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Datasheet for the decision
of 1 October 2020

Case Number:	T 1864/15 - 3.5.04
Application Number:	09824007.0
Publication Number:	2350858
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Language of the proceedings:	EN

Title of invention:
DYNAMIC FRAGMENTATION OF DIGITAL MEDIA

Applicant:
Microsoft Technology Licensing, LLC

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:

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It can be changed at any time and without notice

Catchword:

Case Number: **T 1864/15 - 3.5.04**

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 1 October 2020

Appellant: Microsoft Technology Licensing, LLC
(Applicant)   One Microsoft Way
                         Redmond, WA 98052 (US)

Representative: Grünecker Patent- und Rechtsanwälte
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Decision under appeal: **Decision of the Examining Division of the
                             European Patent Office posted on 27 April 2015
                             refusing European patent application
                             No. 09824007.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman   M. Paci
Members: A. Seeger
                   G. Decker

Summary of Facts and Submissions

I.   The appeal is against the decision of the examining
        division to refuse European patent application
        No. 09 824 007.0, published as international patent
        application WO 2010/051169 A2.

II.   The documents cited in the decision under appeal
        included the following:

        D1:   NIKOLAUS FÄRBER ET AL: "Adaptive progressive
               download based on the MPEG-4 file
               format", Journal of Zhejiang University Science
               A; An International Applied Physics & Engineering
               Journal, Springer, Berlin, DE, Vol. 7, No. 1,
               1 January 2006, pages 106-111, XP019385056,
               ISSN: 1862-1775, DOI: 10.1631/JZUS.2006.AS0106

        D2:   US 2007/0162568 A1

        D5:   "INTERNATIONAL STANDARD ISO/IEC 14496-12
               Information technology - Coding of audio-visual
               objects - Part 12: ISO base media file format",
               1 January 2005, XP007914375, Retrieved from the
               Internet: URL: http://www.iso.org/iso/
               iso_catalogue/catalogue_ics/
               catalogue_detail_ics_htm?csnumber=41828,
               [retrieved on 2009-10-19]

III.   The decision under appeal was based on the ground that
        claims 1, 10, 14 and 15 of the main request and of the
        first auxiliary request did not meet the requirements
        of Article 84 EPC. Furthermore, the decision under
        appeal was based on the ground that the subject-matter
        of claim 1 according to the main request, the first

auxiliary request and the second auxiliary request did
not involve an inventive step within the meaning of
Article 56 EPC and the requirements of
Article 52(1) EPC were therefore not met.

IV.   The applicant (hereinafter: appellant) filed notice of
        appeal. With the statement of grounds of appeal, the
        appellant maintained the main request, the first
        auxiliary request and the second auxiliary request
        underlying the decision under appeal. The appellant
        requested that the decision under appeal be set aside
        and that a European patent be granted on the basis of
        the claims of the main request, first auxiliary request
        or second auxiliary request underlying the decision
        under appeal.

V.   The board issued a summons to oral proceedings. In a
        communication under Article 15(1) RPBA 2020 (Rules of
        Procedure of the Boards of Appeal, 2020 version,
        OJ EPO 2020, supplementary publication 2) annexed to
        the summons, the board expressed the preliminary
        opinion that claim 1 of the main request and the first
        auxiliary request was clear (Article 84 EPC) but the
        subject-matter of claim 1 according to all requests did
        not involve an inventive step (Article 56 EPC).

VI.   On 1 October 2020 the board held oral proceedings. The
        appellant's final requests were the same as those set
        out in the statement of grounds of appeal. At the end
        of the oral proceedings, the chairman announced the
        board's decision.

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

        "A method for providing media fragmentation, the method
        comprising:

receiving (210) a request for a manifest (300) from a
client (110);

sending (220), in response to the received request for
the manifest (300), the manifest (300) to the client
(110), the manifest describing a URL, Uniform Resource
Locator, convention of how a request for a file
fragment is to be formatted in a URL;

receiving (230) from the client (110) a request for a
file fragment (125, 130, 135), the request indicating a
start time and an end time corresponding to the file
fragment (125, 130, 135), the request being in a URL
format defined by the manifest (300);

querying (240) a lookup table (140) for a first byte
location in a media file (115) corresponding to the
start time and a second byte location in the media file
(115) corresponding to the end time;

extracting (250) from the media file (115) a portion of
the media file (115) between the first byte location
and the second byte location, the portion comprising
the file fragment (125, 130, 135); and

sending (260) the file fragment (125, 130, 135) to the
client (110)."

VIII.   Claim 1 of the first auxiliary request reads as follows
         (added features with respect to claim 1 of the main
         request are underlined and deleted features are
         struck-through):

         "A method for providing media fragmentation, the method
         comprising:

receiving (210) a request for a manifest (300) from a
client (110);

sending (220), in response to the received request for
the manifest (300), the manifest (300) to the client
(110), the manifest describing ~~a URL, Uniform Resource
Locator, convention of~~ how a request for a file
fragment is to be formatted in a URL<u>, Uniform Resource
Locator</u>;

receiving (230) from the client (110) a request for a
file fragment (125, 130, 135), the request indicating a
start time and an end time corresponding to the file
fragment (125, 130, 135), the request being in a URL
format defined by the manifest (300);

querying (240) a lookup table (140) for a first byte
location in a media file (115) corresponding to the
start time and a second byte location in the media file
(115) corresponding to the end time;

extracting (250) from the media file (115) a portion of
the media file (115) between the first byte location
and the second byte location, the portion comprising
the file fragment (125, 130, 135); and

sending (260) the file fragment (125, 130, 135) to the
client (110)."

IX.   Claim 1 of the second auxiliary request reads as
        follows (added features with respect to claim 1 of the
        main request are underlined and deleted features are
        struck-through):

"A method for providing media fragmentation, the method
comprising:

receiving (210) a request for a manifest (300) from a
client (110);

sending (220), in response to the received request for
the manifest (300), the manifest (300) to the client
(110), the manifest describing ~~a URL, Uniform Resource
Locator, convention of how a request for a file
fragment is to be formatted in a URL~~ available quality
levels (310) for a file fragment (125, 130, 135);

receiving (230) from the client (110) a request for a
first file fragment (125, 130, 135), the request
indicating a start time and an end time corresponding
to the first file fragment (125, 130, 135), the request
being in a ~~URL~~ format defined by the manifest (300) and
indicating a quality level for the first file fragment
(125, 130, 135);

querying (240) a lookup table (140) for a first byte
location in a media file (115) corresponding to the
start time and a second byte location in the media file
(115) corresponding to the end time;

extracting (250) from the media file (115) a portion of
the media file (115) between the first byte location
and the second byte location, the portion comprising
the first file fragment (125, 130, 135); and

sending (260) the first file fragment (125, 130, 135)
to the client (110),

wherein the method further comprises:

receiving from the client a subsequent request for a
second file fragment (125, 130, 135) having a start
time being the same as the end time of the first file
fragment (125, 130, 135), said subsequent request
indicating a quality level for the second file fragment
(125, 130, 135) different from the quality level for
the first file fragment (125, 130, 135)."

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

Main request and first auxiliary request

(a) Claim 1 specified that the "*querying*" step was
    performed after the "*receiving*" step because this
    "*querying*" step referred to the terms "*the start
    time*" and "*the end time*" which were introduced in
    the "*receiving*" step.

(b) The feature "*the request indicating a start time
    and an end time*" in claim 1 was not anticipated by
    a request containing a byte range.

(c) Document D1 taught a streaming architecture based
    on only two standards, namely the MPEG-4 file
    format and HTTP (see D1, page 108, left-hand
    column, last paragraph). Hence, starting from
    document D1 the person skilled in the art would not
    have considered document D2 because this would be
    contrary to these standards and thus contrary to
    the specific teaching of document D1.

(d) A URL convention of how a request for a file
    fragment is to be formatted in a URL required
    significantly less data to be transmitted between a
    server and a client than a list of specific URLs

(see statement of grounds of appeal, page 4, penultimate paragraph).

(e) A set of specific URLs as specified in a moov box according to document D1 was huge. According to the MPEG-4 file format specified in document D5, for every track in the moov box specific URLs for every file fragment needed to be specified in a data reference box (see D5, Table 1 on page 11 and section 8.13 on page 23). Hence, a URL convention always required less data to be transmitted than a set of specific URLs, except in extraordinary cases.

(f) Specifying a URL convention instead of a list of specific URLs entailed fewer changes in the event that a client needed to address another server.

Second auxiliary request

(g) Document D1 did not disclose that a manifest described available quality levels for a file fragment.

(h) Document D1 did not disclose that a request received from a client indicated a quality level for a file fragment. In a client-server system according to document D1 there was no need to indicate a requested quality level because the requested track was already specified by means of a URL.

Reasons for the Decision

1.   The appeal is admissible.

2.   *Main request, inventive step (Article 56 EPC)*

2.1   According to Article 56 EPC, "*[a]n invention shall be
          considered as involving an inventive step if, having
          regard to the state of the art, it is not obvious to a
          person skilled in the art*". It is established case law
          that the "problem and solution approach" is an
          appropriate tool for assessing whether claimed
          subject-matter fulfils the requirements of Article 56
          EPC (see Case Law of the Boards of Appeal of the
          European Patent Office, 9th edition 2019, I.D.2).

2.2   The examining division identified document D1 as the
          closest prior art for the assessment of inventive step
          (see decision under appeal, reasons, point 5.1). This
          was not contested by the appellant and the board agrees
          with the examining division.

2.3   The board accepts the appellant's argument that claim 1
          specified the "*querying*" step as to be performed after
          the "*receiving*" step (see point X(a) above).

          The board also considers, in the appellant's favour,
          that the feature "*the request indicating a start time
          and an end time*" in claim 1 is not anticipated by a
          request containing a byte range (see point X(b) above).

2.4   Hence, the board considers that the subject-matter of
          claim 1 differs from the disclosure of document D1 by
          the following distinguishing features:
          (a1) the manifest describing a URL, Uniform Resource
                Locator, convention of how a request for a file
                fragment is to be formatted in a URL;

(a2)   the request being in a URL format defined by the
       manifest;

(b1)   the request indicating a start time and an end
       time;

(b2)   querying a lookup table for a first byte location
       in a media file corresponding to the start time
       and a second byte location in the media file
       corresponding to the end time.

2.5   *Re distinguishing features (a1) and (a2)*

2.6   It is established case law of the boards of appeal that
       features which do not contribute to achieving a
       technical effect are to be ignored when assessing
       inventive step (see Case Law of the Boards of Appeal of
       the European Patent Office, 9th edition 2019,
       I.D.9.1.3(b)).

2.7   The board construes distinguishing features (a1) and
       (a2) as meaning that a rule is specified on how to
       construct URLs such that the constructed URLs are
       accepted by a server, without any limitation as to
       which part of a URL is further specified or how the
       overall URL is composed.

       Because this URL construction rule is completely
       unspecified, the board cannot see any credible
       technical effect achieved by distinguishing features
       (a1) and (a2) for the reasons given below.

2.8   The appellant argued that a URL convention of how a
       request for a file fragment is to be formatted in a URL
       required significantly less data to be transmitted
       between a server and a client than a list of specific
       URLs (see point X(d) above). Hence, the technical
       effect achieved by distinguishing features (a1) and

(a2) was to reduce the amount of data to be transmitted
between a server and a client.

The board is not convinced by this argument because the
amount of data needed to send the URL convention
referred to in claim 1 is undetermined and may thus be
even larger than the amount of data needed to transmit
a list of specific URLs.

2.9   More specifically, the appellant argued that a set of
        URLs as specified in a moov box according to
        document D1 took up considerable space because,
        according to the MPEG-4 file format specified in
        document D5, the moov box had to contain a specific URL
        for each file fragment of a track (see D5, Table 1 and
        section 8.13, "data reference box (dref)"). Hence, a
        URL convention always required less data to be
        transmitted than a set of specific URLs described in a
        file according to the MPEG-4 file format, except in
        extraordinary cases (see point X(e) above).

        The board is not convinced that a specific URL for
        every file fragment of a track is specified in a data
        reference box according to document D5, section 8.13.
        Indeed, the data reference box (dref) in Table 1 of D5
        contains a URL of a track, not the URL of a track
        fragment (see hierarchy in Table 1). Moreover,
        according to sections 8.1 and 8.4 of D5, the moov box
        corresponds to one presentation and each presentation
        consists of one or more tracks. As a consequence, the
        number of URLs in the moov box – which is equal to the
        number of tracks – is much lower than the number of
        track fragments. In addition, the URL may be relative
        rather than absolute, which further reduces the space
        required for the URLs in the moov box (see last
        sentence of section 8.13.3 of D5).

The appellant argued that the following text in
section 8.13 of D5 implied that the URLs were
associated with file fragments of a track: "*The data
reference object contains a table of data references
(normally URLs) that declare the location(s) of the
media data used within the presentation. [...] A track
may be split over several sources*".

The board does not find this argument persuasive for
the following reasons.

Firstly, the board notes that the word "*may*" renders it
optional to split a track over several sources, i.e.
different URLs. Secondly, the board is not convinced
that the expression "*several sources*" relates to URLs
identifying individual file fragments. If the URLs were
to relate to individual file fragments, there would be
no need for HTTP requests specifying byte ranges, as
disclosed in document D1 (page 109, left-hand column,
first paragraph), and an HTTP request could simply
specify the relevant URL. For these reasons, the board
considers that a single URL per track may be specified
in the moov box illustrated in document D1, Figure 1.

2.10   For the above reasons, the board is not convinced that
the limited number of individual URLs in the moov box
according to document D1 generally takes up more space
than the unspecified URL convention of claim 1.

2.11   The appellant further argued that specifying a URL
convention instead of a URL list entailed fewer changes
in the event that a client needed to address another
server (see point X(f) above). The appellant regarded
this as a further technical effect of distinguishing
features (a1) and (a2).

The board is not convinced by this argument because in order to address another server, a URL identifying this server needs to be set in the URL convention. In the same manner, an MPEG-4 file format allowing relative URLs for the different tracks (see D5, section 8.13.3: "*Relative URLs are permissible and are relative to the file containing the Movie Box that contains this data reference*") requires a change of just one reference URL to address another server. Hence, the board does not consider this to be an additional technical effect of distinguishing features (a1) and (a2).

2.12   Re distinguishing features (b1) and (b2)

2.13   The board regards the technical effect achieved by distinguishing features (b1) and (b2) to be that operation of a client is simplified. A client can then directly request a media fragment between a certain start and end time without being required to map the start and end time to corresponding byte locations.

2.14   Hence, the board considers that the objective technical problem should be formulated as how to simplify the operation of the client.

2.15   The board holds that starting from a streaming system using HTTP as disclosed in document D1 (see D1, page 108, left-hand column, last paragraph) and faced with this problem, the person skilled in the art would consider document D2. The reason is that document D2 relates to the same technical field of streaming media content (see D2, paragraph [0002]) and in particular to an architecture in which a client and a server exchange data over the internet using HTTP (see D2, paragraph [0016]).

2.16   Document D2 discloses that time-based requests may be
          used as an alternative to byte-based requests from a
          client to a server (see D2, paragraph [0032]). Document
          D2 further discloses the particular format of a
          time-based request indicating a time range in the form
          of a start time and a length (see D2, paragraph [0035]
          and Figure 4A). Moreover, document D2 sets out that
          once a time-based request is received by a server the
          corresponding start and end byte offsets are computed
          by lookups to a content index (i.e. querying a lookup
          table) and a corresponding media fragment is obtained
          (see D2, paragraphs [0025] and [0036]).

2.17   The board finds that the person skilled in the art
          would apply these features of document D2 to a
          client-server system according to document D1 in order
          to solve the technical problem set out under point 2.14
          above. In other words, the skilled person would replace
          the byte-based client requests described in document D1
          with time-based client requests, which are then
          re-mapped to byte ranges in the server using an index.
          In so doing, the person skilled in the art would arrive
          at distinguishing features (b1) and (b2) in a
          straightforward manner.

2.18   The board is not convinced by the appellant's argument
          that a person skilled in the art would not consider
          document D2 because it would be contrary to the HTTP
          standard and the MPEG-4 file format standard mentioned
          in D1 (see point X(c) above). Firstly, the board is not
          convinced that using time-based requests instead of
          byte-based requests in HTTP requires any modification
          of the MPEG-4 file format specifying URLs of media
          data. A change from byte-based to time-based requests
          only changes the manner in which a sub-part of a file

accessible under a URL is requested, not the URL itself
(as specified for example in a dref box of the MPEG-4
media file). Secondly, document D2 explicitly refers to
the HTTP standard and proposes modifying it (see D2,
paragraphs [0035] and [0055]). At the same time, it is
common general knowledge that standards evolve and have
many different versions. Hence, the board holds that
the skilled person is not barred from considering
improvements, such as replacing byte-based HTTP
requests with time-based HTTP requests as suggested in
document D2, merely because they are not part of the
current version of a standard.

2.19   *Conclusion on inventive step*

For the above reasons, the board concludes that the
person skilled in the art would arrive at
distinguishing features (b1) and (b2) in a
straightforward manner and that distinguishing features
(a1) and (a2) have no credible technical effect and
thus cannot contribute to inventive step. As a
consequence, the subject-matter of claim 1 of the main
request does not involve an inventive step within the
meaning of Article 56 EPC.

3.   *First auxiliary request, inventive step
        (Article 56 EPC)*

3.1   Claim 1 of the first auxiliary request essentially
        differs from claim 1 of the main request only in that
        the term "*a URL, Uniform Resource Locator, convention
        of*" was deleted.

3.2   The board finds that the feature "*the manifest
        describing how a request for a file fragment is to be*

formatted in a URL, Uniform Resource Locator" in
claim 1 specifies, in the same way as a "*URL
convention*", a rule on how a request for a file
fragment needs to be formatted in a URL.

3.3   The appellant did not present additional arguments.

3.4   Hence, the subject-matter of claim 1 according to the
        first auxiliary request lacks inventive step under
        Article 56 EPC for the same reasons as set out in
        section 2 above for the main request.

4.   *Second auxiliary request, inventive step
        (Article 56 EPC)*

4.1   The board finds that the subject-matter of claim 1
        differs from the disclosure of document D1 by the
        following features:
        (b1)   the request indicating a start time and an end
               time;
        (b2)   querying a lookup table for a first byte
               location;
        (c)   the second file fragment has a start time being
               the same as the end time of the first file
               fragment.

4.2   The appellant argued that document D1 did not disclose
        that a manifest described available quality levels for
        a file fragment (see point X(g) above).

        The board is not convinced by this argument because
        document D1 discloses that the moov box provides
        information about the various tracks, each having a
        different bit rate and thus representing different
        quality levels (see D1, Figure 1: "*trak 1*",

"*trak 2*", ... "*trak N*" inside the "moov" box and D1,
Figure 2: "*Bit rate of tracks 1~7 for example AVC video
sequence used in experiments. Rates in legend are
average rate as signalled in moov box*").

Furthermore, the appellant argued that document D1 did
not disclose that a request received from a client
indicated a quality level for a file fragment (see
point X(h) above).

The board is not convinced by this argument because
document D1 does disclose that a client can request a
particular track (see D1, page 109, right-hand column,
third paragraph: "*the media bit rate is adapted to the
available bit rate, i.e., by selecting the appropriate
track, the client can assure that the available TCP
throughput is twice as big*") of a file in an MPEG-4
file format (see D1, page 109, left-hand column, first
paragraph: "*With the knowledge contained in the moov
box and based on the continuous observation of the
network throughput, the client requests for the
appropriate parts of the file that should be
transferred next*"). A request for a particular track
within the file according to the MPEG-4 file format
will then use the URL assigned to that particular track
by the dref box (see D5, Table 1 and section 8.13).
Requesting specifically this URL from a server is an
indication of the requested bit rate and the related
quality level.

Hence, the board concludes that the features
distinguishing the subject-matter of claim 1 from the
disclosure of document D1 are those set out under
point 4.1 above.

4.3   The board holds that it would be obvious for the person
        skilled in the art to arrive at distinguishing features
        (b1) and (b2) for the reasons set out under points 2.13
        to 2.18 above in relation to the main request.

4.4   Furthermore, the boards holds that it would be obvious
        for the person skilled in the art faced with the
        problem of enabling seamless playback of streaming data
        to arrive at distinguishing feature (c).

4.5   Lastly, the board considers the problem of simplifying
        the operation of the client and the problem of enabling
        seamless playback of streaming data to be partial
        problems that the person skilled in the art would
        address separately.

4.6   For these reasons, the board concludes that the
        subject-matter of claim 1 according to the second
        auxiliary request does not involve an inventive step
        (Article 56 EPC).

5.   *Conclusion*

        As a result of the above, none of the appellant's
        requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke   M. Paci

Decision electronically authenticated