Track Switching in Media over QUIC Transport

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Problem

• Relays are unaware when two tracks are alternates (no access to the catalog)
• SUBSCRIBE message does not indicate that the client is switching to a new track for the same media content.
• Resulting in two parallel tracks being transmitted from the relay.
Solution

• The end subscriber hints to the last-mile relay about its intent to switch to a new track.
• The relay cancels the streaming of the current track when the new track is ready and then sends SUBSCRIBE_OK before streaming the new track.
• When the client receives the SUBSCRIBE_OK it can switch seamlessly.
Solution 1 (altTrackGroup)

SUBSCRIBE Message {
  Subscribe ID (i),
  Track Alias (i),
  Track Namespace (b),
  Track Name (b),
  Filter Type (i),
  [StartGroup (i),
   StartObject (i)],
  [EndGroup (i),
   EndObject (i)],
  [altTrackGroup (i)],
  Number of Parameters (i),
  Subscribe Parameters (..) ...
}

altTrackGroup is the identifier for a group of alternative tracks within the scope of a track namespace.
Solution 2 (Switch Track Alias)

SUBSCRIBE Message {
    Subscribe ID (i),
    Track Alias (i),
    Track Namespace (b),
    Track Name (b),
    Filter Type (i),
    [StartGroup (i),
     StartObject (i)],
    [EndGroup (i),
     EndObject (i)],
    [Switch Track Alias (i)],
    Number of Parameters (i),
    Subscribe Parameters (..) ...
}

Switch Track Alias = Track Alias of the active subscription