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Datasheet for the decision
of 9 June 2021

Case Number:	T 2402/16 - 3.5.04
Application Number:	11791723.7
Publication Number:	2647212
IPC:	H04N21/262, H04N21/61, H04N21/414, H04N21/845, H04N21/6405, H04N21/6408, H04N21/6375, H04N21/647, H04N21/235, H04L29/06
Language of the proceedings:	EN

Title of invention:
METHOD AND APPARATUS FOR RECEIVING MULTICAST VIDEO USING A
PLAYLIST

Applicant:
ARRIS Enterprises LLC

Headword:

Relevant legal provisions:
EPC Art. 123(2)
RPBA 2020 Art. 13(2)

Keyword:

Main request, first auxiliary request, second auxiliary request - amendments - added subject-matter (yes)
Third auxiliary request - amendment after summons - cogent reasons (no)

Decisions cited:

Catchword:

Case Number: T 2402/16 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 9 June 2021

Appellant: (Applicant)	ARRIS Enterprises LLC 3871 Lakefield Drive Suwanee, GA 30024 (US)
Representative:	Openshaw & Co. 8 Castle Street Farnham, Surrey GU9 7HR (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 6 June 2016 refusing European patent application No. 11791723.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	G. Decker
Members:	A. Seeger
	B. Le Guen

Summary of Facts and Submissions

I.   The appeal is against the examining division's decision
        to refuse European patent application No. 11 791 723.7,
        published as international application
        WO 2012/074874 A1.

II.   The decision under appeal was based, inter alia, on the
        ground that the subject-matter of claim 1 of the then
        main request and the then auxiliary request extended
        beyond the content of the application as filed
        (Article 123(2) EPC).

III.   With the statement of grounds of appeal, the appellant
        filed amended claims of a main request and first and
        second auxiliary requests. The appellant indicated a
        basis in the application as filed for the claimed
        subject-matter and provided reasons as to why the
        claims of all requests met the requirements of
        Articles 54, 56 and 84 EPC.

IV.   The board issued a summons to oral proceedings and a
        communication under Article 15(1) of the Rules of
        Procedure of the Boards of Appeal in the 2020 version
        (RPBA 2020, OJ EPO 2019, A63). In this communication,
        the board expressed, inter alia, the preliminary
        opinion that claim 1 of all requests contained added
        subject-matter, contrary to the requirements of
        Article 123(2) EPC. In points 3.4, 3.6 and 3.7 of its
        communication the board raised three different added-
        matter objections. The second objection related only to
        claim 1 of the main request.

V.   By letter dated 12 May 2021, the appellant requested
        that the oral proceedings be held by videoconference.

VI.   On 9 June 2021, the board held oral proceedings by
        videoconference.

        During the oral proceedings, the appellant filed
        amended claims according to a third auxiliary request.

        The appellant's final requests were that the decision
        under appeal be set aside and a European patent be
        granted on the basis of the claims of the main request
        filed with the statement of grounds of appeal or,
        alternatively, on the basis of the claims of the first
        or the second auxiliary request filed with the
        statement of grounds of appeal, or on the basis of the
        claims of the third auxiliary request filed during the
        oral proceedings held before the board.

        At the end of the oral proceedings, the Chair announced
        the board's decision.

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

        "A method for operating a client device, comprising:

        requesting a presentation playlist from a first server,
        wherein the playlist identifies a plurality of chunks
        to be combined to form a video stream;

        receiving the playlist from the first server;

        determining whether a second server that can generate a
        multicast stream of the presentation exists;

        determining to receive the presentation by multicast,
        wherein the presentation may be received as either
        multicast or unicast;

sending a message to the second server to request an initiation of a multicast stream of the presentation from one or more multicast groups;

requesting to join one of the multicast groups to receive the presentation;

receiving the presentation via multicast;

locating boundaries of the chunks based on the playlist; and

reconstructing the video stream based on the chunk boundaries."

VIII.   Claim 1 of the first auxiliary request reads as follows:

"A method for operating a client device, the method comprising the steps of:

requesting a presentation playlist from a first server;

receiving the playlist from the first server;

determining whether additional servers can provide a multicast stream of the presentation;

determining to receive the presentation by multicast based further on the received playlist, wherein the presentation may be received as either multicast or unicast;

sending a message to the additional servers to request an initiation of a multicast stream of the presentation from one or more of multicast groups;

determining channel conditions;

requesting to join the one or more multicast groups to receive the presentation at different resolutions based on the channel conditions;

receiving the presentation as chunks via multicast;

locating boundaries of the chunks based on the playlist; and

reconstructing the chunks of the video stream based on the chunk boundaries for each of the different resolutions."

IX.   Claim 1 of the second auxiliary request reads as follows:

"A method for operating a client device, comprising:

requesting a presentation playlist from a first server, wherein the playlist identifies a plurality of chunks to be combined to form a video stream;

receiving the playlist from the first server;

based on the received playlist, determining that the video stream is live or scheduled;

responsive to determining that the video stream is live or scheduled, determining that a second server can provide a multicast stream of the presentation via a

plurality of multicast groups, each multicast group
having a modulation and encoding rate that is different
from those of the other multicast groups;

determining to receive the presentation by multicast,
wherein the presentation may be received as either
multicast or unicast;

joining one of the multicast groups to receive the
presentation;

determining channel conditions; and

joining a second multicast group to receive the
presentation at a different modulation and encoding
rate than that provided by the first multicast group,
based on the channel conditions;

wherein receiving the presentation via multicast from
the first and second groups comprises:

    locating boundaries of the chunks based on the
    playlist;

    reconstructing the video stream based on the chunk
    boundaries; and

    performing a switch to the second multicast group
    from the first multicast group at one of the chunk
    boundaries."

X.   Claim 1 of the third auxiliary request reads as follows
        (features added compared with claim 1 of the second
        auxiliary request are underlined and deleted features
        are struck through):

"A method for operating a client device, comprising:

requesting a presentation playlist from a first server, wherein the playlist identifies a plurality of chunks to be combined to form a video stream;

receiving the playlist from the first server;

based on the received playlist, determining that the video stream is live or scheduled;

responsive to determining that the video stream is live or scheduled, determining that a second server can provide a multicast stream of the presentation via a plurality of multicast groups, each multicast group having a modulation and encoding rate that is different from those of the other multicast groups, wherein the second server receives the presentation via unicast from the first server;

determining to receive the presentation by multicast, wherein the presentation may be received as either multicast or unicast;

joining one of the multicast groups to receive the presentation;

determining channel conditions; and

joining a second multicast group to receive the presentation at a different modulation and encoding rate than that provided by the first multicast group, based on the channel conditions;

wherein receiving the presentation via multicast from the first and second groups comprises:

locating boundaries of the chunks based on ~~the playlist~~ <u>a chunk information message received with the presentation via multicast</u>;

reconstructing the video stream based on the chunk boundaries; and

performing a switch to the second multicast group from the first multicast group at one of the chunk boundaries."

XI.   The appellant's arguments relevant to the present decision may be summarised as follows:

Main request and first and second auxiliary requests

(a) The Adaptive Multicast Gateway Router (AMGR) acted as a server because it redistributed video chunks to clients using multicast transmission. The AMGR and its function were disclosed in the following passages:
- page 9, lines 7 to 10
- page 13, line 30 to page 14, line 16

(b) Claim 1 specified a method for operating a client device. From the perspective of the client device the "*second server*" could be any server capable of generating a multicast stream of the presentation. Its relationship with the first server was immaterial.

(c) According to the passage from page 22, line 19 to page 23, line 12 of the application as filed, a switch from unicast to multicast could occur in general and did not need to be based on channel

conditions. Hence, the features "*determining channel conditions*" and "*based on the channel conditions*" of claim 1 were not essential and could be deleted.

(d) Claim 1 should not be construed as meaning that the client device itself uses the received playlist to locate chunk boundaries. Rather, it should be interpreted as meaning that the client device receives information about the chunk boundaries from the second server, this information being obtained by the second server on the basis of the playlist. The passages on page 25, lines 1 and 2, page 2, line 20 and page 5, lines 16 and 17 specified that additional information based on the playlist was needed to reconstruct the chunks from the multicast data, and provided a basis for this interpretation.

Third auxiliary request

(e) The third auxiliary request filed during the oral proceedings before the board was to be admitted because it addressed all outstanding objections. It was not until the oral proceedings that it became apparent that the appellant's arguments had not convinced the board that the higher-ranking requests complied with the requirements of Article 123(2) EPC.

Reasons for the Decision

1.   The appeal is admissible.

2.   Main request - added subject-matter
        (Article 123(2) EPC)

2.1   Claim 1 specifies a method for operating a client
          device comprising, inter alia, steps of "*requesting a
          presentation playlist from a first server*" and
          "*determining whether a second server that can generate
          a multicast stream of the presentation exists*".

          The step of "*determining whether a second server that
          can generate a multicast stream of the presentation
          exists*" was added in the course of the examination
          proceedings.

2.1.1   As a basis for this amendment the appellant referred to
          page 9, lines 7 to 10 and page 13, line 30 to page 14,
          line 16 of the application as filed. The appellant
          argued that the cited passages disclosed an AMGR which
          acted as a server because it redistributed video chunks
          to clients using multicast transmission. Hence, this
          AMGR provided a basis for a second server that can
          generate a multicast stream of the presentation (see
          section XI(a) above).

2.1.2   The board acknowledges that the AMGR acts as a server.
          However, this "*second server*" is not just any server –
          it has a specific relationship with the "*first server*"
          specified in claim 1 (from which a presentation
          playlist is requested).

          In particular, the AMGR obtains both the playlist (see
          description, page 14, lines 7 and 8: "*The AMGR then
          requests the variant playlist to learn of the number of
          multicast gears that it will support*") and the video
          chunks from the "*first server*" (see description, page
          9, lines 7 and 8: "*The AMGR implements the HLS protocol
          with the server to request and receive video chunks*").

2.1.3   The appellant submitted that claim 1 specified a method
          for operating a client device. The appellant argued
          that from the perspective of the client device the
          "*second server*" could be any server capable of
          generating a multicast stream of the presentation. Its
          relationship with the first server was immaterial (see
          section XI(b) above).

2.1.4   The board is not convinced by this argument for the
          following reasons. The description (see page 14,
          lines 3 to 13) sets out how a client determines an
          entity which can generate a multicast stream of the
          presentation: "*The request for multicast service (e.g.
          AVMS JOIN) is sent as a unique message from client 212
          to its AMGR [...] The message is sent to a well-known
          multicast address that is handled by designated routers
          of an AVMS, such as the AMGR*". Hence, the client
          specifically sends a message to a router such as an
          AMGR. The term router implies that the AMGR is not an
          independent server but obtains its data from another
          server. Hence, also from the perspective of a client
          device, the aim of the feature "*determining whether a
          second server that can generate a multicast stream of
          the presentation exists*" in claim 1 is not to find any
          server in general – it is to find a router having an
          additional server function. In other words, the aim is
          to find a "second server" having the specific
          relationship with a "first server" set out under point
          2.1.2 above.

2.1.5   Hence, there is no basis in the application as filed
          for a general "*second server*" in claim 1.

2.2   The method defined in claim 1 of the main request
          further comprises the following steps:

"*determining to receive the presentation by multicast, wherein the presentation may be received as either multicast or unicast [...]*

requesting to join one of the multicast groups to receive the presentation".

The step of "*determining channel conditions*" and the expression "*based on the channel conditions*" - present in claim 1 as originally filed - were deleted in the course of examination proceedings.

2.2.1   As a basis for this generalisation the appellant referred to the passage from page 22, line 19 to page 23, line 12 of the application as filed. The appellant argued that according to this passage a switch from unicast to multicast could occur in general and did not need to be based on channel conditions. Hence, the features "*determining channel conditions*" and "*based on the channel conditions*" were not essential and could be deleted (see section XI(c) above).

2.2.2   The board is not convinced that the cited passage of the application as filed is a valid basis for the generalisation.

The deleted features considered together with the feature "*requesting to join one of the multicast groups to receive the presentation*" originally specified that the decision of which one of multiple multicast groups to join was based on the determined channel conditions.

The passage cited by the appellant states: "*the first AMGR Client to request a particular program may be instructed to use unicast [...] Then as more AMGR*

Clients join the program, the AMGR may determine that
it would be more efficient to switch to multicast mode,
and an AVMS Mode message would be sent the AMGR Clients
with an instruction to switch to multicast mode".

This passage thus states that a client is instructed to
switch from unicast to multicast; it does not address
the question of which specific multicast group to join
once multicast is selected.

Therefore, this passage cannot be a valid basis for the
generalisation of "*requesting to join one of the*
multicast groups to receive the presentation" without
this request being based on the determined channel
conditions.

2.2.3   In summary, there is no basis in the application as
        filed for deleting the expressions "*determining channel*
        conditions" and "*based on the channel conditions*".

2.3   Claim 1 further comprises steps of "*receiving the*
        playlist from the first server" and "*locating*
        boundaries of the chunks based on the playlist". The
        latter step was added in the course of the examination
        proceedings.

2.3.1   According to the appellant, these steps should not be
        construed as meaning that the client device itself uses
        the received playlist to locate chunk boundaries.
        Rather, they should be interpreted as meaning that the
        client device receives information about the chunk
        boundaries from the second server, this information
        being obtained by the second server on the basis of the
        playlist (see section XI(d) above).

2.3.2   For the board, this interpretation of
         claim 1 is incorrect. The person skilled in the art
         reading the following features of claim 1:
         -    "*A method of operating a client device*",
         -    "*receiving the playlist from the first server*" and
         -    "*locating boundaries of the chunks based on the
              playlist*"
         together would understand that the boundaries of the
         chunks are located by the client device itself on the
         basis of the playlist it received directly from the
         first server.

2.3.3   The appellant referred to page 25, lines 1 and 2,
         page 2, line 20 and page 5, lines 16 and 17. According
         to the appellant, these passages specified that
         additional information based on the playlist was needed
         to reconstruct the chunks from the multicast data.

2.3.4   The board agrees that additional information is needed
         to reconstruct at the client device the chunks from the
         data arriving via a multicast stream. However,
         according to the application as filed, this additional
         information is based not on the playlist obtained from
         the first server but on information embedded in the
         multicast data (see description, page 39, lines 20
         to 23: "*The step of identifying chunk information for
         the received presentation comprises receiving the
         multicast data, identifying chunk boundaries from chunk
         boundary information embedded in the multicast data,
         and reconstructing the chunk*").

2.3.5   In view of the above, the board concludes that there is
         also no basis in the application as filed for the
         feature "*locating boundaries of the chunks based on the
         playlist*" in claim 1.

2.4   It follows from points 2.1.5, 2.2.3 and 2.3.5 above
        that claim 1 of the main request does not meet the
        requirements of Article 123(2) EPC.

3.   First and second auxiliary requests - added subject-
        matter (Article 123(2) EPC)

3.1   Claim 1 of the first auxiliary request was amended to
        specify: "*determining whether additional servers can
        provide a multicast stream of the presentation*".

3.2   Claim 1 of the second auxiliary request was amended to
        specify: "*determining that a second server can provide
        a multicast stream of the presentation*".

3.3   Therefore, claim 1 of both the first and the second
        auxiliary request specifies at least one additional
        server or a second general server without indicating
        its relationship with the "*first server*".

3.4   Hence, the same objection under Article 123(2) EPC as
        raised under points 2.1 to 2.1.5 above applies.

        The appellant has not submitted any further arguments
        in this respect.

3.5   Claim 1 of both the first and the second auxiliary
        request contains the same amendment – "*locating
        boundaries of the chunks based on the playlist*" – as
        claim 1 of the main request.

3.6   Hence, the same objection under Article 123(2) EPC as
        raised under points 2.3 to 2.3.5 above applies.

        The appellant has not submitted any further arguments
        in this respect.

3.7   In view of the above, claim 1 of both the first and
        second auxiliary request does not meet the requirements
        of Article 123(2) EPC.

4.   Third auxiliary request - admittance
        (Article 13(2) RPBA 2020)

4.1   The third auxiliary request was filed during the oral
        proceedings before the board, i.e. after the
        notification of the summons to oral proceedings. The
        third auxiliary request is therefore an amendment
        within the meaning of Article 13(2) RPBA 2020.

4.2   According to Article 13(2) RPBA 2020: "*Any amendment to
        a party's appeal case made [...] after notification of
        a summons to oral proceedings shall, in principle, not
        be taken into account unless there are exceptional
        circumstances, which have been justified with cogent
        reasons by the party concerned.*"

4.3   The appellant argued that it went to the oral
        proceedings before the board believing that there was
        no added subject-matter in the claims of the main
        request and the first and second auxiliary requests. It
        was not until the hearing that it realised it had been
        unable to persuade the board in this respect. Although
        it was still convinced that there was no added subject-
        matter in the higher-ranking requests it filed the
        third auxiliary request during the oral proceedings for
        reasons of procedural efficiency (see section XI(e)
        above).

4.4   For the board these are not cogent reasons for waiting
        until the oral proceedings to file the third auxiliary
        request.

All objections under Article 123(2) EPC had been raised
in the board's communication under
Article 15(1) RPBA 2020. The first objection (see
points 2.1 to 2.1.5 above) and second objection (see
points 2.2 to 2.2.3 above) were already present in the
decision under appeal.

Appellants should always plan for the eventuality that
their arguments do not convince the board. Therefore,
the fact that the arguments presented by the appellant
during the oral proceedings did not convince the board
cannot be considered to be exceptional circumstances
justifying the filing of the third auxiliary request.

4.5   Hence, the board exercised its discretion under
        Article 13(2) RPBA 2020 and decided not to admit the
        third auxiliary request into the appeal proceedings.

5.   Conclusion

        The main request and the first and second auxiliary
        requests are not allowable because claim 1 of none of
        these requests meets the requirements of
        Article 123(2) EPC. The third auxiliary request was not
        admitted into the appeal proceedings. Since none of the
        appellant's requests is allowable, the appeal must be
        dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Boelicke   G. Decker

Decision electronically authenticated