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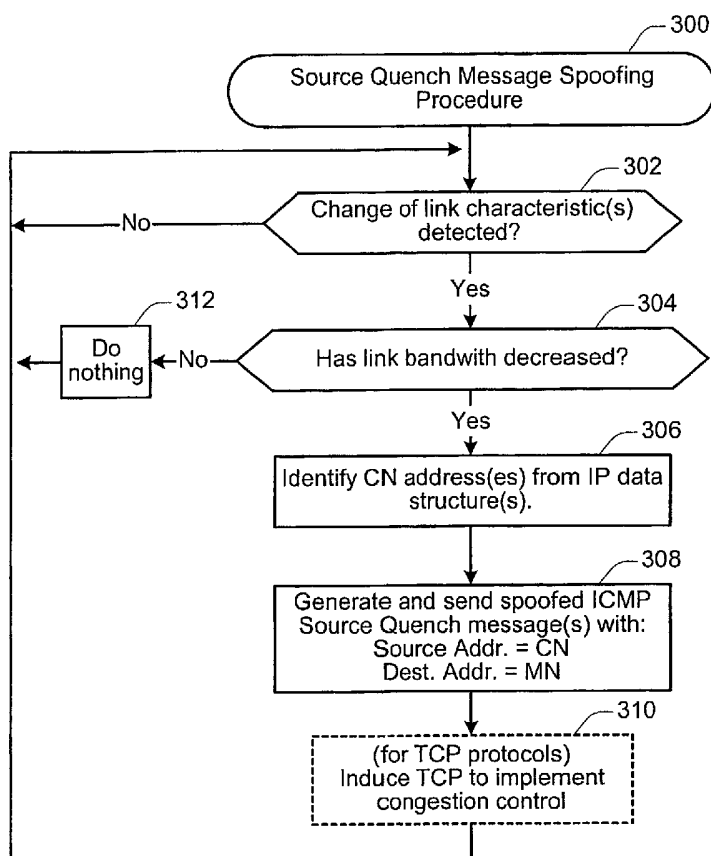
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
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[Continued on next page]

(54) Title: ADAPTIVE FEEDBACK TECHNIQUE IMPLEMENTED IN MOBILE IP NETWORKS



(57) Abstract: An adaptive feedback technique is described for a Mobile IP environment in which Mobile IP mechanisms provide early feedback to mechanisms in the transport layer and/or application layer of a mobile node in response to detection of changes in link characteristics of the communication used by the mobile node to communicate with a data network. Using the early feedback information, appropriate measures may then be taken in order to accommodate the changes in link characteristics. Such appropriate measures may include, for example, providing feedback to media aware applications in order to allow such applications to dynamically adjust their bandwidth requirements to accommodate the new link characteristics, modifying timeout parameters, modifying an encoding formats to accommodate the new link characteristics, notifying participants in a real-time application session of the detected changes in the link characteristics, etc.

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**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*

*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.*

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25 March 2004

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 03/19862

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 H04L12/56		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) IPC 7 H04L 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) EPO-Internal, PAJ, WPI Data, INSPEC		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	- / - -	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		
<input checked="" type="checkbox"/> Patent family members are listed in annex.		
° Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance	"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	
"E" earlier document but published on or after the international filing date	"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	
"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)	"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.	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search  <p style="text-align: center; font-size: 1.2em;">29 September 2003</p>	Date of mailing of the international search report  <p style="text-align: center; font-size: 1.2em;">02. 02. 2004</p>	
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  <p style="text-align: center; font-size: 1.2em;">Alonso Maleta, J</p>	

INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 03/19862

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/10943 A (DAVIS ENGINEERING ;DAVIS EMERY (US)) 7 February 2002 (2002-02-07)	1,2,4, 11-14, 23,24, 26, 33-36, 45,46, 51-53, 56,57, 59,66-69
	abstract page 2, line 14 - page 3, line 30 page 6, line 20 - page 10, line 6 page 12, line 24 - page 13, line 23 page 19, line 11 - line 22	
Y		3,5-10, 15,16, 25, 27-32, 37,38, 47-50, 58, 60-65, 70,71
X	----- GUERRI J C ET AL: "A feedback packet-level error control for real-time applications in wireless networks" VEHICULAR TECHNOLOGY CONFERENCE, 1999. VTC 1999 - FALL. IEEE VTS 50TH AMSTERDAM, NETHERLANDS 19-22 SEPT. 1999, PISCATAWAY, NJ, USA,IEEE, US, 19 September 1999 (1999-09-19), pages 879-883, XP010353105 ISBN: 0-7803-5435-4 abstract page 879, left-hand column, line 35 - right-hand column, line 35 page 880, right-hand column, line 26 - page 881, left-hand column, line 10	1,2,4, 11-14, 23,24, 26, 33-36, 45,46, 51-53, 56,57, 59,66-69
A		3,5-10, 15,16, 25, 27-32, 37,38, 47-50, 58, 60-65, 70,71
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/19862

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 189 405 A (MOTOROLA INC) 20 March 2002 (2002-03-20)	3,5-10, 15,16, 25, 27-32, 37,38, 47-50, 58, 60-65, 70,71
A	abstract paragraphs [0002] - [0004], [0016] paragraphs [0031], [0032], [0037] paragraphs [0042] - [0044], [0049] paragraphs [0053], [0060], [0061] paragraphs [0067] - [0070]; figure 5	1,2,4, 11-14, 23,24, 26, 33-36, 45,46, 51-53, 56,57, 59,66-69
A	----- SCHULTZRINNE H: "RTP: A transport protocol for real-time applications" NETWORK WORKING GROUP REQUEST FOR COMMENTS, XX, XX, 1 January 1996 (1996-01-01), XP002204956 page 3, line 6 - page 5, line 1 page 7, line 22 - page 8, line 16 page 15, line 23 - page 16, line 28 page 21, line 9 - line 23 -----	1-16, 23-38, 45-53, 56-71
X,P	WO 02/080452 A (ERICSSON TELEFON AB L M) 10 October 2002 (2002-10-10)	1-5,11, 12,14, 23-27, 33,34, 36, 45-48, 51-53, 56-60, 66,67,69
	page 1, line 16 - page 3, line 9 page 5, line 16 - page 9, line 22 page 10, line 20 - page 11, line 21 page 13, line 9 - page 18, line 4 page 19, line 21 - page 20, line 22 figure 14 -----	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/19862

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

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

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

see additional sheet

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.:

1-16, 23-38, 45-53, 56-71

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16,23-38,45-53,56-71

IP Mobility

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2. claims: 17-22,39-44,54-55,72-77

Flow control

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/19862

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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			WO	0210943 A1	07-02-2002
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			WO	02080452 A2	10-10-2002
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