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D E C I S I O N
of 1 June 2006

Case Number: T 0889/05 - 3.4.01

Application Number: 00302320.7

Publication Number: 1049074

IPC: G10L 19/14

Language of the proceedings: EN

Title of invention:
Hierarchial multi-rate coding of a signal containing information

Applicant:
LUCENT TECHNOLOGIES INC.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 52(1), 54(1),(2)

Keyword:
"Novelty (yes)"
"Remittal for further examination"

Decisions cited:
-

Catchword:
-

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Case Number: T 0889/05 - 3.4.01

D E C I S I O N
of the Technical Board of Appeal 3.4.01
of 1 June 2006

Appellant: LUCENT TECHNOLOGIES INC.
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Representative: Williams, David John
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 17 February 2005 refusing European application No. 00302320.7 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: B. Schachenmann
Members: R. Bekkering
G. Assi

Summary of Facts and Submissions

I. European patent application 00302320.7 (publication No. EP-A-1 049 074) was refused by a decision of the examining division dispatched on 17 February 2005 pursuant to Article 97(1) EPC.

The examining division considered the subject-matter of the independent claims 1, 12, 21 and 32 to lack novelty having regard to document D1.

II. The applicant (appellant) lodged an appeal against the decision on 18 April 2005 and paid the appeal fee on the same day. The statement of the grounds of appeal was received on 15 June 2005.

III. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

Claims:	nos. 1 to 40 filed with letter of 22 March 2004;
Description:	pages 1, 3-15, 17 to 20 as originally filed;
	pages 2, 2a, 2b, 16 filed with letter of 22 March 2004;
Drawings:	sheets 1/4 to 4/4 as originally filed.

IV. Reference is made to the following documents:

D1: L. M. Christianson et al., "A hierarchical audio encoder for network traffic adaptation", SPIE Conference on Multimedia Systems and Applications, Boston, MA, USA, 2 to 4 Nov. 1998, vol. 3528,

pages 124 to 131, Proceedings of the SPIE - The International Society for Optical Engineering, 1999

D2: Zhitao Lu et al., "An efficient, low-complexity audio coder delivering multiple levels of quality for interactive applications", 1998, IEEE Second Workshop on Multimedia Signal Processing, Redondo Beach, CA, USA, 7 to 9 Dec. 1998, pages 529 to 534

D3: M. Faloutsos et al.,"Multicast routing with heterogeneous quality", Proceedings of the Fourth IEEE Workshop on High-performance Communication Systems (HPCS '97), Chalkidiki, Greece, 23 to 25 June 1997, pages 125 to 132

V. Independent claims 1, 12, 21 and 32 read as follows:

"*1. Apparatus for processing a signal comprising:*
a coder (205) for generating at least first and second representations of the signal, the first and second representations being different from each other; and
a controller (280,285) for packaging at least one of the first and second representations into a plurality of packets (411,413), each packet including at least an indicator (401,403), and an information content derived from one of the first and second representations, the indicator identifying the representation from which the information content is derived, wherein the manner in which the one or more representations are packaged into the plurality of packets for delivery to a given client terminal (130) is based at least in part on a connection speed associated with a connection (125)

over which the plurality of packets are to be delivered to the client terminal."

"12. Apparatus for recovering a signal comprising:
an interface (120) for receiving a plurality of packets (411,413), each packet including an indicator (401,403), and an information content derived from one of a plurality of representations of the signal, the indicator identifying the representation from which the information content is derived, the plurality of representations being different from one another, wherein the manner in which the representations are packaged into the plurality of packets for delivery to a given client terminal (130) is based at least in part on a connection speed associated with a connection (125) over which the plurality of packets are to be delivered to the client terminal; and
a processor associated with the client terminal (130) and responsive to the received packets for recovering the signal."

"21. A method for processing a signal comprising:
generating at least first and second representations of the signal, the first and second representations being different from each other; and
packaging (280, 285) at least one of the first and second representations into a plurality of packets (411,413), each packet including at least an indicator, (401,403) and an information content derived from one of the first and second representations, the indicator identifying the representation from which the information content is derived, wherein the manner in which the one or more representations are packaged into the plurality of packets for delivery to a given client

terminal (130) is based at least in part on a connection speed associated with a connection (125) over which the plurality of packets are to be delivered to the client terminal.

"32. A method for recovering a signal comprising: receiving a plurality of packets (411,413), each packet including an indicator(401, 403), and an information content derived from one of a plurality of representations of the signal, the indicator identifying the representation from which the information content is derived, the plurality of representations being different from one another, wherein the manner in which the representations are packaged into the plurality of packets for delivery to a given client terminal (130) is based at least in part on a connection speed associated with a connection (125) over which the plurality of packets are to be delivered to the client terminal; and recovering the signal in response to the received packets."

Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.

2. *Novelty*

2.1 Document D1, considered to be prejudicial to the novelty of the subject-matter of the independent claims 1, 12, 21 and 32 in the decision under appeal,

discloses a hierarchical audio encoder for network traffic adaptation. The hierarchical encoding of audio samples is accomplished by dividing the original 16 bit audio sample into 4 groups of 4 bits each. Group 1 with the upper 4 bits provides a first, basic representation of the audio sample while the groups 2 to 4 provide further representations adding more detail (see page 126, third and fourth paragraph).
The samples are packed together on a per group basis and sent as separate data streams to the destination where they are re-assembled for playback. The receiver subscribes to groups based on its available bandwidth. When adding or dropping a subscribed group, the receiver notifies its local multicast router. The data source will always send all 4 groups, however, depending on the receiver's preference, some groups may not be forwarded by the multicast router to the destination. Any adjustment of groups will occur completely at the receiver and does not require any actions on the part of the data source.

Thus, in the described multicast transmission, all groups (representations) are packed in packets at the data source side irrespective of the connection speed associated with the connection over which the packets are to be delivered to the client terminal.
The local multicast router as such does not package the representations but only controls the forwarding of the packets based on the speed of the connection to the client terminal.

Moreover, for the sake of completeness it is noted that as far as the disclosed unicast transmission for testing purposes of document D1 (see page 127, last

paragraph) is concerned, there is nothing in D1 from which it may be concluded that in this case the manner in which the packets are packed may depend on the connection speed.

Accordingly, document D1 does not disclose that the manner in which the one or more representations are packaged into the plurality of packets for delivery to a given client terminal is based at least in part on the connection speed associated with the connection over which the plurality of packets are to be delivered to the client terminal, as required by claim 1, as well as the further independent claims 12, 21 and 32.

2.2 In the decision under appeal it was held that there was "*no support in the description about an on demand packetization that would interleave packets from the predetermined representations*" (see reasons, point 4).

According to the application (see page 14, line 27 to page 15, line 8), however, in response to a request from a client terminal (130), including the IP address identifying the client terminal and its connection speed, for the transmission of a selected musical piece thereto, a processor (280) causes a packetizer (285) to generate a stream of packets including one or more of the stored representations of the selected musical piece, depending on the given connection speed. Each packet in the stream is destined for the client terminal as it contains in its header, as a destination address, the IP address of terminal requesting the music-on-demand service.

Specifically, if the given connection speed is 100 kb/sec, the packetizer retrieves from memory spaces all hierarchical representations (C-representation, E1-representation and E2-representation) of the selected musical piece, and packetizes the retrieved representations in accordance with the TCP/IP format. The resulting packet stream is forwarded by the processor to the internet (120). If, on the other hand, the given connection speed is 64 kb/sec or 28.8 kb/sec instead of 100 kb/sec in the above example, the above-described process similarly follows, although in the 64 kb/sec connection speed case only C-representation information and E1-representation information or E2-representation information are communicated by a server (105) to the client terminal, and in the 28.8 kb/sec connection speed case only C-representation information is communicated (see page 18, lines 8 to 16).

Thus, in fact, according to the application, on-demand packetization based on the connection speed of the client terminal takes place. Although the independent claims merely specify in rather broad terms that "*the manner in which the (one or more) representations are packaged into the plurality of packets*" is based on the connection speed, this feature is not disclosed in document D1.

2.3 Accordingly, for the reasons given above the subject-matter of claim 1 as well as independent claims 12, 21 and 32 is novel with respect to document D1.

2.4 Novelty is also provided over the remaining documents cited in the search report.

Document D2 is only concerned with the coding of the audio signal and does not address packet formation and transmission issues.

Document D3, similar to document D1, discloses the hierarchical encoding of eg audio data and the multicast routing thereof. Novelty is therefore provided over this document as well.

As a matter of fact, the cited prior art (see in particular documents D1 and D3) relates to multicast type transmission, the general principle of which is that the entire information is put in packets and transmitted, while only at the receiver side each client decides which information is retrieved. The present application, on the other hand, relates to rather the opposite type transmission in which the client determines what is transmitted, for which no prior art has been cited. It is, however, noted that apparently the music-on-demand service described in the description of the application as background of the invention, would be based on the latter type transmission. It is unclear, however, at present whether this background constitutes prior art made available to the public.

3. The contested decision was based on lack of novelty of the subject-matter of the independent claims (Articles 52(1) and 54(1) and (2) EPC) and did not consider the further requirements of the EPC, in particular the requirement of inventive step. The board

considers it, therefore, equitable that the appellant be given the opportunity to argue its case having regard to the remaining requirements of the EPC before the examining division.

Therefore, the board, in exercising its discretion under Article 111(1) EPC, remits the case to the examining division for further examination.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar: The Chairman:

R. Schumacher B. Schachenmann