CLAIMS

1. A method of transmission control at a user equipment, comprising:

receiving, at a non-access stratum protocol layer, a packet including a reliability request from an application;

determining, at the user equipment, if the application is authorized to make the reliability request;

in response to determining the application is authorized to make the reliability request, performing one of:

sending the packet including the reliability request to an access stratum protocol layer; or

sending the packet with a modified reliability request to a second protocol layer; and

transmitting the packet via a vehicle-to-everything (V2X) communication channel.

2. The method of claim 1, wherein the reliability request includes a ProSe Per Packet Reliability parameter having one of a plurality of values that each correspond to a different level of reliability and/or to a different type of transmission.

3. The method of claim 1, further comprising, in response to determining the application is authorized to make the reliability request:

determining the reliability request indicates a packet duplication request;

generating a duplicate packet of the packet; and

transmitting the duplicate packet over different channels.

4. The method of claim 1, wherein determining the application is authorized further includes:

receiving a list of authorized provider service identifiers of authorized applications;

identifying a provider service identifier associated with the application; and

determining the list of the authorized provider service identifiers includes the provider service identifier associated with the application.

5. The method of claim 1, wherein determining the application is not authorized further

includes:

receiving a list of unauthorized provider service identifiers of unauthorized applications;

identifying a provider service identifier associated with the application; and

determining the list of the unauthorized provider service identifiers includes the provider service identifier associated with the application.

6. The method of claim 1, further comprising, in response to determining the application is authorized to make the reliability request:

determining if a level of the reliability request is authorized;

wherein sending the packet to the second protocol layer comprises the sending of the packet with the reliability request to the second protocol layer in response to determining the level of the reliability request is authorized; and

in response to determining the level of the reliability request is not authorized:

determining a different level for which the application is authorized; and

wherein sending the packet to the second protocol layer comprises the sending of the packet with the modified reliability request having the different level to the second protocol layer.

7. The method of claim 1, wherein the reliability request indicates at least one of a packet duplication request, a transmission diversity request, or a carrier aggregation request.

8. The method of claim 1, further comprising, in response to determining the application is not authorized to make the reliability request, sending the packet without the reliability request to the second protocol layer.

9. A user equipment, comprising:

a memory; and

a processor in communication with the memory and configured to:

receive, at a non-access stratum protocol layer, a packet including a reliability request from an application;

determine, at the user equipment, if the application is authorized to make the reliability

request;

in response to determining the application is authorized to make the reliability request, performing one of:

send the packet including the reliability request to an access stratum protocol layer; or

send the packet with a modified reliability request to a second protocol layer; and

initiate transmission of the packet via a vehicle-to-everything (V2X) communication channel.

10. The user equipment of claim 9, wherein the reliability request includes a ProSe Per Packet Reliability parameter having one of a plurality of values that each correspond to a different level of reliability and/or to a different type of transmission.

11. The user equipment of claim 9, wherein the processor is further configured to, in response to determining the application is authorized to make the reliability request:

determine the reliability request indicates a packet duplication request;

generate a duplicate packet of the packet; and

initiate transmission of the duplicate packet over different channels.

12. The user equipment of claim 9, wherein determining the application is authorized further includes:

receiving a list of authorized provider service identifiers of authorized applications;

identifying a provider service identifier associated with the application; and

determining the list of the authorized provider service identifiers includes the provider service identifier associated with the application.

13. The user equipment of claim 9, wherein determining the application is not authorized further includes:

receiving a list of unauthorized provider service identifiers of unauthorized applications;

identifying a provider service identifier associated with the application; and

determining the list of the unauthorized provider service identifiers includes the provider service identifier associated with the application.

14. The user equipment of claim 9, wherein the processor is further configured to, in response to determining the application is authorized to make the reliability request:

determine if a level of the reliability request is authorized;

wherein sending the packet to the second protocol layer comprises the sending of the packet with the reliability request to the second protocol layer in response to determining the level of the reliability request is authorized; and

in response to determining the level of the reliability request is not authorized:

determining a different level for which the application is authorized; and

wherein sending the packet to the second protocol layer comprises the sending of the packet with the modified reliability request having the different level to the second protocol layer.

15. The user equipment of claim 9, wherein the reliability request indicates at least one of a packet duplication request, a transmission diversity request, or a carrier aggregation request.

16. The user equipment of claim 9, wherein the processor is further configured to, in response to determining the application is not authorized to make the reliability request, send the packet without the reliability request to the second protocol layer.

17. A method of configuring a user equipment, comprising:

establishing, at a core network element, a control plane communication session with the user equipment;

identifying a vehicle-to-everything (V2X) service associated with the user equipment, wherein the V2X service has V2X configuration information for the user equipment;

forwarding a request for the V2X configuration information to a core network-based V2X control function;

receiving the V2X configuration information from the V2X control function in response to the request, wherein the V2X configuration information authorizes the user equipment to:

determine, at a non-access stratum protocol layer associated with the user equipment, whether an application is authorized to make a reliability request via a packet,

and

send the packet including the reliability request to an access stratum protocol layer associated with the user equipment, or

send the packet including a modified reliability request to a second protocol layer; and

transmitting the V2X configuration information to the user equipment via the control plane communication session.

18. The method of claim 17, further comprising:

receiving, at a core network-based access and mobility management function (AMF), a registration request from the user equipment; and

identifying, by the AMF, a V2X slice for the user equipment based on the registration request;

wherein identifying the V2X service associated with the user equipment comprises identifying by the AMF based on the V2X slice identified based on the registration request.

19. The method of claim 18, further comprising identifying the V2X control function based on information associated with the V2X slice.

20. The method of claim 17, further comprising:

receiving, at a core network-based access and mobility management function (AMF), a non-access stratum configuration request message from the user equipment, wherein the non-access stratum message includes a routing target indication corresponding to the V2X control function; and

wherein identifying the V2X service associated with the user equipment comprises identifying by the AMF based on the routing target indication corresponding to the V2X control function.

21. The method of claim 17, wherein identifying the V2X service associated with the user equipment comprises identifying a core network-based policy control function (PCF) based on a capability of the PCF to provide the V2X configuration information.

22. The method of claim 21, wherein the PCF communicates with the V2X control function, directly or via a network exposure function, to provide to the user equipment the V2X configuration information.

23. The method of claim 17, further comprising the V2X control function querying a unified data management to identify a core network-based access and mobility management function, a policy control function, or a network exposure function for providing the V2X configuration information to the user equipment.

24. A base station, comprising:

a memory; and

a processor in communication with the memory and configured to:

establish a control plane communication session with a user equipment (UE);

identify a vehicle-to-everything (V2X) service associated with the user equipment, wherein the V2X service has V2X configuration information for the user equipment;

forward a request for the V2X configuration information to a core network-based V2X control function;

receive the V2X configuration information from the V2X control function in response to the request, wherein the V2X configuration information authorizes the UE to:

determine, at a non-access stratum protocol layer associated with the UE, whether an application is authorized to make a reliability request via a packet, and

send the packet including the reliability request to an access stratum protocol layer associated with the UE, or

send the packet including a modified reliability request to a second protocol layer; and

transmit the V2X configuration information to the user equipment via the control plane communication session.

25. The base station of claim 24, wherein the processor is further configured to:

receive, at a core network-based access and mobility management function (AMF), a registration request from the user equipment; and

identify, by the AMF, a V2X slice for the user equipment based on the registration request;

wherein identifying the V2X service associated with the user equipment comprises identifying by the AMF based on the V2X slice identified based on the registration request.

26. The base station of claim 25, wherein the processor is further configured to identify the V2X control function based on information associated with the V2X slice.

27. The base station of claim 24, wherein the processor is further configured to:

receive, at a core network-based access and mobility management function (AMF), a non-access stratum configuration request message from the user equipment, wherein the non-access stratum message includes a routing target indication corresponding to the V2X control function; and

wherein identifying the V2X service associated with the user equipment comprises identifying by the AMF based on the routing target indication corresponding to the V2X control function.

28. The base station of claim 24, wherein identifying the V2X service associated with the user equipment comprises identifying a core network-based policy control function (PCF) based on a capability of the PCF to provide the V2X configuration information.

29. The base station of claim 28, wherein the PCF communicates with the V2X control function, directly or via a network exposure function, to provide to the user equipment the V2X configuration information.

30. The base station of claim 24, further comprising the V2X control function querying a unified data management to identify a core network-based access and mobility management function, a policy control function, or a network exposure function for providing the V2X configuration information to the user equipment.