

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 May 2004 (13.05.2004)

PCT

(10) International Publication Number
WO 2004/040421 A3

(51) International Patent Classification⁷: G06F 15/16, G09G 5/00

(21) International Application Number: PCT/US2003/034370

(22) International Filing Date: 29 October 2003 (29.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/422,005 29 October 2002 (29.10.2002) US

(71) Applicant (for all designated States except US): INNOVATIVE SYSTEM DESIGN INC. [US/US]; Edison, NJ (US).

(71) Applicants and

(72) Inventors: WAGNER, Lorelei [US/US]; Edison, NJ (US). NOCERA, David [US/US]; 809 Quarry Lane, Martinsville, NJ 08836 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, 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, 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 (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

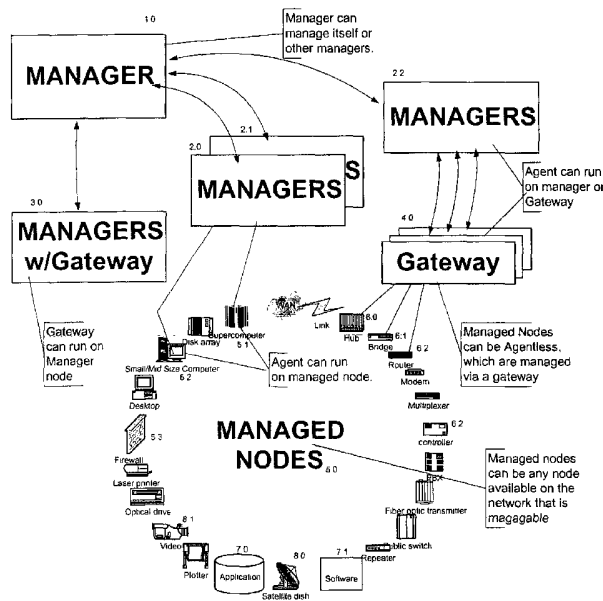
Published:

- 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: 28 October 2004

[Continued on next page]

(54) Title: VISUALIZING PATTERNS OF BEHAVIOR OF ABSTRACTED NETWORK ELEMENTS



(57) Abstract: Provided herein are exemplary techniques for visualizing patterns of changes and behavior on a compute infrastructure composed of abstracted network elements and entities (Figure 10). A Differential View interface provides for complete visualization of infrastructure change and behavior for specific network elements/entities, groups of said elements/entities, or the system as a whole. That is, this interface further provides interactive filters and display patterns of change and behavior of said elements and entities, on a graduated scale, for the compute infrastructure, as a whole, for specific groups, and individual entities within the infrastructure.

WO 2004/040421 A3



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/US03/34370

A. CLASSIFICATION OF SUBJECT MATTER				
IPC(7) : G06F 15/16; G09G 5/00				
US CL : 709/224; 345/736				
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. : 709/202, 223, 224; 345/581, 733, 734, 736				
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.		
Y	US 5,751,965 A (MAYO et al.) 12 MAY 1998 Abstract, inter alia, Column 2, Line 57 through Column 3, Line 64	1-6, 10-12		
Y	US 6,054,987 A (RICHARDSON) 25 AUGUST 2000 Abstract, inter alia, Column 1, Line 37 through Column 4, Line 10	1-6, 10-12		
Y	US 6,175,363 B1 (WILLIAMS et al.) 16 JANUARY 2001 Abstract, inter alia, Column 2, Line 22 through Column 4, Line 45	1-6, 10-12		
Y	US 6,279,034 B1 (JARRIEL et al.) 21 AUGUST 2001 Abstract, inter alia, Column 8, Line 15 through Column 14, Line 61	12		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.				
* Special categories of cited documents: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> "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 </td> <td style="width: 50%;"> "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 </td> </tr> </table>			"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
"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		
24 August 2004 (24.08.2004)		09 SEP 2004		
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer Marc D. Thompson <i>Peggy Harrod</i> Telephone No. 703-305-3900		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/34370

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim Nos.: 7
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Claim 7 recites a "...trade secret algorithm, not fully disclosed..." in Line 11 of the claim. An unknown/undisclosed functional element cannot be searched.

3. Claim Nos.: 7-9
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
 2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
- Remark on Protest** The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/34370

Continuation of Item 4 of the first sheet:

The title fails to conform to PCT Rule 4.3 due to length and lack of precision.

The Title is changed to the following: **VISUALIZING PATTERNS OF BEHAVIOR OF ABTRACTED NETWORK ELEMENTS**

Continuation of B. FIELDS SEARCHED Item 3:

EAST text search USPAT, EPO

Terms: network monitoring/management GUI, topology/usage/statistic changes/patterns, color gradient, timer