[0022] According to certain embodiments, a computer program product encoding instructions for performing a process according to a method including receiving a request from a first node in a radio access technology at a second node in the radio access technology. The method may also include at least partially rejecting or at least partially accepting the request. In addition, the method includes sending an indication of the at least partial rejection or the at least partial acceptance. The indication is used in determining whether to activate or continue radio access aggregation in the radio access technology.

[0022a] In view of the above, according to a first aspect of the present disclosure, there is provided an apparatus comprising: at least one memory comprising computer program code and at least one processor. The at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to: receive a request from a first radio access technology at a network node in a second radio access technology, wherein the request relates to available resources at the second radio access technology to be used in radio access aggregation with the first radio access technology; at least partially reject or at least partially accept the request from the first radio access technology; and send from the network node in the second radio access technology to another network node in the first radio access technology an indication of the at least partial rejection or the at least partial acceptance.

[0022b] According to a second aspect of the present disclosure, there is provided an apparatus comprising: at least one memory comprising computer program code and at least one processor. The at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to: send a request from a first access technology to a network node in a second radio access technology; receive an indication at another network node of the first access technology that the request is at least partially rejected or at least partially accepted;

and determine at the another network node of the first access technology whether to activate or continue a radio access aggregation with the second access technology based on the indication.

[0022c]According to a third aspect of the present disclosure, there is provided an apparatus comprising: at least one memory comprising computer program code and at least one processor. The at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to: receive a request from a first node in a radio access technology at a second node in the radio access technology, wherein the request relates to available resources at the second node to be used in radio access aggregation with the first node; at least partially reject or at least partially accept the request from the first node; and send an indication of the at least partial rejection or the at least partial acceptance from the second node to the first node.

BRIEF DESCRIPTION OF THE DRAWINGS:

[0023] For proper understanding of the invention, reference should be made to the accompanying drawings, wherein:

[0024] Figure 1 illustrates a flow diagram according to certain embodiments.

[0025] Figure 2 illustrates a flow diagram according to certain embodiments.

[0026] Figure 3 illustrates a signal flow diagram according to certain embodiments.

[0027] Figure 4 illustrates a system according to certain embodiments.

DETAILED DESCRIPTION:

[0028] Certain embodiments can allow a network node in a first radio access technology (RAT) to be informed of the resource contribution of a second RAT to a user equipment (UE) throughput. The first RAT can then be aware of the resource availability of the second RAT if the second RAT does not meet the QoS parameters

requested by the first RAT. This allows the network node in the first RAT to preserve network resources, by only initiating aggregation when it would be beneficial to do so.

[0029] For example, in certain embodiments, where the first RAT may be an LTE network and the second RAT may be WLAN, an E-UTRAN Node (eNB) in an LTE

WE CLAIM:

1. An apparatus comprising:

at least one memory comprising computer program code;

at least one processor;

wherein the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to:

receive a request from a first radio access technology at a network node in a second radio access technology, wherein the request relates to available resources at the second radio access technology to be used in radio access aggregation with the first radio access technology;

at least partially reject or at least partially accept the request from the first radio access technology; and

send from the network node in the second radio access technology to another network node in the first radio access technology an indication of the at least partial rejection or the at least partial acceptance.

2. The apparatus according to claim 1, wherein the at least partial rejection or the at least partial acceptance is based on available resources of the second radio access technology.

3. The apparatus according to claim 2, wherein the at least one memory and the computer program code are also configured, with the at least one processor, to cause the apparatus at least to:

estimate available resources of the network node in the second radio access technology.

4. The apparatus according to claim 3, wherein the estimating of available resources comprises at least one of a bit rate or a packet delay.

5. The apparatus according to claim 1, wherein the network node in the second radio access technology may at least partially reject or at least partially accept the request without knowing available resources of the second radio access technology or without knowing whether the second radio access technology can guarantee the available resources required by the request.

6. The apparatus according to claim 1, wherein the request comprises another indication of whether or not the another network node in the first radio access technology will accept the at least partial acceptance by the network node in the second radio access technology.

7. The apparatus according to claim 1, wherein the at least partial rejection or at least partial acceptance comprises a precondition determined by the network node in the second radio access technology.

8. The apparatus according to claim 7, wherein the request comprises a first guaranteed bit rate requested from a first radio access technology, and wherein the precondition comprises a second guaranteed bit rate lower than the requested first guaranteed bit rate.

9. The apparatus according to claim 1, wherein the second radio access technology is a wireless local area network.

10. The apparatus according to claim 1, wherein the first radio access technology is a long term evolution network.

11. The apparatus according to claim 1, wherein the request comprises at least one of allocation and retention priority, guaranteed bit rate, or quality of service class identifier.

12. An apparatus comprising:

at least one memory comprising computer program code;

at least one processor;

wherein the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to:

send a request from a first access technology to a network node in a second radio access technology;

receive an indication at another network node of the first access technology that the request is at least partially rejected or at least partially accepted; and

determine at the another network node of the first access technology whether to activate or continue a radio access aggregation with the second access technology based on the indication.

13. The apparatus according to claim 12, wherein the indication comprises available radio resources of the second radio access technology.

14. The apparatus according to claim 13, wherein the indication of available radio resources is indicated per quality of service class or per user equipment.

15. The apparatus according to claim 12, wherein the at least partial rejection or the at least partial acceptance comprises a precondition determined by the network node in the second radio access technology.

16. The apparatus according to claim 12, wherein the request comprises a first guaranteed bit rate, and wherein the precondition comprises a second guaranteed bit rate lower than the requested first guaranteed bit rate.

17. The apparatus according to claim 12, wherein the at least one memory and the computer program code are configured, with the at least one processor, to further cause the apparatus to at least one of:

determine based on the indication to re-attempt or not re-attempt to establish the radio resource aggregation between the first radio access technology and the second radio access technology;

determine based on the indication to attempt to establish the radio resource aggregation between the first radio access technology and an additional node in the second radio access technology; and

determine based on the re-attempt to establish the radio resource aggregation between the first radio access technology and a third radio access technology.

18. The apparatus according to claim 12, wherein the at least one memory and the computer program code are also configured, with the at least one processor, to further cause the apparatus to at least one of:

send, based on the indication, another request to the network node in the second radio access technology requesting release of the resources made available by the second radio access technology as part of the at least partial acceptance; and

send the another request from the first radio access network to the second radio access network based on the available resources.

19. The apparatus according to claim 12, wherein the request comprises at least one of allocation and retention priority, guaranteed bit rate, quality of service class identifier, or packet delay budget.

20. An apparatus comprising:

at least one memory comprising computer program code;

at least one processor;

wherein the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to:

receive a request from a first node in a radio access technology at a second node in the radio access technology, wherein the request relates to available

resources at the second node to be used in radio access aggregation with the first node;

at least partially reject or at least partially accept the request from the first node; and

send an indication of the at least partial rejection or the at least partial acceptance from the second node to the first node.