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Datasheet for the decision of 16 October 2019

Case Number: T 2004/16 - 3.5.05

Application Number: 10162774.3

Publication Number: 2252014

IPC: H04L12/56

Language of the proceedings: EN

Title of invention:
Method and apparatus for providing fast reroute of a unicast packet within a network element to an available port associated with a multi-link trunk

Applicant:
Avaya Inc.

Headword:
MLT/SMLT ports management/AVAYA

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - main request (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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Case Number: T 2004/16 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 16 October 2019

Appellant: (Applicant)	Avaya Inc. 211 Mount Airy Road Basking Ridge New Jersey, DE 07920-2332 (US)
Representative:	Williams, David John Page White & Farrer Bedford House John Street London WC1N 2BF (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 10 March 2016 refusing European patent application No. 10162774.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	P. Cretaine
	G. Weiss

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division, posted on 10 March 2016, refusing European patent application No. 10162774.3. The main request and the first auxiliary request were refused for lack of inventive step (Article 56 EPC) having regard to the disclosure of

D3: WO 00/72531.

II. Notice of appeal was received on 20 May 2016, and the appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 14 July 2016. The appellant requested that the decision under appeal be set aside and that a patent be granted based on a main request or first and second auxiliary requests submitted with the statement setting out the grounds of appeal. The main request was identical to the main request on which the decision was based.

III. A summons to oral proceedings was issued on 24 July 2019. In a communication pursuant to Article 15(1) RPBA and annexed to the summons, the board gave its preliminary view on the case. In its opinion, the main request and the first and second auxiliary requests did not meet the requirements of Article 56 EPC having regard to the disclosure of D3.

IV. By letter of response dated 16 September 2019, the appellant submitted an amended main request and an amended first auxiliary request to replace the requests previously on file. The appellant also provided arguments in support of inventive step.

V. By letter dated 14 October 2019 the appellant informed the board that it would not attend the scheduled oral proceedings and requested that the board issue a decision based on the written submissions.

VI. Oral proceedings were held on 16 October 2019 in the absence of the appellant. The appellant requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of the main or first auxiliary request filed with the letter dated 16 September 2019. The board's decision was announced at the end of the oral proceedings.

VII. Claim 1 according to the main request reads as follows:

"A computer-implemented method in which a Forwarding Data Unit, FDU, performs operations providing a fast reroute of a unicast packet within a cluster of network elements to an available port associated with a multi-link trunk, MLT, wherein each of the network elements comprises a plurality of line cards, the method comprising the steps of:
periodically receiving, by the FDU, heartbeat packets from the plurality of line cards, each heartbeat packet comprising a port state of all ports on a respective line card;
updating, by the FDU based on the heartbeat packets, a local port state table and a remote port state table that are maintained by the FDU;
receiving (202) a unicast packet by the FDU in a data plane of one of the network elements;
determining (204) a destination for the packet;
performing (208) a lookup in the local port state table to determine an available local port that is in an UP state for the destination; and
if no local port is UP, then performing (208) a lookup

in the remote port state table to determine an available remote port that is in an UP state for the destination,
wherein determining the available local or remote port that is in an UP state occurs without involvement of a control plane."

The main request comprises a further independent claim (claim 9) for a corresponding apparatus.
Due to the outcome of the appeal there is no need to give details about the claims of the first auxiliary request.

Reasons for the Decision

1. The appeal is admissible (see point II above).

2. Main request - Admission

The main request is based on the main request on which the decision is based and was filed in response to the Article 56 EPC raised by the board. The board thus decided to admit the main request into the proceedings according to Articles 13 (1) and (3) RPBA.

3. Main request- Article 123(2) EPC

The board is satisfied that the amendments to the claims with respect to the claims of the main request on which the decision was based are supported by the passages on page 9, lines 14 to 19, on page 10, lines 21 to 23, from page 12, line 14 to page 13, line 10, on page 14, lines 25 to 28, and on page 15, lines 7 to 16 of the application as filed.

4. Main request - Inventive step

4.1 Prior art

It was common ground in the proceedings that D3 represents the closest prior art.

D3 discloses an apparatus and method for distributing a load across a trunk group formed between network elements. The network elements (see reference sign 10 in Figure 1: "Switch on chip (SOC)") each have multiple ports (see page 7, lines 5 to 10 and 28 to 30) and are linked together by trunk groups (see Figure 20 and page 58, lines 22 to 29). Each network element, or SOC unit, maintains a trunk group table (see page 41, lines 3 to 5). When receiving a packet for routing, the SOC unit performs a lookup in the trunk group table to determine an available port based on the packet destination (see page 41, lines 10 to 23). The trunk group table is updated to remove the ports which have got down or failed (see page 42, lines 11 to 18). Each SOC unit is coupled to a separate CPU (reference sign 52 in Figure 1) in a control plane which is directly involved in the updating of the trunk group table located in the data plane (see page 42, lines 11 to 15).

D3 does not relate to a structure of network elements grouped in a cluster and thus does not make a distinction between local ports and remote ports associated with a network element, as specified in claim 1. A local port of a network element is a port of the network element itself which is associated with the multi-link trunk group, whereas a remote port of a network element is a port of a network element of the same cluster which is associated with the multi-link trunk group. The definitions of a cluster of network elements and of local ports and remote ports are clear

for the skilled person from the whole description of the patent application in suit (see in particular page 9, lines 14 to 19 and page 11, lines 9 to 16).

4.2 The differences between the subject-matter of claim 1 and the disclosure of D3 are thus in substance that:

- the network elements are organized in a cluster connected to the multi-link trunk and each comprise a plurality of line cards with local and remote ports,

- the FDU of a network element periodically receives heartbeat packets from the plurality of line cards, each heartbeat packet comprising a port state of all ports on a respective line card,

- a local port table and a remote port table are maintained by the FDU and updated based on the heartbeat packets,

- during the lookup for a port, an available local port is first searched in the local port table and then, if no local port is available, an available remote port is searched in the remote port table, and

- the determination of the available local or remote port occurs without the involvement of a control plane of the network element.

4.3 The appellant plausibly argued that, apart from the fundamental difference in structure of the controlled trunk group, namely a single SOC unit connected to a trunk group in D3 and a cluster of network elements connected to a trunk group in claim 1, the complete lack of involvement of the control plane in port table maintenance and updating offers a definitive advantage

with respect to D3 in terms of efficient packet forwarding.

4.4 For these reasons, the board maintains that the subject-matter of claim 1, and of the corresponding device claim 9, involves an inventive step having regard to D3 (Article 56 EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent with the following claims and a description and figures to be adapted thereto:
- claims 1 to 15 of the main request filed with letter dated 16 September 2019.

The Registrar: The Chair:

K. Götz-Wein A. Ritzka

Decision electronically authenticated