

Exhibit 4

(12) **United States Patent**
Holt et al.

(10) **Patent No.:** **US 6,829,634 B1**
 (45) **Date of Patent:** **Dec. 7, 2004**

- (54) **BROADCASTING NETWORK**
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- (73) Assignee: **The Boeing Company**, Seattle, WA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 737 days.

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- (21) Appl. No.: **09/629,576**
- (22) Filed: **Jul. 31, 2000**

- (51) **Int. Cl.**⁷ **G06F 15/16**
- (52) **U.S. Cl.** **709/204; 709/205; 709/203; 709/243; 709/201; 709/238; 709/319; 709/225; 370/236**
- (58) **Field of Search** **709/106, 201, 709/238, 319**

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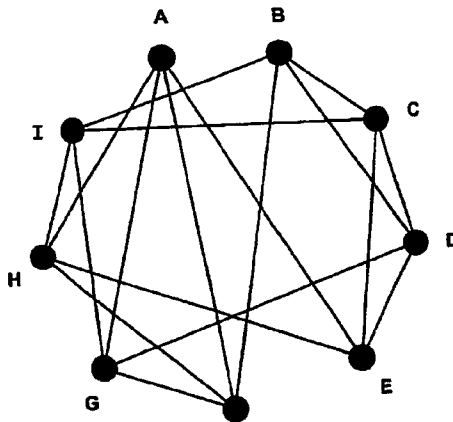
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(57) **ABSTRACT**

A technique for broadcasting data across a network is provided. An originating participant sends data to another participant, which in turn sends the data that it receives from a neighbor participant to its other neighbor participants. Communication in the broadcast network is controlled by a contact module that locates the neighbor participants to which the seeking participant can be connected and by a join module that establishes the connection between the neighbor participants and the seeking participant. Data is numbered sequentially so that data that is received out of order can be queued and rearranged.

24 Claims, 39 Drawing Sheets



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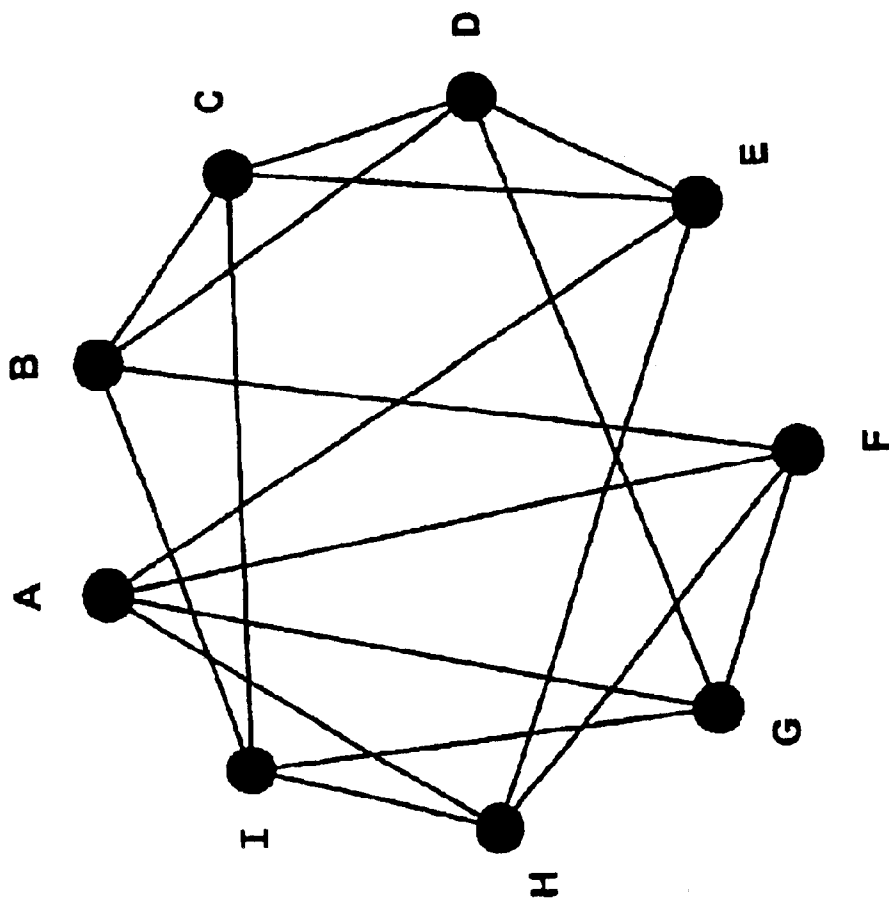


Fig. 1

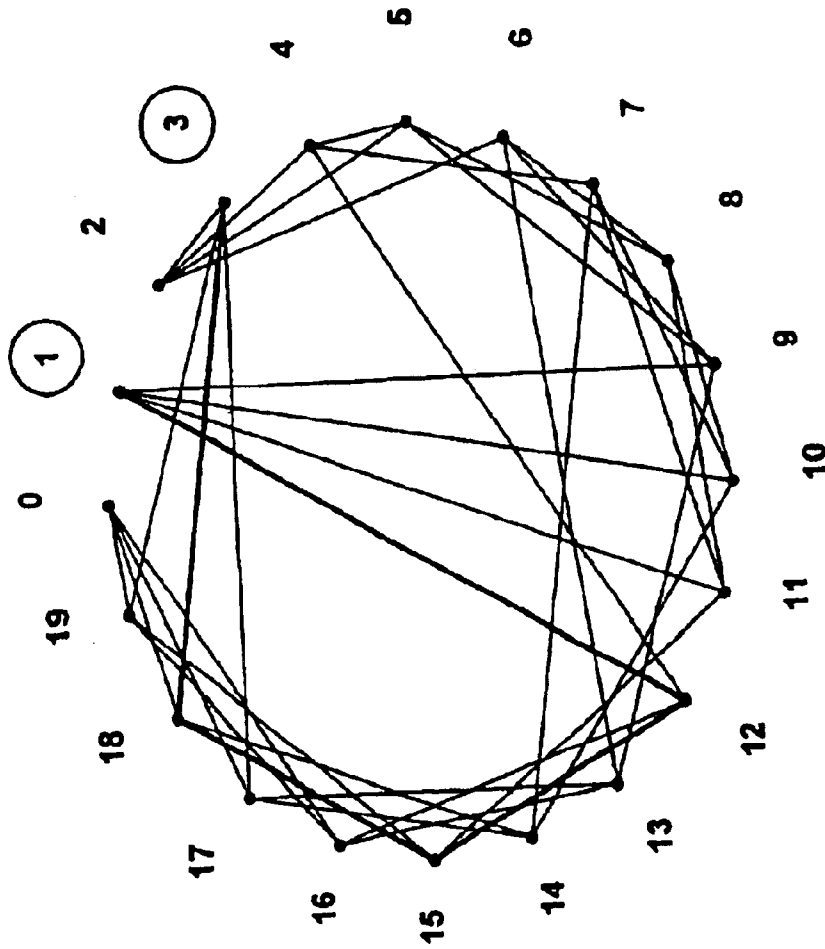


Fig. 2

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