

CLAIMS

1. A method for delivering an audio and/or video content to a mobile terminal (150) by a content delivery system (100) deployed on top of a mobile network infrastructure, wherein the content delivery system (100) comprises plural edge cache servers (132) and at least one edge cache controller (131), the edge cache servers (132) are arranged using a star topology or a hierarchical topology using a central content server (112) as root, the edge cache servers (132) and the central content server (112) are connected to respective aggregation nodes (130) of the mobile network infrastructure such that a configurable breakout function of the aggregation nodes (130) enables routing to the edge cache servers (132) or to the central content server (112) packets addressed to an anycast addressing associated with the edge cache servers (132) and the central content server (112), wherein the method comprises:
- receiving (301), by one edge cache controller (131), a first request, from the mobile terminal (150), for obtaining a manifest file of the audio and/or video content so as to start a session for delivering the audio and/or video content;
 - creating (305), by the edge cache controller (131) in question, a session identifier including a unique identifier part and a unicast addressing part pointing to the edge cache controller (131) in question;
 - responding (306) to the first request, by the edge cache controller (131) in question, by redirecting the mobile terminal (150) to the anycast addressing of the edge cache servers (132) and of the central content server (112) and by providing the session identifier to the mobile terminal (150);
 - receiving (701, 801), by one edge cache server (132), a second request including the session identifier, from the mobile terminal (150), for obtaining the manifest file or for obtaining at least one segment of the audio and/or video content;
 - obtaining (702, 802) from the second request, by the one edge cache server (132) in question, the session identifier associated with the session started for delivering the audio and/or video content to the mobile terminal (150) in question;
 - when the obtained session identifier is unknown to the one edge cache server (132) in question, using the unicast addressing part included in the obtained session identifier to send (703, 807) a third request for obtaining a context applicable to the session;
 - when the obtained session identifier is known to the edge cache server (132) in question or obtained by the edge cache server (132) in question, delivering (709, 812)

respectively the requested manifest file or the at least one segment to the mobile terminal (150), in response to the second request, according to the context applicable to the session;

- and when an edge cache server (132) is not able to process new sessions, reconfiguring (405) the breakout function of the aggregation node (130) to which is connected the edge cache server (132) in question so as not to route packets related to the new sessions toward said edge cache server (132) in question so that an upstream edge cache server (132) or the central content server (112) is solicited to process the new sessions.

2. The method according to claim 1, wherein the content delivery system (100) comprises plural edge cache controllers (131), the edge cache controllers (131) are deployed using a star topology or a hierarchical topology using a central controller (111) as root, the edge cache controllers (131) and the central controller (111) are connected to respective aggregation nodes (130) of the mobile network infrastructure such that the configurable breakout function of the aggregation nodes (130) enables routing to the edge cache controllers (131) or to the central controller (111) packets addressed to an anycast addressing associated with all the edge cache controllers (131) and the central controller (111), and wherein the first request is transmitted using the anycast addressing associated with the edge cache controllers (131) and the central controller (111).

3. The method according to claim 1 or 2, wherein when one edge cache controller (131) receives the third request for obtaining a context applicable to the session, the edge cache controller in question updates the context applicable to the session to indicate that the session is now supported by the edge cache server (132) from which the third request is received.

4. The method according to claim 2, wherein the edge cache controller (131) in question checks whether or not none of the edge cache servers (132) of a set of edge cache servers (132) under its supervision have any more resources to accept new sessions, and when no more resources can be allocated to accept new sessions, the edge cache controller in question configures (408) the breakout function of the aggregation node to which said edge cache controller (131) is connected for not receiving anymore requests related to new sessions.

5. The method according to claim 4, wherein when creating the session identifier, the edge cache controller (131) in question includes therein a unicast addressing part pointing to the central controller (111) instead of the unicast addressing part pointing to the edge cache controller (131) in question, and wherein the edge cache controller (131) in question transmits the context applicable to the session to the central controller (111).
6. The method according to any one of claims 1 to 5, wherein the edge cache controller (131) in question manages a set of edge cache servers (132) under its supervision by implementing on a regular basis:
- determining (402) if each edge cache server (132) of the set has sufficient resources to accept more sessions;
 - for each edge cache server of the set which is not able to accept more sessions, the edge cache controller (131) in question configures (405) the breakout function of the aggregation node (130) to which is connected the edge cache server in question for not routing new sessions thereto.
7. The method according to any one of claims 1 to 6, wherein when one edge cache server (132) receives the context applicable to the session, the edge cache server (132) in question retrieves from statistics stored in the context, information related to quality in Adaptive Bit Rate which is preferably selected by the mobile terminal (150) in the session.
8. The method according to any one of claims 1 to 7, wherein when being notified (901) by one edge cache server (132) that the session is interrupted without having received the third request from another edge cache server (132) within a predefined timeframe, one edge cache controller (131) invalidates the context associated with the session and transmits to an analytical server (113) analytical data related to the session and contained in the context.
9. The method according to any one of claims 1 to 8, wherein the edge cache servers (132) are virtual instances executed in a cloudlet infrastructure.

10. A content delivery system for delivering an audio and/or video content to a mobile terminal (150), the content delivery system being configured for being deployed on top of a mobile network infrastructure, wherein the content delivery system comprises plural edge cache servers (132) and at least one edge cache controller (131), the edge
- 5 cache servers (132) are arranged using a star topology or a hierarchical topology using a central content server (112) as root, the edge cache servers (132) and the central content server (112) being configured to be connected to respective aggregation nodes (130) of the mobile network infrastructure such that a configurable breakout function of the aggregation nodes (130) enables routing to the edge cache servers (132) or to the
- 10 central content server (111) packets addressed to an anycast addressing associated with the edge cache servers (132) and the central content server (111), wherein the content delivery system is configured for:
- receiving (301), by one edge cache controller, a first request, from the mobile terminal, for obtaining a manifest file of the audio and/or video content so as to start a session for
 - 15 delivering the audio and/or video content;
 - creating (305), by the edge cache controller in question, a session identifier including a unique identifier part and a unicast addressing part pointing to the edge cache controller in question;
 - responding (306) to the first request, by the edge cache controller in question, by
 - 20 redirecting the mobile terminal to the anycast addressing of the edge cache servers and of the central content server and by providing the session identifier to the mobile terminal (150);
 - receiving (701, 801), by one edge cache server, a second request including the session identifier, from the mobile terminal, for obtaining the manifest file or for obtaining at
 - 25 least one segment of the audio and/or video content;
 - obtaining (702, 802) from the second request, by the one edge cache server (132) in question, the session identifier associated with the session started for delivering the audio and/or video content to the mobile terminal in question;
 - when the obtained session identifier is unknown to the one edge cache server (132) in
 - 30 question, using the unicast addressing part included in the obtained session identifier to send (703, 807) a third request for obtaining a context applicable to the session;
 - when the obtained session identifier is known to the edge cache server (132) in question or obtained by the edge cache server (132) in question, delivering (709, 812) respectively the requested manifest file or the at least one segment to the mobile

terminal (150), in response to the second request, according to the context applicable to the session;

- and when an edge cache server (132) is not able to process new sessions, reconfiguring (405) the breakout function of the aggregation node (130) to which is connected the
- 5 edge cache server (132) in question so as not to route packets related to the new sessions toward said edge cache server (132) in question so that an upstream edge cache server (132) or the central content server (112) is solicited to process the new sessions