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(54) Title: IN-LINE PACKET PROCESSING

(57) Abstract

A method and apparatus for in-line processing a data packet while routing the packet through a router in a system transmitting data packets between a source and a destination over a network including the router. The method includes receiving the data packet and pre-processing layer header data for the data packet as the data packet is received and prior to transferring any portion of the data packet to packet memory. The data packet is thereafter stored in the packet memory. A routing through the router is determined uncluding a next hop index describing the next connection in the network. The data packet is retrieved from the packet memory and a new layer header for the data packet is constructed from the next hop index while the data packet is being retrieved from memory. The new layer header is coupled to the data packet prior to transfer from the router.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)
IPC 7 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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 598 410 A (STONE GEOFFREY C) 28 January 1997 (1997-01-28)	1-9, 19-24, 26,27,38
Y	column 5, line 25 -column 6, line 29 column 10, line 4 -column 11, line 53 column 14, line 51 -column 15, line 24 figure 2	10-12, 28-31
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
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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	KAISERSWERTH M: "THE PARALLEL PROTOCOL ENGINE" IEEE / ACM TRANSACTIONS ON NETWORKING,US,IEEE INC. NEW YORK, vol. 1, no. 6, 1 December 1993 (1993-12-01), pages 650-663, XP000430135 ISSN: 1063-6692 the whole document	10-12, 28-31
A	TURNER J ET AL: "ARCHITECTURAL CHOICES IN LARGE SCALE ATM SWITCHES" IEICE TRANSACTIONS ON COMMUNICATIONS,JP,INSTITUTE OF ELECTRONICS INFORMATION AND COMM. ENG. TOKYO, vol. E81-B, no. 2, 1 February 1998 (1998-02-01), pages 120-137, XP000778248 ISSN: 0916-8516 paragraph '02.4!	1-37

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte[illegible]nal Application No
PCT/US 99/16890

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5598410 A	28-01-1997	NONE	