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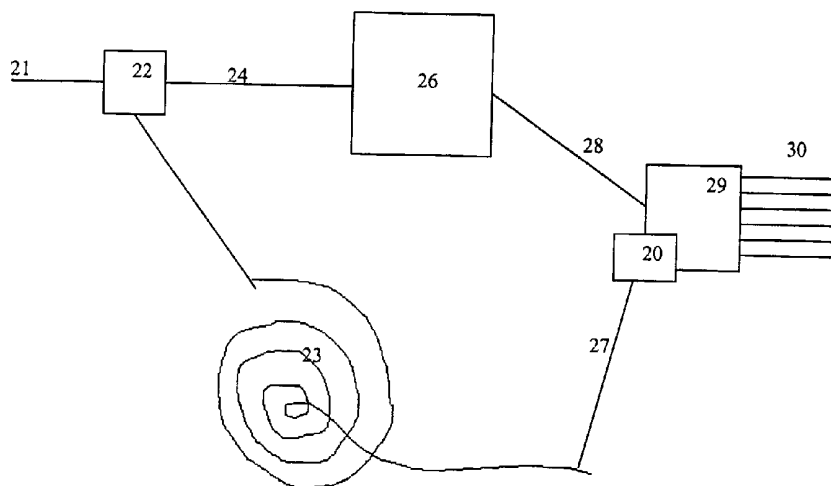
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(54) Title: SYSTEM AND METHOD FOR IMPROVING NETWORK ROUTER EFFICIENCY AND ALLEVIATING NETWORK BOTTLENECKS AND OVERLOADS



(57) Abstract: The present invention optically marks and detects packet headers, translating at most only the headers (24) to electronics for making packet switching decisions, and keeps the rest of the packets in optical delay lines (23), so that optical switches (29) can execute the packet switching decisions (28) at fast bit rates. This solution has very high scalability and becomes even more efficient when physical addresses are used. Another optimisation described in this invention is improving routing efficiency and bandwidth utilization by grouping together identical data packets from the same source going to the same general area with a multiple list of targets connected to each copy of the data and sent together to the general target area. These grouped packets are then preferably broken down into smaller groups by the routers in the general target area and finally broken down to individual data packets for delivering to the final actual destinations.



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# INTERNATIONAL SEARCH REPORT

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PCT/IL01/01042

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 10/20  
US CL : 359/118

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. : 359/118, 124, 139; 370/389, 392

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)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,903,735 A (KIDDER et al.) 11 May 1999 (11.05.1999), column 7, lines 4-16.	67-72, 86-102
Y	US 5,900,956 A (COTTER) 04 May 1999 (04.05.1999), Figure 2a.	1-101
Y	US 5,734,486 A (GUILLEMOT et al.) 31 March 1998 (31.03.1998), Figure 1 and column 15, lines 14-16.	1-101
Y	US 5,617,233 A (BONCEK) 01 April 1997 (01.04.1997), column 1, lines 60-67 and column 2, lines 1-57.	1-101
Y	US 5,469,284 A (HAAS) 21 November 1995 (21.11.1995), Figure 3.	1-101
Y	US 5,442,474 A (HUANG et al.) 15 August 1995 (15.08.1995), Figure 1.	1-101
Y	US 5,278,689 A (GITLIN et al.) 11 January 1994 (11.01.1994), Figures 1 and 2.	1-101
Y	US 4,639,075 A (SALOUR et al.) 27 January 1987 (27.01.1987), column 1, lines 48-53.	73-77
Y	US 5,912,753 A (COTTER et al.) 15 June 1999 (15.06.1999), Figure 18.	1-101

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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,940,385 A (MITA et al.) 17 August 1999 (17.08.1999), column 8, lines 30-36.	67-72, 86-120
Y	US 6,032,190 A (BREMER et al.) 29 February 2000 (29.02.2000), column 1, lines 29-67 and column 2, lines 1-23.	78, 121-122
Y	US 6,064,615 A (GUDESEN) 16 May 2000 (16.05.2000), column 2, lines 15-61.	73-77
Y, P	US 6,271,946 B1 (CHANG et al.) 07 August 2001 (08.07.2001), column 5, lines 5-17.	1-101