

(19) (KR)
(12) (A)

(51) 。 Int. Cl.7
G06F 17/00
G06F 17/30

(11)
(43)

10-2005-0002681
2005 01 10

(21) 10-2004-0070337 ()
(22) 2004 09 03
(62) 20-2004-7000003
: 2004 03 19

(30) 60/221,394 2000 07 24 (US)
60/221,843 2000 07 28 (US)
60/222,373 2000 07 31 (US)
60/271,908 2001 02 27 (US)
60/291,728 2001 05 17 (US)

(71) 94306 4180

(72) 4 8-402

1가 101-308

204-303

2 609-42

5 108-1701

425-1402

(74)

:

(54) 가

(tagging), (indexing), ,

가

(

) ()

가 ,

1

, , , , ,

1

2

3

4

5

가

6

7 6
okmarks)

(list of multimedia bo

8

가

9

10

11

12

13

14

15

16

17 가

18 (18A) 가 (18B)

19 , 가

20 19 가 가 2040

21 가

22 19 1 XML

23 19 2 XML

24 19 3 XML

25 22, 23, 24 가 1, 2, 3 XML

26 ID 22, 23, 24 1, 가 2, 3 XML

27 25 26 XML

28 가 가

(marking)

(tag)

(metadata)

1. (Multimedia Bookmark)

가

가

가

가,

(streaming)

가

(browsing)

(bookmark)

marking)

()
URI(Uniform Resource Identifier)
. Microsoft

(ma

, URL URI
 가 URI 가 가
 1 (positional information) 112 (title) 114 110 108
 112 URI (bookmarked position) 106 (byte position) 114
 가 가 가 가
 가 (buffering) 가 (variation) 가
 가, (format) MPEG, ASF, RM, MOV 가
 AVI, MIDI, MP3 WAV 가 (s
 egment) (c
 ontent information) 가
 가 가
 가 가 가 가
 가 가 가 가
 / 가
 (variation file) 가
 (bandwidth) , CNN.com : Microsoft ASF (28.8 K
 bps, 80 Kbps), RealNetworks RM (28.8 Kbps, 80 Kbps), Apple QuickTime (56 Kbps).
 (mismatch of time point) 가
 (media time point)
 가 (, 28.8 Kbps
) (, 80 Kbps)
 가 1 , 1

2. 가 (Virtual Video Editing)

(cut and paste) 가

가 (original input video)

가 (metadata)

가

(streaming) 가 DVD, Video CD

(key frame) (annotation) 가

(hierarchical structure) (metafile) DBMS(database man

agement system)

가 가

1. _____

(segment)가 (intermediate point) (multimedia b

ookmark) (content information) 가 (c

ookmarked position) (b

(indexing), (rendering)

URI, (time code) (positional information)

가

가 (feature)

가

(attachment)

가

가

2. 가

(virtual editing)
URI

가
CD-ROM, DVD,

(streaming)

가
가

가

(composing segment)

가

URI
(component segment)

URI

URI

URL

URL

URL

URL

가

(virtual video editor)

가
(network controller),
(file controller)

(input buffer)

(parser),

(structure manager),
(component
generator)

(sing buffer),
generator)

가

generator),

(playlist

(video player)

가
(display device)

1.

가

(description)

(master file)

()

가

(tag)

GUID(global unique identifiers)

GUID

GUID

GUID 가 GUID

GUID 가 GUID

GUID

2 (positional information) 212 (content information) 214

210 212 204 206

214 208

214

212 () URI (

) URI , URL (a

(identifier) (textual feature) 214 (a

204 (capturing) (sampling) 20

210 (elapsed Time) 212 URI, (time code)

(thumbnail) 214 (color histogram)

210 214

() 212 URI 214

214

2 URI 214 (byte offset) 21

3 314 (2 214)

322, 324 320, 328 314

326 가 URI 가 가 330

가 , 가 가 가 , URI

2 214) , 310 314 (

28, 330 322, 314 324, 328 3

(content-based) (text-based)

310 URI URL, 가 ,

334 336 ,

가 334

4 322 가

4 (node) (tree)

feature vector) D_f (maximum distance)

414 D_f 414 416 418 가

(color histogram) $d(fq, fm) > D_f + e$ fq 가 fq

m fm (distance matrix) , e $d(fq, fm)$ L1 nor

(pruning) fm ,

5 502 가 (variation) 5 28.8 80kb

ps 가 , ASF 504 506 80k

bps 가 RM 508 . RM 508 , ASF 504 506 504, 506

o_1 RM 508 o_1 , RM o_4 가

ASF 514 RM 508 514

514 ASF 504 506 o_1 RM 508 514

, 28.8kbps 가 RM 510 o_2 o_1 가

06 MOV 514 가 o_2 514 ASF 504 5

가 512 가 가 56kbps

(slave file) 5 , 80kbps (master file) ASF 504

t) 502 가 (offse

ference), (byte difference) o_1, o_2 o_3 가 (time dif

o_1 o_3 , o_2 가 5

o_1 o_3 , o_2 0 가 ,

(bookmarked file)

(playback file)

5

가

(media profile)

URI

(time scale factor)

가

0 1

, 0.5

2

1

2

가

1 5

1

MPEG-7

ISO/IEC MPEG-7

XML Schema

X

ML

512

508, 510, 512

504

$o_1=2, o_2=-3$

가

$o_3=10$

가

가

표 1. 변형에 대한 메타데이터의 예

```

<VariationSet>
  <Source>
    <Video>
      <MediaLocator>
        <MediaUri>http://www.server.com/sample-80.asf</MediaUri>
      </MediaLocator>
    </Video>
  </Source>
  <Variation timeOffset="PT0S" timeScale="1">
    <Source>
      <Video>
        <MediaLocator>
          <MediaUri>http://www.server.com/sample-28.asf</MediaUri>
        </MediaLocator>
      </Video>
    </Source>
    <VariationRelationship>alternativeMediaProfile</VariationRelationship>
  </Variation>
  <Variation timeOffset="PT3S" timeScale="1">
    <Source>
      <Video>
        <MediaLocator>
          <MediaUri>http://www.server.com/sample-80.rm</MediaUri>
        </MediaLocator>
      </Video>
    </Source>
    <VariationRelationship>alternativeMediaProfile</VariationRelationship>
  </Variation>
  <Variation timeOffset="-PT2S" timeScale="1">
    <Source>
      <Video>
        <MediaLocator>
          <MediaUri>http://www.server.com/sample-28.rm</MediaUri>
        </MediaLocator>
      </Video>
    </Source>
    <VariationRelationship>alternativeMediaProfile</VariationRelationship>
  </Variation>
  <Variation timeOffset="PT10S" timeScale="0.5">
    <Source>
      <Video>
        <MediaLocator>
          <MediaUri>http://www.server.com/sample-56.mov</MediaUri>
        </MediaLocator>
      </Video>
    </Source>
    <VariationRelationship>alternativeMediaProfile</VariationRelationship>
    <VariationRelationship>temporalReduction</VariationRelationship>
  </Variation>
</VariationSet>

```

6 가 , 가 602 가
 , 가 , 가 604 . 6
 , U URI, O 6 , URI,
 2 , 610 , 602
 612 . 612 610 URI
 .
 가 , , (list of variations) 가
 , , 가
 .
 URI
 (ID)
 ID ID 가 가 URI,
 ID 가 가 .

7 6 (list of multimedia boo
 kmarks) 606
 704 706, 702 6 708
 630 ID, 'Metadata1'
 634 636 702
 ID, 'Metadata2' 710 712가 URI,
 BP , CI , BP CI U URI,
 가 , 7 ID URI,
 가

(adjusted bookmarked position)

$s = s_p / s_b$ (time scale rati
 o)가 P_p , P_b , O_b , O_p

$$P_p = s \times P_b \text{ if } O_p = s \times O_b$$

$$P_p = s \times P_b + (|O_p| + |s \times O_b|) \text{ if } O_p > 0 > s \times O_b$$

$$P_p = s \times P_b + (|O_p - s \times O_b|) \text{ if } O_p > s \times O_b \text{ or } 0 < O_p < s \times O_b$$

$$P_p = s \times P_b - (|O_p| + |s \times O_b|) \text{ if } O_p < 0 < s \times O_b$$

$$P_p = s \times P_b - (|O_p - s \times O_b|) \text{ if } 0 < O_p < s \times O_b \text{ or } O_p < s \times O_b < 0$$

8 가 802, 80
 4, 806, 808, 810 8
 가 1, s = 1

(durable multimedia bookmark syst

em) 6 7 가 6
 610 7 706 가
 606 706 606 ,
 ID 'Metadata1' 602 608 602 612
 602 706 BP2
 612 URI

5 502

(referential segment) 5 A 514

It variation) 1014 가
 1016 , 1018
 1020 가 VCR (, , , , ,)
) (가 VCR , 1024 VC
 R 가 (1026, 1030, 1034, 1038, 1042, 1046)
 4 가 (1028, 1032, 1036, 1040, 1044, 1048) 100
 910, 916 , 1006, 1010, 1014 904,
 900
 11 10 1026
 , 11 1028 1102
 1104 URI 1106 (time code)
 가
 , 1108 1110 가
 , 1112 URI,
 , 1124 1114
 , 1116 가
 1120 1120
), 1122 가 (1122
 가 ID
 1122 1124 1124 ID
 URI, 1126 ID
 1128
 1610 16 1610
 (clearing-off routine)
 16 1610 가 1612가
 , 10 1002 가
 10 1016 가 VCR
 12 10 1030
 , 12 1032 1202 URI,
 ID 1204 URI가
 가 URI
 , 10 1044 / 가
 , 1208 가 , 1206 / 가
 가 10 1044 가 가 (, 1210 1204 1206
 가), 1212 ID가 가 ID가 가
 가 , 1222 가 가 가
 ID가 가 1214 , 1216
 ID 1218
 1220
 1210, 1220, 1222 , 16 1610
 13 10 1034
 , 13 1036 1302
 가 1304
 16 1610

1520 (retrieved segment) /
 가 1530, 1532, 1534 1522
 1524 가 1526
 1528 (retrieved position) 1530
 가 1532
 1504 1534 가 16 1610
 가 가 가 2 가
 가 가 가

표 2. 검색 유형별 이용 가능한 북마크 정보

검색 유형	이용 가능한 북마크 정보		
	캡춰된 이미지	위치 정보	텍스트 주석
A	√		
B		√	
C			√
D	√	√	
E	√		√
F		√	√
G	√	√	√

가. A:

가

B:

가 가 URI) (

C:

가

D:

A B

E:

가

F:

가

G:

가 가 가

E F

16

URI, 16, 1048, 1602, 1604, 가, ID, 1608, 1610

10 1046

1606

(bookmarked information)

URI

()

()

ID

(opener page) URI

(,)

(, , ,)

가

(streaming)

가

가
(default title)

가

가

가

가

가

가

가 가

가

(watermarking)

URI

가

HTML

: HTML

HTML

HTML

가

HTML

가
Base-16

(binary file)
Base-64

.HTM

L
(test string)

HTML
(inline media)

HTML
가

, HTML

HTML

HTML

3

HTML

표 3. 북마크 정보를 나타내는 HTML 문서의 예

```

<Html>
  <Body>
    <Object id="IMDisplay" codebase=http://ww.server.com/BookmarkViewer
      classid=CLSID:FFD1F137-722C-46B7VIEWASTEXT>
      <Param name="BookmarkedFile" value="mms://www.server.com/sample.meg">
      <Param name="BookmarkedPosition" value="435.7870549999995">
      <Param name="OpenerURL" value="http://www.server.com/sample.html">
      <Param name="BookmarkTitle" value="Sample Title">
      <Param name="BookmarkDate" value="July 24">
      <!-- Inline media: character coded binary image -->
      <Param name="CapturedImage"
value="/9j/4AAqskAJRgABAQAAAQABAAD2wBDAAMCAgMCAfMDAwMEAwMEBQGFBQQEB
QoJBwUODApMDAsKCwsMDhIQDO4RDgsLEBYQERMWFRWVDA8XGBUIGBIRFRT/weBDAQ
MEGAUEBQkFBQkUDQsNFBQUFBQUGBQUFBQUFxFxXlueakJ9+7DbsbICEI.waAvfIP3htpVE9yHt
Y12pawxwoI0MqyFUWhCrheoUYAAB8AYGD41RR&Fdyrva59E6f/
0F4sHV7bXNGvDp2twWJb20zb20vGsk8JUkEapENKuugKsSD56eW2fkEx/GfxZ9WfEexpW29SarJqp
HkIoNgH4o1aGNifZAUMB+VeAk4xK59OooVL1-uFz/2Q==">
    </Object>
  </Body>
</Html>

```

17 가
 1704 , 1702 , 1708
 가
 1706 , 1710 가
 1706
 , 1712 9
 1714
 가
 가 , 1716
 가 1718 가
 , 12 1032
 가 가

(attachment attached file)
 가
 (option flag) 가 가
 :
 (enclose)' (attach)'

가 ,
 ,

2. 가

CD-ROM, DVD,
 WAN(wide area network) LAN(local area network) (streaming)
 (browsing),

0 . 20 19 가 가 2008 가 204

20 19 가 가 5 (2014) 2042 2044 가 . 204

c (2020) 2046 , 2040 A (2026) C (2032) ,가

2048 2050 20 가 가 가

(copy) , 가 가 가

ID , URI URL URI

가 가 가 가 가

가 가 URL URL URL 가 가 가

URL (child node) URL URL URL

URL (play list) ,

21 가 가 가 DBMS 가

21 가 가 가 DBMS 가 DBMS

가 가 가 21 (database object) (key)

21 가 2102 2104

2106 (composing buffer)

2108 가 No 2110 2110

2106 Yes (2106 No)

2104 2112 2104 URI

2116 2110 가 () 2104

(2118) 2104 2114 2110

URI URL 2114 2116

de) URL . 2120 URL (sibling no

4 , 2122 URL URL 212

가 가 가 가 가

2104 2126 2102

가 가

<StartTime> 230 </StartTime> <MediaDuration> 150 </MediaDuration>

<Keyframe> ... </Keyframe> <Annotation> ... </Annotation>

...

</Segment>

21 , 가 .
'seg_c' . (25 .)

<Segment id=' seg_c ' title='segment c' duration='150'>

<MediaURI> //www.video.server1/video2 </MediaURI>

<StartTime> 230 </StartTime> <MediaDuration> 150 </MediaDuration>

<Keyframe> ... </Keyframe> <Annotation> ... </Annotation>

...

</Segment>

, 'seg_c' URI . (26 .)

<Segment xlink:form='simple' show='embed'

href=' //www.video.server1/metafile2.xml#id(seg_c) '>

<MediaURI> //www.video.server1/video2 </MediaURI>

</Segment>

가 URL . ,

(play list generator) 2836
가 가 .
URL , 27
2838 .
(display device) 2840
XML (XML generator) 2834 2842 .

가 .

가 .

1.

(multimedia bookmark)

,

content information)

(positional information)

(c

,

2.

가

(variation)

(multimedia bookmark)

,

set)

,

(off

가

,

,

가

3.

1

2

,

(content information)

가

,

,

4.

3

,

가

(key video frame)

(video frame)

.

5.

1

2

,

(positional information)

가

(time code)

(byte offset)

,

6.

5 ,
(elapsed time) (byte length)

7.
1 2 ,
(character string)

8.
1 2 ,
(local storage)

9.
1 2 ,
가

10.
1 2 ,

11.
1 2 ,
가

12.
2 ,
(metadata) (media profile)

13.
2 ,

(referential segment)

14. 1 2 , ,

15.

1 , 2 , 3 , () , 4 , 5 , 6 , 7

(add-bookmark)

16.

(feature) 1 , (query) 2 , 가 3 , 4

17.

16 ,

2 3 ,

16 18.

2 3 ,

가 가

16 19.

2 3 ,

16 20.

4

5 ,

6 ,

4

7

21.

가

1 ,

가 ,

2 ,

가 ,

3

22.

가

가

(virtual video editing)

가

1 ,

2 ,

3 ,

4 ,

가 ,

22 23. ,

2 ,

22 24. ,

2 ,

ID

22 25. ,

XML

22 26. ,

22 27. ,

22 28. ,

,

가 1 ,

2 ,

(composing segment)

3 ,

(component segment)

4 ,

URI

5 ,

2

4

6 ,

URI

2

URI

4

7 ,

URL

8 ,

8

URL

9 ,

URL

URL

URL

10

29.

28

가

2

30.

28

가

1

31.

15

30

32.

URL,

가

(virtual video editor)

가

가

(network controller),

(file controller),

가

(parser),

가

(input buffer),

가

(structure manager),

(composing buffer),

(genera

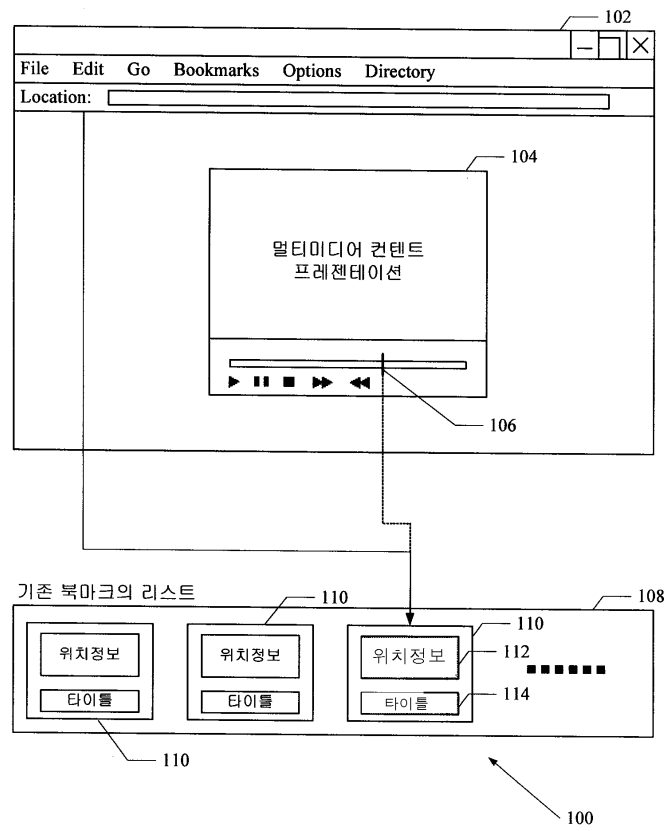
tor),

가
(play list generator),

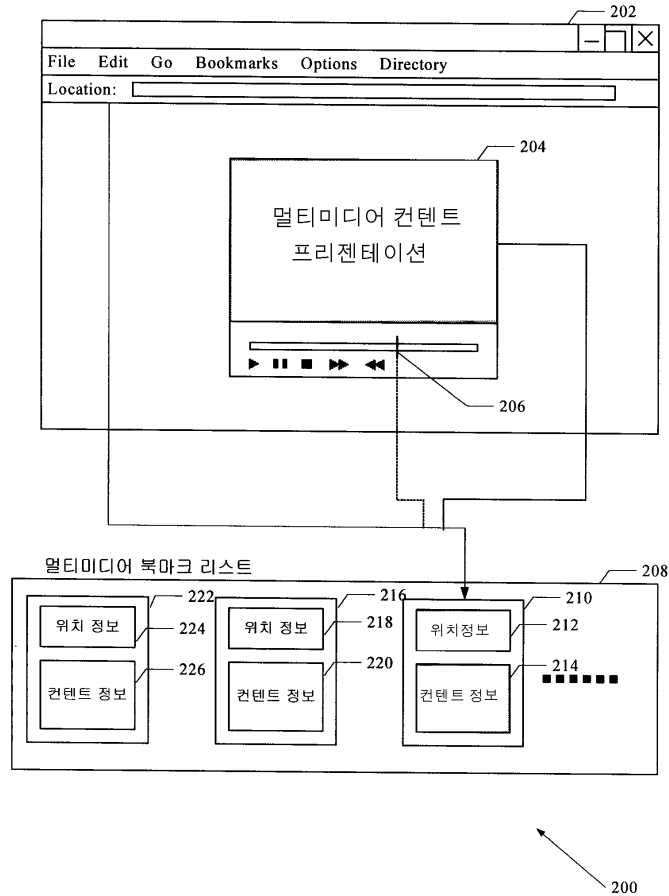
가
(video player)

가

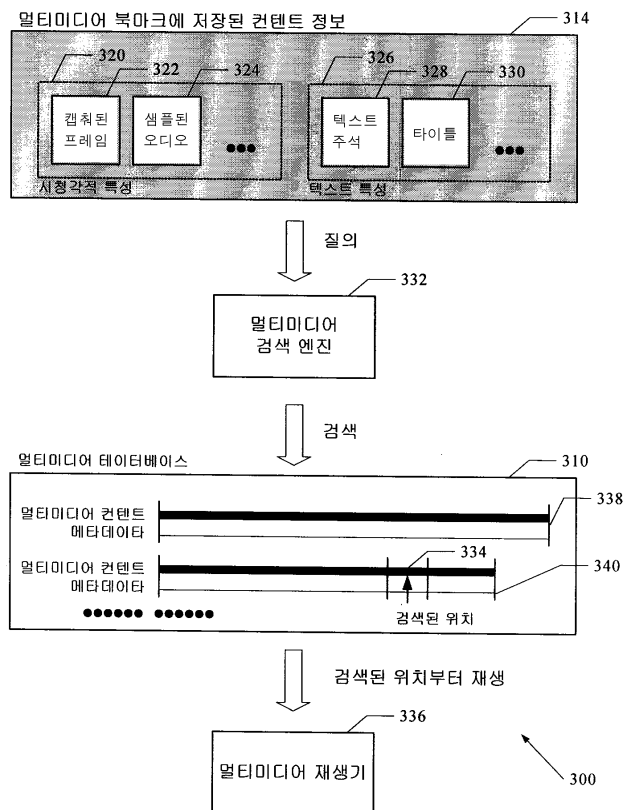
1



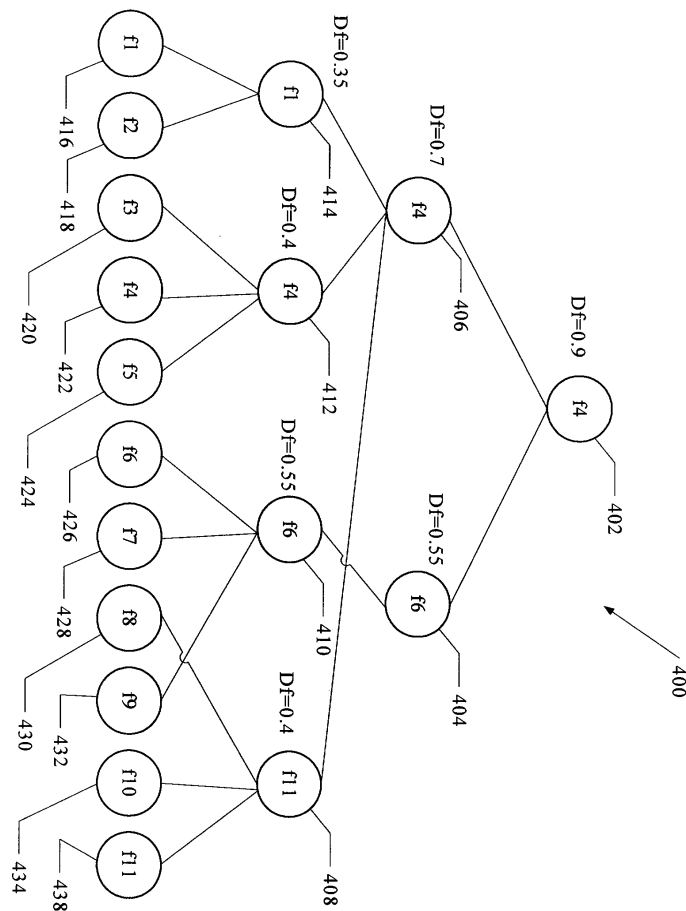
2



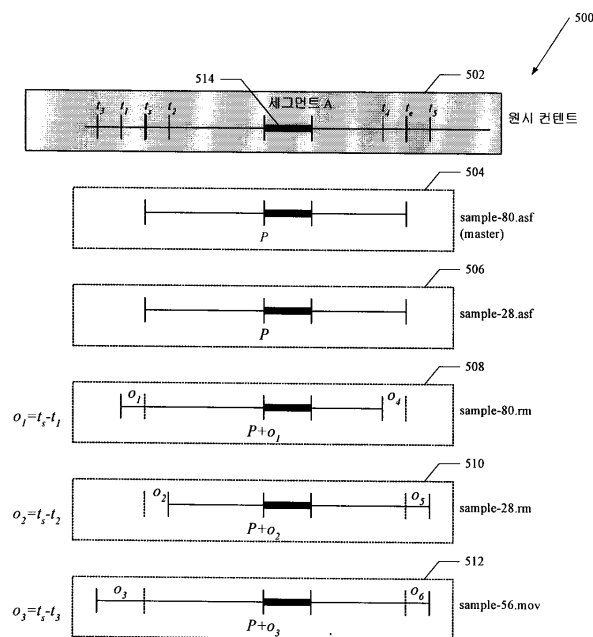
3



4

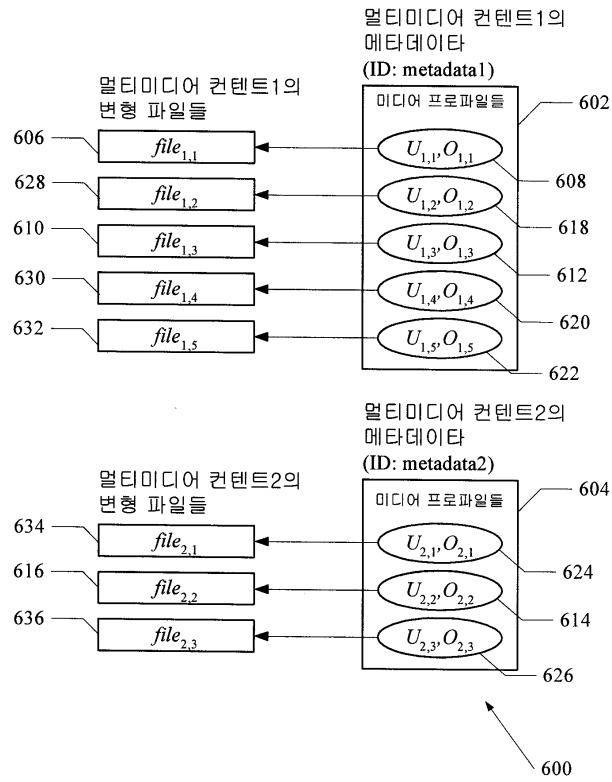


5

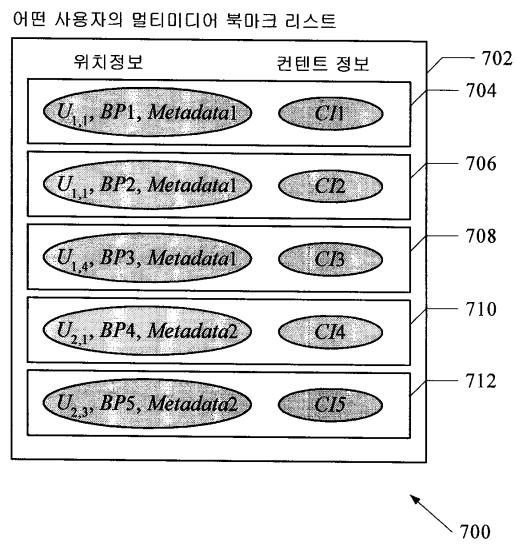


* The media time point P is a start time of the segment A in the master file.

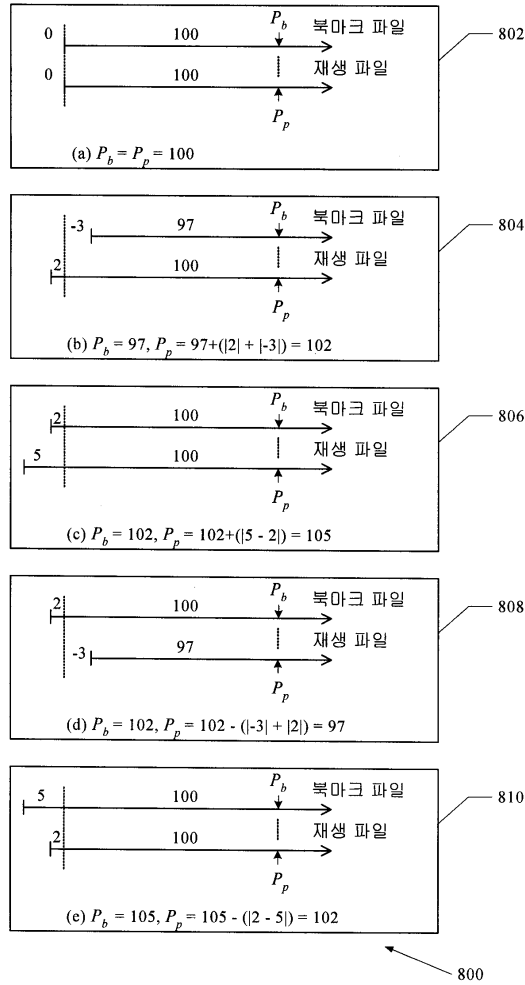
6



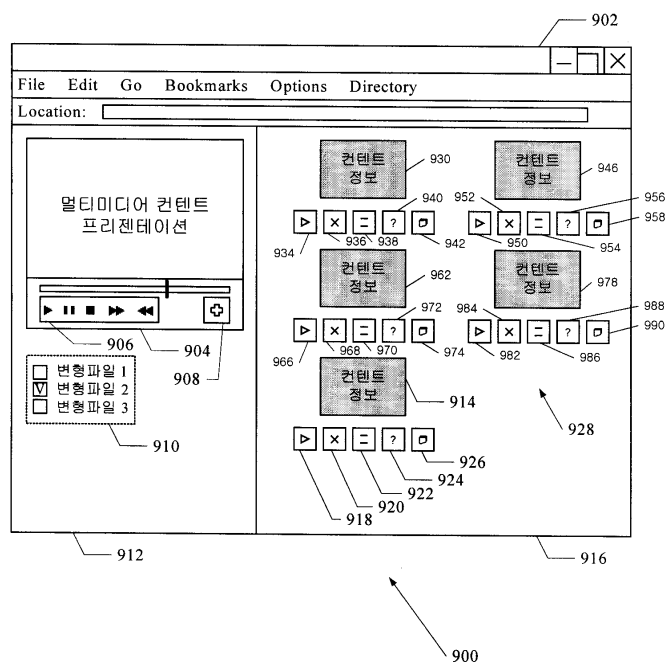
7



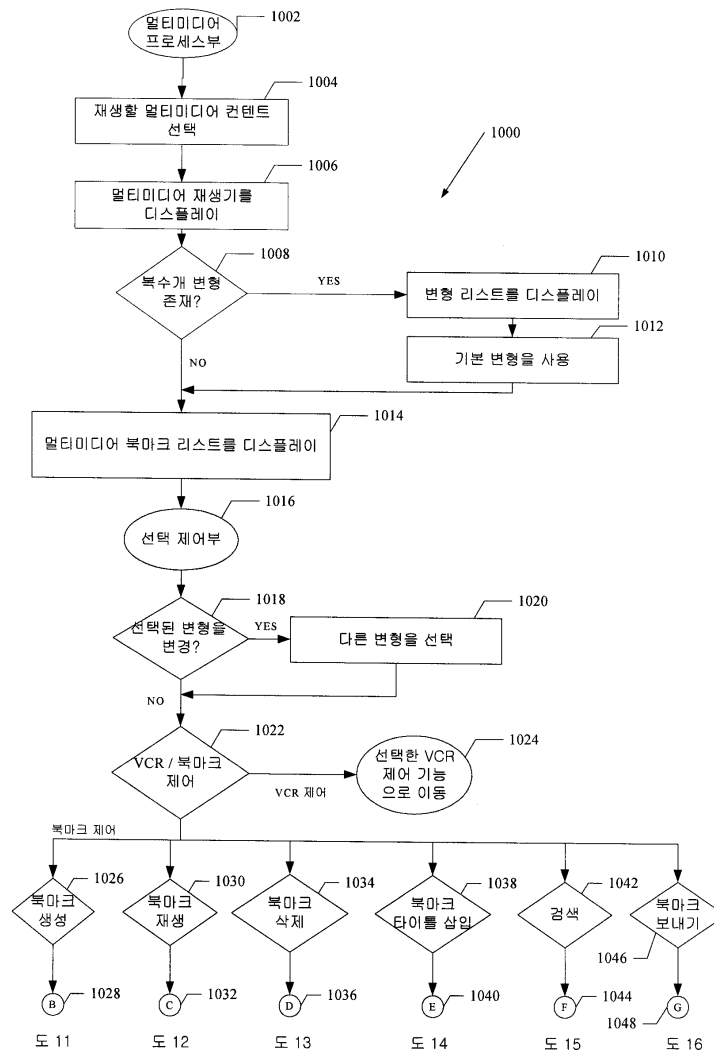
8

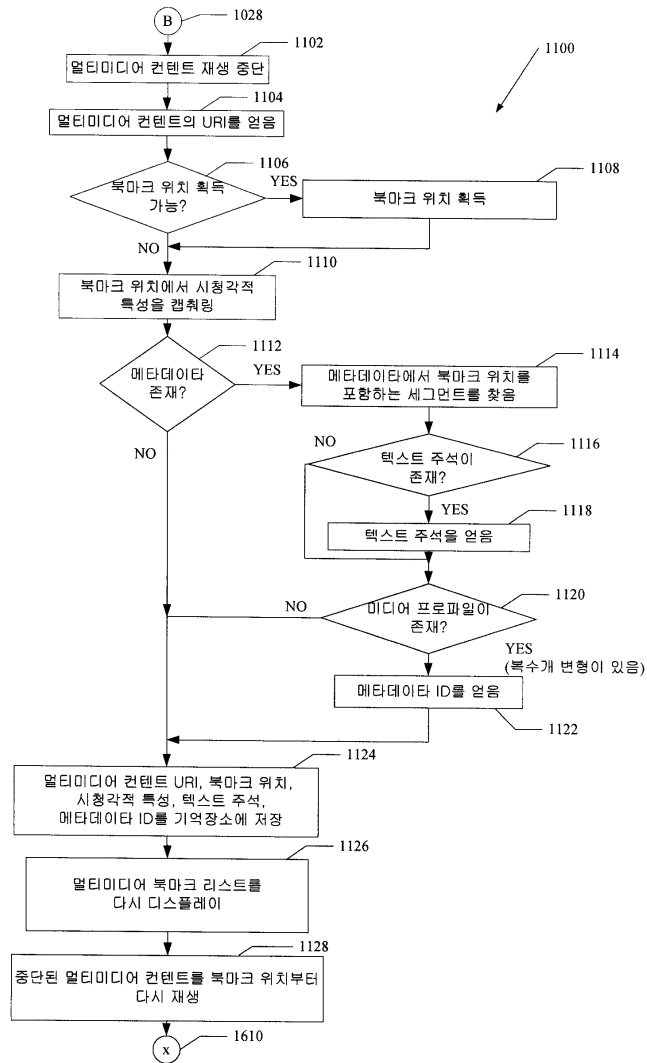


9

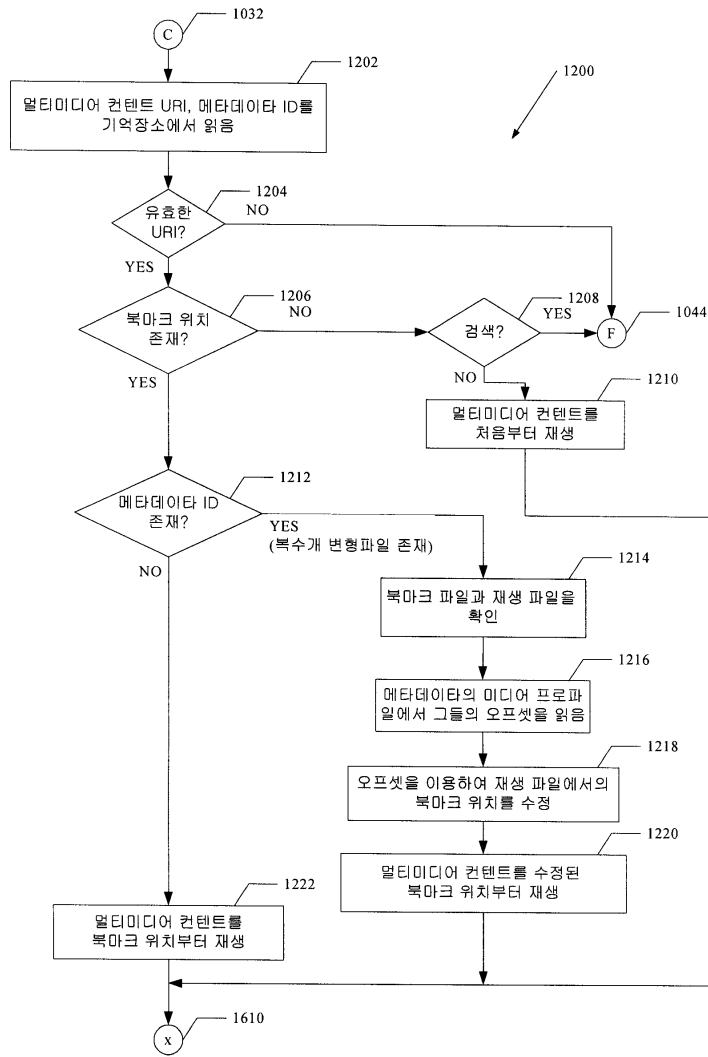


10

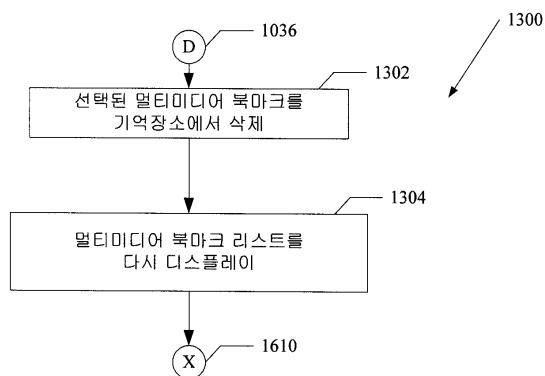




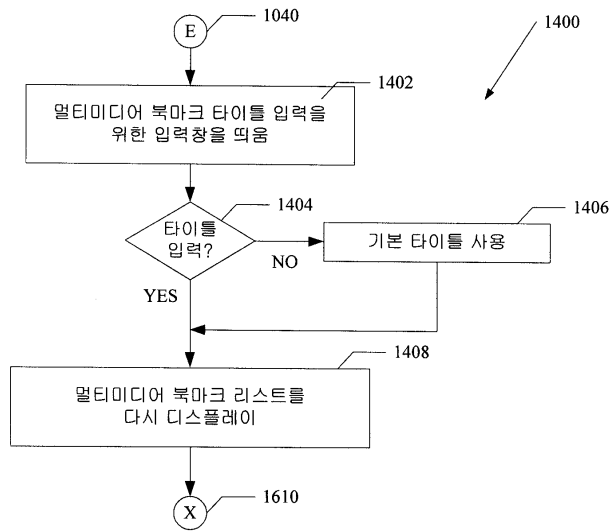
12



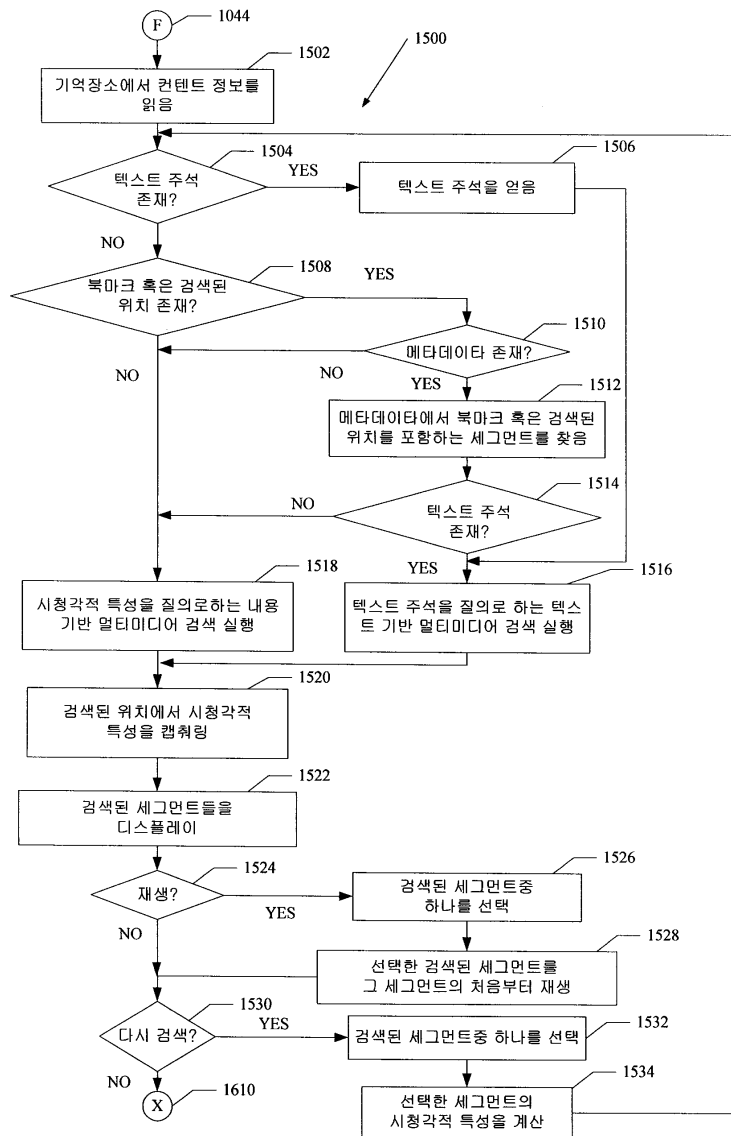
13



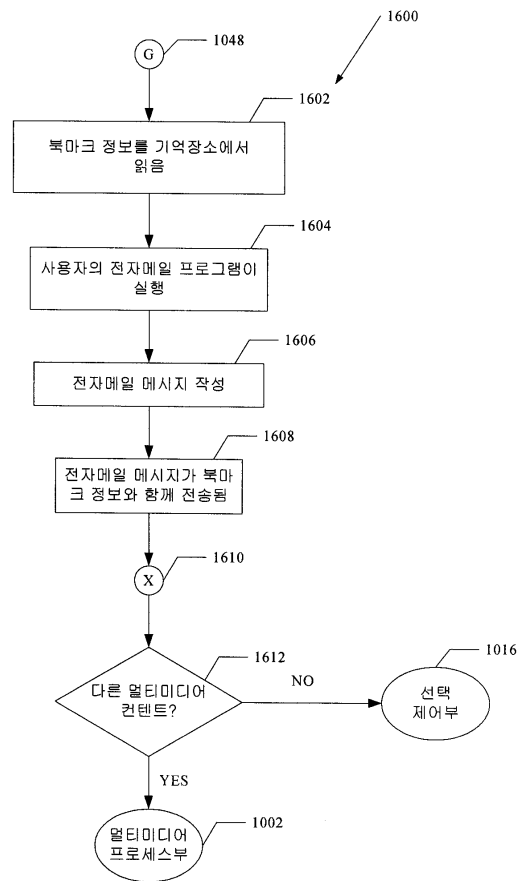
14



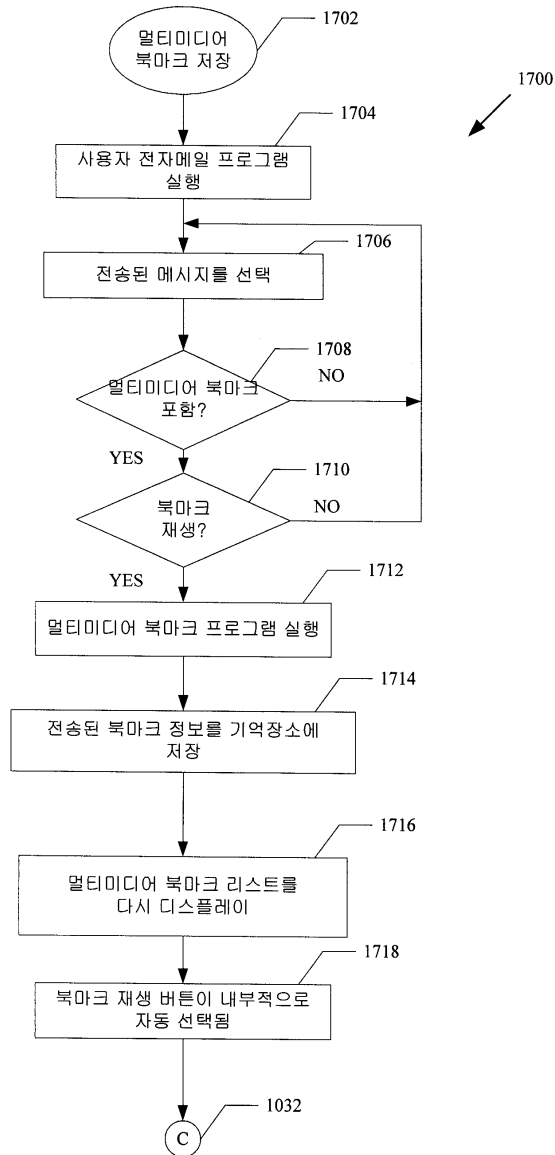
15



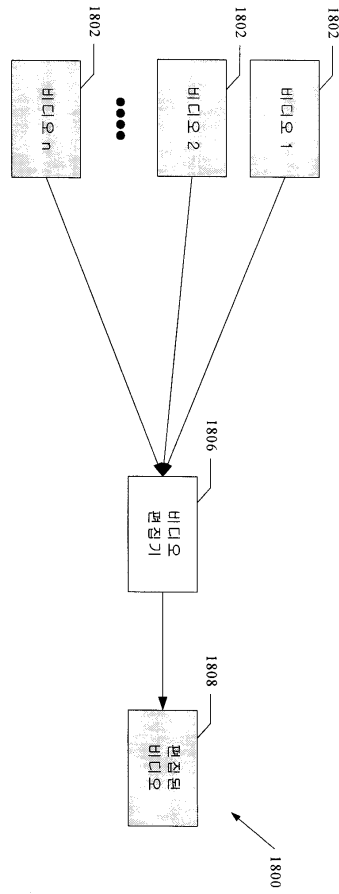
16



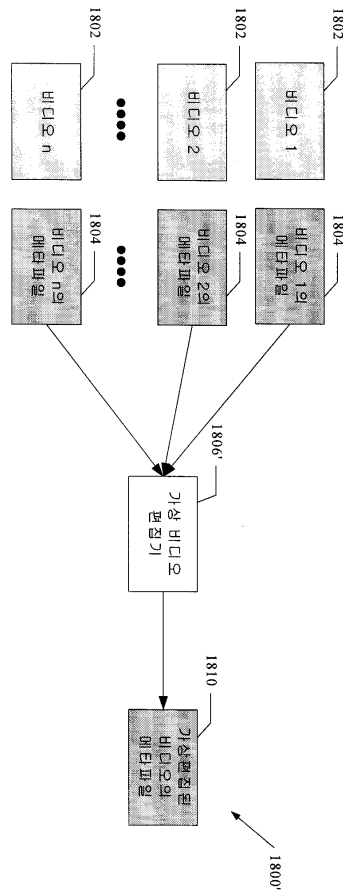
17



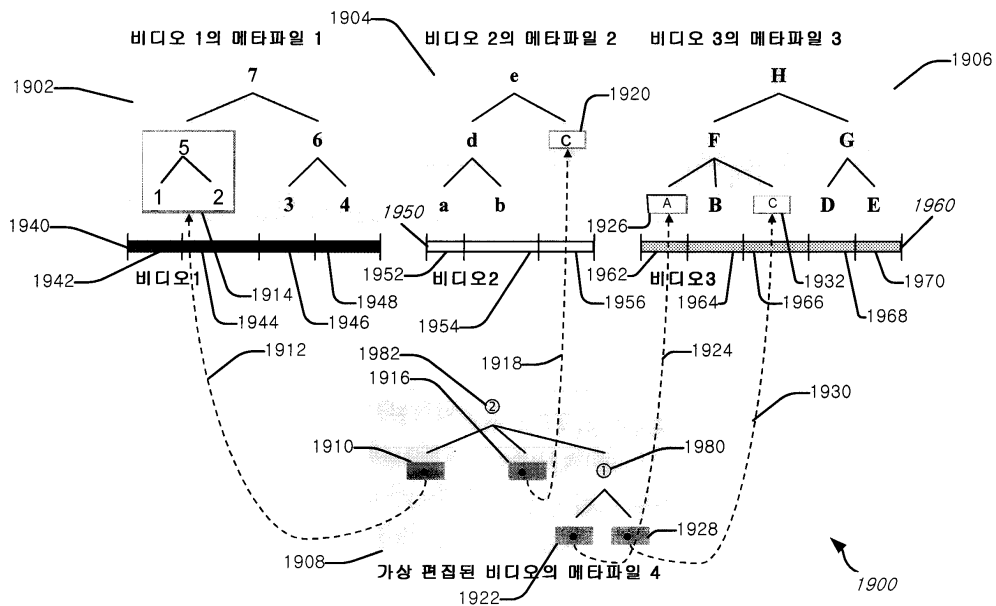
18a



18b

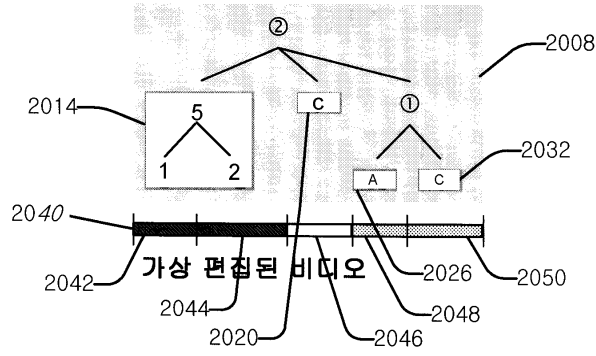


19

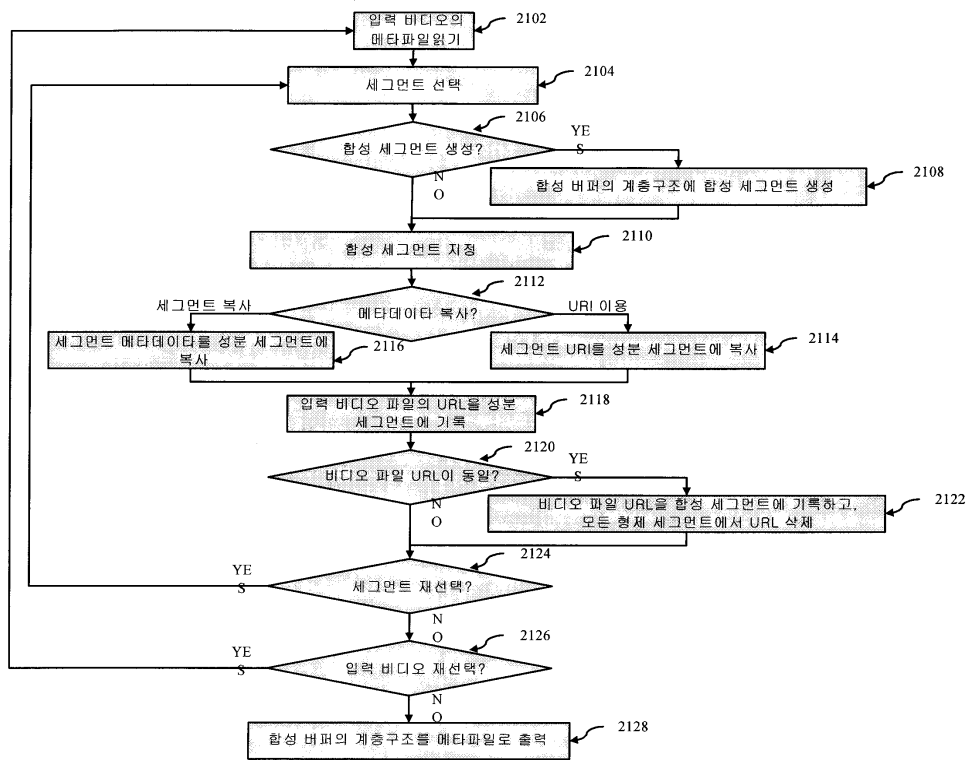


20

가상 편집된 비디오의 메타파일 4



21



22

```

<!-- 서버 1에 저장된 비디오 1의 메타파일 metafile1.xml -->
<Metadata>
  <Segment id="seg_7" title="segment 7" duration="580">
    <MediaURI> //www.video_server1/video1 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 580 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_5" title="segment 5" duration="300">
    <StartTime> 0 </StartTime> <MediaDuration> 300 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_1" title="segment 1" duration="100">
    <StartTime> 0 </StartTime> <MediaDuration> 100 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_2" title="segment 2" duration="200">
    <StartTime> 100 </StartTime> <MediaDuration> 200 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
  <Segment id="seg_6" title="segment 6" duration="280">
    <StartTime> 300 </StartTime> <MediaDuration> 280 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_3" title="segment 3" duration="110">
    <StartTime> 300 </StartTime> <MediaDuration> 110 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_4" title="segment 4" duration="170">
    <StartTime> 410 </StartTime> <MediaDuration> 170 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
</Segment>
</Metadata>

```

23

```

<!-- 서버 1에 저장된 비디오 2의 메타파일 metafile2.xml -->
<Metadata>
  <Segment id="seg_e" title="segment e" duration="380">
    <MediaURI> //www.video_server1/video2 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 380 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_d" title="segment d" duration="230">
    <StartTime> 0 </StartTime> <MediaDuration> 230 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_a" title="segment a" duration="50">
    <StartTime> 0 </StartTime> <MediaDuration> 50 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_b" title="segment b" duration="180">
    <StartTime> 50 </StartTime> <MediaDuration> 180 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
  <Segment id="seg_c" title="segment c" duration="150">
    <StartTime> 230 </StartTime> <MediaDuration> 150 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
</Metadata>

```

```

<!-- 서버 2에 저장된 비디오 3의 메타파일 metafile3.xml. -->
<Metadata>
  <Segment id="seg_H" title="segment H" duration="620">
    <MediaURI> //www.video.server2/video3 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 620 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_F" title="segment F" duration="410">
    <StartTime> 0 </StartTime> <MediaDuration> 410 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  <Segment id="seg_A" title="segment A" duration="80">
    <StartTime> 0 </StartTime> <MediaDuration> 80 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_B" title="segment B" duration="150">
    <StartTime> 80 </StartTime> <MediaDuration> 150 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_C" title="segment C" duration="180">
    <StartTime> 230 </StartTime> <MediaDuration> 180 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
  <Segment id="seg_G" title="segment G" duration="210">
    <StartTime> 410 </StartTime> <MediaDuration> 210 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  <Segment id="seg_D" title="segment D" duration="110">
    <StartTime> 410 </StartTime> <MediaDuration> 110 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_E" title="segment E" duration="100">
    <StartTime> 520 </StartTime> <MediaDuration> 100 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
</Segment>
</Metadata>

```

25

```

<!-- 세그먼트 메타데이터를 복사하는 방식에 따라 가상 편집된 비디오의 메타파일
metafile4.xml -->
<Metadata>
  <Segment id="seg_㉔" title="segment ㉔" duration="710">
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_5" title="segment 5" duration="300">
    <MediaURI> //www.video.server1/video1 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 300 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  <Segment id="seg_1" title="segment 1" duration="100">
    <StartTime> 0 </StartTime> <MediaDuration> 100 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_2" title="segment 2" duration="200">
    <StartTime> 100 </StartTime> <MediaDuration> 200 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
  <Segment id="seg_c" title="segment c" duration="150">
    <MediaURI> //www.video.server1/video2 </MediaURI>
    <StartTime> 230 </StartTime> <MediaDuration> 150 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_㉑" title="segment ㉑" duration="260">
    <MediaURI> //www.video.server2/video3 </MediaURI>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  <Segment id="seg_A" title="segment A" duration="80">
    <StartTime> 0 </StartTime> <MediaDuration> 80 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment id="seg_C" title="segment C" duration="180">
    <StartTime> 230 </StartTime> <MediaDuration> 180 </MediaDuration>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
</Segment>
</Metadata>

```

26

```

<!-- 세그먼트 URI를 복사하는 방식에 따라 가상편집된 비디오의 메타파일 metafile4.xml -->
<Metadata>
  <Segment id="seg_㉔" title="segment ㉔" duration="710">
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  </Segment>
  <Segment xlink:form="simple" show="embed"
    href="//www.video.server1/metafile1.xml#id(seg_5)">
    <MediaURI> //www.video.server1/video1 </MediaURI>
  </Segment>
  <Segment xlink:form="simple" show="embed"
    href="//www.video.server1/metafile2.xml#id(seg_c)">
    <MediaURI> //www.video.server1/video2 </MediaURI>
  </Segment>
  <Segment id="seg_㉑" title="segment ㉑" duration="260">
    <MediaURI> //www.video.server2/video3 </MediaURI>
    <Keyframe> . . . . </Keyframe> <Annotation> . . . . </Annotation>
    . . . .
  <Segment xlink:form="simple" show="embed"
    href="//www.video.server2/metafile3.xml#id(seg_A)">
  </Segment>
  <Segment xlink:form="simple" show="embed"
    href="//www.video.server2/metafile3.xml#id(seg_C)">
  </Segment>
</Segment>
</Metadata>

```

27

```

<!-- 메타파일 metafile4.xml의 최상위 세그먼트에 대한 재생 리스트 -->
<Playlist>
  <MediaSegment>
    <MediaURI> //www.video_server1/video1 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 300 </MediaDuration>
  </MediaSegment>

  <MediaSegment>
    <MediaURI> //www.video_server1/video2 </MediaURI>
    <StartTime> 230 </StartTime> <MediaDuration> 150 </MediaDuration>
  </MediaSegment>

  <MediaSegment>
    <MediaURI> //www.video_server2/video3 </MediaURI>
    <StartTime> 0 </StartTime> <MediaDuration> 80 </MediaDuration>
  </MediaSegment>

  <MediaSegment>
    <MediaURI> //www.video_server2/video3 </MediaURI>
    <StartTime> 230 </StartTime> <MediaDuration> 180 </MediaDuration>
  </MediaSegment>
</Playlist>
    
```

28

