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D E C I S I O N
of 11 December 1997

Case Number: T 0213/97 - 3.5.1

Application Number: 90313459.1

Publication Number: 0445468

IPC: H04L 12/18

Language of the proceedings: EN

Title of invention:

Data network message broadcast arrangement

Applicant:

AT&T Corp.

Opponent:

-

Headword:

Relevant legal provisions:

EPC Art. 52(1), 54

Keyword:

"Novel (no)"

Decisions cited:

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Catchword:

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Boards of Appeal

Chambres de recours

Case Number: T 0213/97 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 11 December 1997

Appellant:

AT&T Corp.
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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 10 September 1996
refusing European patent application
No. 90 313 459.1 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. K. J. van den Berg
Members: A. S. Clelland
C. Holtz

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse the application on the ground that the subject-matter of claim 1 was not new (Articles 52(1) and 54 EPC). The following document was cited in the decision:

D1: Computer Networks and ISDN Computers, vol. 16, No. 3, January 1989, North-Holland, pages 179-186; Humblet et al.: "Topology Broadcast Algorithms".

II. The appellant (applicant) lodged an appeal against the decision and paid the prescribed fee. A statement of grounds of appeal was subsequently received. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of claims 1 to 6 of a main request and claims 1 to 4 of an auxiliary request, both filed with the statement of grounds. In response to the summons to oral proceedings before the Board, expressing the preliminary opinion that claim 1 of both requests was not new, the appellant stated he would be unable to attend. He also stated that he had no further amendments or comments.

III. Oral proceedings were held, in the appellant's absence, on 11 December 1997.

IV. Claim 1 of the main request reads as follows:

"A network (100) comprising a plurality of nodes (1,2,5 to 8) interconnected via respective links (101 to 107), and an arrangement for transmitting a message received at a first one (1) of said nodes to at least a second one (2) of said nodes, said first node being a neighbor of said second node, said arrangement comprising

means contained in said first node for receiving via an associated one (101) of said links said message, said message being originated by a third one of said nodes (6), and

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means contained in said first node for transmitting said message to said second node when the number of links between said first and third nodes is less than the number of links between said second and third nodes and is less than the number of links between said third node and any other neighbor (7,8) of said second node."

Claim 6 is an independent method claim which corresponds to apparatus claim 1.

- V. Claim 1 of the auxiliary request adds to claim 1 of the main request the following feature:

"and means operative when the number of links between said first and third nodes is equal to the number of links between said third node and at least one other neighbor of said second node for then transmitting said message to said second node if the value of a common parameter assigned to said first node is less than the value assigned to said at least one neighbor."

The auxiliary request has no corresponding method claim.

- VI. The appellant argued in the statement of grounds as follows:

The main request was based on the originally filed claims. Although the object of D1 was similar to the invention, in that they both ensured that a node in a network received a copy of a broadcast message, the conditions for forwarding the message were different. In D1, the choice of neighbour responsible for passing

on the information about node K to node J was merely based on some "arbitration rule" such as a lexicographic parameter, whereas in the invention it was based on the number of links between the various nodes. D1 did not mention the claimed aspect of counting links and certainly did not mention basing a decision to forward a message on such a count.

Reasons for the Decision

1. *Background to the invention*

1.1 The application concerns the problem of sending a broadcast message from a source node to each of the other nodes in a data communication network. A simple solution would be to arrange for the source node to forward the message directly to all other nodes, but this does not make efficient use of the network bandwidth because multiple copies of the message may travel over the same route(s) to reach the intended destination. If on the other hand each node is arranged to address each adjacent node, a node may receive the message several times and the system may be flooded. The application solves the problem by arranging that each node only forwards the message to a neighbouring node if certain conditions are fulfilled. Specifically, a first (receive) node forwards a message to a second (neighbour) node only if the first node is closer to the third (source) node, which sent the message, than the second node, including any other neighbour of the second node.

1.2 It is common ground that D1 is the single most relevant prior art document. It is also common ground that D1 discloses (see Figure 1 and page 180, column 1, lines 25 to 28) the features of the preamble of claim 1

where the first, second and third nodes are I, J and K, respectively. As indeed acknowledged in the statement of grounds, D1 seeks to ensure that for broadcast information each node receives information about each link only once (see page 179, column 2, lines 28 to 29).

2. *Novelty (main request)*

2.1 In D1 an algorithm determines whether a receiving node I should forward information about a source node K, which is a distance (in fact a number of links) HOP away, to a neighbouring node J (see page 180, column 1, lines 32 to 35). It is assumed that I already knows the topological information about all nodes at distance HOP or less. D1 gives two criteria at page 180, column 1, lines 35 to 37, namely a) the distance between K and J is HOP+1 and b) no other neighbour of J will provide information about K.

2.2 Thus, condition a) in D1 specifies that a first node I, located HOP links from a third or source node K, passes on a broadcast message to a second, neighbouring, node J if the number of links between the source (third) node K and the neighbour (second) node J is HOP+1. The former is less than the latter which is the first condition in the characterising part of claim 1.

2.3 Condition b) in D1 states that no other neighbour of node J will provide information about source node K. Since, as described at page 180, column 2, lines 16 to 18, the method of D1 uses the shortest path, condition b) in fact means that no other path between node K and any other neighbour of node J is shorter than the path between nodes K and I, namely the second condition in the characterising part of claim 1.

2.4 The appellant argues that in D1 the choice of the neighbour responsible for passing on the information about node K to node J is merely based on some "arbitration rule" such as a lexicographic parameter. However, D1 discloses at page 180, column 1, line 20 to column 2, line 19 that it is only necessary to use this rule in the case of a tie, so that one path can be selected from several equal candidates. This is also the case in the present invention.

2.5 Regarding the appellant's argument that D1 does not mention the claimed aspect of counting links and basing a decision to forward a message on such a count, the Board notes that claim 1 simply refers to the number of links between the various nodes, which is the same parameter used by the algorithm of D1. In fact, it appears from the description of the application that the number of links is "counted" by using data extracted from the spanning trees constructed in each node in exactly the same way as in D1.

2.6 The subject-matter of claim 1 of the main request is accordingly not new.

3. *Novelty (auxiliary request)*

3.1 Claim 1 of the auxiliary request adds to claim 1 of the main request that, in the event of equal path lengths, the receive node only forwards the message if "the value of a common parameter assigned to said first node is less than the value assigned to said at least one neighbour". The description gives the switch number of the node as an example of the "common parameter".

- 3.2 The case of a tie is discussed at paragraph 2.4 above. The use of a "common parameter" in the application is in fact the "arbitration rule" disclosed in D1; in the application the lowest node address or switch number is used, in D1 the lowest node letter is used.
- 3.3 The subject-matter of claim 1 of the auxiliary request is accordingly not new.
4. There being no other requests, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Beer

P. K. J. van den Berg