Internal distribution code:
(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 21 May 2015

Case Number: T 1683/12 - 3.5.05

Application Number: 07859556.8

Publication Number: 2047628

IPC: H04L1/22, H04Q11/04, H04L12/56

Language of the proceedings: EN

Title of invention:
System and method for maintaining state synchronisation in redundant IMA group protection switching

Applicant:
ALCATEL LUCENT

Headword:
Inverse multiplexing for ATM (IMA) protection switching/ ALCATEL LUCENT

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1683/12 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 21 May 2015

Appellant: (Applicant)	ALCATEL LUCENT 148/152 route de la Reine 92100 Boulogne-Billancourt (FR)
Representative:	DREISS Patentanwälte PartG mbB Friedrichstrasse 6 70174 Stuttgart GERMANY
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 24 January 2012 refusing European patent application No. 07859556.8 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 24 January 2012, refusing European patent application No. 07 859 556.8 on the grounds of lack of novelty (Article 54 EPC) of independent claim 17 and lack of inventive step (Article 56 EPC) of independent claim 1, having regard to the disclosure of

D1: EP 1 056 309.

The following documents were also cited in the decision:

D2: ITU-T Recommendation I.630 (02/99), "ATM protection switching", International Telecommunication Union, Geneva, CH, February 1999;

D3: "Inverse Multiplexing for ATM (IMA) Specification Version 1.1", The ATM Forum Technical Committee, March 1999, pages 1-36.

Moreover, the decision referred to ITU-T Recommendation I.610.

II. Notice of appeal was received on 23 March 2012. The appeal fee was paid on the same day. A statement setting out the grounds of appeal was received on 21 May 2012. The appellant (applicant) requested that the decision of the examining division be set aside and that a patent be granted on the basis of the claims of a sole request submitted with the statement setting out the grounds of appeal. The appellant provided arguments that the claims complied with Articles 54 and 56 EPC and referred to document D1, the above-mentioned I.610

Recommendation and the ATM Forum UTOPIA Level 1 Specification.

In addition, the appellant requested that the board took position on the right to be heard.

Oral proceedings were requested if the board considered that any of the independent claims was not new or did not involve an inventive step.

III. With a communication dated 12 November 2014 the board gave its preliminary opinion on the appeal pursuant to Article 15(1) RPBA.

An objection under Article 84 EPC 1973 was raised with respect to independent claim 17.

The board expressed its view that the subject-matter of independent claims 1 and 17 involved an inventive step, having regard to the disclosure of D1 as closest prior art, and taking into account the teaching of D2 and D3, and of the documents

D4: ITU-T Recommendation I.610 (02/99), "B-ISDN operation and maintenance principles and functions", International Telecommunication Union, Geneva, CH, February 1999, and

D5: "UTOPIA Specification Level 1, Version 2.01", The ATM Forum Technical Committee, 21 March 1994, pages 1-15,

corresponding to the above-mentioned I.610 Recommendation and UTOPIA Specification, respectively.

The board further explained why, in its opinion, the right to be heard had been respected by the department of first instance and informed the appellant that it would be in a position to issue a decision ordering the grant of a patent, provided the above-mentioned objection under Article 84 EPC 1973 were overcome.

IV. By letter dated 16 December 2014, the appellant submitted a new set of claims to replace the set of claims on file.

V. Claim 1 of the sole request reads as follows:

"A redundant switching system for a near end of an IMA virtual link, the redundant switching system comprising:
a working network element (110, 120) for hosting a working IMA state machine (112,122) participating in the IMA virtual link (305);
a protection network element (110, 120) for hosting a protection IMA state machine (112, 122) for participation in the IMA virtual link (305) in an event of a redundant switchover; and
characterized by
an IMA synchronization link (111) coupling said working network element to said protection network element for communicating state information pertaining to said working IMA state machine to said protection IMA state machine."

Independent claim 17 of the sole request reads as follows:

"A method of redundant switching for a near end of an IMA virtual link,

wherein a working network element is for hosting a working IMA state machine and a protection network element is for hosting a protection IMA state machine, the method comprising:
switching over participation in the IMA virtual link (305) from said working IMA state machine to said protection IMA state machine
characterized by
synchronizing, by means of an IMA synchronization link (111) coupling said networking element to said protection network element for communicating state information pertaining to said working IMA state machine to said protection IMA state machine, the protection IMA state machine (120, 122) for participation in the IMA virtual link with the working IMA state machine (110, 112) already participating in the IMA virtual link; and
wherein switching over occurs after the protection IMA state machine is synchronized with the working IMA state machine."

Reasons for the Decision

1. The appeal is admissible.

2. Amendments

The claims on which the decision was based have been amended by adding in particular to independent claim 17 the features that:

- the near end of the IMA virtual link comprises a working network element for hosting a working IMA state machine and a protection network element for hosting a protection IMA state machine, and that

- synchronising of the protection IMA state machine is realised by means of an IMA synchronisation link coupling the two IMA state machines and used for communicating state information of the working IMA state machine to the protection IMA state machine.

These amendments are clearly supported by claim 1 as originally filed and, inter alia, paragraphs [0017], [0051], [0056], [0058] and [0060] of the published application.

The board is thus satisfied that these amendments meet the requirements of Article 123(2) EPC.

3. Article 56 EPC 1973

3.1 Closest prior art

D1 relates to an ATM network element and method for automatic protection switching of a transmission convergence sublayer subnetwork connection.

If there is no failure in the ATM connection, the ATM traffic from a source network element (ATM NE-1) to a sink network element (ATM NE-2) is sent from a working network element (TCS-W) in the source network element to a working network element (TCS-W) in the sink network element, by selecting in the source network element the UTOPIA address corresponding to the working network element (TCS-W). The protection network element (TCS-P) in the source network element remains idle, i.e. no traffic is relayed to it (see Figure 1 and paragraphs [0028] to [0032]).

In case of a failure in the ATM connection, the traffic is switched over to the TCS-P of the source network element by changing the UTOPIA address in the source network element (see Figure 2 and paragraphs [0012], [0036] and [0038]). In paragraphs [0013] and [0041] to [0045], D1 describes that the switching is triggered by an alarm signal indicating a physical layer error, such as a path remote defect indication (P-RDI) signal at the F3 OAM level according to ITU-T recommendation I.610. Upon receiving the alarm, the ATM source network element selects the UTOPIA address of the TCS-P and sends traffic to the TCS-P only.

D1 also discloses that the protection switching system is bidirectional, i.e. that it operates also for traffic transmitted from network element ATM NE-2 to network element ATM NE-1.

D1 further mentions that the protection switching system is applicable to physical line interfaces where ATM (IMA) is used (see paragraph [0019]).

3.2 The subject-matter of claim 1 therefore differs from the disclosure of D1 in that:

a) the link is an IMA virtual link, and the working and protection units host a working IMA state machine and a protection IMA state machine respectively, and in that

b) an IMA synchronisation link couples the working network element to the protection network element for communicating, to the protection IMA state machine, state information pertaining to the working IMA state machine.

A skilled person applying the teaching of D1 in respect of an ATM link to an ATM (IMA) link, as foreseen in

paragraph [0019] of D1, would obviously use the features defined in a). The board notes in that respect that the appellant did not challenge this in its statement setting out the grounds of appeal.

The technical effect achieved by distinguishing feature b) is that the state parameters of each IMA frame sent from the source to the sink through the working network element are known to the protection working elements. These state parameters, illustrated in Figure 2C of the application, contain information for IMA group and link management. The appellant convincingly argued that, on the basis of this information, the protection network element is able, in case of a protection switchover, to relay the IMA traffic without any interruption or change in state of the IMA frames flow.

The objective technical problem can thus be formulated as how to ensure a fast and smooth activation of the protection network element for conveying switched traffic.

The skilled person would not find in D1 any indication as to how the protection network element is activated, and in particular, as to how synchronisation between the working network element TCS-W and the protection network element TCS-P is achieved.

In particular, the physical layer error message generated in the sink network element ATM NE-2 at the F3 OAM level according to ITU-T Recommendation I.610 (D4) and transmitted back to the source network element ATM NE-1 is described in paragraphs [0042] to [0045] of D1 as being exclusively an alarm signal and not a synchronisation signal between the TCS-P and the

TCS-W of the source network element. This is corroborated by the teaching of the I.610 Recommendation itself, which states in section 8.2 that such F3 OAM signals support operation and maintenance functions dedicated to detection and indication of failures.

Furthermore, the UTOPIA interface mentioned in paragraphs [0028] and [0051] of D1, and illustrated as entities UA in Figures 4 and 5 of D1, connects TCS units with virtual paths within a source or sink ATM network element. There is no disclosure in D1 of a connection between two TCS units, and a fortiori between a TCS-W and a TCS-P unit, through a UTOPIA interface which the skilled person might consider as suitable for serving as a synchronization link. This is corroborated by the ATM UTOPIA specification (D5) which states in section 1.1 that UTOPIA defines an interface between physical layer and upper layer modules, and not between two physical layer components such as the TCS units described in D1.

The board further notes that ITU-T Recommendation I.630 (D2) related to ATM protection switching does not provide for any synchronisation link between the working and protection units for communicating state information, and by contrast acknowledges a delay between the start of the protection switching operations and the full restoration of the protected traffic (see Figure 8).

For these reasons the board judges that the subject-matter of claim 1 involves an inventive step, having regard to the disclosure of document D1 (Article 56 EPC 1973).

Independent claim 17 contains substantially the same features as claim 1 but expressed in terms of a claim for a method of redundant switching. Therefore claim 17 also meets the requirements of Article 56 EPC 1973.

The dependent claims, because of their reference to independent claims 1 and 17, also involve an inventive step for the same reasons.

4. Right to be heard

The appellant requested that the board takes "position on the right to be heard". The board interprets this statement as an objection that the examining division did not respect the appellant's right to be heard. The board however considers that the reasons given in the decision under appeal with respect to the lack of inventive step of claim 1 are in substance identical to the reasons communicated by the examining division to the appellant in the official communication of 22 October 2010 referring to the International Preliminary Report on Patentability (IPRP) issued on 20 January 2009.

In particular, the same features were identified as already known from D1 (see Reasons 2.1, 2.1.1 and 2.1.2 of the decision under appeal and the first paragraph of item V.2 of the IPRP). Consequently, the same difference between the subject-matter of claim 1 and the disclosure of D1 was ascertained, namely an IMA synchronisation link coupling the working network element to the protection network element for communicating, to the protection IMA state machine, state information pertaining to the working IMA state machine, (see Reasons 2.1.3 of the decision under

appeal and the second paragraph of item V.2 of the IPRP).

In the IPRP, it was considered that this distinguishing feature was clear to the skilled person, so that the subject-matter of claim 1 did not involve an inventive step (see the third paragraph of item V.2). In the decision under appeal, the distinguishing feature was likewise considered obvious to the skilled person (see Reasons 2.1.6). It is to be noted that the reference to the UTOPIA interface of D1 in the decision under appeal (see Reasons 2.1.4, 2.1.5 and 2.1.6), which was not present in the IPRP, is only used to exemplify a suitable link that the skilled person might choose as synchronisation link. In any case, the decision under appeal and the IPRP both clearly state that it is obvious for the skilled person to provide a synchronisation link.

Furthermore, the board considers that the arguments provided in paragraph 2.3 of the Reasons, after the statement in paragraph 2.2 that claim 1 does not involve an inventive step, and in particular the reference to paragraphs [0041] to [0045] of D1 which were not cited in the IPRP, only represent a rebuttal of the applicant's argumentation presented in the letter of 15 April 2011. These arguments are thus not part of the reasoning of the examining division in respect of the inventive step of claim 1.

For these reasons, and further considering that the appellant did not request oral proceedings in examination, the board judges that the right to be heard was respected by the department of first instance.

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 on the basis of claims 1 to 31 as submitted with the letter of 16 December 2014, drawings sheets 1/6 to 6/6 as originally filed, and a description to be adapted to the claims.

The Registrar: The Chair:

K. Götz-Wein A. Ritzka

Decision electronically authenticated