

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 May 2008 (08.05.2008)

PCT

(10) International Publication Number
WO 2008/054623 A3

(51) **International Patent Classification:**
H04L 29/06 (2006.01)

(21) **International Application Number:**
PCT/US2007/021903

(22) **International Filing Date:** 12 October 2007 (12.10.2007)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
11/554,122 30 October 2006 (30.10.2006) US

(71) **Applicant (for all designated States except US):** **LU-
CENT TECHNOLOGIES INC.** [US/US]; 600 Mountain
Avenue, Murray Hill, NJ 07974-0636 (US).

(72) **Inventors; and**

(75) **Inventors/Applicants (for US only):** **HERMSMEYER,
Christian** [DE/DE]; Kleingeschaidter Strasse 20, Eckental
(DE). **STOLL, Dieter** [DE/DE]; Dorfstrasse 18c, 91056
Erlangen (DE). **THOMAS, Wolfgang** [DE/DE]; Avenar-
iusstrasse 7b, 90409 Nuremberg (DE).

(74) **Agent:** **WALL, Earton, J.**; Lucent Technologies Inc.,
Docket Administrator-Room 2F-190, 600 Mountain Av-
enue, Murray Hill, NJ 07974-0636 (US).

(81) **Designated States (unless otherwise indicated, for every
kind of national protection available):** AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK,
LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW,
MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL,
PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW

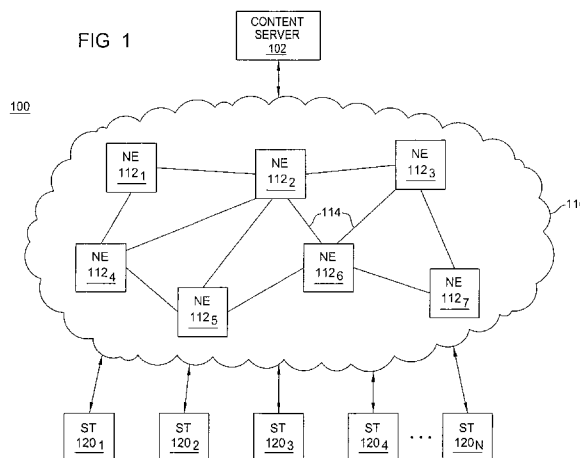
(84) **Designated States (unless otherwise indicated, for every
kind of regional protection available):** ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) **Date of publication of the international search report:**
24 July 2008

(54) **Title:** METHOD AND APPARATUS FOR CONTROLLING INFORMATION AVAILABLE FROM CONTENT DISTRI-
BUTION POINTS



(57) **Abstract:** The invention includes a method and apparatus for controlling information available at a network element (112,...112_N) located at a first hierarchical level in a content distribution network. A method includes determining a subset of content using content forecast information, comparing the determined subset of content to a subset of content available to the network element located at the first hierarchical level, generating a request adapted for modifying the available subset of content in response to a difference between the determined and available subsets of content, and propagating the request toward a network element at a second hierarchical level in the content distribution network, where the first and second hierarchical levels are different. The content may include any information adapted for being distributed from a server (102) to a subscriber terminal (120₁...120_N) (e.g., broadcast multimedia content, content-on-demand, non-streaming content such as files and software patches, and the like, as well as various combinations thereof).

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/021903

A. CLASSIFICATION OF SUBJECT MATTER
INV. 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)
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)

EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AIOFFI W M ET AL: "Dynamic Content Distribution for Mobile Enterprise Networks" IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, IEEE SERVICE CENTER, PISCATAWAY, US, vol. 23, no. 10, 1 October 2005 (2005-10-01), pages 2022-2031, XP011140069 ISSN: 0733-8716 abstract page 2025 ----- -/-	1-10

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

20 May 2008

Date of mailing of the international search report

04/06/2008

Name and mailing address of the ISA/

European Patent Office, P.B. S818 Patentlaan 2
NL - 2280 HV RIJSWIJK
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Jurca, Alexandra

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021903

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BO LI ET AL: "Prediction Algorithms in Large Scale VOD Network Collaborations" COMPUTATIONAL INTELLIGENCE AND BIOINFORMATICS LECTURE NOTES IN COMPUTER SCIENCE; LECTURE NOTES IN BIOINFORMATICSJLNCS, SPRINGER BERLIN HEIDELBERG, BE, vol. 4115, 1 January 2006 (2006-01-01), pages 682-692, XP019038418 ISBN: 978-3-540-37277-6 page 683 - page 690	1-10
X	LO PRESTI F ET AL: "Dynamic Replica Placement in Content Delivery Networks" MODELING, ANALYSIS, AND SIMULATION OF COMPUTER AND TELECOMMUNICATION S YSTEMS, 2005. 13TH IEEE INTERNATIONAL SYMPOSIUM ON ATLANTA, GA, USA 27-29 SEPT. 2005, PISCATAWAY, NJ, USA, IEEE, 27 September 2005 (2005-09-27), pages 1-10, XP010843617 ISBN: 978-0-7695-2458-0 page 3 - page 6	1-10
X	US 6 466 980 B1 (LUMELSKY LEON L [US] ET AL) 15 October 2002 (2002-10-15) figure 15 column 10 - column 14	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/021903

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6466980	B1 . 15-10-2002	CA .2308280 A1	17-12-2000
		JP 3627005 B2	09-03-2005
		JP 2001067377 A	16-03-2001
		KR 20010015001 A	26-02-2001