(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 September 2004 (23.09.2004)

PCT

(10) International Publication Number
WO 2004/081679 A3

(51) International Patent Classification[7]: G06F 13/10

(21) International Application Number:
PCT/US2004/006955

(22) International Filing Date: 5 March 2004 (05.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/452,812 7 March 2003 (07.03.2003) US

(71) Applicant *(for all designated States except US)*: **NETNOSTICS, INC.** [US/US]; 114 Cannon Forge Drive, Foxboro, MA 02035 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **DAY, John** [US/US]; 114 Cannon Forge Drive, Foxboro, MA 02035 (US).

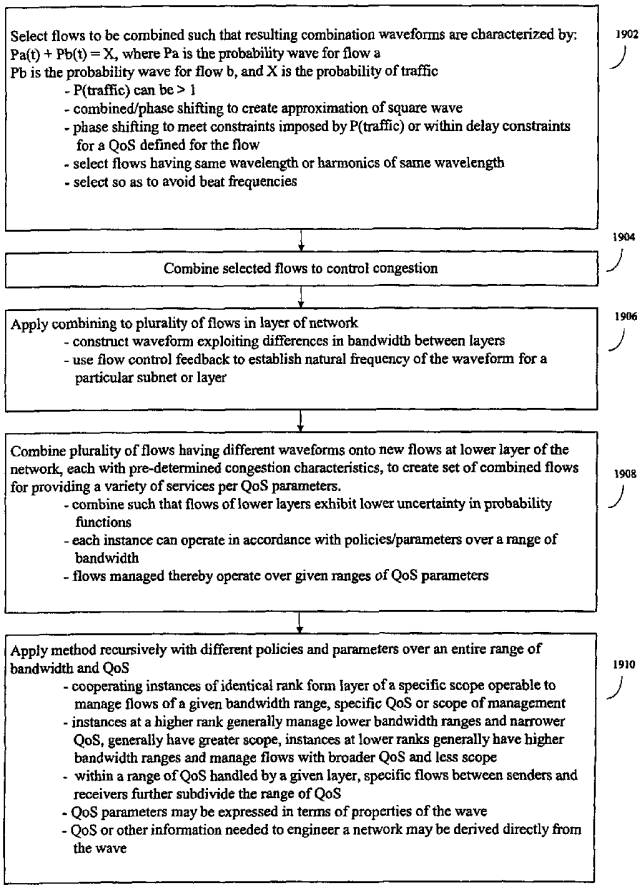
(74) Agent: **JACOBS, David**; Gesmer Updegrove LLP, 40 Broad Street, Boston, MA 02109 (US).

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

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, 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, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: MULTIPLEXING AND CONGESTION CONTROL



(57) Abstract: Methods, systems and devices for network congestion control (1904) exploit the inherent burstiness of network traffic (1902) using a wave-based characterization of network traffic (1906, 1910) and corresponding multiplexing methods and approaches.

WO 2004/081679 A3

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:
7 July 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/06955

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 13/10

US CL : 703/21,22; 709/223, 225

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)

U.S. : 703/21,22; 709/223, 225

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 practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,566.175 A (DAVIS) 15 October 1996 (15.10.1996), Abstract, Figures 1-3, col. 2, lines 8 et seq.	1-23
X	US 6,072,800 A (LEE) 06 June 2000 (06.06.2000), Abstract, Figures 1-5, col. 5, lines 43 et seq.	1-23
X	US 5,953,344 A (DAIL et al.) 14 September 1999 (14.09.1999), Abstract, Figures 2-19, col. 4, lines 20et seq.	1-23
X	US 6,094,420 A (LEMIEUX) 25 July 2000 (25.07.2000), Abstract, Figures 2-7, col. 2, lines 30 et seq.	1-23
X	US 2002/0073224 A1 (VARMA et al.) 13 June 2002 (13.06.2002), Abstract, Figures 1-25, col. 3, lines 57 et seq.	1-23
X	US 6,526,259 B1 (HO) 25 February 2003 (25.02.2003), Abstract, Figures 1A-3B, col. 3, lines 57 et seq.	1-23
X	US 6,405,257 B1 (GERSHT et al.) 11 June 2002 (11.06.2002), Abstract, Figures 1-5, col. 3, lines 1 et seq.	1-23
X	US 6,072,773 A (FICHOU et al.) 06 June 2000 (06.06.2000), Abstract, Figures 2-11, col 5, lines 36 et seq.	1-23

☐ 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 application or patent 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	Date of mailing of the international search report
21 March 2005 (21.03.2005)	18 MAY 2005
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer William D. Thomson Telephone No. 703-305-3257

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/06955

Continuation of B. FIELDS SEARCHED Item 3:
EAST:
Search terms: burst$, netowrk near2 congest$, shap$, analytic$, statistic$, QoS, traffic