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- (71) Applicant: NOKIA NETWORKS OY [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).

CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.

(72) Inventor: SUBBIAH, Baranitharan; 1665 Belleville Way Apt J, Sunnyvale, CA 94087 (US).

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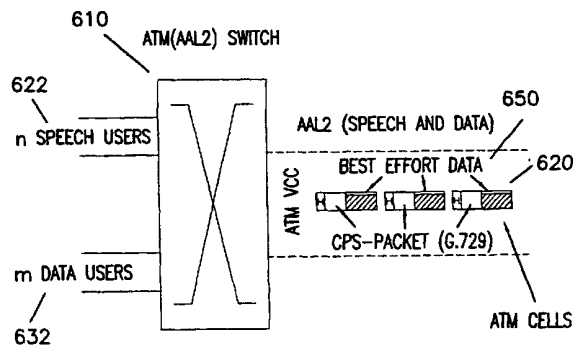
(74) Agent: LYNCH, David, W.; Altera Law Group, LLC, 10749 Bren Road East, Opus 2, Minneapolis, MN 55343 (US).

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(54) Title: KNOWLEDGE-BASED CONNECTION ADMISSION METHOD AND APPARATUS FOR PROVIDING EFFICIENT MULTIPLEXING OF DATA AND SPEECH OVER AAL2



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(57) Abstract: A knowledge-based connection admission method is disclosed for efficient multiplexing of data and speech over AAL2. The method uses a knowledge-based technique to decide when and what type of data traffic will be multiplexed with speech traffic in ATM Adaptation Layer 2 (AAL2) environment. The knowledge-based connection technique supports low bit rate and delay sensitive applications such as mobile telephony in an ATM environment by maximizing the use of available bandwidth. The method includes monitoring ATM cells for an AAL2 connection, determining whether the ATM cells contain unused bytes and multiplexing data traffic with speech traffic on the AAL2 connection when the data meets a predetermined set of requirements. The method determines whether the data traffic requires a bandwidth that exceeds a bandwidth provided by the unused bytes and multiplexes the data traffic with the speech traffic when the bandwidth required by the data traffic does not exceed the bandwidth provided by the unused bytes and prevents the multiplexing of the data traffic with the speech traffic when the bandwidth required by the data traffic exceeds the bandwidth provided by the unused bytes. The unused bytes represent silence periods during speech traffic. System observations are gathered and processed with prior knowledge about the system. Based upon the processing, whether the data traffic is suitable for multiplexing with speech traffic is determined and the data is multiplexed with the speech traffic when the data traffic is determined to be suitable for multiplexing with speech traffic in the unused bytes of the speech ATM cells.

**INTERNATIONAL SEARCH REPORT**

International Application No  
**PCT/US 99/15277**

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04Q11/04

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

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	HOELLER J: "VOICE AND TELEPHONY NETWORKING OVER ATM" ERICSSON REVIEW, no. 1, 1 January 1998 (1998-01-01), pages 40-45, XP000734508 ISSN: 0014-0171	1,4,20
Y	* box C * page 43; figures 3,C1	5,11,30
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

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Date of the actual completion of the international search

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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) 340-3018

Authorized officer  
**Gregori, S**

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2299240 A	25-09-1996	EP 0815702 A	07-01-1998
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