CLAIMS

1. A method of media communication for a server and a client device, the method comprising:

dividing a video bitstream into segments, wherein each segment belongs to a segment-type group including an open-GOP (Group of Pictures) type, wherein pictures in each segment having the open-GOP type are coded with zero or more leading pictures, and wherein each leading picture corresponds to one picture preceding a RAP (Random Access Picture) picture of the segment in an output order and being coded depending on the RAP picture of the segment and possibly one other picture in a previous segment; and

signalling leading-picture information in Representation, Adaptation Set, a media presentation description, or a similar description file comprising information about video stream content, wherein the leading-picture information is associated with a number of said zero or more leading pictures in each segment having the open-GOP type, the leading-picture information signalled using a supplemental property descriptor that includes a first indication to indicate to a decoder whether to continue to decode and present zero or more heading pictures in an original representation.

2. The method of Claim 1, wherein the RAP picture corresponds to an Intra picture.

3. The method of Claim 1, wherein the RAP picture corresponds to a DRAP (dependent RAP) picture, where each DRAP picture corresponds to a P-picture or a B-picture.

4. The method of Claim 1, wherein the leading-picture information is signalled using an attribute in the Representation or the Adaptation Set.

5. The method of Claim 4, wherein the leading-picture information is signalled using a supplemental property descriptor in the Representation or the Adaptation Set.

6. The method of Claim 5, wherein the supplemental property descriptor also includes a first indication and a second indication, and wherein the first indication indicates to a decoder whether to continue to decode and present said zero or more leading pictures in an original representation and the second indication indicates to the decoder whether to always present a higher quality-ranking picture or a higher-resolution picture of two pictures from two streams to be switched at a stream access

point (SAP).

7. A server device for media streaming to a client, the server device comprising:

an interface arranged to establish a communication connection with the client; and

one or more electronic circuits or processors configured to:

divide a video bitstream into segments, wherein each segment belongs to a segment-type group including an open-GOP (Group of Pictures) type, wherein pictures in each segment having the open-GOP type are coded with zero or more leading pictures, and wherein each leading picture corresponds to one picture preceding an Intra picture of the segment in an output order and coded depending on the Intra picture of the segment and possibly one other picture in a previous segment; and

signal leading-picture information in Representation, Adaptation Set, a media presentation description, or a similar description file comprising information about video stream content, wherein the leading-picture information is associated with a number of said zero or more leading pictures in each segment having the open-GOP type, the leading-picture information signalled using a supplemental property descriptor that includes a first indication to indicate to a decoder whether to continue to decode and present zero or more leading pictures in an original representation.

8. A method of switching representations for a client device, the method comprising:

receiving a media presentation description for video stream content, wherein the media presentation description corresponds to Adaptation Sets and Representations including an original representation and a target representation;

receiving the original representation, wherein the original representation comprises multiple first segments having a first GOP (group of picture) structure;

receiving the target representation, wherein the target representation comprises multiple second segments having a second GOP structure;

determining leading-picture information from the media presentation description, wherein the leading-picture information is associated with a number [N] of zero or more leading pictures before an Intra picture in each second segment, and each leading picture corresponds to one picture preceding a RAP (Random Access Point) picture of each second segment in an output order and being coded depending on the RAP picture of each second segment and possibly one other picture in a previous second segment, wherein N is determined from a supplemental property descriptor, wherein the supplemental property descriptor includes a first indication to indicate to a decoder whether to continue to decode and present N leading pictures in the original representation; and

presenting a switched presentation from the original representation to the target representation by switching presentation from pictures in the original representation to pictures in the target representation at a stream access point (SAP) corresponding to the RAP picture of each second segment determined according to the leading-picture

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information.

9. The method of Claim 8, wherein the RAP picture corresponds to an Intra picture.

10. The method of Claim 9, wherein the leading-picture information corresponds to a number (N) of said zero or more leading pictures before the Intra picture in each second segment, and N is determined from an attribute in a Representation level or an Adaptation-Set level.

11. The method of Claim 9, wherein the leading-picture information corresponds to a number (N) of said zero or more leading pictures before the Intra picture in each second segment, and N is determined from a supplemental property descriptor.

12. The method of Claim 11, wherein the supplemental property descriptor further includes a first indication to indicate to a decoder regarding whether to continue to decode and present N leading pictures in the original representation.

13. The method of Claim 12, wherein when N is greater than 0 and the first indication has a value of 1, N pictures are decoded and presented in the original representation and then the Intra picture associated with the SAP of the target representation is decoded, and N leading pictures with presentation times smaller than presentation time of the Intra picture associated with the SAP of the target representation are discarded or set to be non-presented in a decoding process.

14. The method of Claim 13, wherein the supplemental property descriptor further includes a second indication to indicate to the decoder regarding whether to always present a higher quality ranking picture or a higher-resolution picture of two pictures at the SAP, and when the second indication has a value of 1, one of the Intra picture associated with the SAP of the target representation and an anchor picture in the original representation at a same time as the SAP of the target representation that has a high quality ranking is presented.

15. The method of Claim 14, wherein when the second indication has a value of 0, either the Intra picture associated with the SAP of the target representation or the anchor picture in the original representation at the same time as the SAP of the target representation is presented.

16. The method of Claim 12, wherein when N is 0, the first indication is ignored.

17. The method of Claim 8, wherein the RAP picture corresponds to a DRAP (dependent RAP) picture, where each DRAP picture corresponds to a P-picture or a B-picture.

18. The method of Claim 17, wherein the leading-picture information corresponds to a number (N) of said zero or more leading pictures before the RAP picture in each second segment, and if N is greater than 0 and the RAP picture associated with the SAP of the target representation as Sync Sample is indicated, a first variable is set to indicate handling one Clean Random Access picture as one Broken Link Access picture and the first variable then is used to set a second variable to indicate decoding process for generating unavailable reference pictures corresponding to said handling one Clean Random Access picture as one Broken Link Access picture is invoked.

19. A client device for switching representations, the client device comprising:

an interface arranged to establish a communication connection with a server; and

one or more electronic circuits or processors configured to:

receive media presentation description for video stream content, wherein the media presentation description corresponds to Adaptation Sets and Representations including an original representation and a target representation;

receive the original representation, wherein the original representation comprises multiple first segments having first GOP (group of picture) structure;

receive the target representation, wherein the target representation comprises multiple second segments having second GOP structure;

determine leading-picture information from the media presentation description, wherein the leading-picture information is associated with a number [N] of zero or more leading pictures before an Intra picture in each second segment, and each leading picture corresponds to one picture preceding a RAP (Random Access Point) picture of each second segment in an output order and being coded depending on the RAP picture of each second segment and possibly one other picture in a previous second segment, wherein N is determined from a supplemental property descriptor, wherein the supplemental property descriptor includes a first indication to indicate to a decoder whether to continue to decode and present N leading pictures in the original representation; and

present a switched presentation from the original representation to the target representation by switching presentation from pictures in the original representation to pictures in the target representation at a stream access point (SAP) corresponding to the RAP picture of each second segment determined according to the leading-picture information.