Description

Title of Invention

INFORMATION PROCESSING DEVICE, CONTENT REQUESTING METHOD, AND COMPUTER PROGRAM

Technical Field

[0001]

The present disclosure relates to an information processing device, a content requesting method, and a computer program.

Background Art

[0002]

In recent years, there are widely used the hypertext transfer protocol (HTTP) for transferring contents and the MP4 related to content compression encoding. The HTTP enables not only downloading of contents but also streaming thereof on the Internet. The HTTP streaming is also adopted in network media standards such as "DLNA guidelines" (2006) and "Open IPTV Forum" (2009). Moreover, the MP4 (ISO/IEC-14496-12, 14) can be used not only as a storage format but also as a transmission format for downloading and streaming, for example.

[0003]

Regarding the streaming, the adaptive bit rate streaming (ABS) technique is known, as described in Non-Patent Literature below. The ABS technique is a technique in which a plurality of pieces of encoded data having the same content expressed at different bit rates are stored in a content server so that a client selects any piece of encoded data among the plurality of pieces of encoded data in accordance with a network band and reproduces the encoded data.

[0004]

In the case of normal streaming, when a network band becomes below a bit rate, the data supply becomes incapable of catching up with the consumption, and the buffering data on the client side is depleted. As a result, the client cannot continue reproduction. By contrast, in the ABS technique, the reproduction data is switched to encoded data of a low bit rate when a band becomes narrow. Thus, it is possible to suppress breaks during reproduction.

[0005]

In the field of this ABS technique, a technology of remotely controlling a network camera from a client side has been proposed as in Non-Patent Literature 2 described below. In addition, in regard to the field of the ABS technique, a technology for executing redirection

of appropriately changing a server serving as a distribution destination while a parameter is added on a server side and the parameter is stored by a client has also been proposed as described in Non-Patent Literature 3.

Citation List

Non-Patent Literature

[0006]

Non-Patent Literature 1: MPEG-DASH (Dynamic Adaptive Streaming over HTTP) (URL: http://mpeg.chiariglione.org/standards/mpeg-dash/media-presentation-description-and-segment-formats/text-isoiec-23009-12012-dam-1)

Non-Patent Literature 2: m28017 DASH: Device/Server Specific Representation in MPD (CE-URLPARAM), MPEG#103, Geneva, 2013

Non-Patent Literature 3: m28354 Core Experiment on Parameters Insertion in Media Segment URL, MPEG#103, Geneva, 2013

Summary of Invention

Technical Problem

[0007]

When the ABS technique is used in an application in which a client remotely controls a device as in the remote control of the network camera, the amount of information described in meta information becomes greater as the control becomes more detailed. When the amount of information described in the meta information becomes greater, maintainability thereof deteriorates accordingly.

[0008]

Therefore, the present disclosure provides a novel and improved information processing device, content requesting method, and computer program in which maintenance is enabled by avoiding an increase in an amount of the meta information when a device is remotely controlled by a client using the ABS technique.

Solution to Problem

[0009]

Disclosed herein is an information processing device including: a storage unit configured to store a predetermined definition for adding a parameter to access information for accessing each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate, or for accessing every element to be acquired through a request to a server described in an MPD; and a communication unit

configured to access an address defined in the access information by designating a parameter based on the predetermined definition stored in the storage unit. The address defined in the access information is an address for controlling a device which images the content.

[0009a]

According to a first aspect of the present invention, there is provided an information processing device including circuitry configured to: transmit definition information including a definition for adding a URL parameter to a URL, the URL parameter being described in a Media Presentation Description by an attribute to access each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate; receive a request for one or more of the plurality of subsegments based on a URL incorporating the URL parameter; and transmit the one or more of the plurality of subsegments.

[0010]

Disclosed herein is a content requesting method including: storing a predetermined definition for adding a parameter to access information for accessing each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate, or for accessing every element to be acquired through a request to a server described in an MPD; and designating a parameter based on the predetermined definition stored in the storage unit and accessing an address defined in the access information. The address defined in the access information is an address for controlling a device which images the content.

[0010a]

According to a second aspect of the present invention, there is provided a content requesting method including: transmitting definition information including a definition for adding a URL parameter to a URL, the URL parameter being described in a Media Presentation Description by an attribute to access each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate; receiving a request for one or more of the plurality of subsegments based on a URL incorporating the URL parameter; and transmitting the one or more of the plurality of subsegments.

[0011]

Disclosed herein is a computer program causing a computer to execute: storing a predetermined definition for adding a parameter to access information for accessing each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate, or for accessing every element to be acquired through a request to a server described in an MPD; and designating a parameter based on the predetermined

definition stored in the storage unit and accessing an address defined in the access information. The address defined in the access information is an address for controlling a device which images the content.

[0011a]

According to a third aspect of the present invention, there is provided a non-transitory computer readable medium having embodied thereon a program, which when executed by a computer causes the computer to execute a method including: transmitting definition information including a definition for adding a URL parameter to a URL, the URL parameter being described in a Media Presentation Description by an attribute to access each of a plurality of subsegments constituting each piece of encoded data obtained by encoding same content at a different bit rate; receiving a request for one or more of the plurality of subsegments based on a URL incorporating the URL parameter; and transmitting the one or more of the plurality of subsegments.

Advantageous Effects of Invention

[0012]

According to embodiments of the present invention, a novel and improved information processing device, content requesting method, and computer program in which maintenance is enabled by avoiding an increase in an amount of the meta information when a device is remotely controlled by a client using the ABS technique can be provided.

Brief Description of Drawings

[0013]

[FIG. 1] FIG. 1 is a descriptive diagram illustrating a configuration of a content reproduction system according to an embodiment of the present disclosure.

[FIG. 2] FIG. 2 is a descriptive diagram illustrating a data flow in a content reproduction system according to the present embodiment.

[FIG. 3] FIG. 3 is a descriptive diagram illustrating a concrete example of an MPD.

[FIG. 4] FIG. 4 is a functional block diagram illustrating a configuration of a content server 10 according to the present embodiment.

[FIG. 5] FIG. 5 is a functional block diagram illustrating a configuration of a content reproduction device 20 according to the present embodiment.

[FIG. 6] FIG. 6 is a functional block diagram illustrating a configuration of a content server 13 according to the present embodiment.

[FIG. 7] FIG. 7 is a descriptive diagram showing the content of a parameter description.