CLAIMS

What is claimed is:

1. An application relocation method, comprising:

obtaining, by a source application function AF, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes; and

determining, by the source AF, a target application server AS based on the first information.

2. The method according to claim 1, wherein the target AS and a source AS serve a same application, and the source AS is an AS that the UE accesses before the user plane path of the PDU session of the UE changes.

3. The method according to claim 1 or 2, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

4. The method according to any one of claims 1 to 3, wherein the determining, by the source AF, a target AS based on the first information comprises:

determining, by the source AF based on the first information, information about a user plane function UPF entity or a data network that is used after the user plane path of the PDU session of the UE changes; and

determining, by the source AF, the target AS based on the information about the UPF entity or the data network.

5. The method according to any one of claims 1 to 4, wherein the source AF is the source AS.

6. The method according to claim 5, wherein the obtaining, by a source AF, first information comprises:

receiving, by the source AS, a first notification message from a policy control function PCF entity or a session management function SMF entity, wherein the first notification message notifies the source AS that the user plane path of the PDU session of the UE changes, and the first notification message comprises the first information.

7. The method according to claim 6, wherein the method further comprises:

subscribing, by the source AS, to a user plane management event notification from the PCF entity or the SMF entity, wherein the user plane management event notification notifies the source AS when the user plane path of the PDU session of the UE changes.

8. The method according to claim 5, wherein the obtaining, by a source AF, first information comprises:

receiving, by the source AS, a second notification message from a source enabler server ES, wherein the second notification message notifies the source AS that the user plane path of the PDU session of the UE changes, and the

second notification message comprises the first information.

9. The method according to claim 8, wherein the method further comprises:

subscribing, by the source AS, to a user plane management event notification from the source ES, wherein the user plane management event notification notifies the source AS when the user plane path of the PDU session of the UE changes.

10. The method according to any one of claims 5 to 9, wherein the method further comprises:

sending, by the source AS, connection information of the target AS to the UE.

11. The method according to any one of claims 1 to 4, wherein the source AF is a source ES.

12. The method according to claim 11, wherein the obtaining, by a source AF, first information comprises:

receiving, by the source ES, a third notification message from a PCF entity or an SMF entity, wherein the third notification message notifies the source ES that the user plane path of the PDU session of the UE changes, and the third notification message comprises the first information.

13. The method according to claim 12, wherein the method further comprises:

subscribing, by the source ES, to a user plane management event notification from the PCF entity or the SMF entity, wherein the user plane management event notification notifies the source ES when the user plane path of the PDU session of the UE changes.

14. The method according to claim 11, wherein the obtaining, by a source AF, first information comprises:

receiving, by the source ES, a fourth notification message sent by an edge enabler client EEC of the UE, wherein the fourth notification message notifies the source ES that the PDU session of the UE is re-established, and the fourth notification message comprises the first information.

15. The method according to any one of claims 11 to 14, wherein the method further comprises:

sending, by the source ES, connection information of the target AS to the UE.

16. The method according to any one of claims 1 to 4, wherein the source AF is a configuration server CS, and the method further comprises:

receiving, by the CS, first indication information from the UE, wherein the first indication information indicates the CS to send information about a target data network DN to the UE when the user plane path of the PDU session of the UE changes;

determining, by the CS, the target DN based on the first information; and

sending, by the CS, the information about the target DN to the UE.

17. The method according to claim 16, wherein obtaining, by the CS, the first information comprises:

receiving, by the CS, second indication information from the UE, wherein the second indication information

indicates that the PDU session of the UE is re-established, and the second indication information comprises the first information.

18. The method according to claim 16, wherein obtaining, by the CS, the first information comprises:

receiving, by the CS, a fifth notification message from a policy control function PCF entity or a session management function SMF entity, wherein the fifth notification message notifies the CS that the user plane path of the PDU session of the UE changes, and the fifth notification message comprises the first information.

19. The method according to claim 18, wherein the method further comprises:

subscribing, by the CS, to a user plane management event notification from the PCF entity or the SMF entity, wherein the user plane management event notification notifies the CS when the user plane path of the PDU session of the UE changes.

20. The method according to any one of claims 1 to 19, wherein a change of the user plane path of the PDU session of the UE comprises a change of a PDU session anchor of the UE, and a session and service continuity SSC mode of the PDU session of the UE is a mode 3.

21. An application relocation method, comprising:

obtaining, by a source enabler server ES, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes; and

sending, by the source ES, a second notification message to a source application server AS, wherein the second notification message notifies the source AS that the user plane path of the PDU session of the UE changes, and the source AS is an AS that the UE accesses before the user plane path of the PDU session of the UE changes.

22. The method according to claim 21, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

23. The method according to claim 21 or 22, wherein the method further comprises:

receiving, by the source ES, a user plane management event notification subscribed to by the source AS, wherein the user plane management event notification notifies the source AS when the user plane path of the PDU session of the UE changes.

24. The method according to any one of claims 21 to 23, wherein the obtaining, by a source ES, first information comprises:

receiving, by the source ES, a fourth notification message sent by an edge enabler client EEC of the UE, wherein the fourth notification message notifies the source ES that the PDU session of the UE is re-established, and the fourth

notification message comprises the first information.

25. The method according to any one of claims 20 to 23, wherein a change of the user plane path of the PDU session of the UE comprises a change of a PDU session anchor of the UE, and a session and service continuity SSC mode of the PDU session of the UE is a mode 3.

26. An application relocation method, comprising:

subscribing, by an edge enabler client EEC of user equipment UE, to a session re-establishment event notification from an operating system OS of the UE, wherein the session re-establishment event notification notifies the EEC when a protocol data unit PDU session of the UE is re-established; and

receiving, by the EEC, a sixth notification message from the OS, wherein the sixth notification message notifies the EEC that the PDU session of the UE is re-established, the sixth notification message comprises first information, and the first information is location information that is of the UE and that is obtained after the PDU session is re-established.

27. The method according to claim 26, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to a user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

28. The method according to claim 26 or 27, wherein the method further comprises:

sending, by the EEC, a fourth notification message to a source enabler server ES, wherein the fourth notification message notifies the source ES that the PDU session of the UE is re-established, and the fourth notification message comprises the first information.

29. The method according to claim 26 or 27, wherein the method further comprises:

determining, by the EEC, a target application server AS based on the first information, wherein the target AS and a source AS serve a same application, and the source AS is an AS that the UE accesses before the PDU session of the UE is re-established.

30. The method according to claim 29, wherein the determining, by the EEC, a target application server AS based on the first information comprises:

determining, by the EEC, a target ES based on the first information;

sending, by the EEC, a discovery request to the target ES;

receiving, by the EEC, a first message from the target ES, wherein the first message comprises connection information of one or more ASs managed by the target ES, and the one or more ASs managed by the target ES serve the same application as the source AS; and

~~determining, by the EEC, the target AS from the one or more ASs managed by the target ES.~~

~~31. The method according to claim 29 or 30, wherein the method further comprises:~~

~~sending, by the EEC, connection information of the target AS to the source AS or a source ES, to enable the source AS or the source ES to relocate a context of the UE from the source AS to the target AS.~~

~~32. The method according to any one of claims 25 to 30, wherein a change of the user plane path of the PDU session of the UE comprises a change of a PDU session anchor of the UE, and a session and service continuity SSC mode of the PDU session of the UE is a mode 3.~~

~~33~~1. An application relocation method, comprising:

sending, by a source application server AS, a subscription request to a source enabler server ES, wherein the subscription request indicates to notify the source AS when the source ES determines that a target AS exists;

receiving, by the source AS, a seventh notification message from the source ES, wherein the seventh notification message comprises connection information of the target AS; and

determining, by the source AS, to relocate a context of user equipment UE from the source AS to the target AS.

~~34~~2. The method according to claim ~~33~~1, wherein the method further comprises:

sending, by the source AS, fourth indication information to the source ES, wherein the fourth indication information indicates the source ES to relocate the context of the UE from the source AS to the target AS.

~~35~~3. The method according to claim ~~33~~ 1 or ~~34~~2, wherein the target AS and the source AS serve a same application.

~~36~~4. The method according to any one of claims ~~33~~ 1 to ~~35~~3, wherein the method further comprises:

sending, by the source AS, an application relocation request message to the target AS, wherein the application relocation request message is for relocating the context on the source AS to the target AS.

~~37~~5. The method according to claim ~~36~~4, wherein the method further comprises:

receiving, by the source AS, an application relocation response message from the target AS, wherein the application relocation response message comprises third indication information, and the third indication information indicates whether the target AS agrees application relocation; and

correspondingly, the determining, by the source AS, to relocate a context of UE from the source AS to the target AS comprises: if the third indication information indicates that the target AS agrees application relocation, determining, by the source AS, to relocate the context of the UE from the source AS to the target AS.

~~38~~6. The method according to claim ~~37~~5, wherein the determining, by the source AS, to relocate a context of UE from the source AS to the target AS comprises:

if the third indication information indicates that the target AS agrees application relocation, determining, by the source AS, to relocate the context of the UE from the source AS to the target AS.

~~39~~7. The method according to any one of claims ~~33~~ 1 to ~~38~~6, wherein the method further comprises:

sending, by the source AS, fifth indication information to the source ES, wherein the fifth indication information indicates whether the source AS supports the application relocation.

~~40~~8. The method according to any one of claims ~~32~~ 1 to ~~39~~7, wherein the method further comprises:

sending, by the source AS, seventh indication information to the source ES, wherein the seventh indication information indicates that service continuity needs to be maintained during the application relocation.

~~41~~9. An application relocation method, comprising:

receiving, by a source enabler server ES, a subscription request from a source application server AS, wherein the subscription request indicates to notify the source AS when the source ES determines that a target AS exists;

obtaining, by the source ES, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes; and

determining, by the source ES, the target AS based on the first information.

~~42~~10. The method according to claim ~~41~~9, wherein the method further comprises:

sending, by the source ES, a seventh notification message to the source AS, wherein the seventh notification message indicates that the target AS exists, and the seventh notification message comprises connection information of the target AS.

~~43~~11. The method according to claim ~~41~~ 9 or ~~42~~10, wherein the location information of the UE comprises at least one of an IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

~~44~~12. The method according to any one of claims ~~41~~ 9 to ~~43~~11, wherein the target AS and the source AS serve a same application.

~~45~~13. The method according to any one of claims ~~40~~ 9 to ~~44~~12, wherein the obtaining, by the source ES, first information comprises:

receiving, by the source ES, a third notification message from a policy control function PCF entity or a session management function SMF entity, wherein the third notification message notifies the source ES that the user plane path of the PDU session of the UE changes, and the third notification message comprises the first information.

~~46~~14. The method according to claim ~~45~~13, wherein the method further comprises:

subscribing, by the source ES, to a user plane management event notification from the PCF entity or the SMF entity, wherein the user plane management event notification notifies the source ES when the user plane path of the PDU session of the UE changes.

~~47~~15. The method according to any one of claims ~~40~~ 9 to ~~46~~14, wherein the subscription request comprises information about the PDU session of the UE, and the information about the PDU session of the UE comprises at least one of the Internet protocol IP address of the UE, a data network name DNN, or single network slice selection assistance information S-NSSAI.

~~48~~16. The method according to claim ~~47~~15, wherein the method further comprises:

determining, by the source ES, the policy control function PCF entity or the session management function SMF entity based on the information about the PDU session of the UE.

~~49~~17. The method according to any one of claims ~~40~~ 9 to ~~48~~16, wherein the subscription request comprises application identification information; and the determining, by the source ES, the target AS based on the first information comprises:

determining, by the source ES, the target AS based on the first information and the application identification information.

~~50~~18. The method according to any one of claims ~~40~~ 9 to ~~49~~17, wherein the method further comprises:

sending, by the source ES, sixth indication information to the SMF, wherein the sixth indication information indicates whether the source AS supports application relocation.

~~51~~19. The method according to any one of claims ~~40~~ 9 to ~~50~~18, wherein the method further comprises:

receiving, by the source ES, seventh indication information from the source AS, wherein the seventh indication information indicates that service continuity needs to be maintained during the application relocation.

~~52~~20. The method according to claim ~~51~~19, wherein the method further comprises:

sending, by the source ES, eighth indication information to the SMF or the PCF, wherein the eighth indication information indicates that the service continuity needs to be maintained during the application relocation.

~~53~~21. The method according to any one of claims ~~40~~ 9 to ~~52~~20, wherein the method further comprises:

sending, by the source ES, the connection information of the target AS to the SMF or the PCF.

~~54. An application relocation method, comprising:~~

~~obtaining, by a configuration server CS, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes; and~~

~~determining, by the CS, a target enabler server ES based on the first information.~~

~~55. The method according to claim 54, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.~~

56. The method according to claim 54 or 55, wherein the obtaining, by a CS, first information comprises:

receiving, by the CS, the first information from the UE.

57. The method according to claim 56, wherein the method further comprises:

sending, by the CS, connection information of the target ES to the UE.

58. The method according to claim 54 or 55, wherein the obtaining, by a CS, first information comprises:

receiving, by the CS, the first information from a source ES.

59. The method according to claim 58, wherein the method further comprises:

sending, by the CS, connection information of the target ES to the source ES.

60. The method according to any one of claims 54 to 59, wherein the first information is the IP address that is of the UE and that is obtained after the user plane path of the PDU session of the UE changes; and the determining, by the CS, a target ES based on the first information comprises:

determining, by the CS based on the IP address that is of the UE and that is obtained after the user plane path of the PDU session of the UE changes, the DNAI that is obtained after the user plane path of the PDU session of the UE changes; and

determining, by the CS, the target ES based on the DNAI.

61. The method according to any one of claims 54 to 60, wherein a change of the user plane path of the PDU session of the UE comprises a change of a PDU session anchor of the UE, and a session and service continuity SSC mode of the PDU session of the UE is a mode 3.

62. An application relocation method, comprising:

obtaining, by a source enabler server ES, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes;

sending, by the source ES, the first information to a configuration server CS; and

receiving, by the source ES, connection information of a target ES from the CS.

63. The method according to claim 62, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

64. The method according to claim 62 or 63, wherein the obtaining, by a source ES, first information comprises:

receiving, by the source ES, the first information from the UE.

65. The method according to claim 62 or 63, wherein the obtaining, by a source ES, first information comprises:

receiving, by the source ES, a third notification message from a policy control function PCF entity or a session

management function SMF entity, wherein the third notification message notifies the source ES that the user plane path of the PDU session of the UE changes, and the third notification message comprises the first information.

66. The method according to claim 65, wherein the method further comprises:

subscribing, by the source ES, to a user plane management event notification from the PCF entity or the SMF entity, wherein the user plane management event notification notifies the source ES when the user plane path of the PDU session of the UE changes.

67. The method according to any one of claims 62 to 66, wherein the method further comprises:

sending, by the source ES, a first application discovery request to the target ES, wherein the first application discovery request requests to obtain a target application server AS; and

receiving, by the source ES, connection information of the target AS from the target ES.

68. The method according to claim 67, wherein the target AS and a source AS serve a same application, and the source AS is an AS that the UE accesses before the user plane path of the PDU session of the UE changes.

69. The method according to claim 67 or 68, wherein the method further comprises:

sending, by the source ES, the connection information of the target AS to the UE.

70. An application relocation method, comprising:

receiving, by user equipment UE, first information from a session management function SMF entity or a user plane function UPF entity, wherein the first information is location information of the UE after a user plane path of a protocol data unit PDU session of the UE changes; and

sending, by the UE, the first information to an application function AF.

71. The method according to claim 70, wherein the location information of the UE comprises at least one of an Internet protocol IP address of the UE, a data network access identifier DNAI corresponding to the user plane path of the PDU session of the UE, a tracking area identity TAI of the UE, a cell identifier of the UE, a radio access network identifier of the UE, or geographic location information of the UE.

72. The method according to claim 70 or 71, wherein the AF is a configuration server CS, and the method further comprises:

receiving, by the UE, connection information of a target enabler server ES from the CS.

73. The method according to claim 72, wherein the method further comprises:

sending, by the UE, a second application discovery request to the target ES, wherein the second application discovery request requests to obtain a target AS; and

receiving, by the UE, connection information of the target AS from the target ES.

74. The method according to claim 70 or 71, wherein the AF is a source ES.

~~75. The method according to claim 74, wherein the method further comprises:~~

~~receiving, by the UE, connection information of a target AS from the source ES.~~

~~76~~22. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 1 to ~~20~~8.

~~77~~23. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims ~~21~~9 to ~~25~~21.

~~78. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 26 to 32.~~

~~79. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 33 to 39.~~

~~80. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 40 to 53.~~

~~81. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 54 to 61.~~

~~82. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 62 to 69.~~

~~83. An application relocation apparatus, comprising a unit or a means configured to perform the application relocation method according to any one of claims 70 to 75.~~

~~84. An application relocation apparatus, comprising:~~

~~a transceiver, configured to send and receive information, or configured to communicate with another network element; and~~

~~a processor, configured to execute computer program instructions, to implement the application relocation method according to any one of claims 1 to 75.~~

~~85. A communication system, comprising a source application server AS and a source enabler server ES, wherein~~

~~the source AS subscribes to a user plane management event notification from the source ES, wherein the user plane management event notification notifies the source AS when a user plane path of a protocol data unit PDU session of user equipment UE changes, and the source AS is an AS that the UE accesses before the user plane path of the PDU session of the UE changes;~~

~~the source ES obtains first information, wherein the first information is location information that is of the UE and that is obtained after the user plane path of the PDU session of the UE changes;~~

~~the source ES sends a second notification message to the source AS, wherein the second notification message~~

~~notifies the source AS that the user plane path of the PDU session of the UE changes, and the second notification message comprises the first information; and~~

~~the source AS determines a target AS based on the first information, and sends connection information of the target AS to the UE.~~

~~86. The communication system according to claim 85, wherein the communication system further comprises the UE, wherein~~

~~the UE receives the connection information of the target AS from the source AS; and~~

~~the UE establishes a connection to the target AS based on the connection information of the target AS.~~

~~87. A system on a chip, comprising a processor and a memory, wherein the memory stores instructions; and when the instructions are executed by the processor, the application relocation method according to any one of claims 1 to 75 is implemented.~~

24. A communication system, comprising a source application server AS and a source enabler server ES, ~~wherein~~ wherein the source AS is configured to:

send a subscription request to a source enabler server, ES, wherein the subscription request indicates to notify the source AS when the source ES determines that a target AS exists;

wherein the source ES is configured to:

receive the subscription request from the source AS;

obtain first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes;

determine the target AS based on the first information; and

send a notification message to the source AS, wherein the notification message comprises connection information of the target AS

wherein the source AS is further configured to:

receive the notification message from the source ES; and

determine to relocate a context of user equipment UE from the source AS to the target AS.

25. A communication method, comprising:

sending, by a source application server, AS, a subscription request to a source enabler server, ES, wherein the subscription request indicates to notify the source AS when the source ES determines that a target AS exists;

receiving, by the source ES, the subscription request;

obtaining, by the source ES, first information, wherein the first information is location information of user equipment, UE, after a user plane path of a protocol data unit PDU session of the UE changes; and

determining, by the source ES, the target AS based on the first information;

sending, by the source ES, a notification message to the source AS, wherein the notification message comprises connection information of the target AS;

receiving, by the source AS, the notification message; and

determining, by the source AS, to relocate a context of user equipment UE from the source AS to the target AS.

~~88~~26. A computer storage medium, comprising computer program code, wherein when the computer program code is run on a processor, the processor is enabled to perform the application relocation method according to any one of claims 1 to ~~75~~21.