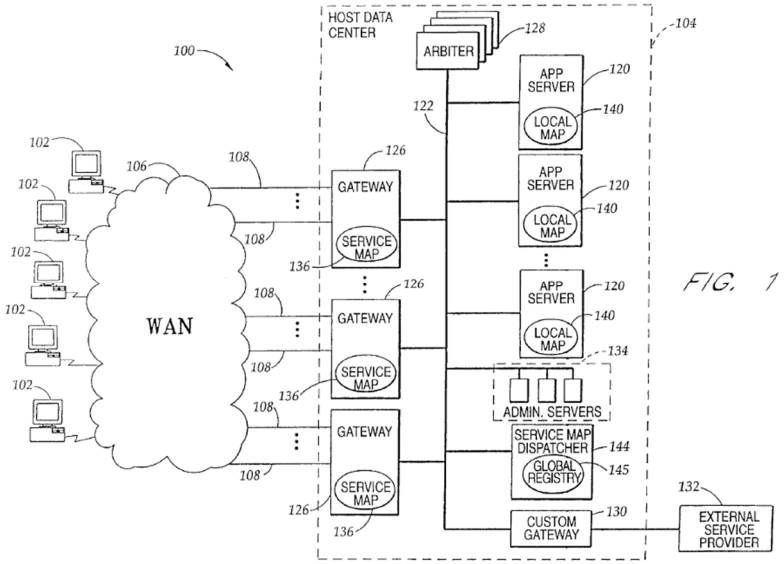
Claims	Active Desktop System
	 https://networkencyclopedia.com/active-desktop "Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item,

Claims	Active Desktop System
	or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites." https://www.scribd.com/document/518373326/Active-Desktop Content is mapped to nodes (individual user's computers) based on the categories the user has subscribed to. This controls the amount of traffic going through a network by limiting traffic to the specific node(s) it is intended for. Windows Active Desktop uses update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:  **Scheduling Automatic Updates** By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. "Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content

Claims	Active Desktop System
	delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it" https://www.computerlanguage.com/results.php?definition=Active+Desktop "Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites. Active Desktop was dropped in Windows Vista, and Windows Server 2003 was the last server OS to support it Enabling real-time content on a Windows desktop. Introduced with Internet Explorer 4.0 in 1997 for Windows 95 and Windows NT, Web pages could be turned into desktop items that were updated automatically. For example, a stock ticker Web page could be made a desktop item, or a company's intranet home page could become wallpaper visible on each user's computer. Active Desktop supported Active Channels, which were subscriber-based content delivery systems from external or internal websites." https://www.scribd.com/document/518373326/Active-Desktop Referring to Windows 98 "The desktop could become an Active Desktop, which means the background would be a website behaving just like it would in an Internet Explorer window. It had also gained Channels, shortcuts to popular website" https://www.theseus.fi/bitstream/handle/10024/96403/EvolutionOfUserInterfaceInMicrosoftWindowsOperatingSystems.pdf?seque All internet traffic is routed, thus routing the update message would be obvious to a POSITA. The node type is determined based on the user having subscribed to particular content.

Claims	Active Desktop System
	To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson. Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and Pearson concern similar subject matter as this reference, namely, push data publishing systems. As set forth in the accompanying contentions, determining message categories based on input source and determining nodes to send data to was a well-known and commonly-used technique. Modifying this reference with Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, and/or Pearson's teachings 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 this reference with those of Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Bird, or Pearson for example, to incorporate this limitation. *See, e.g.*, "Embodiments within the scope of this invention comprise means for transferring an event to another server. In FIG. 3, such means is illustrated by remote event processing block 66. The details of remote event processing block 66 are presented below. In summary, however, remote event processing block 66 monitors event queue 64 and when events are placed therein by incoming event processing block 60 that need to be transferred to other servers in the network, remote event processing block 66 will establish a connection to those servers and transfer the events to the other server. Embodiments within the scope of the present invention may, therefore, comprise means for accessing a global event registry to identify which servers should receive which events. Such means may be incorporated into remote event processing block 60. In such a case, remote event processing block 66 identifies the servers that should receive events queued in event queue 64 by checking global registry 68." Lawson at 13:8-24; *see also* 12:12-20, 12:29-34.

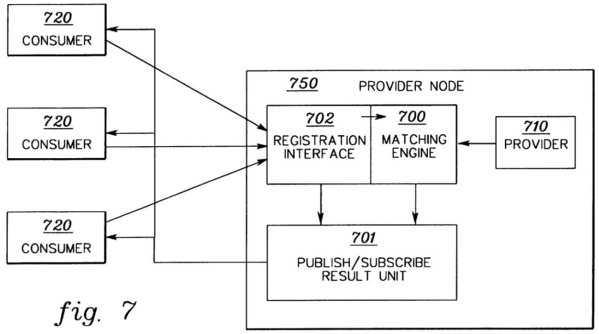
Claims	Active Desktop System
	"As described in greater detail below, when an event is transferred from one server to another server, a connection must be established between the two servers." Lawson at 13:25-27. "Thus, there is a possibility of events being transferred both to and from the local server. This is indicated in FIG. 3 by remote event 56 and remote event 58." Lawson at 13:33-35. "Remote event 58 represents a local event that is transferred to another server via network connection 52. It should be pointed out that in FIG. 3 network connection 52 represents an example of the networking means for interconnect servers in the present invention." Lawson at 11:51-56. "As previously mentioned, embodiments of the present invention may comprise means for filtering events so that an event is only transferred if the event meets designated filtering criteria. Returning to decision block 130, if an event is available for transfer to a local event consumer, the next step is to identify whether the local event meets any stored filtering criteria for that event and local event consumer. This is illustrated in FIG. 6 by decision block 136, which represents but one example of the means for filtering. As previously discussed, event consumers may submit filtering criteria for registered events. Such filtering criteria may be stored with the local registry or in any other manner that allows the desired information to be retrieved by a server in order to identify whether specific events meet the filtering criteria. Filtering criteria can be associated with a particular event and a particular event consumer. Furthermore, filtering can be performed on any of the information available from a particular event. The available information for an event includes not only the information available in the event data itself, but also in the event packet, such as the event packet previously described." Lawson at 20:10-30; see also 5:26-65, 16:63-17:6, 17:67-18:3, 22:9-11, Fig. 5. "When server B recognized that event producer 42 had initiated an event, server B would check global event registry 34. Global event registry 34 would identify that server E needed

Claims	Active Desktop System
	notification of the event. Server B would then send the event through gateway 32 to server E." Lawson at 10:23-28. "Furthermore, event notification was transferred from server B to server E without broadcasting the event to servers A, C and D. Thus, such a method can globalize an event to required locations while, simultaneously, reducing message traffic due to broadcast type events." Lawson at 10:43-47; *see also* 22:62-63. "To accommodate increased numbers of BBS users, multiple BBS service groups (not shown) may be formed, with each BBS Service group handling a specific topic or Set of topics." Choquier at 10:17-20, *see also* 2:1-4, 2:14-18, 6:8-31, 9:40-49, 11:44-47.  FIG. 1

Claims	Active Desktop System
	Choquier at Figure 1. "Certain types of on-line Services provide end users with access to Service-wide (or equivalently, Service-group-wide) data sets (also referred to generally as "service content data") which change on a transaction-by-transaction basis. The BBS service is an example of such a service; each time a user posts a message, a data Set is modified Such that all users of the BBS service (regardless of the particular BBS Server to which a user is assigned) have access to the message. Transactions of this general type (i.e., transactions which affect service-wide data sets) will hereinafter be referred to as "update transactions," and can originate from a variety of Sources. For example, an update transaction can originate from a client microcomputer 102 when an end user posts a EBS message, or can originate from an external data provider that is connected to the host data center 104 by the Internet." Choquier at 9:50-65, *see also* 21:33-53, 22:34-45. "10. Scalability An important aspect of the on-line services network 100 described above is its ability to be scaled in capacity without having to change the existing System and application Software, and without having to reconfigure existing net work components. In accordance with the architecture of the System, new Service applications can (and normally will) be written to interact with existing Gateway 126, Arbiter 128 and Service map dispatcher 144 Software components So that new Services can be added without changing these components. By way of example, because the Arbiter 128 is implemented as a generic (i.e., Service-independent) transaction replication Service, new Service applications can be written to make use of the services provided by the Arbiter 128, and no changes to the existing Arbiter software will be necessitated by the addition of Such Service applications." Choquier at 25:5-21, *see also* 1:52-67. "Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an information source, and a communication unit. The communication infrastructure includes a

Claims	Active Desktop System
	base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit." Averbuch at 3:58–4:27. "In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units." Chandra at 4:29–35.

Claims	Active Desktop System
	"producer 130 provides an event to matching engine 100 through an event interpreter 102. Events have the same structure and organization as filters. That is, events also include one or more attributes. However, event attributes include concrete values. For example, if a filter has two attributes, including stock issue and stock price, then an event will also have two attributes, including stock issue and stock price. However, the event attributes will have concrete values, such as IBM for stock issue and $100 for stock price." Chandra at 6:49–58. "Search module 104 searches search data structure 103 to find all filters that match the event. In particular, the search module determines which consumers specified the filters that match the events by traversing the search data structure. As described above, the consumer's identity is stored in matched filter list 218." Chandra at 7:5–10. "The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol." Chandra at 7:11–16. "For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter." Chandra at 11:13–15. "Distribution of the event is through the distributed network and may be in a point-to-point manner (publish/subscribe result unit 701 communicates with each consumer 720 with a matching filter) or through a typical multicast, or broadcast mechanism. The distributed mechanism is dependent on the capabilities of the distributed network." Chandra at 11:16–21. "Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments

Claims	Active Desktop System
	some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention." Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. "Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376. Mishra at 4:67–5:4. "To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to

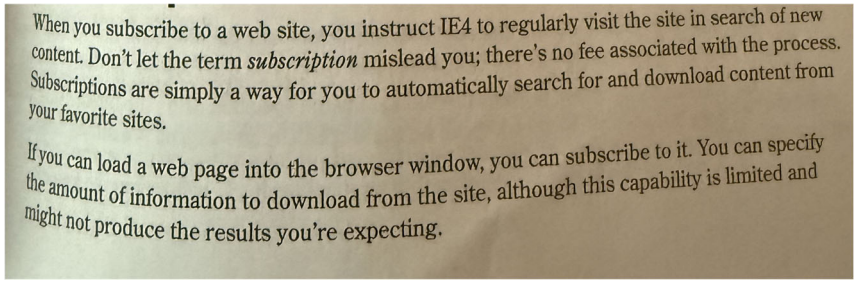
Claims	Active Desktop System
	have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means." Yamanaka at Abstract. "1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, "push service" signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed." Yamanaka at 1:15–25. "For example, means can be provided for adding a content identifier to a packet, and the distributing means can comprise means for deciding, in accordance with the content identifier, whether or not to distribute that packet to a given user terminal." Yamanaka at 2:54–58. "This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this." Yamanaka at 4:67–5:3.

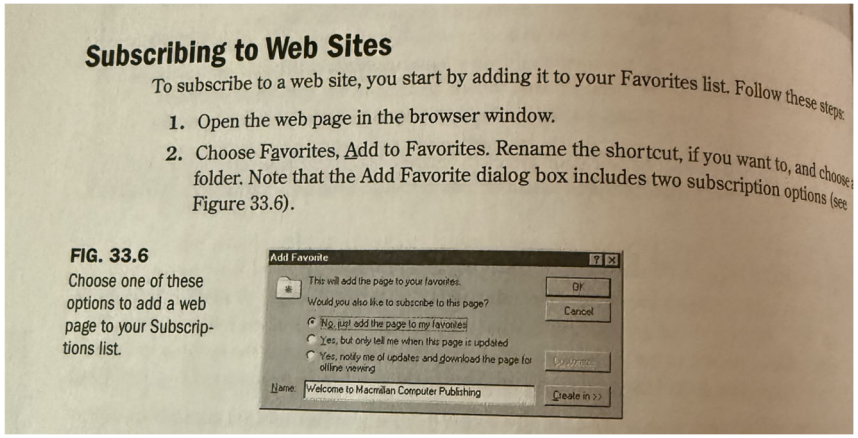
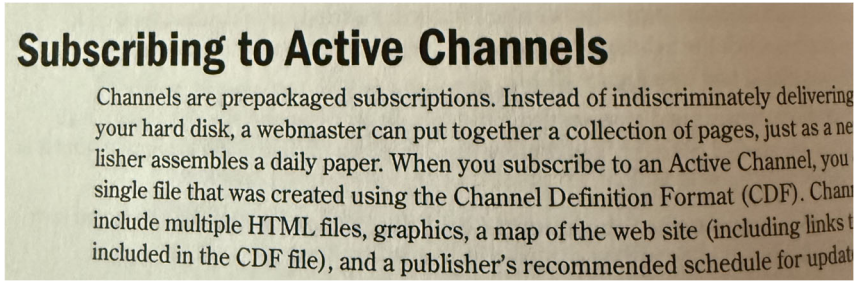
Claims	Active Desktop System
	"Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission." Yamanaka at 6:41–52. "In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention." Rajan at 5:15–23. "As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices." Rajan at 14:23–27. "Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC." Rajan at 16:48–55. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising:

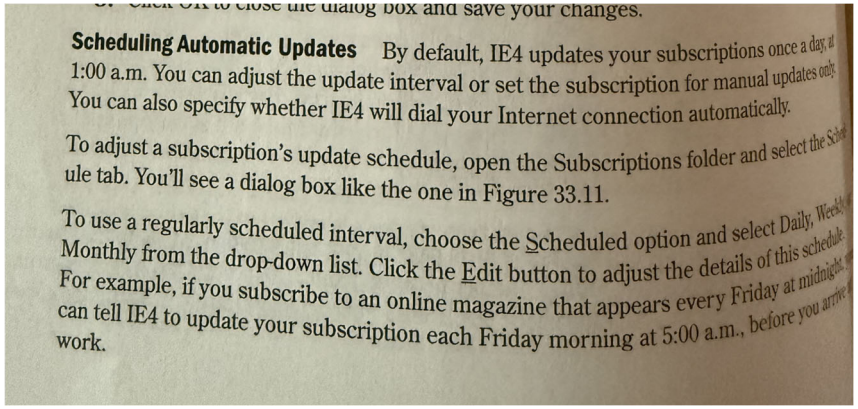
Claims	Active Desktop System
	an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37. "The message broker uses the topic identifier to check 210 records of subscriber requirements - determining which subscribers have registered a requirement to receive messages related to this topic and determining what specific data requirements have been specified by those subscribers. As an example, a first subscriber may have registered with the message broker with a requirement for the subscriber to be set a message whenever the message broker receives messages including a topic identifier naming the specific publisher organisation. The subscriber may also have specified that all received messages from that publisher organisation should have their image content processed to generate a derived image showing classifications of crops identifiable from the captured raw image. Furthermore, the subscriber system's capabilities may impose requirements for particular image processing operations. One example is the pixel depth of the subscriber system display, which may be bilevel, 256 level greyscale, or 24 bit colour - mapped by the broker to one of a set of pixel depth classes (High, Medium or Low). Having recognised the presence of image content, the message broker accesses the system capabilities information and user-specified requirements and then generates a task definition which describes the operations to be performed to process the received message's image content in the required way." Bird at [0060]. "Known publish/subscribe mechanisms rely on distribution lists, typically executing very simple logic to achieve required routing of highly structured, small transactional messages. Subscriber applications can be registered to receive all messages which include a specific

Claims	Active Desktop System
	subject classification or keyword, such as a company name or a more specific subject, within the message header or within a particular content field of the structured message. Message dictionaries hold information about the structure of messages, providing the message broker with a definition of the structure of all messages that will pass through it and so enabling unpacking of fields from the message content for inspection. The message broker queries the message header or a field within the content to retrieve the subject classification or keyword, and this is then compared with a list of subscriber applications' information requirements and any other stored rules for routing messages to determine which applications the message should be sent to." Bird at [0003]. "When a message is received by the message broker, a message analysis component 60 within the broker firstly investigates 180 the message header for a topic or subject identifier and/or identification of the sender, as is known in the art. A message publisher application may have identified a message topic or subject, such as by entering "STOCK/COMPUTERS/IBM" or "STOCK/AUTOS/GM" into a relevant field of the message header to indicate that the subject of the message is stock prices for IBM Corporation or General Motors respectively. The message broker includes a rules engine 40 which compares 210 any topic identifier and sender identifier retrieved from the message header of a published message with a list of subscribers' information requirements to identify which subscribers wish to receive this message." Bird at [0044]; *see also* Bird at [0030]-[0072]. "Refer now to FIG. 9 for a discussion of the list 170 of simplified exemplary attack signatures. As described above in connection with FIG. 8, a communication device 106 constructed in accordance with the present invention is operative to store a list 170 of attack signatures, and to compare an incoming communication to entries on the list to determine if a received communication constitutes a threat event and respond accordingly. The list 170 comprises a plurality of entries, preferably arranged in a predetermined sort order to facilitate rapid access by indexing or hashing.

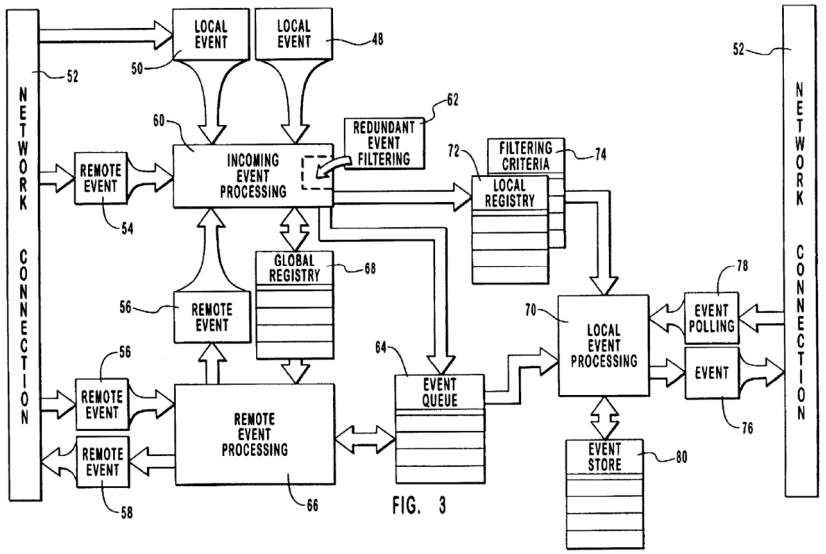
Claims	Active Desktop System
	Each exemplary entry on the list 170 comprises a header field 810, a body field 820, and a two-bit priority field 826. The priority field 826 in the disclosed embodiment is 00=ignore, 01=low priority, 10=not assigned (unused), and 11=high priority. Those skilled in the art will understand that the priority field is set in accordance with user and/or predetermined remote monitoring system preferences, for example by establishing certain predetermined priorities for certain types of signatures via a high, medium, or low set policy (FIG. 4A), or by user setting of priority through the advanced options settings (FIG. 4B). The header 810 may comprise an IP address 812 and a port number 814. The IP address is the destination address of the communication device. Port numbers appear after the IP address and typically indicate a particular type of data communication service, some of which are known to be associated with security attacks, for example, a login host protocol on port 49. As will be known to those skilled in the art, Internet data communication services are provided on a particular port number of a particular server that provides that service, with the port number identifying a type of data communication service. While most Internet data communication services have standard port numbers (e.g., port 21 is for ftp (file transfer protocol) services, port 23 is for telnet services, port 25 is for smtp (e-mail), port 80 is for http (hypertext transfer protocol used for the WWW), etc.), services can also occur on non-standard ports. Those skilled in the art will understand that standard port numbers can be obtained by reference to Internet Request for Comments (RFC) 1700, Assigned Numbers, by J. Reynolds, J. Postel, July 1994. The reader should appreciate that header 810 may comprise additional elements, such as source and destination IP addresses, source and destination ports, fragmented bits and data transfer protocols, etc., which are well known to those skilled in the art.” Pearson at 18:41-19:18. “Method 900 continues from step 904 to step 906, where the intrusion detector 160 compares the communication's “header” information with entries in the list 170 of attack signatures, and passes to decision block 910. If the information in the incoming communication does not match an entry in the list 170 (e.g. the port number of the communication), control passes to

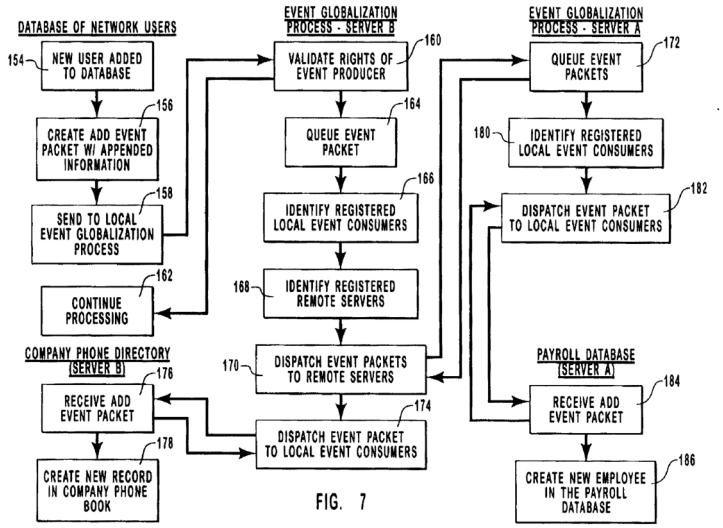
Claims	Active Desktop System
	step 912 and the communication is routed to its intended destination. However, if the information in the incoming communication matches an entry in the list 170, control passes to step 916 where the communication's body is disassembled. Control then passes to step 918." Pearson at 20: 5-16; *see also* Pearson at 5:12-21:57. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.5] wherein the node is configured to identify the client device as a registered device and to route the update message to the client device, and	Active Desktop System discloses or renders obvious wherein the node is configured to identify the client device as a registered device and to route the update message to the client device. For example: The user's computer is different from the input source of the content, and the user has subscribed/registered for updates from said input source. Windows Active Desktop uses subscribing to register for updates of the live object. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop. The following excerpt describes subscriptions:  When you subscribe to a web site, you instruct IE4 to regularly visit the site in search of new content. Don't let the term ***subscription*** mislead you; there's no fee associated with the process. Subscriptions are simply a way for you to automatically search for and download content from your favorite sites. If you can load a web page into the browser window, you can subscribe to it. You can specify the amount of information to download from the site, although this capability is limited and might not produce the results you're expecting.

Claims	Active Desktop System
	 **Subscribing to Web Sites** To subscribe to a web site, you start by adding it to your Favorites list. Follow these steps: 1. Open the web page in the browser window. 2. Choose Favorites, Add to Favorites. Rename the shortcut, if you want to, and choose folder. Note that the Add Favorite dialog box includes two subscription options (see Figure 33.6). **FIG. 33.6** Choose one of these options to add a web page to your Subscriptions list. Add Favorite This will add the page to your favorites. Would you also like to subscribe to this page? No, just add the page to my favorites Yes, but only tell me when this page is updated Yes, notify me of updates and download the page for offline viewing Name: Welcome to Macmillan Computer Publishing OK Cancel Customize... Create in >>  **Subscribing to Active Channels** Channels are prepackaged subscriptions. Instead of indiscriminately delivering your hard disk, a webmaster can put together a collection of pages, just as a ne lisher assembles a daily paper. When you subscribe to an Active Channel, you single file that was created using the Channel Definition Format (CDF). Chan include multiple HTML files, graphics, a map of the web site (including links t included in the CDF file), and a publisher's recommended schedule for updat "Extra Internet integration is provided by the new Active Channels feature, which allows you to subscribe to web sites that will deliver content to your PC on a regular basis." https://www.soundonsound.com/techniques/all-about-windows-98 Windows Active Desktop uses update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:

Claims	Active Desktop System
	 Click OK to close the dialog box and save your changes. **Scheduling Automatic Updates** By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. Based on the content, update messages are routed from node (source) to the client (users computer). To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Averbuch, Chandra, Mishra, Yamanaka, Rajan, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, Averbuch's, Chandra's, Mishra's, Yamanaka's, Rajan's, and/or Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., "Embodiments within the scope of this invention also comprise means for transferring an event to a local event consumer using a designated method. In FIG. 3, such means is illustrated by local event processing block 70. The details of local event processing block 70 are presented below. Briefly summarized, however, local event processing block 70 monitors event queue 64 for events that should be transferred to a local event consumer. Embodiments

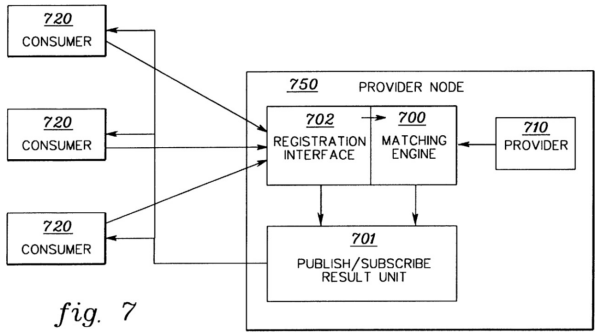
Claims	Active Desktop System
	of the present invention may, therefore, comprise means for accessing a local event registry to identify which local event consumers should receive which events. Such means may be incorporated into local event processing block 70. In such a case, local event consumers that should receive events queued in event queue 64 are identified by checking local event registry 72 and any associated filtering criteria. Embodiments within the scope of the present invention may comprise means for filtering events so that an event is only transferred when the event meets designated filtering criteria. Such means, discussed in greater detail below, may be part of local event processing block 70. The filtering criteria is illustrated in FIG. 3 by filtering criteria block 74. Although the details of filtering are presented below, filtering criteria may be stored as part of the local event registry or may be stored in any other manner as long as a local server can access the filtering criteria and identify the local event consumer and the event type that the filtering criteria applies to." Lawson at 13:38-64. "In FIG. 3, the process of transferring an event to a local event consumer is illustrated by event 76. Event 76 is shown going out over network connection 52. However, if the event consumer is a local process, event 76 may be transferred to the local event consumer by placing it in a common memory store, storing it on a file on the disk, or any number of other means that allow two processes running on the same computer to communicate data back and forth. If, however, an event is transferred to an event consumer over network connection 52, then any number of other transfer methods may be utilized. For example, the event consumer may poll local event processing block 70. This is illustrated in FIG. 3 by event polling notification 78. Furthermore, events may be stored in an event store such as event store 80 until they are transferred to an event consumer. The transfer options between local event processing block 70 and an event consumer over network connection 52 are discussed in greater detail below." Lawson at 13:65-14:5, Fig. 3 #52, 76.

Claims	Active Desktop System
	 FIG. 3 "After the events have been dispatched to the registered remote servers, the event notification process on server B dispatches the event packets to registered local event consumers. This is indicated in FIG. 7 by step 174." "In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process." Lawson at 24:60-64, 25:16-18. *See also* 4:66-5:12, 8:58-60, 8:66-67, 10:28-36, 12:15-20, 12:29-34, 13:67-14:12, 19:63-20:9, 22:27-23:2, 25:34-36, 25:31-45, claim 9.

Claims	Active Desktop System
	 FIG. 7 "Returning now to step 172 for the event globalization process on server A, after the events have been received from server B, server A proceeds to identify the registered local event consumers for this event. This is indicated in FIG. 7 by step 180. Again, the registered local event consumers are identified by checking the local event registry on server A. In this example, the only registered local event consumer on server A is event consumer 1." Lawson at 25:8-17. Choquier discloses routing update messages to servers of particular server groups (server/node type) based on service maps that map servers to server groups associated with message categories. Choquier at 9:50-65, 10:17-20, 21:33-53, 22:34-45. "Finally, the present invention encompasses a communication infrastructure for use in a wireless communication system that includes the communication infrastructure, an

Claims	Active Desktop System
	information source, and a communication unit. The communication infrastructure includes a base site, a data distribution server coupled to the base site, a system router coupled to the base site and to the data distribution server, a system controller coupled to the system router, a subscription group database coupled to the system controller, and a location database coupled to the system controller. The base site services a communication unit, wherein the communication unit subscribes to an information service provided by an information source. The data distribution server receives registration information from the communication unit, wherein the registration information includes an information service identifier and a communication unit identifier, conveys at least a portion of the registration information to the information source, conveys at least a portion of the registration information to the system router, receives subscriber information from an information source, and conveys the subscriber information to the system router. The system router determines an information service identifier based on the registration information received from the communication unit, conveys the information service identifier and the communication unit identifier to the system controller, receives the subscriber information from the data distribution server, and transmits the subscriber information with reference to the subscription group database and the location database. The system controller determines a subscription group based on the information service identifier received from the system router and with reference to the subscription group database, and adds the communication unit identifier to the subscription group. The subscription group database includes a subscription group, wherein the subscription group includes an information service identifier and a communication unit identifier. The location database includes a location of the communication unit." Averbuch at 3:58–4:27. "In one example, a computing system 90 includes various components, such as a matching engine 100, a registration interface 105, a result unit 110, at least one consumer 120 and at least one producer 130. All of the components may be included within a single computing unit, such as, for instance, an RS/6000 computing node, or the components may be distributed among a number of computing units." Chandra at 4:29–35.

Claims	Active Desktop System
	"Consumer 120, which is, for instance, anyone or anything that is interested in data (e.g., an event), registers with registration interface 105 a filter and an action to take in response to an event. The filter is defined by a pattern, which describes those events of interest for a given consumer (e.g., a trigger in a database event system or a subscriber in a publish/subscribe system). In particular, the pattern includes one or more filter attributes (e.g., tests) that are used in matching the consumer to an event. Patterns define relations for each attribute, and therefore describe a (potentially infinite) set of events. The filter and its associated action is referred to herein as a pair." Chandra at 4:42–53. "The identifier of each filter that matches the event is then used to invoke result unit 110 (FIG. 1). The result unit takes the actions previously registered by each consumer whose filter was matched. For example, the event may be delivered to each matching consumer via any known delivery protocol." Chandra at 7:11–16. "Further, each consumer 720 (e.g., a subscriber) is coupled to registration interface 702." Chandra at 11:2–4. "The publish/subscribe result unit is provided with the identity of each consumer 720 registering a subscription. This identity includes enough information for the publish/subscribe result unit to communicate with the consumer through the distributed network." Chandra at 11:8–12. "For each filter matched by matching engine 700 in response to an event from provider 710, the publish/subscribe result unit delivers the event to the subscribers registering the filter." Chandra at 11:13–15. "Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments

Claims	Active Desktop System
	some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention." Chandra at 11:23–35.  *fig. 7* Chandra at Figure 7. "Indeed, according to an embodiment of the present invention, data or system event notifications are asynchronously pushed to the channel 315, whereupon the channel 315 selectively pushes the notifications to the notification clients 370, 372, 374 and/or 376." Mishra at 4:67–5:4. "To promote the loosely coupled nature of the subscription process, the clients 370, 372, 374 and/or 376 themselves, according to an embodiment of the present invention, do not subscribe to receive particular notifications. Rather, a logical entity termed an agent expresses an interest in receiving notification upon the occurrence of a specified event by way of a subscription." Mishra at 5:15–22.

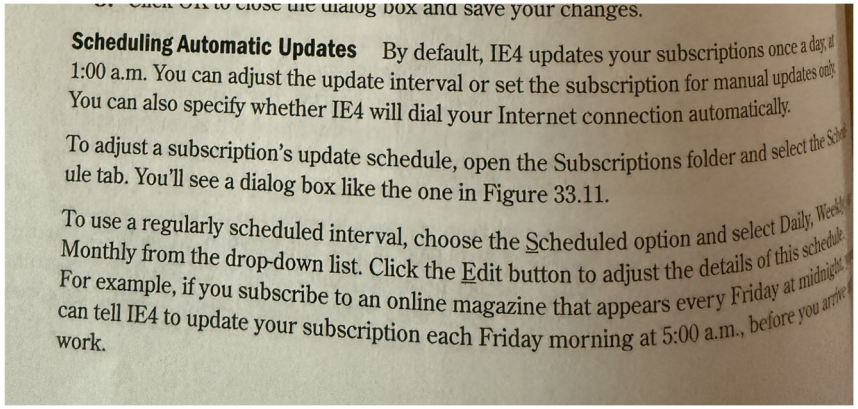
Claims	Active Desktop System
	"The channel 315 may then utilize the registration information stored in the names schema 330 to propagate the notification to one or more of the notification clients 370, 372, 374 and/or 376." Mishra at 6:13–16. "Thereafter, the channel 315 may send the notification to each of the clients 370, 372, 374 and/or 376 whose registration information (i.e., delivery information) has been retrieved from the names schema 330." Mishra at 6:40–43. "To transfer push service traffic efficiently, a packet is given a content identifier for identifying the content of the packet, or is given one or both of this content identifier and a category identifier for identifying the category to which the content belongs; and a user registers in advance in the distribution network content identifier related information or one or both of this content identifier related information and category identifier related information, said information relating to content and/or categories that the user wishes to have sent; and the distribution network passes content, or one or both of content and category, wanted by a downstream user. A table for filtering is set by taking into account content identifier related information that has been notified by a user. To make effective use of memory resources in the table in each node of the distribution network, a content identifier, or one or both of a content identifier and a category identifier, that has been registered in the table but which has become unnecessary, is deleted. Moreover, to ensure that a decrease in throughput at some packet distribution destinations does not affect the throughput of the entire network, means is provided for temporarily storing a packet at a transit node, so that when a packet transfer destination is experiencing decreased throughput, a decrease in throughput at transit nodes upstream of the site of the throughput decrease can be avoided by storing packets in this temporary storage means." Yamanaka at Abstract. "1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, "push service" signifies a service which copies

Claims	Active Desktop System
	and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed." Yamanaka at 1:15–25. "Secondly, a user registers in advance in the distribution network content identifier related information, or one or both of content identifier related information and category identifier related information, said information relating to the content and/or category which the user wishes to receive." Yamanaka at 2:24–29. "The aforementioned registering means preferably comprises means for receiving a request packet in which has been written a content identifier relating to content desired by a user, and means for registering content identifier related information in the aforementioned table in accordance with the content identifier written in the request packet received by this receiving means." Yamanaka at 4:38–44. "This invention stores, in correspondence with content, information indicative of the information providing terminal constituting the source of packets with that content, and searches for a route on the basis of this." Yamanaka at 4:67–5:3. "Transit nodes can be arranged hierarchically between information providing terminals and user terminals, with a plurality of information providing terminals or transit nodes provided in each layer of this hierarchy. In this case, each layer of the hierarchy can comprise: means for collecting traffic information for that hierarchical layer; means which gives sending permission to the plurality of information providing terminals and/or transit nodes in accordance with the traffic information collected by this collecting means; and means which causes content to be sent from the information providing terminal and/or transit node that has received sending permission." Yamanaka at 6:41–52.

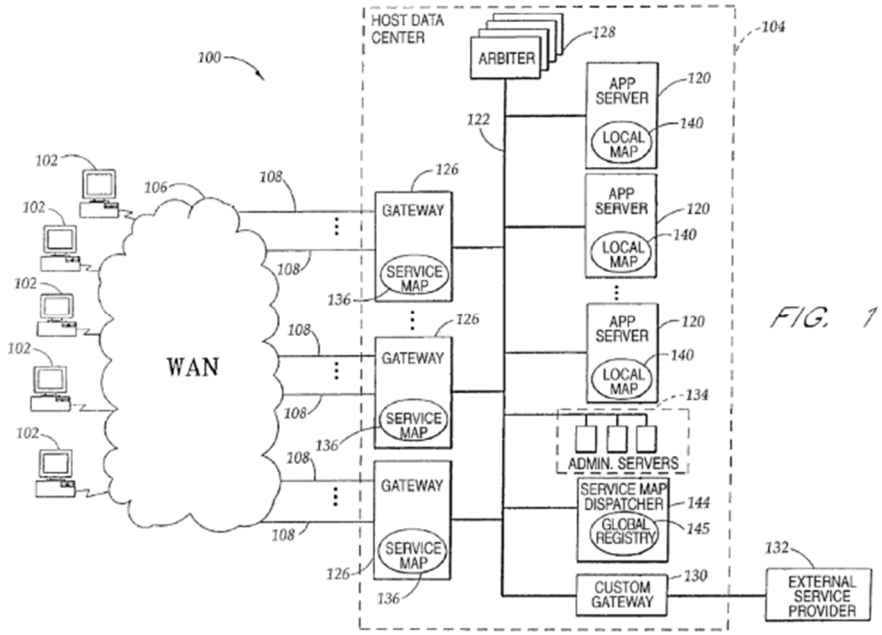
Claims	Active Desktop System
	"In one embodiment, an additional server may be provided for executing software 51 and enabling practice of the present invention in conjunction with main server 33. In another embodiment, more than one such server may be provided and adapted to execute individual instances of software 51. The inventor illustrates just one server 33 and SW 51 for the purpose of simplifying illustration and deems it sufficient for the purpose of explaining the present invention." Rajan at 5:15–23. "In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information." Rajan at 11:64–12:2. "In one aspect of the present invention, the inventor provides a system whereby users may define event triggers and change criteria, which the system stores as Notification Conditions (NC), and convenient notification may be made to user/subscribers in the event that the NCs are met." Rajan at 14:10–14. "As described in FIGS. 1 and 2 above, software 51 provides a complete data gathering, aggregating, and tunneling service wherein data may be delivered to a variety of portable devices over mediums specific to those devices." Rajan at 14:23–27. "In some cases, data is not simply aggregated for a user, but processed and delivered to a user immediately if a user has directed the service to do so." Rajan at 14:66–15:1. "Module 85 also acts, in this embodiment, as a reporting module to the monitoring and notification software components GSS 77 and guard 81 as illustrated by a directional arrow emanating from module 85 and progressing toward software 76. In this way, a user need only

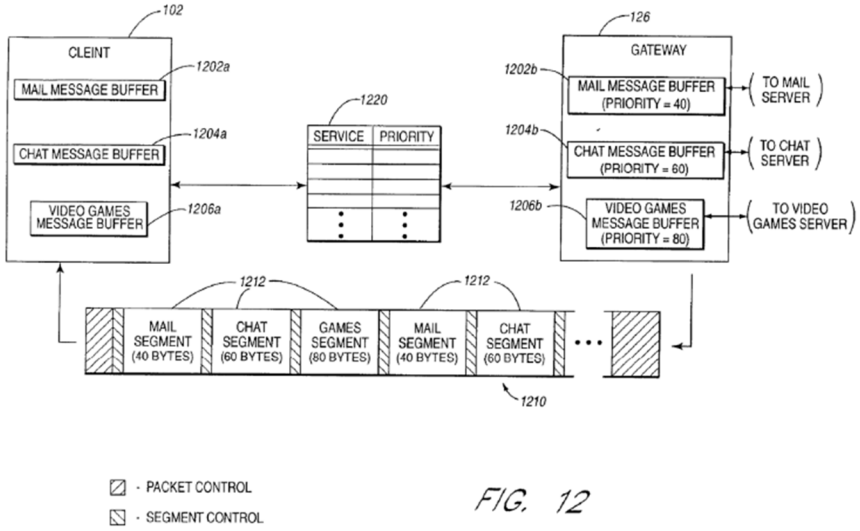
Claims	Active Desktop System
	interface with notification module 85 in order to program all required components of the monitoring and notification software of the present invention." Rajan at 15:36–43. "As described above, a user may program control module 85 according to user-specific parameters. For example, a user may select which data sources to monitor and what data to monitor. In a preferred embodiment the subscription service of the invention has profiles for each user, and the profile for a user will include a user's data sources, data maintained at each source, passwords and user names to be used for access, and one or more profiles for data aggregation and reporting." Rajan at 15:49–57. "Notification control module 85, upon receiving a notification event from guard 81, decides how the event will be propagated to a requesting user based on user directive. For example, if a user requested that notification be sent back to his or her browser interface such as interface 83, then the notification event would be sent by module 85 over the appropriate data network to interface 83, which may be running on a user's home or office PC." Rajan at 16:48–55. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37. "According to this invention, in the situation in which each time an event has occurred in the server the event notification has to be sent to the client at the event request originating point,

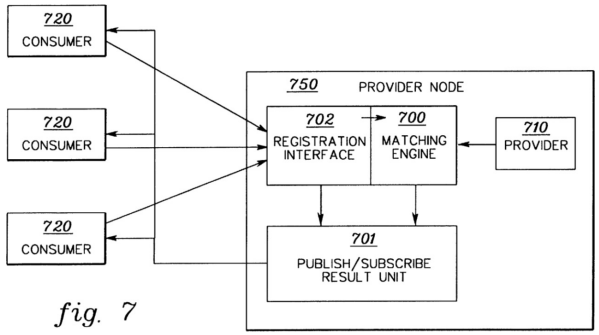
Claims	Active Desktop System
	if no event has occurred for a predetermined time period, a special event notification (client state confirmation event notification) for confirming the state of the client at the event request originating point is sent from the server to the client. When the event notification (including the client state confirmation event notification) is sent from the server, the server determines whether the event notification is successful. If the event notification has failed, the network connection for the event notification is cut off on the server side." Tsutsumitake at 4:36-48; *see also* 13:1-5, 12:23- 28, 13:59-66, Figs. 6, 7. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[14.6] wherein the client device processes the update message upon receipt to update the property of the live object at the client device.	Active Desktop System discloses or renders obvious wherein the client device processes the update message upon receipt to update the property of the live object at the client device. For example: Windows Active Desktop processes update message to update Active Desktop. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop, and says the following regarding updates:

Claims	Active Desktop System
	 **Scheduling Automatic Updates** By default, IE4 updates your subscriptions once a day, at 1:00 a.m. You can adjust the update interval or set the subscription for manual updates only. You can also specify whether IE4 will dial your Internet connection automatically. To adjust a subscription's update schedule, open the Subscriptions folder and select the Schedule tab. You'll see a dialog box like the one in Figure 33.11. To use a regularly scheduled interval, choose the Scheduled option and select Daily, Weekly, or Monthly from the drop-down list. Click the Edit button to adjust the details of this schedule. For example, if you subscribe to an online magazine that appears every Friday at midnight, you can tell IE4 to update your subscription each Friday morning at 5:00 a.m., before you arrive at work. To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajan, and/or Tsutsumitake. As noted above regarding element [14.1], Lawson, Choquier, Chandra, Yamanaka, Hayton, Rajna, Tsutsumitake, and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, Chandra's, Yamanaka's, Hayton's, Rajan's, and/or Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g., "Further, assume that event consumer 4 is a company phone directory that has registered to receive an "add user" event so that it can extract the phone number of the added user and place it in the company phone book." Lawson at 23:64-65. "As indicated by step 176, the event packet is received by the company phone directory and as indicated by the return arrow to step 174, processing could continue for the event notification process after transfer of the event packet." Lawson at 24:64-66.

Claims	Active Desktop System
	"After the event has been transferred, the company phone directory process creates a new record in the company phone book as indicated by step 178." Lawson at 25:4-6; see also 21:16-19. "In step 182, the event globalization process of server A transfers the event packet to the local event consumer which, in this case, is the payroll database process. The payroll database process receives the information as indicated by step 184 and proceeds to create a new entry in the employee payroll database as indicated by step 186." Lawson at 25:16-21; see also 24:1-4. Choquier discloses servers communicating with client devices, through associated gateways 126, to route updates messages from the servers to clients.

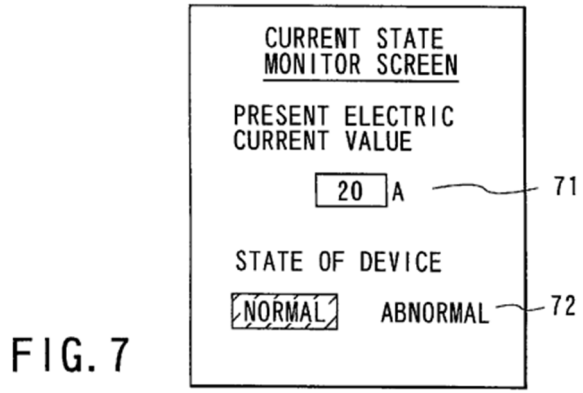
Claims	Active Desktop System
	 FIG. 1 Choquier at Fig. 1. Servers and clients communicate over service instance channels which can use TCP/IP. Choquier at 8:17-24. Messages are routed to the clients in packets. Choquier at 18:24-19:60, FIGS. 11A-11B. FIG. 12 illustrates messages being sent to the client (which can be multiplexed if the client requested multiple categories). Choquier at 20:16-31.

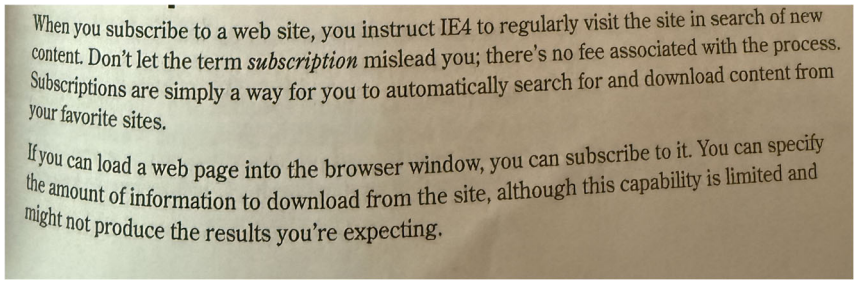
Claims	Active Desktop System
	 FIG. 12 Choquier at Fig. 12. "Although each provider resides on autonomous nodes connected through a distributed network to other providers and consumers in the above embodiment, in other embodiments some or all of the providers and consumers may be coupled on the same node. In addition, a plurality of providers may share a common matching engine and result unit. In fact, all providers may share a single matching engine and result unit. In one example, provider node 750 is an RS/6000 computing node, as well as each consumer 720. However, various other computing units, computing nodes, processors, computers or systems may be used without departing from the spirit of the present invention." Chandra at 11:23–35.

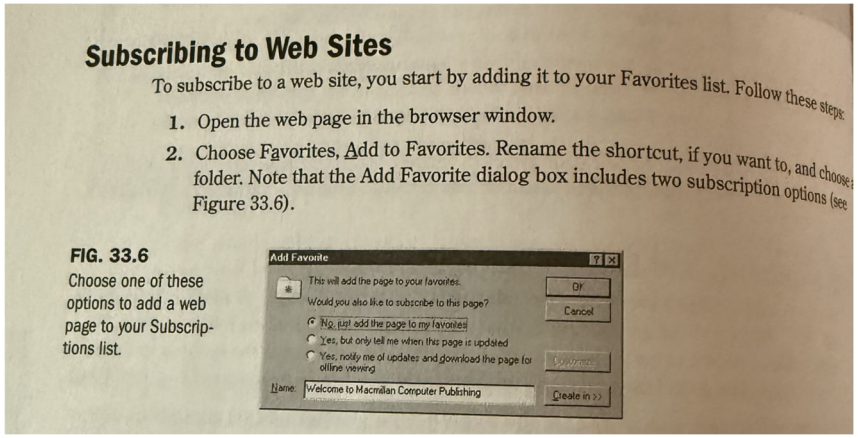
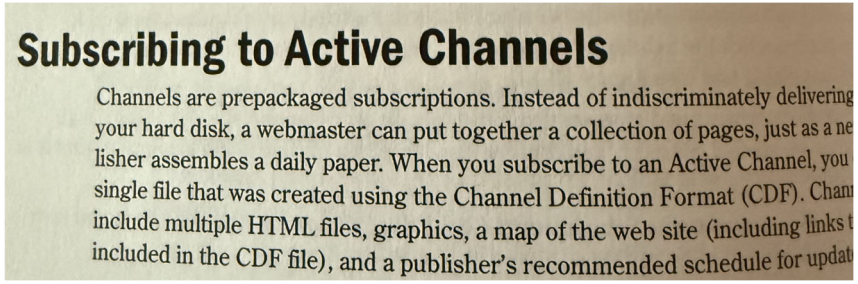
Claims	Active Desktop System
	 *fig. 7* Chandra at Figure 7. "1. Field of the Invention This invention can be utilized for a push service which copies and distributes content to a plurality of destinations. In this specification, "push service" signifies a service which copies and distributes, to a plurality of user terminals, a packet sent by an information providing terminal, wherein the information providing terminal can transfer packets at a regular interval or at a prescribed time without knowing the state of the user terminals. Users can operate the user terminals whenever they wish and can extract the information that has been distributed." Yamanaka at 1:15–25. "The method includes receiving page generation code that generates a page, transmitting the page to a client for display, associating a portion of the transmitted page with a fragment of the page generation code, and executing the associated fragment of the code to regenerate the portion of the transmitted page. In one embodiment, the method includes transmitting the regenerated page portion to the client for incorporation into the transmitted page." Hayton at 2:17–25. "As shown in FIG. 5b, the partial page regenerator 250 generates a modification list 284 along with the actual output 283 that is used to generate a portion 260 of the page 240 on the display 220 of the client node 205. The server node 210 transmits the portions 260 of the page

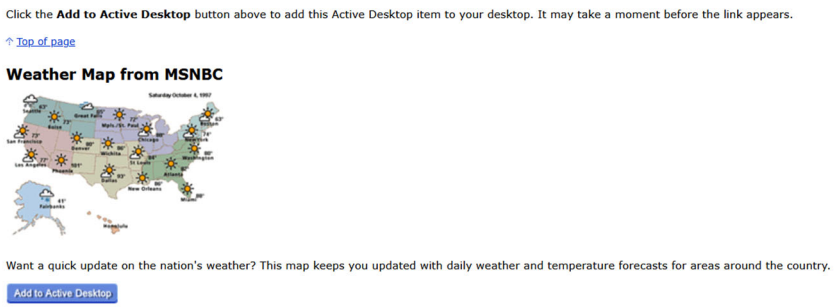
Claims	Active Desktop System
	240 that have been modified, along with the modification list for those particular portions 260, to the client node 205. The client node 205 uses the modification list to display the transmitted portions 260 in the appropriate area of the page 240. The display alterer 245 performs the task of incorporating the transmitted page portion 260, using the modification list." Hayton at 16:2–12. "FIG. 9 illustrates an exemplary process by which the partial page regenerator 250 generates updates for portions 260 of the page 240 that have changed. The partial page regenerator 250 generates output for the changed page portions 260 and a modification list for instructing the display alterer 245 on how to incorporate the changed page portions 260 in the displayed page. This exemplary process minimizes the amount of data that is transmitted to the client node 205, by taking advantage of any unchanged portions currently available on the client node 205." Hayton at 17:44–53. "In step 71 output records are delivered to specified devices through their respective interfaces and connected networks. In step 73, a receiving appliance incorporates the data in usual fashion. Steps 71 and 73 may also be construed as steps for delivering and incorporating only updates to existing information." Rajan at 11:64–12:2. "1. An Internet subscription system for alerting subscribers to changes in data maintained at Internet sites, comprising: an input interface for a subscriber to specify a data condition to be monitored and a condition for notification; a gatherer for gathering data changes from one or more Internet sites; a guard for comparing data changes with the condition for notification; and a notification alert system for notifying the subscriber, at a communication device other than an Internet- connected device, of a change that meets the condition for notification; characterized in that the alert includes specific data gathered from the specified Internet sites." Rajan at 18:22–37.

Claims	Active Desktop System
	"FIG. 7 shows an example of the screen image of the browser. This example relates to a page for monitoring the state of current in a specific control device in the plant system 42. A page comprising a current value display section 71 indicating a value of electric current at present and a state display section 72 indicating the state of a device (control device) is displayed by the browser. An event request is described on this page. If the page is displayed by the browser, the event request described on the page is sent to the server 10 which provides this page. In this example, the event requested on this page includes an event indicating a present value of an electric current, which is sent from the server 10 at intervals of one second, and an event indicating the state (normal/abnormal) of the device, which is sent from the server 10 asynchronously. The current value in the specific device in the plant system 42 is monitored by the server 10 every second through the controller 40. Specifically, the event generating unit 107 or event generation monitoring unit 108 generates the event of the present value of electric current at intervals of one second. In addition, the state (normal/abnormal) of the control device is monitored by the server 10 through the controller 40. The event generating unit 107 or event generation monitoring unit 108 generates events of the state (normal/abnormal) of the control device non-periodically. These generated events are transmitted in real time to the client 11. The browser (client 11) processes a plurality of events (both the event indicating the present value of current and the event indicating the state of the device being transmitted in real time) sent from the server 10 in response to one event request issued in accordance with the displayed page, and reflects on the screen the event processing results on the current value display section 71 or device state display section 72." Tsutsumitake at 13:31-65. "According to the browser screen in FIG. 7 of the electric current state monitoring page in the client 11, the user can monitor the present electric current value of the specific control device of the plant system at intervals of one second, without performing a display update operation,

Claims	Active Desktop System
	for example, by depressing a reload button. In addition, the user can monitor the change in state (normal/abnormal) of the control device. As has been described above, since the server continuously returns responses (generated events) to a single event request from the client 11 while the connection is being maintained, the information transmission can be efficiently carried out without increasing a communication load between the client 11 and server 10." Tsutsumitake at 14:14-28.  FIG. 7 Tsutsumitake at Fig. 7. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.

Claims	Active Desktop System
[16.0] The method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network.	Active Desktop System discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing the live object that causes the client device to register with the node of the routing network. For example: The live object is the active desktop, which then allows the client device to register for content and updates. Windows Active Desktop uses subscribing to register for updates of the live object. The 1998 book Using Windows 98 Platinum Edition, beginning on page 186, describes Windows Active Desktop. The following excerpt describes subscriptions:  When you subscribe to a web site, you instruct IE4 to regularly visit the site in search of new content. Don't let the term ***subscription*** mislead you; there's no fee associated with the process. Subscriptions are simply a way for you to automatically search for and download content from your favorite sites. If you can load a web page into the browser window, you can subscribe to it. You can specify the amount of information to download from the site, although this capability is limited and might not produce the results you're expecting.

Claims	Active Desktop System
	 **Subscribing to Web Sites** To subscribe to a web site, you start by adding it to your Favorites list. Follow these steps: 1. Open the web page in the browser window. 2. Choose Favorites, Add to Favorites. Rename the shortcut, if you want to, and choose folder. Note that the Add Favorite dialog box includes two subscription options (see Figure 33.6). **FIG. 33.6** Choose one of these options to add a web page to your Subscriptions list. Add Favorite This will add the page to your favorites. Would you also like to subscribe to this page? No, just add the page to my favorites Yes, but only tell me when this page is updated Yes, notify me of updates and download the page for offline viewing Name: Welcome to Macmillan Computer Publishing OK Cancel Customize... Create in >>  **Subscribing to Active Channels** Channels are prepackaged subscriptions. Instead of indiscriminately delivering your hard disk, a webmaster can put together a collection of pages, just as a ne lisher assembles a daily paper. When you subscribe to an Active Channel, you single file that was created using the Channel Definition Format (CDF). Chan include multiple HTML files, graphics, a map of the web site (including links t included in the CDF file), and a publisher's recommended schedule for updat "Extra Internet integration is provided by the new Active Channels feature, which allows you to subscribe to web sites that will deliver content to your PC on a regular basis." https://www.soundonsound.com/techniques/all-about-windows-98

Claims	Active Desktop System
	 https://web.archive.org/web/20040610054229/http://www.microsoft.com/windows/ie/previous/gallery/default.mspx "In addition, Microsoft introduced a new feature called the "Active Desktop." This allowed Internet Explorer 4 users to replace their normal desktop and wallpaper with any web content they wanted. Instead of icons and a single wallpaper image, Internet Explorer 4 users could, in effect, create their own custom UI for Windows. It also brought drag-and-drop functionality to the Start Menu, and added integrated Favorites, a Quick Launch Bar and Address Bars." https://web.archive.org/web/20110912062210/http://www.nwnetworks.com/iehistory.htm To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, and Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g.,

Claims	Active Desktop System
	"When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action." Lawson at 1:61-63. "In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action." Lawson at 6:2-4. "Additionally, computers having no local program storage means and that receive program code means across a communication link should also be included within the scope of the present invention" Lawson at 7:29-32. "The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action. For example, if a user wished to initiate automatic running of a virus scan program on multiple user computers in a network, the user would create a launch program event type and register the event type in the global registry. Each of the user computers would then register for the launch program event type using the procedure previously described. One user could then initiate or trigger the run program event. The global event notification process previously described would then notify each of the user computers that the event had occurred. A process running on each of the user computers would then receive the notification and in response run a virus scan program." Lawson at 6:7. "Program code means comprises, for example, executable instructions and data which cause a general purpose computer or special purpose computer to perform a certain function or a group of functions." Lawson at 7:48-51. "As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is

Claims	Active Desktop System
	incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4." Lawson at 15:35-57. Choquier specifies that communication links are established via clients with servers of Choquier's network to facilitate exchange of information like "update transactions." Choquier at 8:8-12. "A page request receiving unit 102 receives a page request sent from the client 11 via the network interface 101, analyzes it, and informs a page transmission unit 103 of a page to be sent to the client 11. Suppose that a format called URL (Uniform Resource Locator), which is generally used in the WWW, is applied to the page request. The page transmission unit 103 transmits an HTML file 100 stored in the server 10 to the network 12 via the network interface 101. Information to be transmitted is not limited to the HTML file (100), and may be freely chosen one such as image or voice." Tsutsumitake at 8:39-49; *see also* 3:39-56.

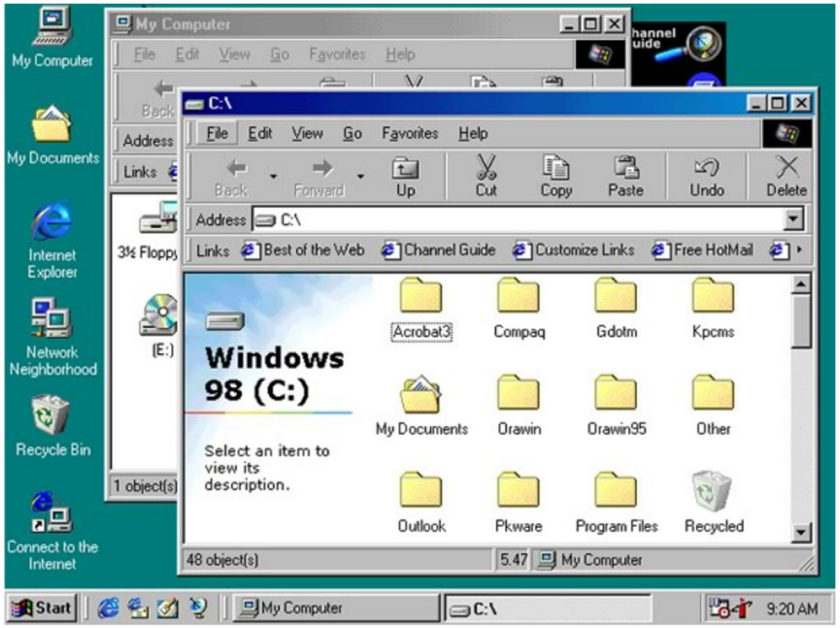
Claims	Active Desktop System
	"In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server." Tsutsumitake at 4:22-29; *see also* 1:7-43, 7:63-8:23, 9:43-68, 13:32-14:3, Fig. 7. "It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. "Applet" of Java developed by Sun Microsystems, or "JavaScript" developed by Netscape)." Tsutsumitake at 10:30-33. "On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later." Tsutsumitake at 10:64-11:8, Figs. 1, 3. "On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID)

Claims	Active Desktop System
	of the client 11 at the request originating point are registered in the connection management unit 105 (step B11)." Tsutsumitake at 11:43-55, Figs. 1, 4; *see also* 9:30-33, 12:66-67. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[17.0] The method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network	Active Desktop System discloses or renders obvious the method of claim 14, wherein providing the data representation to the client device includes providing an activation module that is executed by the client device and that registers the live object with the routing network. For example: Internet Explorer is the activation module. "As in later releases of Windows 95, Internet Explorer continued to be integrated into the Windows Explorer interface (a feature which was called Active Desktop)." https://www.gannman.x10host.com/Portfolio/WindowsGUIEvol.pdf To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, and Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g.,

Claims	Active Desktop System
	"When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action." Lawson at 1:61-63. "The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action." Lawson at 5:66-6:4. "As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4." Lawson at 15:35-57; see also 7:48-51. Choquier specifies that communication links are established via clients with servers of Choquier's network to facilitate exchange of information like updates to "update transactions" type services. Choquier at 8:8-12.

Claims	Active Desktop System
	"FIG. 2 shows an example of the HTML file format. In this example, an event request to the server is included in the page. The event request is expressed by an attribute "URL" in a tag "EVENT" in a tag "EMBED". The format of expression of the event request is not limited to this. It may be assumed, for example, that the event request is not positively described in the HTML file but is expressed as a link to another page, and the event request is described in the page of the destination link and is sent to the server 10 from the HTML file at the originating point. It is also possible to adopt a method wherein the event request is generated dynamically from a certain program incorporated in the page (e.g. "Applet" of Java developed by Sun Microsystems, or "JavaScript" developed by Netscape)." Tsutsumitake at 10:20-33; *see also* 10:64-67, 11:45-55, Fig. 4. To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.
[18.0] The method of claim 17, wherein providing the activation module includes providing the activation module that is configured to determine a node type that handles registration and that causes the client device to register with the node corresponding to the node type.	Active Desktop System discloses or renders obvious the method of claim 17, wherein providing the activation module includes providing the activation module that is configured to determine a node type that handles registration and that causes the client device to register with the node corresponding to the node type. For example: Internet Explorer is the activation module. This handles node type (what the user has subscribed to) and registration. "What may not be so obvious is the "Active Desktop" what this does is allows ActiveX controls to display right on the Windows desktop. On a fresh install, the only ActiveX control

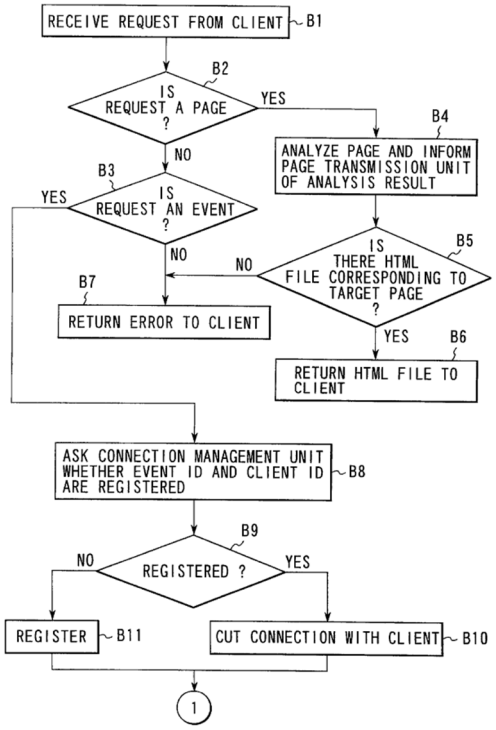
Claims	Active Desktop System
	configured for this is the Internet Explorer channel bar, which places advertising, and links to more advertising on the users desktop”  http://toastytech.com/guis/win98.html “The icon styles were almost the same as in Windows 95, but the whole GUI could use more than 256 colors for rendering. Windows Explorer changed almost completely and the “Active Desktop” appeared for the first time.”

Claims	Active Desktop System
	 https://christian-hockenberger.com/wp-content/uploads/2021/03/Operating-System-Interface-Design-Between-1981-2009-_-Webdesigner-Depot-Webdesigner-Depot-Blog-Archive.pdf To the extent this reference 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. This reference further renders the limitation obvious in light of other references, such as Lawson, Choquier, and Tsutsumitake. As noted above regarding element [14.1] Lawson, Choquier, and Tsutsumitake and this reference concern similar subject matter, and modifying this reference with Lawson's, Choquier's, and Tsutsumitake's teachings would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. *See*, e.g.,

Claims	Active Desktop System
	"When an event consumer receives notification that a certain event happened on an event producer, the event consumer can take appropriate action." Lawson at 1:61-63. "The present invention also provides a mechanism for allowing a user to create a custom event type. A custom event type is created by placing appropriate entries in the global and local event registries. In addition, an associated process may have to be initiated which receives the custom event and takes appropriate action." Lawson at 5:66-6:4. "As previously described, however, embodiments of the present invention may comprise means for creating new events and/or means for registering for an event. If such means is incorporated into incoming event processing block 60 of FIG. 3, then the event globalization process will handle requests to register an event consumer for an event or to create a new event. When an event consumer needs to register for a new event or create a new event, the event consumer can send a "register for event" packet or a "create event packet" to the event globalization process on the local server. When an event is created, the event globalization process will create an entry in the global event registry, as for example global event registry 68 of FIG. 3. This entry will include the event identifier of the new event. When an event consumer registers for an event, the event globalization process will place an entry in the local event registry, as for example local event registry 72 of FIG. 3, identifying the event and the event consumer wishing to receive notification of the event. The event globalization process will also place an entry into the global event registry, as for example global event registry 68 of FIG. 3, identifying the local server needing to receive notification of the event when it occurs. These functions are described in the remainder of FIG. 4." Lawson at 15:35-57; see also 7:48-51. "The present invention presumes an underlying event notification system which: (1) allows local event consumers to register for notification of an event; and (2) sends notification of events that occur to registered local event consumers. In addition, it is desirable for some embodiments of the present invention to allow registration of custom event types. If an

Claims	Active Desktop System
	underlying event notification system does not provide the ability to register locally for an event, does not send even notifications to locally registered event consumers, or does not allow registration of custom event types, then this functionality can be provided as part of the present invention." Lawson at 4:33-44. "These corresponding event globalization processes, in ram, check their local event registries and provide the event to any event consumers identified therein. In this way, local events can be routed to any event consumer in the network without the need to register at each server." Lawson at 5:8-12; see also 4:66-5:10. Choquier specifies that communication links are established via clients with servers of Choquier's network to facilitate exchange of information like updates to "update transactions" type services. Choquier at 8:8-12. "In this structure, the client, which received the requested page information from the server, can automatically issue the event request to the server according to the event request information set in the page information, and can activate the event notification. Specifically, by associating the page information with the event, the page information opened on the client side can be dynamically changed according to the event notification sent from the server." Tsutsumitake at 4:22-29. "On the other hand, if the event request is included, the page receiving unit 112 informs the event request unit 113 of the URL of the event and causes the event request unit 113 to send the event request to the server 10 (step A8). In this case, the page receiving unit 112 prepares to read a response (event) from the server 10 (step A9) to check whether the event has been sent from the server 10 (step A10). If the event is not sent, the page receiving unit 112 continues to wait. If the even has been sent, the page receiving unit 112 processes it (step A11). The display screen image of the input/output unit 110 is updated, depending on the result of processing of the event, as will be described later." Tsutsumitake at 10:64-11:8.

Claims	Active Desktop System
	"On the other hand, if the request from the client 11 is the event request, the network interface 101 delivers it to the event request receiving unit 104. The event request receiving unit 104 asks the connection management unit 105 whether or not an identifier (event ID) of the event requested by the event request and an identifier (client ID) of the client 11 at the request originating point have already been registered (steps B8, B9). If they are registered, the connection with the client 11 is cut off (step B10). If they are not registered, a pair of the identifier (event ID) of the event requested by the event request and the identifier (client ID) of the client 11 at the request originating point are registered in the connection management unit 105 (step B11)." Tsutsumitake at 11:43-55.

Claims	Active Desktop System
	 FIG. 4 Tsutsumitake at Fig. 4; *see also* FIGS. 1, 3. "The page request unit 111 issues the page request to a proper server 10 b (step A3). The page receiving unit 112 prepares to read a response from the server 10 (step A4) and waits until the page is sent from the server 10 (step A5). The page receiving unit 112 analyzes the content of the page sent from the server 10 (step A6) to determine whether an event request is included in the page (step A7)." Tsutsumitake at 10:53-59.

Claims	Active Desktop System
	To the extent that the Active Desktop system 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 the Active Desktop system, those elements, as known to them or as disclosed by other prior art identified in the cover pleading to Defendant's Invalidity Contentions.