CLAIMS

1. A method for delivering a targeted audio-visual live content to a client (110), the method being performed by an audio-visual live content delivery system including :

- the client (110) located in a local area network (101) interconnected to a provider network (102) by a gateway (140) providing access to the provider network (102) or located in the gateway (140) providing access to the provider network (102);

- an audio-visual live content delivering equipment (120) comprising one or more servers among which a multicaster for transmitting audio-visual live contents in multicast form via the provider network (102);

- a de-multicaster (150) in the gateway (140) providing access to the provider network (102) or in any device located in the local area network (101), the de-multicaster (150) being able to perform a conversion in unicast form of audio-visual live contents received in multicast form from the multicaster;

- a controller (130) managing routing of requests to get audio-visual live contents;

characterized in that the method comprises:

- the client (110) performs a discovery procedure (200; 210; 500; 510; 701; 901; 911; 1111) aiming at receiving, from the gateway (140) providing access to the provider network (102) and from any device connected to the local area network (101), information on potential presence and availability of the de-multicaster (150);

and when the client (110) intends receiving the targeted audio-visual live content:

- the client (110) sends to the controller (130) a request (201; 211; 503; 513; 704; 904; 914; 1114) to get the targeted audio-visual live content which provides indication of presence and availability, or not, of the de-multicaster (150);

- the controller (130) decides how redirecting the client (110) to fulfill the request to get the targeted audio-visual live content, according at least to the indication of presence and availability, or not, of the de-multicaster (150).

2. The method according to claim 1, wherein the indication of presence and availability, or not, of the de-multicaster (150) is implicitly provided in said request to get the targeted audio-visual live content, such that, in case of presence and availability of the de-multicaster (150), the request to get the targeted audio-visual live content

includes an inline parameter providing an address of the de-multicaster (150) resulting from the discovery procedure.

3. The method according to any one of claims 1 and 2, wherein the provider network (102) enables uplink communications from the gateway (140) and the local area network (101) through the provider network (102), and the controller (130) is located on the provider network (102), and wherein the controller (130) redirects the client (110) toward a unicast server (123) of the audio-visual live content delivering equipment when the controller (130) determines that the client (110) cannot benefit from the conversion in view of the audio-visual live content delivery system's infrastructure and actual operational state in an objective to optimize resources consumption in the provider network, and redirects the client (110) toward the de-multicaster (150) otherwise.

4. The method according to claim 3, wherein the client determines an address to contact the controller (130) by requesting domain name resolution to a domain name server (161) located in the provider network (102), the domain name resolution concerning a fully qualified domain name included in a uniform resource locator identifying the targeted audio-visual live content.

5. The method according to claim 3 or 4, wherein the de-multicaster (150) retrieves segments of the targeted audio-visual live content, which are lost in multicast form, from a repair unicast server (122) of the audio-visual live content delivering equipment (120) which receives the targeted audio-visual live content from the multicaster (121).

6. The method according to any one of claims 3 to 5, wherein when redirecting the client (110) toward the de-multicaster (150), the controller (130) transmits a redirect message including an inline parameter providing a fully qualified domain name included in a uniform resource locator that was indicated in the request to get the targeted audio-visual live content and that identifies the targeted audio-visual live content, and wherein the de-multicaster (150) redirects the client (110) toward a unicast server on the provider network (102) when the de-multicaster (150) determines that the client (110) cannot benefit from the conversion in view of the audio-visual live content

delivery system's infrastructure and actual operational state in an objective to optimize resources consumption in the provider network, the de-multicaster (150) determining an address of said unicast server by requesting domain name resolution to a domain name server (161) located in the provider network (102) using the inline parameter providing said fully qualified domain name.

7. The method according to any one of claims 1 and 2, wherein the provider network (102) enables uplink communications from the gateway (140) and the local area network (101) through the provider network (102) and the controller (130) is located in the gateway (140) or in the local area network (101), wherein the controller (140) redirects the client (110) toward a multicast non-aware unicast server on the provider network (102) when the controller (130) determines that the client (110) cannot benefit from the conversion in view of the audio-visual live content delivery system's infrastructure and actual operational state in an objective to optimize resources consumption in the provider network and redirects the client toward the de-multicaster (150) otherwise.

8. The method according to claim 7, wherein the client (110) determines an address to contact the controller (130) by requesting domain name resolution to a local domain name server (162) located in the gateway (140) or in the local area network (101), the domain name resolution concerning a fully qualified domain name included in a uniform resource locator identifying the targeted audio-visual live content.

9. The method according to claim 8, wherein the controller (130) has precedingly configured the local domain name server (162) to associate said fully qualified domain name with an address of the controller (130).

10. The method according to claim 7, wherein, the controller (130) and the de-multicaster (150) being co-located in the same machine, the client (110) determines an address to contact the controller (130) by deriving said address to contact the controller (130) from an address to contact the de-multicaster (150) resulting from the discovery procedure.

11. The method according to any one of claims 8 to 10, wherein the de-multicaster (150) retrieves segments of the targeted audio-visual live content, which are lost in multicast form, from a repair unicast server (122) of the audio-visual live content delivering equipment (120) which receives the targeted audio-visual live content from the multicaster (121).

12. The method according to any one of claims 8 to 11, wherein when redirecting the client (110) toward the de-multicaster (150), the controller (130) transmits a redirect message including an inline parameter providing the fully qualified domain name included in a uniform resource locator that was indicated in the request to get the targeted audio-visual live content and that identifies the targeted audio-visual live content, and wherein the de-multicaster (150) redirects the client (110) toward a multicast non-aware unicast server on the provider network (102) when the de-multicaster (150) determines that the client (110) cannot benefit from the conversion in view of the audio-visual live content delivery system's infrastructure and actual operational state in an objective to optimize resources consumption in the provider network, the de-multicaster (150) determining an address of said multicast non-aware unicast server by requesting domain name resolution to a domain name server (161) located in the provider network (102) using the inline parameter providing said fully qualified domain name.

13. The method according to any one of claims 1 and 2, wherein the provider network (102) does not enable uplink communications from the gateway (140) and the local area network (101) through the provider network (102) and the controller (130) is located in the gateway (140) or in the local area network (101), wherein the controller (130) rejects the request to get the targeted audio-visual live content when the controller (130) determines that the client (110) cannot benefit from the conversion in view of the audio-visual live content delivery system's infrastructure and actual operational state in an objective to optimize resources consumption in the provider network, and redirects the client (110) toward the de-multicaster (150) otherwise.

14. The method according to claim 13, wherein the client determines an address to contact the controller (130) by requesting domain name resolution to a local domain name server (162) located in the gateway (140) or in the local area network (101), the

domain name resolution concerning a fully qualified domain name included in a uniform resource locator identifying the targeted audio-visual live content.

15. The method according to claim 14, wherein the de-multicaster (150) has precedingly configured the local domain name server (162) to associate said fully qualified domain name with an address of the controller (130).

16. The method according to claim 13, wherein, the controller (130) and the de-multicaster (150) being co-located in the same machine, the client (110) determines an address to contact the controller (130) by deriving said address to contact the controller (130) from an address to contact the de-multicaster (150) resulting from the discovery procedure.

17. An audio-visual live content delivery system including :

- a client (110) located in a local area network (101) interconnected to a provider network (102) by a gateway (140) providing access to the provider network (102) or located in the gateway (140) providing access to the provider network (102);
- an audio-visual live content delivering equipment (120) comprising one or more servers among which a multicaster for transmitting audio-visual live contents in multicast form via the provider network (102);
- a de-multicaster (150) in the gateway (140) providing access to the provider network (102) or in any device located in the local area network (101), the de-multicaster (150) being able to perform a conversion in unicast form of audio-visual live contents received in multicast form from the multicaster;
- a controller (130) managing routing of requests to get audio-visual live contents;

characterized in that:

- the client (110) comprises means for performing a discovery procedure (200; 210; 500; 510; 701; 901; 911; 1111) aiming at receiving, from the gateway (140) providing access to the provider network (102) and from any device connected to the local area network (101), information on potential presence and availability of the de-multicaster (150);
- the client (110) comprises means for sending (201; 211; 503; 513; 704; 904; 914; 1114) to the controller (130), when the client (110) intends receiving a targeted

audio-visual live content, a request to get the targeted audio-visual live content which provides indication of presence and availability, or not, of the de-multicaster (150);

- the controller (130) decides how redirecting the client (110) to fulfill the request to get the targeted audio-visual live content, according at least to the indication of presence and availability, or not, of the de-multicaster (150).