

(43) International Publication Date
3 November 2011 (03.11.2011)(10) International Publication Number
WO 2011/137187 A3

(51) International Patent Classification:

H04L 12/24 (2006.01) *H04L 12/56* (2006.01)
H04L 29/06 (2006.01)

(21) International Application Number:

PCT/US2011/034184

(22) International Filing Date:

27 April 2011 (27.04.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/330,126 30 April 2010 (30.04.2010) US
13/091,906 21 April 2011 (21.04.2011) US(71) Applicant (for all designated States except US): **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street Twelfth Floor, Oakland, CA 94607-5200 (US).

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

23 February 2012

(54) Title: VIRTUAL TOPOLOGY ADAPTATION FOR RESOURCE OPTIMIZATION IN TELECOMMUNICATION NETWORKS

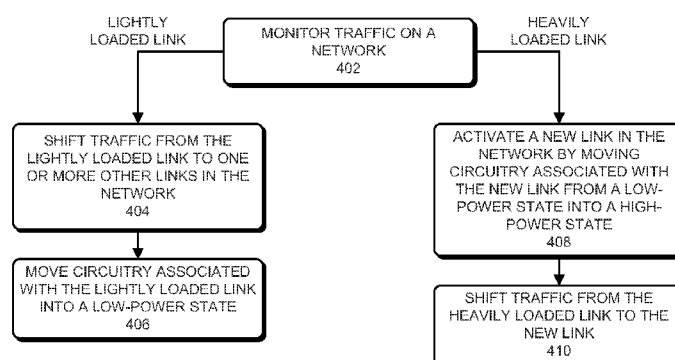


FIG. 4

(57) Abstract: Some embodiments described in this disclosure provide methods and apparatuses for managing a network, e.g., by performing virtual topology adaptation for resource optimization. In some embodiments, a system can monitor traffic on the network to identify heavily loaded and/or lightly loaded links in the network. In response to identifying a lightly loaded link, the system can shift traffic from the lightly loaded link to one or more other links in the network. After the traffic has been shifted, the system can move circuitry associated with the lightly loaded link into a low-power state. In response to identifying a heavily loaded link, the system can activate a new link in the network by moving circuitry associated with the new link from a low-power state into a high-power state. After the new link has been activated, the system can shift traffic from the heavily loaded link to the new link.

A. CLASSIFICATION OF SUBJECT MATTER**H04L 12/24(2006.01)i, H04L 29/06(2006.01)i, H04L 12/56(2006.01)i**

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 12/24; G06F 15/16; G06F 11/07; H04J 3/14; H04B 17/00; H04L 12/26; H04L 12/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords:monitor, traffic, load, link, network, shift, topology, adaptation, resource, optimization

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010-0015926 A1 (LUFF ROBERT A.) 21 January 2010 abstract, paragraphs [0003]-[0005], paragraphs [0098]-[0105], claims 1-4, 7-22, figs. 1-5, 7-9.	1-21
A	US 2009-0113253 A1 (WANG ZHIBING et al.) 30 April 2009 abstract, paragraphs [0015]-[0023], paragraphs [0048]-[0085], claims 1-28, figs. 1-14.	1-21
A	US 2008-0291826 A1 (LICARDIE SERGIO et al.) 27 November 2008 abstract, paragraphs [0007]-[0015], paragraphs [0025]-[0047], claims 1-31, figs. 1-4.	1-21
A	US 7012919 B1 (TRICCI Y. SO et al.) 14 March 2006 abstract, column 3, line 65 - column 5, line 6, column 6, line 5 - column 10, line 59, claims 1-29, figs. 1-9.	1-21

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

29 DECEMBER 2011 (29.12.2011)

Date of mailing of the international search report

02 JANUARY 2012 (02.01.2012)

Name and mailing address of the ISA/KR

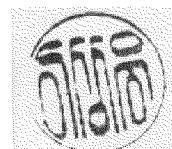
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Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/034184

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05970048A A (PAJUVIRTA; JUHA et al.) 19 October 1999 abstract, column 2, line 34 - column 2, line 50, column 3, line 8 - column 4, line 13, claims 1-7, figs. 1-6.	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

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