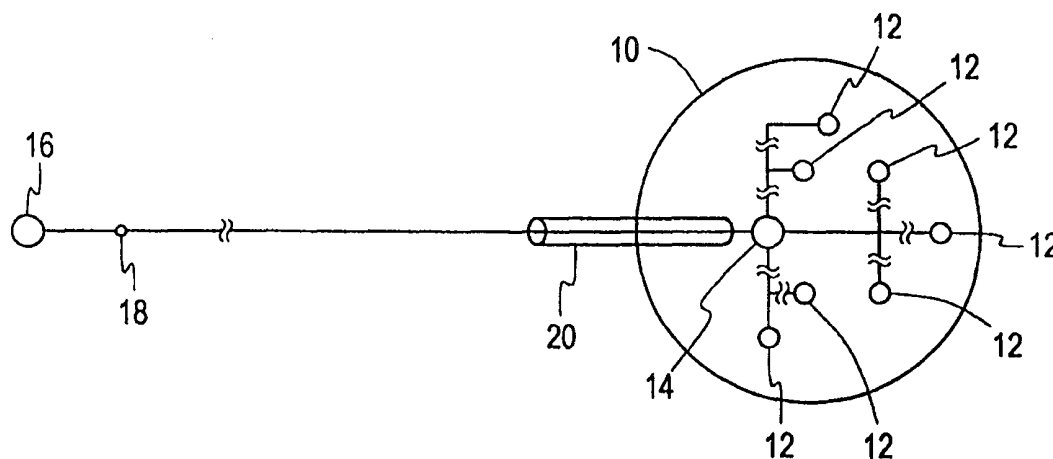




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(54) Title: BYPASSING TOPOLOGICAL RESTRICTIONS WITH TUNNELS



## (57) Abstract

Data units are tunneled through topological restrictions that reside in a path between a first network device and a second network device. For example, a remote network device that resides outside of the domain of a multicast group obtains access to the multicast group by tunneling through the boundary of the domain. A proxy device within the domain functions as a member of the multicast group on behalf of the remote network device. Data units that are transmitted from the remote network device to the proxy device are tunneled to the multicast group via the proxy device. Data units that are transmitted from the multicast group to the proxy device are tunneled to the remote network device via the proxy device.

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/18399

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04L12/18

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	WO 98 02821 A (3COM CORP) 22 January 1998 (1998-01-22) abstract page 4, line 20 - line 30 page 6, line 1 - line 29 page 12, line 9 - line 23 figure 3	1-27, 34
A	US 5 740 375 A (DUNNE JAMES W ET AL) 14 April 1998 (1998-04-14)  abstract column 1, line 43 - line 64 column 2, line 29 - line 42 column 4, line 30 - column 5, line 29 figures 8-10	1, 7, 13, 19, 25, 28, 34
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Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

International Application No  
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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.
A	<p>WO 97 48051 A (VDONET CORP LTD) 18 December 1997 (1997-12-18)</p> <p>abstract page 4, line 6 -page 5, line 9 -----</p>	<p>1,7,13, 19,25, 28,34</p>
A	<p>WON Y., LIM K., HWANG S-K., YOO K-J: "Proxy-based reliable multicast protocol" INTERNATIONAL SOCIETY FOR COMPUTERS AND THEIR APPLICATIONS- CONFERENCE PROCEEDINGS, 25 - 27 March 1998, pages 98-101, XP002130471 Honolulu, HI, USA abstract paragraph '0001! -----</p>	<p>7-24</p>

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Information on patent family members

International Application No  
PCT/US 99/18399

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