CLAIMS

1. A User Equipment (UE) for wireless communication, comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause the UE to:

transmit, to a first network entity, a first request message to establish a first packet data network (PDN) connection, wherein the first request message indicates a UE capability for an extended protocol configuration options information element (ePCO IE) and for user equipment route selection policy (URSP) provisioning in an evolved packet system (EPS), wherein the UE capability for the ePCO IE is indicative that the ePCO IE is supported by the UE;

receive, from the first network entity, a first response message in response to the first request message, wherein the first response message indicates an establishment of the first PDN connection, and wherein the first response message indicates a first network entity capability for the ePCO IE which is indicative that the ePCO IE is supported by the first network entity but is not indicative that URSP provisioning is supported by the first network entity;

transmit, to a second network entity, a second request message to establish a second PDN connection, wherein the second request message indicates the UE capability for the URSP provisioning in the EPS; and

receive, from the second network entity, a second response message in response to the second request message, wherein the second response message indicates an establishment of the second PDN connection, and wherein the second response message indicates a second network entity capability for the URSP provisioning in the EPS which is indicative that URSP is supported by the second network entity.

2. The UE of claim 1, wherein the at least one processor is configured to cause the UE to receive, via the second PDN connection, URSP provisioning data.

3. The UE of claim 1 or claim 2, wherein the at least one processor is configured to cause the UE to transmit, to the second network entity, a third request message to modify the second PDN connection, a UE STATE INDICATION message to trigger a UE policy association for the UE, or a combination thereof.

4. The UE of any preceding claim, wherein the first network entity comprises a mobility management entity (MME), a first serving gateway (SGW-1), a first session management function and packet data network gateway control plane function (SMF+PGW-C-1), or a combination thereof.

5. The UE of claim 4, wherein the second network entity comprises at least one of:

the MME, the SGW-1, a second session management function and packet data network gateway control plane function (SMF+PGW-C-2), or a combination thereof; and

the MME, a second serving gateway (SGW-2), or the SMF+PGW-C-2, or a combination thereof.

6. The UE of any preceding claim, wherein the first PDN connection comprises a default PDN connection or a dedicated PDN connection, or a combination thereof, and wherein optionally:

the first PDN connection comprises a default PDN connection;

the second PDN connection comprises a dedicated PDN connection;

the first PDN connection comprises a dedicated PDN connection;

the second PDN connection comprises a default PDN connection or a dedicated PDN connection; or

a combination thereof.

7. The UE of claim 6, wherein the at least one processor is configured to cause the UE to determine that the ePCO IE is supported end-to-end, in response to the UE capability for the ePCO IE being indicative that the ePCO IE is supported by the UE and the first network entity capability being indicative that the ePCO IE is supported by the first network entity.

8. The UE of claim 7, wherein the at least one processor is configured to cause the UE to include in the second request message the UE capability for URSP provisioning based at least in part on the ePCO IE being supported end-to-end.

9. The UE of any preceding claim, wherein the first request message comprises an initial attachment request message, and wherein the first response message comprises an attachment acceptance message.

10. The UE of claim 9, wherein:

the first request message is a request from the UE to establish a default EPS bearer;

the second request message is a request from the UE to establish a dedicated EPS bearer;

the second response message is an acceptance of the dedicated EPS bearer;

or a combination thereof;

or wherein:

the first request message is a request from the UE to establish a dedicated EPS bearer;

the second request message is a request from the UE to establish a default EPS bearer or a dedicated EPS bearer;

the second response message is an acceptance of the default EPS bearer or the dedicated EPS bearer;

or a combination thereof.

11. The UE of any preceding claim, wherein the second request message excludes an indication of the UE capability for an ePCO IE.

12. A processor for wireless communication, comprising:

at least one controller coupled with at least one memory and configured to cause the processor to:

output, to a first network entity, a first request message to establish a first packet data network (PDN) connection, wherein the first request message indicates a UE

capability for an extended protocol configuration options information element (ePCO IE) and for user equipment route selection policy (URSP) provisioning in an evolved packet system (EPS), wherein the UE capability for the ePCO IE is indicative that the ePCO IE is supported by the UE,

obtain, from the first network entity, a first response message in response to the first request message, wherein the first response message indicates an establishment of the first PDN connection, and wherein the first response message indicates a first network entity capability for the ePCO IE which is indicative that the ePCO IE is supported by the first network entity but is not indicative that URSP provisioning is supported by the first network entity,

output, to a second network entity, a second request message to establish a second PDN connection, wherein the second request message indicates the UE capability for the URSP provisioning in the EPS, and

obtain, from the second network entity, a second response message in response to the second request message, wherein the second response message indicates an establishment of the second PDN connection, and wherein the second response message indicates a second network entity capability for the URSP provisioning in the EPS which is indicative that URSP is supported by the second network entity.

13. A method performed by a User Equipment (UE), the method comprising:

transmitting, to a first network entity, a first request message to establish a first packet data network (PDN) connection, wherein the first request message indicates a UE capability for an extended protocol configuration options information element (ePCO IE) and for user equipment route selection policy (URSP) provisioning in an evolved packet system (EPS), wherein the UE capability for the ePCO IE is indicative that the ePCO IE is supported by the UE;

receiving, from the first network entity, a first response message in response to the first request message, wherein the first response message indicates an establishment of the first PDN connection, and wherein the first response message indicates a first network entity capability for the ePCO IE which is indicative that the ePCO IE is supported by the

first network entity but is not indicative that URSP provisioning is supported by the first network entity;

transmitting, to a second network entity, a second request message to establish a second PDN connection, wherein the second request message indicates the UE capability for the URSP provisioning in the EPS; and

receiving, from the second network entity, a second response message in response to the second request message, wherein the second response message indicates an establishment of the second PDN connection, and wherein the second response message indicates a second network entity capability for the URSP provisioning in the EPS which is indicative that URSP is supported by the second network entity.

14. A system comprising a User Equipment (UE), a first network entity, and a second network entity, wherein:

the UE is configured to transmit, to the first network entity, a first request message to establish a first packet data network (PDN) connection, wherein the first request message indicates a UE capability for an extended protocol configuration options information element (ePCO IE) and for user equipment route selection policy (URSP) provisioning in an evolved packet system (EPS), wherein the UE capability for the ePCO IE is indicative that the ePCO IE is supported by the UE,

the first network entity is configured to transmit, to the UE, a first response message in response to the first request message, wherein the first response message indicates an establishment of the first PDN connection, and wherein the first response message indicates a first network entity capability for the ePCO IE which is indicative that the ePCO IE is supported by the first network entity but is not indicative that URSP provisioning is supported by the first network entity,

the UE is configured to transmit, to the second network entity, a second request message to establish a second PDN connection, wherein the second request message indicates the UE capability for the URSP provisioning in the EPS, and

the second network entity is configured to transmit, to the UE, a second response message in response to the second request message, wherein the second response message indicates an establishment of the second PDN connection, and wherein the second response

message indicates a second network entity capability for the URSP provisioning in the EPS which is indicative that URSP is supported by the second network entity.

15. The system of claim 14, further comprising a third network entity and a fourth network entity, wherein:

the UE is configured to transmit, to the second network entity, a third request message to modify the second PDN connection, wherein the third request message comprises a UE STATE INDICATION message to trigger a UE policy association for the UE by the third network entity,

the second network entity is configured to transmit, to the third network entity, the UE STATE INDICATION message;

the third network entity and the fourth network entity are configured to establish the UE policy association; and

the fourth network entity is configured to transmit, to the UE, one or more policy sections by modification of the second PDN connection.