connection to core/external network. In addition, the same issue may be faced in device-to-device communication within an access network, with or without connection to core/external network

[0007] At least the issues as indicated above are addressed in the example embodiments of the invention as described herein.

SUMMARY:

[0008] This section contains examples of possible implementations and is not meant to be limiting.

[0009] In an example of the disclosure, there is a method, comprising: performing, by a communication device, a communication comprising transmitting packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer to a second device; detecting that further packets of the second traffic subflow are to be transmitted via a second radio bearer to the second device; and based on the detecting, transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continues to be transmitted via the first radio bearer.

[0009a] In an example, the present disclosure refers to a method performed by an apparatus, comprising:

performing a communication comprising transmitting packets of a first traffic flow and packets of a second traffic flow via a first radio bearer to a second device, wherein the first radio bearer is a default radio bearer;

detecting that further packets of the second traffic flow are to be transmitted via a second radio bearer to the second device;

based on the detecting, transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continue to be transmitted via the first radio bearer;

based on the second radio bearer being established, transmitting the further packets of the second traffic flow via the second radio bearer to the second device.

[0009b] In an example, the present disclosure refers to an apparatus comprising:

means for performing a communication comprising transmitting packets of a first traffic flow and packets of a second traffic flow via a first radio bearer to a second device, wherein the first radio bearer is a default radio bearer;

means for detecting that further packets of the second traffic flow are to be transmitted via a second radio bearer to the second device;

means, based on the detecting, for transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continue to be transmitted via the first radio bearer;

means, based on the second radio bearer being established, for transmitting the further packets of the second traffic flow via the second radio bearer to the second device.

[0009c] In an example, the present disclosure refers to a method, comprising:

receiving from a first device a communication comprising packets of a first traffic flow and packets of a second traffic flow via a first radio bearer, wherein the first radio bearer is a default radio bearer;

receiving from the first device a packet data unit comprising an indication that further packets of the second traffic flow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer;

establishing the second radio bearer between the apparatus and the first device; and

based on the establishing, receiving the further packets of the second traffic flow via the second radio bearer.

[0009d] In an example, the present disclosure refers to an apparatus comprising:

means for receiving from a first device a communication comprising packets of a first traffic flow and packets of a second traffic flow via a first radio bearer, wherein the first radio bearer is a default radio bearer;

means for receiving from the first device a packet data unit comprising an indication that further packets of the second traffic flow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer;

means for establishing the second radio bearer between the apparatus and the first device; and

means, based on the establishing, for receiving the further packets of the second traffic flow via the second radio bearer.

[0009e] In an example, the present disclosure refers to a computer program comprising instructions for causing an apparatus to perform the method according to any of the above aspects.

[0010] In a further example is a method comprising the method of the previous paragraph is that, based on the second radio bearer being established between the first device and the second device, there is transmitting further packets of the second traffic flow via the second radio bearer to the second device. An additional example is that, based on the detecting

there is causing the second device to establish the second radio bearer. In accordance with the examples the detecting comprises detecting that the further packets of the second traffic subflow are associated with an application that requires a higher priority. Another example includes receiving confirmation of reception of the packet data unit from the second device, wherein the confirmation ofreception may be confirmation of in-order reception of the packet data unit, wherein the transmitting the further packets of the second traffic flow is based on the confirmation. In accordance with a

further example, the packet data unit comprises a sequence number. In an additional example embodiment the sequence number causes in-sequence delivery of packets for the radio bearers at the second device. In another example the packet data unit causes the second device to deliver the packets belonging to the second traffic subflow to a higher layer of the second device. In yet another example the higher layer is an application layer. In still another example there is, prior to transmitting the second traffic flow to the second radio bearer of the second device, buffering the packets at the first device

[0011] In another example of the disclosure, there is an apparatus comprising: means for performing, by a communication device, a communication comprising transmitting packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer to a second device; means for detecting that further packets of the second traffic subflow are to be transmitted via a second radio bearer to the second device; and means, based on the detecting, for transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continues to be transmitted via the first radio bearer.

[0012] In another example of the disclosure there is an apparatus comprising: at least one processor; and at least one memory including computer program code, where the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus to at least: perform, by a communication device, a communication comprising transmitting packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer to a second device; detect that further packets of the second traffic subflow are to be transmitted via a second radio bearer to the second device; and based on the detecting, transmit a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continues to be transmitted via the first radio bearer.

[0013] A further example is a disclosure comprising the

apparatus of any of the previous paragraphs wherein at least one memory including computer program code is configured with at least one processor to cause the apparatus to: based on the second radio bearer being established between the first device and the second device, transmit further packets of the second traffic flow via the second radio bearer to the second device. An additional example is wherein the at least one memory including the computer program code is configured with the at least one processor to cause the apparatus to: based on the detecting, causing the second device to establish the second radio bearer. In accordance with the example the detecting comprises detecting that the further packets of the second traffic subflow are associated with an application that requires a higher priority. A further example is wherein the at least one memory including the computer program code is configured with the at least one processor to cause the apparatus to: receive confirmation of reception of the packet data unit from the second device, wherein the confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the transmitting the further packets of the second traffic flow is based on the confirmation. In another example the packet data unit comprises a sequence number. In another example the sequence number causes in-sequence delivery of packets for the radio bearers at the second device. In another example the packet data unit causes the second device to deliver the packets belonging to the second traffic subflow to a higher layer of the second device. In still another example of the invention the higher layer is an application layer. In yet another example there is, prior to transmitting the second traffic flow to the second radio bearer of the second device, buffering the packets at the first device.

[0014] In a further example of the disclosure there is a method, comprising: receiving from a first device a communication comprising packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer; receiving from the first device a packet data unit comprising an indication that further packets of the second traffic subflow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer; establishing the second radio bearer between a second device and the first device; and based on the establishing, receiving the further packets of the second traffic flow via the second radio bearer.

[0015] In a further example of the disclosure is a method comprising the method of the previous paragraph, there is receiving instructions to establish the second radio bearer. In another example there is sending confirmation ofreception ofthe packet data unit to the first device, wherein the confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the further packets of the second traffic flow is received based on the confirmation. In an example the packet data unit comprises a sequence number. In another example the sequence number enables in-sequence delivery of packets for the radio bearers. In a further example the packet data unit enables the second device to deliver the packets belonging to the second traffic subflow to a higher layer of the communication device. In still another example the higher layer is an application layer. In yet another example there is, prior to receiving the packet data unit buffering the second traffic flow at the second device, wherein delivering the packets belonging to the traffic subflow to the higher layer is performed only after receiving the packet data unit.

[0016] In another example of the disclosure, there is an apparatus comprising: means for receiving from a first device a communication comprising packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer; means for receiving from the first device a packet data unit comprising an indication that further packets of the second traffic subflow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer; establishing the second radio bearer between the second device and the first device; and means, based on the establishing, for receiving the further packets of the second traffic flow via the second radio bearer.

[0017] In another example of the disclosure there is an apparatus comprising: at least one processor; and at least one memory including computer program code, where the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus to at least: receive from a first device a communication comprising packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer; receive from the first device a packet data unit comprising an indication that further packets of the second traffic subflow are to be received via a second

radio bearer, wherein the first traffic flow continues to be received via the first radio bearer; establishing the

second radio bearer between the second device and the first device; and based on the establishing, receive the further packets of the second traffic flow via the second radio bearer.

[0018] A further example of the disclosure is an apparatus comprising the apparatus of any of the previous paragraphs wherein at least one memory including computer program code is configured with at least one processor to cause the apparatus to: receive instructions to establish the second radio bearer. In another example the at least one memory including the computer program code is configured with the at least one processor to cause the apparatus to: send confirmation of reception of the packet data unit to the first device, wherein the confirmation of reception may be confirmation of in-order reception ofthe packet data unit, wherein the further packets of the second traffic flow is received based on the confirmation. In an additional example the packet data unit comprises a sequence number. In another example the sequence number enables in-sequence delivery of packets for the radio bearers. In another example the packet data unit enables the second device to deliver the packets belonging to the second traffic subflow to a higher layer of the communication device. In still another example the higher layer is an application layer. In yet another example there is, prior to receiving the packet data unit, buffering the second traffic flow at the second device, and wherein delivering the packets belonging to the traffic subflow to the higher layer is performed only after receiving the packet data unit.

In an example, there is provided an apparatus comprising:

means for receiving from a first device a communication comprising packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer;

means for receiving from the first device a packet data unit comprising an indication that further packets of the second traffic subflow are to be received via a second radio bearer. Wherein the first traffic flow continues to be received via the first radio bearer; establishing the second radio bearer between the second device and the first device; and

means, based on establishing, for receiving the further packets of the second traffic flow via the second radio bearer.

In an example, there is provided an apparatus comprising:

means for performing, by a communication device, a communication comprising transmitting packets of a first traffic subflow and packets of a second traffic subflow via a first radio bearer to a second device;

means for detecting that further packets of the second traffic subflow are to be transmitted via a second radio bearer to the second device; and

means, based on the detecting, for transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continues to be transmitted via the first radio bearer.

BRIEF DESCRIPTION OF THE DRAWINGS:

[0019] The foregoing and other aspects of embodiments of this invention are made more evident in the following Detailed Description, when read in conjunction with the attached Drawing Figures, wherein:

[0020] Figure 1 shows example of packet not in-order case when a new DRB2 is created;

[0021] Figure 2 shows a simplified block diagram of a system in which exemplary embodiments of this invention may be practiced;

CLAIMS

What is claimed is:

1. A method performed by an apparatus, comprising:

performing a communication comprising transmitting packets of a first traffic flow and packets of a second traffic flow via a first radio bearer to a second device, wherein the first radio bearer is a default radio bearer;

detecting that further packets of the second traffic flow are to be transmitted via a second radio bearer to the second device;

based on the detecting, transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continue to be transmitted via the first radio bearer;

based on the second radio bearer being established, transmitting the further packets of the second traffic flow via the second radio bearer to the second device.

2. The method of claim 1, comprising:

transmitting a reconfiguration message to the second device.

3. The method of claim 1 or claim 2, wherein the detecting comprises detecting that the further packets of the second traffic flow are associated with an application that requires a higher priority.

4. The method of any of claims 1 to 3, comprising:

receiving confirmation of reception of the packet data unit, wherein the confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the transmitting the further packets of the second traffic flow is based on the

confirmation.

5. The method of any of claims 1 to 4, wherein the packet data unit comprises a sequence number.

6. An apparatus comprising:

means for performing a communication comprising transmitting packets of a first traffic flow and packets of a second traffic flow via a first radio bearer to a second device, wherein the first radio bearer is a default radio bearer;

means for detecting that further packets of the second traffic flow are to be transmitted via a second radio bearer to the second device;

means, based on the detecting, for transmitting a packet data unit via the first radio bearer to the second device, wherein the packet data unit comprises an indication of a switch of the second traffic flow to the second radio bearer, and wherein packets of the first traffic flow continue to be transmitted via the first radio bearer;

means, based on the second radio bearer being established, for transmitting the further packets of the second traffic flow via the second radio bearer to the second device.

7. The apparatus of claim 6, comprising:

means for transmitting a reconfiguration message to the second device.

8. The apparatus of claim 6 or claim 7, wherein the means for detecting comprises means for detecting that the further packets of the second traffic flow are associated with an application that requires a higher priority.

9. The apparatus of any of claims 6 to 8, comprising:

means for receiving confirmation of reception of the packet data unit, wherein the

confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the transmitting the further packets of the second traffic flow is based on the confirmation.

10. The apparatus of any of claims 6 to 9, wherein the packet data unit comprises a sequence number.

11. A method, comprising:

receiving from a first device a communication comprising packets of a first traffic flow and packets of a second traffic flow via a first radio bearer, wherein the first radio bearer is a default radio bearer;

receiving from the first device a packet data unit comprising an indication that further packets of the second traffic flow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer;

establishing the second radio bearer between the apparatus and the first device; and

based on the establishing, receiving the further packets of the second traffic flow via the second radio bearer.

12. The method of claim 11, further comprising:

receiving instructions to establish the second radio bearer or receiving a reconfiguration message.

13. The method of claim 11 or claim 12, further comprising:

sending confirmation of reception of the packet data unit to the first device, wherein the confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the further packets of the second traffic flow are received based on the confirmation.

14. The method of any of the claims 11 to 13, wherein the packet data unit comprises a sequence number.

15. A computer program comprising instructions for causing an apparatus to perform the method according to any of claims 11 to 14.

16. An apparatus comprising:

means for receiving from a first device a communication comprising packets of a first traffic flow and packets of a second traffic flow via a first radio bearer, wherein the first radio bearer is a default radio bearer;

means for receiving from the first device a packet data unit comprising an indication that further packets of the second traffic flow are to be received via a second radio bearer, wherein the first traffic flow continues to be received via the first radio bearer;

means for establishing the second radio bearer between the apparatus and the first device; and

means, based on the establishing, for receiving the further packets of the second traffic flow via the second radio bearer.

17. The apparatus of claim 16, comprising: means for receiving instructions to establish the second radio bearer or means for receiving a reconfiguration message.

18. The apparatus of claim 16 or claim 17, comprising:

means for sending confirmation of reception of the packet data unit to the first device, wherein the confirmation of reception may be confirmation of in-order reception of the packet data unit, wherein the further packets of the second traffic flow are received based on the confirmation.

19. The apparatus of any of claims 16 to 18, wherein the packet data unit comprises a sequence number.

20. A computer program comprising instructions for causing an apparatus to perform the method according to any of claims 1 to 5.