AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Central District of California, Los Angeles Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:24-cv-3951	5/10/2024	for the Central District of California, Los Angeles Division

PLAINTIFF	DEFENDANT
Sandpiper CDN, LLC	Google LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,478,903	7/2/2013	Sandpiper CDN, LLC
2	8,595,778	11/26/2013	Sandpiper CDN, LLC
3	8,645,517	2/4/2014	Sandpiper CDN, LLC
4	8,719,886	5/6/2014	Sandpiper CDN, LLC
5	9,021,112	4/28/2015	Sandpiper CDN, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☑ Other Pleading		
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,924,573	2/16/2021	Sandpiper CDN, LLC
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	07/02/2013	8478903	0090-US-C03	3296

83579 7590 06/12/2013

LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 2052 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

David A. Farber, Oak View, CA;
Richard E. Greer, Red Lodge, MT;
Andrew D. Swart, Westlake Village, CA;
James A. Balter, Santa Barbara, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PTO/SB/08A(10-01)
Approved for use through 10/31/2002. OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

Application Number	
Filing Date	February 23, 2005
First Named Inventor	Farber
Group Art Unit	
Examiner Name	

Sheet 1 of 7

Attorney Docket No: 6233P001DC3

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
/DB/	US-4,495,570	01/22/1985	Kitajima, Hiroyuki , et al.			01/07/1982
/DB/	US-4,594,704	06/10/1986	Ollivier, Yves			11/16/1984
/DB/	US-4,726,017	02/16/1988	Krum, Harry A., et al.			05/21/1985
/DB/	US-4,839,798	06/13/1989	Eguchi, Hiroyoshi, etal.			11/06/1985
/DB/	US-4,920,432	04/24/1990	Eggers, Derek C., et al.			01/12/1998
/DB/	US-4,922,417	05/01/1990	Churm, Brian R., et al.			10/24/1986
/DB/	US-4,949,187	08/14/1990	Cohen, Jason M.			12/16/1988
/DB/	US-4,949,248	08/14/1990	Caro, Marshall A.			07/15/1988
/DB/	US-~~5,720,031~~ 5826031	10/20/1998	Nielsen, Jakob			06/10/1996
/DB/	US-5,172,413	12/15/1992	Bradley, Graham C., et al.			12/20/1990
/DB/	US-5,253,341	10/12/1993	Rozmanith, Anthony I., et al.			04/11/1991
/DB/	US-5,287,499	02/15/1994	Nemes, Richard M.			05/16/1991
/DB/	US-5,287,537	02/15/1994	Newmark, Rona J., et al.			09/21/1992
/DB/	US-5,291,554	03/01/1994	Morales,			08/19/1992
/DB/	US-5,341,477	08/23/1994	Pitken, Richard P., et al.			08/06/1993
/DB/	US-5,371,532	12/06/1994	Gleman, Alexander , et al.			05/15/1992
/DB/	US-5,410,343	04/25/1995	Coddington, Carl D., et al.			04/02/1993
/DB/	US-5,414,455	05/09/1995	Hooper, Donald F., et al.			07/07/1993
/DB/	US-5,442,389	08/15/1995	Blahut, Donald E., et al.			12/28/1992
/DB/	US-5,442,390	08/15/1995	Hooper, Donald F., et al.			07/07/1993
/DB/	US-5,471,622	11/28/1995	Eadline, Douglas J.			04/20/1995
/DB/	US-5,475,615	12/12/1995	Lin, K D.			12/23/1993
/DB/	US-5,508,732	04/16/1996	Bottomley, John F., et al.			03/22/1993
/DB/	US-5,515,511	05/07/1996	Nguyen, Tam M., et al.			06/06/1994
/DB/	US-5,519,435	05/21/1996	Anderson, Michael H.			09/01/1994
/DB/	US-5,528,281	06/18/1996	Grady, John , et al.			07/30/1993
/DB/	US-5,539,621	07/23/1996	Kikinis, Dan			06/23/1995
/DB/	US-5,542,087	07/30/1996	Neimat, Marie-Anne , et al.			10/15/1993
/DB/	US-5,544,313	08/06/1996	Shachnai, Hadas , et al.			05/11/1994
/DB/	US-5,544,327	08/06/1996	Dan, Asit , et al.			07/26/1994
/DB/	US-5,550,577	08/27/1996	Verbiest, Willem J., et al.			05/19/1994
/DB/	US-5,550,863	08/27/1996	Yurt, Paul , et al.			10/08/1993
/DB/	US-5,550,982	08/27/1996	Long, James E., et al.			06/24/1993
/DB/	US-5,557,317	09/17/1996	Nishio, Makoto , et al.			05/22/1995
/DB/	US-5,572,643	11/05/1996	Judson, David H.			10/19/1995
/DB/	US-5,590,288	12/31/1996	Castor, Patrick F., et al.			03/13/1995

Change(s) applied to document, /C.S./ 11/29/2012

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 09/15/2008

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 3 of 9	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2157
	Examiner Name	unassigned
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
/DB/	3-1	US-6181867	30-Jan-01	Kenner et al.
/DB/	3-2	US-6230196	05/2001	Guenthner et al.
/DB/	3-3	US-6243760	06/2001	Armbruster et al.
/DB/	3-4	US-6266699	07/2001	Sevcik
/DB/	3-5	US-6269394	~~22-Apr-03~~ July 31, 2001	Kenner et al.
/DB/	3-6	US-6282569	08/2001	Wallis et al.
/DB/	3-7	US-6298041	02-Oct-01	Packer
/DB/	3-8	US-6314565	06-Nov-01	Kenner et al.
/DB/	3-9	US-6347085	02/2002	Kelly
/DB/	3-10	US-6360256	03/2002	Lim
/DB/	3-11	US-6370571	04/2002	Medin, Jr.
/DB/	3-12	US-6370580	09-Apr-02	Kriegsman
/DB/	3-13	US-6412000	25-Jun-02	Riddle et al.
/DB/	3-14	US-6415280	02-Jul-02	Farber et al.
/DB/	3-15	US-6421726	16-Jul-02	Kenner et al.
/DB/	3-16	US-6456630	24-Sep-02	Packer et al.
/DB/	3-17	US-6480893	12-Nov-02	Kriegsman
/DB/	3-18	US-6484204	11/2002	Rabinovich
/DB/	3-19	US-6496856	17-Dec-02	Kenner et al.
/DB/	3-20	US-6502125	31-Dec-02	Kenner et al.
/DB/	3-21	US-6502215	12/2002	Raad et al.
/DB/	3-22	US-6557054	29-Apr-03	Reisman
/DB/	3-23	US-6581090	17-Jun-03	Lindbo et al.
/DB/	3-24	US-6591299	08-Jul-03	Riddle et al.
/DB/	3-25	US-6611862	26-Aug-03	Reisman
/DB/	3-26	US-6658464	02-Dec-03	Reisman

Change(s) applied to document,
/C.S./
12/5/2012

Examiner Signature	/Douglas Blair/	Date Considered	09/15/2008

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

Application Number	11/065,412
Filing Date	February 23, 2005
First Named Inventor	David A. Farber
Group Art Unit	2157
Examiner Name	Unknown

Sheet 2 of 9

Attorney Docket No: 6233P001DC3

~~/DB/~~	US-5,528,281	06/18/1996	Grady, John , et al.			07/30/1993
~~/DB/~~	US-5,539,621	07/23/1996	Kikinis, Dan			06/23/1995
/DB/	US-5,542,087	07/30/1996	Neimat, Marie-Anne , et al.			10/15/1993
/DB/	US-5,544,313	08/06/1996	Shachnai, Hadas , et al.		05/11/1994	05/11/1994
~~/DB/~~	US-5,544,327	08/06/1996	Dan, Asit , et al.			07/26/1994
/DB/	US-5,550,577	08/27/1996	Verbiest, Willem J., et al.			05/19/1994
~~/DB/~~	US-5,550,863	08/27/1996	Yurt, Paul , et al.			10/08/1993
~~/DB/~~	US-5,550,982	08/27/1996	Long, James E., et al.			06/24/1993
~~/DB/~~	US-5,557,317	09/17/1996	Nishio, Makoto , et al.			05/22/1995
~~/DB/~~	US-5,572,643	11/05/1996	Judson, David H.			10/19/1995
/DB/	US-5,590,288	12/31/1996	Castor, Patrick F., et al.			03/13/1995
/DB/	US-5,592,611	01/04/1997	Midgely, Christopher W., et al.			03/14/1995
~~/DB/~~	US-5,594,910	01/14/1997	Filepp, Robert , et al.			11/26/1993
/DB/	US-5,603,026	02/11/1997	Demers, Alan J., et al.			12/07/1994
~~/DB/~~	US-5,619,648	04/08/1997	Canale,			
~~/DB/~~	US-5,623,656	04/22/1997	Lyons, Kenneth B.			12/15/1994
~~/DB/~~	US-5,625,781	04/29/1997	Cline, Troy L., et al.			10/31/1995
/DB/	US-5,627,829	05/06/1997	Gleeson, Bryan J., et al.			06/06/1995
/DB/	US-5,630,067	05/13/1997	Kindell, Craig N., et al.			06/04/1996
/DB/	US-5,633,999	05/27/1997	Clowes, Richard F., et al.			12/18/1995
/DB/	US-5,634,006	05/27/1997	Baugher, Mark J., et al.			10/11/1995
~~/DB/~~	US-5,638,443	06/10/1997	Stefik, Mark J., et al.			11/23/1994
~~/DB/~~	US-5,644,714	07/01/1997	Kikinis, Dan			04/10/1995
~~/DB/~~	US-5,646,676	~~05/30/1995~~ July 8, 1997	Dewkett, Thomas J., et al.			05/30/1995
~~/DB/~~	US-5,649,186	07/15/1997	Ferguson,			08/07/1995
~~/DB/~~	US-5,659,729	08/19/1997	Nielsen, Jakob			02/01/1996
/DB/	US-5,666,362	09/09/1997	Chen, Cheng T., et al.			07/25/1995
~~/DB/~~	US-5,671,279	09/23/1997	Elgamal, Taher			11/13/1995
~~/DB/~~	US-5,682,512	10/28/1997	Tetrick, R. S.			06/30/1995
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Change(s) applied to document, /C.S./ 12/5/2012

EXAMINER	/Douglas Blair/	**DATE CONSIDERED**	09/15/2008

Substitute Disclosure Statement Form (PTO-1449)

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PTO/SB/08a (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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PTO/SB/08a (07-09) TAP44 JUL 12 2007 PATENT & TRADEMARK OFFICE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
FORM PTO-1449 (modified)

Sheet 1 of 9

Application No.	11/065,412
Filing Date	Feb. 23, 2005
First Named Inventor	Farber, David A.
Group Art Unit	2157
Examiner Name	unassigned
Attorney Docket No.	2711-0073
Confirmation No.	3296

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
/DB/	1-1	US-2004/0139097	15-Jul-04	Farber et al.
/DB/	1-2	US-2005/0038851	17-Feb-05	Kriegsman
/DB/	1-3	US-2005/0114296	26-May-05	Farber et al.
/DB/	1-4	US-4591983	27-May-86	Bennett et al.
/DB/	1-5	US-4594704	Jun-86	Ollivier
/DB/	1-6	US-4803641	7-Feb-89	Hardy et al.
/DB/	1-7	US-4847784	11-Jul-89	Clancey
/DB/	1-8	US-4943932	24-Jul-90	Lark et al.
/DB/	1-9	US-5029232	02-Jul-91	Nall
/DB/	1-10	US-5130792	14-Jul-92	Tindell et al.
/DB/	1-11	US-5132992	21-Jul-92	Yurt et al.
/DB/	1-12	US-5136716	08/1992	~~Churm~~ et al. Harvey
/DB/	1-13	US-5191573	02-Mar-93	Hair
/DB/	1-14	US-5253275	12-Oct-93	Yurt et al.
/DB/	1-15	US-5675734	7-Oct-97	Hair
/DB/	1-16	US-5764906	06/1998	Edelstein et al.
/DB/	1-17	US-5802106	01-Sep-98	Packer
/DB/	1-18	US-5815664	09/1998	Asano
/DB/	1-19	US-5832514	11/1998	Norin et al.
/DB/	1-20	US-5845303	01-Dec-98	Templeman
/DB/	1-21	US-5893116	04/1999	Simmonds et al.
/DB/	1-22	US-5894554	~~05/1999~~	Lowery et al. April 13, 1999
/DB/	1-23	US-5896533	04/1999	Ramos et al.
/DB/	1-24	US-5920701	07/1999	Miller et al.
/DB/	1-25	US-5935207	08/1999	Logue et al.
/DB/	1-26	US-5956489	09/1999	San Andres et al.

Change(s) applied to document, /C.S./ 12/5/2012

Examiner Signature	/Douglas Blair/	Date Considered	09/15/2008

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

83579 7590 04/29/2013
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$10	$0	$1770	$10	07/29/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Level 3 Communications, LLC
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Broomfield, CO

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-5063 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /David D. Wier/ Date May 15, 2013

Typed or printed name David D. Wier Registration No. 48,229

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Electronic Patent Application Fee Transmittal	
Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	David Dewey Wier
Attorney Docket Number:	0090-US-C03
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Certificate of Correction	1811	1	100	100
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt	
EFS ID:	15789779
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	David Dewey Wier
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	15-MAY-2013
Filing Date:	23-FEB-2005
Time Stamp:	20:04:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$100
RAM confirmation Number	7527
Deposit Account	505063
Authorized User	WIER, DAVID D
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	20130515IssueFeeTransmitalPartB.pdf	108678 9e928fbcb9da15b38fee0a33b8370150a6c2f336	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29905 20f39a1dbe3b8e11da2adcb97cf58f44a9e15262	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	138583		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

83579 7590 04/29/2013
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021



Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$10	$0	$1770	$10	07/29/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Level 3 Communications, LLC Broomfield, CO

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-5063 (enclose an extra copy of this form).

05/16/2013 EEKUBAY2 00000028 505063 11065412
01 FC:1501 10.00 DA 1770.00 OP

The PTO did not receive the following listed item(s) C. Card.

PTOL-85 (Rev. 02/11)

Adjustment date: 05/16/2013 EEKUBAY2
10/18/2012 INTEFSW 00004752 11065412
01 FC:1501 -1770.00 OP

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27	NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.	NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /David D. Wier/ Date May 15, 2013

Typed or printed name David D. Wier Registration No. 48,229

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Adjustment date: 05/16/2013 EEKUBAY2
10/18/2012 INTEFSW 00004752 11065412
01 FC:1501 -1770.00 OP

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

83579 7590 04/29/2013
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 04/29/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$10	$0	$1770	$10	07/29/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
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83579 7590 04/29/2013
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Attn: Patent Docketing
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Broomfield, CO 80021

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

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EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

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(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27	NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
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NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

83579 7590 04/29/2013

LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 04/29/2013

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1401 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1401 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 11/065,412	Applicant(s) FARBER ET AL.	
	Examiner DOUGLAS BLAIR	Art Unit 2442	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the RCE filed on 10/31/2012*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☐ The allowed claim(s) is/are _____. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

   Interim copies:

   a) ☐ All b) ☐ Some c) ☐ None of the: Interim copies of the priority documents have been received.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 10/31/2012
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Wier on 6/28/2012.

The application has been amended as follows:

IN THE CLAIMS:

1-28. (Canceled)

29. (Currently amended) A content delivery system operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, the system comprising:

at least one shared repeater server constructed and adapted to replicate at least some of the resources associated with a first content provider of said plurality of content providers, and to replicate at least some of the resources associated with a second content provider of said plurality of content providers, wherein the second content provider is distinct from the first content provider;

at least one table listing a plurality of alias names corresponding to content providers authorized to have resources delivered to client machines via the at least one shared repeater server, wherein the plurality of content providers comprises the first content provider and the second content provider,

wherein at least a first resource associated with the first content provider is associated with a first alias name of the plurality of alias names, said first alias name being associated with said at least one shared repeater server;

wherein, requests for the first resource from said client machines are directed to the at least one shared repeater server, based at least in part on said first alias name;

wherein at least a second resource associated with the second content provider is associated with a second alias name of the plurality of alias names, said second alias name being associated with said at least one shared repeater server;

wherein requests for the second resource made from said client machines are directed to the at least one shared repeater server, based at least in part on said second alias name; and

wherein the at least one shared repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine a content provider associated with the particular resource.

30. (Previously presented) The content delivery system as recited in claim 29, wherein the least one shared repeater server is addressable using the first alias name and the second alias name.

31. (Previously presented) The content delivery system as recited in claim 29, further comprising:

a reflector.

32. (Previously presented) The content delivery system as recited in claim 29 further comprising:

a set of shared repeater servers that comprises the at least one repeater server; and

a repeater selector mechanism constructed and adapted to associate the first resource with the first alias name after selecting the at least one shared repeater server from the set of shared repeater servers in response to a request for the first resource issued by a particular client machine.

33. (Previously presented) The content delivery system as recited in claim 29, wherein at least one of the first resource and the second resource is an embedded object.

34. (Previously presented) The content delivery system as recited in claim 29, wherein the requests comprise host tag names that identify specific origin servers from which the resources originate.

35. (Previously presented) The content delivery system as recited in claim 34, wherein the host tag names are included in HTTP headers.

36. (Previously presented) The content delivery system as recited in claim 32, further comprising:

a load determination mechanism constructed and adapted to characterize load on the set of repeater servers for use in selection of the at least one shared repeater server.

37. (Previously presented) The content delivery system as recited in claim 36, wherein the repeater selector mechanism comprises the load determination mechanism.

38. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is co-located with an origin server.

39. (Previously presented) The content delivery system as recited in claim 36, further comprising:

a cost determination mechanism constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use in selection of the at least one shared repeater server.

40. (Previously presented) The content delivery system as recited in claim 39, wherein the repeater selector mechanism comprises the cost determination mechanism.

41. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is co-located with an origin server from which the first resource originates.

42. (Previously presented) The content delivery system as recited in claim 39, wherein the cost comprises information relating a location associated with the particular client machine to each of the set of shared repeater servers.

43-44. (Canceled)

45. (Currently amended) A method, in a content delivery system operative in a computer network for delivering content to client machines, the computer network comprising a plurality of origin servers, each of said origin servers having resources associated therewith, and the content delivery system comprising at least one shared repeater server operable to replicate resources associated with the plurality of origin servers, the method comprising:

associating the at least one repeater server with a first alias name, wherein requests for a first resource located on a first origin server are directed, based at least in part on said first alias name, to the at least one repeater server for delivery of the first resource from said at least one repeater server;

associating the at least one repeater server with a second alias name, wherein requests for a second resource located on a second origin server are directed, based at least in part on said second alias name, to the at least one repeater server for delivery of the second resource from said at least one repeater server, wherein the second origin server is distinct from the first origin server;

providing a table listing origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, and wherein the origin servers comprise the first origin server and the second origin server; and

wherein the at least one repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine an origin server associated with the particular resource.

46. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one shared repeater server from a set of shared repeater servers based at least in part on a network cost of delivering resources to the particular client machine; and

associating the first resource with the first alias name.

47. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater servers based at least in part on load characteristics of the set of shared repeater servers; and

associating the first resource with the first alias name.

48. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater servers based at least in part on a location of the particular client machine relative to the at least one shared repeater server; and

associating the first resource with the first alias name.

49. (Previously presented) The method as recited in claim 45, wherein the resources comprise an HTTP-based resource.

50. (Previously presented) The method as recited in claim 45, wherein the resources comprise a File Transfer Protocol (FTP)-based resource.

51. (Canceled).

52. (Previously presented) A content delivery system as recited in claim 39 wherein the cost determination mechanism comprises a netmap determination means.

53-54. (Canceled)

55. (Previously presented) A content delivery system as recited in claim 29, wherein at least the first alias name is a domain name, the system further comprising:

at least one name server that provides domain name service (DNS) resolution on the first alias name to identify the at least one shared repeater server to deliver the first resource in response to a client request.

56. (Previously presented) A method as recited in claim 45, wherein at least the first alias name is a domain name and the computer network further comprises at least one name server that provides domain name service (DNS) resolution, the method further comprising:

receiving, at the at least one name server, the first alias name as part of a client request; and

resolving, at the at least one name server, the received first alias name to identify the at least one shared repeater server to deliver the first resource in response to the client request.

57. (Previously presented) A method, in a content delivery system operative in a computer network for delivering content to client machines and comprising at least one shared repeater server operable to replicate resources stored on a plurality of origin servers, the method comprising:

associating a plurality of alias names with the at least one shared repeater server, each of said plurality of alias names being associated with an origin server, wherein a first alias name of said plurality of alias names is associated with a first origin server, and at least a second alias name of said plurality of alias names is associated with a second origin server distinct from said first origin server,

providing at least one table associating alias names with origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, wherein the origin servers comprise the first origin server and the second origin server;

wherein requests for a first resource originating on the first origin server are directed, based at least in part on said first alias name, to the at least one shared repeater server for delivery of the first resource from said at least one repeater server; and

wherein requests for a second resource originating on the second origin server are directed, based at least in part on said second alias name, to the at least one shared repeater server for delivery of the second resource from said at least one repeater server; and

wherein the at least one repeater server uses the at least one table and an alias name received with a client request for a resource to determine an origin server associated with the requested resource.

58. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of transmitting the resources to the client machines.

59. (Previously presented) The content delivery system as recited in claim 31, further comprising:

a repeater selector mechanism.

60. (Previously presented) The content delivery system as recited in claim 59, wherein the reflector comprises the repeater selector mechanism.

61. (Previously presented) The content delivery system as recited in claim 36, wherein

the load determination mechanism is constructed and adapted to characterize load on the set of repeater servers for use by a reflector in selection of the at least one shared repeater server.

62. (Previously presented) The content delivery system as recited in claim 39, wherein

the cost determination mechanism is constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use by a reflector in selection of the at least one shared repeater server.

63. (Previously presented) The method as in claim 57, wherein a copy of the at least one table is located on each of a plurality of repeater servers.

64. (Previously presented) The content delivery system as recited in claim 32, wherein the repeater selector mechanism is part of a reflector.

65. (Previously presented) The content delivery system as recited in claim 38, wherein the reflector is co-located with an origin server at which the first resource originates.

66. (Previously presented) The content delivery system of claim 31, wherein the reflector selects the at least one repeater server to process a client request for a resource.

67. (Previously presented) The content delivery system of claim 32, wherein the repeater selector mechanism selects the at least one repeater server to process a client request for a resource.

68. (Currently amended) A server operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, wherein the plurality of content providers comprise at least a first content provider and a second content provider distinct from the first content provider, the server comprising:

cache storage;

a table listing content providers of said plurality of content providers having content that is authorized for delivery to client machines via the server,

wherein the server is associated with a first alias name corresponding to said first content provider, and

wherein the server is associated with a second alias name corresponding to said second content provider, said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources associated with the first content provider, and at least some of the resources associated with the second content provider, and

wherein, in response to a request for a resource, the server is operable to use at least the table to analyze an alias name associated with the request to determine a content provider associated with the resource.

69. (Previously presented) A server operative in a computer network for delivering resources to multiple client machines, the server comprising:

cache storage;

a table listing a plurality of origin servers having content that is authorized for delivery to client machines via the server,

wherein the ~~repeater~~ server is associated with a first alias name corresponding to a first origin server of the plurality of origin servers, and

wherein the server is associated with a second alias name corresponding to a second origin server of the plurality of origin servers, said second origin server being distinct from the first origin server and said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources located on the first origin server, and at least some of the resources located on the second origin server, and

wherein, in response to a request for a resource, the server uses at least the table to analyze an alias name associated with the request to determine an origin server associated with the particular resource.

70. (Previously presented) A server as recited in claim 69, wherein the first origin server and the second origin server are associated with distinct content providers located at distinct physical locations.

71. (Previously presented) A method as recited in claim 29, wherein the table further comprises, for each of the plurality of content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

72. (Previously presented) A method as recited in claim 45, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

73. (Previously presented) A server as recited in claim 68, wherein the table further comprises, for each of the listed content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

74. (Previously presented) A server as recited in claim 69, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

75. (Previously presented) A content delivery system as recited in claim 29, wherein the at least one repeater server is configured and adapted to reject the client request for the particular resource if the alias name received with the client request is not included the table.

76. (Previously presented) A method as recited in claim 45, further comprising:

rejecting the client request for the particular resource if the alias name received with the client request is not included the table.

77. (Previously presented) A method as recited in claim 57, further comprising:

rejecting the client request for the resource if the alias name received with the client request is not included the table.

78. (Previously presented) A server as recited in claim 68, wherein in response to a request for a resource, the server is further configured and adapted to reject the request for the resource if the alias name received with the request is not included the table.

79. (Previously presented) A server as recited in claim 69, wherein in response to a request for a resource, the server is further configured and adapted to reject the request for the resource if the alias name received with the request is not included the table.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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	26		-	-	-	-	-			
	27		✓	÷	N	-	-			
	28		✓	÷	N	-	-			
1	29		✓	÷	✓	=	=			
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24	35		✓	÷	✓	=	=			
12	36		✓	÷	✓	=	=			

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CLAIM		DATE								
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	54			÷	O	-	=			
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34	56			÷	✓	=	=			
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44	70					=	=			
26	71					=	=			
35	72					=	=			

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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39	77					=	=			
42	78					=	=			
46	79					=	=			

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
709	217,219,245	9/15/2008	DBB
	update	12/30/08	DBB
	update	4/15/2010	DBB
	update	8/27/2012	DBB
	update	4/22/2013	DBB

SEARCH NOTES		
Search Notes	Date	Examiner
East text search	9/15/2008	DBB
update	12/30/08	DBB
update	4/15/2010	DBB
update	8/27/2012	DBB
update	4/22/2013	DBB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	see attached history	8/27/2012	DBB
	see attached history	4/22/2013	DBB

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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L8	5	L7 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L9	39	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
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		@rlad<"19980210")	FPRS; EPO; JPO; DERWENT; IBM_TDB			09:40
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L15	10	L14 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
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L26	285	(choos$3 or pick$3 or select$4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2013/04/22 09:40
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L33	10195	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L34	218	L33 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
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L36	26490	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L37	234	L36 same (fetch$3 or replicat$3) near (object$1 or resource$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L38	26	L37 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L39	117	L36 and (obtain$3 or request$3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L40	0	L39 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L41	32	nagling	US-PGPUB; USPAT	OR	OFF	2013/04/22 09:40
L42	17	L41 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2013/04/22 09:40
L43	26490	(mirror$3 or cluster$1 or replicat$3 or farm) near	US-PGPUB; USPAT; FPRS; EPO; JPO;	OR	OFF	2013/04/22 09:40

		server$1	DERWENT; IBM_TDB			
L44	554	L43 and (object$1 or resource$1) near (invalid$5 or expir$6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L45	23	L44 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40
L46	0	(L11 L13 L16 L19 L21 L23 L25 L27 L30 L32 L35 L38 L40 L42 L45) and @pd>"20130723"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/04/22 09:40

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L47	1265	((mirror$3 or cluster$1 or replicat$3 or farm) near server$1).clm.	US-PGPUB	OR	OFF	2013/04/22 09:59
L48	8655	(content or origin) near (provider$1 or producer$1 or server$1).clm.	US-PGPUB	OR	OFF	2013/04/22 10:00
L49	20	(repeater adj server$1).clm.	US-PGPUB	OR	OFF	2013/04/22 10:01
L50	10	(L47 L48) and L49	US-PGPUB	OR	OFF	2013/04/22 10:02
L51	0	L47 same L48 same (shar$3 or cooperat$4 or joint).clm.	US-PGPUB	OR	OFF	2013/04/22 10:04
L52	3	L47 same L48 and (shar$3 or cooperat$4 or joint).clm.	US-PGPUB	OR	OFF	2013/04/22 10:04
L53	1	L47 same L48 and (host$3 with (infrastructure or network)).clm.	US-PGPUB	OR	OFF	2013/04/22 10:05
L54	554	(L47 L48) and ("content delivery network")	US-PGPUB	OR	OFF	2013/04/22 10:06
L55	68	L54 and (shar$3 or cooperat$4 or joint).clm.	US-PGPUB	OR	OFF	2013/04/22 10:07

4/ 22/ 2013 10:13:50 AM
C:\ Users\ dblair\ Documents\ EAST\ Workspaces\ 11065412-2.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **Shared Content Delivery Infrastructure**	

Submitted Via EFS-Web
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Information Disclosure Statement

Pursuant to 37 C.F.R. § 1.56, the attention of the U.S. Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449.

This information disclosure statement is filed pursuant to 37 C.F.R. § 1.97(b) in order to cite a communication from the European Patent Office in EP Application No. 07024629.3 dated October 18, 2012 (the "Communication"), which includes:

(a) a Partial European Search Report citing one reference—non-patent literature entitled Luotonen et al., "World-Wide Web proxies," which was considered by the Examiner in this application on September 15, 2008;

(b) objections under European Patent Code Article 76(1), which objections are substantially cumulative to objections contained in the July 4, 2012 EPO Communication cited by the Applicant in this application on July 13, 2012 and considered by the Examiner in this application on July 23, 2012; and

(c) a statement in Section 6.2 concerning, among other things, the Luotonen reference, which statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement, and therefore satisfies 37 C.F.R. § 1.97(e)(1).

Accordingly, this information disclosure statement is being filed to cite the Partial European Search Report and Section 6.2 of the Communication, and is being filed concurrently

with a Request for consideration under the QPIDS Pilot Program, which contains a certification under 37 C.F.R. § 1.97(e)(1) and the undersigned's certification thereunder shall apply with respect to the Partial European Search Report itself and Section 6.2 of the Communication only (given the Luotonen reference itself and Article 76(1) objections were known more than 3 months ago, but as noted above already cited and considered in connection with prior information disclosure statements).

Because this information disclosure statement is being filed after payment of an issue fee in the above-referenced patent application, a request for continued examination under 37 C.F.R. § 1.114 is filed concurrently herewith. As such, no fee is believed due.

Also, filed herewith for convenience is a copy of the current claims in EP Application No. 07024629.3 and a copy of the Luotonen reference.

The submission of any document herewith is not intended to convey that such document is actually prior art against any of the claims of the present application or material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

Statement under 37 C.F.R. § 1.704(d)

Pursuant to 37 C.F.R. § 1.704(d), I state as follows:

Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Date: October 31, 2012

/David D. Wier/

David D. Wier
Registration No. 48,229
USPTO Customer No. 83579
Level 3 Communications, LLC
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PTO/SB/08a (01-08)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	11/065,412
Filing Date	February 23, 2005
First Named Inventor	Farber, David A.
Art Unit	2442
Examiner Name	BLAIR, Douglas B.

Sheet	1	of	1	Attorney Docket No: 0090-US-C03

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or RelevantFigures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or RelevantFigures Appear	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/DB/		Partial European Search Report and Section 6.2, EPO communication dated October 18, 2012 in EP Application No. 07024629.3	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 04/05/2013

Substitute Disclosure Statement Form (PTO-1449)
` EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Issue Classification	**Application/Control No.** 11065412	**Applicant(s)/Patent Under Reexamination** FARBER ET AL.
	Examiner DOUGLAS BLAIR	**Art Unit** 2442

CPC			
Symbol		**Type**	**Version**
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CPC Combination Sets					
Symbol		**Type**	**Set**	**Ranking**	**Version**
	/				
	/				

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
709	245

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
709	219	226			

INTERNATIONAL CLASSIFICATION

CLAIMED					NON-CLAIMED				
G	0	6	F	15 / 16 (2006.0)					
G	0	6	F	15 / 173 (2006.0)					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 46	
/DOUGLAS BLAIR/ Primary Examiner.Art Unit 2442 4/22/2013 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office — Part of Paper No. 20130422

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	**Art Unit**
	DOUGLAS BLAIR	2442

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	46	
/DOUGLAS BLAIR/ Primary Examiner.Art Unit 2442	4/22/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No. 20130422

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	**Art Unit**
	DOUGLAS BLAIR	2442

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17	22	33	32	49	5	65						
	2		18	23	34	33	50	10	66						
	3		19	24	35		51	21	67						
	4		20	12	36	17	52	40	68						
	5		21	13	37		53	43	69						
	6		22	4	38		54	44	70						
	7		23	14	39	25	55	26	71						
	8		24	15	40	34	56	35	72						
	9		25	6	41	37	57	41	73						
	10		26	16	42	7	58	45	74						
	11		27		43	8	59	27	75						
	12		28		44	9	60	36	76						
	13	1	29	28	45	19	61	39	77						
	14	2	30	29	46	18	62	42	78						
	15	3	31	30	47	38	63	46	79						
	16	11	32	31	48	20	64								

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 46	
/DOUGLAS BLAIR/ Primary Examiner.Art Unit 2442 (Primary Examiner)	4/22/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office Part of Paper No. 20130422

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11/065,412	Filing Date	2005-02-23	Docket Number (if applicable)	0090-US-C03	Art Unit	2442
First Named Inventor	Shared Content Delivery Infrastructure			Examiner Name	BLAIR, Douglas B.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☐ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505063

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/David D. Wier/	Date (YYYY-MM-DD)	2012-10-31
Name	David D. Wier	Registration Number	48229

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	David Dewey Wier
Attorney Docket Number:	0090-US-C03

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Request for continued examination	1801	1	930	930
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1060**

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : October 31, 2012

In re Application of :

David Farber

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 11065412

Filed : 23-Feb-2005

Attorney Docket No : 0090-US-C03

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed October 31, 2012 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2442 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	14120120
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	David Dewey Wier
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	31-OCT-2012
Filing Date:	23-FEB-2005
Time Stamp:	18:50:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1060
RAM confirmation Number	7767
Deposit Account	505063
Authorized User	WIER, DAVID D
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	31786 5c8f34858103ed9fd3ae22799a8d6174f9574905	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	20121031IDS.pdf	67238 dd6094a8d54da849be3c207e26a7ac006735f807	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	20121031NonPatentLiterature.pdf	1520155 728908adcf70f64d21f8bb309778ac5ce7b268da	no	18
Warnings:					
Information:					
4	Quick Path Information Disclosure Statement	20121031QuickPathIDS.pdf	73584 9349001971bf0eb73c410c6ee585fb8b573b3087	no	2
Warnings:					
Information:					
5	Request for Continued Examination (RCE)	20121031RCE.pdf	697882 314419f84852e9643c183dcdf3e21a313c643eca	no	3
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32321 b12bf448b22728a6a5e0b5ba29fa58d7a8200e8f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2422966		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	11065412
Filing Date	23-Feb-2005
First Named Inventor	David Farber
Art Unit	2442
Examiner Name	DOUGLAS BLAIR
Attorney Docket Number	0090-US-C03
Title	SHARED CONTENT DELIVERY INFRASTRUCTURE

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

☐ Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

☐ Applicant(s) status remains as SMALL ENTITY.

☒ Applicant(s) status remains as other than SMALL ENTITY

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors ◯ A joint inventor; all of whom are signing this e-petition ◯ The assignee of record of the entire interest that has properly made itself of record pursuant to 37 CFR 3.71

Signature	/David D. Wier/
Name	David D. Wier
Registration Number	48229

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **Shared Content Delivery Infrastructure**	

Submitted Via EFS-Web
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Information Disclosure Statement

Pursuant to 37 C.F.R. § 1.56, the attention of the U.S. Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449.

This information disclosure statement is filed pursuant to 37 C.F.R. § 1.97(b) in order to cite a communication from the European Patent Office in EP Application No. 07024629.3 dated October 18, 2012 (the "Communication"), which includes:

(a) a Partial European Search Report citing one reference—non-patent literature entitled Luotonen et al., "World-Wide Web proxies," which was considered by the Examiner in this application on September 15, 2008;

(b) objections under European Patent Code Article 76(1), which objections are substantially cumulative to objections contained in the July 4, 2012 EPO Communication cited by the Applicant in this application on July 13, 2012 and considered by the Examiner in this application on July 23, 2012; and

(c) a statement in Section 6.2 concerning, among other things, the Luotonen reference, which statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement, and therefore satisfies 37 C.F.R. § 1.97(e)(1).

Accordingly, this information disclosure statement is being filed to cite the Partial European Search Report and Section 6.2 of the Communication, and is being filed concurrently

with a Request for consideration under the QPIDS Pilot Program, which contains a certification under 37 C.F.R. § 1.97(e)(1) and the undersigned's certification thereunder shall apply with respect to the Partial European Search Report itself and Section 6.2 of the Communication only (given the Luotonen reference itself and Article 76(1) objections were known more than 3 months ago, but as noted above already cited and considered in connection with prior information disclosure statements).

Because this information disclosure statement is being filed after payment of an issue fee in the above-referenced patent application, a request for continued examination under 37 C.F.R. § 1.114 is filed concurrently herewith. As such, no fee is believed due.

Also, filed herewith for convenience is a copy of the current claims in EP Application No. 07024629.3 and a copy of the Luotonen reference.

The submission of any document herewith is not intended to convey that such document is actually prior art against any of the claims of the present application or material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

Statement under 37 C.F.R. § 1.704(d)

Pursuant to 37 C.F.R. § 1.704(d), I state as follows:

Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Date: October 31, 2012

/David D. Wier/

David D. Wier
Registration No. 48,229
USPTO Customer No. 83579
Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, Colorado 80021
Tel: 720-888-3539
Fax: 720-888-5619

PTO/SB/08a (01-08)
Approved for use through 07/31/2012. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	11/065,412
Filing Date	February 23, 2005
First Named Inventor	Farber, David A.
Art Unit	2442
Examiner Name	BLAIR, Douglas B.

Sheet	1	of	1	Attorney Docket No: 0090-US-C03

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or RelevantFigures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or RelevantFigures Appear	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		Partial European Search Report and Section 6.2, EPO communication dated October 18, 2012 in EP Application No. 07024629.3	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
` EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

83579 7590 10/09/2012
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	01/09/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Level 3 Communications, LLC
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Broomfield, CO USA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
- ☐ A check is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-5063 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /David D. Wier/ Date October 17, 2012

Typed or printed name David D. Wier Registration No. 48,229

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **Shared Content Delivery Infrastructure**	

STATEMENT ON SUBSTANCE OF INTERVIEWS

Hon. Commissioner of Patents
Via EFS-Web
P.O. Box 1450
Alexandria, VA 22313-1450

2012 Telephonic Interviews

Examiner Douglas Blair and the undersigned conducted various telephonic interviews between June 22, 2012-July 2, 2012 concerning the following U.S. patent applications: 11/065,412, 11/441,253, 11/806,147, 11/806,152, 11/806,153, 11/806,154, 11/980,686, 11/980,356 and 11/980,401, which included the present application. During these telephonic conversations, Examiner Blair and the undersigned discussed the applications, U.S. Patent No. 6,243,760 to Armbruster et al., U.S. Patent No. 5,867,706 to Martin et al., U.S. Patent No. 6,085,193 to Malkin et al. and U.S. Patent No. 5,819,092 to Ferguson et al., and came to an agreement on the allowability of the claims of this application, as amended in the Notice of Allowance, in a telephonic conversation on June 28, 2012.

2011 Personal Interview

Additionally, on February 17, 2011, the undersigned and the Examiner conducted a personal interview in the following U.S. patent applications: 11/065,412, 11/441,253, 11/806,147, 11/806,152, 11/806,153, 11/806,154, 11/980,686, 11/980,356, 11/980,684, 11/980,401 and 11/980,689 ("the relevant applications"), which included the present application. The Notice of Allowance is the first substantive communication by the USPTO in the present application since Applicant's July 2, 2010 Request for Continued Examination, and as such, the following statement regarding the February 17, 2011

interview—which has previously been filed in the other relevant applications—is believed timely filed.

The February 17th personal interview was agreed to between the undersigned and the Examiner in response to a telephone conversation initiated by the Examiner on February 2, 2011 in which the Examiner inquired upon various defenses that were raised by the defendant in the litigation of Civil Action No. 2:07:cv589 (WDK-FBS), in US District Court, Norfolk, VA ("the litigation) and cited in various information disclosure statements, namely, the 35 U.S.C. §112 defense, and the prior art defenses regarding "Server-initiated Document Dissemination for the WWW," by Azer Bestavros and Carlos Cunha ("Bestavros"), U.S. Patent No. 6,243,760 ("Armbruster") and U.S. Patent No. 5,819,092 ("Ferguson").

Prior to the February 17th personal interview, as requested by the Examiner, the undersigned advised the Examiner of the following citations to various documents relating to these various defenses in the litigation and cited in certain information disclosure statements filed in 11/065,412: IDS filed July 17, 2009, references 1-2, 20-1 (pages 1824-1992 and 2153-2266), 19-7; IDS filed July 9, 2009, references 2-1, 2-2; IDS filed December 22, 2008, references 4-6 and 4-7; IDS filed December 30, 2008, reference 1-1.

The undersigned and Examiner Blair discussed the following topics at the February 17th personal interview:

- The Examiner inquired on the meaning of the term "content delivery network" in various claims of the relevant applications and the undersigned pointed out that each independent claim in the relevant applications that uses the term "content delivery network" defines the term as including a plurality of repeater servers.
- With regard to the 35 U.S.C. §112 defense presented in the litigation, the undersigned pointed the Examiner to the Jury Verdict Form finding certain claims of U.S. Patent No. 6,654,807 valid. The Examiner also raised the issue of essential elements under MPEP 2172.01 and 2164.08(c) with respect to certain functionality described in the specification as being performed by the reflector, namely modifying or re-writing URL's, and whether the reflector was essential

for such functionality. In response, the undersigned pointed the Examiner to the language in MPEP 2172.01 and 2164.08(c) suggesting that broad language and lack of criticality of an element (or omission thereof) described in the original disclosure rebuts against the finding of an essential element. With these MPEP guidelines in mind, the undersigned then provided the Examiner with the following evidence of "broad disclosure" and "lack of criticality" contained in the original application, U.S. Serial No. 09/021,506 (the "'506 Specification"):

- '506 Specification, at page 4, lines 2-7
- '506 Specification, at page 47, lines 2-6
- '506 Specification, at page 6, lines 10-11
- '506 Specification, at page 4, lines 8-9
- '506 Specification, at page 5, lines 15-17
- '506 Specification, at page 30, lines 4-7
- '506 Specification, at page 5, lines 11-14
- '506 Specification, at page 52, original claim 23
- '506 File History, Restriction Requirement mailed June 20, 2000 restricting out claims 28-37 and 40-43 directed to "modifying resources" from claims 1-27 directed to "processing resource requests" and claims 38-39 directed to "optimizing access to resources on the Internet," each of which were deemed by the PTO to be "separately usable"
    - The Examiner and the undersigned discussed U.S. Patent No. 5,867,706 ("Martin"), U.S. Patent No. 6,085,193 ("Malkin"), Armbruster, Bestavros, as well as mirrored servers and proxy caches in general.

Respectfully submitted,

Date: October 17, 2012

/David. D. Wier /

David D. Wier, Attorney Reg. No. 48,229
Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, CO 80021
(720) 888-3539

Electronic Patent Application Fee Transmittal	
Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	David Dewey Wier
Attorney Docket Number:	0090-US-C03
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1770	1770
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2070**

Electronic Acknowledgement Receipt	
EFS ID:	14011012
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	David Dewey Wier
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	17-OCT-2012
Filing Date:	23-FEB-2005
Time Stamp:	17:33:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$2070
RAM confirmation Number	4752
Deposit Account	505063
Authorized User	WIER, DAVID D
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	20121017CommentsonAllowance.pdf	23307 25054723d300d2f332e1d869bbc6560ba8ab7885	no	1
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	20121017IssueFeeTransmittalPartBpdf.pdf	97414 eb38094743abcde7d829dad11ee6287c04ca1422	no	1
Warnings:					
Information:					
3	Applicant summary of interview with examiner	20121017SummaryofExaminerInterviews.pdf	38587 ebdcea215edad1ed1c82f0b67777dc4cda76b6ca	no	3
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	31705 7e6d970a9979ae93202b391818d681b2dc44833d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	191013		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	

Comments on Reasons for Allowance

Via EFS-Web
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicant acknowledges the Notice of Allowance mailed on October 9, 2012 in the present application by the Examiner with appreciation. Applicant notes that the reasons for allowance set forth in the Notice of Allowance are not the only reasons that the claims are allowable. As the Examiner's reasons for allowance are not exhaustive, such reasons for allowance do not establish an estoppel against Applicant with regard to the scope of any claim in the present application or any related applications, including without limitation any continuation applications claiming priority to the present application.

Respectfully submitted,

Date: October 17, 2012

/DDW/

David D. Wier, Reg. No. 48,229
Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, Colorado 80021
Tel: 720-888-3539
Fax: 720-888-5619

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

83579 7590 10/09/2012
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 10/09/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	01/09/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

83579 7590 10/09/2012
LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

TITLE OF INVENTION: SHARED CONTENT DELIVERY INFRASTRUCTURE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	01/09/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

83579 7590 10/09/2012

LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 10/09/2012

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1341 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1341 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	11/065,412	FARBER ET AL.	
	Examiner	Art Unit	
	DOUGLAS BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the request for continued examination filed on 7/2/2010*.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *29-42,45-50,52 and 55-79*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 7/2/2010, 8/20/2010, 8/30/2010, 8/29/2011, 5/4/2012, 7/13/2012.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Wier on 6/28/2012.

The application has been amended as follows:

IN THE CLAIMS:

1-28. (Canceled)

29. (Currently amended) A content delivery system operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, the system comprising:

at least one shared repeater server constructed and adapted to replicate at least some of the resources associated with a first content provider of said plurality of content providers, and to replicate at least some of the resources associated with a second content provider of said plurality of content providers, wherein the second content provider is distinct from the first content provider;

at least one table listing a plurality of alias names corresponding to content providers authorized to have resources delivered to client machines via the at least one shared repeater server, wherein the plurality of content providers comprises the first content provider and the second content provider,

wherein at least a first resource associated with the first content provider is associated with a first alias name of the plurality of alias names, said first alias name being associated with said at least one shared repeater server;

wherein, requests for the first resource from said client machines are directed to the at least one shared repeater server, based at least in part on said first alias name;

wherein at least a second resource associated with the second content provider is associated with a second alias name of the plurality of alias names, said second alias name being associated with said at least one shared repeater server;

wherein requests for the second resource made from said client machines are directed to the at least one shared repeater server, based at least in part on said second alias name; and

wherein the at least one shared repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine a content provider associated with the particular resource.

30. (Previously presented) The content delivery system as recited in claim 29, wherein the least one shared repeater server is addressable using the first alias name and the second alias name.

31. (Previously presented) The content delivery system as recited in claim 29, further comprising:

a reflector.

32. (Previously presented) The content delivery system as recited in claim 29 further comprising:

a set of shared repeater servers that comprises the at least one repeater server; and

a repeater selector mechanism constructed and adapted to associate the first resource with the first alias name after selecting the at least one shared repeater server from the set of shared repeater servers in response to a request for the first resource issued by a particular client machine.

33. (Previously presented) The content delivery system as recited in claim 29, wherein at least one of the first resource and the second resource is an embedded object.

34. (Previously presented) The content delivery system as recited in claim 29, wherein the requests comprise host tag names that identify specific origin servers from which the resources originate.

35. (Previously presented) The content delivery system as recited in claim 34, wherein the host tag names are included in HTTP headers.

36. (Previously presented) The content delivery system as recited in claim 32, further comprising:

a load determination mechanism constructed and adapted to characterize load on the set of repeater servers for use in selection of the at least one shared repeater server.

37. (Previously presented) The content delivery system as recited in claim 36, wherein the repeater selector mechanism comprises the load determination mechanism.

38. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is co-located with an origin server.

39. (Previously presented) The content delivery system as recited in claim 36, further comprising:

a cost determination mechanism constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use in selection of the at least one shared repeater server.

40. (Previously presented) The content delivery system as recited in claim 39, wherein the repeater selector mechanism comprises the cost determination mechanism.

41. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is co-located with an origin server from which the first resource originates.

42. (Previously presented) The content delivery system as recited in claim 39, wherein the cost comprises information relating a location associated with the particular client machine to each of the set of shared repeater servers.

43-44. (Canceled)

45. (Currently amended) A method, in a content delivery system operative in a computer network for delivering content to client machines, the computer network comprising a plurality of origin servers, each of said origin servers having resources associated therewith, and the content delivery system comprising at least one shared repeater server operable to replicate resources associated with the plurality of origin servers, the method comprising:

associating the at least one repeater server with a first alias name, wherein requests for a first resource located on a first origin server are directed, based at least in part on said first alias name, to the at least one repeater server for delivery of the first resource from said at least one repeater server;

associating the at least one repeater server with a second alias name, wherein requests for a second resource located on a second origin server are directed, based at least in part on said second alias name, to the at least one repeater server for delivery of the second resource from said at least one repeater server, wherein the second origin server is distinct from the first origin server;

providing a table listing origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, and wherein the origin servers comprise the first origin server and the second origin server; and

wherein the at least one repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine an origin server associated with the particular resource.

46. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one shared repeater server from a set of shared repeater servers based at least in part on a network cost of delivering resources to the particular client machine; and

associating the first resource with the first alias name.

47. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater servers based at least in part on load characteristics of the set of shared repeater servers; and

associating the first resource with the first alias name.

48. (Previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater servers based at least in part on a location of the particular client machine relative to the at least one shared repeater server; and

associating the first resource with the first alias name.

49. (Previously presented) The method as recited in claim 45, wherein the resources comprise an HTTP-based resource.

50. (Previously presented) The method as recited in claim 45, wherein the resources comprise a File Transfer Protocol (FTP)-based resource.

51. (Canceled).

52. (Previously presented) A content delivery system as recited in claim 39 wherein the cost determination mechanism comprises a netmap determination means.

53-54. (Canceled)

55. (Previously presented) A content delivery system as recited in claim 29, wherein at least the first alias name is a domain name, the system further comprising:

at least one name server that provides domain name service (DNS) resolution on the first alias name to identify the at least one shared repeater server to deliver the first resource in response to a client request.

56. (Previously presented) A method as recited in claim 45, wherein at least the first alias name is a domain name and the computer network further comprises at least one name server that provides domain name service (DNS) resolution, the method further comprising:

receiving, at the at least one name server, the first alias name as part of a client request; and

resolving, at the at least one name server, the received first alias name to identify the at least one shared repeater server to deliver the first resource in response to the client request.

57. (Previously presented) A method, in a content delivery system operative in a computer network for delivering content to client machines and comprising at least one shared repeater server operable to replicate resources stored on a plurality of origin servers, the method comprising:

associating a plurality of alias names with the at least one shared repeater server, each of said plurality of alias names being associated with an origin server, wherein a first alias name of said plurality of alias names is associated with a first origin server, and at least a second alias name of said plurality of alias names is associated with a second origin server distinct from said first origin server,

providing at least one table associating alias names with origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, wherein the origin servers comprise the first origin server and the second origin server;

wherein requests for a first resource originating on the first origin server are directed, based at least in part on said first alias name, to the at least one shared repeater server for delivery of the first resource from said at least one repeater server; and

wherein requests for a second resource originating on the second origin server are directed, based at least in part on said second alias name, to the at least one shared repeater server for delivery of the second resource from said at least one repeater server; and

wherein the at least one repeater server uses the at least one table and an alias name received with a client request for a resource to determine an origin server associated with the requested resource.

58. (Previously presented) The content delivery system as recited in claim 31, wherein the reflector is constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of transmitting the resources to the client machines.

59. (Previously presented) The content delivery system as recited in claim 31, further comprising:

a repeater selector mechanism.

60. (Previously presented) The content delivery system as recited in claim 59, wherein the reflector comprises the repeater selector mechanism.

61. (Previously presented) The content delivery system as recited in claim 36, wherein

the load determination mechanism is constructed and adapted to characterize load on the set of repeater servers for use by a reflector in selection of the at least one shared repeater server.

62. (Previously presented) The content delivery system as recited in claim 39, wherein

the cost determination mechanism is constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use by a reflector in selection of the at least one shared repeater server.

63. (Previously presented) The method as in claim 57, wherein a copy of the at least one table is located on each of a plurality of repeater servers.

64. (Previously presented) The content delivery system as recited in claim 32, wherein the repeater selector mechanism is part of a reflector.

65. (Previously presented) The content delivery system as recited in claim 38, wherein the reflector is co-located with an origin server at which the first resource originates.

66. (Previously presented) The content delivery system of claim 31, wherein the reflector selects the at least one repeater server to process a client request for a resource.

67. (Previously presented) The content delivery system of claim 32, wherein the repeater selector mechanism selects the at least one repeater server to process a client request for a resource.

68. (Currently amended) A server operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, wherein the plurality of content providers comprise at least a first content provider and a second content provider distinct from the first content provider, the server comprising:

cache storage;

a table listing content providers of said plurality of content providers having content that is authorized for delivery to client machines via the server,

wherein the server is associated with a first alias name corresponding to said first content provider, and

wherein the server is associated with a second alias name corresponding to said second content provider, said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources associated with the first content provider, and at least some of the resources associated with the second content provider, and

wherein, in response to a request for a resource, the server is operable to use at least the table to analyze an alias name associated with the request to determine a content provider associated with the resource.

69. (Previously presented) A server operative in a computer network for delivering resources to multiple client machines, the server comprising:

cache storage;

a table listing a plurality of origin servers having content that is authorized for delivery to client machines via the server,

wherein the ~~repeater~~ server is associated with a first alias name corresponding to a first origin server of the plurality of origin servers, and

wherein the server is associated with a second alias name corresponding to a second origin server of the plurality of origin servers, said second origin server being distinct from the first origin server and said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources located on the first origin server, and at least some of the resources located on the second origin server, and

wherein, in response to a request for a resource, the server uses at least the table to analyze an alias name associated with the request to determine an origin server associated with the particular resource.

70. (Previously presented) A server as recited in claim 69, wherein the first origin server and the second origin server are associated with distinct content providers located at distinct physical locations.

71. (Previously presented) A method as recited in claim 29, wherein the table further comprises, for each of the plurality of content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

72. (Previously presented) A method as recited in claim 45, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

73. (Previously presented) A server as recited in claim 68, wherein the table further comprises, for each of the listed content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

74. (Previously presented) A server as recited in claim 69, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

75. (Previously presented) A content delivery system as recited in claim 29, wherein the at least one repeater server is configured and adapted to reject the client request for the particular resource if the alias name received with the client request is not included the table.

76. (Previously presented) A method as recited in claim 45, further comprising:

rejecting the client request for the particular resource if the alias name received with the client request is not included the table.

77. (Previously presented) A method as recited in claim 57, further comprising:

rejecting the client request for the resource if the alias name received with the client request is not included the table.

78. (Previously presented) A server as recited in claim 68, wherein in response to a request for a resource, the server is further configured and adapted to reject the request for the resource if the alias name received with the request is not included the table.

79. (Previously presented) A server as recited in claim 69, wherein in response to a request for a resource, the server is further configured and adapted to reject the request for the resource if the alias name received with the request is not included the table.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: the applicant's remarks filed on 7/2/2010 are persuasive. An updated search did not reveal any prior art that would anticipate or make obvious the applicant's claimed invention.

Claim 29, 45, 57, 68, and 69 are distinguishable from U.S. Patent Number 6,243,760 to Armbruster because though Armbruster teaches the a table listing aliases associated with content providers, Armbruster does not teach the final amended limitation of claim 29 because the cache servers in Armbruster do not perform the claimed analysis using the table. In other words, the data in the cache is Armbruster is pre-cached and therefore the cache servers do not perform any analysis about the origin of the data.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 11/065,412	Applicant(s)/Patent Under Reexamination FARBER ET AL.	
	Examiner DOUGLAS BLAIR	Art Unit 2442	Page 1 of 4

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,944,676	09-2005	Armbruster et al.	709/243
*	B	US-6,243,760	06-2001	Armbruster et al.	709/243
*	C	US-6,351,775	02-2002	Yu, Philip Shi-Lung	709/238
*	D	US-6,078,943	06-2000	Yu, Philip Shi-Lung	718/105
*	E	US-6,012,090	01-2000	Chung et al.	709/219
*	F	US-5,940,831	08-1999	Takano, Hajime	1/1
*	G	US-6,324,580	11-2001	Jindal et al.	709/228
*	H	US-5,867,706	02-1999	Martin et al.	718/105
*	I	US-6,052,718	04-2000	Gifford, David K.	709/219
*	J	US-6,330,602	12-2001	Law et al.	709/224
*	K	US-6,094,680	07-2000	Hokanson, Tukkar Erik	709/223
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*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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Notice of References Cited	Application/Control No. 11/065,412	Applicant(s)/Patent Under Reexamination FARBER ET AL.	
	Examiner DOUGLAS BLAIR	Art Unit 2442	Page 2 of 4

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	Examiner DOUGLAS BLAIR	Art Unit 2442	Page 4 of 4

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	C	US-			
	D	US-			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

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Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
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Examiner Signature	/Douglas Blair/	Date Considered	07/23/2012

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Sheet 1 of 1	Confirmation No.	3296

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BIB DATA SHEET

CONFIRMATION NO. 3296

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/065,412	02/23/2005 RULE	709	2442	0090-US-C03

APPLICANTS

David A. Farber, Oak View, CA;
Richard E. Greer, Red Lodge, MT;
Andrew D. Swart, Westlake Village, CA;
James A. Balter, Santa Barbara, CA;

**** CONTINUING DATA ***************************

This application is a CON of 09/612,598 07/07/2000 ABN
which is a DIV of 09/021,506 02/10/1998 PAT 6,185,598

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

03/23/2005

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /DOUGLAS B BLAIR/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	6	1	1

ADDRESS

LEVEL 3 COMMUNICATIONS, LLC
Attn: Patent Docketing
1025 Eldorado Blvd.
Broomfield, CO 80021
UNITED STATES

TITLE

SHARED CONTENT DELIVERY INFRASTRUCTURE

FILING FEE RECEIVED		
3160	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
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	3-3	COMBINED PETITION FOR PANEL REHEARING OR REHEARING EN BANC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, June 4, 2010 [22 pgs.]	
	3-4	Communication dated April 27, 2010 from European Patent Office re Opposition to European Patent application no. (99906680.6 – 2211) Patent No. 1 053 524 B [1 pg.]	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 4 of 8		
	Application No.	11/065,412
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	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
	Confirmation No.	3296

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Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
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	5-1	Letter from Chris Hirsz dated April 22, 2010 to European Patent Office forwarding Statement of Opposition to European Patent No. 1 053 524 B In the name of Level 3 CDN International, Inc. filed in European Patent Office by Akamai Technologies, Inc., April 22, 2004 [2 pgs.]	
	5-2	Level 3 Communications, LLC's Supplemental Responses To Limelight Networks, Inc.'s First Set Of Interrogatories (No. 4), in civil action No. 2:07-cv-00589-RGD-FBS, in U.S. Dist. Ct. E.D. Va., Sept. 3, 2008 [8 pgs.].	
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	6-4	PLAINTIFF LEVEL 3 COMMUNICATIONS, LLC'S RESPONSE TO DEFENDANT LIMELIGHT NETWORKS, INC.'S RESPONSE TO REPORT OF PROFESSOR ELLEN ZEGURA, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) [5 pgs.]	
	6-5	REINSTATEMENT AND RESPONSE, filed April 24, 2009 in Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [18 pgs.]	
	6-6	REPLY BRIEF OF APPELLANT LEVEL 3 COMMUNICATIONS, LLC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, Feb. 2, 2010 [41 pgs.]	
	6-7	RESPONSE BRIEF OF DEFENDANT-APPELLEE LIMELIGHT NETWORKS, INC., U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, Jan. 19, 2010 [72 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	07/23/2012

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DB/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 7 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	7-1	RESPONSE TO OFFICE ACTION, filed March 28, 2007 in Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [24 pgs.]	
	7-2	Statement of Opposition to European Patent No. 1 053 524 B In the name of Level 3 CDN International, Inc. filed in European Patent Office by Akamai Technologies, Inc., April 22, 2004 [40 pgs.]	
	7-3	TRANSCRIPT of DEPOSITION OF Kevin C. ALMEROTH, Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), Sept. 11, 2008 (redacted) [98 pgs.].	
	7-4	TRANSCRIPT of Federal Circuit Oral Argument, Level 3 Communications LLC vs. Limelight, Monday, May 3, 2010 [14 pgs.]	
	7-5	TRANSCRIPT of Oral Argument, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight, Monday, May 3, 2010 [14 pgs.]	
	7-6	TRANSCRIPT of Proceedings (Motion for Summary Judgment), in Civil Action No. 2:07cv589 in U.S. Dist. Ct. E.D. Va., Norfolk, Va., December 18, 2008, [145 pgs.]	
	7-7	TRANSCRIPT of PROCEEDINGS, Hearing before Hon. Mark S. Davis, U.S. District Judge, in Civil Action No. 2:07cv589 (E.D. Va.), Oct. 23, 2008 [62 pgs.].	

Examiner Signature	/Douglas Blair/	Date Considered	07/23/2012

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	Attorney Docket No.	0090-US-C03
Sheet 8 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	8-1	U.S. Ct. Appeals for Fed. Circuit, 2009-1490, Level 3 Communications, LLC v. Limelight Networks, Inc., Judgment Affirmed, Fed. Cir. R. 36, May 5, 2010 [2 pgs.]	
	8-2	YOKOHASHI, Takao, System Architectonic Solaris2.x, 26th, UNIX USER, Japan, Softbank Corp., January 1, 1998, vol. 7, no. 1, p.89-96.	
	8-3		
	8-4		
	8-5		
	8-6		
	8-7		

Examiner Signature	/Douglas Blair/	Date Considered	07/23/2012

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	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
/DB/	1-1	European Patent Office (EPO) Communication (examination report) dated June 15, 2012 from EP08005349.9 [6 pgs.]	
/DB/	1-2	European Patent Office (EPO) Communication (search report) dated July 4, 2012 from EP07024629.3 [4 pgs.]	
	1-3		
	1-4		
	1-5		
	1-6		
	1-7		

Examiner Signature	/Douglas Blair/	Date Considered	07/23/2012

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

SEARCHED			
Class	Subclass	Date	Examiner
709	217,219,245	9/15/2008	DBB
	update	12/30/08	DBB
	update	4/15/2010	DBB
	update	8/27/2012	DBB

SEARCH NOTES		
Search Notes	Date	Examiner
East text search	9/15/2008	DBB
update	12/30/08	DBB
update	4/15/2010	DBB
update	8/27/2012	DBB

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	see attached history	8/27/2012	DBB

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	**Art Unit**
	DOUGLAS BLAIR	2442

ORIGINAL		INTERNATIONAL CLASSIFICATION														
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CROSS REFERENCE(S)		G	0	6	F	15 / 173 (2006.01.01)										
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)															
709	219	226														

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 46	
/DOUGLAS BLAIR/ Primary Examiner.Art Unit 2442 8/27/2012 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	**Art Unit**
	DOUGLAS BLAIR	2442

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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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EAST Search History

EAST Search History (Prior Art)

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S20	34	(redundan$2 near2 (dns or "domain	US-PGPUB;	OR	OFF	2008/12/30

		name service"))	USPAT			22:43
S21	24	S20 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:43
S22	79	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S23	3	S22 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S24	14	prepend$3 with domain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S25	0	S24 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S26	42	((embed$4 near URL) or plugin) same (domain with URL)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S27	1	S26 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S28	77	subdomain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S29	5	S28 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S30	18	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT;	OR	OFF	2008/12/30 22:45

			IBM_TDB			
S31	1	S30 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S32	0	(S23 S25 S27 S29 S31) and @pd>"20080801"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S33	83	((redundan$2 or failover or backup) near2 (dns or "domain name service"))	US-PGPUB; USPAT	OR	OFF	2008/12/30 22:46
S34	24	S33 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:46
S35	6	("7054935" "6654807" "6473405").pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:58
S36	2	"20050198334".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:01
S37	1	replicat$3 near "domain name"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:04
S38	3186	replicat$3 with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:04
S39	878	S38 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:05
S40	5	S38 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:05
S41	1	S40 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS;	OR	OFF	2008/12/30 23:06

			EPO; JPO; DERWENT; IBM_TDB			
S42	8482	(mirror$3 or cluster$1 or replicat$3) with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08
S43	13	S42 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08
S44	3	S43 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08
S45	12	S42 same hostname	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:09
S46	0	S45 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:09
S47	312	S42 same (domain near (name or format$4))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:10
S48	31	S47 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:10
S49	57	blair.xa. and douglas.xa.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:36
S50	0	("7281032").URPN.	USPAT	OR	OFF	2008/12/30 23:37
S51	46	("4802164" | "4837680" | "5155845" | "5680574" | "5774660" | "5781908" | "5841980" | "5867706" | "5878218" | "5890156" | "5917998" | "5920725" | "5950203" | "6003045" | "6006264" | "6052718" | "6061685" | "6061761" | "6088330" | "6088766" | "6092213" |	US-PGPUB; USPAT; USOCR	OR	OFF	2008/12/30 23:37

		"6189071" | "6230190" | "6237063" | "6282671" | "6314458" | "6324580" | "6324692" | "6397292" | "6408369" | "6487634" | "6502205" | "6516350" | "6542962" | "6601101" | "6606643" | "6633538" | "6654752" | "6694406" | "6799245" | "6826613" | "6912668" | "6922724" | "7051066" | "7072979" | "7188157").PN. OR ("7281032").URPN.				
S52	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/04 17:24
S53	6	(choos$3 or pick$3 or select$4) with (cluster or farm) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:28
S54	0	S53 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:28
S55	156	(choos$3 or pick$3 or select$4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:29
S56	15	S55 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:29
S57	0	S56 and (embed$4 near object$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:30
S58	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:51
S59	8515	(mirror$3 or cluster$1 or replicat$3) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:24
S60	20	S59 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:25
S61	1	S60 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:25
S62	331	S59 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT;	OR	OFF	2009/02/25 11:26

			IBM_TDB			
S63	8	S62 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:26
S64	3651	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S65	3	S64 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S66	100	S64 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S67	0	S66 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S68	11689	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S69	153	S68 same (fetch$3 or replicat$3) near (object$1 or resource$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S70	26	S69 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S71	82	S68 and (obtain$3 or request$3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:45
S72	0	S71 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT;	OR	OFF	2009/02/25 11:45

			IBM_TDB			
S73	21	nagling	US-PGPUB; USPAT	OR	OFF	2009/02/25 16:44
S74	14	S73 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2009/02/25 16:46
S75	11689	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:36
S76	197	S75 and (object$1 or resource$1) near (invalid$5 or expir$6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:36
S77	21	S76 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:37
S78	59	(blair.xa. and douglas.xa.) or (blair.xp. and "douglas.xp")	US-PGPUB; USPAT	OR	OFF	2009/02/27 09:56
S79	82	(blair.xa. and douglas.xa.) or (blair.xp. and douglas.xp.)	US-PGPUB; USPAT	OR	OFF	2009/02/27 09:57
S80	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/05/18 12:03
S81	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/10/23 15:45
S82	1	"20060218265".pn.	US-PGPUB; USPAT	OR	OFF	2009/10/23 15:53
S83	1	"6654807".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:07
S84	1	"7054935".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:09
S85	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:16
S86	1	"6473405".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:16
S87	1	"6275470".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:17
S88	89	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S89	3	S88 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S90	14	prepend$3 with domain with URL	US-PGPUB; USPAT;	OR	OFF	2009/11/12 10:42

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S91	0	S90 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S92	3	S89 S91	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:42
S93	84	subdomain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S94	5	S93 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S95	18	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S96	1	S95 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S97	6	S94 S96	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:44
S98	1	"20050198334".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/22 12:09
S99	33	("20020078233" | "20030149581" | "5522070" | "6108703" | "6115752" | "6144996" | "6154738" | "6181690" | "6185598" | "6195680" | "6222856" | "6226618" | "6263313" | "6275266" | "6327622" | "6418421" | "6452925" | "6460082" | "6463454" | "6463508" | "6587837" | "6654807" | "6763377" | "6779031" | "6785704" | "6859791" | "6963910" | "7103564" | "7110984" | "7117259" | "7188085" | "7206748" | "7254645").PN.	US-PGPUB; USPAT	OR	OFF	2009/11/30 10:16
S100	6	S99 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/30 10:16
S101	0	S100 and "http redirect"	US-PGPUB; USPAT	OR	OFF	2009/11/30 10:37

S102	0	S100 and (Http near redirect$3)	US-PGPUB; USPAT	OR	OFF	2009/11/30 10:38
S103	33	("20020078233" | "20030149581" | "5522070" | "6108703" | "6115752" | "6144996" | "6154738" | "6181690" | "6185598" | "6195680" | "6222856" | "6226618" | "6263313" | "6275266" | "6327622" | "6418421" | "6452925" | "6460082" | "6463454" | "6463508" | "6587837" | "6654807" | "6763377" | "6779031" | "6785704" | "6859791" | "6963910" | "7103564" | "7110984" | "7117259" | "7188085" | "7206748" | "7254645").PN.	US-PGPUB; USPAT	OR	OFF	2009/12/03 09:55
S104	6	S103 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 09:55
S105	0	S104 and redirect$3	US-PGPUB; USPAT	OR	OFF	2009/12/03 09:55
S106	2	"20050198334".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 10:13
S107	89	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S108	3	S107 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S109	14	prepend$3 with domain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S110	0	S109 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S111	52	((embed$4 near URL) or plugin) same (domain with URL)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S112	1	S111 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT;	OR	OFF	2009/12/03 11:34

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S113	84	subdomain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S114	5	S113 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S115	18	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S116	1	S115 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S117	0	(S108 S110 S112 S114 S116) and @pd>"20080801"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S118	95	((redundan$2 or failover or backup) near2 (dns or "domain name service"))	US-PGPUB; USPAT	OR	OFF	2009/12/03 11:34
S119	24	S118 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S120	3649	replicat$3 with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S121	6	S120 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S122	1	S121 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34

S123	9797	(mirror$3 or cluster$1 or replicat$3) with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S124	17	S123 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S125	3	S124 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S126	14	S123 same hostname	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S127	0	S126 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S128	370	S123 same (domain near (name or format$4))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S129	33	S128 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S130	7	(choos$3 or pick$3 or select$4) with (cluster or farm) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/12/03 11:34
S131	0	S130 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S132	182	(choos$3 or pick$3 or select$4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/12/03 11:34
S133	17	S132 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34

S134	9919	(mirror$3 or cluster$1 or replicat$3) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S135	22	S134 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S136	1	S135 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S137	359	S134 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S138	8	S137 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S139	4297	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S140	118	S139 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S141	0	S140 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S142	13671	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S143	168	S142 same (fetch$3 or replicat$3) near (object$1 or resource$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34

S144	26	S143 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S145	92	S142 and (obtain$3 or request$3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S146	0	S145 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S147	25	nagling	US-PGPUB; USPAT	OR	OFF	2009/12/03 11:34
S148	15	S147 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2009/12/03 11:34
S149	13671	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S150	221	S149 and (object$1 or resource$1) near (invalid$5 or expir$6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S151	23	S150 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S152	7	(S117 S119 S122 S125 S127 S129 S131 S133 S136 S138 S141 S144 S146 S148 S151) and @pd>"20081230"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/12/03 11:34
S153	96	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S154	3	S153 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S155	14	prepend$3 with domain with URL	US-PGPUB; USPAT;	OR	OFF	2010/04/26 08:06

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S156	0	S155 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S157	56	((embed$4 near URL) or plugin) same (domain with URL)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S158	1	S157 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S159	93	subdomain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S160	5	S159 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S161	23	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S162	1	S161 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S163	0	(S154 S156 S158 S160 S162) and @pd>"20080801"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S164	100	((redundan$2 or failover or backup) near2 (dns or "domain name service"))	US-PGPUB; USPAT	OR	OFF	2010/04/26 08:06
S165	24	S164 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06

S166	3840	replicat$3 with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S167	6	S166 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S168	1	S167 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S169	10316	(mirror$3 or cluster$1 or replicat$3) with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S170	17	S169 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S171	3	S170 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S172	16	S169 same hostname	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S173	0	S172 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S174	390	S169 same (domain near (name or format$4))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S175	33	S174 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06

S176	7	(choos$3 or pick$3 or select$4) with (cluster or farm) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2010/04/26 08:06
S177	0	S176 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S178	197	(choos$3 or pick$3 or select$4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2010/04/26 08:06
S179	17	S178 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S180	10679	(mirror$3 or cluster$1 or replicat$3) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S181	22	S180 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S182	1	S181 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S183	373	S180 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S184	9	S183 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S185	4636	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S186	126	S185 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06

S187	0	S186 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S188	14725	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S189	171	S188 same (fetch$3 or replicat$3) near (object$1 or resource$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S190	26	S189 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S191	94	S188 and (obtain$3 or request$3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S192	0	S191 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S193	25	nagling	US-PGPUB; USPAT	OR	OFF	2010/04/26 08:06
S194	15	S193 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2010/04/26 08:06
S195	14725	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S196	231	S195 and (object$1 or resource$1) near (invalid$5 or expir$6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S197	23	S196 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/04/26 08:06
S198	1	(S163 S165 S168 S171 S173 S175 S177 S179 S182 S184 S187 S190 S192 S194	US-PGPUB; USPAT;	OR	OFF	2010/04/26 08:06

		S197) and @pd>"20091203"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S199	1	"6243760".pn.	US-PGPUB; USPAT	OR	OFF	2011/03/24 10:12
S200	1	"5819092".pn.	US-PGPUB; USPAT	OR	OFF	2011/03/24 15:51
S201	1	"6243760".pn.	US-PGPUB; USPAT	OR	OFF	2011/03/25 09:57
S202	1	"5819092".pn.	US-PGPUB; USPAT	OR	OFF	2011/03/25 10:04
S203	1	"20080140800".pn.	US-PGPUB; USPAT	OR	OFF	2011/03/25 11:45
S204	1	"6243760".pn.	USPAT	OR	OFF	2012/06/21 10:20
S205	1	"6085193".pn.	USPAT	OR	OFF	2012/06/21 10:21
S206	1	"5819092".pn.	USPAT	OR	OFF	2012/06/21 10:22
S207	123	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S208	3	S207 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S209	19	prepend$3 with domain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S210	0	S209 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S211	108	((embed$4 near URL) or plugin) same (domain with URL)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S212	1	S211 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S213	158	subdomain with URL	US-PGPUB; USPAT;	OR	OFF	2012/07/23 12:30

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S214	5	S213 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S215	34	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S216	1	S215 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S217	0	(S208 S210 S212 S214 S216) and @pd>"20080801"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S218	129	((redundan$2 or failover or backup) near2 (dns or "domain name service"))	US-PGPUB; USPAT	OR	OFF	2012/07/23 12:30
S219	24	S218 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S220	5340	replicat$3 with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S221	8	S220 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S222	1	S221 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S223	14399	(mirror$3 or cluster$1 or replicat$3) with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30

S224	28	S223 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S225	3	S224 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S226	34	S223 same hostname	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S227	0	S226 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S228	580	S223 same (domain near (name or format$4))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S229	37	S228 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S230	9	(choos$3 or pick$3 or select$4) with (cluster or farm) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2012/07/23 12:30
S231	0	S230 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S232	261	(choos$3 or pick$3 or select$4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2012/07/23 12:30
S233	16	S232 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S234	15501	(mirror$3 or cluster$1 or replicat$3) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30

S235	32	S234 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S236	1	S235 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S237	473	S234 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S238	9	S237 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S239	8201	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S240	188	S239 and ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S241	0	S240 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S242	22656	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S243	217	S242 same (fetch$3 or replicat$3) near (object$1 or resource$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S244	26	S243 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30

S245	111	S242 and (obtain$3 or request$3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S246	0	S245 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S247	31	nagling	US-PGPUB; USPAT	OR	OFF	2012/07/23 12:30
S248	17	S247 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2012/07/23 12:30
S249	22656	(mirror$3 or cluster$1 or replicat$3 or farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S250	466	S249 and (object$1 or resource$1) near (invalid$5 or expir$6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S251	23	S250 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30
S252	6	(S217 S219 S222 S225 S227 S229 S231 S233 S236 S238 S241 S244 S246 S248 S251) and @pd>"20100426"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2012/07/23 12:30

EAST Search History (Interference)

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9/24/2012 11:11:18 AM
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	European Patent Office (EPO) Communication (examination report) dated June 15, 2012 from EP08005349.9 [6 pgs.]	
	1-2	European Patent Office (EPO) Communication (search report) dated July 4, 2012 from EP07024629.3 [4 pgs.]	
	1-3		
	1-4		
	1-5		
	1-6		
	1-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C03
David A. FARBER	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, DOUGLAS B
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: Shared Content Delivery Infrastructure	Date: July 13, 2012

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

This Information Disclosure Statement is being filed within three (3) months of the U.S. filing date (or RCE filing date) OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

This IDS cites two documents from the European Patent Office (EPO) for related European patent applications:

1. EPO Communication (examination report) dated June 15, 2012 from EP08005349.9

2. EPO Communication (search report) dated July 4, 2012 from EP07024629.3

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

Contingent IDS Request Under Rule 97(c): Should a first Office Action on the merits issue with a mailing date which precedes or is the same as the filing date of this IDS, please consider this a Request under Rule 97(c), charge the IDS fee (Rule 17(p)) to our Deposit Account No. 501860 under Order No. 2711-0073 and proceed to consider this IDS under Rule 97(c).

CHARGE STATEMENT: Deposit Account No. 501860, order no. 2711-0073
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.**

CUSTOMER NUMBER	Respectfully submitted,
83579	**/Brian Siritzky/Reg. No. 37,497**
	By:_____ Brian Siritzky, Ph.D. Registration No.: 37,497

Electronic Acknowledgement Receipt	
EFS ID:	13244137
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	13-JUL-2012
Filing Date:	23-FEB-2005
Time Stamp:	10:40:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	2711_0073_PA_1449_07_13_2012_0090_US_C03.pdf	535727 b4e8533b1b0ce0170f71741cc2a84bc495581c8d	no	1
Warnings:					
Information:					

This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	PA_IP-0090-US-C03_IDS_07-13_2012.pdf	182550 534b3902f481ab772f39ce9dfe6d0e4432bb4d89	no	2
Warnings:					
Information:					
3	Non Patent Literature	201207131031.pdf	402655 5c01435a51cfed2656c745c4703c7b23948bd392	no	4
Warnings:					
Information:					
4	Non Patent Literature	201207131031-1.pdf	528171 9e04c3902481beb66c5e6450666b63dff0b14f2c	no	6
Warnings:					
Information:					
			Total Files Size (in bytes):	1649103	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	EPO, ANNEX TO MINUTES OF THE ORAL PROCEEDINGS BEFORE THE OPPOSITION DIVISION, Claims of Main Request and new first (noted as IV) and second Auxiliary Request (noted as II), April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [22 pgs.]	
	1-2	EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, Allowed text for re-granted patent, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524, European patent No. EP-B-1 053 524 [29 pgs.]	
	1-3	EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [2 pgs.] and enclosures.	
	1-4	EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, GROUNDS FOR DECISION, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [8 pgs.]	
	1-5	EPO, MINUTES OF THE ORAL PROCEEDINGS BEFORE THE OPPOSITION DIVISION, published April 24, 2012, proceedings held March 6, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [12 pgs.]	
	1-6		
	1-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C03
David A. FARBER	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, DOUGLAS B
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: SHARED CONTENT DELIVERY INFRASTRUCTURE	Date: May 4, 2012

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

This Information Disclosure Statement is being filed within three (3) months of the U.S. filing date (or RCE filing date) OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

This IDS cites documents from oral proceedings before the Opposition Division in the European Patent Office (EPO). The oral proceedings were held on

March 6, 2012, and enclosed documents were published on April 24, 2012. The enclosed documents include:

1. EPO, MINUTES OF THE ORAL PROCEEDINGS BEFORE THE OPPOSITION DIVISION, published April 24, 2012, proceedings held March 6, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [12 pgs.]

2. EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, Allowed text for re-granted patent, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524, European patent No. EP-B-1 053 524 [29 pgs.]

3. EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, GROUNDS FOR DECISION, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [8 pgs.]

4. EPO, INTERLOCUTORY DECISION IN OPPOSITION PROCEEDINGS, April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [2 pgs.] and enclosures.

5. EPO, ANNEX TO MINUTES OF THE ORAL PROCEEDINGS BEFORE THE OPPOSITION DIVISION, Claims of Main Request and new first (noted as IV) and second Auxiliary Request (noted as II), April 24, 2012, European Application No. 99 906 680.6, patent No. EP-B-1053524 [22 pgs.]

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

Contingent IDS Request Under Rule 97(c): Should a first Office Action on the merits issue with a mailing date which precedes or is the same as the filing date of this IDS, please consider this a Request under Rule 97(c), charge the IDS fee (Rule 17(p)) to our Deposit Account No. 501860 under Order No. 2711-0073 and proceed to consider this IDS under Rule 97(c).

CHARGE STATEMENT: Deposit Account No. 501860, order no. 2711-0073
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.**

CUSTOMER NUMBER

83579

Respectfully submitted,

/Brian Siritzky/Reg. No. 37,497

By:_____
Brian Siritzky, Ph.D.
Registration No.: 37,497

Electronic Acknowledgement Receipt

EFS ID:	12706348
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	04-MAY-2012
Filing Date:	23-FEB-2005
Time Stamp:	14:36:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NP0000.pdf	272165 b26f92c6758e0f1e4e782f559d5d8faefaf8f7df	no	22
Warnings:					
Information:					

2	Non Patent Literature	NP0001.pdf	378042 21e1c59d524d2b51e04a695997f9fdc38058adc0	no	29
Warnings:					
Information:					
3	Non Patent Literature	NP0002.pdf	39808 11f9a5f2b7c1cd1973a73b414082bac90f70e7bc	no	2
Warnings:					
Information:					
4	Non Patent Literature	NP0003.pdf	55635 671f56c10b2b807eea00b037a51a057570dc79d3	no	8
Warnings:					
Information:					
5	Non Patent Literature	NP0004.pdf	95006 96fc4103cdbec9abdde4f9e48d5ef4a077de0c1b	no	12
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	1449_C3.pdf	529295 7a72cecf6483be0cc9f4f45398ee11f0e6606b3f	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
7	Transmittal Letter	PA_IP-0090-US-C03_IDS_05_04_2012.pdf	185745 40684bf5641fb50e064c048e8435c9aa8034c1bd	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	1555696		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 05/08/2012

MOLIVER SALE #00000001 Mailroom Dt: 05/04/2012 501860 11065412
01 FC : 1806 180.00 DA

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 1		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	European Patent Office (EPO) Summons to attend oral proceedings pursuant to Rule 115(1) EPC, dated August 4, 2011, for European Patent No. 99906680.6, including accompanying communication (EPO Form 2906), "Facts & Submissions" [20 pgs.]	
	1-2		
	1-3		
	1-4		
	1-5		
	1-6		
	1-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

Electronic Acknowledgement Receipt

EFS ID:	10831051
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	29-AUG-2011
Filing Date:	23-FEB-2005
Time Stamp:	12:34:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	EPO_99_906_680_6_Summons_Aug_04_2011.pdf	1202768 68fda183635cd7d90dd2a06d48a26cb696d48c9a	no	20
Warnings:					
Information:					

2	Transmittal Letter	PA-2711_0073_IDS_08_29_2011.pdf	168520 b400b1130658b530b8fb80d5c81d4ad4749136ae	no	2
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	PA_1449_08_29_2011.pdf	21745 5e26a77292c1df776887fe2a9b05815e82c038e2	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
		Total Files Size (in bytes):	1393033		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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New International Application Filed with the USPTO as a Receiving Office
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C03
David A. FARBER	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, DOUGLAS B
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: SHARED CONTENT DELIVERY INFRASTRUCTURE	Date: August 29, 2011

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

This Information Disclosure Statement is being filed within three (3) months of the U.S. filing date (or RCE filing date) OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt

notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

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CHARGE STATEMENT: Deposit Account No. 501860, order no. 2711-0073
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CUSTOMER NUMBER

83579

Respectfully submitted,

/Brian Siritzky/Reg. No. 37,497

By:_____

Brian Siritzky, Ph.D.
Registration No.: 37,497

Letter re Personal Interview

On February 2, 2011, Examiner Douglas B. Blair telephoned the undersigned in regards to the following pending patent applications: 11/065,412, 11/441,253, 11/806,147, 11/806,152, 11/806,153, 11/806,154, 11/980,686, 11/980,356, 11/980,684, 11/980,401 and 11/980,689 (the "subject applications"). In the telephone call, Examiner Blair and the undersigned agreed to hold a personal interview at the United States Patent & Trademark Office ("PTO") on February 17, 2010 at 9 A.M. in the Randolph Building to further prosecution of the subject applications and, specifically, to discuss certain issues raised in a prior litigation concerning related patents and cited in information disclosure statements in the subject applications. These issues include invalidity defenses in that litigation concerning 35 U.S.C. §112, U.S. patents nos. 6,243,760, 5,819,092 and a non-patent literature document entitled "Server-Initiated Document Dissemination for World Wide Web: Renting out Proxies," by Bestavros. The tentative attendees of this personal interview are currently the undersigned and Examiner Blair.

Respectfully submitted,

Date: February 4, 2011

/David. D. Wier /

David D. Wier, Attorney Reg. No. 48,229
Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, CO 80021
(720) 888-3539

Electronic Acknowledgement Receipt	
EFS ID:	9380374
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	David Dewey Wier
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	04-FEB-2011
Filing Date:	23-FEB-2005
Time Stamp:	16:17:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	20110204InterviewLetter.pdf	11592 c17d4a64739c4c911895e68ec9a5cbe1e48c7605	no	1
Warnings:					
Information:					

Total Files Size (in bytes):	11592

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
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New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	European Patent Office (EPO), European Search Report mailed August 19, 2010 in European Appln. No. 08005349.9 [10 pgs.]	
	1-2		
	1-3		
	1-4		
	1-5		
	1-6		
	1-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF: FARBER et al.	Attorney Docket: 0090-US-C03
	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: SHARED CONTENT DELIVERY INFRASTRUCTURE	Date: August 30, 2010

INFORMATION DISCLOSURE STATEMENT

via EFS-WEB
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed after a Request for Continued Examination (RCE) and before an action on the merits. No certification or fee is required.

This Information Disclosure Statement cites a recent European Search Report (dated August 19, 2010) for related European patent application EP 08 00 5349.9. This search reports cites various references which are already of record and have already been considered in this application. The Examiner is requested to contact the undersigned with any questions regarding this matter.

Contingent IDS Request Under Rule 97(c): Should a first Office Action on the merits issue with a mailing date which precedes or is the same as the filing date of this IDS, please consider this a Request under Rule 97(c), charge the IDS fee (Rule 17(p)) to our Deposit Account No. 501860 under Order No. 2711-0073, and proceed to consider this IDS under Rule 97(c).

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.

The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above.

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CUSTOMER NUMBER

83579

Respectfully submitted,

/Brian Siritzky/Reg. No. 37,497

By:_____

Brian Siritzky, Ph.D.
Registration No.: 37,497
Date: August 30, 2010

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Electronic Acknowledgement Receipt

EFS ID:	8316215
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	30-AUG-2010
Filing Date:	23-FEB-2005
Time Stamp:	13:24:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	PA_1449_08_30_2010.pdf	254229 d3cfec833b7ff2043bc51d6df82964b5d348c43e	no	1

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	2711_0073_PA-IDS_08_30_2010.pdf	194445 81de594d67c49be42c9c68379216d994787a5840	no	2
Warnings:					
Information:					
3	NPL Documents	EP08005349_9_EP_Search_Report.pdf	434446 ca05916e666a0b7b8343e132fb372f78a5b5ddee	no	10
Warnings:					
Information:					
		Total Files Size (in bytes):	883120		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 1	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	Akamai Tech., Inc. v. Cable & Wireless Internet Svs., Inc., 344 F.3d 1186, 68 USPQ2d 1186 (Fed. Cir. 2003) [Sept. 15, 2003].	
	1-2		
	1-3		
	1-4		
	1-5		
	1-6		
	1-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

Electronic Acknowledgement Receipt	
EFS ID:	8256218
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	20-AUG-2010
Filing Date:	23-FEB-2005
Time Stamp:	12:17:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2711_0073_PA-IDS_08_20_2010.pdf	220274 e30fb943e7780490705d367d218946cec72d989a	no	2
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	C3_PA_1449_08_20_2010.pdf	250130 0f6f4b49ca20b426df125defbeaa41410697222c	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	NPL Documents	Akamai_v_CWIS_Fed_Cir_2003.pdf	748240 fbf276109b2cf4563c78d59e83a38cc063dac1be	no	5
Warnings:					
Information:					
		Total Files Size (in bytes):	1218644		

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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF: FARBER et al.	Attorney Docket: 0090-US-C03
	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: SHARED CONTENT DELIVERY INFRASTRUCTURE	Date: August 20, 2010

INFORMATION DISCLOSURE STATEMENT

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via EFS-WEB
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed after a Request for Continued Examination (RCE) and before an action on the merits. No certification or fee is required.

This Information Disclosure Statement cites a Federal Circuit opinion (*Akamai Tech. v. Cable & Wireless Internet Services*, 344 F.3d 1186 (Fed. Cir., 2003)) discussing, among other things, the teachings of a related patent (U.S. Patent No. 6,185,598 ("the '598 patent")) relative to its use as prior art against a third party patent U.S. Patent No. 6,108,703. While this opinion was previously provided to the Office in this application as an exhibit to the reference "Level 3's Memorandum of Law in Reply to Limelight's Claim Construction Brief, in Civil

Action No. 2:07cv589, July 3, 2008" with Exhibits (Ref. 18-5, considered by the Examiner on 04/26/2010), Applicant requests that a stand-alone citation of this case appear among the "References Cited" on any patent to issue from this application. The Examiner is requested to contact the undersigned with any questions regarding this litigation matter.

Contingent IDS Request Under Rule 97(c): Should a first Office Action on the merits issue with a mailing date which precedes or is the same as the filing date of this IDS, please consider this a Request under Rule 97(c), charge the IDS fee (Rule 17(p)) to our Deposit Account No. 501860 under Order No. 2711-0073, and proceed to consider this IDS under Rule 97(c).

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed**.

CUSTOMER NUMBER

83579

Davidson Berquist Jackson & Gowdey LLP
4300 Wilson Blvd., 7th Floor,
Arlington Virginia 22203
(703) 894-6400 ● FAX: (703) 894-6430

Respectfully submitted,

/Brian Siritzky/Reg. No. 37,497

By:_____

Brian Siritzky, Ph.D.
Registration No.: 37,497
Date: August 20, 2010

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11/065,412	Filing Date	2005-02-23	Docket Number (if applicable)	0090-US-C03	Art Unit	2442
First Named Inventor	David A. FARBER			Examiner Name	BLAIR, Douglas B.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other
Cited references/documents, Form 1449 (8 sheets)

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 501860

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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Signature of Registered U.S. Patent Practitioner			
Signature	/Brian Siritzky/	Date (YYYY-MM-DD)	2010-07-02
Name	Brian Siritzky	Registration Number	37497

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-044643
(43)Date of publication of application : 16.02.1996

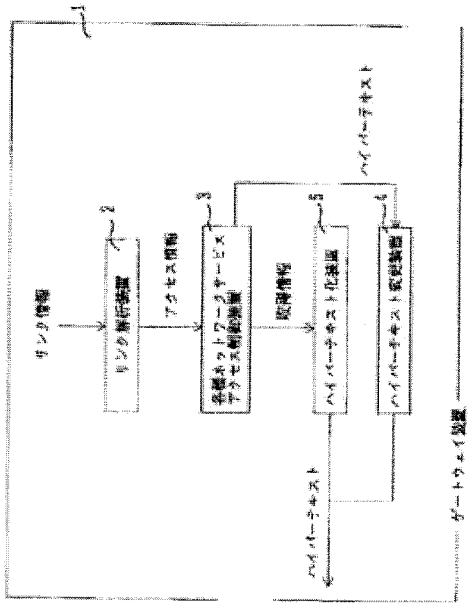
(51)Int.Cl. G06F 13/00
G06F 13/00
G06F 12/00

(21)Application number : 06-175125
(22)Date of filing : 27.07.1994

(71)Applicant : FUJITSU LTD
(72)Inventor : MASUOKA RYUSUKE
OKADA HIROYUKI
SUEMATSU NOBUAKI

(54) GATEWAY DEVICE

(57)Abstract:
PURPOSE: To perform access to an external data base while keeping transparency to a user without using any special client and sacrificing security by using a hypertext by providing a hypertext changing device for outputting the hypertext after the change of link information.
CONSTITUTION: A link analyzing device 2, that receives the link information, changes that information into access information and dispatches it to various network service access controllers 3. Based on this access information, the various access controllers 3 access various network servers and acquire the information designated by the access information. When this acquired information is the hypertext, it is dispatched to a hypertext changing device 4. According to a processing method to which the link information in the acquired information is applied, the hypertext changing device 4 outputs the hypertext reloaded (changed) so as to access this gateway device 1, the other gateway device or the server.



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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]A link replacement processing means to replace a link of a hypertext, If a hypertext change device is equipped with a link change processing means to change a link and a link replacement processing means receives a hypertext, A gateway unit after changing link information in a hypertext according to a specific processing means by a link change processing means, wherein said link replacement processing means is provided with a hypertext change device it is made to output a hypertext after said link information change.
[Claim 2]A hypertext-ized device is equipped with a hypertext-ized processing means to hypertext-ize, and a link setting processing means to generate a link, After hypertext-izing acquisition information by a hypertext-ized processing means and changing link information according to a specific processing means by a link setting processing means, A gateway unit, wherein said hypertext-ized processing means is provided with a hypertext-ized device which outputs a hypertext after said link information change.
[Claim 3]The gateway unit according to claim 1 or 2 characterized by forming a means to add information which accesses the again same gateway as a specific processing means to change said link information.
[Claim 4]The gateway unit according to claim 1 or 2 forming a means to add information which accesses again same gateway or other gateways as a specific processing means to change said link information.
[Claim 5]The gateway unit according to claim 1 or 2 provided with a means to establish information which accesses other servers as a specific processing means to change said link information.
[Claim 6]A link-analysis device which receives link information and analyzes link information, and various network service access control devices which access a server and acquire information based on access information from this link-analysis device, A hypertext change device which changes link information of a hypertext according to a specific processing means when said acquisition information is a hypertext, A gateway unit provided with a hypertext-ized device which it hypertext-izes when said acquisition information is not a hypertext, and changes link information according to a specific processing means.
[Claim 7]The gateway unit according to claim 6 characterized by forming a means to add information which accesses the again same gateway as a specific processing means to change said link information.
[Claim 8]The gateway unit according to claim 6 forming a means to add information which accesses again same gateway or other gateways as a specific processing means to change said link information.
[Claim 9]The gateway unit according to claim 6 provided with a means to establish information which accesses other servers as a specific processing means to change said link information.

[Translation done.]

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3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention changes the link in a hypertext, or relates to the device which realizes the gateway by a hypertext.
[0002]In recent years, the client for accessing the database distributed on the network and them has come out in some numbers. In the protocol of the network which supports them. The local file system (LOCAL FILE SYSTEM), EFUTIPI (FTP), Internet news (INTERNET NEWS), There are Telnet (TELNET), Ways (WAIS), Gopher (GOPHER), HTTP (Hyper Text Transfer Protocol) of World Wide Web (WWW:World Wide Web), etc. The server using other protocols is accessed especially using direct or a gateway at WWW, those results are eventually made into a hypertext, and it is displaying on the user.
[0003]Now, although information various in this way is obtained simply, in the organization which needs to protect the security of the information of a company etc., there are many places which have restricted access with the exterior. However, to access to those data simply is demanded as the various databases on a network are substantial by one side.
[0004]For this reason, it is requested that access same with accessing an internal database also to an external database to a user, i.e., transparent access, is realized, protecting the security of a required database.
[0005]
[Description of the Prior Art]First, the language used here is defined. Server (server) has a database and provides information to the client accessed using a specific protocol.
[0006]The client (client) takes the information which a server has using a specific protocol. Usually, software realizes.
Protocol (protocol) is the agreement at the time of communicating and suiting with the purposes (for example, a file is exchanged) with a computer and a computer.
[0007]Hypertext (hypertext) is one method for showing information.
Some language in a document is links, and if those language is chosen, the previous document which the link points out will be displayed.
And the previous documents which a link points out are a hypertext, the usual text, Still Picture Sub-Division, an animation, a sound, and other things that are not cared about anything.
[0008]Link (link) is the character string which showed whether to make it the document which a word points out to access how.
By the client which displays a hypertext as a format, this link is hidden so that it may not usually be visible from a user.
For example, the information "are which protocol and which file of a machine of what is accessed" at a character string is included.
[0009]The server provided in the external network of the organization also at the former had the method of accessing the server of the direct organization exterior not from the computer of the external network of an organization but from the computer of an in-house part.
[0010]In this case, the method of securing the security of an organization usually has the following. The external network of an organization and an internal network are connected with

the router (router). And the kind and direction of the protocol which can pass along that by this router are restricted, and the security of an in-house part is secured by making it into a barrier (firewall).
[0011]Drawing 9 and drawing 10 are the explanatory views of a conventional example. Hereafter, it explains based on the conventional example 1 of drawing 9.
In drawing 9, the computer 14 which the user 13 uses is formed in the network 11 of the in-house part. The server (not shown) with FTP, TELNET, WAIS, GOPHER, and HTTP which are the computer 16 and various kinds of protocols is connected to the external network 12 of an organization. And the network 11 of an in-house part and the external network 12 are connected via the router 15 which can pass only along the limited protocol (TELNET, FTP).
[0012]The method of securing access outside under such environment, It enables it to access the computer 16 prepared for the external network at some computers (by a diagram, one set is shown) 16 on the external network of an organization using TELNET, FTP, etc. from an in-house part. When the user 13 needs to access outside using the computer 14 placed on the network of an in-house part by this, First, it goes into the computer 16 prepared for the network 12 of the organization exterior, for example through the router 15 by TELNET from the computer 14 which is a machine of an in-house part, Next, he accesses with various kinds of protocols changed into the machine of the other organization exteriors by computer 16, and was trying to acquire information.
[0013]The conventional example 2 of drawing 10 was in the organization exterior as other methods of securing access, securing the security of an in-house part. Hereafter, it explains based on drawing 10. The same numerals show the same thing as drawing 9 among drawing 10.
[0014]A protocol (ZZZ is a temporary name) called ZZZ enables it to newly pass along the router 15 in drawing 10. And the computer 14 which is a client using the usual protocol, for example, GOPHER, which cannot pass along the router 15, HTTP, etc. is changed, and it is considered as the special client 17 using the protocol of ZZZ. The server 18 of ZZZ which is a gateway unit is formed in the external network 12 of an organization.
[0015]When the user 13 needs to access outside from the network 11 of an in-house part, the ZZZ server which is running on the computer 16 on the external network 12 through the router 15 is first accessed using the protocol of ZZZ. Next, for example, it was on the external network 12 instead of the ZZZ server 18 being the client 17, servers, such as GOPHER and HTTP, were accessed and the information was returned to the client 17.
[0016]
[Problem(s) to be Solved by the Invention]Following SUBJECT occurred in the above-mentioned conventional thing. Like the conventional example 1, for example, the method of using the computer 16 on the external network 12 goes into the inside of the computer 16 once, it requires time and effort dramatically for the procedure of login, etc. Since the router 15 lets only the protocol of character-based (character base), such as TELNET, pass even if he thinks that he will use the client corresponding to the window which carries out a graphical display from the computer 14 which he uses, for example, it cannot be used, When it was necessary using the regular protocol to communicate with an external server directly from the computer 14 which the one on the network of an in-house part uses, there was a fault that a general client could not be used.
[0017]Like the conventional example 2, although a client can be used for the method of using the special client 17 like the protocol ZZZ from the computer which he uses, The client which it tries to use could not be used as it was, but needed to change the usual client to use into the special client 17 which communicates using ZZZ which is a special protocol.
[0018]By using a hypertext, without using a special client, security is not sacrificed for this invention but an object to a user of this invention while it has been transparent is to access an external database.
[0019]
[Means for Solving the Problem]This invention was constituted as follows, in order to solve an aforementioned problem. Drawing 1 is a principle explanatory view of this invention, and in drawing 1 to the gateway unit 1. The link-analysis device 2 and various network servers which

analyze link information are accessed. The various network service access control devices 3 which acquire specified information, the hypertext change device 4 which changes a hypertext of acquisition information, and the hypertext-ized device 5 which hypertext-izes acquisition information are formed.
[0020]
[Function]The operation of this invention based on the above-mentioned composition is explained based on drawing 1. First, the link-analysis device 2 receives the information on a link. A link is analyzed, and the link-analysis device 2 changes it into the access information which is information for accessing, and passes it to the various network service access control devices 3. The various network service access control devices 3 access various network servers based on this access information, and acquire the information specified as access information. When the acquisition information which is this acquired information is a hypertext, it passes the hypertext change device 4. In accordance with the disposal method to which the link information in acquisition information was given, the hypertext change device 4 outputs a rewriting (change) **** hypertext so that this gateway unit 1, other gateway units, or other servers may be accessed.
[0021]When the acquisition information of said various network service access control devices 3 is not a hypertext, the acquisition information is passed to the hypertext-ized device 5. By this, the hypertext-ized device 5 will output the hypertext set up so that the link information in acquisition information might access this gateway unit 1, other gateway units, or other servers.
[0022]If such a gateway unit 1 is formed on the external network 12, the client of the usual hypertext will be used from the computer on the network of an in-house part, And the resource (resources) on an external network can be accessed, without sacrificing security.
[0023]
[Example]Working example of this invention is described based on drawing 2 - drawing 8. The same numerals have shown the same thing as drawing 1 among the figure.
[0024]Drawing 2 is a lineblock diagram of the gateway unit in working example of this invention. The network control unit 7 controls the communication performed using a network.
The access monitor and control equipment 6 supervises the network control unit 7, and is supervising whether there was any access.
[0025]If the access monitor and control equipment 6 has access from other clients, it will pass the link information given from the client to the gateway unit 1. The gateway unit 1 returns a hypertext with a different link from usual to the access monitor and control equipment 6. Thereby, the access monitor and control equipment 6 returns the hypertext to the client which controlled the network control unit 7 and has accessed it.
[0026]Under the present circumstances, if it writes that the point which had pointed out the link of the basis from that gateway unit 1 is accessed after accessing this gateway unit 1 again at the link of a hypertext, for example, If the user using a client chooses this link, it will come to access this gateway again automatically.
[0027]Drawing 3 is an explanatory view of the hypertext change device of the gateway unit 1. The link replacement processing unit 41 and the link change processing device 42 are formed in the hypertext change device 4.
[0028]Hereafter, the time of this hypertext change device 4 receiving a hypertext as an input is explained. First, the link replacement processing unit 41 receives a hypertext. The link replacement processing unit 41 extracts a link from a hypertext, and passes it to the link change processing device 42. The link change processing device 42 changes a link in accordance with the disposal method given beforehand (for example, it changes so that this gateway unit 1 may be accessed), and gives a change rear link to the link replacement processing unit 41.
[0029]The link replacement processing unit 41 is transposed to the link after changing the extracted link of the origin of an in [a hypertext], and outputs the hypertext obtained eventually. Drawing 4 is an explanatory view of the hypertext-ized device of a gateway unit. The hypertext-ized processing unit 51 and the link setting processing unit 52 are formed in the hypertext-ized device 5.
[0030]Hereafter, the time of the hypertext-ized device 5 receiving acquisition information as an

input is explained. The hypertext-ized processing unit 51 receives the acquisition information of various gestalten which are the information on gestalten, such as FTP and GOPHER. And portions other than a link are hypertext-ized by the usual method. If it becomes a stage which generates the portion of a link, the hypertext-ized processing unit 51 will give a control signal (information) required for the link setting processing unit 52.
[0031]The link setting processing unit 52 generates a link in accordance with the disposal method given beforehand, and gives it to the hypertext-ized processing unit 51. Thereby, the hypertext-ized processing unit 51 unifies the link to the hypertext in the usual method, and outputs the hypertext obtained eventually.
[0032]For example, the above-mentioned acquisition information (protocol A+ server A+ additional information),
the case where it will rewrite with this link setting processing unit 52 so that this gateway unit 1 may be accessed supposing it comes out -- protocol + -- this gateway + (protocol A+ server A+ additional information)
** -- link information is added like.
[0033]Since this added link information is hidden from the user of the client, it is not in sight of a user. Therefore, a user looks [access / the various servers of an external network / from the network of an in-house part / freely] completely the same with moving the client on an external network.
[0034]Drawing 5 is a flow chart of working example of this invention. Hereafter, operation of the gateway unit 1 is explained based on the flow chart of drawing 5. S1 - S9 show a treating number.
[0035]First, it is investigated whether access has the access monitor and control equipment 6 from a client (S1). If there is access from a client, the access monitor and control equipment 6 will receive link information, and will pass it to the link-analysis device 2 (S2). The link-analysis device 2 takes out access information, and passes it to the various network service access control devices 3 (S3). The various network service access control devices 3 acquire the information specified based on access information through the network control unit 7 (S4).
[0036]The various network service access control devices 3 judge whether acquisition information is a hypertext (S5). If this acquisition information is a hypertext (Yes), the various network service access control devices 3 will pass acquisition information (hypertext) to the hypertext change device 4, and will change it into it according to the processing which was able to give the link beforehand with the hypertext change device 4 (S6). If acquisition information is not a hypertext in the treating number S5, (No) several-kinds network service access control device 3, Passing acquisition information to the hypertext-ized device 5, the hypertext-ized device 5 changes the link information usually generated according to the processing which was able to be given beforehand, and outputs a hypertext (S7).
[0037]The hypertext processed with said treating number S6 or S7 is passed to the access monitor and control equipment 6 (S8). The access monitor and control equipment 6 returns a hypertext to a client through the network control unit 7 (S9).
[0038]Drawing 6 is a server access explanatory view in working example. Hereafter, it explains based on drawing 6. In drawing 6, the gateway units 1a and 1b and the servers 20-22 are formed in the external network 12, and the gateway unit 1c, the computer 14, and the servers 23 and 24 are formed in the network 11 of the in-house part. The router 15 has connected the network 11 of an in-house part, and the external network 12.
For example, it can pass only along the protocol with which TELNET, FTP, HTTP, etc. were restricted.

[0039]In order to access to the external server 20 from the computer 14 which is on the network 11 of an in-house part while the user 13 had maintained security, the gateway unit 1a is put on the external network 12. the protocol (for example, TELNET, FTP) which has usually allowed the router 15 -- in addition, it allows passing along the protocol of HTTP which is a protocol which exchanges a hypertext, for example from the direction of the network 11 of an in-house part.

[0040]If this accesses the resource of the server 20 which is on an external network through this gateway unit 1a once, all the accessed results will be returned by a hypertext and all links will be set up access this gateway unit 1a again. Since it is set up so that a link may access this gateway unit 1a even if it repeats this access process how many times henceforth, if the user 13 of a client chooses a link, it will come to access this gateway unit 1a first.
[0041]In forming such a gateway unit 1a in the external network 12 partly (for example, gateway unit 1b), If those gateway units 1a and 1b are chosen by a suitable method and it writes in a link, it will also become possible to carry out load sharing among those gateway units 1a and 1b.
[0042]For example, the point which the original link points out is analyzed and the previously near gateway unit to point out is chosen. It is made to turn to other gateway units 1b with the load of the gateway unit 1a. A gateway is chosen suitably (for example, random number). It carries out by turning to a gateway unit with little load by communication between gateways etc.

[0043]It is feasible even if it makes it be not the gateway unit only for securing security but the next. When the resource on the same network is in some places (for example, servers 23 and 24), or when the alias is attached to the resource on a network, those information is stored, and when rewriting a link by a gateway unit, it can also rewrite using them.
[0044]For example, when the resource on an equivalent network is in the servers 23 and 24, it rewrites so that load may be distributed suitably. When a resource equivalent to the resource on the external network 12 is in an internal network, a link can also be rewritten so that an internal resource may be pointed out.
[0045]Thus, efficient access of a user is attained at a resource. Hereafter, an example explains the server access of this invention. First, URL in WWW is explained. URL (Universal Resource Locator) shows the whereabouts of information. This consists of three portions and shows the example of URL below.
[0046]
The portion (in this case, "http") to ":" of the http:// www.is.university.ac.jp/welcome.html beginning shows the accessing method to that server. In this case, it is HTTP (Hyper Text Transfer Protocol) which is a protocol of WWW.
[0047]The name of a server is shown between following "://". ["/"] In this case, it is shown that the specified information is in the machine "www.is.university.ac.jp" (in addition, the information on what should just access which port of a server further in this portion may be given). As for the remaining portion, the path (path) of the information on the server is shown. In the case of this example, it is "welcome.html."
[0048]Drawing 7 is an explanatory view of the example of server access.
The example of the gateway of WWW is shown.
In this example, the network 11 of an in-house part (in the company) has the computer (client) 14, there is a machine of the gateway unit 1 directly connected with the external (external) network 12, and the network external and in the company is connected with the router 15 which lets HTTP pass. The name of the machine of this gateway unit 1 is temporarily set to "www.out.company.co.jp", and the servers 25 and 26 of HTTP and the server 27 of FTP are formed in the external network 12.
[0049]The user 13 first presupposes that I wished to access the homepage of a certain department of university information science which has "http:// www.is.university.ac.jp/welcome.html" as URL. At this time, the user 13 specifies the following URL to the client 14 instead of the usual URL first.
[0050]
The http://www-out.company.co.jp/http:// www.is.university.ac.jp/welcome.html client 14, This URL is interpreted and the gateway unit 1 of a machine name "www-out.company.co.jp" is accessed by HTTP. The router is set up so that the specific machine of an external network can be accessed with a specific protocol from a network in the company. Since the router 15 in this case is set up let HTTP pass, the client 14 can reach the machine of the gateway unit 1. And the client 14 shows "http:// www.is.university.ac.jp/welcome.html" as a path to the machine of the gateway unit 1.

[0051]The machine of the gateway unit 1 goes by HTTP to access the server 25 (Server Name "www.is.university.ac.jp") based on the given path. Since direct continuation of this gateway unit 1 is carried out to the external network 12, it can access those machines satisfactorily. And this gateway unit 1 gets the following information as information.
[0052]
<HTML> <HEAD> <TITLE> Welcome Message (ABC Univ--Dept Info Sci)
</TITLE> </HEAD> <BODY> <HI> Welcome to ABC University <p>--Department of Information Science.</H1> Welcome to our WWW server! --- This is under. development and though. <P>. This WWW server is run. by Department of Information. Science and ABC University (somewhere-cho, ABC, <A HREF="http://www.xyz.jp/japan/index.html"> Japan </A>), which is a new department established in 1990. We have a collection of images on the Earth's environment (inch preparation) and <A HREF="/FTP/images/sat/"> weather information. </A>. We also serve. < -- A HREF -- = -- " -- /-- FTP -- /-- images/sat/gms . -- polar -- /-- " - - > -- GMS (Himawari) -- images -- < -- /-- A -- > -- for Chugoku/Shikoku area . -- < -- P - - > -- < -- /-- BODY -- > -- < -- /-- HTML -- > -- in addition, The above <HTML> shows the beginning of the document written in the form of HTML (Hyper Text Markup Language), and </HTML> shows the end. <HEAD> shows the beginning of the header of a document, there are a title name, an author name, etc. in this header, and the title name is written here.
</HEAD> shows the end of a header.
<TITLE> shows the beginning of a title and </TITLE> shows the end of a title. <BODY> shows the text of a document and </BODY> shows the end. <H1> shows the beginning of the level 1 of a section and </H1> shows the end. <P> shows the beginning of a paragraph (paragraph).
This end in particular is not required.

[0053]The gateway unit 1 changes the upper information as follows by rewriting the information on "<=[A HREF] "..." > ... </A>" which is a link based on the got information and the information on the page accessed now with the hypertext change device 4.
[0054]
<HTML> <HEAD> <TITLE> Welcome Message (ABC Univ--Dept Info Sci)
</TITLE> </HEAD> <BODY> <HI> Welcome to ABC University <p>--Department of Information Science.</H1> Welcome to our WWW server! --- This is under. development and though. <P>. This WWW server is run. by Department of Information. Science, ABC. University (it pan</A>)
[somewhere-cho,ABC, <A HREF="http://www-out.company.co.jp/http://www.xyz.jp/japan/index.html">Ja] and) which is a new department established in 1990. We have a collection of images on the Earth's environment (inch preparation) and <A HREF="http://w. ww-out.company.co.jp/http:. //www.is.university.ac.jp/FTP/images/sat/"> weather information</A>. We also serve <A HREF="http://www-out.company.co.jp/ http://www.is.university.ac.jp/FTP/images/ sat/gms.polar/"> GMS (Himawari) images </A> for Chugoku/Shikoku area. <P> </BODY> </HTML> -- in this way. The changed information is passed to the client 14 from the gateway unit 1. In the client 14 side, this information is displayed to the user 13 like drawing 8. Since the information on a link that it was rewritten that I want you to be careful here is hidden from the user 13, also when information is directly got from a server, and also when information is got through a gateway, the display to the user 13 is completely the same. That is, similarly the client 14 will display the two above-mentioned hypertexts.
[0055]If the user 13 clicks with a mouse etc. "Japan" which is the very first link here, It means specifying "http://www-out.company.co.jp/http:// www.xyz.jp/japan/index.html" as URL to the client 14, and the completely same cycle as a top is repeated.
[0056]When external access points are servers other than HTTP (for example, FTP, GOPHER), rewriting is performed similarly. the case of URL of the information in the following servers 27 of FTP -- ftp://ftp.uvw.edu/gutenberg/etext93 / pimil10.txt -- it is rewritten as follows.
[0057]
http://www-out.company.co.jp/ftp://ftp.uvw.edu/gutenberg/etext93/pimil10.txt -- by this.

Access is performed by HTTP from the client 14 in the company to the machine of the external gateway unit 1. From the machine of the external gateway unit 1, access is performed by FTP to the external server 27. The machine of the gateway unit 1 changes into a hypertext the information acquired by FTP, and returns the information to a client by HTTP. Naturally by conversion of the upper hypertext, the link is written that access is again performed to the gateway unit 1.

[0058]The user 13 accesses the external server 27 through the gateway unit 1, When the server 27 has files, such as "-Mac, Unix, and X11", the gateway unit 1 is changed into a hypertext with the hypertext-ized device 5, and returns the information to the client 14 by HTTP.

[0059]In this case, the client 14 will give the Rink indication of "-Mac-Unix and X11" to the user 13, and Rink is written that access is naturally again performed to the gateway unit 1 also in this case.

[0060]

[Effect of the Invention]As explained above, according to this invention, the client of the usual hypertext is used from the computer on the network of a direct in-house part, Without sacrificing security, the resource on an external network can be accessed now and improve efficiency of work can be performed.

[Translation done.]

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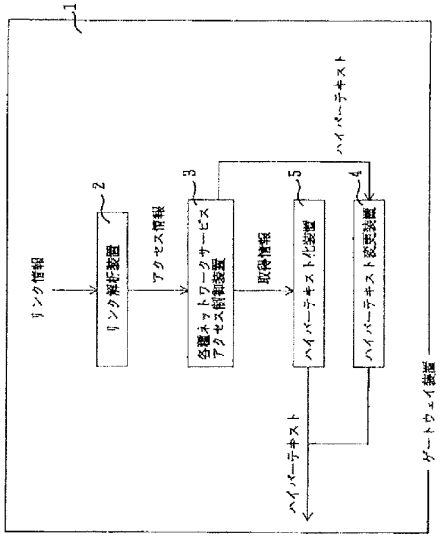
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(54)【発明の名称】ゲートウェイ装置

(57)【要約】
【目的】　ハイパーテキストを用いることにより、特別なクライアントを用いずに、しかもセキュリティを犠牲にせず、ユーザに対して透明なままで外部のデータベースにアクセス可能とすることを目的とする。
【構成】　ハイパーテキストのリンクの置き換えをするリンク置き換え処理装置と、リンクの変更をするリンク変更処理装置とをハイパーテキスト変更装置４に備え、リンク置き換え処理装置がハイパーテキストを受け取ると、リンク変更処理装置でリンク情報を特定の処理手段に従って変更した後、リンク置き換え処理装置がリンク情報変更後のハイパーテキストを出力するようにする。

本発明の原理説明図



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【特許請求の範囲】

【請求項１】　ハイパーテキストのリンクの置き換えをするリンク置き換え処理手段と、
リンクの変更をするリンク変更処理手段とをハイパーテキスト変更装置に備え、
リンク置き換え処理手段がハイパーテキストを受け取ると、リンク変更処理手段でハイパーテキスト中のリンク情報を特定の処理手段に従って変更した後、
前記リンク置き換え処理手段が前記リンク情報変更後のハイパーテキストを出力するようにするハイパーテキスト変更装置を備えることを特徴としたゲートウェイ装置。

【請求項２】　ハイパーテキスト化するハイパーテキスト化処理手段と、
リンクを生成するリンク設定処理手段とをハイパーテキスト化装置に備え、
ハイパーテキスト化処理手段で取得情報をハイパーテキスト化し、
リンク設定処理手段でリンク情報を特定の処理手段に従って変更した後、
前記ハイパーテキスト化処理手段が前記リンク情報変更後のハイパーテキストを出力するハイパーテキスト化装置を備えることを特徴としたゲートウェイ装置。

【請求項３】　前記リンク情報を変更する特定の処理手段として、再び同じゲートウェイをアクセスする情報を加える手段を設けることを特徴とした請求項１又は２記載のゲートウェイ装置。

【請求項４】　前記リンク情報を変更する特定の処理手段として、再び同じゲートウェイ或いは他のゲートウェイにアクセスする情報を加える手段を設けることを特徴とした請求項１又は２記載のゲートウェイ装置。

【請求項５】　前記リンク情報を変更する特定の処理手段として、他のサーバにアクセスする情報を設ける手段を備えることを特徴とした請求項１又は２記載のゲートウェイ装置。

【請求項６】　リンク情報を受け取り、リンク情報を解析するリンク解析装置と、
該リンク解析装置からのアクセス情報をもとに、サーバにアクセスし、情報を取得する各種ネットワークサービスアクセス制御装置と、
前記取得情報がハイパーテキストの場合ハイパーテキストのリンク情報を特定の処理手段に従って変更するハイパーテキスト変更装置と、
前記取得情報がハイパーテキストでない場合ハイパーテキスト化すると共にリンク情報を特定の処理手段に従って変更するハイパーテキスト化装置とを備えることを特徴としたゲートウェイ装置。

【請求項７】　前記リンク情報を変更する特定の処理手段として、再び同じゲートウェイをアクセスする情報を加える手段を設けることを特徴とした請求項６記載のゲートウェイ装置。

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【請求項８】　前記リンク情報を変更する特定の処理手段として、再び同じゲートウェイ或いは他のゲートウェイにアクセスする情報を加える手段を設けることを特徴とした請求項６記載のゲートウェイ装置。

【請求項９】　前記リンク情報を変更する特定の処理手段として、他のサーバにアクセスする情報を設ける手段を備えることを特徴とした請求項６記載のゲートウェイ装置。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明はハイパーテキスト中のリンクを変更する、あるいはハイパーテキストによるゲートウェイを実現する装置に関する。

【０００２】近年、ネットワーク上に分散したデータベースおよび、それらにアクセスするためのクライアントが各種出てきている。それらをサポートするネットワークのプロトコルには、ローカルファイルシステム（ＬＯＣＡＬ　ＦＩＬＥ　ＳＹＳＴＥＭ）、エフティピ（ＦＴＰ）、インタネットニュース（ＩＮＴＥＲＮＥＴ　ＮＥＷＳ）、テルネット（ＴＥＬＮＥＴ）、ウェイズ（ＷＡＩＳ）、ゴーファ（ＧＯＰＨＥＲ）、ワールドワイドウェブ（WWW：World Wide Web）のＨＴＴＰ（Hyper Text Transfer Protocol）などがある。特にWWWでは直接、或いはゲートウェイを使って他のプロトコルを使うサーバにアクセスして、それらの結果を最終的にハイパーテキストにしてユーザに表示している。

【０００３】さてこのようにいろいろな情報が簡単に手に入るが、会社などの情報のセキュリティを守る必要のある組織では外部とのアクセスを制限しているところが多い。しかし一方でネットワーク上の各種データベースが充実するにつれ、それらのデータに簡単にアクセスすることが要求されている。

【０００４】このため、必要なデータベースのセキュリティを守りながら、ユーザに対して外部のデータベースに対しても内部のデータベースにアクセスするのと同様のアクセス、即ち透明なアクセスを実現することが要望されている。

【０００５】

【従来の技術】まず、ここで使用する言葉の定義をする。サーバ（server）は、データベースを持ち、特定のプロトコルを使ってアクセスしてきたクライアントに対して情報を提供するものである。

【０００６】クライアント（client）は、特定のプロトコルを使ってサーバが持つ情報を取ってくるものであり、通常ソフトウェアで実現されているものである。プロトコル（protocol）は、コンピュータとコンピュータがある目的（例えばファイルをやりとりするなど）を持って通信しあう際の取り決めである。

【０００７】ハイパーテキスト（hypertext）は、情報

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を提示するための一方法であり、文書中のいくつかの言葉がリンクになっており、それらの言葉が選ばれるとそのリンクが指す先の文書が表示されるようになっている。そして、リンクの指す先の文書はハイパーテキスト、通常のテキスト、静止画、動画、音、その他何でも構わないものである。

【０００８】リンク（link）は、言葉が指す文書にどうすればアクセスできるかを示した文字列のことであり、このリンクはハイパーテキストをフォーマットとして表示するクライアントでは通常ユーザから見えないように隠されている。例えば文字列に「どのプロトコルで、どこのマシンのどのファイルにアクセスする」といった情報が含まれているものである。

【０００９】従来にも、組織の外部のネットワークに設けられたサーバに組織の外部のネットワークのコンピュータではなく、組織内部のコンピュータから直接組織外部のサーバにアクセスする方法があった。

【００１０】この場合に組織のセキュリティを確保する方法は、通常次のようなものがある。組織の外部のネットワークと内部のネットワークをルータ（router）で接続する。そして、このルータではそこを通れるプロトコルの種類とその方向を制限し、それを防壁（firewall）として組織内部のセキュリティを確保するものである。

【００１１】図９、図１０は、従来例の説明図であり、以下、図９の従来例１に基づいて説明する。図９において、組織内部のネットワーク１１には、ユーザ１３が使用するコンピュータ１４が設けてある。組織の外部のネットワーク１２には、コンピュータ１６と各種のプロトコルであるＦＴＰ、ＴＥＬＮＥＴ、ＷＡＩＳ、ＧＯＰＨＥＲ、ＨＴＴＰをもつサーバ（図示せず）が接続されている。そして、組織内部のネットワーク１１と外部のネットワーク１２は、限られたプロトコル（ＴＥＬＮＥＴ、ＦＴＰ）しか通れないルータ１５を介して接続されている。

【００１２】このような環境の下で外部にアクセスを確保する方法は、組織の外部のネットワーク上の何台かの（図では１台を示す）コンピュータ１６に、組織内部から外部のネットワークに用意されたコンピュータ１６にＴＥＬＮＥＴ、ＦＴＰなどを使ってアクセスできるようにしておく。これにより組織内部のネットワーク上に置いてあるコンピュータ１４を使ってユーザ１３が外部にアクセスする必要が生じた場合には、まず、組織内部のマシンであるコンピュータ１４から、例えばＴＥＬＮＥＴでルータ１５を通して組織外部のネットワーク１２に用意されたコンピュータ１６に入り、次に、その他の組織外部のマシンにコンピュータ１６で変更された各種のプロトコルでアクセスして情報を得るようにしていた。

【００１３】また、組織内部のセキュリティを確保しながら組織外部にアクセスを確保する他の方法として図１０の従来例２があった。以下、図１０に基づいて説明する。図１０中、図９と同じものは同じ符号で示す。

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【００１４】図１０において、新たにＺＺＺというプロトコル（ＺＺＺは仮の名前である）がルータ１５を通れるようにする。そして、ルータ１５を通れない通常のプロトコル例えばＧＯＰＨＥＲ、ＨＴＴＰなどを使うクライアントであるコンピュータ１４を変更して、ＺＺＺのプロトコルを使う特殊なクライアント１７とする。また、組織の外部のネットワーク１２にゲートウェイ装置であるＺＺＺのサーバ１８を設ける。

【００１５】組織内部のネットワーク１１からユーザ１３が外部にアクセスする必要が生じた場合、まず、ＺＺＺのプロトコルを使って、ルータ１５を通り外部のネットワーク１２上のコンピュータ１６上で走っているＺＺＺサーバにアクセスする。次に、ＺＺＺサーバ１８がクライアント１７の代わりに外部のネットワーク１２上にある例えばＧＯＰＨＥＲ、ＨＴＴＰなどのサーバにアクセスし、クライアント１７にその情報を返していた。

【００１６】

【発明が解決しようとする課題】上記従来のものにおいては、次のような課題があった。従来例１のように、外部のネットワーク１２上のコンピュータ１６を使う方法は、１度コンピュータ１６の内部に入る例えばログインの手続などのため非常に手間がかかる。また、例えば自分の使うコンピュータ１４からグラフィカル表示をするウィンドウ対応のクライアントを使おうと思ってもルータ１５がＴＥＬＮＥＴ等のキャラクタベース（character base）のプロトコルしか通さないので使用できないなど、組織内部のネットワーク上にある自分の使うコンピュータ１４から、直接決まったプロトコルを使って、外部のサーバと通信する必要のある場合、一般のクライアントを使えないという欠点があった。

【００１７】また、従来例２のように、プロトコルＺＺＺのような特殊なクライアント１７を使う方法は、自分の使うコンピュータからクライアントが使えるが、使おうとするクライアントはそのまま使えず、使いたい通常のクライアントを、特別なプロトコルであるＺＺＺを使って通信するような特別なクライアント１７に変更する必要があった。

【００１８】本発明は、ハイパーテキストを用いることにより特別なクライアントを用いずに、セキュリティを犠牲にせず、ユーザに対して透明なままで、外部のデータベースにアクセスすることを目的とする。

【００１９】

【課題を解決するための手段】本発明は、上記課題を解決するため次のように構成した。図１は、本発明の原理説明図であり、図１において、ゲートウェイ装置１には、リンク情報を解析するリンク解析装置２、各種ネットワークサーバにアクセスして指定された情報を取得する各種ネットワークサービスアクセス制御装置３、取得情報のハイパーテキストを変更するハイパーテキスト変

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更装置４、取得情報をハイパーテキスト化するハイパーテキスト化装置５が設けてある。

【００２０】

【作用】上記構成に基づく本発明の作用を、図１に基づいて説明する。まず、リンクの情報をリンク解析装置２が受け取る。リンク解析装置２は、リンクを解析し、アクセスするための情報であるアクセス情報に変更して各種ネットワークサービスアクセス制御装置３に渡す。各種ネットワークサービスアクセス制御装置３は、このアクセス情報を元に各種ネットワークサーバにアクセスし、アクセス情報に指定された情報を取得する。この取得した情報である取得情報が、ハイパーテキストである場合にはハイパーテキスト変更装置４に渡す。ハイパーテキスト変更装置４は、取得情報の中のリンク情報が与えられた処理方法に従って、このゲートウェイ装置１あるいはその他のゲートウェイ装置あるいはその他のサーバにアクセスするように書き換え（変更）られたハイパーテキストを出力するものである。

【００２１】前記各種ネットワークサービスアクセス制御装置３の取得情報がハイパーテキストでない場合には、その取得情報をハイパーテキスト化装置５に渡す。これにより、ハイパーテキスト化装置５は、取得情報の中のリンク情報がこのゲートウェイ装置１あるいはその他のゲートウェイ装置あるいはその他のサーバにアクセスするように設定したハイパーテキストを出力することになる。

【００２２】このような、ゲートウェイ装置１を外部のネットワーク１２上に設けると組織内部のネットワーク上のコンピュータから通常のハイパーテキストのクライアントを使って、しかもセキュリティを犠牲にすることなく、外部のネットワーク上にあるリソース（資源）にアクセスできるようになる。

【００２３】

【実施例】本発明の実施例を図２～図８に基づいて説明する。図中、図１と同一のものは同一の符号で示してある。

【００２４】図２は、本発明の実施例におけるゲートウェイ装置の構成図であり、ネットワーク制御装置７は、ネットワークを使って行う通信の制御をするものである。アクセス監視・制御装置６は、ネットワーク制御装置７を監視し、アクセスがあったかを監視している。

【００２５】アクセス監視・制御装置６は、他のクライアントからアクセスがあると、そのクライアントから与えられたリンク情報をゲートウェイ装置１に渡す。ゲートウェイ装置１は、通常とは異なるリンクを持ったハイパーテキストをアクセス監視・制御装置６に返す。これにより、アクセス監視・制御装置６は、ネットワーク制御装置７を制御してアクセスしてきたクライアントにそのハイパーテキストを返すものである。

【００２６】この際、例えばハイパーテキストのリンク

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に再びこのゲートウェイ装置１をアクセスしてから、そのゲートウェイ装置１からもとのリンクの指していた先にアクセスするように書いておけば、クライアントを使うユーザがこのリンクを選択すると自動的にこのゲートウェイに再びアクセスするようになる。

【００２７】図３は、ゲートウェイ装置１のハイパーテキスト変更装置の説明図である。ハイパーテキスト変更装置４には、リンク置き換え処理装置４１とリンク変更処理装置４２が設けてある。

【００２８】以下、このハイパーテキスト変更装置４がハイパーテキストを入力として受け取った時の説明をする。まず、リンク置き換え処理装置４１がハイパーテキストを受け取る。リンク置き換え処理装置４１は、ハイパーテキストからリンクを摘出し、それをリンク変更処理装置４２に渡す。リンク変更処理装置４２は、予め与えられた処理方法に従ってリンクを変換し（例えば、このゲートウェイ装置１にアクセスするように変換する）、変更後リンクをリンク置き換え処理装置４１に与える。

【００２９】リンク置き換え処理装置４１は、ハイパーテキスト中の元の摘出されたリンクを変更後のリンクに置き換え、最終的に得られたハイパーテキストを出力する。図４は、ゲートウェイ装置のハイパーテキスト化装置の説明図である。ハイパーテキスト化装置５には、ハイパーテキスト化処理装置５１とリンク設定処理装置５２が設けてある。

【００３０】以下、ハイパーテキスト化装置５が取得情報を入力として受け取った時の説明をする。ハイパーテキスト化処理装置５１が例えば、ＦＴＰ、ＧＯＰＨＥＲなどの形態の情報であるいろいろな形態の取得情報を受け取る。そして、リンク以外の部分は通常の方法でハイパーテキスト化する。リンクの部分を生成する段になると、ハイパーテキスト化処理装置５１は、リンク設定処理装置５２に必要な制御信号（情報）を与える。

【００３１】リンク設定処理装置５２は、予め与えられた処理方法に従ってリンクを生成し、ハイパーテキスト化処理装置５１に与える。これによりハイパーテキスト化処理装置５１は、そのリンクを通常の方法でのハイパーテキストに統合し、最終的に得られたハイパーテキストを出力する。

【００３２】例えば、上記取得情報が、

（プロトコルＡ＋サーバＡ＋付加情報）

であるとすると、このリンク設定処理装置５２で、このゲートウェイ装置１にアクセスするように書き換える場合は、

プロトコル＋このゲートウェイ＋（プロトコルＡ＋サーバＡ＋付加情報）

のようにリンク情報を付加する。

【００３３】この付加したリンク情報は、クライアントのユーザからは隠されているのでユーザには見えない。

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従って、ユーザは、外部のネットワーク上でクライアントを動かしているのと全く同様に、組織内部のネットワークから外部のネットワークの各種サーバに自由にアクセスできるように見える。

【００３４】図５は、本発明の実施例のフローチャートである。以下、図５のフローチャートに基づいてゲートウェイ装置１の動作を説明する。Ｓ１～Ｓ９は処理番号を示す。

【００３５】まず、アクセス監視・制御装置６がクライアントからアクセスがあるかを調べる（Ｓ１）。クライアントからアクセスがあるとアクセス監視・制御装置６は、リンク情報を受け取りリンク解析装置２に渡す（Ｓ２）。リンク解析装置２は、アクセス情報を取り出して各種ネットワークサービスアクセス制御装置３に渡す（Ｓ３）。各種ネットワークサービスアクセス制御装置３は、アクセス情報を元に指定された情報をネットワーク制御装置７を通して取得する（Ｓ４）。

【００３６】各種ネットワークサービスアクセス制御装置３は、取得情報がハイパーテキストかどうかを判断する（Ｓ５）。この取得情報がハイパーテキストであれば（Ｙｅｓ）各種ネットワークサービスアクセス制御装置３は、ハイパーテキスト変更装置４に取得情報（ハイパーテキスト）を渡し、ハイパーテキスト変更装置４でリンクを予め与えられた処理に従って変更する（Ｓ６）。もし、処理番号Ｓ５で取得情報がハイパーテキストでなければ（Ｎｏ）各種ネットワークサービスアクセス制御装置３は、ハイパーテキスト化装置５に取得情報を渡し、ハイパーテキスト化装置５は、通常生成されるリンク情報を予め与えられた処理に従って変更してハイパーテキストを出力する（Ｓ７）。

【００３７】前記処理番号Ｓ６、またはＳ７で処理されたハイパーテキストがアクセス監視・制御装置６に渡される（Ｓ８）。アクセス監視・制御装置６がハイパーテキストをネットワーク制御装置７を通してクライアントに返す（Ｓ９）。

【００３８】図６は、実施例におけるサーバアクセス説明図である。以下、図６に基づいて説明する。図６において、外部のネットワーク１２には、ゲートウェイ装置１ａ、１ｂ、サーバ２０～２２が設けてあり、組織内部のネットワーク１１には、ゲートウェイ装置１ｃ、コンピュータ１４、サーバ２３、２４が設けてある。ルータ１５は、組織内部のネットワーク１１と外部のネットワーク１２を接続しており、例えば、ＴＥＬＮＥＴ、ＦＴＰ、ＨＴＴＰ等の限られたプロトコルしか通れないものである。

【００３９】ユーザ１３がセキュリティを保ったまま組織内部のネットワーク１１上にあるコンピュータ１４から外部のサーバ２０へアクセスするためには、外部のネットワーク１２にゲートウェイ装置１ａを置く。更にルータ１５は、通常許しているプロトコル（例えば、ＴＥ

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ＬＮＥＴ、ＦＴＰ）に加えて、例えばハイパーテキストをやりとりするプロトコルであるＨＴＴＰのプロトコルを組織内部のネットワーク１１の方から通ることを許すようにしておく。

【００４０】これにより、一度このゲートウェイ装置１ａを通じて外部のネットワーク上にあるサーバ２０のリソースにアクセスすれば、アクセスした結果は全てハイパーテキストで返され、リンクは全て再びこのゲートウェイ装置１ａにアクセスするように設定される。以後このアクセス過程を何度繰り返してもリンクがこのゲートウェイ装置１ａにアクセスするように設定されているので、クライアントのユーザ１３がリンクを選択するとこのゲートウェイ装置１ａにまずアクセスするようになる。

【００４１】また、外部のネットワーク１２にこのようなゲートウェイ装置１ａをいくつか設ける（例えばゲートウェイ装置１ｂ）場合には、それらのゲートウェイ装置１ａ、１ｂを適当な方法で選択してリンクに書き込めば、それらのゲートウェイ装置１ａ、１ｂの間で負荷分散することも可能となる。

【００４２】例えば、元のリンクの指す先を解析してその指す先に近いゲートウェイ装置を選択する。ゲートウェイ装置１ａの負荷によって他のゲートウェイ装置１ｂに回すようにする。適当に（例えば乱数により）ゲートウェイを選択する。更に、ゲートウェイ間の通信によって負荷の少ないゲートウェイ装置に回す等の方法で行う。

【００４３】更に、セキュリティを確保するためだけのゲートウェイ装置でなく、次のようにしても実施可能である。同じネットワーク上のリソースがいくつかの場所にある（例えばサーバ２３、２４）場合や、ネットワーク上のリソースに別名がついている場合など、それらの情報を貯めておき、ゲートウェイ装置でリンクを書き換える際にそれらを使って書き換えることもできる。

【００４４】例えば、同等のネットワーク上のリソースがサーバ２３、２４にある場合は、適当に負荷を分散するように書き換える。また、外部のネットワーク１２上のリソースと同等のリソースが内部のネットワークにある場合には、リンクを内部のリソースを指すように書き換えてしまうこともできる。

【００４５】このように、ユーザはリソースに効率のよいアクセスが可能となる。以下、本発明のサーバアクセスを具体例で説明する。まず、ＷＷＷにおけるＵＲＬを説明する。ＵＲＬ（Universal Resource Locator）とは、情報のありかを示すものである。これは三つの部分からなっており、以下にＵＲＬの具体例を示す。

【００４６】

http：// www.is.university.ac.jp/welcome.html

最初の「：」までの部分（この場合は「http」）はそのサーバへのアクセス方法を示す。この場合はＷＷＷのプ

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ロトコルであるＨＴＴＰ（Hyper Text Transfer Protocol）である。

【００４７】次の「：／／」と「／」の間はサーバの名前を示す。この場合は指定された情報が「www.is.university.ac.jp」というマシンにあることを示している（なお、この部分でさらにサーバのどのポートにアクセスすればよいのかの情報が与えられる時もある）。残りの部分はそのサーバでの情報のパス（path）が示される。この例の場合では「welcome.html」である。

【００４８】図７は、サーバアクセスの具体例の説明図であり、WWWのゲートウェイの例を示す。この例では、組織内部（社内）のネットワーク１１にコンピュータ（クライアント）１４があり、外部（社外）のネットワーク１２に直接つながったゲートウェイ装置１のマシンがあり、社外と社内のネットワークはＨＴＴＰを通すルータ１５でつながっている。このゲートウェイ装置１のマシンの名前を仮に「www.out.company.co.jp」とし、社外のネットワーク１２にはＨＴＴＰのサーバ２５、２６とＦＴＰのサーバ２７が設けてある。

【００４９】最初にユーザ１３はＵＲＬとして「http://www.is.university.ac.jp/welcome.html」をもつある大学情報科学科のホームページにアクセスしたいと思ったとする。この時ユーザ１３は、まず通常のＵＲＬの代わりに次のようなＵＲＬをクライアント１４に対して指定する。

【００５０】

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http://www-out.company.co.jp/http://www.is.university.ac.jp/welcome.html
```

クライアント１４は、このＵＲＬを解釈し、ＨＴＴＰでマシン名「www-out.company.co.jp」のゲートウェイ装置１にアクセスする。ルータは、社内のネットワークから特定のプロトコルで社外のネットワークの特定のマシンにアクセスできるように設定されている。この場合のルータ１５は、ＨＴＴＰを通すように設定しているのでクライアント１４はゲートウェイ装置１のマシンに到達することができる。そしてクライアント１４はゲートウェイ装置１のマシンに対してパスとして「http://www.is.university.ac.jp/welcome.html」を示す。

【００５１】ゲートウェイ装置１のマシンはその与えられたパスを元にＨＴＴＰでサーバ２５（サーバ名「www.is.university.ac.jp」）にアクセスしに行く。このゲートウェイ装置１は社外のネットワーク１２に直接接続しているので問題なくそれらのマシンにアクセスできる。そして、このゲートウェイ装置１は情報として、以下のような情報をもらってくる。

【００５２】

```
<HTML>
<HEAD>
<TITLE>
Welcome Message  (ABC Univ--Dept Info Sci )
</TITLE>
</HEAD>
<BODY>
<H1>
Welcome to ABC University <p>---Department of Information Science.
</H1>
Welcome to our WWW server!---This is under development, though.
<P>
This WWW server is run by Department of Information Science,
ABC University (somewhere-cho, ABC,
<A HREF="http://www.xyz.jp/japan/index.html">Japan</A>) ,
which is a new department
established in 1990.
We have a collection of images on the
Earth's environment  (in preparation) and
<A HREF="/FTP/images/sat/">
weather information</A>.
We also serve
<A HREF="/FTP/images/sat/gms.polar/">
GMS (Himawari) images </A>
for Chugoku/Shikoku area.
<P>
```

```
</BODY>
</HTML>
```

なお、上記＜ＨＴＭＬ＞は、ＨＴＭＬ（Hyper Text Markup Language）の形式で書かれた文書の始まりを示し、＜／ＨＴＭＬ＞は、その終りを示す。＜ＨＥＡＤ＞は、文書のヘッダの始まりを示し、このヘッダにはタイトル名やオーサ名などがあり、ここではタイトル名が書かれており、＜／ＨＥＡＤ＞はヘッダの終りを示す。＜ＴＩＴＬＥ＞は、タイトルの始まりを示し、＜／ＴＩＴＬＥ＞は、タイトルの終りを示す。＜ＢＯＤＹ＞は、文書の本文を示し、＜／ＢＯＤＹ＞は、その終りを示す。＜Ｈ１＞は、セクションのレベル１の始まりを示し、＜／Ｈ１＞は、その終りを示す。＜Ｐ＞は、パラグラフ（段落）の始まりを示しており、この終りは特に必要でない。

【００５３】ゲートウェイ装置１は、もらってきた情報と今アクセスしているページの情報を元にリンクである「＜Ａ　ＨＲＥＦ＝“・・・”＞・・・＜／Ａ＞」の情報をハイパーテキスト変更装置４で書き換えることにより、以下のように上の情報を変更する。

【００５４】

```
<HTML>
<HEAD>
<TITLE>
Welcome Message  (ABC Univ--Dept Info Sci )
</TITLE>
</HEAD>
<BODY>
<H1>
Welcome to ABC University <p>--Department of Information Science.
</H1>
Welcome to our WWW server!---This is under development, though.
<P>
This WWW server is run by Department of Information Science,
ABC University (somewhere-cho, ABC,
<A HREF="http://www-out.company.co.jp/http://www.xyz.jp/japan/index.ht
ml">Japan</A>),
which is a new department
established in 1990.
We have a collection of images on the
Earth's environment  (in preparation) and
<A HREF="http://www-out.company.co.jp/http://www.is.university.ac.jp/F
TP/images/sat/">
weather information</A>.
We also serve
<A HREF="http://www-out.company.co.jp/http://www.is.university.ac.jp/F
TP/images/sat/gms.polar/">
GMS (Himawari) images </A>
for Chugoku/Shikoku area.
<P>
</BODY>
</HTML>
```

このように変更された情報がゲートウェイ装置１からクライアント１４に渡される。クライアント１４側では、この情報を例えば図８のようにユーザ１３に対して表示する。ここで注意して欲しいのは、書き換えられたリンクの情報はユーザ１３から隠されるので、サーバから直接情報をもらった場合も、ゲートウェイを通して情報をもらった場合もユーザ１３に対する表示は全く同じであることである。即ち、上記二つのハイパーテキストをクライアント１４は同じに表示することになる。

【００５５】ここでユーザ１３が例えば、一番最初のリンクである「Japan」をマウス等でクリックすれば、クライアント１４に対してＵＲＬとして「http：//www-out.company.co.jp/http：// www.xyz.jp/japan/index.html」を指定したことになり、上と全く同じサイクルが繰

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り返される。

【００５６】社外のアクセス先がＨＴＴＰ以外のサーバである場合（例えばＦＴＰ，ＧＯＰＨＥＲ）にも同じように書き換えが行われる。例えば以下のようなＦＴＰの

http://www-out.company.co.jp/ftp://ftp.uvw.edu/gutenberg/etext93/pimil10.txt

このことにより、社内のクライアント１４から社外のゲートウェイ装置１のマシンへはＨＴＴＰでアクセスが行われる。社外のゲートウェイ装置１のマシンからはＦＴＰで社外のサーバ２７へアクセスが行われる。ゲートウェイ装置１のマシンはＦＴＰで得た情報をハイパーテキストに変換し、ＨＴＴＰでクライアントにその情報を返す。当然上のハイパーテキストの変換では再びそのゲートウェイ装置１にアクセスが行われるようにリンクが書かれている。

【００５８】また、ユーザ１３がゲートウェイ装置１を通して社外のサーバ２７にアクセスし、サーバ２７に例えば「・Mac ・Unix・X11 」等のファイルがあった場合、ゲートウェイ装置１は、ハイパーテキスト化装置５でハイパーテキストに変換して、ＨＴＴＰでクライアント１４にその情報を返す。

【００５９】この場合、クライアント１４は、ユーザ１３に対して「・Mac ・Unix・X11 」のリンク表示をすることになり、当然この場合も再びゲートウェイ装置１にアクセスが行われるようにリンクが書かれている。

【００６０】

【発明の効果】以上説明したように、本発明によれば直接組織内部のネットワーク上のコンピュータから通常のハイパーテキストのクライアントを使って、セキュリティを犠牲にすることなく、外部のネットワーク上にある

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サーバ２７にある情報のＵＲＬの場合には

ftp://ftp.uvw.edu/gutenberg/etext93/pimil10.txt

次のように書き換えられる。

【００５７】

http://www-out.company.co.jp/ftp://ftp.uvw.edu/gutenberg/etext93/pimil10.txt

リソースにアクセスできるようになり、作業の効率向上を行うことができる。

【図面の簡単な説明】

【図１】本発明の原理説明図である。

【図２】実施例におけるゲートウェイ装置の構成図である。

【図３】実施例におけるハイパーテキスト変更装置の説明図である。

【図４】実施例におけるハイパーテキスト化装置の説明図である。

【図５】実施例におけるフローチャートである。

【図６】実施例におけるサーバアクセス説明図である。

【図７】実施例におけるサーバアクセスの具体例の説明図である。

【図８】実施例における表示画面の説明図である。

【図９】従来例１の説明図である。

【図１０】従来例２の説明図である。

【符号の説明】

1　ゲートウェイ装置

2　リンク解析装置

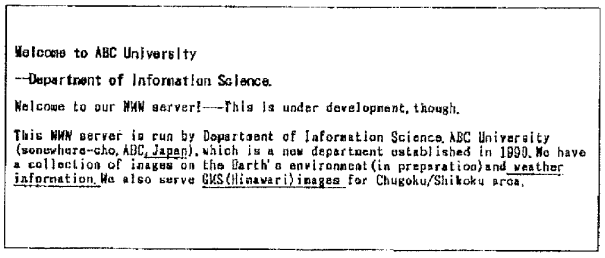
3　各種ネットワークサービスアクセス制御装置

4　ハイパーテキスト変更装置

5　ハイパーテキスト化装置

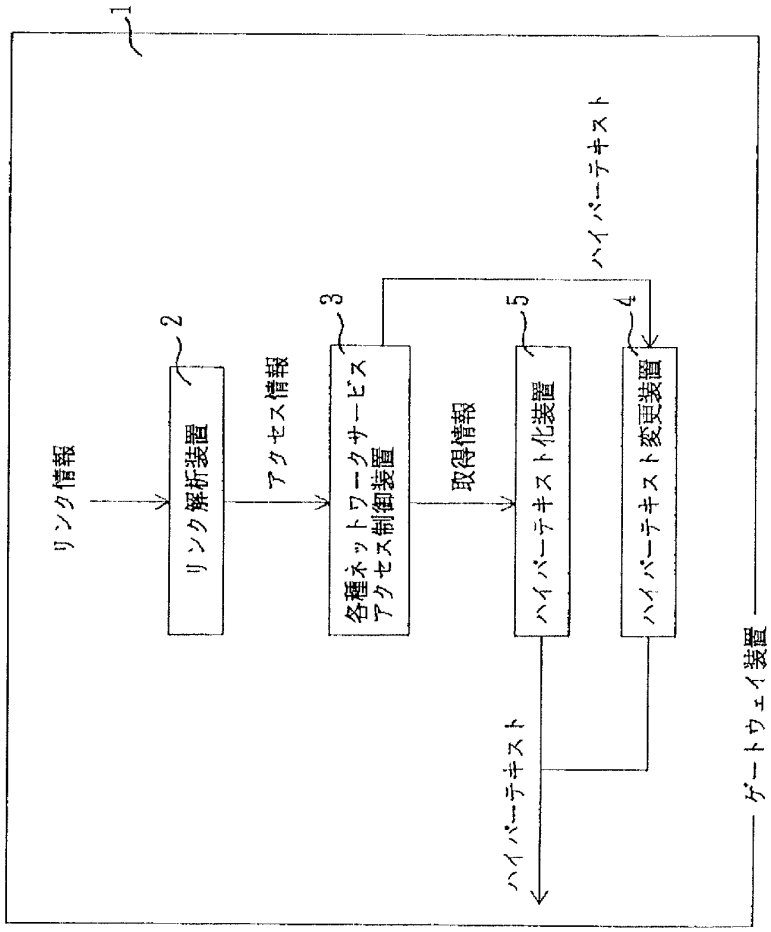
【図８】

表示画面の説明図



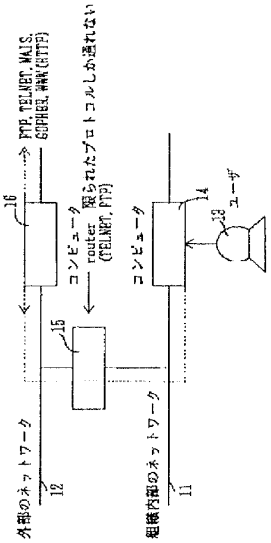
【図１】

本発明の原理説明図



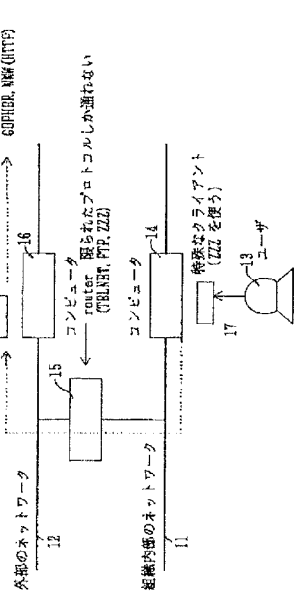
【図９】

従来例１の説明図



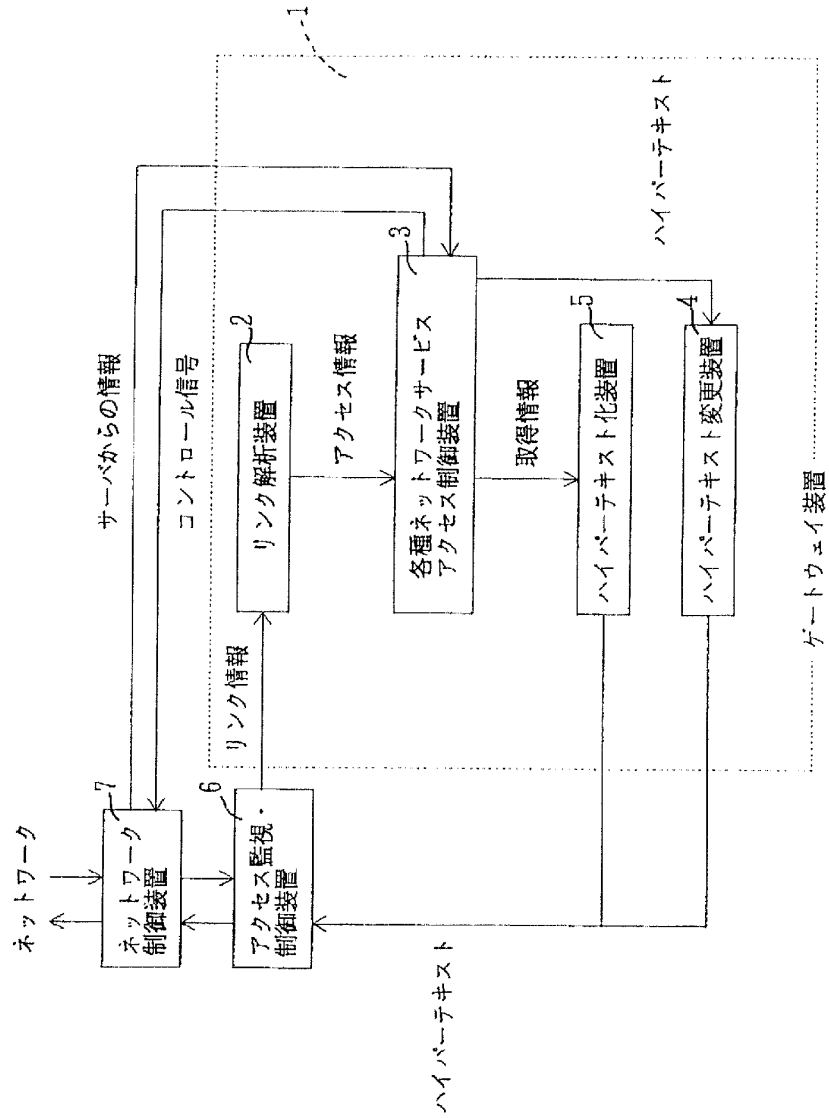
【図１０】

従来例２の説明図



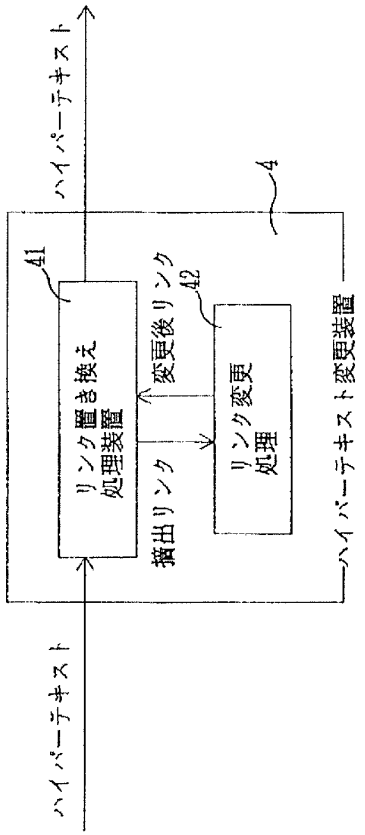
【図２】

ゲートウェイ装置の構成図



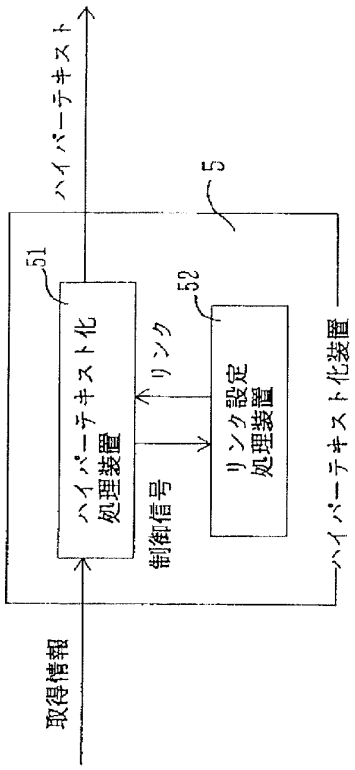
【図３】

ハイパーテキスト変更装置の説明図



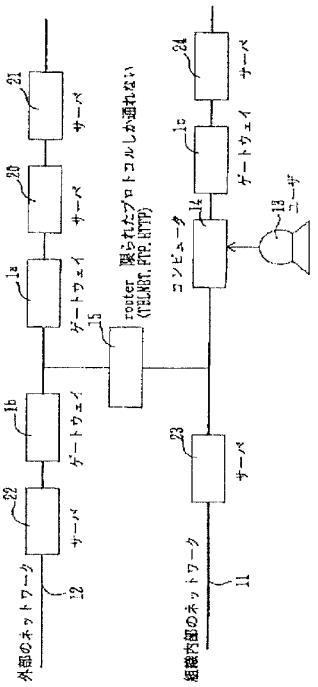
【図４】

ハイパーテキスト化装置の説明図



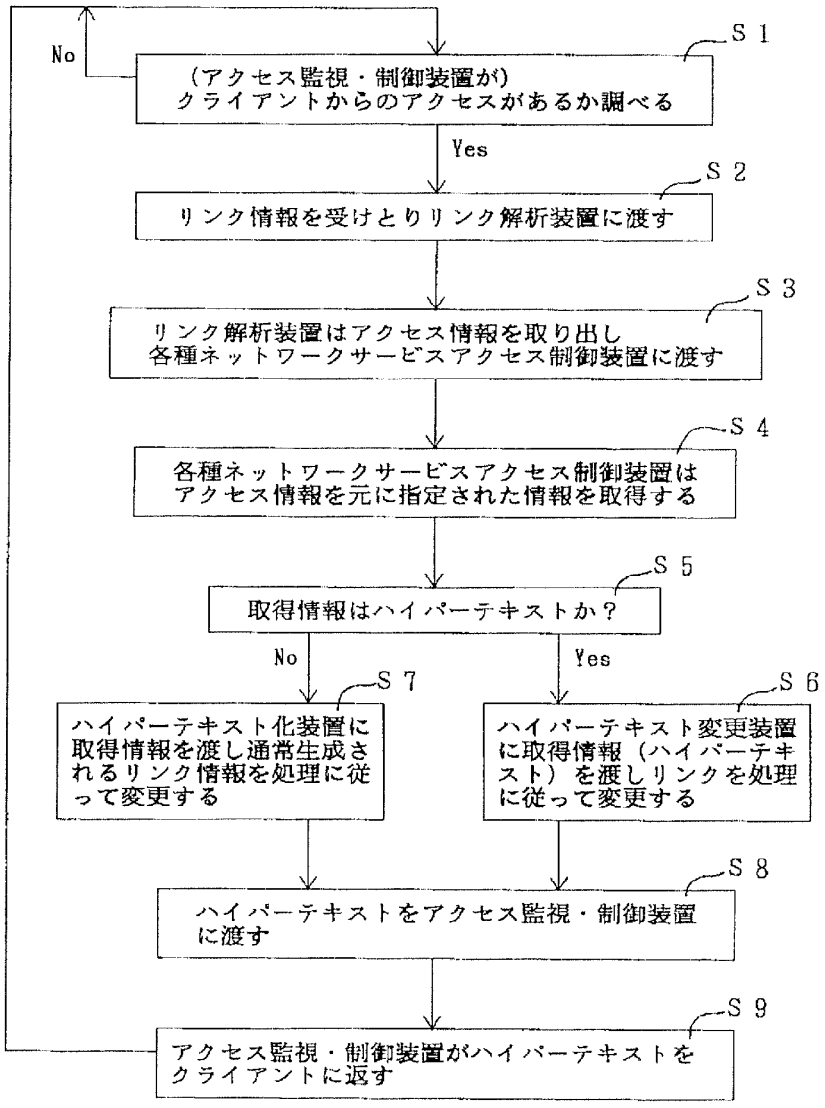
【図６】

実施例におけるサーバアクセス説明図



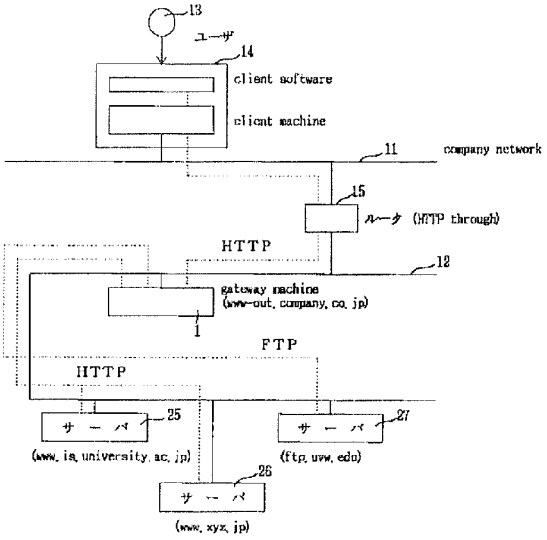
【図５】

実施例におけるフローチャート



【図７】

サーバアクセスの具体例の説明図



INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 1 of 8	Confirmation No.	3296

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
	1-1	US-5778187	1998/07/07	Monteiro et al
	1-2	US-5983005	Nov. 9, 1999	Monteiro et al
	1-3	US-6119163	Sep.12, 2000	Monteiro et al
	1-4	US-6418461	2002/07/09	Barnhouse et al
	1-5	US-6425005	2002/07/23	Dugan et al
	1-6	US-6434622	Aug. 13, 2002	Monteiro et al
	1-7	US-6944676	2005/09/13	Armbruster et al.
	1-8	US-7061923	2006/07/13	Dugan et al
	1-9	US-7080153	July 18, 2006	Monteiro et al
	1-10	US-7266686	Sep. 4, 2007	Monteiro et al
	1-11	US-7600120	2009/10/06	Monteiro et al.
	1-12	US-7697415	2010/04/13	Dugan, et al.
	1-13			
	1-14			
	1-15			
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	1-19			
	1-20			
	1-21			
	1-22			
	1-23			
	1-24			
	1-25			
	1-26			

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

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	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 2 of 8	Confirmation No.	3296

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document No.	Publication Date	Name of Patentee or Applicant of Cited Document	Notes
	2-1	JP 08-044643	1996/02/16	Fujitsu Ltd. (w/English translation)	
	2-2				
	2-3				
	2-4				
	2-5				
	2-6				
	2-7				
	2-8				
	2-9				
	2-10				
	2-11				
	2-12				
	2-13				
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	2-22				
	2-23				
	2-24				
	2-25				
	2-26				

Examiner Signature		Date Considered	

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	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 3 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	3-1	"Memorandum in Support of Level 3's Motion in Limine to Preclude Limelight Witnesses from Referring to Prosecution History in Rendering Non-Infringement Opinions," filed in Civil Action No. 2:07cv589 (MSD-FBS), U.S. Dist. Ct. E.D. Va., January 15, 2009 [7 pgs.]	
	3-2	"Memorandum In Support Of Limelight's Motion In Limine No. 7 To Exclude Testimony From Level 3's Experts Not Disclosed In Their Expert Reports Regarding The Disclosures Of The Patents-In-Suit," filed in Civil Action No. 2:07cv589 (MSD-FBS), U.S. Dist. Ct. E.D. Va., December 4, 2008 [6 pgs.]	
	3-3	COMBINED PETITION FOR PANEL REHEARING OR REHEARING EN BANC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, June 4, 2010 [22 pgs.]	
	3-4	Communication dated April 27, 2010 from European Patent Office re Opposition to European Patent application no. (99906680.6 – 2211) Patent No. 1 053 524 B [1 pg.]	
	3-5	Defendant Limelight Networks, Inc.'s Claim Construction Brief for U.S. Patent Nos. 6,654,807; 7,054,935 and 6,473,405, in Civil Action No. 2:07cv589, June 27, 2008, with Exhibits 1-24 [333 pgs.].	
	3-6	EXHIBIT 56 to Deposition of Maurice Andrew COLLINS in Civil Action No. 2:07cv589 (WDK-FBS), "Defendant Limelight Networks, Inc.'s Notice of Deposition of Andrew Collins," Aug. 29, 2008 [28 pgs.].	
	3-7	EXHIBIT 57 to Deposition of Maurice Andrew COLLINS in Civil Action No. 2:07cv589 (WDK-FBS), Document titled "Detour: Informed Internet Routing and Transport," Savage, et al., IEEE Micro, Vol. 19, issue 1, pgs. 50-59, Jan/Feb. 1999 [10 pgs.].	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 4 of 8	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	4-1	EXHIBIT 58 to Deposition of Maurice Andrew COLLINS in Civil Action No. 2:07cv589 (WDK-FBS), document titled Internet Archive Wayback Machine, sample search 9/9/2008 [1 pg.].	
	4-2	EXHIBIT 59 to Deposition of Maurice Andrew COLLINS in Civil Action No. 2:07cv589 (WDK-FBS), Document titled “Detour,” deponent Collins, 9/9/2008, [1 pg.]	
	4-3	EXHIBIT 65 to Deposition of Kevin F. DELGADILLO, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS), Document titled Subpoena in a Civil Case [12 pgs.].	
	4-4	EXHIBIT 66 to Deposition of Kevin F. DELGADILLO, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS), Document titled, “Cisco DistributedDirector,” [9 pgs.].	
	4-5	EXHIBIT 67 to Deposition of Kevin F. DELGADILLO, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS), Document titled, “Electronic Publishing Form,” dated 11/27/96 [5 pgs.].	
	4-6	EXHIBIT 68 to Deposition of Kevin F. DELGADILLO, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS), Email from Kevin Delgadillo, dated July 19, 1996 [1 pg.].	
	4-7	EXHIBIT 69 to Deposition of Kevin F. DELGADILLO, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS), Document titled, “Cisco Advantage: Leveraging Intranet and Internet Productivity.” [9 pgs.].	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 5 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	5-1	Letter from Chris Hirsz dated April 22, 2010 to European Patent Office forwarding Statement of Opposition to European Patent No. 1 053 524 B In the name of Level 3 CDN International, Inc. filed in European Patent Office by Akamai Technologies, Inc., April 22, 2004 [2 pgs.]	
	5-2	Level 3 Communications, LLC's Supplemental Responses To Limelight Networks, Inc.'s First Set Of Interrogatories (No. 4), in civil action No. 2:07-cv-00589-RGD-FBS, in U.S. Dist. Ct. E.D. Va., Sept. 3, 2008 [8 pgs.].	
	5-3	Limelight Networks Inc.'s Response To The Report Of Professor Ellen W. Zegura, Sept. 5, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) [5 pgs.]	
	5-4	Notice of Abandonment from Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [1 pg.]	
	5-5	Office Action (Notice of Reasons for Rejection) in Japanese Patent Appln. No. 2007 -212908, 2010-03-30, JPO [3 pgs.] with summary English translation [3 pgs.]	
	5-6	Office Action dated Sept. 24, 2007 from Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [5 pgs.]	
	5-7	Office Action dated Sept. 28, 2006 from Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [4 pgs.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 6 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	6-1	OPENING BRIEF OF APPELLANT LEVEL 3 COMMUNICATIONS, LLC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, Oct. 5, 2009 [106 pgs.]	
	6-2	Opinion and Order from U.S. District Judge Mark. S. Davis in Civil Action No. 2:07cv589, ruling on Level 3 Communications, LLC's post-trial motions, Norfolk, VA, 06/23/2009 [26 pgs.]	
	6-3	ORDER denying Appellant's PETITION FOR PANEL REHEARING OR REHEARING EN BANC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, June 29, 2010 [2 pgs.]	
	6-4	PLAINTIFF LEVEL 3 COMMUNICATIONS, LLC'S RESPONSE TO DEFENDANT LIMELIGHT NETWORKS, INC.'S RESPONSE TO REPORT OF PROFESSOR ELLEN ZEGURA, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) [5 pgs.]	
	6-5	REINSTATEMENT AND RESPONSE, filed April 24, 2009 in Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [18 pgs.]	
	6-6	REPLY BRIEF OF APPELLANT LEVEL 3 COMMUNICATIONS, LLC, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, Feb. 2, 2010 [41 pgs.]	
	6-7	RESPONSE BRIEF OF DEFENDANT-APPELLEE LIMELIGHT NETWORKS, INC., U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight Networks, Inc., 2009-1480, Jan. 19, 2010 [72 pgs.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 7 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	7-1	RESPONSE TO OFFICE ACTION, filed March 28, 2007 in Canadian Intellectual Property Office for Canadian Patent Application No. 2,320,261 [24 pgs.]	
	7-2	Statement of Opposition to European Patent No. 1 053 524 B In the name of Level 3 CDN International, Inc. filed in European Patent Office by Akamai Technologies, Inc., April 22, 2004 [40 pgs.]	
	7-3	TRANSCRIPT of DEPOSITION OF Kevin C. ALMEROTH, Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), Sept. 11, 2008 (redacted) [98 pgs.].	
	7-4	TRANSCRIPT of Federal Circuit Oral Argument, Level 3 Communications LLC vs. Limelight, Monday, May 3, 2010 [14 pgs.]	
	7-5	TRANSCRIPT of Oral Argument, U.S. Ct. Appeals for Federal Circuit, Level 3 Communications LLC vs. Limelight, Monday, May 3, 2010 [14 pgs.]	
	7-6	TRANSCRIPT of Proceedings (Motion for Summary Judgment), in Civil Action No. 2:07cv589 in U.S. Dist. Ct. E.D. Va., Norfolk, Va., December 18, 2008, [145 pgs.]	
	7-7	TRANSCRIPT of PROCEEDINGS, Hearing before Hon. Mark S. Davis, U.S. District Judge, in Civil Action No. 2:07cv589 (E.D. Va.), Oct. 23, 2008 [62 pgs.].	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	0090-US-C03
Sheet 8 of 8	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	8-1	U.S. Ct. Appeals for Fed. Circuit, 2009-1490, Level 3 Communications, LLC v. Limelight Networks, Inc., Judgment Affirmed, Fed. Cir. R. 36, May 5, 2010 [2 pgs.]	
	8-2	YOKOHASHI, Takao, System Architectonic Solaris2.x, 26th, UNIX USER, Japan, Softbank Corp., January 1, 1998, vol. 7, no. 1, p.89-96.	
	8-3		
	8-4		
	8-5		
	8-6		
	8-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abstract, T = Translation, PT = Partial Translation, SOR = Statement of Relevancy, PF = Patent Family.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C03
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: July 2, 2010

AMENDMENT WITH RCE

---

via EFS Web
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Amendment is being filed with a Request for Continued Examination (RCE).

Claim Amendments begin on page 2 hereof.

Remarks begin on page 15 hereof.

An *Information Disclosure Statement* (IDS) is being filed herewith.

IN THE CLAIMS

Please amend the claims as follows:

1-28. (Canceled)

29. (Currently amended) A content delivery system operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, the system comprising:

at least one shared repeater server constructed and adapted to replicate at least some of the resources associated with a first content provider of said plurality of content providers, and to replicate at least some of the resources associated with a second content provider of said plurality of content providers;

at least one table listing a plurality of alias names corresponding to content providers authorized to have resources delivered to client machines via the at least one shared repeater server, wherein the plurality of content providers comprises the first content provider and the second content provider,

wherein at least a first resource associated with the first content provider is associated with a first alias name of the plurality of alias names, said first alias name being associated with said at least one shared repeater server; ~~and~~

wherein, requests for the first resource from said client machines are directed to the at least one shared repeater server, based at least in part on said first alias name; ~~and~~

wherein at least a second resource associated with the second content provider is associated with a second alias name of the plurality of alias names, said second alias name being associated with said at least one shared repeater server; ~~and~~

wherein requests for the second resource made from said client machines are directed to the at least one shared repeater server, based at least in part on said second alias name; and

wherein the at least one shared repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine a content provider associated with the particular resource.

30. (previously presented) The content delivery system as recited in claim 29, wherein the least one shared repeater server is addressable using the first alias name and the second alias name.

31. (Currently amended) The content delivery system as recited in claim 29, further comprising:

a reflector ~~constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of transmitting the resources to the client machines~~.

32. (Currently amended) The content delivery system as recited in claim 29 further comprising:

a set of shared repeater servers that comprises the at least one repeater server; and

a ~~reflector~~ repeater selector mechanism constructed and adapted to associate the first resource with the first alias name after selecting the at least one shared repeater server from the set of shared repeater servers in response to a request for the first resource issued by a particular client machine.

33. (previously presented) The content delivery system as recited in claim 29, wherein at least one of the first resource and the second resource is an embedded object.

34. (previously presented) The content delivery system as recited in claim 29, wherein the requests comprise host tag names that identify specific origin servers from which the resources originate.

35. (previously presented) The content delivery system as recited in claim 34, wherein the host tag names are included in HTTP headers.

36. (Currently amended) The content delivery system as recited in claim 32, further comprising:

a load determination mechanism constructed and adapted to characterize load on the set of repeater servers for use ~~by the reflector~~ in selection of ~~selecting~~ the at least one shared repeater server.

37. (Currently amended) The content delivery system as recited in claim 36, wherein the repeater selector mechanism ~~reflector~~ comprises the load determination mechanism.

38. (Currently amended) The content delivery system as recited in claim 31 **[[**37**]]**, wherein the reflector is co-located with an origin server ~~at which the first resource originates~~.

39. (Currently amended) The content delivery system as recited in claim 36, further comprising:

a cost determination mechanism constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use ~~by the reflector~~ in selection of ~~selecting~~ the at least one shared repeater server.

40. (Currently amended) The content delivery system as recited in claim 39, wherein the repeater selector mechanism ~~reflector~~ comprises the cost determination mechanism.

41. (Currently amended) The content delivery system as recited in claim 31 **[[**39**]]**, wherein the reflector is co-located with an origin server from which the first resource originates.

42. (previously presented) The content delivery system as recited in claim 39, wherein the cost comprises information relating a location associated with the particular client machine to each of the set of shared repeater servers.

43-44. (canceled)

45. (Currently amended) A method, in a content delivery system operative in a computer network for delivering content to client machines, the computer network comprising a plurality of origin servers, each of said origin servers having resources associated therewith, and the content delivery system comprising at least one shared repeater server operable to replicate resources associated with the plurality of origin servers, the method comprising:

associating the at least one repeater server with a first alias name, wherein requests for a first resource located on a first origin server are directed, based at

least in part on said first alias name, to the at least one repeater server for delivery of the first resource from said at least one repeater server; ~~and~~

associating the at least one repeater server with a second alias name, wherein requests for a second resource located on a second origin server are directed, based at least in part on said second alias name, to the at least one repeater server for delivery of the second ~~first~~ resource from said at least one repeater server;

providing a table listing origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, and wherein the origin servers comprise the first origin server and the second origin server; and

wherein the at least one repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine an origin server associated with the particular resource.

46. (previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one shared repeater server from a set of shared repeater servers based at least in part on a network cost of delivering resources to the particular client machine; and

associating the first resource with the first alias name.

47. (previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater

servers based at least in part on load characteristics of the set of shared repeater servers; and

associating the first resource with the first alias name.

48. (previously presented) The method of claim 45, further comprising:

in response to a request for the first resource issued by a particular client machine, identifying the at least one repeater server from a set of shared repeater servers based at least in part on a location of the particular client machine relative to the at least one shared repeater server; and

associating the first resource with the first alias name.

49. (previously presented) The method as recited in claim 45, wherein the resources comprise an HTTP-based resource.

50. (previously presented) The method as recited in claim 45, wherein the resources comprise a File Transfer Protocol (FTP)-based resource.

51. (Canceled).

52. (previously presented) A content delivery system as recited in claim 39 wherein the cost determination mechanism comprises a netmap determination means.

53-54. (canceled)

55. (previously presented) A content delivery system as recited in claim 29, wherein at least the first alias name is a domain name, the system further comprising:

at least one name server that provides domain name service (DNS) resolution on the first alias name to identify the at least one shared repeater server to deliver the first resource in response to a client request.

56. (previously presented) A method as recited in claim 45, wherein at least the first alias name is a domain name and the computer network further comprises at least one name server that provides domain name service (DNS) resolution, the method further comprising:

receiving, at the at least one name server, the first alias name as part of a client request; and

resolving, at the at least one name server, the received first alias name to identify the at least one shared repeater server to deliver the first resource in response to the client request.

57. (Currently amended) A method, in a content delivery system operative in a computer network for delivering content to client machines and comprising at least one shared repeater server operable to replicate resources stored on a plurality of origin servers, the method comprising:

associating a plurality of alias names with the at least one shared repeater server, each of said plurality of alias names being associated with an origin server, wherein a first alias name of said plurality of alias names is associated with a first origin server, and at least a second alias name of said plurality of alias names is associated with a second origin server distinct from said first origin server,

providing at least one table associating alias names with origin servers having content located thereon, wherein said content is authorized for delivery to client machines via the at least one shared repeater server, wherein the origin servers comprise the first origin server and the second origin server;

wherein requests for a first resource originating on the first origin server are directed, based at least in part on said first alias name, to the at least one shared repeater server for delivery of the first resource from said at least one repeater server; and

wherein requests for a second resource originating on the second origin server are directed, based at least in part on said second alias name, to the at least one shared repeater server for delivery of the second resource from said at least one repeater server; and

wherein the at least one repeater server uses the at least one table and an alias name received with a client request for a resource to determine an origin server associated with the requested resource.

58. (New) The content delivery system as recited in claim 31, wherein the reflector is constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of transmitting the resources to the client machines.

59. (New) The content delivery system as recited in claim 31, further comprising:

a repeater selector mechanism.

60. (New) The content delivery system as recited in claim 59, wherein the reflector comprises the repeater selector mechanism.

61. (New) The content delivery system as recited in claim 36, wherein the load determination mechanism is constructed and adapted to characterize load on the set of repeater servers for use by a reflector in selection of the at least one shared repeater server.

62. (New) The content delivery system as recited in claim 39, wherein the cost determination mechanism is constructed and adapted to measure a cost of delivering resources from each of the set of shared repeater servers to the particular client machine, the cost determination mechanism for use by a reflector in selection of the at least one shared repeater server.

63. (New) The method as in claim 57, wherein a copy of the at least one table is located on each of a plurality of repeater servers.

64. (New) The content delivery system as recited in claim 32, wherein the repeater selector mechanism is part of a reflector.

65. (New) The content delivery system as recited in claim 38, wherein the reflector is co-located with an origin server at which the first resource originates.

66. (New) The content delivery system of claim 31, wherein the reflector selects the at least one repeater server to process a client request for a resource.

67. (New) The content delivery system of claim 32, wherein the repeater selector mechanism selects the at least one repeater server to process a client request for a resource.

68. (New) A server operative in a computer network for delivering resources associated with a plurality of content providers to multiple client machines, wherein the plurality of content providers comprise at least a first content provider and a second content provider distinct from the first content provider, the server comprising:

a table listing content providers of said plurality of content providers having content that is authorized for delivery to client machines via the server,

wherein the server is associated with a first alias name corresponding to said first content provider, and

wherein the server is associated with a second alias name corresponding to said second content provider, said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources associated with the first content provider, and at least some of the resources associated with the second content provider, and

wherein, in response to a request for a resource, the server is operable to use at least the table to analyze an alias name associated with the request to determine a content provider associated with the resource.

69. (New) A server operative in a computer network for delivering resources to multiple client machines, the server comprising:

a table listing a plurality of origin servers having content that is authorized for delivery to client machines via the server,

wherein the repeater server is associated with a first alias name corresponding to a first origin server of the plurality of origin servers, and

wherein the server is associated with a second alias name corresponding to a second origin server of the plurality of origin servers, said second origin server

being distinct from the first origin server and said second alias name being distinct from the first alias name, and

wherein the server is operable to replicate at least some of the resources located on the first origin server, and at least some of the resources located on the second origin server, and

wherein, in response to a request for a resource, the server uses at least the table to analyze an alias name associated with the request to determine an origin server associated with the particular resource.

70. (New) A server as recited in claim 69, wherein the first origin server and the second origin server are associated with distinct content providers located at distinct physical locations.

71. (New) A method as recited in claim 29, wherein the table further comprises, for each of the plurality of content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

72. (New) A method as recited in claim 45, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

73. (New) A server as recited in claim 68, wherein the table further comprises, for each of the listed content providers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

74. (New) A server as recited in claim 69, wherein the table further comprises, for each of the listed origin servers, information from the group consisting of: a reflector name and a committed aggregate information rate (CAIR).

75. (New) A content delivery system as recited in claim 29, wherein the at least one repeater server is configured and adapted to reject the client request for the particular resource if the alias name received with the client request is not included the table.

76. (New) A method as recited in claim 45, further comprising:

rejecting the client request for the particular resource if the alias name received with the client request is not included the table.

77. (New) A method as recited in claim 57, further comprising:

rejecting the client request for the resource if the alias name received with the client request is not included the table.

78. (New) A server as recited in claim 68, wherein in response to a request for a resource, the server is further configured and adapted to reject the request for the resource if the alias name received with the request is not included the table.

79. (New) A server as recited in claim 69, wherein in response to a request for a resource, the server is further configured and adapted to reject the

request for the resource if the alias name received with the request is not included the table.

REMARKS

Reconsideration and allowance of this application are respectfully requested.

Claims 1-26, 43-44, 51, and 53-54 were previously canceled.

By this Amendment, claims 27-28 have been canceled without prejudice or disclaimer of their subject matter; claims 29, 31, 36-41, 45 and 57 have been amended; new claims 58-79 have been added, of which claims 68 and 69 are independent.

No new matter has been added by these amendments.

Claims 29-42, 45-50, 52, and 55-79 are pending in this application.

It should be understood that the Applicant has not invoked 35 U.S.C. § 112, ¶6, with respect to any of the claims of this application (except for the "netmap means" of claim 52). It should further be appreciated that the words "first" and "second" in the claims are used to distinguish and/or identify, and not to show a serial or numerical limitation.

ALLOWABLE SUBJECT MATTER

In the Final Office Action of May 7, 2010, the Examiner indicated that claims 53 and 54 would be allowable if rewritten in independent form, including all of the limitations the base and any intervening claims. (In the *Office Action Summary* of May 7, 2010, the Examiner indicated that claim 53 is rejected and that claim 54 is objected to. However, in the body of the Action, at pg. 7, under the heading *Allowable Subject Matter*, the Examiner indicated that claim 53 was also objected to.)

Claim 53 depended from claim 29, and claim 54 depended from claim 45.

Independent claim 29 has been amended to include certain limitations of claim 53, namely: wherein the at least one shared repeater server is further constructed and adapted to analyze, using the table, an alias name received with a

client request for a particular resource to determine a content provider associated with the particular resource.

Independent claim 45 has been amended to include certain limitations of claim 54, namely: wherein the at least one repeater server is further constructed and adapted to analyze, using the table, an alias name received with a client request for a particular resource to determine an origin server associated with the particular resource.

Independent claim 57 has been amended to include certain limitations of claim 54, namely: wherein the at least one repeater server uses the at least one table and an alias name received with a client request for a resource to determine an origin server associated with the requested resource.

Applicant notes that the term "table" in the claims is not limited to any specifically defined and/or capitalized term in the specification. Rather, the term "table" is only limited by the limitations explicitly recited in the claims. In particular, unless otherwise specifically stated in a claim, the term "table" is not limited to the defined term "subscriber table" or the defined/capitalized term "Subscriber Table," which in the specification is described as having various details not previously recited in claims 53 and 54, such as committed aggregate information rate (CAIR) and reflector names.

Similarly, new independent claims 68 and 69 have been added to recite similar subject matter of independent claims 29, 45 and 57, but in the form of a server (i.e., an apparatus claim).

THE §101 REJECTIONS

In the prior Office Action, the Examiner rejected claims 29-44, 52, 53, and 55 under 35 U.S.C. § 101 as purportedly being directed to non-statutory subject matter. Applicant respectfully traverses this rejection for at least the following reasons.

The Examiner's allegations under 35 U.S.C. §101 are based solely on the Examiner's argument that these claims are unpatentable because they cover software per se. However, in light of the Supreme Court's recent *Bilski* decision concerning 35 U.S.C. §101, *Bilski v. Kappos*, 561 U.S. ____ (2010), the Examiner's rejections are believed moot and withdrawal of these rejections is respectfully requested.

THE PRIOR ART REJECTION

The Examiner had rejected claims 29-38, 43-45, 47, 49-51, and 55-57 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 6,085,193 to Malkin et al. in view of U.S. Patent Number 5,867,706 to Martin et al.

In view of the above amendments to claims 29, 45 and 57, these rejections are believed moot and withdrawal is respectfully requested.

In addition, while Applicant does not agree with these rejections, independent claims 29, 45 and 57 are hereby amended in order to expedite prosecution and to capture allowable subject matter. Applicant reserves all rights to address the merits of Malkin et al. and Martin et al. at a later time, if necessary, and reserves the right in this and related applications to argue that Malkin et al. and/or Martin et al. are not qualified to constitute prior art under §102 in the first place.

CONCLUSION

Applicant respectfully submits that this application is in condition for allowance. An early action to that effect is earnestly solicited.

The Examiner is kindly requested to contact the undersigned at the number provided to schedule a personal interview to resolve any outstanding issues in this case.

In re Application of: FARBER, David et al.
Application S.N.: 11/065,412
Amendment filed with RCE

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.	
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed**.	
CUSTOMER NUMBER 83579	Respectfully submitted, By: **/Brian Siritzky/Reg. No. 37,497** _____ Brian Siritzky, Ph.D. Registration No.: 37,497 July 2, 2010
Davidson Berquist Jackson & Gowdey LLP 4300 Wilson Blvd., 7th Floor, Arlington, Virginia 22203 Main: (703) 894-6400 ● FAX: (703) 894-6430	

Electronic Patent Application Fee Transmittal	
Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	Brian Siritzky
Attorney Docket Number:	0090-US-C03
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	1801	1	810	810
		Total in USD ($)		**810**

Electronic Acknowledgement Receipt	
EFS ID:	7941185
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	02-JUL-2010
Filing Date:	23-FEB-2005
Time Stamp:	14:17:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$810
RAM confirmation Number	533
Deposit Account	501860
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1	Transmittal Letter	2711_0073_PA-IDS_w_RCE_07_02_2010.pdf	201718 2aaf8d8730a6324ebf2997677cd4c11187a23d7b	no	4
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	PA_RCE_07_01_2010.pdf	773136 9ea23b0ce1a51b75828007eed0826012a230d9e8	no	3
Warnings:					
Information:					
3	NPL Documents	NP0031.pdf	13121410 caaa7b8befd2b72563a897a4f653a3f66f8dd41e	no	145
Warnings:					
Information:					
4	NPL Documents	NP0001.pdf	472940 c3efa6ed36158a1cce35ca0d05d3f63d4d3b98cc	no	6
Warnings:					
Information:					
5	NPL Documents	NP0014.pdf	104691 8767a01fed16ea175887b98ca5ab5b50a367c14e	no	8
Warnings:					
Information:					
6	NPL Documents	NP0000.pdf	149630 fa4ec8fac14e16447ad2b31a5c83f10a477edbef	no	7
Warnings:					
Information:					
7	NPL Documents	NP0023.pdf	2261030 f770554342bf1091668926a31155ba92edabe02c	no	18
Warnings:					
Information:					
8	NPL Documents	NP0016.pdf	231862 d81a221d2071e9006cc9de2c1dc78285f598b66d	no	1
Warnings:					
Information:					

9	NPL Documents	NP0032.pdf	125158 52846b06075694862cf4b01dd04adae1f934be62	no	62
Warnings:					
Information:					
10	NPL Documents	NP0028.pdf	265399 a5197362e757b94b932dc80294671aac3dcc89da	no	98
Warnings:					
Information:					
11	NPL Documents	NP0008.pdf	951638 cad7654269cc9a5cde79c185235ff8141719f54a	no	12
Warnings:					
Information:					
12	NPL Documents	NP0007.pdf	70532 89132f807bc466b32f04095c1cb1ae9eaba1d7de	no	1
Warnings:					
Information:					
13	NPL Documents	NP0006.pdf	42445 d91317cc08f0971e1d5a09aff8f98eea5c7a7097	no	1
Warnings:					
Information:					
14	NPL Documents	NP0025.pdf	436515 5b3b38b58bda7bd9611b0bbb99a7195a979180d0	no	72
Warnings:					
Information:					
15	NPL Documents	NP0005.pdf	1357728 65bf37576eceaa36177f2e38e37989a65c92e61e	no	10
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Information:					
16	NPL Documents	NP0004.pdf	1585469 a0334d27edc6ef7e7a7f36e00fb0d17b3ba6c41e	no	28
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Information:					
17	NPL Documents	NP0020.pdf	1699545 aae3f9fa063478c781fc051f6d0d3426342c9c13	no	106
Warnings:					
Information:					

18	NPL Documents	NP0029.pdf	107858 2781eaf007f1a21b9ab734bbad96f6b1e45f194b	no	14
Warnings:					
Information:					
19	NPL Documents	NP0030.pdf	107858 2781eaf007f1a21b9ab734bbad96f6b1e45f194b	no	14
Warnings:					
Information:					
20	NPL Documents	NP0013.pdf	54352 feb896b5e9e9782d1611746920eaca94ac323ded	no	2
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Information:					
21	NPL Documents	NP0003.pdf	37534 ee9600caeed67765f330bd9be7f31c372bf79a40	no	1
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Information:					
22	NPL Documents	NP0017.pdf	493270 71e3cba1a8c97d1d9e238fdb792eba5cf725ca04	no	6
Warnings:					
Information:					
23	Foreign Reference	F0000.pdf	3831627 017b8163ebd6e5b7b151556735293ead5267d541	no	23
Warnings:					
Information:					
24	NPL Documents	NP0034.pdf	2572061 38264254a5e7b9f4c1c89c69a49fef3ef6591134	no	14
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Information:					
25	NPL Documents	NP0018.pdf	331993 4f660cfba7d9d31338262d145b746cf9a802a7ec	no	5
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Information:					
26	NPL Documents	NP0026.pdf	1325299 26c93e3457d868ea24864b055e8160512582aae7	no	24
Warnings:					
Information:					

27	NPL Documents	NP0019.pdf	333353 b8c80a834e0bef29a228c5d849810cdd87139edb	no	4
Warnings:					
Information:					
28	NPL Documents	NP0027.pdf	1272127 a9720a666a7879116ee4d5cd90d4e9e1c6cce2f0	no	40
Warnings:					
Information:					
29	NPL Documents	NP0009.pdf	703144 824c5ceef98ce746df50a865e343872038c714c5	no	9
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Information:					
30	NPL Documents	NP0010.pdf	392253 804fe82327ff749c86b143347a37f02a2b82b2da	no	5
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Information:					
31	NPL Documents	NP0011.pdf	43305 cf46644899a15cdbf9cdc78d8656a291bc04b183	no	1
Warnings:					
Information:					
32	NPL Documents	NP0012.pdf	984349 22dd205517c05992898bacc1daae8deef927d5a0	no	9
Warnings:					
Information:					
33	NPL Documents	NP0002_uploadable.pdf	1911498 468ec5b369a1ffed8e6382a79778dc0844b8e13c	no	22
Warnings:					
Information:					
34	NPL Documents	NP0015_uploadable.pdf	428454 7f00d5265d15acdf65940543a32c32a4f6396648	no	5
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35	NPL Documents	NP0033_uploadable.pdf	86441 5568a43715c61e539ff75932ab8746e74ba50107	no	2
Warnings:					
Information:					

36	NPL Documents	NP0022_uploadable.pdf	46894 e2b0b899758fec1b7547e12c59927da829c756c0	no	5
Warnings:					
Information:					
37	NPL Documents	NP0021_uploadable.pdf	2801456 dc3eeda953e61ab8977e018dbdfdbc8d56f84e81	no	26
Warnings:					
Information:					
38	NPL Documents	NP0024_uploadable.pdf	4335276 d3ce5cd765fbd022ba1ca487596724cde4005817	no	41
Warnings:					
Information:					
39	Information Disclosure Statement (IDS) Filed (SB/08)	2711_0073_PA_1449_07_02_2010_0090_US_C03.pdf	307847 6f59eb685d39c09d1e672b26623bbbdb30f82f50	no	8
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
40	NPL Documents	O1.pdf	46359 a4dbdc88604c4e8bc2af4b649d6a078711654333	no	2
Warnings:					
Information:					
41	NPL Documents	LL_CC_Brief_333_pgs_uploadable_from_TIFFs.pdf	22743753 1615ad2d8455c5bc3ecc0d4050b282f40ed3e2c3	no	333
Warnings:					
Information:					
42		PA_Amendment_with_RCE_07_02_2010.pdf	257005 e60e2ce9ebbc5d67820b28625825322de3e6d324	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	14
	Applicant Arguments/Remarks Made in an Amendment	15	18

Warnings:	
Information:	

43	Fee Worksheet (PTO-875)	fee-info.pdf	30428 02161354635dc0a8d0077a5047fbd39c1ad460a6	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	69436640	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF: FARBER et al.	Attorney Docket: 0090-US-C03
	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: 02-23-2005	Confirmation No.: 3296
Title: SHARED CONTENT DELIVERY INFRASTRUCTURE	Date: July 2, 2010

INFORMATION DISCLOSURE STATEMENT
(filed with RCE)

---

via EFS-WEB
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

This Information Disclosure Statement is being filed with a Request for Continued Examination (RCE). No certification or fee is required.

RELATED APPLICATIONS

The Examiner's attention is again directed to the following related applications:

Country/Entity	Application No.	Status
US	09/021,506	issued U.S. Patent No. 6,185,598
US	09/612,598	abandoned
US	09/930,975	abandoned
US	10/004,430	issued U.S. Patent No. 6,554,807
US	10/095,811	issued U.S. Patent No. 7,054,935
US	11/441,253	Pending
US	11/806,147	Pending
US	11/806,152	Pending
US	11/806,153	Pending
US	11/806,154	Pending
US	11/980,356	Pending
US	11/980,686	Pending
US	11/980,689	Pending
US	11/980,684	Pending
US	11/980,401	Pending
CA	2,320,261	Pending
JP	2000-530860	Granted (JP 4413426)
JP	2007-212908	Pending
EP	99906680.6	Granted (EP1053524)
EP	00128346.4	Granted (EP1143337)
EP	080053499	Pending
EP	07024629.3	Pending
WIPO	PCT/US99/01477	expired
NO	2004010	Granted (NO327863)

As noted, this application is related to U.S. Patent No. 6,185,598 which issued from U.S. application no. 09/021,506 filed February 10, 1998 (hereinafter "the '506 Application"). European Patent No. 1053524 (hereinafter "EP 524"), granted June 19, 2009, also claimed priority to the '506 application (as European Patent Application No. 99906680.6 - 221 1). On April 27, 2010, EP 524 was

opposed under European Patent Law by Akamai Technologies, Inc. Submitted herewith are documents relating to that opposition.

The Examiner is requested to contact the undersigned with any questions regarding the European patent applications or the opposition.

The Japanese Patent Office (JPO) issued a non-final official action on March 30, 2010 in Japanese application No. 2007-212908. Submitted herewith is a summary English-language translation of that Office Action. The office action from the JPO cited two references:

	Reference
1	YOKOHASHI Takao, System Architectonic Solaris 2.x, 26th, UNIX USER, Japan, Softbank Corp., January 1, 1998, Volume 7, Number 1, p.89-96.
2	Japanese Patent Application Publication No. H8-4464, Application No. 06-175125, filed 07/27/1994, published 02/16/1996.

A translation of Ref. 2 is provided herewith. For the relevance of Ref. 1, please see the summary English-language translation of the Office Action.

The Examiner is requested to contact the undersigned with any questions regarding the Japanese patent/application.

Documents from Canadian patent application no. 2,320,261 are cited herein. The Examiner is requested to contact the undersigned with any questions regarding the Canadian application.

This IDS cites documents from litigation in related U.S. Patents Nos. 7,054,935 and 6,654,807. The PTO was previously advised of that litigation. The Examiner is again requested to contact the undersigned with any questions about this litigation.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt

notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed**.

CUSTOMER NUMBER

83579

Davidson Berquist Jackson & Gowdey LLP
4300 Wilson Blvd., 7th Floor,
Arlington Virginia 22203
(703) 894-6400 ● FAX: (703) 894-6430

Respectfully submitted,

/Brian Siritzky/Reg. No. 37,497

By:_____

Brian Siritzky, Ph.D.
Registration No.: 37,497
Date: July 2, 2010

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/065,412	Filing Date 02/23/2005	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/02/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 46	Minus	** 48	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/DEBORAH NASH/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	0090-US-C03	3296

83579 7590 05/07/2010

LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
05/07/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@cpaglobal.com

Office Action Summary	Application No.	Applicant(s)	
	11/065,412	FARBER ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-50 and 52-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-50,52,53 and 55-57* is/are rejected.

7)☒ Claim(s) *54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :2/23/09, 7/09/09, 7/17/09, 7/17/09, and 7/29/09.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 29-57 in the reply filed on 1/25/2010 is acknowledged.

Claims 27 and 28 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/25/2010.

Response to Arguments

Applicant's arguments with respect to the prior art rejections of claims 29-57 have been considered but are moot in view of the new ground(s) of rejection.

The applicant's arguments against the 101 rejection are not persuasive because the term "system" is broad enough to cover software and a server is by definition a software element which answers socket connections. If the claimed servers and system are supposed to be directed towards hardware then they should be amended to explicitly do so or the applicant should point out how the applicant's specification limits the claimed system and/or servers to hardware elements.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 29-44, 52, 53, and 55 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 29-44, 52, 53, and 55 are directed towards a system comprising a server, reflector, a load determination mechanism, and a cost determination mechanism. These elements are not explicitly disclosed as being directed towards hardware elements. Therefore claims 29-44 cover software per se. Claims directed towards software per se are not a process, machine, article of manufacture, or a composition of matter and thus they do not fit into any of the statutory categories of invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 29-38, 43-45, 47, 49-51, and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,085,193 to Malkin et al. in view of U.S. Patent Number 5,867,706 to Martin et al.

As to claim 29, Malkin teaches a content delivery operative in a computer network for delivering resources associated with a plurality of content providers **(content servers 20)** to multiple client machines, the system comprising: at least one shared repeater server constructed and adapted to replicate at least some of the resources associated with a first content provider of said plurality of content providers, and to replicate at least some of the resources associated with

a second content provider of said plurality of content providers **(the proxy servers 24 are the repeater servers)**; wherein at least a first resource associated with the first content provider is associated with a first name and wherein requests for the first resource made from said client machines are directed to the at least one shared repeater server **(Figure 3A and corresponding disclosure)**; and wherein at least a second resource associated with the second content provider are is associated with a name; and wherein requests for the second resource made from said client machines are directed to the at least one shared repeater server **(Figure 3A and corresponding disclosure)**; however Malkin does not explicitly teach the use of alias names to identify the repeater server.

Martin teaches identifying a first resource associated with a content provider by using alias names, the alias name being associated with a repeater server (col. 6, lines 17-33).

It would have been obvious to one of ordinary skill in the Computer Networking art at the time of the invention to combine the teachings of Malkin regarding a content delivery network with multiple content providers with the teachings of Martin regarding the identification of repeater servers using alias names because alias names allow a client to easily identify a repeater server without an additional lookup (Martin, col. 6, lines 44-60).

As to claim 30, Martin teaches multiple repeater servers that are addressable using first and second alias names and thus satisfies the "at least one" limitation.

As to claim 31, Martin teaches a reflector constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of' transmitting the resources to the client machines (col. 6, line 56-col. 9, line 9).

As to claim 32, Malkin teaches a set of shared repeater servers that comprises the at least one server; and a reflector constructed and adapted to associate the first resource with the first name after selecting the at least one shared repeater server from the set of shared servers in response to a request for the first resource issued by a particular client machine; however Malkin does not teach alias names. It would be obvious to combine the teachings of Malkin with the teachings of Martin regarding alias names for the reasons explained in the rejection of claim 29.

As to claim 33, Martin teaches a system in which at least one of the first resource and the second resource is an embedded object (col. 6, lines 17-33).

As to claims 34 and 35, Martin teaches requests comprising host tag names that identify specific origin servers from which the resources originate that are included in HTTP headers (col. 6, lines 17-33).

As to claim 36, Martin teaches the distributed hosting framework as recited in claim 32, further comprising: a load determination mechanism constructed and adapted to characterize load on the set of content servers for use by the reflector in selecting the at least one shared content server **(col. 6, line 56-col. 9, line 9)**.

As to claim 37, Martin teaches the distributed hosting framework as recited in claim 36, wherein the reflector comprises the load mechanism **(col. 6, line 56-col. 9, line 9)**.

As to claim 38, Martin teaches the distributed hosting framework as recited in claim 37, wherein the reflector is co-located with an origin server **(col. 6, line 56-col. 9, line 9)**.

As to claim 43, Martin teaches the distributed hosting framework as recited in claim 29, further including a redundant name server **(col. 5, line 61-col. 6, line 16)**.

As to claim 44, Martin teaches the distributed hosting framework as recited in claim 29, wherein the at least one name server comprises: at least one first level name server that provides a first level domain name service (DNS) resolution; and at least one second level name server that provides a second level DNS resolution **(col. 5, line 61-col. 6, line 16)**.

As to claims 45, 47, 49, and 57, they are rejected for the same reasoning as claim 29 and its dependents.

As to claim 49, Martin teaches resources comprise an HTTP-based resource (col. 6, lines 17-33).

As to claim 50, Martin teaches the resources comprise a File Transfer Protocol (FTP)-based resource (col. 1, lines 25-30).

As to claims 55 and 56, Martin teaches the claimed DNS resolution (col. 5, line 61-col. 6, line 16).

Claims 39-42, 46, 48, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,085,193 to Malkin et al. in view of U.S. Patent Number 5,867,706 to Martin et al. in view of U.S. Patent Number 6,052,718 to Gifford et al.

As to claims 39-42, 46, and 48, the Malkin-Martin combination teaches the claimed scenarios for load balancing objects however the Malkin-Martin combination does not teach choosing a server based on the performance for a particular client. Gifford teaches the selection of a load balanced server based on the performance that it can provide a particular client system (See Figures 4A and 4B and corresponding text). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of the Malkin-Martin

combination regarding a method for load balancing embedded objects with the teachings of Gifford regarding selecting a load balanced server that performs well for a particular client because doing so enhances performance for clients (col. 1, lines 42-57 of Gifford). Martin teaches a netmap means (load balancing).

Allowable Subject Matter

Claims 53 and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record was not found to anticipate or make obvious the claimed subscriber table and analysis.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Lee can be reached on (571) 272-3967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 11/065,412	Applicant(s)/Patent Under Reexamination FARBER ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,085,193	07-2000	Malkin et al.	1/1
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

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Class	Subclass	Date	Examiner
709	217,219,245	9/15/2008	DBB
	update	12/30/08	DBB
	update	4/15/2010	DBB

SEARCH NOTES		
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East text search	9/15/2008	DBB
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update	4/15/2010	DBB

INTERFERENCE SEARCH			
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EAST Search History

EAST Search History (Prior Art)

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S30	18	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S31	1	S30 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S32	0	(S23 S25 S27 S29 S31) and @pd>"20080801"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:45
S33	83	((redundan$2 or failover or backup) near2 (dns or "domain name service"))	US-PGPUB; USPAT	OR	OFF	2008/12/30 22:46

S34	24	S33 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:46
S35	6	("7054935" "6654807" "6473405").pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 22:58
S36	2	"20050198334".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:01
S37	1	replicat$3 near "domain name"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:04
S38	3186	replicat$3 with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:04
S39	878	S38 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:05
S40	5	S38 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:05
S41	1	S40 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:06
S42	8482	(mirror$3 or cluster$1 or replicat$3) with (domain or URL or website)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08
S43	13	S42 same subdomain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08

S44	3	S43 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:08
S45	12	S42 same hostname	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:09
S46	0	S45 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:09
S47	312	S42 same (domain near (name or format$4))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:10
S48	31	S47 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:10
S49	57	blair.xa. and douglas.xa.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/30 23:36
S50	0	("7281032").URPN.	USPAT	OR	OFF	2008/12/30 23:37
S51	46	("4802164" | "4837680" | "5155845" | "5680574" | "5774660" | "5781908" | "5841980" | "5867706" | "5878218" | "5890156" | "5917998" | "5920725" | "5950203" | "6003045" | "6006264" | "6052718" | "6061685" | "6061761" | "6088330" | "6088766" | "6092213" | "6189071" | "6230190" | "6237063" | "6282671" | "6314458" | "6324580" | "6324692" | "6397292" | "6408369" | "6487634" | "6502205" | "6516350" | "6542962" | "6601101" | "6606643" | "6633538" | "6654752" | "6694406" | "6799245" | "6826613" | "6912668" | "6922724" | "7051066" | "7072979" | "7188157").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/12/30 23:37

		OR ("7281032").URPN.				
S52	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/04 17:24
S53	6	(choos$3 or pick$3 or select $4) with (cluster or farm) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:28
S54	0	S53 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:28
S55	156	(choos$3 or pick$3 or select $4) near2 (server$1) with (proximity or locat$3) near2 client$1	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:29
S56	15	S55 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:29
S57	0	S56 and (embed$4 near object$1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/04 18:30
S58	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/04 18:51
S59	8515	(mirror$3 or cluster$1 or replicat$3) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:24
S60	20	S59 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:25
S61	1	S60 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:25
S62	331	S59 and ((request$3 or obtain $3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:26
S63	8	S62 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:26

S64	3651	(farm) near server$1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S65	3	S64 same ((request$3 or obtain$3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S66	100	S64 and ((request$3 or obtain $3) near2 (object$1 or resource$1) with cach$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S67	0	S66 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:31
S68	11689	(mirror$3 or cluster$1 or replicat$3 or farm) near server $1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S69	153	S68 same (fetch$3 or replicat $3) near (object$1 or resource $1)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S70	26	S69 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:32
S71	82	S68 and (obtain$3 or request $3 or fetch$3 or replicat$3) near (object$1 or resource$1) with peer	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:45
S72	0	S71 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 11:45
S73	21	nagling	US-PGPUB; USPAT	OR	OFF	2009/02/25 16:44
S74	14	S73 and (@ad<"20050127" @rlad<"20050127")	US-PGPUB; USPAT	OR	OFF	2009/02/25 16:46

S75	11689	(mirror$3 or cluster$1 or replicat$3 or farm) near server $1	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:36
S76	197	S75 and (object$1 or resource $1) near (invalid$5 or expir $6)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:36
S77	21	S76 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/02/25 19:37
S78	59	(blair.xa. and douglas.xa.) or (blair.xp. and "douglas.xp")	US-PGPUB; USPAT	OR	OFF	2009/02/27 09:56
S79	82	(blair.xa. and douglas.xa.) or (blair.xp. and douglas.xp.)	US-PGPUB; USPAT	OR	OFF	2009/02/27 09:57
S80	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/05/18 12:03
S81	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/10/23 15:45
S82	1	"20060218265".pn.	US-PGPUB; USPAT	OR	OFF	2009/10/23 15:53
S83	1	"6654807".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:07
S84	1	"7054935".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:09
S85	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:16
S86	1	"6473405".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:16
S87	1	"6275470".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:17
S88	89	prepend$3 near3 domain	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S89	3	S88 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S90	14	prepend$3 with domain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42

S91	0	S90 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:42
S92	3	S89 S91	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:42
S93	84	subdomain with URL	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S94	5	S93 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S95	18	"embedded object URL"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S96	1	S95 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/11/12 10:44
S97	6	S94 S96	US-PGPUB; USPAT	OR	OFF	2009/11/12 10:44
S98	1	"20050198334".pn.	US-PGPUB; USPAT	OR	OFF	2009/11/22 12:09
S99	1921	"content delivery system"	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:38
S100	41	S99 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:38
S101	2	S100 and repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:39
S102	235	(hosting or (service$1 near provider$1)) with repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:40
S103	2	S102 and (repeater$1 with alias$3)	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:40
S104	0	S103 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:41
S105	29	S102 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:41
S106	44	(hosting or (internet with ((domain$1 or service$1) near provider$1))) with repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:42
S107	2	S106 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:42

S108	137	(hosting or (internet with ((domain$1 or service$1) near provider$1))) same repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:42
S109	10	S108 and alias$3	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:43
S110	0	S109 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:43
S111	6	S108 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:43
S112	2	S102 and (origin near server $1)	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:44
S113	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:45
S114	239	("4495570" | "4594704" | "4726017" | "4839798" | "4920432" | "4949187" | "4949248" | "5172413" | "5253341" | "5287537" | "5291554" | "5341477" | "5371532" | "5410343" | "5414455" | "5442389" | "5442390" | "5442749" | "5471622" | "5475615" | "5508732" | "5515511" | "5519435" | "5528281" | "5539621" | "5544313" | "5544327" | "5550577" | "5550863" | "5550982" | "5557317" | "5572643" | "5590288" | "5592611" | "5594910" | "5603026" | "5619648" | "5623656" | "5625781" | "5627829" | "5630067" | "5633999" | "5634006" | "5644714" | "5649186" | "5659729" | "5666362" | "5671279" | "5682512" | "5699513" | "5715453" | "5721914" | "5734831" | "5742762" | "5761663" | "5774660" | "5774668" | "5796952" | "5799141" | "5828847" | "5870546" | "5956716" | "5991809" | "6065062").PN. OR ("6185598").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/04/15 17:45
S115	66	S114 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 17:45
S116	2345	domain near host$3	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:00
S117	238	S116 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:01

S118	0	S117 and repeater$1 near server$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:01
S119	10	S117 and repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:01
S120	1313	domain adj host$3	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:02
S121	169	S120 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:02
S122	169	S121 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:03
S123	2	S121 and repeater$1	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:03
S124	121	S116 same (ISP or (service near provider$1))	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:04
S125	3	S124 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:04
S126	52	S117 and (cluster$3 or reflector$1 or mirror$1)	US-PGPUB; USPAT	OR	OFF	2010/04/15 18:05
S127	1	"6185598".pn.	US-PGPUB; USPAT	OR	OFF	2010/04/26 09:50
S128	1	"5742762".pn.	US-PGPUB; USPAT	OR	OFF	2010/04/26 09:58
S129	1	"5742762".pn.	US-PGPUB; USPAT	OR	OFF	2010/05/01 08:41
S130	287	("5327544" | "5491693" | "5491796" | "5508732" | "5530852" | "5533116" | "5559800" | "5581558").PN. OR ("5742762").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/05/01 09:43
S131	132	S130 and (@ad<"19980210" @rlad<"19980210")	US-PGPUB; USPAT; USOCR	OR	OFF	2010/05/01 09:44
S132	1936	"content delivery system"	US-PGPUB; USPAT	OR	OFF	2010/05/01 09:46
S133	20	S131 and (S132 or farm$1 or cluster$3)	US-PGPUB; USPAT; USOCR	OR	OFF	2010/05/01 09:46

EAST Search History (Interference)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 1	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2142
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
/DB/	1-1	US-5777988	Jul-98	Cisneros
/DB/	1-2	US-5940831	08-1999	Takano
/DB/	1-3	US-6324580	11-2001	Jindal
/DB/	1-4	US-6351775	02-2002	Yu
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Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 2		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
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/DB/	1-2	US-6222856	2001/04	Krishnan et al.
/DB/	1-3	US-6452925	2002/09	Sistanizadeh et al.
/DB/	1-4	US-6779031	2004/08	Picher-Dempsey, Heidi
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Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 2 of 2		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
/DB/	2-1	"Opinion and Order," (Markman – claim construction Order), U.S. Dist. Judge Mark S. DAVIS, Dec. 10, 2008 in Civil Action No. 2:07cv589 (WDK-FBS), in US District Court, Norfolk, VA. [51 pgs.].	
/DB/	2-2	Jury VERDICT FORM in Civil Action No. 2:07cv589 (MSD-FBS), January 23, 2009 [3 pgs.]	
/DB/	2-3	Non-Final Office Action in U.S. Appln. No. 11/980,689, May 20, 2009.	
	2-4		
	2-5		
	2-6		
	2-7		

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 3		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
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/DB/	1-2	US-2003/0149581	Aug-03	Chaudhri
/DB/	1-3	US-5522070	May 28, 1996	Sumitomo, S.
/DB/	1-4	US-6094680	2000/07	Hokanson, Tukkar Erik
/DB/	1-5	US-6108703	August 2000	Leighton et al.
/DB/	1-6	US-6115752	September 2000	Chauhan
/DB/	1-7	US-6144996	11/2000	Starnes et al.
/DB/	1-8	US-6154738	11/2000	Call
/DB/	1-9	US-6185598	02/2001	Farber
/DB/	1-10	US-6195680	02/27/01	Goldszmidt
/DB/	1-11	US-6226618	05/01/01	Downs
/DB/	1-12	US-6263313	07/17/01	Milsted
/DB/	1-13	US-6272566	08/07/01	Craft
/DB/	1-14	US-6327622	Dec-04-2001	Jindal et al.
/DB/	1-15	US-6398245	06/04/02	Gruse
/DB/	1-16	US-6418421	07/09/02	Hurtado
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/DB/	1-19	US-6463508	10/08/02	Wolf
/DB/	1-20	US-6587837	07/01/03	Spagna
/DB/	1-21	US-6654807	25-Nov-03	Farber et al.
/DB/	1-22	US-6763377	07/13/04	Belknap et al
/DB/	1-23	US-6785704	08/2004	McCanne, Steve
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Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 2 of 3	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
/DB/	2-1	US-7103564	09/05/06	Ehnebuske
/DB/	2-2	US-7110984	09/19/06	Spagna
/DB/	2-3	US-7117259	10/03/06	Rohwer
/DB/	2-4	US-7188085	03/06/07	Pelletier
/DB/	2-5	US-7206748	04/17/07	Gruse
/DB/	2-6	US-7254645	Aug-07	Nishi
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Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 3 of 3		
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NON-PATENT REFERENCES			
Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
/DB/	3-1	Cisco Systems, Inc., http://www.cisco.com/warp/public/751/disttdir/dd wp.htm", (1997), 1-4	
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/DB/	3-3	U.S. P.T.O. Office Action in U.S. Appln. No. 11/980,684, May 19, 2009	
	3-4		
	3-5		
	3-6		
	3-7		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
Sheet 1 of 20	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	ANSWER OF DEFENDANT LIMELIGHT NETWORKS, INC. in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) Feb. 1, 2008 [14 pgs.]	
	1-2	ANSWERING REPORT OF SCOTT BRADNER PURSUANT TO FED. R. CIV. 26 (a)(2)(B) CONCERNING THE VALIDITY OF U.S. PATENT NOS. 7,054,935 AND 6,654,807, in CIVIL ACTION NO. 2:07CV589 (RGD-FBS) (E.D. Va.), August 25, 2008 [83 pgs.]	
	1-3	DEFENDANT LIMELIGHT NETWORKS, INC.'S CLAIM CONSTRUCTION BRIEF FOR U.S. PATENT NOS. 6,654,807; 7,054,935; AND 6,473,405, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), June 27, 2008 [38 pgs. + exhibits]	
	1-4	DEFENDANT LIMELIGHT NETWORKS, INC.'S REPLY BRIEF IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT OF NON-INFRINGEMENT AND INVALIDITY OF ALL PATENTS-IN-SUIT, in Civil File No. 2:07CV589 (E.D. Va.), Oct. 1, 2008 [21 pgs.]	
	1-5	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 205, doc. titled "Leapfrog Project Overview," Andrew Swart, 8/29/96 [2 pgs.]	
	1-6	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 206, doc. titled "Leapfrog Management Meeting Agenda," 10/1/1996 [1 pg.]	
	1-7	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 207, letter from Andrew D. Swart, Sandpiper Networks to Jean-Claude Asscher, 2/25/1997 [2 pgs.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 2 of 20		
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	Group Art Unit	2442
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	Attorney Docket No.	2711-0073
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NON-PATENT REFERENCES			
Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	2-1	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 209, email from David A. Farber sent Apr. 19, 1999 [5 pgs.]	
	2-2	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 210, email from Andrew Swart sent Apr. 24, 1999 [2 pgs.]	
	2-3	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 211, email from Will Crowder sent May 6, 1999 [10 pgs.]	
	2-4	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 212, email from Rick Greer sent Sept. 20, 1999 [11 pgs.]	
	2-5	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 213, email from Mike Warren sent Feb. 25, 2000 [3 pgs.]	
	2-6	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 216, email from "Andrew" sent 11/30/1999 [7 pgs.]	
	2-7	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 219, email from "Andrew" sent Sept. 24, 1996 [3 pgs.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 3 of 20		
	Application No.	11/065,412
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	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
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NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	3-1	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 220, document titled "Statement of Opposition, European Patent No. 1 143 337 B", April 23, 2004 [41 pgs.]	
	3-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 154, email [4 pgs.]	
	3-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 155, document titled "WebRepeater™ Functional Requirements," Dave Farber, Sandpiper Software Consulting, LLC, June 18, 1996. [20 pgs.]	
	3-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 156 doc. titled "Project Status Meeting Reports," 08/04/97 [3 pgs.]	
	3-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 157, copy of parts of U.S. Pat. Appln. No. 09/021,506 from PTO [68 pgs.]	
	3-6	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 158, documents from PTO file for U.S. Pat. Appln. No. 09/612,598 [59 pgs.]	
	3-7	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 159, email from Dave Farber sent Mar. 14, 1997 [12 pgs.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 4 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	4-1	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 160, email from "Andrew" sent 1/15/1997 [3 pgs.]	
	4-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 161, email from "Will", sent 10/17/1997 [24 pgs.]	
	4-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 162, email from Rick Greer sent Jan. 20, 1999 [7 pgs.]	
	4-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 163, email from "Andrew" sent 7/22/1996 [2 pgs.]	
	4-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 164, copy of European Patent No. 1 143 337 (WO 99/40514) [64 pgs.]	
	4-6	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 165, copy of European Patent Specification No. 1 143 337 [31 pgs.]	
	4-7	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 166, email from Will Crowder sent Aug. 24, 1997 [1 pg.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 5 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	5-1	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 167, email from Chris Newton sent 10/26/2000 [7 pgs.]	
	5-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 168, document titled "Sandpiper Raises $6.6 Million to Boost Content Distribution For Web Publishers," May 19, 1998 [2 pgs.]	
	5-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 169 document titled "Sandpiper Launches Footprint Distribution Service to Improve Web Site Performance; Cost-Effective Service Manages Content Delivery for Web Publishers," Sept. 28, 1998 [3 pgs.]	
	5-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 170 document titled "Sandpiper Completes New Executive Management Team; Sandpiper Poised for Growth with Strong Executive Team," Sept. 28, 1998 [2 pgs.]	
	5-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 171 document titled "Sandpiper Addresses Web Content Management Problems At Herring On Hollywood; -- New Technology Company Offers Solutions to Entertainment Industry's Internet Woes," Sept. 28, 19	
	5-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 10, email from David A. Farber, Jan. 11, 1999 [4 pgs.]	
	5-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 6 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	6-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 12, email from David A. Farber, Jan. 18, 1999	
	6-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 13, email from Will Crowder, Feb. 17, 1999.	
	6-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 155 document titled "WebRepeater™ Functional Requirements," Dave Farber, Sandpiper Software Consulting, LLC, June 18, 1996.	
	6-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 16 email from Will Crowder, May 6, 1999.	
	6-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 166, email from Will Crowder, Aug. 24, 1997.	
	6-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 19, email from David A. Farber, May 12, 1999.	
	6-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 2, email from Dave Farber dated 10/15/1997 [2 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
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NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	7-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 22, document titled "Patent Claim: Resource Request Redirector," Dave Farber, Sandpiper Software Consulting, LLC, Draft 3, May 24, 1996.	
	7-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 226, email from Peggy Balesteri, 08/07/2008.	
	7-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 227, email from Dave Farber, May 29, 1996	
	7-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 228, email from "Dave" dated 7/12/1996	
	7-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 229, email from "Andrew" dated 7/22/1996	
	7-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 230, email from "Dave" dated 7/10/1996	
	7-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 231, document titled "Patent Claim: Network Reflector/Repeater," Dave Farber, Sandpiper Software Consulting, LLC, Draft 5, July 2, 1996	

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	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
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NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	8-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 232, document titled "WebRepeater Features Comparison", Sandpiper Software Consulting, 09/17/96	
	8-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 233, email from "Hussain" sent 09/19/1998	
	8-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 234, email from "Scott" sent 5/30/1998	
	8-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 235, email from "Andrew" sent 2/12/1999	
	8-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 236, email from David A. Farber sent April 19, 1999	
	8-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 237, email from David A. Farber sent May 12, 1999	
	8-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 238, email from David A. Farber sent 5/6/1999 [1 pg.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	9-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 239, document titled "Footprint DNS Server Mini-Specification," Will Crowder, 04/23/99,	
	9-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 240, email from "David" sent 6/4/1999	
	9-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 241, email from David A. Farber sent Dec. 6, 1999	
	9-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 242, email from Chris Newton, sent 10/26/2000	
	9-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 243, email from "Andrew" sent 7/24/2000	
	9-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 244, email from Andrew Swart sent Nov. 12, 1999	
	9-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 245, email from Andrew Swart sent 8/23/2002	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 10 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	10-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 246, email from "Jim" sent 12/16/1999	
	10-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 247, email from "Jim" sent 11/17/1999	
	10-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 248, email from "Jim" sent 11/17/1999	
	10-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 249, email from Will Crowder sent Dec. 21, 1998.	
	10-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 250, email from Chris Newton sent Feb. 15, 2000.	
	10-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 5, copy of U.S. Pat. No. 6,654,807 [28 pgs.]	
	10-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 6, copy of U.S. Pat. No. 7,054,935 [14 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 11 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	11-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 7, email from David A. Farber, 12/21/1998 [2 pgs.]	
	11-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 8, email from David A. Farber, Jan. 11, 1999 [1 pg.]	
	11-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 9, email from Jim Balter, 04/19/1999 [4 pgs.]	
	11-4	DEPOSITION OF JAMES A. BALTER in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), August 8, 2008, Deposition Exhibit 1, Subpoena in Civil Case [10 pgs.]	
	11-5	DEPOSITION OF JAMES A. BALTER in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), August 8, 2008, Deposition Exhibit 2, email from Dave Farber dated 10/15/1997 [2 pgs.]	
	11-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 10, email from David A. Farber dated Jan. 11, 1999 [4 pgs.]	
	11-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 12 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	12-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 12, email from David A. Farber dated Jan. 18, 1999 [4 pgs.]	
	12-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 13, email from Will Crowder dated Feb. 17, 1999 [9 pgs.]	
	12-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 14, email from Jim Balter dated 09/08/2000 [3 pgs].	
	12-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 15, email from Will Crowder dated May 12, 1999 [2 pgs.]	
	12-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 16, email from Will Crowder dated May 6, 1999 [2 pgs.]	
	12-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 17, email from Will Crowder dated April 22, 1999 [9 pgs.]	
	12-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 18, email from Jim Balter dated April 22, 1999 [1 pg.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 13 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	13-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 19, email from David A. Farber dated May 12, 1999 [1 pg.]	
	13-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 20, email from lf-tech@sandpiper.com dated 11/25/1997 [3 pgs.]	
	13-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 21, document titled "Patent Claim: HTTP Redirector" Draft 2, May 20, 1996, Dave Farber, Sandpiper Software Consulting, LLC [11 pgs.]	
	13-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 22, document titled "Patent Claim: Resource Request Redirector," Dave Farber, Sandpiper Software Consulting, LLC, Draft 3, May 24, 1996 [17 pgs.]	
	13-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 23, document titled "Patent Claim: Network Reflector/Repeater," Dave Farber, Sandpiper Software Consulting, LLC, Draft 5, July 2, 1996 [21 pgs.]	
	13-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 24, document titled "Software Design Specification: Advanced Rewrite Tool," J. Balter, 12/3/99, Sandpiper Networks, Inc.	
	13-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 3, email from Andrew Swart dated April 1, 1998 [1 pg.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 14 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	14-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 4, email from Rick [Richard] Greer dated 12/14/1998 [6 pgs]	
	14-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 5, copy of U.S. Patent No. 6,654,807 [28 pgs.]	
	14-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 6, copy of U.S. Patent No. 7,054,935 [24 pgs.]	
	14-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 7, email from David A. Farber dated Dec. 21, 1998 [2 pg.]	
	14-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 8, email from David A. Farber dated Jan. 11, 1999 [1 pg.]	
	14-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 9, email from Jim [James] Balter dated 04/19/1999 [4 pgs.]	
	14-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 15 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	15-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 12, email from David A. Farber sent Jan. 18, 1999 [4 pgs.]	
	15-2	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 195, document titled "Web Repeater" (Interactive Systems Corporation), Sandpiper Software, 11/23/96, [80 pgs]	
	15-3	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 196, Subpoena in Civil Case 2:07cv589 RGD/FBS (E.D. Va.), 6/19/08 [10 pgs.]	
	15-4	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 197, email from Rick Greer sent 2/18/1999 [3 pgs.]	
	15-5	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 198, email from Rick Greer sent 1/20/99 [7 pgs.]	
	15-6	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 199, email from Rick@sandpiper.com sent 10/9/1998	
	15-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 200 email from Rick@sandpiper.com sent 10/2/1998 [2 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 16 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	16-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 201, email from Will Crowder sent 12/21/1998 [2 pgs.]	
	16-2	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 202, email from rick@digisle.com sent 11/20/2000 [2 pgs.]	
	16-3	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 203, mail from David A. Farber sent 11/3/1999 [1 pg.]	
	16-4	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 4, email from Rick Greer sent Dec. 14, 1998 [6 pgs.]	
	16-5	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 5, copy of U.S. Pat. No. 6,654,807 [28 pgs.]	
	16-6	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 6, copy of U.S. Pat. No. 7,054,935 [24 pgs.]	
	16-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 7, email from David A. Farber sent 12/21/1998 [2 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 17 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	17-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 8, email from David A. Farber sent Jan. 11, 1999 [4 pgs.]	
	17-2	DEPOSITION Transcript OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [redacted, 98 pgs.]	
	17-3	DEPOSITION Transcript OF Andrew D. SWART, Sept. 5, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [redacted, 78 pgs.]	
	17-4	Deposition transcript of David A. Farber, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [87 pgs.]	
	17-5	DEPOSITION Transcript OF JAMES A. BALTER, AUGUST 8, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [69 pgs.]	
	17-6	DEPOSITION transcript of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [79 pgs.]	
	17-7	Exhibit A to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [14 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 18 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	18-1	Exhibit B to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [12 pgs.]	
	18-2	Exhibit C to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [12 pgs.]	
	18-3	Exhibit D to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [13 pgs.]	
	18-4	Joint Statement Regarding Claim Construction with Exhibit "The '807 and '935 Footprint Patents," in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), filed 07/09/08 [27 pgs.]	
	18-5	LEVEL 3'S MEMORANDUM OF LAW IN REPLY TO LIMELIGHT'S CLAIM CONSTRUCTION BRIEF, in Civil File No. 2:07CV589 (E.D. Va.), July 3, 2008 [24 pgs. + exhibits]	
	18-6	LEVEL 3'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), in Civil File No. 2:07CV589 (E.D. Va.), Feb. 9, 2009 [3 pgs.]	
	18-7	LEVEL 3'S REPLY IN FURTHER SUPPORT OF ITS MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), Mar. 12, 2009, in Civil Action No. 2:07cv589 (MSD-FBS) (E.D. Va.) [22 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 19 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	19-1	LIMELIGHT NETWORKS, INC.'S Claim Construction Hearing Presentation, July 14, 2008, in Civil File No. 2:07CV589 (E.D. Va.) [123 pgs]	
	19-2	LIMELIGHT'S OPPOSITION TO LEVEL 3'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), Mar. 2, 2009, in Civil Action No. 2:07cv589 (MSD-FBS) (E.D. Va.) [31 pgs.]	
	19-3	Markman PowerPoint Presentation, July 9, 2008 in Civil File No. 2:07CV589 (E.D. Va.) [16 pgs.]	
	19-4	MEMORANDUM OF LAW IN SUPPORT OF LEVEL 3's PROPOSED CLAIM CONSTRUCTIONS in Case No. 2:07cv589 RDG FBS, (E.D. Va.) June 14, 2008 [32 pgs. + exhibits]	
	19-5	REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [62 pgs.]	
	19-6	SECOND SUPPLEMENTAL EXPERT REPORT OF DR. KEVIN C. ALMEROTH Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Dec. 24, 2008 [9 pgs.]	
	19-7	SUPPLEMENTAL ANSWERING REPORT OF SCOTT BRADNER PURSUANT TO FED. R. CIV. 26(a)(2)(B) CONCERNING THE VALIDITY OF U.S. PATENT NO. 6,654,807 CIVIL ACTION NO. 2:07CV589 (RGD-FBS) (E.D. Va.) 12/10/2008 [28 pgs.]	

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DB/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 20 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	20-1	TRANSCRIPT of Proceedings for Jury Trial, Norfolk, VA, Jan. 7 to 23, 2009, in Civil Action No. 2:07cv589 (E.D. Va.) [1052 pgs.]	
	20-2	TRANSCRIPT of Proceedings for Markman Follow-up Hearing, Norfolk, VA, October 23, 2008, in Civil Action No. 2:07cv589 (E.D. Va.) [58 pgs.]	
	20-3	TRANSCRIPT of Proceedings for Markman Hearing, Norfolk, VA, July 14, 2008, in Civil Action No. 2:07cv589 (E.D. Va.) [69 pgs.]	
	20-4		
	20-5		
	20-6		
	20-7		

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /DB/



INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
Sheet 1 of 1	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
/DB/	1-1	US-5794253	08-1998	Norin et al.
/DB/	1-2	US-6292905	09-2001	Wallach et al
/DB/	1-3	US-6360262	03-2002	Guenthner et al.
	1-4			
	1-5			
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	1-24			
	1-25			
	1-26			

Examiner Signature	/Douglas Blair/	Date Considered	04/26/2010

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: January 25, 2010

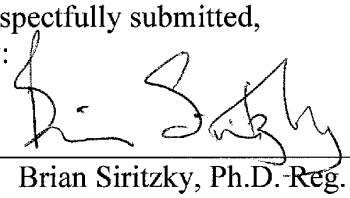
RESPONSE TO RESTRICTION REQUIREMENT

via EFS-Web
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the *Restriction Requirement* mailed November 25, 2009, applicant elects **Group II** (claims 29-42, 45-50, and 52-57). This election is made without traverse.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above.
This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.

CUSTOMER NUMBER 83579	Respectfully submitted, By:  Brian Siritzky, Ph.D. Reg. No.: 37,497 (703) 894-6400

Electronic Patent Application Fee Transmittal

Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	David Dewey Wier
Attorney Docket Number:	0090-US-C03

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	130	130

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**130**

Electronic Acknowledgement Receipt	
EFS ID:	6877646
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	David Dewey Wier
Filer Authorized By:	
Attorney Docket Number:	0090-US-C03
Receipt Date:	25-JAN-2010
Filing Date:	23-FEB-2005
Time Stamp:	19:15:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$130
RAM confirmation Number	5721
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Authorization for Extension of Time all replies	20100125PetitionforTimeExtension.pdf	16907 1286837a11578a30be30aa87739aeab8bfcd8a15	no	1
Warnings:					
Information:					
2	Response to Election / Restriction Filed	20100125ElectiontoRestrictionRequirementcute.pdf	54640 02cd9047e40f9e22bedf220961c96318fddae018	no	1
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	30108 38846c36b20856e807c15c8c64977c5b94e1d8d7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	101655		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 0090-US-C3
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: January 25, 2010

PETITION FOR ONE-MONTH EXTENSION OF TIME

via EFS-Web
Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the outstanding Office Action (Restriction Requirement) mailed in the above-identified application on November 25, 2009, said period of response being extended from December 25, 2009 to January 25, 2010. The requisite fee set forth in 37 C.F.R. §1.17(a)(1) is hereby submitted concurrently herewith.

Respectfully submitted,

Date: January 25, 2010

/David. D. Wier /

David D. Wier, Attorney Reg. No. 48,229
Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, CO 80021
(720) 888-3539

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	2711-0073 (0090-US-C3)	3296

83579 7590 11/25/2009

LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
11/25/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@cpaglobal.com

Office Action Summary	Application No.	Applicant(s)	
	11/065,412	FARBER ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2009*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-42,45-50 and 52-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *27-42,45-50 and 52-57* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 27 and 28, drawn to a framework which features a content provider server that provides modified embedded object URL to clients for accessing content servers which host embedded objects that are normally hosted by the content provider server, embodied in Figure 4 and page 14 of the applicant's specification, classified in class 709, subclass 245.

II. Claims 29-42, 45-50, and 52-57, drawn to a content delivery system and methods in a content delivery system associates various shared repeaters servers that can replicate resources with various origin servers, embodied in Figure 6 and the corresponding disclosure in the applicant's specification, classified in class 709, subclass 226.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as the ability to associate repeater servers that can replicate a resource with various origin servers. Subcombination I has separate utility such as the ability to create addresses for an embedded object by prepending a hostname to a domain and path. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/15/2008	01/02/2009	11/22/2009						
	1		-	-						
	2		-	-						
	3		-	-						
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	25	✓	-	-						
	26		-	-						
	27		✓	÷						
	28		✓	÷						
	29		✓	÷						
	30		✓	÷						
	31		✓	÷						
	32		✓	÷						
	33		✓	÷						
	34		✓	÷						
	35		✓	÷						
	36		✓	÷						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11065412	FARBER ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/15/2008	01/02/2009	11/22/2009						
	37		✓	÷						
	38		✓	÷						
	39		✓	÷						
	40		✓	÷						
	41		✓	÷						
	42		✓	÷						
	43		✓	-						
	44		✓	-						
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	46		✓	÷						
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	48		✓	÷						
	49		✓	÷						
	50		✓	÷						
	51		✓	-						
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	57			÷						

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/065,412	02/23/2005	David A. Farber	2711-0073 (0090-US-C3)

CONFIRMATION NO. 3296

83579
LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

POA ACCEPTANCE LETTER

OC000000038566473

Date Mailed: 11/10/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/27/2009.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/065,412	02/23/2005	David A. Farber	2711-0073 (0090-US-C3)

CONFIRMATION NO. 3296

83579
LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

POWER OF ATTORNEY NOTICE

OC000000038566430

Date Mailed: 11/10/2009

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/27/2009.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

POWER OF ATTORNEY, CORRESPONDENCE ADDRESS AND REVOCATION OF PRIOR POWERS

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Revocation: I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

Power of Attorney: I hereby appoint the practitioners associated with customer number **83579**, individually and collectively, as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patents and patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Correspondence Address: Please recognize or change the correspondence address for the application/patent identified in the attached statement under 37 CFR 3.73(b) to the address associated with Customer Number **83579**.

Assignee Name and Address:

Level 3 Communications, LLC
1025 Eldorado Blvd.
Broomfield, Colorado 80021

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record The individual whose signature and title is supplied below is authorized to act on behalf of the assignee			
Signature		Date	10/27/09
Name	DAVID D. WIER	Telephone	303-888-6166/720.888.3539
Title	SR. PATENT COUNSEL		

PTO/SB/96 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Farber et al.

Application No./Patent No.: 11/065,412 Filed/Issue Date: February 23, 2005
Confirmation No. 3296

Entitled: Optimized network resource location

Level 3 Communications, LLC, a corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. [✓] the assignee of the entire right, title, and interest; or

2. [ ] an assignee of less than the entire right, title and interest
(The extent (by percentage) of its ownership interest is_____ %)

in the patent application/patent identified above by virtue of either:

A. [ ] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. [✓] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors To: Sandpiper Networks, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 009208, Frame 0519, or for which a copy thereof is attached.

2. From: Sandpiper Networks, Inc. To: Digital Island, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 010981, Frame 0389, or for which a copy thereof is attached.

3. From: Digital Island, Inc. To: Cable & Wireless Internet Services, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 013296, Frame 0239, or for which a copy thereof is attached.

[✓] Additional documents in the chain of title are listed on a supplemental sheet.

[✓] As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Brian Siritzky/ Reg. No. 37,497	October 27, 2007
Signature	Date
Brian Siritzky	703.894.6400
Printed or Typed Name	Telephone Number
Attorney, Reg. No. 37,497	
Title	

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 3.37(B) CONTINUED

4.	From: **Cable & Wireless Internet Services, Inc.** To: **Savvis Asset Holdings, Inc.** The document was recorded in the United States Patent and Trademark Office at Reel 017073 Frame 0142.
5	From: **Savvis Asset Holdings, Inc.** To: **Savvis, Inc.** The document was recorded in the United States Patent and Trademark Office at Reel 016038 Frame 0526.
6	From: **Savvis, Inc.** To: **Savvis Communications Corporation** The document was recorded in the United States Patent and Trademark Office at Reel 016004 Frame 0209.
7.	From: **Savvis Communications Corporation** To: **Mount Shasta Acquisition LLC** The document was recorded in the United States Patent and Trademark Office at Reel 018847 Frame 0065.
8.	From: **Mount Shasta Acquisition LLC** To: **Level 3 Communications, LLC** The document was recorded in the United States Patent and Trademark Office at Reel 018847 Frame 0077.

Electronic Acknowledgement Receipt	
EFS ID:	6340676
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	83579
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	2711-0073 (0090-US-C3)
Receipt Date:	27-OCT-2009
Filing Date:	23-FEB-2005
Time Stamp:	16:35:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Power_of_Attorney_83579_signed.pdf	46268 550f062854b29bca5ad8e4269c8154f9eb3649c7	no	1
Warnings:					
Information:					

2	Assignee showing of ownership per 37 CFR 3.73(b).	2711_0073_Stmt_under_37_CFR_3_73_b_.pdf	171927 c0325438877a2662bcf56460471fd160c3b7724c	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	218195	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
11/065,412		2442	

OC000000038454531

Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 83579 on 10/23/2009

- **Correspondence Address**
- **Power of Attorney Address**

The address of record for Customer Number 83579 is:

83579
LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

PART 1 - ATTORNEY/APPLICANT COPY
page 1 of 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 2711-0073
FARBER, David et al.	Group Art Unit: 2142
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: September 11, 2009

RESPONSE TO NOTICE OF NON-COMPLIANT AMENDMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby responds to the *Notice of Non-Compliant Amendment* (the "Notice") mailed September 10, 2009. The Examiner objected to the claim amendments of July 9, 2009 because of "text that is not part of the claims between claims 51 and 52." Since **Box 4.E** of the Notice was checked, the correction now required is only the corrected section of the non-compliant amendment. Accordingly, submitted herewith is a listing of the claims in compliance with 37 CFR 1.121. Entry of these claim amendments and the Remarks of 07/09/09 are respectfully requested.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.	
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above. **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.**	
CUSTOMER NUMBER 75948	Respectfully submitted, By: **/Brian Siritzky/Reg. No. 37,497** Brian Siritzky, Ph.D. Reg. No.: 37,497

Davidson Berquist Jackson & Gowdey LLP • 4300 Wilson Blvd., 7th Floor, Arlington, Virginia 22203
Main: (703) 894-6400 • FAX: (703) 894-6430

IN THE CLAIMS

1-26. (Canceled)

27. (Currently Amended) A distributed hosting framework operative in a computer network in which users of client machines connect to a content provider server, the framework comprising:

a routine for modifying at least one embedded object URL of a web page to include a hostname prepended to a domain name and path;

a set of content servers, distinct from the content provider server, for hosting at least some of the embedded objects of web pages that are normally hosted by the content provider server;

at least one first level name server that provides a first level domain name service (DNS) resolution; and

at least one second level name server that provides a second level domain name service (DNS) resolution;

wherein in response to requests for the web page, generated by the client machines the web page including the modified embedded object URL is served from the content provider server and [[the]] an embedded object identified by the modified embedded object URL is served from a given one of the content servers as identified by the first level and second level name servers.

28. (Previously Presented) The distributed hosting framework as recited in claim 27, further including a redundant second level name server.

29. (Currently amended) A ~~distributed hosting framework~~ content delivery system operative in a computer network for delivering resources associated with a

plurality of content providers to multiple client machines, the ~~framework~~ system comprising:

at least one shared ~~content~~ repeater server constructed and adapted to replicate at least some of the resources associated with a first content provider of said plurality of content providers, and to replicate at least some of the resources associated with a second content provider of said plurality of content providers; ~~and~~

~~at least one name server that provides domain name service (DNS) resolution,~~

wherein ~~resources~~ at least a first resource associated with the first content provider ~~are~~ is associated with a first alias name, said first alias name being associated with said at least one shared repeater server; and

wherein, ~~that causes the at least one name server to identify the at least one shared content server to serve the resources in response to~~ requests for the first resource ~~resources associated with the first content provider~~ made from said client machines are directed to the at least one shared repeater server, based at least in part on said first alias name; and

wherein ~~the resources~~ at least a second resource associated with the second content provider ~~are~~ is associated with a second alias name, said second alias name being associated with said at least one shared repeater server; and wherein

~~that causes the at least one name server to identify the at least one shared content server to serve the resources in response to~~ requests for the ~~resources~~ second resource ~~associated with the second content provider~~ made from said client machines are directed to the at least one shared repeater server, based at least in part on said second alias name.

30. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 29, wherein the least one shared ~~content~~ repeater server is addressable using the first alias name and the second alias name.

31. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 29, further comprising:

a reflector constructed and adapted to associate the resources with the first alias name based, at least in part, on a relative cost of transmitting the resources to the client machines.

32. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 29 further comprising:

a set of shared ~~content~~ repeater servers that comprises the at least one ~~content~~ repeater server; and

a reflector constructed and adapted to associate ~~a particular~~ the first resource with the first alias name after selecting the at least one shared ~~content~~ repeater server from the set of shared ~~content~~ repeater servers in response to a request for the ~~particular~~ first resource issued by a particular client machine.

33. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 29, wherein at least one of the first resource and the second resource ~~resources~~ is an embedded object.

34. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 29, wherein the requests comprise host tag names that identify specific origin servers from which the resources originate.

35. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 34, wherein the host tag names are included in HTTP headers.

36. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 32, further comprising:

a load determination mechanism constructed and adapted to characterize load on the set of ~~content~~ repeater servers for use by the reflector in selecting the at least one shared ~~content~~ repeater server.

37. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 36, wherein the reflector comprises the load mechanism.

38. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 37, wherein the reflector is co-located with an origin server at which the first resource originates.

39. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 36, further comprising:

a cost determination mechanism constructed and adapted to measure a cost of delivering resources from each of the set of shared ~~content~~ repeater servers to the particular client machine, the cost determination mechanism for use by the reflector in selecting the at least one shared ~~content~~ repeater server.

40. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 39, wherein the reflector comprises the cost determination mechanism.

41. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 39, wherein the reflector is co-located with an origin server from which the first resource originates.

42. (Currently amended) The ~~distributed hosting framework~~ content delivery system as recited in claim 39, wherein the cost comprises information relating a location associated with the particular client machine to each of the set of shared ~~content~~ repeater servers.

43-44. (canceled)

45. (Currently amended) A method, in a ~~distributed hosting framework~~ content delivery system operative in a computer network for delivering content to client machines, the computer network ~~and~~ comprising a plurality of origin servers, each of said origin servers having resources associated therewith, ~~at least one name server that provides domain name service (DNS) resolution,~~ and the content delivery system comprising at least one shared ~~content~~ repeater server operable to replicate resources associated with the plurality of origin servers, the method comprising:

associating the at least one repeater server with a first alias name ~~at least some resources associated with a first origin server of plurality of origin servers with a first alias name that causes the at least one name server to indentify the at least one shared content repeater server to serve the resources associated with the first origin server in response to requests from client machines~~, wherein requests for a first resource located on a first origin server are directed, based at least in part on said first alias name, to the at least one repeater server for delivery of the first resource from said at least one repeater server; and

associating the at least one repeater server with a second alias name ~~at least some resources associated with a second origin server of said plurality of origin servers with a second alias name that causes the at least one name server to identify the at least one shared content repeater server to serve the resources associated with the second origin server in response to requests from client machines~~, wherein requests for a second resource located on a second origin server are directed, based at least in part on said second alias name, to the at least one repeater server for delivery of the first resource from said at least one repeater server.

46. (Currently amended) The method of claim 45, ~~wherein the associating step comprises~~ further comprising:

in response to a request for ~~a particular~~ the first resource issued by a particular client machine, identifying the at least one shared ~~content~~ repeater server from a set of shared ~~content~~ repeater servers based at least in part on a network cost of delivering resources to the particular client machine; and

associating the first resource with the first alias name.

47. (Currently amended) The method of claim 45, ~~wherein the associating step comprises~~ further comprising:

in response to a request for ~~a particular~~ the first resource issued by a particular client machine, identifying the at least one ~~content~~ repeater server from a set of shared ~~content~~ repeater servers based at least in part on load characteristics of the set of shared ~~content~~ repeater servers; and

associating the first resource with the first alias name.

48. (Currently amended) The method of claim 45, ~~wherein the associating step comprises~~ further comprising:

in response to a request for the first ~~a particular~~ resource issued by a particular client machine, identifying the at least one ~~content~~ repeater server from a set of shared ~~content~~ repeater servers based at least in part on a location of the particular client machine relative to the at least one shared ~~content~~ repeater server; and

associating the first resource with the first alias name.

49. (previously presented) The method as recited in claim 45, wherein the resources comprise an HTTP-based resource.

50. (previously presented) The method as recited in claim 45, wherein the resources comprise a File Transfer Protocol (FTP)-based resource.

51. (Canceled).

52. (NEW) A content delivery system as recited in claim 39 wherein the cost determination mechanism comprises a netmap determination means.

53. (NEW) A content delivery system as recited in claim 29, further comprising:

a subscriber table listing a plurality of content providers authorized to have resources delivered to client machines via the at least one repeater server, wherein the plurality of content providers comprises the first content provider and the second content provider; and

wherein the at least one repeater server is further constructed and adapted to analyze, using the subscriber table, information about an alias name received with

a client request for a resource to determine a content provider associated with the requested resource.

54. (New) The content delivery system as in claim 45, further comprising:

providing a subscriber table listing origin servers having content located thereon that is authorized for delivery to client machines via the at least one shared repeater server, wherein the origin servers comprise the first origin server and the second origin server; and

wherein the at least one repeater server is further constructed and adapted to analyze, using the subscriber table, information about an alias name received with a client request for a resource to determine an origin server associated with the requested resource.

55. (NEW) A content delivery system as recited in claim 29, wherein at least the first alias name is a domain name, the system further comprising:

at least one name server that provides domain name service (DNS) resolution on the first alias name to identify the at least one shared repeater server to deliver the first resource in response to a client request.

56. (NEW) A method as recited in claim 45, wherein at least the first alias name is a domain name and the computer network further comprises at least one name server that provides domain name service (DNS) resolution, the method further comprising:

receiving, at the at least one name server, the first alias name as part of a client request; and

resolving, at the at least one name server, the received first alias name to identify the at least one shared repeater server to deliver the first resource in response to the client request.

57. (NEW) A method, in a content delivery system operative in a computer network for delivering content to client machines and comprising at least one shared repeater server operable to replicate resources stored on a plurality of origin servers, the method comprising:

associating a plurality of alias names with the at least one shared repeater server, each of said plurality of alias names being associated with an origin server, wherein a first alias name of said plurality of alias names is associated with a first origin server, and at least a second alias name of said plurality of alias names is associated with a second origin server distinct from said first origin server,

wherein requests for a first resource originating on the first origin server are directed, based at least in part on said first alias name, to the at least one shared repeater server for delivery of the first resource from said at least one repeater server; and

wherein requests for a second resource originating on the second origin server are directed, based at least in part on said second alias name, to the at least one shared repeater server for delivery of the second resource from said at least one repeater server.

Electronic Acknowledgement Receipt	
EFS ID:	6055323
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	75948
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	2711-0073 (0090-US-C3)
Receipt Date:	11-SEP-2009
Filing Date:	23-FEB-2005
Time Stamp:	13:54:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	PA_Response_to_Notice_of_non_compliant_amendment_09_11_09.pdf	237477 4d78a864ed24136b9113833cc2f004d6b42313fe	no	1

Warnings:
Information:

2	Claims	PA_Claim_listing_09_11_09.pdf	1104796 a8ccda703657d45c5aa1ac0f17284f4d3b373cc9	no	9

Warnings:	
Information:	
Total Files Size (in bytes):	1342273

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/065,412	Filing Date 02/23/2005	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	09/11/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 28	Minus	** 48	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***5	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/KIMBERLY J. DUNCAN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/065,412	02/23/2005	David A. Farber	2711-0073 (0090-US-C3)	3296

75948 7590 09/10/2009

DAVIDSON BERQUIST JACKSON & GOWDEY, LLP
ATTN: BRIAN SIRITZKY, Ph.D.
4300 WILSON BLVD., 7TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	
MAIL DATE	DELIVERY MODE
09/10/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 11/065,412	Applicant(s) FARBER ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on _____ is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☒ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☐ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☒ E. Other: *See Continuation Sheet*.
- ☐ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):

  _____

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.

2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action. If any of above boxes 1. to 4. are checked, the correction required is only the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

   Failure to timely respond to this notice will result in:
   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/Douglas B Blair/ Primary Examiner, Art Unit 2442	

Continuation of 4(e) Other: The claim listing is not proper because there is text that is not part of the claims between claims 51 and 52.



INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified)	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
Sheet 1 of 1	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
	1-1	US-5794253	08-1998	Norin et al.
	1-2	US-6292905	09-2001	Wallach et al
	1-3	US-6360262	03-2002	Guenthner et al.
	1-4			
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	1-20			
	1-21			
	1-22			
	1-23			
	1-24			
	1-25			
	1-26			

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.



IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 2711-0073 (0090-US-C3)
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: July 29, 2009

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. One copy of each non-U.S. Patent reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

☐ This Information Disclosure Statement is being filed within three (3) months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

☒ This Information Disclosure Statement is being filed more than three (3) months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance.

☐ I hereby certify that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three (3) months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three (3) months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☒ Please credit or debit Deposit Account No. 501860 as needed to ensure consideration of the disclosed information.

☐ This Information Disclosure Statement is being filed more than three (3) months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Applicant(s) hereby requests that the Information Disclosure Statement be considered. Attached is our check in the amount required under 37 C.F.R. § 1.17(p). Please credit or debit Deposit Account No. 501860 as needed to ensure consideration of the disclosed information. A duplicate copy of this paper is attached.

☐ I hereby certify that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than

three (3) months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three (3) months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

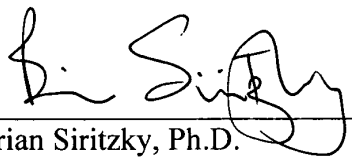
☐ Relevance of the non-English language reference(s) is/are discussed in the present specification.

☐ The reference(s) was/were cited in a counterpart foreign application. An English language version of the foreign search report is attached for the Examiner's information.

☐ A concise explanation of the relevance of the non-English language reference(s) appear(s) in the Appendix hereto.

☐ The Examiner's attention is directed to co-pending U.S. Patent Application No. _____, filed _____, which is directed to related technical subject matter. The identification of this U.S. Patent Application is not to be construed as a waiver of secrecy as to that application now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited application and the art cited therein during examination.

☐ Copies of the references were cited by or submitted to the Office in parent Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. 120. Thus, Form PTO 1449 is attached without copies of these references. 37 C.F.R. § 1.98(d).

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073.**	
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above, for which purpose a duplicate copy of this sheet is attached **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.**	
CUSTOMER NUMBER 75948	Respectfully submitted, By:  Brian Siritzky, Ph.D. Registration No.: 37,497
Davidson Berquist Jackson & Gowdey LLP 4300 Wilson Blvd., 7th Floor, Arlington, Virginia 22203 Main: (703) 894-6400 • FAX: (703) 894-6430	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 3		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
	1-1	US-2002/0078233	Jun-02	Biliris
	1-2	US-2003/0149581	Aug-03	Chaudhri
	1-3	US-5522070	May 28, 1996	Sumitomo, S.
	1-4	US-6094680	2000/07	Hokanson, Tukkar Erik
	1-5	US-6108703	August 2000	Leighton et al.
	1-6	US-6115752	September 2000	Chauhan
	1-7	US-6144996	11/2000	Starnes et al.
	1-8	US-6154738	11/2000	Call
	1-9	US-6185598	02/2001	Farber
	1-10	US-6195680	02/27/01	Goldszmidt
	1-11	US-6226618	05/01/01	Downs
	1-12	US-6263313	07/17/01	Milsted
	1-13	US-6272566	08/07/01	Craft
	1-14	US-6327622	Dec-04-2001	Jindal et al.
	1-15	US-6398245	06/04/02	Gruse
	1-16	US-6418421	07/09/02	Hurtado
	1-17	US-6460082	10/01/02	Lumelsky
	1-18	US-6463454	10/08/02	Lumelsky
	1-19	US-6463508	10/08/02	Wolf
	1-20	US-6587837	07/01/03	Spagna
	1-21	US-6654807	25-Nov-03	Farber et al.
	1-22	US-6763377	07/13/04	Belknap et al
	1-23	US-6785704	08/2004	McCanne, Steve
	1-24	US-6859791	02/22/05	Spagna
	1-25	US-6963910	11/08/05	Belknap
	1-26	US-6973485	12/2005	Ebata et al.

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 2 of 3		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Document No.	Publication/ Issue Date	Name of Patentee or Applicant of Cited Document
	2-1	US-7103564	09/05/06	Ehnebuske
	2-2	US-7110984	09/19/06	Spagna
	2-3	US-7117259	10/03/06	Rohwer
	2-4	US-7188085	03/06/07	Pelletier
	2-5	US-7206748	04/17/07	Gruse
	2-6	US-7254645	Aug-07	Nishi
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	2-8			
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Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 3 of 3		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	3-1	Cisco Systems, Inc., http://www.cisco.com/warp/public/751/disttdir/dd wp.htm", (1997), 1-4	
	3-2	Cisco Systems, Inc., http://www.cisco.com/warp/public/751/lodir/lodir ds.htm, (1997), 1-4	
	3-3	U.S. P.T.O. Office Action in U.S. Appln. No. 11/980,684, May 19, 2009	
	3-4		
	3-5		
	3-6		
	3-7		

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

Electronic Patent Application Fee Transmittal	
Application Number:	11065412
Filing Date:	23-Feb-2005
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Filer:	Brian Siritzky
Attorney Docket Number:	2711-0073 (0090-US-C3)
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	5723151
Application Number:	11065412
International Application Number:	
Confirmation Number:	3296
Title of Invention:	SHARED CONTENT DELIVERY INFRASTRUCTURE
First Named Inventor/Applicant Name:	David A. Farber
Customer Number:	75948
Filer:	Brian Siritzky
Filer Authorized By:	
Attorney Docket Number:	2711-0073 (0090-US-C3)
Receipt Date:	17-JUL-2009
Filing Date:	23-FEB-2005
Time Stamp:	14:03:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	200
Deposit Account	501860
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PA_IDS_2_filed_07_17_09.pdf	651397 089c1abb22e38a125a7780551b74185ccf128e5b	yes	5
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	5	
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	30389 b45144a70729ff62f15002d92c4eb5649f37bf13	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	681786		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 2711-0073 (0090-US-C3)
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: July 17, 2009

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference listed on the attached PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

Copies of some of the references were cited by or submitted to the Office in parent Application No. 09/612,598, filed 07/07/2000 and/or No. 09/021,506, filed 02/10/1998, which is/are relied upon for an earlier filing date under 35 U.S.C. 120. Thus, Form PTO 1449 is attached without copies of these references. 37 C.F.R.

§ 1.98(d). In addition, this IDS cites an Office Action from a related application (11/980,684). As that application is available electronically to the Examiner (on the PTO's PAIR system), no copy of the Action is being provided herewith. The Examiner is respectfully requested to contact the undersigned if he needs a copy of this Office Action or any other material.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

This Information Disclosure Statement is being filed more than three (3) months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance. Please credit or debit Deposit Account No. 501860 the amount required under 37 C.F.R. § 1.17(p) as needed to ensure consideration of the disclosed information.

CHARGE STATEMENT: Deposit Account No. 501860, order no. **2711-0073**.	
The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above, for which purpose a duplicate copy of this sheet is attached **This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed**.	
CUSTOMER NUMBER 75948	Respectfully submitted, By: **/Brian Siritzky/Reg. No. 37,497** Brian Siritzky, Ph.D. Registration No.: 37,497
Davidson Berquist Jackson & Gowdey LLP 4300 Wilson Blvd., 7th Floor, Arlington, Virginia 22203 Main: (703) 894-6400 • FAX: (703) 894-6430	

OIPE
JUL 17 2009
PATENT & TRADEMARK OFFICE
IAP42

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 1 of 20	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	1-1	ANSWER OF DEFENDANT LIMELIGHT NETWORKS, INC. in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) Feb. 1, 2008 [14 pgs.]	
	1-2	ANSWERING REPORT OF SCOTT BRADNER PURSUANT TO FED. R. CIV. 26 (a)(2)(B) CONCERNING THE VALIDITY OF U.S. PATENT NOS. 7,054,935 AND 6,654,807, in CIVIL ACTION NO. 2:07CV589 (RGD-FBS) (E.D. Va.), August 25, 2008 [83 pgs.]	
	1-3	DEFENDANT LIMELIGHT NETWORKS, INC.'S CLAIM CONSTRUCTION BRIEF FOR U.S. PATENT NOS. 6,654,807; 7,054,935; AND 6,473,405, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), June 27, 2008 [38 pgs. + exhibits]	
	1-4	DEFENDANT LIMELIGHT NETWORKS, INC.'S REPLY BRIEF IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT OF NON-INFRINGEMENT AND INVALIDITY OF ALL PATENTS-IN-SUIT, in Civil File No. 2:07CV589 (E.D. Va.), Oct. 1, 2008 [21 pgs.]	
	1-5	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 205, doc. titled "Leapfrog Project Overview," Andrew Swart, 8/29/96 [2 pgs.]	
	1-6	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 206, doc. titled "Leapfrog Management Meeting Agenda," 10/1/1996 [1 pg.]	
	1-7	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 207, letter from Andrew D. Swart, Sandpiper Networks to Jean-Claude Asscher, 2/25/1997 [2 pgs.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 2 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	2-1	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 209, email from David A. Farber sent Apr. 19, 1999 [5 pgs.]	
	2-2	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 210, email from Andrew Swart sent Apr. 24, 1999 [2 pgs.]	
	2-3	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 211, email from Will Crowder sent May 6, 1999 [10 pgs.]	
	2-4	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 212, email from Rick Greer sent Sept. 20, 1999 [11 pgs.]	
	2-5	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 213, email from Mike Warren sent Feb. 25, 2000 [3 pgs.]	
	2-6	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 216, email from "Andrew" sent 11/30/1999 [7 pgs.]	
	2-7	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 219, email from "Andrew" sent Sept. 24, 1996 [3 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 3 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	3-1	DEPOSITION OF Andrew D. SWART, 09/05/08, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 220, document titled "Statement of Opposition, European Patent No. 1 143 337 B", April 23, 2004 [41 pgs.]	
	3-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 154, email [4 pgs.]	
	3-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 155, document titled "WebRepeater™ Functional Requirements," Dave Farber, Sandpiper Software Consulting, LLC, June 18, 1996. [20 pgs.]	
	3-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 156 doc. titled "Project Status Meeting Reports," 08/04/97 [3 pgs.]	
	3-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 157, copy of parts of U.S. Pat. Appln. No. 09/021,506 from PTO [68 pgs.]	
	3-6	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 158, documents from PTO file for U.S. Pat. Appln. No. 09/612,598 [59 pgs.]	
	3-7	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 159, email from Dave Farber sent Mar. 14, 1997 [12 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 4 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	4-1	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 160, email from "Andrew" sent 1/15/1997 [3 pgs.]	
	4-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 161, email from "Will", sent 10/17/1997 [24 pgs.]	
	4-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 162, email from Rick Greer sent Jan. 20, 1999 [7 pgs.]	
	4-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 163, email from "Andrew" sent 7/22/1996 [2 pgs.]	
	4-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 164, copy of European Patent No. 1 143 337 (WO 99/40514) [64 pgs.]	
	4-6	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 165, copy of European Patent Specification No. 1 143 337 [31 pgs.]	
	4-7	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 166, email from Will Crowder sent Aug. 24, 1997 [1 pg.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 5 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	5-1	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 167, email from Chris Newton sent 10/26/2000 [7 pgs.]	
	5-2	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 168, document titled "Sandpiper Raises $6.6 Million to Boost Content Distribution For Web Publishers," May 19, 1998 [2 pgs.]	
	5-3	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 169 document titled "Sandpiper Launches Footprint Distribution Service to Improve Web Site Performance; Cost-Effective Service Manages Content Delivery for Web Publishers," Sept. 28, 1998 [3 pgs.]	
	5-4	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 170 document titled "Sandpiper Completes New Executive Management Team; Sandpiper Poised for Growth with Strong Executive Team," Sept. 28, 1998 [2 pgs.]	
	5-5	DEPOSITION OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), EXHIBIT 171 document titled "Sandpiper Addresses Web Content Management Problems At Herring On Hollywood; -- New Technology Company Offers Solutions to Entertainment Industry's Internet Woes," Sept. 28, 19	
	5-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 10, email from David A. Farber, Jan. 11, 1999 [4 pgs.]	
	5-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 6 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	6-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 12, email from David A. Farber, Jan. 18, 1999	
	6-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 13, email from Will Crowder, Feb. 17, 1999.	
	6-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 155 document titled "WebRepeater™ Functional Requirements," Dave Farber, Sandpiper Software Consulting, LLC, June 18, 1996.	
	6-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 16 email from Will Crowder, May 6, 1999.	
	6-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 166, email from Will Crowder, Aug. 24, 1997.	
	6-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 19, email from David A. Farber, May 12, 1999.	
	6-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 2, email from Dave Farber dated 10/15/1997 [2 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 7 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	7-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 22, document titled "Patent Claim: Resource Request Redirector," Dave Farber, Sandpiper Software Consulting, LLC, Draft 3, May 24, 1996.	
	7-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 226, email from Peggy Balesteri, 08/07/2008.	
	7-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 227, email from Dave Farber, May 29, 1996	
	7-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 228, email from "Dave" dated 7/12/1996	
	7-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 229, email from "Andrew" dated 7/22/1996	
	7-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 230, email from "Dave" dated 7/10/1996	
	7-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 231, document titled "Patent Claim: Network Reflector/Repeater," Dave Farber, Sandpiper Software Consulting, LLC, Draft 5, July 2, 1996	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 8 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	8-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 232, document titled "WebRepeater Features Comparison", Sandpiper Software Consulting, 09/17/96	
	8-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 233, email from "Hussain" sent 09/19/1998	
	8-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 234, email from "Scott" sent 5/30/1998	
	8-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 235, email from "Andrew" sent 2/12/1999	
	8-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 236, email from David A. Farber sent April 19, 1999	
	8-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 237, email from David A. Farber sent May 12, 1999	
	8-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 238, email from David A. Farber sent 5/6/1999 [1 pg.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 9 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	9-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 239, document titled "Footprint DNS Server Mini-Specification," Will Crowder, 04/23/99,	
	9-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 240, email from "David" sent 6/4/1999	
	9-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 241, email from David A. Farber sent Dec. 6, 1999	
	9-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 242, email from Chris Newton, sent 10/26/2000	
	9-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 243, email from "Andrew" sent 7/24/2000	
	9-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 244, email from Andrew Swart sent Nov. 12, 1999	
	9-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 245, email from Andrew Swart sent 8/23/2002	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 10 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	10-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 246, email from "Jim" sent 12/16/1999	
	10-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 247, email from "Jim" sent 11/17/1999	
	10-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 248, email from "Jim" sent 11/17/1999	
	10-4	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 249, email from Will Crowder sent Dec. 21, 1998.	
	10-5	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 250, email from Chris Newton sent Feb. 15, 2000.	
	10-6	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 5, copy of U.S. Pat. No. 6,654,807 [28 pgs.]	
	10-7	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 6, copy of U.S. Pat. No. 7,054,935 [14 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 11 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	11-1	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 7, email from David A. Farber, 12/21/1998 [2 pgs.]	
	11-2	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 8, email from David A. Farber, Jan. 11, 1999 [1 pg.]	
	11-3	DEPOSITION of David A. FARBER, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 9, email from Jim Balter, 04/19/1999 [4 pgs.]	
	11-4	DEPOSITION OF JAMES A. BALTER in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), August 8, 2008, Deposition Exhibit 1, Subpoena in Civil Case [10 pgs.]	
	11-5	DEPOSITION OF JAMES A. BALTER in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), August 8, 2008, Deposition Exhibit 2, email from Dave Farber dated 10/15/1997 [2 pgs.]	
	11-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 10, email from David A. Farber dated Jan. 11, 1999 [4 pgs.]	
	11-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 12 of 20	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	12-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 12, email from David A. Farber dated Jan. 18, 1999 [4 pgs.]	
	12-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 13, email from Will Crowder dated Feb. 17, 1999 [9 pgs.]	
	12-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 14, email from Jim Balter dated 09/08/2000 [3 pgs].	
	12-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 15, email from Will Crowder dated May 12, 1999 [2 pgs.]	
	12-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 16, email from Will Crowder dated May 6, 1999 [2 pgs.]	
	12-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 17, email from Will Crowder dated April 22, 1999 [9 pgs.]	
	12-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 18, email from Jim Balter dated April 22, 1999 [1 pg.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 13 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	13-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 19, email from David A. Farber dated May 12, 1999 [1 pg.]	
	13-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 20, email from lf-tech@sandpiper.com dated 11/25/1997 [3 pgs.]	
	13-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 21, document titled "Patent Claim: HTTP Redirector" Draft 2, May 20, 1996, Dave Farber, Sandpiper Software Consulting, LLC [11 pgs.]	
	13-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 22, document titled "Patent Claim: Resource Request Redirector," Dave Farber, Sandpiper Software Consulting, LLC, Draft 3, May 24, 1996 [17 pgs.]	
	13-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 23, document titled "Patent Claim: Network Reflector/Repeater," Dave Farber, Sandpiper Software Consulting, LLC, Draft 5, July 2, 1996 [21 pgs.]	
	13-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 24, document titled "Software Design Specification: Advanced Rewrite Tool," J. Balter, 12/3/99, Sandpiper Networks, Inc.	
	13-7	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 3, email from Andrew Swart dated April 1, 1998 [1 pg.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 14 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	14-1	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 4, email from Rick [Richard] Greer dated 12/14/1998 [6 pgs]	
	14-2	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 5, copy of U.S. Patent No. 6,654,807 [28 pgs.]	
	14-3	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 6, copy of U.S. Patent No. 7,054,935 [24 pgs.]	
	14-4	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 7, email from David A. Farber dated Dec. 21, 1998 [2 pg.]	
	14-5	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 8, email from David A. Farber dated Jan. 11, 1999 [1 pg.]	
	14-6	DEPOSITION of James A. BALTER, Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Aug. 8, 2008, Depo. EXHIBIT 9, email from Jim [James] Balter dated 04/19/1999 [4 pgs.]	
	14-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 11, copy of U.S. Pat. No. 6,185,598 [23 pgs.]	

Examiner Signature		Date Considered	

*Examiner: Initial if reference was considered, whether or not citation is in conformance with MPEP 609. Draw a line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. Notes: If identified, the following is provided: EA = English Abtract, T = Translation, PF = Patent Family.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 15 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	15-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 12, email from David A. Farber sent Jan. 18, 1999 [4 pgs.]	
	15-2	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 195, document titled "Web Repeater" (Interactive Systems Corporation), Sandpiper Software, 11/23/96, [80 pgs]	
	15-3	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 196, Subpoena in Civil Case 2:07cv589 RGD/FBS (E.D. Va.), 6/19/08 [10 pgs.]	
	15-4	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 197, email from Rick Greer sent 2/18/1999 [3 pgs.]	
	15-5	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 198, email from Rick Greer sent 1/20/99 [7 pgs.]	
	15-6	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 199, email from Rick@sandpiper.com sent 10/9/1998	
	15-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 200 email from Rick@sandpiper.com sent 10/2/1998 [2 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 16 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	16-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 201, email from Will Crowder sent 12/21/1998 [2 pgs.]	
	16-2	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 202, email from rick@digisle.com sent 11/20/2000 [2 pgs.]	
	16-3	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 203, mail from David A. Farber sent 11/3/1999 [1 pg.]	
	16-4	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 4, email from Rick Greer sent Dec. 14, 1998 [6 pgs.]	
	16-5	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 5, copy of U.S. Pat. No. 6,654,807 [28 pgs.]	
	16-6	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 6, copy of U.S. Pat. No. 7,054,935 [24 pgs.]	
	16-7	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 7, email from David A. Farber sent 12/21/1998 [2 pgs.]	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 17 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	17-1	DEPOSITION of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.), Depo. EXHIBIT 8, email from David A. Farber sent Jan. 11, 1999 [4 pgs.]	
	17-2	DEPOSITION Transcript OF Andrew D. SWART, Aug. 21, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [redacted, 98 pgs.]	
	17-3	DEPOSITION Transcript OF Andrew D. SWART, Sept. 5, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [redacted, 78 pgs.]	
	17-4	Deposition transcript of David A. Farber, Sept. 9, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [87 pgs.]	
	17-5	DEPOSITION Transcript OF JAMES A. BALTER, AUGUST 8, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [69 pgs.]	
	17-6	DEPOSITION transcript of Richard E. Greer, Sept. 3, 2008, in Civil Action No. 2:07cv589 (WDK-FBS) (E.D. Va.) [79 pgs.]	
	17-7	Exhibit A to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [14 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 18 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	18-1	Exhibit B to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [12 pgs.]	
	18-2	Exhibit C to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [12 pgs.]	
	18-3	Exhibit D to REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [13 pgs.]	
	18-4	Joint Statement Regarding Claim Construction with Exhibit "The '807 and '935 Footprint Patents," in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.), filed 07/09/08 [27 pgs.]	
	18-5	LEVEL 3'S MEMORANDUM OF LAW IN REPLY TO LIMELIGHT'S CLAIM CONSTRUCTION BRIEF, in Civil File No. 2:07CV589 (E.D. Va.), July 3, 2008 [24 pgs. + exhibits]	
	18-6	LEVEL 3'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), in Civil File No. 2:07CV589 (E.D. Va.), Feb. 9, 2009 [3 pgs.]	
	18-7	LEVEL 3'S REPLY IN FURTHER SUPPORT OF ITS MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), Mar. 12, 2009, in Civil Action No. 2:07cv589 (MSD-FBS) (E.D. Va.) [22 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 19 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	19-1	LIMELIGHT NETWORKS, INC.'S Claim Construction Hearing Presentation, July 14, 2008, in Civil File No. 2:07CV589 (E.D. Va.) [123 pgs]	
	19-2	LIMELIGHT'S OPPOSITION TO LEVEL 3'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULES 50(B) AND 59(A), Mar. 2, 2009, in Civil Action No. 2:07cv589 (MSD-FBS) (E.D. Va.) [31 pgs.]	
	19-3	Markman PowerPoint Presentation, July 9, 2008 in Civil File No. 2:07CV589 (E.D. Va.) [16 pgs.]	
	19-4	MEMORANDUM OF LAW IN SUPPORT OF LEVEL 3's PROPOSED CLAIM CONSTRUCTIONS in Case No. 2:07cv589 RDG FBS, (E.D. Va.) June 14, 2008 [32 pgs. + exhibits]	
	19-5	REPLY AND SUPPLEMENTAL REPORT OF DR. KEVIN C. ALMEROTH TO THE ANSWERING REPORT OF SCOTT BRADNER, in Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Sept. 5, 2008 [62 pgs.]	
	19-6	SECOND SUPPLEMENTAL EXPERT REPORT OF DR. KEVIN C. ALMEROTH Civil Action No. 2:07cv589 (RGD-FBS) (E.D. Va.) Dec. 24, 2008 [9 pgs.]	
	19-7	SUPPLEMENTAL ANSWERING REPORT OF SCOTT BRADNER PURSUANT TO FED. R. CIV. 26(a)(2)(B) CONCERNING THE VALIDITY OF U.S. PATENT NO. 6,654,807 CIVIL ACTION NO. 2:07CV589 (RGD-FBS) (E.D. Va.) 12/10/2008 [28 pgs.]	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449 (modified) Sheet 20 of 20		
	Application No.	11/065,412
	Filing Date	Feb. 23, 2005
	First Named Inventor	Farber, David A.
	Group Art Unit	2442
	Examiner Name	BLAIR, Douglas B.
	Attorney Docket No.	2711-0073
	Confirmation No.	3296

NON-PATENT REFERENCES

Examiner Initials*	Cite No.	Non-patent Reference bibliographic information, where available	Notes
	20-1	TRANSCRIPT of Proceedings for Jury Trial, Norfolk, VA, Jan. 7 to 23, 2009, in Civil Action No. 2:07cv589 (E.D. Va.) [1052 pgs.]	
	20-2	TRANSCRIPT of Proceedings for Markman Follow-up Hearing, Norfolk, VA, October 23, 2008, in Civil Action No. 2:07cv589 (E.D. Va.) [58 pgs.]	
	20-3	TRANSCRIPT of Proceedings for Markman Hearing, Norfolk, VA, July 14, 2008, in Civil Action No. 2:07cv589 (E.D. Va.) [69 pgs.]	
	20-4		
	20-5		
	20-6		
	20-7		

Examiner Signature		Date Considered	

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Effective on 12/08/2004.
Pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2009

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 180

Complete if Known	
Application Number	11/065,412
Filing Date	02/23/2005
First Named Inventor	FARBER, David
Examiner Name	BLAIR, Douglas B.
Art Unit	2442
Attorney Docket No.	2711-0073 (0090-US-C3)

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 501860 Deposit Account Name: DAVIDSON BERQUIST JACKS(

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	330	165	540	270	220	110	
Design	220	110	100	50	140	70	
Plant	220	110	330	165	170	85	
Reissue	330	165	540	270	650	325	
Provisional	220	110	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	52	26
Each independent claim over 3 (including Reissues)	220	110
Multiple dependent claims	390	195

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	_____ =	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	_____ =	_____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round up to a whole number) x	_____ =	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): Information Disclosure Statement (1806) Rule 17(p)	180

SUBMITTED BY

Signature	/Brian Siritzky/Reg. No. 37,497	Registration No. (Attorney/Agent) 37, 497	Telephone 703.894.6400
Name (Print/Type)	Brian Siritzky		Date July 17, 2009

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2009

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)	180

Complete if Known	
Application Number	11/065,412
Filing Date	02/23/2005
First Named Inventor	FARBER, David
Examiner Name	BLAIR, Douglas B.
Art Unit	2442
Attorney Docket No.	2711-0073 (0090-US-C3)

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 501860 Deposit Account Name: DAVIDSON BERQUIST JACKS(

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
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Design	220	110	100	50	140	70	
Plant	220	110	330	165	170	85	
Reissue	330	165	540	270	650	325	
Provisional	220	110	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
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Each independent claim over 3 (including Reissues)	220	110
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Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	_____ =	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	_____ =	_____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims Fee ($)	Multiple Dependent Claims Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round **up** to a whole number) x	_____ =	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): Information Disclosure Statement (1806) Rule 17(p)	180

SUBMITTED BY

Signature	/Brian Siritzky/Reg. No. 37,497	Registration No. (Attorney/Agent) 37, 497	Telephone 703.894.6400
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This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Norfolk Division

LEVEL 3 COMMUNICATIONS, LLC, Plaintiff, v. LIMELIGHT NETWORKS, INC., Defendant.	Civil Action No. 2:07cv589 (RGD-FBS)

JOINT STATEMENT REGARDING CLAIM CONSTRUCTION

Pursuant to the Court's June 26, 2008 Order, Plaintiff Level 3 Communications , LLC ("Level 3") and Defendant Limelight Networks, Inc. ("Limelight") respectfully submit this Joint Statement Regarding Claim Construction. At issue is the construction of disputed terms from the three patents-in-suit: U.S. Patent No. 6,654,807, U.S. Patent No. 7,054,935 (collectively the "Footprint Patents"), and U.S. Patent No. 6,473,405 (the "Routing Patent").

I. Construction of the Claims and Terms to Which the Parties Agree

The parties agree upon the construction of the following claim terms, both of which are found in the Routing Patent:

CLAIM TERMS	PARTIES' AGREED CONSTRUCTION
"cost"	The value of network communication performance metrics, in accordance with a practitioner's priorities and needs, associated with transmitting a message from a source to a destination.
"existing routing mechanisms"	The routing mechanisms used by the underlying network.

II. Each Side's Construction of Disputed Claims and Terms

A table setting forth each party's proposed construction of disputed claims and terms is attached hereto as Exhibit A.

III. Each Side's Rebuttal to the Proposed Construction Submitted by the Opposing Party

Each party's rebuttal to the proposed construction offered by the opposing party is also set forth in Exhibit A.

IV. Proposed Witnesses for the Claim Construction Hearing

The parties' respective proposed witnesses during the claim construction hearing are set forth in the table below with a brief description of each of the respective witness' testimony.

WITNESS	PARTY	BRIEF DESCRIPTION OF TESTIMONY
Tony Clark	Level 3	Mr. Clark will provide expert testimony regarding the construction of disputed claim terms from the perspective of one of ordinary skill in the art. Specifically, Mr. Clark will testify regarding the technology at issue, including networking, content delivery, routing techniques, hardware and software used to deliver content over a communication network such as the Internet, hardware and software used to route a message through a communication network such as the Internet, hardware and software used to control traffic flows through a communication networks such as the Internet, congestion management techniques, the expertise and understanding of one skilled in the art, and matters covered in his declarations in support of Level 3's Opening and Reply Briefs.
Kevin Almeroth	Limelight	Limelight believes the pending claim construction issues can be resolved based on the declarations submitted with the parties' briefs and believes that live witness testimony is not necessary at the *Markman* hearing. However, if Level 3 presents live witness testimony, Limelight reserves the right to call Dr. Kevin Almeroth to rebut such testimony. Dr. Almeroth also will provide a brief description of the relevant background to the technology for selecting content servers and the technology for assessing and responding to requests to servers on the Internet, and will offer testimony the subject-matter covered in his Declaration submitted as Exhibit 6 in support of Limelight's Claim Construction brief. This subject-matter includes the understanding of a person of ordinary skill in the art of the

WITNESS	PARTY	BRIEF DESCRIPTION OF TESTIMONY
		terms "repeater selector mechanism," "subscriber verifying mechanism," "rejection," "resource," "overlay node," and "real-time."

Dated: July 9, 2008

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EXHIBIT A

THE '807 AND '935 FOOTPRINT PATENTS

1. **"origin server"**

Claims	Claim Term
'807 & '935: passim	**"origin server"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A server containing subscriber resources, which can be distributed to one or more repeater servers. Level 3 Opening Markman Brief ("L3 Br.") at 7-8. '935 Patent, Fig. 2; Col. 4:28-29, 49-52; Col. 10:59-61; Col. 11:11-13; Col. 16:41-57.	**Server from which subscriber resources originate, and to which a client first makes a request for a particular resource.** (Limelight Claim Construction Brief ("Limelight Br.") at 13-14. '807 Patent, Col. 4:45, Col. 3:1-4, Col. 3:10-11.)

EXHIBIT A

LEVEL 3'S REBUTTAL	LIMELIGHT'S REBUTTAL
Adding the word "originate" unduly limits the functionality of an origin server as described in the patent. The specification does not require that an origin server be the server which first receives client requests. A client request is taught as being received by any one of a reflector, an origin server or a repeater server. *See* '935 Patent; Fig. 1; Col. 7:44-53 and Col. 8:28-31; 63-65 (describing a reflector being able to receive a request for a particular resource). *See also* '935 Patent, Fig. 2 (describing a repeater server being able to first receive a request for a particular resource); Col. 11:11-14 ("Note that the bottom row of Fig. 2 refers to an origin server, or a reflector, or a repeater, depending on what the URL in step A1 identifies."); Col. 16:46-54. In rebuttal to Limelight's argument concerning Level 3's definition, Level 3's definition distinguishes between an origin server and a repeater server. *See* '935 Patent, Col. 11:11-13. Under Level 3's definitions, an origin server receives resources from subscribers and distributes resources to repeater servers, while a repeater server receives resources from either an origin server or another repeater server (but not a subscriber) and services resource requests from end users. Level 3 Reply Brief ("L3 Reply Br.") at 5-6.	Limelight's construction relies on the description of "the invention" in the patent, which is that a client first makes a request to an origin server, which is then intercepted and sent to a repeater, and that the origin server is where resources *originate*. (Limelight Br. 13; '807 Patent, Col. 4:45.) Level 3's construction reads out the description of the invention – that the origin server is where resources *originate* and to which a client first makes a request for a resource. (Limelight Br. 13; '807 Patent, Col. 4:45, Col. 3:1-4, Col. 3:10-11.) While repeater servers may receive client requests, it is only after such requests have first been made to an origin server. Level 3's construction makes no distinction between origin servers and other servers, such as other repeater servers. Repeater server contain subscriber resources and can distribute to other repeater servers. The origin server must mean something different, so Level 3's construction fails. (Id.)

EXHIBIT A

2. "repeater server"

Claims	Claim Term
'807 & '935: passim	**"repeater server"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A server which may receive resources from one or more origin servers and which is used to service resource requests. L3 Br. at 8-10. '935 Patent, Fig. 2; Col. 4:28-31; Col. 5:26-28, 31-33; Col. 10:62-11:6.	**Server that replicates some or all of the subscriber resources from one or more origin servers, and that receives client requests directed to the server by a repeater selector mechanism.** (Limelight Br. at 14.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
The additional phrase "and that receives client requests directed to the server by a repeater selector mechanism" is unnecessary and incorrect as a matter of law. Limelight's definition attempts to import structural and functional limitations from other parts of the claims. Limelight's proposed definition adds a limitation that is not included in other asserted claims (*e.g.*, '807 Patent, claim 26; '935 Patent, claim 1). Limelight's definition erroneously limits the term to the preferred embodiment. L3 Reply Br. at 6-7.	Level 3's construction ignores the only disclosed means of a repeater server receiving a client request so that it may serve the request: the request is directed to the repeater server by a repeater selector mechanism. (Limelight Br. 14; '807 Patent, Col. 3:1-11.)

EXHIBIT A

3. "repeater server network"

Claim	Claim Term
'807 & '935: passim	**"repeater server network"** **"repeater server network, including a plurality of repeaters"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A network including repeater servers. L3 Br. at 10. '935 Patent, Fig. 1; Col. 4:33-37; Col. 5:43-46.	**One or more repeater servers connected to a master repeater.** (Limelight Br. at 14-16. '807 Patent, Col 4:8-9, 18-19; Col. 11:50-55; 12:34-36.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight's definition reads the preferred embodiment into the claim limitation by including the phrase "connected to a master repeater." *See* '935 Patent, Col. 4:33-37. There has been no clear disavowal of claim scope by the inventors. An embodiment of a repeater server network described in the specification makes no reference to a "master repeater." *See* '935 Patent, Col. 5:43-46 ("A complete operating network consists of any number of clients, repeaters, reflectors, and origin servers. Reflectors communicate with the repeater network, and repeaters in the network communicate with one another."). Limelight is attempting to add functionality where none is required. A master repeater has different functionality than a non-master repeater. Nothing in the claims, specification or file history requires master repeaters to be connected to non-master repeaters. L3 Reply Br. at 8-9.	Each term in a claim must be given meaning. Level 3's construction ignores the claim language "including a plurality of repeater servers." The "repeater server network" must be more than just a collection of repeater servers; otherwise, the language "including a plurality of repeaters" would be superfluous. (Limelight Br. at 15.) Level 3's construction ignores the patent's description of what a repeater server network is – repeater servers connected to a master repeater (as depicted in Fig. 1 described as the invention). The master repeater is central to the invention, including repeater selection and subscriber verification. Level 3 offers no explanation as to how these functions are disclosed in the patent if there are no master repeaters in the network. (Id. at 15-16. '807 Patent, Col 4:8-9, 18-19; Col. 11:50-55, 58-59; Col. 12:34-36; Col. 18:32-35; Col. 20:6-7; Col. 22:1-17)

EXHIBIT A

4. "subscriber"

Claim	Claim Term
'807 & '935: passim	**"subscriber"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
An entity that publishes resources via one or more origin servers. L3 Br. at 10-11.	**Entity that publishes resources via an origin server and is authorized to have requests for such resources directed to the repeater server network.** (Limelight Br. at 16.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
There is no requirement in the patent that a subscriber be "authorized" to receive requests for resources. Limelight's citation to the specification is misplaced. It points to a portion of the specification that describes what happens after an entity becomes a subscriber. '935 Patent, Col. 10:41-42. Limelight is effectively reading a "reject" limitation into the claims, even though some claims already contain a "reject" limitation (*e.g.*, '935 Patent, claim 1), while others do not (*e.g.*, '807 Patent, claim 26). The prosecution history does not limit the meaning of subscriber. L3 Reply Br. at 9.	Level 3's construction ignores the specification, which states that when an entity subscribes, it is *permitted* to use the repeater server network. Level 3 cites the preceding sentence in the specification to support its construction, but omits the further description of a subscriber as cited by Limelight. (*See* Limelight Br. 16. '807 Patent, Col. 10:36-40.) Level 3's construction makes no distinction between "subscribers" to the repeater server network, and any other "publishers" in the internet. ('807 Patent, Col. 1:27-28.) Limelight's construction does not read a "rejection" limitation into the claims, because it makes no reference to how a request that is not for an information from a subscriber is handled.

EXHIBIT A

5. "name"

Claims	Claim Term
'807: 8, 11, 23, 25	**"a name by which the repeater server was addressed"**
'807: 19, 26	**"a name by which the server was addressed"**
'935: 3, 14	**"a name by which at least one repeater server handling the request was addressed"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
An identifier. L3 Br. at 11-12. '935 Patent, Col. 7:34-42; Col. 9:50-54, 65-67; Col. 10:1-4; Col. 22:28-30, 62-65; L3 Br., Ex. B, Amendment during prosecution dated Oct. 17, 2005 at 11.	**A word or term uniquely assigned to the selected repeater server.** (Limelight Br. at 22.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
The claims do not require that a "name" be "uniquely assigned to the selected repeater server." '935 Patent, Col. 9:50-54, 65-67; Col. 10:1-4; Col. 22:62-65. Nor does the specification contain a disavowal of claim scope regarding the term "name." The phrase "uniquely assigned" does not appear in the specification. In fact, Limelight's definition is inconsistent with at least one embodiment. *See* '935 Patent, Col. 22:28-30 ("Each time a reflector attempts to connect to a repeater, it uses DNS to identify a set of candidate repeaters given a domain name that represents the repeater network."). Limelight's position contradicts its position taken during the *Akamai v. Limelight* litigation, in which Limelight's expert testified that a name was not limited to a single repeater. L3 Reply Br. at 10-11.	Limelight's construction relies specifically on the specification's description of the selected server uniquely identified by a name in the URL. (Limelight Br. 21-22. '807 Patent, Col. 8:41-45; Col. 9:55-59; Col. 10:1-8.) Level 3 also conflates the name of a domain or the network with the name of a server where it tries to support its argument. (*See* Limelight Br. 22 discussing Level 3's arguments regarding "a set of [repeaters] identified by a given domain name" and "a1952.g.akamaitech.net" being the name of a network, not a server.)

EXHIBIT A

6. "rejecting the client request"

Claims	Claim Term
'935: 1	**"wherein the request for the resource is rejected if the requested resource is not from a subscriber ..."**
'935: 7	**". . . rejecting the request"**
'935: 9, 10	**"causing the request to be rejected ..."**
'807: 2, 11, 13,22 **'935: 18**	**"rejecting the client request ..."**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
Refusing to return a requested resource to a client. L3 Br. at 12-14. '935 Patent, Col. 9:50-54; Col. 10:1-4, 36-41, 45-47; L3 Br., Ex. B, Amendment during prosecution dated Oct. 17, 2005 at 10.	**Returning a reply that rejects a client request when it is determined that the client request is for a resource that is not from a subscriber, based on the origin server identified in the client-request URL.** (Limelight Br. at 17-19.)

EXHIBIT A

LEVEL 3'S REBUTTAL	LIMELIGHT'S REBUTTAL
Limelight's definition reads into the word "reject" practically the entire functionality of most of the asserted claims. *See* '935 Patent, Col. 9:50-54; *see also*, Col. 10:1-4 Returning a "reply" is the preferred embodiment, which Limelight is trying to read into this definition. For example, the prosecution history stresses that a "reply" is just "one embodiment." L3 Br., Ex. B, Amendment during prosecution dated Oct. 17, 2005 at 10. Limelight's definition is inconsistent with what one of ordinary skill would understand the term to mean. *See* L3 Br., Ex. F at ¶16. Limelight's construction reads out an "alternative approach" expressly set forth in the specification. *See* '935 Patent, Col. 9:50-54 ("Placing the origin server name in the reflected URL is generally a good strategy, but it may be considered undesirable for aesthetic or (in the case, e.g., of cookies) certain technical reasons."); Col. 19:1-4 ("If the repeater can determine by which name it was addressed, it can use this information (along with a table that associates repeater alias names with origin server names) to determine which origin server is being addressed."). Limelight's construction violates principles of claim differentiation. *See* '935 Patent, claims 4 and 13. The Examiner's Statement for Reasons of Allowance is not limiting because there was no disavowal by the inventors. L3 Reply Br. at 11.	Limelight's proposed construction is based on the intrinsic evidence, the specification and file history. Level 3's construction is based on extrinsic evidence – an expert declaration. In the reasons for allowance of the claims, the examiner cited the "particular novelty" in the claimed method of rejection, specifically referring to a portion of the specification describing the use of the origin server name to determine if the request is from a subscriber. (Limelight Br. 18, and Ex. 18 at 2.) The examiner's statement is limiting because it gives the public notice of what is claimed, and the inventors did not seek to modify or change the record. The claim should be limited to this particular novelty, and not HTTP messages or a simply non-response, which is what Level 3 tries to capture. HTTP messages were in existence long before the filing of these patents (certainly not "particularly novel"). Level 3 even tries to capture a non-response to a request for any reason as a rejection, which is also not "particularly novel."

EXHIBIT A

7. "resource"

Claim	Claim Term
'807 & '935: passim	**"resource"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
One or more data files such as text, images, video, audio and the like. L3 Br. at 15-16.	**File or object, not a link that requires further action.** (Limelight Br. at 16-17.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
The term "resource" should be defined by what it is, rather than what it is not (*e.g.*, not a link). Whether a link is an "object" has no bearing on whether a link is a resource. A resource can include or be associated with a link. '935 Patent, Col.6:2-4. L3 Reply Br. at 12.	Level 3 agrees that a resource is not a link, but refuses to limit this term to its proper scope. (Limelight Br. 17.) The file history supports Limelight's construction, explicitly defining links as being different from objects. (Id.) The portion of the specification cited by Level 3 refers to "data" not a "resource." The specification describes that the resource may be specified in the URL path, not that it is a URL itself. ('935 Patent, Col. 6:44-49.)

8. "client request for a resource"

Claims	Claim Term
'807: passim	**"client request for a resource"** **"request from a client for a resource"** **"client request"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
Message from a client requesting a resource, which is located in a computer network such as the Internet. L3 Br. at 16.	**URL that includes the name of the server from which the resource is requested.** (Limelight Br. at 19.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Level 3's proposed definition is the plain and ordinary meaning of the terms. L3 Br. at 16.	Level 3's construction ignores the specification's description of a client request, which is that it includes the name of the server from which the resource is requested. (Limelight Br. 19; '935 Patent, Col. 10:23-27, 34-35.)

EXHIBIT A

9. "URL"

Claims	Claim Term
'807 & '935: passim	**"URL"** **"Uniform Resource Locator"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
URL, for example, as commonly used in the world wide web. L3 Br. at 16.	**Uniform Resource Locator, as defined in RFC 1738.** (Limelight Br. at 20-21.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight's definition cites exemplary language and is vague. L3 Br. at 16. Limelight's construction attempts to eliminate claim scope coverage of any URLs developed between the date of RFC 1738 and the present. L3 Reply Br. at 12.	Level 3's construction cites exemplary language and the vague phrase "as commonly used in the world wide web," offering no clarity for a jury. Limelight's relies on the RFC cited in the specification, and is what would be understood by one of ordinary skill in the art as what is commonly used in the Internet. (Limelight Br. 20-21; '935 Patent, Col. 6:23-28.)

EXHIBIT A

10. "appropriate repeater server"

Claims	Claim Term
'807: 1, 8, 25	**"repeater selector mechanism constructed and adapted to identify, for a particular client request, an appropriate repeater server from the plurality of repeater servers"** **"repeater selector mechanism for identifying an appropriate repeater server"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
One or more repeater servers which are not too heavily loaded or which are selected by some measure of network cost. L3 Br. at 14-15.	Limelight included "appropriate repeater server" in its definition of the entire claim "repeater selector mechanism constructed and adapted to identify, for a particular client request, an appropriate repeater server from the plurality of repeater servers." An "appropriate repeater server" is **"a repeater server determined via the Best Repeater Selector algorithm, based at least upon repeater load in a Load Table aggregated by the master repeater and based upon at least the network distance from the client."**
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight's argument (footnote 4) that the specification limits this to "not too heavily loaded **and** which are selected by some measure of network cost" reads in the preferred embodiment. Plus, it is inconsistent with the doctrine of claim differentiation. *See* '807 Patent, claim 36.	Level 3's construction of "an appropriate repeater server" is vague and does not provide sufficient clarity to guide a jury. (Limelight Br. at 11) Level 3 uses the "preferred embodiment" portion of the specification (indeed the only description of the invention) for its construction, but changes the word "and" to "or." ('935 Patent, Col. 11:22-24.)

EXHIBIT A

11. "repeater selector mechanism"

Claims	Claim Term
'807: 1, 8, 11, 12, 19, 22, 25, 36, 37, 40, 41	**"a repeater selector mechanism constructed and adapted to identify, for a particular request, an appropriate repeater server to handle the request"** **"a repeater selector mechanism constructed and adapted to identify, for a client request, a repeater server"** **"repeater selector mechanism for identifying an appropriate repeater server"** **"repeater selector mechanism"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A mechanism which is constructed and adapted to identify an appropriate repeater server from a network of one or more repeater servers for a particular client request. L3 Br. at 16-19. '807 Patent, Col. 26:29-31; Col. 27:31-33, 63-65; '935 Patent, Col. 11:22-26.	**§112, ¶6 function: to identify, for a particular request, an appropriate repeater server to handle the request.** **§112, ¶6 structure: a software program, co-located with an origin server, that intercepts a request to such origin server, determines via the Best Repeater Selector algorithm which repeater to direct the client request to (based at least upon repeater load in a Load Table aggregated by the master repeater from information sent by repeater servers, and distributed by the master repeater to the repeater selector mechanism, and based upon at least the network distance from the client), and then provides to the client a modified resource identifier designating the identified repeater server.** (Limelight Br. at 10-11; '807 Patent., Col. 3:9-15; Col. 5:30-32; Col. 11:12-16, 26-28, 53-55.)

EXHIBIT A

LEVEL 3'S REBUTTAL	LIMELIGHT'S REBUTTAL
Limelight has not overcome the presumption that §112, ¶6 should not apply. "Repeater selector mechanism" has a generally understood meaning. Furthermore, the claim language itself provides sufficient structure to one of ordinary skill in the art. If §112, ¶6 applies, Limelight's proposed structure is wrong as a matter of law. The patent does not require that the reflector be "co-located" at the origin server. *See* '935 Patent, Col. 7:54-59. The location of the software is irrelevant to the function of identifying the appropriate repeater server. Limelight's expert admitted during the *Akamai v. Limelight* litigation that the reflector "could be separate from the origin server." If §112, ¶6 applies, the proper structure for performing the function is "a software program that receives a request for content by an end user, and determines, via the Best Repeater Selector, an appropriate repeater server to handle the request." L3 Reply Br. at 12-17.	This term should be construed under §112, ¶6 because the claims specify a function without reciting sufficient structure to perform that function, and because the term mechanism does not connote structure itself. (Limelight Br. 7-10.) Level 3 ignores the applicability of §112, ¶6. Level 3 reads out of the claims the only structure disclosed in the patent for performing this function: a reflector/software program co-located at an origin server and using tables from a master repeater. Level 3 also seeks to claim subject-matter (a DNS-based approach) that the inventors distinguished from their invention, admitted that they in fact did not invent, and indeed copies from its competitor Akamai. (Id. at 11. '807 Patent., Col. 3:9-15; Col. 5:30-32; Col. 11:12-16, 26-28, 53-55.) Level 3's construction of "an appropriate repeater server" is too vague and does not provide sufficient clarity to guide a jury. (Id.)

EXHIBIT A

12. "subscriber verifying mechanism"

Claims	Claim Term
'807: 1, 8, 11, 12, 19, 22, 25, 26, 45, 46, 47, 48	**"subscriber verifying mechanism constructed and adapted to verify whether an entity is any one of the plurality of subscribers to the repeater server network"** **"subscriber verifying mechanism"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A mechanism, such as a table, used to associate a subscriber with a resource requested by a client. L3 Br. at 19. '935 Patent, Col. 9:50-54; Col. 10:1-4, 36-37.	**§112, ¶6 function: to verify whether an entity is a subscriber to the repeater server network.** **§112, ¶6 structure: a Subscriber Table, located at the master repeater and propagated to all repeater servers in the network, having information necessary to determine whether the origin server identified in a client-request URL belongs to a known subscriber.** (Limelight Br. at 12. '807 Patent, Col. 10:36-43, Col. 18:31-34.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight has not overcome the presumption that §112, ¶6 should not apply. "Repeater selector mechanism" has a generally understood meaning. Furthermore, the claim language itself provides sufficient structure to one of ordinary skill in the art. Limelight's construction that the Subscriber Table is "located at the master repeater and propagated to all repeater servers in the network" violates claim differentiation. *See* '807 Patent, claims 45 and 47. If §112, ¶6 applies, Limelight's proposed structure is wrong as a matter of law. L3 Reply Br. at 12-17.	This term should be construed under §112, ¶6 because the claims specify a function without reciting sufficient structure to perform that function, and because the term mechanism does not connote structure itself. (Limelight Br. 7-9, 12.) Level 3 ignores the applicability of §112, ¶6. Level 3's construction reads out "verification" and requires that a mechanism merely "associate" a subscriber with a resource, and provide exemplary language ("such as a table") that fails to provide clarity to the term. (Id. at 12.) Level 3 also ignores the only structure disclosed in the patent for verification: a subscriber table at the Master repeater server propagated to all repeaters in the network. (Id. '807 Patent, Col. 10:36-43; Col. 18:31-34.)

EXHIBIT A

13. "embedded"

Claims	Claim Term
'807: 1, 8, 11, 12, 19, 22, 25, 26	**"resource (which is/being) embedded in another document"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
[No Proposed Construction]	**Resource automatically downloaded to a user's computer when a browser loads the page.** (Limelight Br. at 17.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
No construction is necessary as Limelight's proposed construction is based on their erroneous construction of resource. L3 Reply Br. at 12. The term should be given its plain and ordinary meaning.	Limelight's construction relies upon plain meaning and is supported by the prosecution history, where the applicants made the distinction when arguing that embedded objects are "by definition, automatically downloaded." (Limelight Br. 17.) Level 3 offers no construction.

14. "request for a resource may be handled"

Claims	Claim Term
'935: 1, 18	**"a request for a resource may be handled by the repeater server network"**
'935: 7	**"a request for information may be handled by the repeater server network"**
'935: 9, 10	**"requests for content may be handled by the repeater server network"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
[No Proposed Construction]	**A selected repeater server handles a request for a resource to an origin server when that request is intercepted and directed to the repeater server by a Best Repeater Selector algorithm co-located with the origin server.** (Limelight Br. at 19-20; '935 Patent, Col. 3:4-20; Col. 8:28-34; Col. 10:23-31; Col. 11:15-17.)

EXHIBIT A

LEVEL 3'S REBUTTAL	LIMELIGHT'S REBUTTAL
No construction is necessary. The term should be given its plain and ordinary meaning.	Level 3 does not propose a construction for this term. Limelight's proposed construction is derived directly from the "invention" as described in the specification – namely the "Summary of the Invention." Limelight further relies on the specifications description of "How a Repeater Handles a Request." ('935 Patent, Col. 3:4-20; Col. 8:28-34; Col. 10:23-31; Col. 11:15-17.) Level 3 ignores the description of the invention, and seeks to expand the scope of the patent claim to cover a DNS-based approach distinguished by the inventors, admitted by Farber and Swart to not being an invention (and certainly not their invention), and a method copied from a competitor – Akamai. (Limelight Br. 19-20.)

15. "obtaining a client request"

Claims	Claim Term
'807: 1, 8, 9, 11, 22	**"obtaining a client request for information by a repeater server"** **"obtain a client request for information"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
[No Proposed Construction]	**Receiving a client request directed by the repeater selector mechanism to a repeater server.** (Limelight Br. at 20; '935 Patent, Col 3:21-24.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
No construction is necessary. The term should be given its plain and ordinary meaning.	Level 3 offers no construction for this term. Limelight's proposed construction is based on the only disclosure in the specification. explanation of how repeater servers obtain client requests, which is through the reflector repeater selector mechanism as described in the summary of the invention. (Limelight Br. 20; '935 Patent, Col 3:21-24.)

EXHIBIT A

16. "Determining . . . based . . . on a name by which the repeater server was addressed"

Claims	Claim Term
'807: 8; 19 (similar);	**"determining . . . based, at least in part, on a name by which the repeater server was addressed, whether the requested information is from any one of the pluralities of entities that public information to the repeater server network"**
'807: 11; 26 (similar);	**"determining . . . based, at least in part, on at least . . . (a) a name by which the repeater server is addressed ..."**
'935: 9, 18	**"using at least the name . . . by which the repeater server was addressed in order to ascertain whether the request is for content from a subscriber to the repeater server network"**
'935: 10	**"determine if the client request is for information from the subscriber"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
[No Proposed Construction]	**Us(es)/(ing) a table to determine the origin server name associated with the name by which the repeater server was addressed, and then determine(es)/(ing) if the origin server belongs to a subscriber.** (Limelight Br. at 21; '807 Patent, Col. 10:1-8; Col. 10:35-36.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
No construction is necessary. The term should be given its plain and ordinary meaning.	Limelight's proposed construction is based on the only description in the patent as to how a repeater server determines if a client request is for information from a subscriber, which is by using the origin server name. (Limelight Br. 21; '807 Patent, Col. 10:1-8; Col. 10:35-36.) Level 3 offers no proposed construction for this term.

EXHIBIT A

THE '405 ROUTING PATENT

1. "default path"

Claims	Claim Term
1, 4	"default path"

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
The path derived by means of existing routing mechanisms. L3 Br. at 23-24.	**The path that a data pocket would travel if there were no overlay network.** (Limelight Br. at 24-25.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight's definition eliminates the possibility that a default path can be used even when there is an overlay network. Mr. Clark's definition here was taken word for word from his earlier declaration in the *Cable & Wireless v. Akamai* litigation. L3 Reply Br. at 17-18. *See also* Limelight Br., Ex. 7 at ¶33.	Level 3's constructions merely parrots other language in the claims, without clarifying what a default path is. Also, as explained with respect to the term "alternative path," Level 3 offers no definition for the constituent term "path." Level 3's expert recognized in prior litigation that the existing routing mechanisms are those used by the underlying network if there is no overlay network. (Ex. 7 ¶¶ 37, 41.) Accordingly, in construing "existing routing mechanisms," the *Cable & Wireless* court found that "the default path is the one that the message would travel along if there were no overlay network." (Level 3 Opening Br. Ex. C, 7/10/03 *Cable & Wireless* Memorandum & Order re claim construction at 6.) The parties agree that the Court should adopt the *Cable & Wireless* court's construction of "existing routing mechanisms" – Limelight believes that construction can only be adopted in context.

EXHIBIT A

2. "alternative path"

Claims	Claim Term
1-7, 10	**"alternative path"** **"alternate path"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A path that is not the default path. L3 Br. at 22-23. '405 Patent, Fig. 1; Col. 3:54-62; Col. 4:39-41. *See also* L3 Reply Br., Ex. F at 2.	**Path that includes intermediate nodes that are co-located with normal nodes of the communications network, but have additional processing capabilities to form a virtual topology on the top of the existing network.** (Limelight Br. at 23-24.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Level 3's construction is straightforward and the definition previously agreed upon by the parties in prior litigation between Cable & Wireless and Akamai. Limelight's definition confuses the definition with a number of technical terms (*e.g.*, "virtual topology") that provide no assistance to the jury. *See* L3 Reply Br., Ex. F at 2. Limelight's inclusion of "intermediate nodes that are co-located with normal nodes" makes no sense to one of ordinary skill in the art. L3 Reply Br. at 17.	Level 3's construction does not capture the limitations of the intrinsic record of a "special set of intermediate nodes." Specifically, the patent describes these intermediate nodes as being "co-located" with nodes of the underlying network that may be used to form the "default path" and as creating a "virtual topology." ('405 Patent, Col. 2:46-47, 52-57; Ex. 20 at 3.) There is no basis to ignore these requirements simply because they need to be explained a jury or may not have an ordinary meaning to those of ordinary skill in the field. Level 3's construction does not specify that the "alternative path" must be "within" the underlying communications network, a requirement that the patentee used to distinguish prior art in obtaining the patent. (Ex. 19 at 5.) Level 3's construction also does not explain what a "path" is. That term is specifically defined as part of "the present invention" in the specification ('405 Patent, Col. 2:52-57). In the prosecution history, the patentee distinguished prior art on the basis that it did not select a "path." (Ex. 20 at 24) Level 3's description of the "path" incorrectly ignores the source and destination of a data packet transmission.

EXHIBIT A

3. "destination"

Claims	Claim Term
1, 4, 7-12	**"destination"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A network connection point at which a message is received. L3 Br. at 24-25.	**The endpoint node identified by the destination field of a data packet.** (Limelight Br. at 25-26.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
The inclusion of "destination field" in Limelight's proposed construction is improper. The term "destination field" already appears in the claims and adding the limitation of "destination field" into "destination" would add redundancy to the claims. L3 Reply Br. at 18.	Level 3's construction makes no distinction between a destination and any other connection points at which a message might be received, *e.g.*, an intermediate node. The specification consistently discusses the "destination" as the end point of a transmission, not merely any point along a transmission path at which a data packet is received. This is further clarified by the use of the term "destination field" in the claims of the '405 patent. To construe these terms consistently, the destination field must identify (whether by address or otherwise) the node that serves as the "destination." Level 3's construction violates the presumption that a term – "destination" – should be given the same meaning throughout the claims, and, in particular, within a claim,.

EXHIBIT A

4. "overlay node"

Claims	Claim Term
3, 6	**"overlay node"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A network connection point that has additional functionality for exploiting overlay routing, and that cooperates to provide forwarding to paths overlaid over the underlying network. L3 Br. 27-28; L3 Reply Br., Ex. G at 6; '405 Patent, Col. 2:43-58; Col. 3:62-65; Col. 3:67-4:6; Col. 5:37-42, 51-56; Col. 6:32-35.	**A node of an overlay network that has additional functionality for measuring the cost of communication to all other overlay nodes and that cooperates to provide paths utilizing the underlying network.** (Limelight Br. at 27-29. '405 Patent, Col. Col. 2:43-49; 3:43-Col. 4:5; 6:32-35.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Measuring cost to all other overlay nodes is only one embodiment of the invention. *See* '405 Patent, Col. 2:43-58; Col. 6:32-35. Limelight's definition that requires cost to all nodes to be measured eliminates embodiments where cost to only a "specified number" of nodes is measured. *See* '405 Patent, Col. 5:37-42. Level 3's definition is adopted from Judge Breyer's claim construction ruling in *Cable & Wireless v. Akamai* construing the term "intermediate nodes," which is used interchangeably with "overlay nodes" in the specification. *See* '405 Patent, Col. 2:47-49, 55-56. *See also* L3 Br. at Ex. G, at 6-7. In some embodiments cost can be measured for all overlay nodes and in other embodiments cost can be measured for less than all nodes. '405 Patent, Col. 6:32-35. L3 Reply Br. at 19.	Level 3's construction ignores the specification's explicit requirement that an overlay node measure the cost of communication to all other overlay nodes. (Col. 6:32-35.) It is improper to ignore the statements in the specification as relating to a "preferred embodiment," because the entire patent discusses the use of "overlay nodes" only in the context of that embodiment. Level 3's construction is also not as clear as Limelight's, because, while it acknowledges that an "overlay node" must have "additional functionality for exploiting overlay routing," it does not specify what that additional functionality is.

EXHIBIT A

5. "dynamic router"

Claims	Claim Term
1, 2, 4, 5	**"dynamic router"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
A router capable of transmitting data along a default or alternative path to an intended destination based on real-time traffic information. L3 Br. at 25-26; L3 Reply Br. at 18-19. '405 Patent, Fig. 2, Col.5:52-6:8.	**A router that computes on-demand alternative paths for a specific packet to the intended destination, based on real-time traffic information.** (Limelight Br. at 26-27.)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
A dynamic router does not have to perform all computations itself. The specification provides that a dynamic router can be provided with computations performed by other devices. *See, e.g.*, '405 Patent, Col. 5:51-6:8. One skilled in the art, reading the specification in light of the "preferred embodiment" language would understand that in some embodiments, the computation of alternative paths could be performed by another device and provided to the dynamic router. L3 Reply Br. at 18-19.	The term "dynamic router" is used nowhere in the specification, and Level 3 points to no ordinary meaning. Level 3's construction is indistinguishable from the term "source" (or, for that matter, a "router" as used in unasserted claims 7-10 of the '405 patent). Different claim terms are presumed to mean different things. In effect, Level 3's construction assigns no meaning to the term "dynamic" in the phrase "dynamic router." What "dynamic" means is set forth in the claims themselves, which state that for a particular packet, the path from the dynamic router to the destination is "***dynamically*** selected" when certain conditions exist. Thus, a "dynamic" router must be capable of making that dynamic path selection. Level 3's construction ignores the "dynamic router's" role in "dynamically selecting" an alternative path on-demand, based upon real-time traffic information. Furthermore, Level 3 offers no basis for interpreting a "router" to be simply a "network connection point." In fact, it offers the same construction of "node" (in its proposed construction of "overlay node). Again, different claim terms must mean different things. The term "router" has a well-settled (and much narrower) definition in the field.

EXHIBIT A

6. "real-time traffic information"

Claims	Claim Term
1, 4, 7, 10	**"real-time traffic information"**

LEVEL 3'S PROPOSED DEFINITION	LIMELIGHT'S PROPOSED DEFINITION
Current traffic information at the time of measurement. L3 Br. at 28-29.	**Data concerning the load carried by links or channels of the communications network within a few seconds of the time such data is requested.** (Limelight Br. at 29-30; Patent, Abstract; '405 Patent, Col. 10:37, 44-50..)
LEVEL 3'S REBUTTAL	**LIMELIGHT'S REBUTTAL**
Limelight's reliance on dictionary definitions for its proposed construction is improper. The Court's definition should not be "lenient." Rather, it should be the definition supported by the intrinsic evidence. Limelight mischaracterizes the specification by referring to only part of the re-routing process, not the entire re-routing process. L3 Reply Br. at 19-20.	Level 3's construction of "current" offers no limitation on the amount of time between the data and the measure, so it does nothing to clarify what "real-time" means. The specification makes clear that, at most, "real-time" in the context of routing refers to a few seconds and refers to the time the data is considered, not merely when it is collected. Level 3's construction ignores how the term "real-time" is used in the specification. (Patent, Abstract; '405 Patent, Col. 10:37, 44-50.) Level 3's construction is also of limited use, because it fails to interpret the constituent term "traffic."



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF:	Attorney Docket: 2711-0073 (0090-US-C3)
FARBER, David et al.	Group Art Unit: 2442
Application Serial No.: 11/065,412	Examiner: BLAIR, Douglas B.
Application Filing Date: February 23, 2005	Confirmation No.: 3296
Title: **SHARED CONTENT DELIVERY INFRASTRUCTURE**	Date: July 17, 2009

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference listed on the attached PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The submission of any document herewith, which is not a statutory bar, is not intended that any such document constitutes prior art against any of the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. § 1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference against the claims of the present application.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its requirement content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

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This Information Disclosure Statement is being filed more than three (3) months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance. Please credit or debit Deposit Account No. 501860 the amount required under 37 C.F.R. § 1.17(p) as needed to ensure consideration of the disclosed information.

This IDS cites documents from Civil Action No. 2:07cv589 (E.D. Va.) in related patents. If the Examiner requires any additional information regarding any of the documents cited herein, the Examiner is respectfully requested to contact the undersigned at the number provided.

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CUSTOMER NUMBER 75948	Respectfully submitted, By: **/Brian Siritzky/Reg. No. 37,497** Brian Siritzky, Ph.D. Registration No.: 37,497
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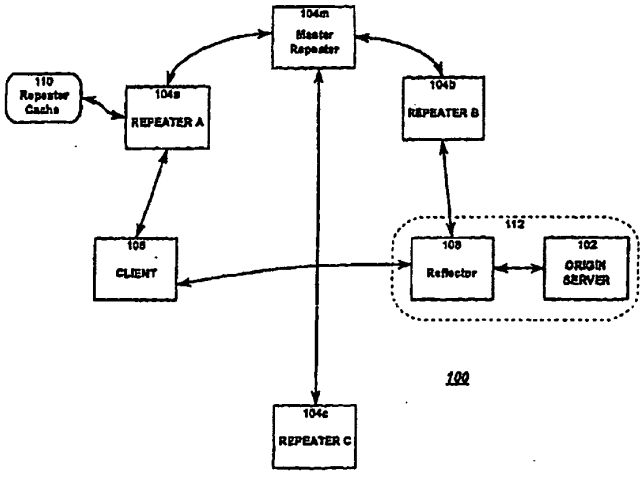
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(54) Title: OPTIMIZED NETWORK RESOURCE LOCATION



(57) Abstract

Resource requests made by clients of origin servers in a network are intercepted by reflector mechanisms and selectively reflected to other servers called repeaters. The reflectors select a best repeater from a set of possible repeaters and redirect the client to the selected best repeater. The client then makes the request of the selected best repeater. The resource is possibly rewritten to replace at least some of the resource identifiers contained therein with modified resource identifiers designating the repeater instead of the origin server.

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OPTIMIZED NETWORK RESOURCE LOCATION

1. Field of the Invention

This invention relates to replication of resources in computer networks.

2. Background of the Invention

The advent of global computer networks, such as the Internet, have led to entirely new and different ways to obtain information. A user of the Internet can now access information from anywhere in the world, with no regard for the actual location of either the user or the information. A user can obtain information simply by knowing a network address for the information and providing that address to an appropriate application program such as a network browser.

The rapid growth in popularity of the Internet has imposed a heavy traffic burden on the entire network. Solutions to problems of demand (e.g., better accessibility and faster communication links) only increase the strain on the supply. Internet Web sites (referred to here as "publishers") must handle ever-increasing bandwidth needs, accommodate dynamic changes in load, and improve performance for distant browsing clients, especially those overseas. The adoption of content-rich applications, such as live audio and video, has further exacerbated the problem.

To address basic bandwidth growth needs, a Web publisher typically subscribes to additional bandwidth from an Internet service provider (ISP), whether in the form of larger or additional "pipes" or channels from the ISP to the publisher's premises, or in the form of large bandwidth commitments in an ISP's remote hosting server collection. These increments are not always as fine-grained as the publisher needs, and quite often lead times can cause the publisher's Web site capacity to lag behind demand.

To address more serious bandwidth growth problems, publishers may develop more complex and costly custom solutions. The solution to the most common need, increasing capacity, is generally based on replication of hardware resources and site

content (known as mirroring), and duplication of bandwidth resources. These solutions, however, are difficult and expensive to deploy and operate. As a result, only the largest publishers can afford them, since only those publishers can amortize the costs over many customers (and Web site hits).

A number of solutions have been developed to advance replication and mirroring. In general, these technologies are designed for use by a single Web site and do not include features that allow their components to be shared by many Web sites simultaneously.

Some solution mechanisms offer replication software that helps keep mirrored servers up-to-date. These mechanisms generally operate by making a complete copy of a file system. One such system operates by transparently keeping multiple copies of a file system in synch. Another system provides mechanisms for explicitly and regularly copying files that have changed. Database systems are particularly difficult to replicate, as they are continually changing. Several mechanisms allow for replication of databases, although there are no standard approaches for accomplishing it. Several companies offering proxy caches describe them as replication tools. However, proxy caches differ because they are operated on behalf of clients rather than publishers.

Once a Web site is served by multiple servers, a challenge is to ensure that the load is appropriately distributed or balanced among those servers. Domain name-server-based round-robin address resolution causes different clients to be directed to different mirrors.

Another solution, load balancing, takes into account the load at each server (measured in a variety of ways) to select which server should handle a particular request.

Load balancers use a variety of techniques to route the request to the appropriate server. Most of those load-balancing techniques require that each server be an exact replica of the primary Web site. Load balancers do not take into account the "network distance" between the client and candidate mirror servers.

Assuming that client protocols cannot easily change, there are two major problems in the deployment of replicated resources. The first is how to select which copy of the resource to use. That is, when a request for a resource is made to a single server, how should the choice of a replica of the server (or of that data) be made. We call this problem the "rendezvous problem". There are a number of ways to get clients to rendezvous at distant mirror servers. These technologies, like load balancers, must route a request to an appropriate server, but unlike load balancers, they take network performance and topology into account in making the determination.

A number of companies offer products which improve network performance by prioritizing and filtering network traffic.

Proxy caches provide a way for client aggregators to reduce network resource consumption by storing copies of popular resources close to the end users. A client aggregator is an Internet service provider or other organization that brings a large number of clients operating browsers to the Internet. Client aggregators may use proxy caches to reduce the bandwidth required to serve web content to these browsers. However, traditional proxy caches are operated on behalf of Web clients rather than Web publishers.

Proxy caches store the most popular resources from all publishers, which means they must be very large to achieve reasonable cache efficiency. (The efficiency of a cache is defined as the number of requests for resources which are already cached divided by the total number of requests.)

Proxy caches depend on cache control hints delivered with resources to determine when the resources should be replaced. These hints are predictive, and are necessarily often incorrect, so proxy caches frequently serve stale data. In many cases, proxy cache operators instruct their proxy to ignore hints in order to make the cache more efficient, even though this causes it to more frequently serve stale data.

Proxy caches hide the activity of clients from publishers. Once a resource is cached, the publisher has no way of knowing how often it was accessed from the cache.

SUMMARY OF THE INVENTION

This invention provides a way for servers in a computer network to off-load their processing of requests for selected resources by determining a different server (a "repeater") to process those requests. The selection of the repeater can be made dynamically, based on information about possible repeaters.

If a requested resource contains references to other resources, some or all of these references can be replaced by references to repeaters.

Accordingly, in one aspect, this invention is a method of processing resource requests in a computer network. First a client makes a request for a particular resource from an origin server, the request including a resource identifier for the particular resource, the resource identifier sometimes including an indication of the origin server. Requests arriving at the origin server do not always include an indication of the origin server; since they are sent to the origin server, they do not need to name it. A mechanism referred to as a reflector, co-located with the origin server, intercepts the request from the client to the origin server and decides whether to reflect the request or to handle it locally. If the reflector decides to handle the request locally, it forwards it to the origin server, otherwise it selects a "best" repeater to process the request. If the request is reflected, the client is provided with a modified resource identifier designating the repeater.

The client gets the modified resource identifier from the reflector and makes a request for the particular resource from the repeater designated in the modified resource identifier.

When the repeater gets the client's request, it responds by returning the requested resource to the client. If the repeater has a local copy of the resource then it returns that copy, otherwise it forwards the request to the origin server to get the resource, and saves a local copy of the resource in order to serve subsequent requests.

The selection by the reflector of an appropriate repeater to handle the request can be done in a number of ways. In the preferred embodiment, it is done by first pre-

partitioning the network into "cost groups" and then determining which cost group the client is in. Next, from a plurality of repeaters in the network, a set of repeaters is selected, the members of the set having a low cost relative to the cost group which the client is in. In order to determine the lowest cost, a table is maintained and regularly updated to define the cost between each group and each repeater. Then one member of the set is selected, preferably randomly, as the best repeater.

If the particular requested resource itself can contain identifiers of other resources, then the resource may be rewritten (before being provided to the client). In particular, the resource is rewritten to replace at least some of the resource identifiers contained therein with modified resource identifiers designating a repeater instead of the origin server. As a consequence of this rewriting process, when the client requests other resources based on identifiers in the particular requested resource, the client will make those requests directly to the selected repeater, bypassing the reflector and origin server entirely.

Resource rewriting must be performed by reflectors. It may also be performed by repeaters, in the situation where repeaters "peer" with one another and make copies of resources which include rewritten resource identifiers that designate a repeater.

In a preferred embodiment, the network is the Internet and the resource identifier is a uniform resource locator (URL) for designating resources on the Internet, and the modified resource identifier is a URL designating the repeater and indicating the origin server (as described in step B3 below), and the modified resource identifier is provided to the client using a REDIRECT message. Note, only when the reflector is "reflecting" a request is the modified resource identifier provided using a REDIRECT message.

In another aspect, this invention is a computer network comprising a plurality of origin servers, at least some of the origin servers having reflectors associated therewith, and a plurality of repeaters.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of the invention will be apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings, in which the reference characters refer to like parts throughout and in which:

FIGURE 1 depicts a portion of a network environment according to the present invention; and

FIGURES 2-6 are flow charts of the operation of the present invention.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

Overview

FIGURE 1 shows a portion of a network environment 100 according to the present invention, wherein a mechanism (reflector 108, described in detail below) at a server (herein origin server 102) maintains and keeps track of a number of partially replicated servers or repeaters 104a, 104b, and 104c. Each repeater 104a, 104b, and 104c replicates some or all of the information available on the origin server 102 as well as information available on other origin servers in the network 100. Reflector 108 is connected to a particular repeater known as its "contact" repeater ("Repeater B" 104b in the system depicted in FIGURE 1). Preferably each reflector maintains a connection with a single repeater known as its contact, and each repeater maintains a connection with a special repeater known as its master repeater (e.g., repeater 104m for repeaters 104a, 104b and 104c in FIGURE 1).

Thus, a repeater can be considered as a dedicated proxy server that maintains a partial or sparse mirror of the origin server 102, by implementing a distributed coherent cache of the origin server. A repeater may maintain a (partial) mirror of more than one origin server. In some embodiments, the network 100 is the Internet and repeaters

mirror selected resources provided by origin servers in response to clients' HTTP (hypertext transfer protocol) and FTP (file transfer protocol) requests.

A client 106 connects, via the network 100, to origin server 102 and possibly to one or more repeaters 104a etc.

Origin server 102 is a server at which resources originate. More generally, the origin server 102 is any process or collection of processes that provide resources in response to requests from a client 106. Origin server 102 can be any off-the-shelf Web server. In a preferred embodiment, origin server 102 is typically a Web server such as the Apache server or Netscape Communications Corporation's Enterprise™ server.

Client 106 is a processor requesting resources from origin server 102 on behalf of an end user. The client 106 is typically a user agent (e.g., a Web browser such as Netscape Communications Corporation's Navigator™) or a proxy for a user agent. Components other than the reflector 108 and the repeaters 104a, 104b, etc., may be implemented using commonly available software programs. In particular, this invention works with any HTTP client (e.g., a Web browser), proxy cache, and Web server. In addition, the reflector 108 might be fully integrated into the data server 112 (for instance, in a Web Server). These components might be loosely integrated based on the use of extension mechanisms (such as so-called add-in modules) or tightly integrated by modifying the service component specifically to support the repeaters.

Resources originating at the origin server 102 may be static or dynamic. That is, the resources may be fixed or they may be created by the origin server 102 specifically in response to a request. Note that the terms "static" and "dynamic" are relative, since a static resource may change at some regular, albeit long, interval.

Resource requests from the client 106 to the origin server 102 are intercepted by reflector 108 which for a given request either forwards the request on to the origin server 102 or conditionally reflects it to some repeater 104a, 104b, etc. in the network 100. That is, depending on the nature of the request by the client 106 to the origin server 102, the reflector 108 either serves the request locally (at the origin server 102), or selects one

of the repeaters (preferably the best repeater for the job) and reflects the request to the selected repeater. In other words, the reflector 108 causes requests for resources from origin server 102, made by client 106, to be either served locally by the origin server 102 or transparently reflected to the best repeater 104a, 104b, etc. The notion of a best repeater and the manner in which the best repeater is selected are described in detail below.

Repeaters 104a, 104b, etc. are intermediate processors used to service client requests thereby improving performance and reducing costs in the manner described herein. Within repeaters 104a, 104b, etc., are any processes or collections of processes that deliver resources to the client 106 on behalf of the origin server 102. A repeater may include a repeater cache 110, used to avoid unnecessary transactions with the origin server 102.

The reflector 108 is a mechanism, preferably a software program, that intercepts requests that would normally be sent directly to the origin server 102. While shown in the drawings as separate components, the reflector 108 and the origin server 102 are typically co-located, e.g., on a particular system such as data server 112. (As discussed below, the reflector 108 may even be a "plug in" module that becomes part of the origin server 102.

FIGURE 1 shows only a part of a network 100 according to this invention. A complete operating network consists of any number of clients, repeaters, reflectors, and origin servers. Reflectors communicate with the repeater network, and repeaters in the network communicate with one another.

Uniform Resource Locators

Each location in a computer network has an address which can generally be specified as a series of names or numbers. In order to access information, an address for that information must be known. For example, on the World Wide Web ("the Web") which is a subset of the Internet, the manner in which information address locations are

provided has been standardized into Uniform Resource Locators (URLs). URLs specify the location of resources (information, data files, etc.) on the network.

The notion of URLs becomes even more useful when hypertext documents are used. A hypertext document is one which includes, within the document itself, links (pointers or references) to the document itself or to other documents. For example, in an on-line legal research system, each case may be presented as a hypertext document. When other cases are cited, links to those cases can be provided. In this way, when a person is reading a case, they can follow cite links to read the appropriate parts of cited cases.

In the case of the Internet in general and the World Wide Web specifically, documents can be created using a standardized form known as the Hypertext Markup Language (HTML). In HTML, a document consists of data (text, images, sounds, and the like), including links to other sections of the same document or to other documents. The links are generally provided as URLs, and can be in relative or absolute form. Relative URLs simply omit the parts of the URL which are the same as for the document including the link, such as the address of the document (when linking to the same document), etc. In general, a browser program will fill in missing parts of a URL using the corresponding parts from the current document, thereby forming a fully formed URL including a fully qualified domain name, etc.

A hypertext document may contain any number of links to other documents, and each of those other documents may be on a different server in a different part of the world. For example, a document may contain links to documents in Russia, Africa, China and Australia. A user viewing that document at a particular client can follow any of the links transparently (i.e., without knowing where the document being linked to actually resides). Accordingly, the cost (in terms of time or money or resource allocation) of following one link versus another may be quite significant.

URLs generally have the following form (defined in detail in T. Berners-Lee et al, *Uniform Resource Locators (URL)*, Network Working Group, Request for Comments: 1738,

Category: Standards Track, December 1994, located at "http://ds.internic.net/rfc/rfc1738.txt", which is hereby incorporated herein by reference):

scheme://host[:port]/url-path

where "scheme" can be a symbol such as "*file*" (for a file on the local system), "*ftp*" (for a file on an anonymous FTP file server), "*http*" (for a file on a file on a Web server),and "*telnet*" (for a connection to a Telnet-based service). Other schemes, can also be used and new schemes are added every now and then. The port number is optional, the system substituting a default port number (depending on the scheme) if none is provided. The "host" field maps to a particular network address for a particular computer. The "url-path" is relative to the computer specified in the "host" field. A url-path is typically, but not necessarily, the pathname of a file in a web server directory.

For example, the following is a URL identifying a file "F" in the path "A/B/C" on a computer at "*www.uspto.gov*":

http://www.uspto.gov/A/B/C/F

In order to access the file "F" (the resource) specified by the above URL, a program (e.g., a browser) running on a user's computer (i.e., a client computer) would have to first locate the computer (i.e., a server computer) specified by the host name. I.e., the program would have to locate the server "*www.uspto.gov*". To do this, it would access a Domain Name Server (DNS), providing the DNS with the host name ("*www.uspto.gov*"). The DNS acts as a kind of centralized directory for resolving addresses from names. If the DNS determines that there is a (remote server) computer corresponding to the name "*www.uspto.gov*", it will provide the program with an actual computer network address for that server computer. On the Internet this is called an Internet Protocol (or IP) address and it has the form "123.345.456.678". The program on the user's (client) computer would then use the actual address to access the remote (server) computer.

The program opens a connection to the HTTP server (Web server) on the remote computer *"www.uspto.gov"* and uses the connection to send a request message to the remote computer (using the HTTP scheme). The message is typically an HTTP GET request which includes the url-path of the requested resource, "A/B/C/F". The HTTP server receives the request and uses it to access the resource specified by the url-path "A/B/C/F". The server returns the resource over the same connection.

Thus, conventionally HTTP client requests for Web resources at an origin server 102 are processed as follows (see FIGURE 2) (This is a description of the process when no reflector 108 is installed.):

A1. A browser (e.g., Netscape's Navigator) at the client receives a resource identifier (i.e., a URL) from a user.

A2. The browser extracts the host (origin server) name from the resource identifier, and uses a domain name server (DNS) to look up the network (IP) address of the corresponding server. The browser also extracts a port number, if one is present, or uses a default port number (the default port number for http requests is 80).

A3. The browser uses the server's network address and port number to establish a connection between the client 106 and the host or origin server 102.

A4. The client 106 then sends a (GET) request over the connection identifying the requested resource.

A5. The origin server 102 receives the request and

A6. locates or composes the corresponding resource.

A7. The origin server 102 then sends back to the client 106 a reply containing the requested resource (or some form of error indicator if the resource is unavailable). The reply is sent to the client over the same connection as that on which the request was received from the client.

A8. The client 106 receives the reply from the origin server 102.

There are many variations of this basic model. For example, in one variation, instead of providing the client with the resource, the origin server can tell the client to re-request the resource by another name. To do so, in A7 the server 102 sends back to the client 106 a reply called a "REDIRECT" which contains a new URL indicating the other name. The client 106 then repeats the entire sequence, normally without any user intervention, this time requesting the resource identified by the new URL.

System Operation

In this invention reflector 108 effectively takes the place of an ordinary Web server or origin server 102. The reflector 108 does this by taking over the origin server's IP address and port number. In this way, when a client tries to connect to the origin server 102, it will actually connect to the reflector 108. The original Web server (or origin server 102) must then accept requests at a different network (IP) address, or at the same IP address but on a different port number. Thus, using this invention, the server referred to in A3-A7 above is actually a reflector 108.

Note that it is also possible to leave the origin server's network address as it is and to let the reflector run at a different address or on a different port. In this way the reflector does not intercept requests sent to the origin server, but can still be sent requests addressed specifically to the reflector. Thus the system can be tested and configured without interrupting its normal operation.

The reflector **108** supports the processing as follows (see FIGURE 3):
upon receipt of a request,

B1 The reflector **108** analyzes the request to determine whether or not to reflect the request. To do this, first the reflector determines whether the sender (client **106**) is a browser or a repeater. Requests issued by repeaters must be served locally by the origin server **102**. This determination can be made by looking up the network (IP) address of the sender in a list of known repeater network (IP) addresses. Alternatively, this determination could be made by attaching information to a request to indicate that the request is from a specific repeater, or repeaters can request resources from a special port other than the one used for ordinary clients.

B2 If the request is not from a repeater, the reflector looks up the requested resource in a table (called the "rule base") to determine whether the resource requested is "repeatable". Based on this determination, the reflector either reflects the request (B3, described below) or serves the request locally (B4, described below).

The rule base is a list of regular expressions and associated attributes. (Regular expressions are well-known in the field of computer science. A small bibliography of their use is found in *Aho, et al.*, "Compilers, Principles, techniques and tools", Addison-Wesley, 1986, pp. 157-158.) The resource identifier (URL) for a given request is looked up in the rule base by matching it sequentially with each regular expression. The first match identifies the attributes for the resource, namely repeatable or local. If there is no match in the rule base, a default attribute is used. Each reflector has its own rule base, which is manually configured by the reflector operator.

B3. To reflect a request, (to serve a request locally go to B4), as shown in FIGURE 4, the reflector determines (B3-1) the best repeater to reflect the request to, as described in detail below. The reflector then creates (B3-2) a new resource identifier (URL) (using the requested URL and the best repeater) that identifies the same resource at the selected repeater.

It is necessary that the reflection step create a single URL containing the URL of the original resource, as well as the identity of the selected repeater. A special form of URL is created to provide this information. This is done by creating a new URL as follows:

D1. Given a repeater name, scheme, origin server name and path, create a new URL. If the scheme is "http", the preferred embodiment uses the following format:

http://<repeater>/<server>/<path>

If the form used is other than "http", the preferred embodiment uses the following format:

http://<repeater>/<server>@proxy=<scheme>@/<path>

The reflector can also attach a MIME type to the request, to cause the repeater to provide that MIME type with the result. This is useful because many protocols (such as FTP) do not provide a way to attach a MIME type to a resource. The format is

http://<repeater>/<server>@proxy=<scheme>:<type>@/<path>

This URL is interpreted when received by the repeater.

The reflector then sends (B3-3) a REDIRECT reply containing this new URL to the requesting client. The HTTP REDIRECT command allows the reflector to send the browser a single URL to retry the request.

B4. To serve a request locally, the request is sent by the reflector to ("forwarded to") the origin server 102. In this mode, the reflector acts as a reverse proxy server. The origin server 102 processes the request in the normal manner (A5-A7). The reflector then obtains the origin server's reply to the request which it inspects to determine if the requested resource is an HTML document, i.e., whether the requested resource is one which itself contains resource identifiers.

B5. If the resource is an HTML document then the reflector rewrites the HTML document by modifying resource identifiers (URLs) within it, as described below. The resource, possibly as modified by rewriting, is then returned in a reply to the requesting client 106.

If the requesting client is a repeater, the reflector may temporarily disable any cache-control modifiers which the origin server attached to the reply. These disabled cache-control modifiers are later re-enabled when the content is served from the repeater. This mechanism makes it possible for the origin server to prevent resources from being cached at normal proxy caches, without affecting the behavior of the cache at the repeater.

B6. Whether the request is reflected or handled locally, details about the transaction, such as the current time, the address of the requester, the URL requested, and the type of response generated, are written by the

reflector to a local log file.

By using a rule base (B2), it is possible to selectively reflect resources. There are a number of reasons that certain particular resources cannot be effectively repeated (and therefore should not be reflected), for instance:

- the resource is composed uniquely for each request;
- the resource relies on a so-called cookie (browsers will not send cookies to repeaters with different domain names);
- the resource is actually a program (such as a Java applet) that will run on the client and that wishes to connect to a service (Java requires that the service be running on the same machine that provided the applet).

In addition, the reflector 108 can be configured so that requests from certain network addresses (e.g., requests from clients on the same local area network as the reflector itself) are never reflected. Also, the reflector may choose not to reflect requests because the reflector is exceeding its committed aggregate information rate, as described below.

A request which is reflected is automatically mirrored at the repeater when the repeater receives and processes the request.

The combination of the reflection process described here and the caching process described below effectively creates a system in which repeatable resources are migrated to and mirrored at the selected reflector, while non-repeatable resources are not mirrored.

Alternate Approach

Placing the origin server name in the reflected URL is generally a good strategy, but it may be considered undesirable for aesthetic or (in the case, e.g., of cookies) certain technical reasons.

It is possible to avoid the need for placing both the repeater name and the server name in the URL. Instead, a "family" of names may be created for a given origin server, each name identifying one of the repeaters used by that server.

For instance, if www.example.com is the origin server, names for three repeaters might be created:

wr1.example.com
wr2.example.com
wr3.example.com

The name "wr1.example.com" would be an alias for repeater 1, which might also be known by other names such as "wr1.anotherExample.com" and "wr1:example.edu".

If the repeater can determine by which name it was addressed, it can use this information (along with a table that associates repeater alias names with origin server names) to determine which origin server is being addressed. For instance, if repeater 1 is addressed as wr1.example.com, then the origin server is "www.example.com"; if it is addressed as "wr1.anotherExample.com", then the origin server is "www.anotherExample.com".

The repeater can use two mechanisms to determine by which alias it is addressed:

1. Each alias can be associated with a different IP address. Unfortunately, this solution does not scale well, as IP addresses are currently scarce, and the number of IP addresses required grows as the product of origin servers and repeaters.
2. The repeater can attempt to determine the alias name used by inspecting the "host:" tag in the HTTP header of the request. Unfortunately, some old browsers still in use do not attach the "host" tag to a request. Reflectors would need to identify such browsers (the browser identity is a part of each request) and avoid this form of reflection.

How a Repeater Handles a Request

When a browser receives a REDIRECT response (as produced in B3), it reissues

a request for the resource using the new resource identifier (URL) (A1-A5). Because the new identifier refers to a repeater instead of the origin server, the browser now sends a request for the resource to the repeater which processes a request as follows, with reference to FIGURE 5:

C1. First the repeater analyzes the request to determine the network address of the requesting client and the path of the resource requested. Included in the path is an origin server name (as described above with reference to B3).

C2. The repeater uses an internal table to verify that the origin server belongs to a known "subscriber". A subscriber is an entity (e.g., a company) that publishes resources (e.g., files) via one or more origin servers. When the entity subscribes, it is permitted to utilize the repeater network. The subscriber tables described below include the information that is used to link reflectors to subscribers.

If the request is not for a resource from a known subscriber, the request is rejected. To reject a request, the repeater returns a reply indicating that the requested resource does not exist.

C3. The repeater then determines whether the requested resource is cached locally. If the requested resource is in the repeater's cache it is retrieved. On the other hand, if a valid copy of the requested resource is not in the repeater's cache, the repeater modifies the incoming URL, creating a request that it issues directly to the originating reflector which processes it (as in B1-B6). Because this request to the originating reflector is from a repeater, the reflector always returns the requested resource rather than reflecting the request. (Recall that reflectors always handle requests from repeaters locally.) If the repeater obtained the resource from the origin

server, the repeater then caches the resource locally.

If a resource is not cached locally, the cache can query its "peer caches" to see if one of them contains the resource, before or at the same time as requesting the resource from the reflector/origin server. If a peer cache responds positively in a limited period of time (preferably a small fraction of a second), the resource will be retrieved from the peer cache.

C4. The repeater then constructs a reply including the requested resource (which was retrieved from the cache or from the origin server) and sends that reply to the requesting client.

C5. Details about the transaction, such as the associated reflector, the current time, the address of the requester, the URL requested, and the type of response generated, are written to a local log file at the repeater.

Note that the bottom row of FIGURE 2 refers to an origin server, or a reflector, or a repeater, depending on what the URL in step A1 identifies.

Selecting the Best Repeater

If the reflector **108** determines that it will reflect the request, it must then select the best repeater to handle that request (as referred to in step B3-1). This selection is performed by the Best Repeater Selector (BRS) mechanism described here.

The goal of the BRS is to select, quickly and heuristically, an appropriate repeater for a given client given only the network address of the client. An appropriate repeater is one which is not too heavily loaded and which is not too far from the client in terms

of some measure of network distance. The mechanism used here relies on specific, compact, pre-computed data to make a fast decision. Other, dynamic solutions can also be used to select an appropriate repeater.

The BRS relies on three pre-computed tables, namely the Group Reduction Table, the Link Cost Table, and the Load Table. These three tables (described below) are computed off-line and downloaded to each reflector by its contact in the repeater network.

The Group Reduction Table places every network address into a group, with the goal that addresses in a group share relative costs, so that they would have the same best repeater under varying conditions (i.e., the BRS is invariant over the members of the group).

The Link Cost Table is a two dimensional matrix which specifies the current cost between each repeater and each group. Initially, the link cost between a repeater and a group is defined as the "normalized link cost" between the repeater and the group, as defined below. Over time, the table will be updated with measurements which more accurately reflect the relative cost of transmitting a file between the repeater and a member of the group. The format of the Link Cost Table is <Group ID> <Group ID> <link cost>, where the Group ID's are given as AS numbers.

The Load Table is a one dimensional table which identifies the current load at each repeater. Because repeaters may have different capacities, the load is a value that represents the ability of a given repeater to accept additional work. Each repeater sends its current load to a central master repeater at regular intervals, preferably at least approximately once a minute. The master repeater broadcasts the Load Table to each reflector in the network, via the contact repeater.

A reflector is provided entries in the Load Table only for repeaters which it is assigned to use. The assignment of repeaters to reflectors is performed centrally by a repeater network operator at the master repeater. This assignment makes it possible to modify the service level of a given reflector. For instance, a very active reflector may use

many repeaters, whereas a relatively inactive reflector may use few repeaters.

Tables may also be configured to provide selective repeater service to subscribers in other ways, e.g., for their clients in specific geographic regions, such as Europe or Asia.

Measuring Load

In the presently preferred embodiments, repeater load is measured in two dimensions, namely

1. requests received by the repeater per time interval *(RRPT)*, and
2. bytes sent by the repeater per time interval *(BSPT)*.

For each of these dimensions, a maximum *capacity* setting is set. The maximum capacity indicates the point at which the repeater is considered to be fully loaded. A higher RRPT capacity generally indicates a faster processor, whereas a higher BSPT capacity generally indicates a wider network pipe. This form of load measurement assumes that a given server is dedicated to the task of repeating.

Each repeater regularly calculates its *current* RRPT and BSPT, by accumulating the number of requests received and bytes sent over a short time interval. These measurements are used to determine the repeater's load in each of these dimensions. If a repeater's load exceeds its configured capacity, an alarm message is sent to the repeater network administrator.

The two current load components are combined into a single value indicating overall current load. Similarly, the two maximum capacity components are combined into a single value indicating overall maximum capacity. The components are combined as follows:

$$\text{current-load} = B \times \text{current RRPT} + (1 - B) \times \text{current BSPT}$$

$$\text{max-load} = B \times \text{max RRPT} + (1 - B) \times \text{max BSPT}$$

The factor B, a value between 0 and 1, allows the relative weights of RRPT and BSPT to be adjusted, which favors consideration of either processing power or

bandwidth.

The overall current load and overall maximum capacity values are periodically sent from each repeater to the master repeater, where they are aggregated in the Load Table, a table summarizing the overall load for all repeaters. Changes in the Load Table are distributed automatically to each reflector.

While the preferred embodiment uses a two-dimensional measure of repeater load, any other measure of load can be used.

Combining Link Costs and Load

The BRS computes the cost of servicing a given client from each eligible repeater. The cost is computed by combining the available capacity of the candidate repeater with the cost of the link between that repeater and the client. The link cost is computed by simply looking it up in the Link Cost table.

The cost is determined using the following formula:

$$threshold = K * max\text{-}load$$
$$capacity = max(max\text{-}load - current\text{-}load, e)$$
$$capacity = min(capacity, threshold)$$
$$cost = link\text{-}cost * threshold / capacity$$

In this formula, e is a very small number (epsilon) and K is a tuning factor initial set to 0.5. This formula causes the cost to a given repeater to be increased, at a rate defined by K, if its capacity falls below a configurable threshold.

Given the cost of each candidate repeater, the BRS selects all repeaters within a delta factor of the best score. From this set, the result is selected at random.

The delta factor prevents the BRS from repeatedly selecting a single repeater when scores are similar. It is generally required because available information about load

and link costs loses accuracy over time. This factor is tunable.

Best Repeater Selector (BRS)

The BRS operates as follows, with reference to FIGURE 6:

Given a client network address and the three tables described above:

E1. Determine which group the client is in using the Group Reduction Table.

E2. For each repeater in the Link Cost Table and Load Table, determine that repeater's combined cost as follows:

E2a. Determine the maximum and current load on the repeater (using the Load Table).

E2b. Determine the link cost between the repeater and the client's group (using the Link Cost Table).

E2c. Determine the combined cost as described above.

E3. Select a small set of repeaters with the lowest cost.

E4. Select a random member from the set.

Preferably the results of the BRS processing are maintained in a local cache at the reflector 108. Thus, if the best repeater has recently been determined for a given client (i.e., for a given network address), that best repeater can be reused quickly without being re-determined. Since the calculation described above is based on statically, pre-computed tables, if the tables have not changed then there is no need to re-determine the best repeater.

Determining the Group Reduction and Link Cost Tables

The Group Reduction Table and Link Cost Table used in BRS processing are created and regularly updated by an independent procedure referred to herein as *NetMap*. The *NetMap* procedure is run by executing several phases (described below) as needed.

The term *Group* is used here to refers to an IP "address group".

The term *Repeater Group* refers to a Group that contains the IP address of a repeater.

The term *link cost* refers to a statically determined cost for transmitting data between two Groups. In a presently preferred implementation, this is the minimum of the sums of the costs of the links along each path between them. The link costs of primary concern here are link costs between a Group and a Repeater Group.

The term *relative link cost* refers to the link cost relative to other link costs for the same Group which is calculated by subtracting the minimum link cost from a Group to any Repeater Group from each of its link costs to a Repeater Group.

The term Cost Set refers to a set of Groups that are equivalent in regard to Best Repeater Selection. That is, given the information available, the same repeater would be selected for any of them.

The *NetMap* procedure first processes input files to create an internal database called the Group Registry. These input files describe groups, the IP addresses within groups, and links between groups, and come a variety of sources, including publicly available Internet Routing Registry (IRR) databases, BGP router tables, and probe services that are located at various points around the Internet and use publicly available tools (such as "traceroute") to sample data paths. Once this processing is complete, the Group Registry contains essential information used for further processing, namely (1) the identity of each group, (2) the set of IP addresses in a given group, (3) the presence of links between groups indicating paths over which information may travel, and (4) the

cost of sending data over a given link.

The following processes are then performed on the Group Registry file.

Calculate Repeater Group link costs

The *NetMap* procedure calculates a "link cost" for transmission of data between each Repeater Group and each Group in the Group Registry. This overall link cost is defined as the minimum cost of any path between the two groups, where the cost of a path is equal to the sum of the costs of the individual links in the path. The link cost algorithm presented below is essentially the same as algorithm #562 from ACM journal Transactions on Mathematical Software: "Shortest Path From a Specific Node to All Other Nodes in a Network" by U. Pape, ACM TOMS 6 (1980) pp. 450-455, http://www.netlib.org/toms/562.

In this processing, the term Repeater Group refers to a Group that contains the IP address of a repeater. A group is a neighbor of another group if the Group Registry indicates that there is a link between the two groups.

For each target Repeater Group T:

- Initialize the link cost between T and itself to zero.
- Initialize the link cost between T and every other Group to infinity.
- Create a list L that will contain Groups that are equidistant from the target Repeater Group T.
- Initialize the list L to contain just the target Repeater Group T itself.
- While the list L is not empty:
    - Create an empty list L' of neighbors of members of the list L.
    - For each Group G in the list L:
        - For each Group N that is a neighbor of G:
            - Let cost refer to the sum of the link cost between T and G, and the link cost between G and N.

The cost between T and G was determined in the previous pass of the algorithm; the link cost between G and N is from the Group Registry.

- If cost is less than the link cost between T and N:
  - Set the link cost between T and N to cost.
  - Add N to L' if it is not already on it.
- Set L to L'.

Calculate Cost Sets

A Cost Set is a set of Groups that are equivalent with respect to Best Repeater Selection. That is, given the information available, the same repeater would be selected for any of them.

The "cost profile" of a Group G is defined herein as the set of costs between G and each Repeater. Two cost profiles are said to be equivalent if the values in one profile differ from the corresponding values in the other profile by a constant amount.

Once a client Group is known, the Best Repeater Selection algorithm relies on the cost profile for information about the Group. If two cost profiles are equivalent, the BRS algorithm would select the same repeater given either profile.

A Cost Set is then a set of groups that have equivalent cost profiles.

The effectiveness of this method can be seen, for example, in the case where all paths to a Repeater from some Group A pass through some other Group B. The two Groups have equivalent cost profiles (and are therefore in the same Cost Set) since whatever Repeater is best for Group A is also going to be best for Group B, regardless of what path is taken between the two Groups.

By normalizing cost profiles, equivalent cost profiles can be made identical. A normalized cost profile is a cost profile in which the minimum cost has the value zero. A normalized cost profile is computed by finding the minimum cost in the profile, and subtracting that value from each cost in the profile.

Cost Sets are then computed using the following algorithm:

- For each Group G:
  - Calculate the normalized cost profile for G
  - Look for a Cost Set with the same normalized cost profile.
  - If such as set is found, add G to the existing Cost Set;
  - otherwise, create a new Cost Set with the calculated normalized cost profile, containing only G.

The algorithm for finding Cost Sets employs a hash table to reduce the time necessary to determine whether the desired Cost Set already exists. The hash table uses a hash value computed from cost profile of G.

Each Cost Set is then numbered with a unique Cost Sent Index number. Cost Sets are then used in a straightforward manner to generate the Link Cost Table, which gives the cost from each Cost Set to each Repeater.

As described below, the Group Reduction Table maps every IP address to one of these Cost Sets.

Build IP Map

The IP Map is a sorted list of records which map IP address ranges to Link Cost Table keys. The format of the IP map is:

<base IP address> <max IP address> <Link Cost Table key>

where IP addresses are presently represented by 32-bit integers. The entries are sorted by descending base address, and by ascending maximum address among equal base addresses, and by ascending Link Cost Table key among equal base addresses and maximum addresses. Note that ranges may overlap.

The *NetMap* procedure generates an intermediate IP map containing a map between IP address ranges and Cost Set numbers as follows:

- For each Cost Set S:
    - For each Group G in S:
        - For each IP address range in G:
            - Add a triple (low address, high address, Cost Set number of S) to the IP map.

The IP map file is then sorted by descending base address, and by ascending maximum address among equal base addresses, and by ascending Cost Set number among equal base addresses and maximum addresses. The sort order for the base address and maximum address minimizes the time to build the Group Reduction Table and produces the proper results for overlapping entries.

Finally, the *NetMap* procedure creates the Group Reduction Table by processing the sorted IP map. The Group Reduction Table maps IP addresses (specified by ranges) into Cost Set numbers. Special processing of the IP map file is required in order to detect overlapping address ranges, and to merge adjacent address ranges in order to minimize the size of the Group Reduction Table.

An ordered list of address range segments is maintained, each segment consisting of a base address B and a Cost Set number N, sorted by base address B. (The maximum address of a segment is the base address of the next segment minus one.)

The following algorithm is used:

- Initialize the list with the elements [-infinity, NOGROUP], [+infinity, NOGROUP].
    - For each entry in the IP map, in sorted order, consisting of (b, m, s),
        - Insert (b, m, s) in the list (recall that IP map entries are of the form (low address, high address Cost Set number of S))
    - For each reserved LAN address range (b, m):

Insert (b, m, LOCAL) in the list.

- For each Repeater at address a:

  Insert (a, a, REPEATER) in the list.

- For each segment S in the ordered list:
  - Merge S with following segments with the same Cost Set
  - Create a Group Reduction Table entry with base address from the base address of S,
    - max address = next segment's base – 1,
    - group ID = Cost Set number of S.

A reserved LAN address range is an address range reserved for use by LANs which should not appear as a global Internet address. LOCAL is a special Cost Set index different from all others, indicating that the range maps to a client which should never be reflected. REPEATER is a special Cost Set index different from all others, indicating that the address range maps to a repeater. NOGROUP is a special Cost Set index different from all others, indicating that this range of addresses has no known mapping.

Given (B, M, N), insert an entry in the ordered address list as follows:
Find the last segment (AB, AN) for which AB is less than or equal to B.
If AB is less than B, insert a new segment (B, N) after (AB, AN).
Find the last segment (YB, YN) for which YB is less than or equal to M.
Replace by (XB, N) any segment (XB, NOGROUP) for which XB is greater than B and less than YB.
If YN is not N, and either YN is NOGROUP or YB is less than or equal to B,
    Let (ZB, ZN) be the segment following (YB, YN).
    If M+1 is less than ZB, insert a new segment (M+1, YN)
        before (ZB, ZN).

Replace (YB, YN) by (YB, N).

Rewriting HTML Resources

As explained above with reference to FIGURE 3 (B5), when a reflector or repeater serves a resource which itself includes resource identifiers (e.g., a HTML resource), that resource is modified (rewritten) to pre-reflect resource identifiers (URLs) of repeatable resources that appear in the resource. Rewriting ensures that when a browser requests repeatable resources identified by the requested resource, it gets them from a repeater without going back to the origin server, but when it requests non-repeatable resources identified by the requested resource, it will go directly to the origin server. Without this optimization, the browser would either make all requests at the origin server (increasing traffic at the origin server and necessitating far more redirections from the origin server), or it would make all requests at the repeater (causing the repeater to redundantly request and copy resources which could not be cached, increasing the overhead of serving such resources).

Rewriting requires that a repeater has been selected (as described above with reference to the Best Repeater Selector). Rewriting uses a so-called BASE directive. The BASE directive lets the HTML identify a different base server. (The base address is normally the address of the HTML resource.)

Rewriting is performed as follows:

F1. A BASE directive is added at the beginning of the HTML resource, or modified where necessary. Normally, a browser interprets relative URLs as being relative to the default base address, namely, the URL of the HTML resource (page) in which they are encountered. The BASE address added specifies the resource at the reflector which originally served the resource. This means that unprocessed relative URLs (such as

those generated by Javascript™ programs) will be interpreted as relative to the reflector. Without this BASE address, browsers would combine relative addresses with repeater names to create URLs which were not in the form required by repeaters (as described above in step D1).

F2. The rewriter identifies directives, such as embedded images and anchors, containing URLs. If the rewriter is running in a reflector, it must parse the HTML file to identify these directives.
If it is running in a repeater, the rewriter may have access to pre-computed information that identifies the location of each URL (placed in the HTML file in step F4).

F3. For each URL encountered in the resource to be re-written, the rewriter must determine whether the URL is repeatable (as in steps B1-B2). If the URL is not repeatable, it is not modified. On the other hand, if the URL is repeatable, it is modified to refer to the selected repeater.

F4. After all URLs have been identified and modified, if the resource is being served to a repeater, a table is appended at the beginning of the resource that identifies the location and content of each URL encountered in the resource. (This step is an optimization which eliminates the need for parsing HTML resources at the repeater.)

F5. Once all changes have been identified, a new length is computed for the resource (page). The length is inserted in the HTTP header prior to serving the resource.

An extension of HTML, known as XML, is currently being developed. The

process of rewriting URLs will be similar for XML, with some differences in the mechanism that parses the resource and identifies embedded URLs.

Handling Non-HTTP Protocols

This invention makes it possible to reflect references to resources that are served by protocols other than HTTP, for instance, the File Transfer Protocol (FTP) and audio/video stream protocols. However, many protocols do not provide the ability to redirect requests. It is, however, possible to redirect references before requests are actually made by rewriting URLs embedded in HTML pages. The following modifications to the above algorithms are used to support this capability.

In F4, the rewriter rewrites URLs for servers if those servers appear in a configurable table of cooperating origin server or so-called co-servers. The reflector operator can define this table to include FTP servers and other servers. A rewritten URL that refers to a non-HTTP resource takes the form:

http://<repeater>/<origin server>@proxy=<scheme>[:<type>]@/resource

where <scheme> is a supported protocol name such as "ftp". This URL format is an alternative to the form shown in B3.

In C3, the repeater looks for a protocol embedded in the arriving request. If a protocol is present and the requested resource is not already cached, the repeater uses the selected protocol instead of the default HTTP protocol to request the resource when serving it and storing it in the cache.

System Configuration and Management

In addition to the processing described above, the repeater network requires various mechanisms for system configuration and network management. Some of these mechanisms are described here.

Reflectors allow their operators to synchronize repeater caches by performing publishing operations. The process of keeping repeater caches synchronized is described below. Publishing indicates that a resource or collection of resources has changed.

Repeaters and reflectors participate in various types of log processing. The results of logs collected at repeaters are collected and merged with logs collected at reflectors, as described below.

Adding Subscribers to the Repeater Network

When a new subscriber is added to the network, information about the subscriber is entered in a Subscriber Table at the master repeater and propagated to all repeaters in the network. This information includes the *Committed Aggregate Information Rate* (CAIR) for servers belonging to the subscriber, and a list of the repeaters that may be used by servers belonging to the subscriber.

Adding Reflectors to the Repeater Network

When a new reflector is added to the network, it simply connects to and announces itself to a contact repeater, preferably using a securely encrypted certificate including the repeater's subscriber identifier.

The contact repeater determines whether the reflector network address is permitted for this subscriber. If it is, the contact repeater accepts the connection and updates the reflector with all necessary tables (using version numbers to determine which tables are out of date).

The reflector processes requests during this time, but is not "enabled" (allowed to reflect requests) until all of its tables are current.

Keeping Repeater Caches Synchronized

Repeater caches are coherent, in the sense that when a change to a resource is identified by a reflector, all repeater caches are notified, and accept the change in a single transaction.

Only the identifier of the changed resource (and not the entire resource) is transmitted to the repeaters; the identifier is used to effectively invalidate the corresponding cached resource at the repeater. This process is far more efficient than broadcasting the content of the changed resource to each repeater.

A repeater will load the newly modified resource the next time it is requested.

A resource change is identified at the reflector either manually by the operator, or through a script when files are installed on the server, or automatically through a change detection mechanism (e.g., a separate process that checks regularly for changes).

A resource change causes the reflector to send an "invalidate" message to its contact repeater, which forwards the message to the master repeater. The invalidate message contains a list of resource identifiers (or regular expressions identifying patterns of resource identifiers) that have changed. (Regular expressions are used to invalidate a directory or an entire server.) The repeater network uses a two-phase commit process to ensure that all repeaters correctly invalidate a given resource.

The invalidation process operates as follows:

The master broadcasts a "phase 1" invalidation request to all repeaters indicating the resources and regular expressions describing sets of resources to be invalidated.

When each repeater receives the phase 1 message, it first places the resource identifiers or regular expressions into a list of resource identifiers pending invalidation.

Any resource requested (in C3) that is in the pending invalidation list may not be served from the cache. This prevents the cache from requesting the resource from a peer cache which may not have received an invalidation notice. Were it to request a resource in this manner, it might replace the newly invalidated resource by the same, now stale, data.

The repeater then compares the resource identifier of each resource in its cache against the resource identifiers and regular expressions in the list.

Each match is invalidated by marking it stale and optionally removing it from the cache. This means that a future request for the resource will cause it to retrieve a new copy of the resource from the reflector.

When the repeater has completed the invalidation, it returns an acknowledgment to the master. The master waits until all repeaters have acknowledged the invalidation request.

If a repeater fails to acknowledge within a given period, it is disconnected from the master repeater. When it reconnects, it will be told to flush its entire cache, which will eliminate any consistency problem. (To avoid flushing the entire cache, the master could keep a log of all invalidations performed, sorted by date, and flush only files invalidated since the last time the reconnecting repeater successfully completed an invalidation. In the presently preferred embodiments this is not done since it is believed that repeaters will seldom disconnect.)

When all repeaters have acknowledged invalidation (or timed out) the repeater broadcasts a "phase 2" invalidation request to all repeaters. This causes the repeaters to remove the corresponding resource identifiers and regular expressions from the list of resource identifiers pending invalidation.

In another embodiment, the invalidation request will be extended to allow a "server push". In such requests, after phase 2 of the invalidation process has completed, the repeater receiving the invalidation request will immediately request a new copy of the invalidated resource to place in its cache.

Logs and Log Processing

Web server activity logs are fundamental to monitoring the activity in a Web site. This invention creates "merged logs" that combine the activity at reflectors with the

activity at repeaters, so that a single activity log appears at the origin server showing all Web resource requests made on behalf of that site at any repeater.

This merged log can be processed by standard processing tools, as if it had been generated locally.

On a periodic basis, the master repeater (or its delegate) collects logs from each repeater. The logs collected are merged, sorted by reflector identifier and timestamp, and stored in a dated file on a per-reflector basis. The merged log for a given reflector represents the activity of all repeaters on behalf of that reflector. On a periodic basis, as configured by the reflector operator, a reflector contacts the master repeater to request its merged logs. It downloads these and merges them with its locally maintained logs, sorting by timestamp. The result is a merged log that represents all activity on behalf of repeaters and the given reflector.

Activity logs are optionally extended with information important to the repeater network, if the reflector is configured to do so by the reflector operator. In particular, an "extended status code" indicates information about each request, such as:

1. request was served by a reflector locally;
2. request was reflected to a repeater;*
3. request was served by a reflector to a repeater;*
4. request for non-repeatable resource was served by repeater;*
5. request was served by a repeater from the cache;
6. request was served by a repeater after filling cache;
7. request pending invalidation was served by a repeater.

(The activities marked with "*" represent intermediate states of a request and do not normally appear in a final activity log.)

In addition, activity logs contain a duration, and extended precision timestamps. The duration makes it possible to analyze the time required to serve a resource, the bandwidth used, the number of requests handled in parallel at a given time, and other quite useful information. The extended precision timestamp makes it possible to

accurately merge activity logs.

Repeaters use the Network Time Protocol (NTP) to maintain synchronized clocks. Reflectors may either use NTP or calculate a time bias to provide roughly accurate timestamps relative to their contact repeater.

5

Enforcing Committed Aggregate Information Rate

The repeater network monitors and limits the aggregate rate at which data is served on behalf of a given subscriber by all repeaters. This mechanism provides the following benefits:

10 1. provides a means of pricing repeater service;
2. provides a means for estimating and reserving capacity at repeaters;
3. provides a means for preventing clients of a busy site from limiting access to other sites.

For each subscriber, a "threshold aggregate information rate" (TAIR) is
15 configured and maintained at the master repeater. This threshold is not necessarily the committed rate, it may be a multiple of committed rate, based on a pricing policy.

Each repeater measures the information rate component of each reflector for which it serves resources, periodically (typically about once a minute), by recording the number of bytes transmitted on behalf of that reflector each time a request is delivered.
20 The table thus created is sent to the master repeater once per period. The master repeater combines the tables from each repeater, summing the measured information of each reflector over all repeaters that serve resources for that reflector, to determine the "measured aggregate information rate" (MAIR) for each reflector.

If the MAIR for a given reflector is greater than the TAIR for that reflector, the
25 MAIR is transmitted by the master to all repeaters and to the respective reflector.

When a reflector receives a request, it determines whether its most recently calculated MAIR is greater than its TAIR. If this is the case, the reflector

probabilistically decides whether to suppress reflection, by serving the request locally (in B2). The probability of suppressing the reflection increases as an exponential function of the difference between the MAIR and the CAIR.

Serving a request locally during a peak period may strain the local origin server, but it prevents this subscriber from taking more than allocated bandwidth from the shared repeater network.

When a repeater receives a request for a given subscriber (in C2), it determines whether the subscriber is running near its threshold aggregate information rate. If this is the case, it probabilistically decides whether to reduce its load by redirecting the request back to the reflector. The probability increases exponentially as the reflector's aggregate information rate approaches its limit.

If a request is reflected back to a reflector, a special character string is attached to the resource identifier so that the receiving reflector will not attempt to reflect it again. In the current system, this string has the form

"src=overload".

The reflector tests for this string in B2.

The mechanism for limiting Aggregate Information Rate described above is fairly coarse. It limits at the level of sessions with clients (since once a client has been reflected to a given repeater, the rewriting process tends to keep the client coming back to that repeater) and, at best, individual requests for resources. A more fine-grained mechanism for enforcing TAIR limits within repeaters operates by reducing the bandwidth consumption of a busy subscriber when other subscribers are competing for bandwidth.

The fine-grained mechanism is a form of data "rate shaping". It extends the mechanism that copies resource data to a connection when a reply is being sent to a client. When an output channel is established at the time a request is received, the repeater identifies which subscriber the channel is operating for, in C2, and records the subscriber in a data field associated with the channel. Each time a "write" operation is

about to be made to the channel, the Metered Output Stream first inspects the current values of the MAIR and TAIR, calculated above, for the given subscriber. If the MAIR is larger than the TAIR, then the mechanism pauses briefly before performing the write operation. The length of the pause is proportional to the amount the MAIR exceeds the TAIR. The pause ensures that tasks sending other resources to other clients, perhaps on behalf of other subscribers, will have an opportunity to send their data.

Repeater Network Resilience

The repeater network is capable of recovering when a repeater or network connection fails.

A repeater cannot operate unless it is connected to the master repeater. The master repeater exchanges critical information with other repeaters, including information about repeater load, aggregate information rate, subscribers, and link cost.

If a master fails, a "succession" process ensures that another repeater will take over the role of master, and the network as a whole will remain operational. If a master fails, or a connection to a master fails through a network problem, any repeater attempting to communicate with the master will detect the failure, either through an indication from TCP/IP, or by timing out from a regular "heartbeat" message it sends to the master.

When any repeater is disconnected from its master, it immediately tries to reconnect to a series of potential masters based on a configurable file called its "succession list".

The repeater tries each system on the list in succession until it successfully connects to a master. If in this process, it comes to its own name, it takes on the role of master, and accepts connections from other repeaters. If a repeater which is not at the top of the list becomes the master, it is called the "temporary master".

A network partition may cause two groups of repeaters each to elect a master. When the partition is corrected, it is necessary that the more senior master take over the

network. Therefore, when a repeater is temporary master, it regularly tries to reconnect to any master above it in the succession list. If it succeeds, it immediately disconnects from all of the repeaters connected to it. When they retry their succession lists, they will connect to the more senior master repeater.

To prevent losses of data, a temporary master does not accept configuration changes and does not process log files. In order to take on these tasks, it must be informed that it is primary master by manual modification of its successor list. Each repeater regularly reloads its successor list to determine whether it should change its idea of who the master is.

If a repeater is disconnected from the master, it must resynchronize its cache when it reconnects to the master. The master can maintain a list of recent cache invalidations and send to the repeater any invalidations it was not able to process while disconnected. If this list is not available for some reason (for instance, because the reflector has been disconnected too long), the reflector must invalidate its entire cache.

A reflector is not permitted to reflect requests unless it is connected to a repeater. The reflector relies on its contact repeater for critical information, such as load and Link Cost Tables, and current aggregate information rate. A reflector that is not connected to a repeater can continue to receive requests and handle them locally.

If a reflector loses its connection with a repeater, due to a repeater failure or network outage, it continues to operate while it tries to connect to a repeater.

Each time a reflector attempts to connect to a repeater, it uses DNS to identify a set of candidate repeaters given a domain name that represents the repeater network. The reflector tries each repeater in this set until it makes a successful contact. Until a successful contact is made, the reflector serves all requests locally. When a reflector connects to a repeater, the repeater can tell it to attempt to contact a different repeater; this allows the repeater network to ensure that no individual repeater has too many contacts.

When contact is made, the reflector provides the version number of each of its tables to its contact repeater. The repeater then decides which tables should be updated and sends appropriate updates to the reflector. Once all tables have been updated, the repeater notifies the reflector that it may now start reflecting requests.

Using a Proxy Cache within a Repeater

Repeaters are intentionally designed so that any proxy cache can be used as a component within them. This is possible because the repeater receives HTTP requests and converts them to a form recognized by the proxy cache.

On the other hand, several modifications to a standard proxy cache have been or may be made as optimizations. This includes, in particular, the ability to conveniently invalidate a resource, the ability to support cache quotas, and the ability to avoid making an extra copy of each resource as it passes from the proxy cache through the repeater to the requester.

In a preferred embodiment, a proxy cache is used to implement C3. The proxy cache is dedicated for use only by one or more repeaters. Each repeater requiring a resource from the proxy cache constructs a proxy request from the inbound resource request. A normal HTTP GET request to a server contains only the pathname part of the URL—the scheme and server name are implicit. (In an HTTP GET request to a repeater, the pathname part of the URL includes the name of the origin server on behalf of which the request is being made, as described above.) However, a proxy agent GET request takes an entire URL. Therefore, the repeater must construct a proxy request containing the entire URL from the path portion of the URL it receives. Specifically, if the incoming request takes the form:

GET / <origin server> / <path>

then the repeater constructs a proxy request of the form:

GET http://<origin server>/<path>

and if the incoming request takes the form:

GET <origin server>@proxy=<scheme>:<type>@/<path>

then the repeater constructs a proxy request of the form:

GET <scheme>://<origin server>/<path>

Cache Control

HTTP replies contain directives called cache control directives, which are used to indicate to a cache whether the attached resource may be cached and if so, when it should expire. A Web site administrator configures the Web site to attach appropriate directives. Often, the administrator will not know how long a page will be fresh, and must define a short expiration time to try to prevent caches from serving stale data. In many cases, a Web site operator will indicate a short expiration time only in order to receive the requests (or hits) that would otherwise be masked by the presence of a cache. This is known in the industry as "cache-busting". Although some cache operators may consider cache-busting to be impolite, advertisers who rely on this information may consider it imperative.

When a resource is stored in a repeater, its cache directives can be ignored by the repeater, because the repeater receives explicit invalidation events to determine when a resource is stale. When a proxy cache is used as the cache at the repeater, the associated cache directives may be temporarily disabled. However, they must be re-enabled when the resource is served from the cache to a client, in order to permit the cache-control policy (including any cache-busting) to take effect.

The present invention contains mechanisms to prevent the proxy cache within a repeater from honoring cache control directives, while permitting the directives to be served from the repeater.

When a reflector serves a resource to a repeater in B4, it replaces all cache directives by modified directives that are ignored by the repeater proxy cache. It does this by prefixing a distinctive string such as "wr-" to the beginning of the HTTP tag. Thus, "expires" becomes "wr-expires", and "cache-control" becomes "wr-cache-control". This prevents the proxy cache itself from honoring the directives. When a repeater serves a resource in C4, and the requesting client is not another repeater, it searches for HTTP tags beginning with "wr-" and removes the "wr-". This allows the clients retrieving the resource to honor the directives.

Resource Revalidation

There are several cases where a resource may be cached so long as the origin server is consulted each time it is served. In one case, the request for the resource is attached to a so-called "cookie". The origin server must be presented with the cookie to record the request and determine whether the cached resource may be served or not. In another case, the request for the resource is attached to an authentication header (which identifies the requester with a user id and password). Each new request for the resource must be tested at the origin server to assure that the requester is authorized to access the resource.

The HTTP 1.1 specification defines a reply header titled "Must-Revalidate" which allows an origin server to instruct a proxy cache to "revalidate" a resource each time a request is received. Normally, this mechanism is used to determine whether a resource is still fresh. In the present invention, Must-Revalidate makes it possible to ask an origin server to validate a request that is otherwise served from a repeater.

The reflector rule base contains information that determines which resources may be repeated but must be revalidated each time they are served. For each such resource, in B4, the reflector attaches a Must-Revalidate header. Each time a request comes to a repeater for a cached resource marked with a Must-Revalidate header, the request is forwarded to the reflector for validation prior to serving the requested resource.

Cache Quotas

The cache component of a repeater is shared among those subscribers that reflect clients to that repeater. In order to allow subscribers fair access to storage facilities, the cache may be extended to support quotas.

Normally, a proxy cache may be configured with a disk space threshold T. Whenever more than T bytes are stored in the cache, the cache attempts to find resources to eliminate.

Typically a cache uses the least-recently-used (LRU) algorithm to determine which resources to eliminate; more sophisticated caches use other algorithms. A cache may also support several threshold values—for instance, a lower threshold which, when reached, causes a low priority background process to remove items from the cache, and a higher threshold which, when reached, prevents resources from being cached until sufficient free disk space has been reclaimed.

If two subscribers A and B share a cache, and more resources of subscriber A are accessed during a period of time than resources of subscriber B, then fewer of B's resources will be in the cache when new requests arrive. It is possible that, due to the behavior of A, B's resources will never be cached when they are requested. In the present invention, this behavior is undesirable. To address this issue, the invention extends the cache at a repeater to support cache quotas.

The cache records the amount of space used by each subscriber in D_S, and supports a configurable threshold T_S for each subscriber.

Whenever a resource is added to the cache (at C3), the value D_S is updated for the subscriber providing the resource. If D_S is larger than T_S, the cache attempts to find resources to eliminate, from among those resources associated with subscriber S. The cache is effectively partitioned into separate areas for each subscriber.

The original threshold T is still supported. If the sum of reserved segments for each subscriber is smaller than the total space reserved in the cache, the remaining area is "common" and subject to competition among subscribers.

Note, this mechanism might be implemented by modifying the existing proxy cache discussed above, or it might also be implemented without modifying the proxy cache—if the proxy cache at least makes it possible for an external program to obtain a list of resources in the cache, and to remove a given resource from the cache.

Rewriting from Repeaters

When a repeater receives a request for a resource, its proxy cache may be configured to determine whether a peer cache contains the requested resource. If so, the proxy cache obtains the resource from the peer cache, which can be faster than obtaining it from the origin server (the reflector). However, a consequence of this is that rewritten HTML resources retrieved from the peer cache would identify the wrong repeater. Thus, to allow for cooperating proxy caches, resources are preferably rewritten at the repeater.

When a resource is rewritten for a repeater, a special tag is placed at the beginning of the resource. When constructing a reply, the repeater inspects the tag to determine whether the resource indicates that additional rewriting is necessary. If so, the repeater modifies the resource by replacing references to the old repeater with references to the new repeater.

It is only necessary to perform this rewriting when a resource is served to the proxy cache at another repeater.

Repeater-Side Include

Sometimes, an origin server constructs a custom resource for each request (for instance, when inserting an advertisement based on the history of the requesting client). In such a case, that resource must be served locally rather than repeated. Generally, a custom resource contains, along with the custom information, text and references to other, repeatable, resources.

The process that assembles a "page" from a text resource and possibly one or more image resources is performed by the Web browser, directed by HTML. However, it is not possible using HTML to cause a browser to assemble a page using text or directives from a separate resource. Therefore, custom resources often necessarily contain large amounts of static text that would otherwise be repeatable.

To resolve this potential inefficiency, repeaters recognize a special directive called a "repeater side include". This directive makes it possible for the repeater to assemble a custom resource, using a combination of repeatable and local resources. In this way, the static text can be made repeatable, and only the special directive need be served locally by the reflector.

For example, a resource X might consist of custom directives selecting an advertising banner, followed by a large text article. To make this resource repeatable, the Web site administrator must break out a second resource, Y, to select the banner. Resource X is modified to contain a repeater-side include directive identifying resource Y, along with the article. Resource Y is created and contains only the custom directives selecting an ad banner. Now resource X is repeatable, and only resource Y, which is relatively small, is not repeatable.

When a repeater constructs a reply, it determines whether the resource being served is an HTML resource, and if so, scans it for repeater-side include directives. Each such directive includes a URL, which the repeater resolves and substitutes in place of the directive. The entire resource must be assembled before it is served, in order to determine its final size, as the size is included in a reply header ahead of the resource.

Thus, a method and apparatus for dynamically replicating selected resources in computer networks is provided. One skilled in the art will appreciate that the present invention can be practiced by other than the described embodiments, which are presented for purposes of illustration and not limitation, and the present invention is limited only by the claims that follow.

What is claimed:

1. A method of processing resource requests in a computer network, the method comprising,

(i) by a client:

(A) making a request for a particular resource from an origin server, the request including a resource identifier for the particular resource;

(ii) by a reflector:

(B) intercepting the request from the client to the origin server;

(C) selecting a repeater to process the request;

(D) providing to the client a modified resource identifier designating the repeater;

(iii) by the client:

(E) receiving the modified resource identifier from the reflector; and

(F) making a request for the particular resource from the repeater designated in the modified resource identifier;

(iv) by the repeater:

(G) receiving the request from the client; and

(H) returning the requested resource to the client. 2. A method as in claim 1 further comprising, by the repeater:

(I) making a request for the resource from the origin server; and

(J) receiving the resource from the origin server.

3. A method as in claim 1 wherein the selecting of a repeater by the reflector comprises:

(C1) partitioning the network into groups;

(C2) determining which group the client is in;

(C3) selecting, from a plurality of repeaters in the network, a set of repeaters having a lowest cost relative to the group which the client is in; and

(C4) selecting as the repeater a member of the selected set of repeaters.

4. A method as in claim 3, wherein the cost of a repeater is a value based on that repeater's current load and a maximum load for that repeater.

5. A method as in claim 3, wherein the cost of a repeater is a value based on a predicted cost or speed of transmission between the repeater and a client in the group.

6. A method as in claim 1 wherein the particular resource itself contains at least one other resource identifier of at least one other resource, the method further comprising:

rewriting the particular resource to replace at least some of the resource identifiers contained therein with modified resource identifiers designating a repeater instead of the origin server.

7. A method as in claim 6 wherein the rewriting is performed by one of the repeater, the reflector or another repeater.

8. A method of processing resource requests in a computer network, the method comprising,

(i) by a client:

(A) making a request for a particular resource from an origin server, the request including a resource identifier for the particular resource;

(ii) by a reflector:

(B) intercepting the request from the client to the origin server;

(C) determining whether to reflect the request to a repeater;

(D) when the reflector determines not to reflect the request, forwarding the request to the origin server, otherwise

(D1) selecting a repeater to process the request;

(D2) providing to the client a modified resource identifier designating the repeater.

9. A method as in claim 8, further comprising, when the reflector determines to reflect the request,

(iii) by the client:

(E) receiving the modified resource identifier from the reflector; and

(F) making a request for the particular resource from the repeater designated in the modified resource identifier;

(iv) by the repeater:

(G) receiving the request from the client; and

(H) returning the requested resource to the client.

10. A method as in claim 8 wherein the reflector determines whether to reflect a request by comparing the resource identifier with regular expression patterns of repeatable resources.

11. A method as in claim 8, wherein the reflector has a threshold aggregate information rate (TAIR) associated therewith, and wherein the determining of whether to reflect the request to a repeater comprises:

determining whether the TAIR of the reflector is exceeded by a measured aggregate information rate (MAIR) for the reflector, wherein the reflector determines not to reflect the request when the MAIR exceeds the TAIR for the reflector.

12. A method as in claim 8, wherein the reflector has a threshold aggregate information rate (TAIR) associated therewith, and wherein the determining of whether to reflect the request to a repeater comprises:

probabilistically determining whether the TAIR of the reflector is exceeded by a measured aggregate information rate (MAIR) for the reflector, wherein the reflector determines not to reflect the request as an exponential function of the difference between the MAIR and the TAIR.

13. A method as in any of claims 11-12, wherein the MAIR is obtained from repeaters according to the rate at which they have transmitted data on behalf of the reflector during a given time interval.

14. A method as in any one of claims 1-12 wherein the network is the Internet and wherein the resource identifier is a uniform resource locator (URL) for designating resources on the Internet, and wherein the modified resource identifier is a URL designating the repeater and indicating the reflector or origin server, and wherein the modified resource identifier is provided to the client using a REDIRECT message.

15. In a computer network wherein clients request resources from origin servers, a method comprising:

providing at least one repeater;

providing reflectors at some of the origin servers, each reflector intercepting client resource requests made to its respective origin server; and

each reflector selectively redirecting client resource requests for certain resources to one of the repeaters.

16. A method as in claim 15 further comprising, by repeaters in the network:

servicing redirected client resource requests; and

selectively maintaining copies of requested resources,

whereby resources corresponding to redirected resource requests are selectively migrated from their origin servers to one or more repeaters.

17. A computer network comprising:

a plurality of origin servers, at least some of the origin servers having reflectors associated therewith;

a plurality of repeaters; and

a plurality of clients,

wherein each reflector is adapted to intercept resource requests made to its respective origin server and to selectively redirect the resource requests to a dynamically selected repeater.

18. In a computer network wherein clients request resources from origin servers, a reflector mechanism associated with an origin server, the reflector mechanism comprising:

means for intercepting a resource request made by client of an origin server;

means for analyzing the resource request to determine whether to service the request locally at the origin server;

means for determining a best repeater in the network to service the request when

the analyzing means determines that the request should not be serviced locally; and

means for redirecting the client to the best repeater.

19. A reflector mechanism as in claim 18 wherein the network is partitioned into groups and the means for determining the best repeater comprises:

means for determining which group the client is in;

means for selecting, from a plurality of repeaters in the network, a set of repeaters having a lowest cost relative to the group the client is in; and

means for selecting as the best repeater a member of the set of repeaters.

20. A reflector mechanism as in claim 19, wherein the cost of a repeater is a value based on a predicted cost or speed of transmission between the repeater and a client in the group.

21. A mechanism as in claim 19, wherein the cost of a repeater is a value based on that repeaters current load and a maximum load for that repeater.

22. A reflector as in claim 16 wherein the resource itself contains resource identifiers, the reflector further comprising:

means for rewriting the resource to replace at least some of the resource identifiers contained therein with modified resource identifiers designating the repeater instead of the origin server.

23. In a computer network wherein clients request resources from origin servers, a repeater mechanism comprising:

means for receiving a resource request from a client;

means for determining whether the resource is available locally;

means for, when it is determined that the resource is not available locally,

obtaining the resource from an origin server; and

means for providing the resource to the client.

24. A reflector as in claim 18 wherein the resource itself contains resource identifiers, the repeater further comprising:

means for rewriting the resource to replace at least some of the resource identifiers contained therein with modified resource identifiers designating the repeater instead of the origin server.

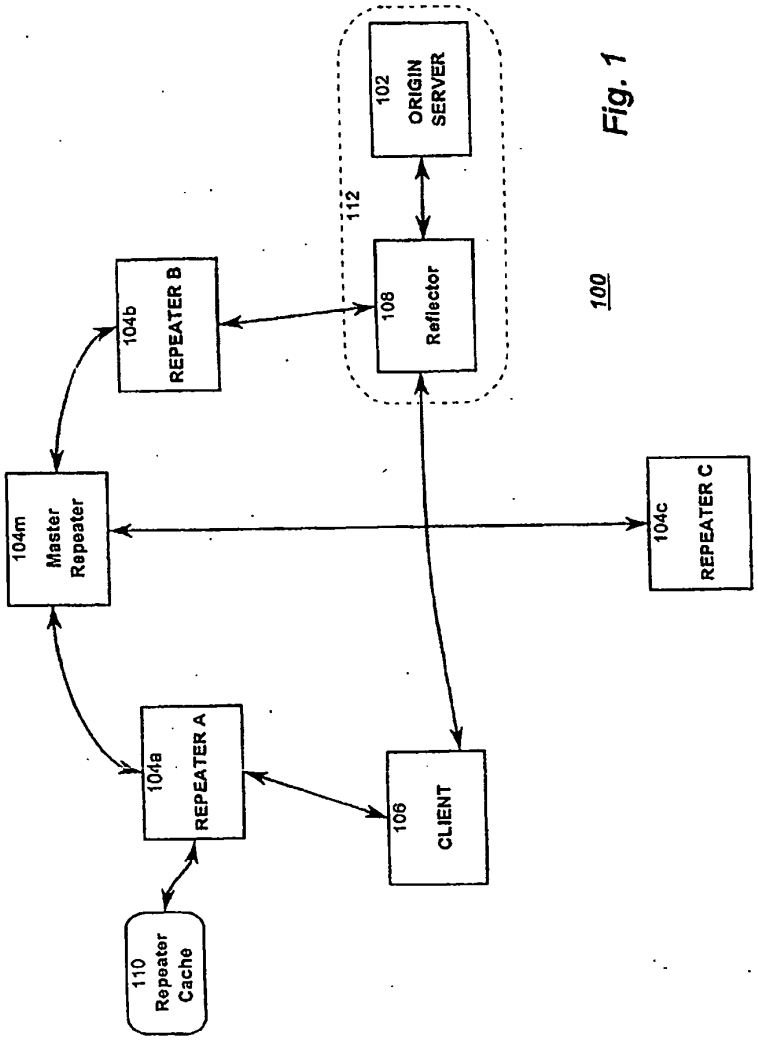

102
ORIGIN SERVER
112
108
Reflector
104b
REPEATER B
104m
Master Repeater
104c
REPEATER C
104a
REPEATER A
106
CLIENT
110
Repeater Cache
100

Fig. 1

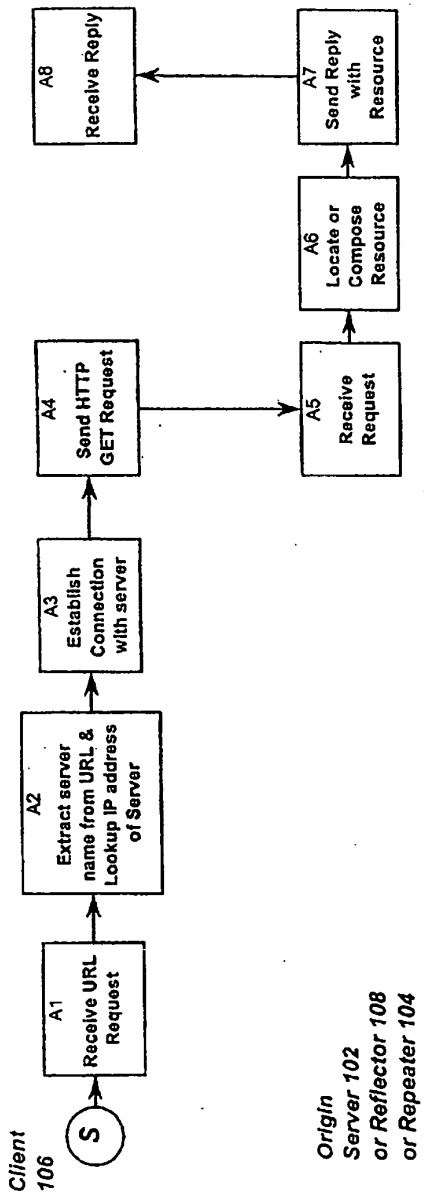

Client 106
S
A1 Receive URL Request
A2 Extract server name from URL & Lookup IP address of Server
A3 Establish Connection with server
A4 Send HTTP GET Request
A5 Receive Request
A6 Locate or Compose Resource
A7 Send Reply with Resource
A8 Receive Reply
Origin Server 102 or Reflector 108 or Repeater 104

Fig. 2

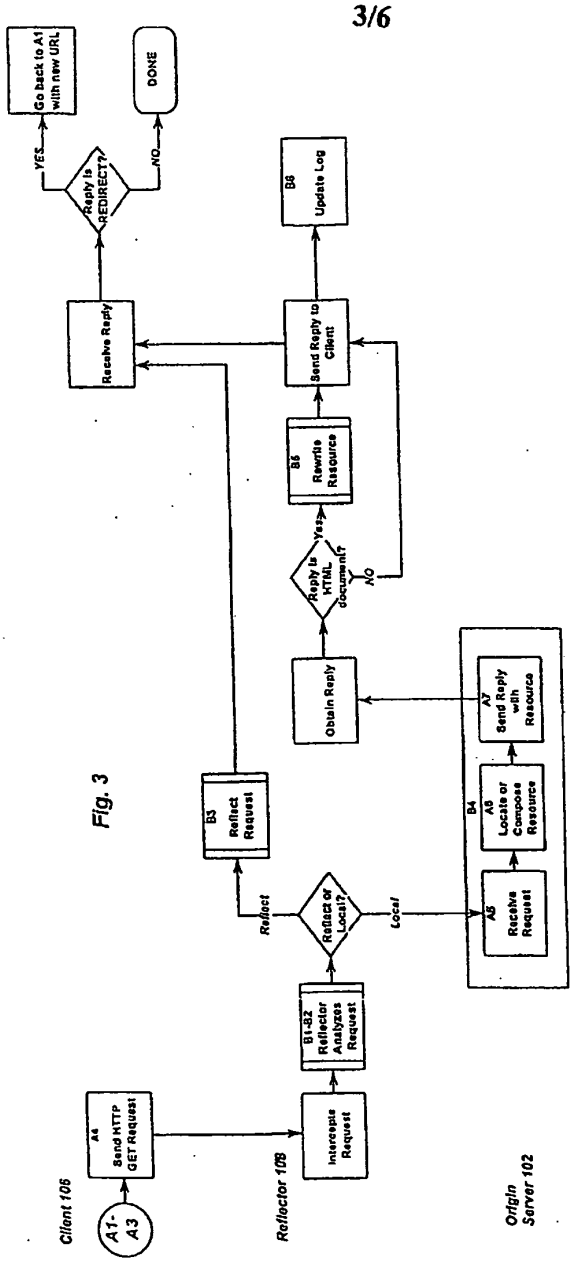

Client 106
Reflector 108
Origin Server 102
A1-A3
A4 Send HTTP GET Request
Intercept Request
B1-B2 Reflector Analyzes Request
Reflect or Local?
Reflect
Local
B3 Reflect Request
A5 Receive Request
B4
A6 Locate or Compose Resource
A7 Send Reply with Resource
Obtain Reply
Reply is HTML Document?
Yes
No
B6 Rewrite Resource
Send Reply to Client
B5 Update Log
Receive Reply
Reply is REDIRECT?
YES
NO
Go back to A1 with new URL
DONE

Fig. 3

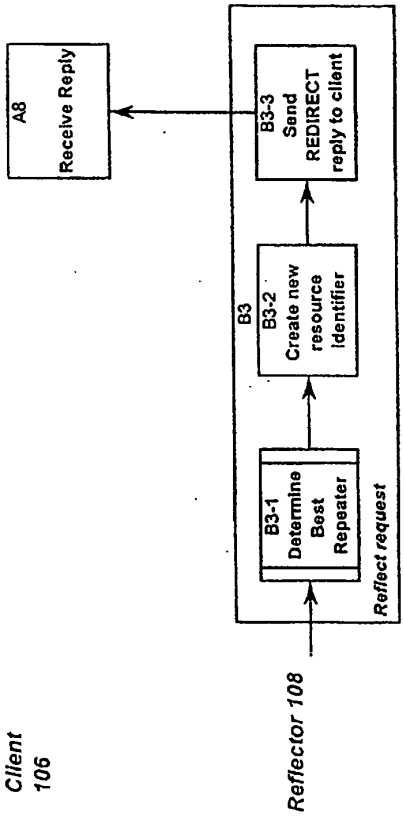

A8
Receive Reply
B3-3
Send
REDIRECT
reply to client
B3
B3-2
Create new
resource
identifier
B3-1
Determine
Best
Repeater
Reflect request
Client
106
Reflector 108

Fig. 4

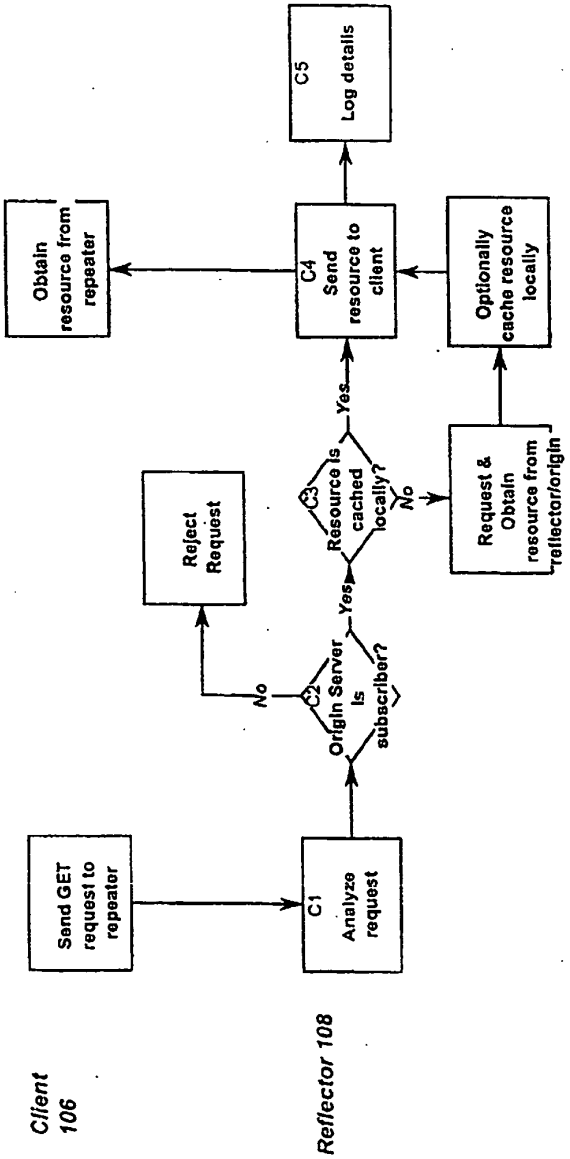

Client 106
Reflector 108
Send GET request to repeater
C1 Analyze request
C2 Origin Server Is subscriber?
No
Yes
Reject Request
C3 Resource is cached locally?
Yes
No
Request & Obtain resource from reflector/origin
C4 Send resource to client
Optionally cache resource locally
Obtain resource from repeater
C5 Log details

Fig. 5

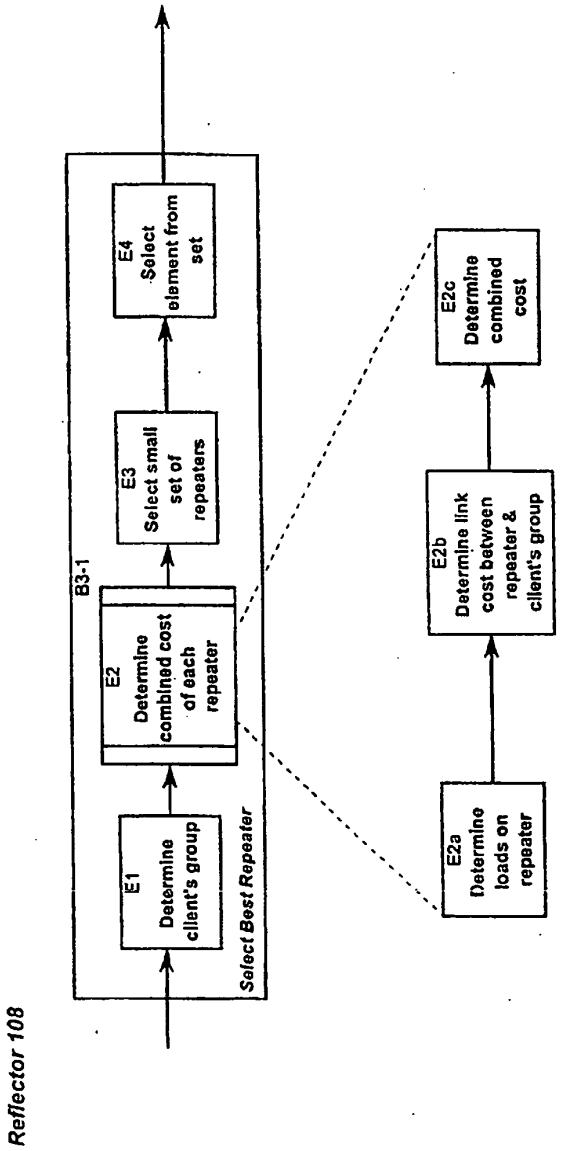

Reflector 108
Select Best Repeater
B3-1
E1 Determine client's group
E2 Determine combined cost of each repeater
E3 Select small set of repeaters
E4 Select element from set
E2a Determine loads on repeater
E2b Determine link cost between repeater & client's group
E2c Determine combined cost

Fig. 6

INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/US 99/01477

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F9/46 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	GB 2 281 793 A (IBM) 15 March 1995 see page 3, line 23 - page 5, line 26 see page 7, line 1 - page 10, line 12 see page 10, line 22 - page 13, line 19 -/--	1,14,18 24 3-13, 15-17, 19-22,24

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 June 1999	14/06/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Michel, T

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/01477

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ANDERSEN D ET AL: "SWEB: towards a scalable World Wide Web server on multicomputers" PROCEEDINGS OF THE INTERNATIONAL PARALLEL PROCESSING SYMPOSIUM,15 April 1996, pages 850-856, XP002088154	17,18,23
Y		24
A	see page 852, line 12 - line 36 see page 852, right-hand column, line 11 see page 853, left-hand column, line 31 - line 42	5,20
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A	WO 97 11429 A (INFONAUTICS CORP) 27 March 1997 see the whole document	1,6,14, 18,22

1

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

..ormation on patent family members

Interr nal Application No
PCT/US 99/01477

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WO 9711429 A	27-03-1997	US 5812769 A	22-09-1998
		AU 7240396 A	09-04-1997

Form PCT/ISA/210 (patent family annex) (July 1992)

(19) Europäisches Patentamt
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(54) **Optimized network resource location**

Optimierte Lokalisierung von Netzwerkbetriebsmittel

Localisation optimale des ressources d'un reseau

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **10.02.1998 US 21506**

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99906680.6 / 1 053 524

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- **GWERTZMAN J S ET AL: "The case for geographical push-caching" WORKSHOP ON HOT TOPICS IN OPERATING SYSTEMS,XX,XX, 4 May 1995 (1995-05-04), pages 51-55, XP002094210**
- **DE BRA P M E ET AL: "Information retrieval in the World-Wide Web: Making client-based searching feasible" COMPUTER NETWORKS AND ISDN SYSTEMS,NL,NORTH HOLLAND PUBLISHING. AMSTERDAM, vol. 27, no. 2, 1 November 1994 (1994-11-01), pages 183-192, XP004037989 ISSN: 0169-7552**

Exhibit No.: 165
Deponent: Swart
Date/RPR: 9-21-08
Hunter + Geist, Inc.

EP 1 143 337 B1

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Description

1. Field of the Invention

[0001] This invention relates to replication of resources in computer networks.

2. Background of the Invention

[0002] The advent of global computer networks, such as the Internet, have led to entirely new and different ways to obtain information. A user of the Internet can now access information from anywhere in the world, with no regard for the actual location of either the user or the information. A user can obtain information simply by knowing a network address for the information and providing that address to an appropriate application program such as a network browser.

[0003] The rapid growth in popularity of the Internet has imposed a heavy traffic burden on the entire network. Solutions to problems of demand (e.g., better accessibility and faster communication links) only increase the strain on the supply. Internet Web sites (referred to here as "publishers") must handle ever-increasing bandwidth needs, accommodate dynamic changes in load, and improve performance for distant browsing clients, especially those overseas. The adoption of content-rich applications, such as live audio and video, has further exacerbated the problem.

[0004] To address basic bandwidth growth needs, a Web publisher typically subscribes to additional bandwidth from an Internet service provider (ISP), whether in the form of larger or additional "pipes" or channels from the ISP to the publisher's premises, or in the form of large bandwidth commitments in an ISP's remote hosting server collection. These increments are not always as fine-grained as the publisher needs, and quite often lead times can cause the publisher's Web site capacity to lag behind demand.

[0005] To address more serious bandwidth growth problems, publishers may develop more complex and costly custom solutions. The solution to the most common need, increasing capacity, is generally based on replication of hardware resources and site content (known as mirroring), and duplication of bandwidth resources. These solutions, however, are difficult and expensive to deploy and operate. As a result, only the largest publishers can afford them, since only those publishers can amortize the costs over many customers (and Web site hits).

[0006] A number of solutions have been developed to advance replication and mirroring. In general, these technologies are designed for use by a single Web site and do not include features that allow their components to be shared by many Web sites simultaneously.

[0007] Some solution mechanisms offer replication software that helps keep mirrored servers up-to-date. These mechanisms generally operate by making a complete copy of a file system. One such system operates by transparently keeping multiple copies of a file system in synch. Another system provides mechanisms for explicitly and regularly copying files that have changed. Database systems are particularly difficult to replicate, as they are continually changing. Several mechanisms allow for replication of databases, although there are no standard approaches for accomplishing it. Several companies offering proxy caches describe them as replication tools. However, proxy caches differ because they are operated on behalf of clients rather than publishers.

[0008] Once a Web site is served by multiple servers, a challenge is to ensure that the load is appropriately distributed or balanced among those servers. Domain name-server-based round-robin address resolution causes different clients to be directed to different mirrors.

[0009] Another solution, load balancing, takes into account the load at each server (measured in a variety of ways) to select which server should handle a particular request.

[0010] Load balancers use a variety of techniques to route the request to the appropriate server. Most of those load-balancing techniques require that each server be an exact replica of the primary Web site. Load balancers do not take into account the "network distance" between the client and candidate mirror servers.

[0011] Assuming that client protocols cannot easily change, there are two major problems in the deployment of replicated resources. The first is how to select which copy of the resource to use. That is, when a request for a resource is made to a single server, how should the choice of a replica of the server (or of that data) be made. We call this problem the "rendezvous problem". There are a number of ways to get clients to rendezvous at distant mirror servers. These technologies, like load balancers, must route a request to an appropriate server, but unlike load balancers, they take network performance and topology into account in making the determination.

[0012] A number of companies offer products which improve network performance by prioritizing and filtering network traffic.

Proxy caches provide a way for client aggregators to reduce network resource consumption by storing copies of popular resources close to the end users. A client aggregator is an Internet service provider or other organization that brings a large number of clients operating browsers to the Internet. Client aggregators may use proxy caches to reduce the bandwidth required to serve web content to these browsers. However, traditional proxy caches are operated on behalf of Web clients rather than Web publishers.

[0013] Proxy caches store the most popular resources from all publishers, which means they must be very large to achieve reasonable cache efficiency. (The efficiency of a cache is defined as the number of requests for resources which are already cached divided by the