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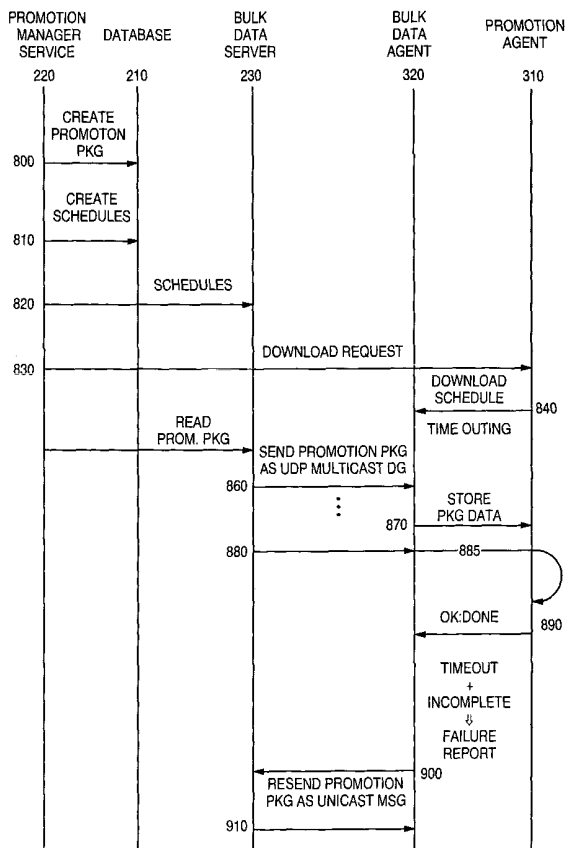
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(54) Title: PROTOCOL EXTENSIONS TO INCREASE RELIABILITY OF BULK DATA TRANSMISSIONS



(57) Abstract: A multimedia network involves sending and initial schedule message prior to broadcast or multicast of a content file. The content file could be a promotion or other file that must be efficiently sent to a large number of end node devices, such as television set top boxes. The schedule message contains at least a bulk transfer end time for the content file so that the end node devices are aware of when the later bulk data transmission of the content file should be completed. The schedule message (810) may contain other parameters such as promotion identification, message start time, duration, frequency, multicast address and port number. The bulk message containing the promotion (860) is then sent using an efficient bulk transfer messaging technique, such as multicast Universal protocol message which does not require acknowledgement of individual packets or individual addresses of the end node devices to be maintained. At the expected end of the transmission time, a determination is made (890) as to whether or not the expect bulk message has been received. If not, the network device reports a message failure to the original scheduling process, which in turn retransmits the promotion package to the previously failing network device via a reliable transport protocol, such as TCP.



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Minimum documentation searched (classification system followed by classification symbols) U.S. : 714/18, 48, 52, 56, 798, 799; 370/241, 242;		
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPAT, WEST, EPAB, JPAB		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,442,637 A (NGUYEN) 15 AUGUST 1995, entire document.	1-16
Y	US 5,881,051 A (ARROWOOD ET AL) 09 MARCH 1999, entire document.	1-16
Y	US 5,583,576 A (PERLMAN ET AL) 10 DECEMBER 1996, entire document.	1-16
A	US 5,630,204 A (HYLTON ET AL) 13 MAY 1997, entire document.	1-16
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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