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Fifth Avenue & Bigelow Boulevard, Pittsburgh, PA 15260 (US).

(72) Inventors: LIU, Yu; Apartment 12, 1851 Chessland Street, Pittsburgh, PA 15205 (US). TIPPER, David; 1214 Wightman, Pittsburgh, PA 15217 (US).

(74) Agent: SLINSKEY, Jenifer, C.; Thorp Reed & Armstrong, LLP, One Oxford Centre, 14th floor, 301 Grant Street, Pittsburgh, PA 15219-1425 (US).

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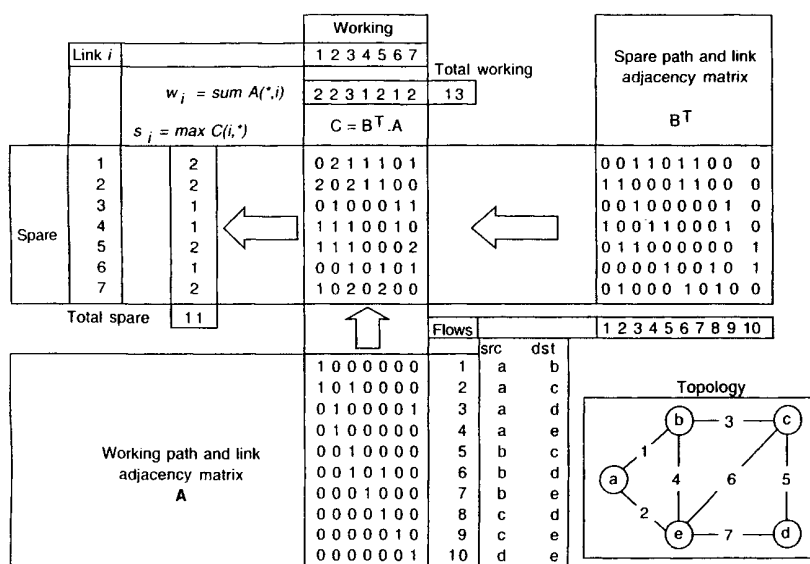
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(54) Title: APPARATUS AND METHOD FOR SPARE CAPACITY ALLOCATION



(57) **Abstract:** A method is given for deriving a backup path routing spare capacity template that is feasible, scalable, adaptive, much faster, and near global optimal in redundancy reduction. The method includes determining working paths, aggregating the working paths into a first matrix, determining backup paths, aggregating the backup paths into a second matrix, and deriving the template from the first and second matrices. A method is also given for successively approximating the optimal spare capacity allocation needed for a network. The method includes, determining the link cost associated with a selected traffic flow's backup path, determining an updated link cost that is less than the current link cost, determining a backup path with the updated link cost, and notifying the rest of the network of the backup path.



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

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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 H04Q 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)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>MURAKAMI K ET AL: "OPTIMAL CAPACITY AND FLOW ASSIGNMENT FOR SELF-HEALING ATM NETWORKS BASED ON LINE AND END-TO-END RESTORATION"</p> <p>IEEE / ACM TRANSACTIONS ON NETWORKING, IEEE INC. NEW YORK, US, vol. 6, no. 2, 1 April 1998 (1998-04-01), pages 207-221, XP000751633</p> <p>ISSN: 1063-6692</p> <p>abstract</p> <p>---</p> <p>-/--</p>	1,5,14, 22,28,31



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Staessen, B

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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	KO K W ET AL: "A LOCAL MAP BASED (LMB) SELF-HEALING SCHEME FOR ARBITRARY TOPOLOGY NETWORKS" IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE. PHOENIX, ARIZONA, NOV. 3 - 8, 1997, GLOBAL TELECOMMUNICATIONS CONFERENCE (GLOBECOM), NEW YORK, IEEE, US, vol. 3, 3 November 1997 (1997-11-03), pages 1393-1397, XP000737755 ISBN: 0-7803-4199-6 paragraph '000I! paragraph 'IV.D! -----	1,5,14, 22,28,31
A	SMITH R N ET AL: "ATM PEER GROUP LEADER ATTACK AND MITIGATION" MILCOM 1999. IEEE MILITARY COMMUNICATIONS CONFERENCE PROCEEDINGS. ATLANTIC CITY, NJ, OCT. 31 - NOV. 3, 1999, IEEE MILITARY COMMUNICATIONS CONFERENCE, NEW YORK, NY: IEEE, US, vol. VOL 1 OF 2 CONF. 18, 31 October 1999 (1999-10-31), pages 729-733, XP000922005 ISBN: 0-7803-5539-3 abstract -----	1-34