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Datasheet for the decision of 4 July 2018

Case Number: T 1560/14 - 3.5.05

Application Number: 11290071.7

Publication Number: 2487836

IPC: H04L12/26, H04J3/06

Language of the proceedings: EN

Title of invention:
Automatic capture of the network delay components

Applicant:
Alcatel Lucent

Headword:
Network delays monitoring/ALCATEL

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:

Catchword:

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Beschwerdekammern

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Case Number: T 1560/14 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 4 July 2018

Appellant: (Applicant)	Alcatel Lucent Site Nokia Paris Saclay Route de Villejust 91620 Nozay (FR)
Representative:	DREISS Patentanwälte PartG mbB Friedrichstraße 6 70174 Stuttgart (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 10 February 2014 refusing European patent application No. 11290071.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	P. Cretaine
	D. Prietzel-Funk

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division, posted on 10 February 2014, refusing European patent application No. 11290071.7 on the ground of lack of inventive step (Article 56 EPC) with respect to the disclosure of

D1: MEIER S. et al., "IEEE 1588 Syntonization and Synchronization Functions Completely Realized in Hardware", ISPCS 2008 International IEEE Symposium on Precision Clock Synchronization for Measurement, Control and Communication, USA, 22-26 September 2008 (2008-09-22),

in combination with

D8: WO 02/39673.

II. Notice of appeal was received on 10 April 2014 and the appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 10 June 2014. The appellant requested that the decision under appeal be set aside and that a patent be granted based, in order of preference, on a main request A, a main request B, or auxiliary request 1A, 1B, 2A, 2B, 3A or 3B, all requests as filed with the statement setting out the grounds of appeal. Oral proceedings were requested as a further auxiliary measure. Reimbursement of the appeal fee was also requested.

III. A summons to oral proceedings was issued on 20 April 2018. In an annex to this summons, the board gave its preliminary opinion that none of the requests met the requirements of Article 56 EPC, having regard to the disclosure of D1 and taking into account common

general knowledge in respect of the IEEE 1588 standard, as illustrated by the disclosure of

D5: JOBER S., "Issues with the Transparent Clock concept of PTPv2 in a telecom environment", ITU-T DRAFTS, Study Group 15, Working party 13, 21 September 2010, pages 1 to 4.

The board further noted that, in its view, the requirements for reimbursement of the appeal fee under Rule 103(1)(a) EPC were not met.

IV. By letter of reply dated 18 June 2018, the appellant informed the board that it would not attend the oral proceedings scheduled.

V. Oral proceedings were held on 4 July 2018 in the absence of the appellant. The appellant had requested in writing that the decision under appeal be set aside and that a patent be granted based, in order of preference, on a main request A, a main request B, or auxiliary request 1A, 1B, 2A, 2B, 3A or 3B, all requests as filed with the statement setting out the grounds of appeal. Reimbursement of the appeal fee had also been requested. After due deliberation on the basis of the written submissions, the board announced its decision at the end of the oral proceedings.

VI. Independent claim 1 according to **main request A** reads as follows:

"A method for monitoring the residence time across network nodes (1) of a communication network (30) including a transparent clock-based synchronization architecture according to the Precision Time Protocol

release 2, PTPV2, said method **characterized in** the following steps:
- configuring and generating a modified PTPV2 packet, which is not dedicated to a synchronization purpose;
- measuring (50) the residence time of the modified PTPV2 packet across a network node (1) by a transparent clock (3);
- storing (60) the measured residence time;
- retrieving the stored residence time by a Network protocol."

Independent claim 1 according to **main request B** adds to claim 1 of main request A, after "storing (60)", the wording ", at the level of the network node (1)".

Independent claim 1 according to **auxiliary request 1A** adds to claim 1 of main request A, after "which is not dedicated to a synchronization purpose", the wording "of the transparent clock-based synchronization architecture, wherein the modified PTPV2 packet is parameterized with respect to at least a parameter of a delay-sensitive application packet;".

Independent claim 1 according to **auxiliary request 1B** adds to claim 1 of auxiliary request 1A, after "storing (60)", the wording ", at the level of the network node (1)".

Independent claim 1 according to **auxiliary request 2A** adds to claim 1 of auxiliary request 1A, after "a delay-sensitive application packet,", the wording "wherein the PTPV2 packet is a multicast PTPV2 SYNC packet (2) in a downstream direction, wherein the PTPV2 packet is a unicast PTPV2 DELAY_REQ PACKET (40) in an upstream direction;".

Independent claim 1 according to **auxiliary request 2B** adds to claim 1 of auxiliary request 2A, after "storing (60)", the wording ", at the level of the network node (1)".

Independent claim 1 according to **auxiliary request 3A** adds to claim 1 of auxiliary request 1A, after "a delay-sensitive application packet,", the wording " - ignoring the modified PTPV2 packet in a synchronization state-machine of a PTPV2 Master (2) and a PTPV2 Slave (4);".

Independent claim 1 according to **auxiliary request 3B** adds to claim 1 of auxiliary request 3A, after "storing (60)", the wording ", at the level of the network node (1)".

Each of the requests contains further independent claims directed to:
- a corresponding network node (claim 12 of main requests A and B; claim 11 of auxiliary requests 1A, 1B, 3A and 3B; and claim 8 of auxiliary requests 2A and 2B),
- a corresponding communication network (claim 13 of main requests A and B; claim 12 of auxiliary requests 1A, 1B, 3A and 3B; and claim 9 of auxiliary requests 2A and 2B), and
- a corresponding computer program (claim 14 of main requests A and B; claim 13 of auxiliary requests 1A, 1B, 3A and 3B; and claim 10 of auxiliary requests 2A and 2B).

Reasons for the Decision

1. Admissibility of the appeal

The appeal complies with Articles 106 to 108 EPC (cf. point II above) and is therefore admissible.

2. Non-attendance at the oral proceedings

The appellant decided not to attend the oral proceedings scheduled. Pursuant to Article 15(3) RPBA, the board is not obliged to delay any step in the appeal proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case.

Hence, the board was in a position to announce a decision at the end of the oral proceedings.

3. Main request A

3.1 Prior art

D1 discloses a hardware realisation of the network clock synchronisation process set out in the Precision Time Protocol Version 2 (PTPV2), also known asthe second IEEE 1588 standard (see section II, B of D1). According to this protocol, PTPV2 SYNC packets are sent from a master clock to transparent clocks (TCs) in the network nodes, and PTPV2 DELAY_REQ packets are sent from the TCs to the master clock, in order to evaluate propagation delays and synchronise ordinary clocks (OCs) in each node with the system time.

3.2 The board agrees with the decision under appeal that D1 discloses that, during the synchronisation process set

out in the IEEE 1588 standard, the TC measures the residence time of PTPV2 packets (see D1, section II, B, third sentence: "The residence time is measured...", and step 3: "The TC related operations on Sync messages include the addition of link delay and bridge residence time...").

This is corroborated by the statement in D5, Discussion section, point 1, that the concept of a TC introduced in IEEE 1588-2008 (i.e. the second IEEE 1588 standard) makes it possible to calculate the residence time of PTPV2 messages, that is, the time PTPV2 messages spend in the network equipment supporting the TC feature.

Further, the board also agrees with the decision under appeal that the storing of the residence time measured and its retrieval by a network protocol are implicit in D1 since, according to step 3 on page 2 of D1, the residence time measured is used by TC-related operations for addition with the link delay in order to correct the ordinary clock of a node.

3.3 Therefore, the subject-matter of claim 1 differs from the disclosure of D1 only in that the residence time is measured using a modified PTPV2 packet not used for synchronisation - rather than a packet dedicated to synchronisation according to the PTPV2 protocol, namely a PTPV2 SYNC or PTPV2 DELAY_REQ packet.

This distinguishing feature brings both an advantage since it allows for greater flexibility with regard to the form of the test packet used for residence-time measurement, and a drawback since a modification of the PTPV2 protocol has to be designed for such a modified packet. Thus, the subject-matter of claim 1 is a mere

alternative to the residence-time measurement disclosed in D1.

The skilled person, looking for an alternative, would obviously consider using a different kind of packet for residence-time measurement than for synchronisation, in particular some kind of modified PTPV2 packet as broadly specified in claim 1, of which it could well anticipate the drawbacks and advantages.

For these reasons, the board judges the subject-matter of claim 1 not to involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

3.4 The appellant argued that an advantage of using a modified PTPV2 packet was that no further protocol or overhead had to be used for measuring residence time, and based its inventive-step argument on this alleged technical effect. The board is not convinced by this argument and instead holds that, since in D1 residence time is measured using SYNC and DELAY_REQ PTPV2 packets, no further protocol or overhead is needed there. Moreover, using a modified PTPV2 packet as in claim 1 does actually necessitate a modification of the PTPV2 protocol, and consequently a further overhead, contrary to what the appellant argued.

The appellant further argued that the alleged invention enabled the decoupling of the measurement/storage and the retrieval of the residence time, allowing for a higher rate of measurement/storage than of retrieval. In the board's judgement, however, this decoupling is implicit in the IEEE 1588 standard itself, since the residence time measured based on the SYNC packet has to be stored and later retrieved for a further clock

correction based on the SYNC packet and the DELAY_REQ packet.

4. Main request B

Claim 1 adds to claim 1 according to main request A that the storing step is performed at the level of the network node. This feature, however, is implicit in D1 and the IEEE 1588 standard, since the clock correction at the level of a node is based on the residence time measured across the node.

Therefore the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

5. Auxiliary request 1A

In substance, claim 1 adds to claim 1 according to main request A that the modified PTPV2 packet is parameterised with respect to a delay-sensitive application.

The board holds that this feature is a common measure in the prior art for estimating the network delay for a specific class of packet for a specific application. This point is supported by the disclosure of D8, which is about a scheme for estimating, in an internet network, the packet delays associated with packets of different applications (see page 2, line 22, to page 3, line 5, and page 4, line 22, to page 5, line 6).

Therefore, claim 1 does not meet the requirements of Article 56 EPC, having regard to the disclosure of D1.

6. Auxiliary request 1B

Claim 1 adds to claim 1 according to auxiliary request 1A that the storing step is performed at the level of the network node. This feature, however, is implicit in D1 and the IEEE 1588 standard, since the clock correction at the level of a node is based on the residence time measured across the node.

Therefore the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

7. Auxiliary request 2A

In substance, claim 1 adds to claim 1 according to auxiliary request 1A that the modified PTPV2 packet is a multicast PTPV2 SYNC packet in a downstream direction and a unicast PTPV2 DELAY_REQ packet in an upstream direction.

The board interprets this additional feature as meaning that the modified PTPV2 packet is either one of the two kinds of packet. The board holds, however, that these two kinds of packet defined by the PTPV2 protocol (the second IEEE 1588 standard) are used in the synchronisation procedure for determining the residence time across a node (see section 3 above), the SYNC packet being sent from the master clock to the slave clocks, i.e. as a multicast in the downstream direction, and the DELAY_REQ packet being sent from a slave clock to the master clock, i.e. as a unicast packet in the upstream direction. The above-mentioned additional feature is thus already known from D1, which is based on the IEEE 1588 standard.

Therefore, the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

8. Auxiliary request 2B

Claim 1 adds to claim 1 according to auxiliary request 2A that the storing step is performed at the level of the network node. This feature, however, is implicit in D1 and the IEEE 1588 standard, since the clock correction at the level of a node is based on the residence time measured across the node.

Therefore the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

9. Auxiliary request 3A

In substance, claim 1 adds to claim 1 according to auxiliary request 1A the feature that the modified PTPV2 packet is ignored in a synchronisation state machine of a PTPV2 master and a PTPV2 slave.

This feature merely consists in a clarification of the feature present in claim 1 of main request A that the modified PTPV2 packet is not dedicated to synchronisation. This feature has already been taken into account in the inventive-step objection raised by the board to claim 1 of main request A, on which claim 1 is based.

Therefore, the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

10. Auxiliary request 3B

Claim 1 adds to claim 1 according to auxiliary request 3A that the storing step is performed at the level of the network node. This feature, however, is implicit in D1 and the IEEE 1588 standard, since the clock correction at the level of a node is based on the residence time measured across the node.

Therefore the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

11. Conclusion

None of the appellant's requests is allowable under Article 56 EPC.

The request for reimbursement of the appeal fee is refused since the requirements of Rule 103(1)(a) EPC, in particular that the appeal be allowed, are not met.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz-Wein A. Ritzka

Decision electronically authenticated