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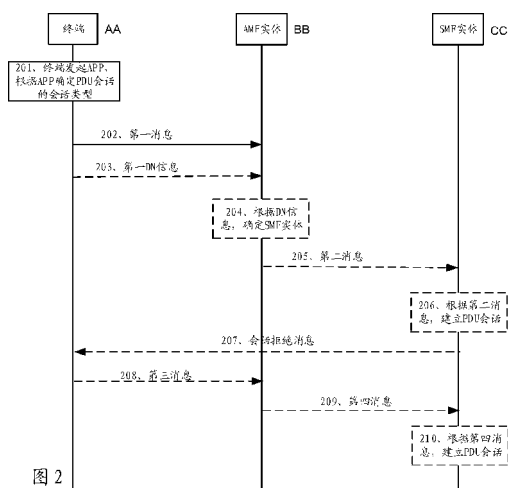
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(54) Title: SESSION PROCESSING METHOD AND DEVICE

(54) 发明名称: 一种会话处理方法及装置



201 A TERMINAL INITIATES AN APPLICATION AND DETERMINES, ACCORDING TO THE APPLICATION, A SESSION TYPE OF A PDU SESSION
202 FIRST MESSAGE
203 FIRST DN MESSAGE
204 DETERMINE AN SMF ENTITY ACCORDING TO THE DN MESSAGE
205 SECOND MESSAGE
206 ESTABLISH A PDU SESSION ACCORDING TO THE SECOND MESSAGE
207 SESSION REJECTION MESSAGE
208 THIRD MESSAGE
209 FOURTH MESSAGE
210 ESTABLISH A PDU SESSION ACCORDING TO THE FOURTH MESSAGE
AA TERMINAL
BB AMF ENTITY
CC SMF ENTITY

(57) Abstract: The present application provides a session processing method and a device. The method comprises: a terminal initiating an application and determining, according to the application, a session type of a packet data unit (PDU) session; and the terminal sending a first message to an access and mobility management function (AMF) entity, wherein the first message includes the session type and is used for requesting to establish a PDU session of the session type. In the method, when the terminal initiates the first message to the AMF entity requesting to establish a PDU session, the session type of the PDU session is carried in the first message, such that a network side can establish a PDU session of a corresponding type according to the session type of the PDU session transmitted by the terminal, thereby establishing a PDU session of a correct type for the terminal and enhancing the accuracy of communication between the terminal and the network side.

(57) 摘要: 本申请提供一种会话处理方法及装置。该方法包括: 终端发起应用APP, 根据APP确定分组数据单元PDU会话的会话类型; 终端向接入与移动性管理功能AMF实体发送第一消息, 所述第一消息包括所述会话类型, 所述第一消息用于请求建立所述会话类型的PDU会话。该方法中, 终端在向AMF实体发起用于请求建立PDU会话的第一消息时, 在第一消息中携带PDU会话的会话类型, 使得网络侧可以根据终端发送的PDU会话的会话类型建立相应类型的PDU会话, 从而为终端建立正确类型的PDU会话, 提高了终端与网络侧之间通信的正确性。

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SESSION HANDLING METHOD AND APPARATUS

[0001] This application claims priority to Chinese Patent Application No. 201710698731.1, filed with the China National Intellectual Property Administration on August 15, 2017 and entitled "SESSION HANDLING METHOD AND APPARATUS",
5 which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] This application relates to the field of mobile communications technologies, and in particular, to a session handling method and apparatus.

BACKGROUND

10 [0003] In fifth generation (the 5th generation, 5G) mobile communication, a plurality of types of packet data unit (packet data unit, PDU) sessions are defined, for example, an Internet (Internet) type session, an Ethernet (Ethernet) type session, and an unstructured (unstructured) type session.

[0004] When there are a plurality of types of PDU sessions, how to establish a PDU
15 session of a correct type for a terminal is a problem to be resolved.

SUMMARY

[0005] This application provides a session handling method and apparatus, to establish a PDU session of a correct type for a terminal.

[0006] To achieve the foregoing objective, this application provides following
20 technical solutions:

[0007] According to a first aspect, this application provides a session handling method, including: initiating, by a terminal, an application APP, and determining a

session type of a packet data unit PDU session based on the application APP; and sending, by the terminal, a first message to an access and mobility management function AMF entity, where the first message includes the session type, and the first message is used to request to establish the PDU session of the session type. In the method, when
5 initiating, to the AMF entity, the first message used to request to establish the PDU session, the terminal adds the session type of the PDU session to the first message, so that a network side can establish the PDU session of the corresponding type based on the session type of the PDU session that is sent by the terminal, so as to establish the PDU session of the correct type for the terminal, thereby improving correctness of
10 communication between the terminal and the network side.

[0008] In a possible design, the determining, by a terminal, a session type of a PDU session includes: determining, by the terminal based on a first correspondence, the session type corresponding to the APP, where the first correspondence is a correspondence between an APP and a session type of a PDU session. In the method,
15 the terminal determines the session type of the PDU session based on the correspondence between an APP and a session type of a PDU session. This is easy to implement.

[0009] In a possible design, the first correspondence is preconfigured on the terminal, or the first correspondence is obtained by the terminal from the AMF entity.

[0010] In a possible design, the determining, by a terminal, a session type of a PDU session includes: determining, by the terminal based on a second correspondence, a DN identifier corresponding to the APP; determining, by the terminal, a DN type corresponding to the DN identifier; and determining, by the terminal based on a third
20 correspondence, the session type corresponding to the DN type, where the second correspondence is a correspondence between an APP and a DN identifier, and the third
25 correspondence is a correspondence between a DN type and a session type of a PDU session.

[0011] In a possible design, the terminal sends a request message to the AMF entity, and receives the DN identifier and the DN type that are sent by the AMF entity based
30 on the request message; or the terminal receives the DN identifier and the DN type that

are broadcast by a radio access network RAN device.

[0012] In a possible design, the terminal sends first DN information to the AMF entity, where the first DN information includes the DN identifier or includes the DN identifier and the DN type, the first DN information is used by the AMF entity to
5 determine an SMF entity based on the DN identifier, and the SMF entity is configured to establish the PDU session of the session type.

[0013] According to a second aspect, this application provides a session handling method, including: receiving, by a session management function SMF entity, a second message from an access and mobility management function AMF entity, where the
10 second message includes a session type, of a packet data unit PDU session, requested by a terminal, and the second message is used to request to establish the PDU session; and establishing, by the SMF entity, the PDU session based on the session type of the PDU session.

[0014] In a possible design, the SMF entity receives a DN identifier from the AMF
15 entity; and
the SMF entity determines a user plane function UPF entity based on the DN identifier and the session type of the PDU session, where the UPF entity is configured to establish the PDU session of the session type.

[0015] According to a third aspect, this application provides a session handling
20 method, including: receiving, by a session management function SMF entity, a second message from an access and mobility management function AMF entity, where the second message includes second data network DN information, and the second message is used to request to establish a PDU session; and determining, by the SMF entity, a session type of the PDU session based on the second DN information.

[0016] In a possible design, when the second DN information includes a DN
25 identifier, the determining, by the SMF entity, a session type of the PDU session based on the second DN information includes: determining, by the SMF entity, a DN type based on the DN identifier, and determining the session type of the PDU session based on the DN type; or

30 when the second DN information includes a DN type, the determining, by

the SMF entity, a session type of the PDU session based on the second DN information includes: determining, by the SMF entity, the session type of the PDU session based on the DN type.

5 **[0017]** In a possible design, if the second message carries a session type, of a PDU session, requested by the terminal, when the session type of the PDU session that is determined by the SMF entity based on the second DN information is inconsistent with the session type, of the PDU session, requested by the terminal, the method further includes:

10 sending, by the SMF entity, a session reject message to a terminal, where the session reject message includes the session type of the PDU session that is determined by the SMF entity based on the second DN information.

[0018] In a possible design, the SMF entity establishes the PDU session based on the session type of the PDU session.

15 **[0019]** In a possible design, the SMF entity determines a user plane function UPF entity based on the second DN information, and establishes the PDU session of the session type.

20 **[0020]** According to a fourth aspect, this application provides a session handling method, including: receiving, by an access and mobility management function AMF entity, a first message and first data network DN information from a terminal, where the first message is used to request to establish a PDU session, and determining, by the AMF entity, a session management function SMF entity based on the first DN information; and sending, by the AMF entity, a second message to the SMF entity based on the first message, where the second message is used to request to establish the PDU session, and a session type of the PDU session corresponds to the first DN information.

25 **[0021]** In a possible design, the first message and the second message include a session type, of a PDU session, requested by the terminal; or the first DN information includes a DN identifier, the second message includes the DN identifier, and the DN identifier is used by the SMF entity to determine the session type of the PDU session based on the DN identifier.

30 **[0022]** In a possible design, the first DN information includes the DN identifier;

and

the determining, by the AMF entity, a session management function SMF entity based on the first DN information includes:

determining, by the AMF entity, a DN type based on the DN identifier;

5 sending, by the AMF entity, the DN identifier and the DN type to an NRF entity; and

receiving, by the AMF entity, the SMF entity from the NRF entity, where the SMF entity is determined by the NRF entity based on the DN identifier and the DN type.

10 **[0023]** In a possible design, the AMF entity receives a registration request message from the terminal;

the AMF entity obtains, from a database based on the registration request message, DN information to which the terminal subscribes, where the subscribed DN information includes a DN identifier and a DN type; and

15 the AMF entity sends, to the terminal, the DN information to which the terminal subscribes.

[0024] In a possible design, the registration request message includes capability indication information of the terminal, where the capability indication information is used to indicate a data network supported by the terminal; and

20 the DN information to which the terminal subscribes corresponds to the data network supported by the terminal.

[0025] According to a fifth aspect, this application provides an apparatus. The apparatus may be a terminal, or may be a chip in a terminal. The apparatus has functions of implementing various embodiments of the first aspect. The functions may be
25 implemented by hardware, or may be implemented by hardware executing corresponding software. The hardware or the software includes one or more modules corresponding to the foregoing functions.

[0026] In a possible design, when the apparatus is a terminal, the terminal includes a processing unit and a communications unit. The processing unit may be, for example,
30 a processor. The communications unit may be, for example, a transceiver, and the

transceiver includes a radio frequency circuit. Optionally, the terminal further includes a storage unit, and the storage unit may be, for example, a memory. When the terminal includes the storage unit, the storage unit is configured to store a computer-executable instruction. The processing unit is connected to the storage unit. The processing unit
5 executes the computer-executable instruction stored in the storage unit, to enable the terminal to perform the session handling method in any design of the first aspect.

[0027] In another possible design, when the apparatus is a chip in a terminal, the chip includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, an
10 input/output interface, a pin, or a circuit. The processing unit may execute a computer-executable instruction stored in a storage unit, to enable the session handling method in any design of the first aspect to be performed. Optionally, the storage unit is a storage unit in the chip, for example, a register or a buffer, or the storage unit may be a storage unit in the terminal but outside the chip, for example, a read-only memory (read-only
15 memory, ROM), another type of static storage device capable of storing static information and instructions, or a random access memory (random access memory, RAM).

[0028] The processor mentioned anywhere above may be a general-purpose central processing unit (central processing unit, CPU), a microprocessor, an application-
20 specific integrated circuit (application-specific integrated circuit, ASIC), or one or more integrated circuits for controlling program execution of the session handling method in the first aspect.

[0029] According to a sixth aspect, this application provides an apparatus. The apparatus may be an SMF entity, or may be a chip in an SMF entity. The apparatus has
25 functions of implementing various embodiments of the second aspect. The functions may be implemented by hardware, or may be implemented by hardware executing corresponding software. The hardware or the software includes one or more modules corresponding to the foregoing functions.

[0030] In a possible design, when the apparatus is an SMF entity, the SMF entity
30 includes a processing unit and a communications unit. The processing unit may be, for

example, a processor. The communications unit may be, for example, a transceiver, and the transceiver includes a radio frequency circuit. Optionally, the SMF entity further includes a storage unit, and the storage unit may be, for example, a memory. When the SMF entity includes the storage unit, the storage unit is configured to store a computer-executable instruction. The processing unit is connected to the storage unit. The processing unit executes the computer-executable instruction stored in the storage unit, to enable the SMF entity to perform the session handling method in any design of the second aspect.

[0031] In another possible design, when the apparatus is a chip in an SMF entity, the chip includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, an input/output interface, a pin, or a circuit. The processing unit may execute a computer-executable instruction stored in a storage unit, to enable the session handling method in any design of the second aspect to be performed. Optionally, the storage unit is a storage unit in the chip, for example, a register or a buffer, or the storage unit may be a storage unit in the SMF entity but outside the chip, for example, a ROM, another type of static storage device capable of storing static information and instructions, or a RAM.

[0032] The processor mentioned anywhere above may be a general-purpose central processing unit (CPU), a microprocessor, an ASIC, or one or more integrated circuits for controlling program execution of the session handling method in the first aspect.

[0033] According to a seventh aspect, this application provides an apparatus. The apparatus may be an SMF entity, or may be a chip in an SMF entity. The apparatus has functions of implementing various embodiments of the third aspect. The functions may be implemented by hardware, or may be implemented by hardware executing corresponding software. The hardware or the software includes one or more modules corresponding to the foregoing functions.

[0034] In a possible design, when the apparatus is an SMF entity, the SMF entity includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, a transceiver, and the transceiver includes a radio frequency circuit. Optionally, the SMF entity further

includes a storage unit, and the storage unit may be, for example, a memory. When the SMF entity includes the storage unit, the storage unit is configured to store a computer-executable instruction. The processing unit is connected to the storage unit. The processing unit executes the computer-executable instruction stored in the storage unit, to enable the SMF entity to perform the session handling method in any design of the third aspect.

[0035] In another possible design, when the apparatus is a chip in an SMF entity, the chip includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, an input/output interface, a pin, or a circuit. The processing unit may execute a computer-executable instruction stored in a storage unit, to enable the session handling method in any design of the third aspect to be performed. Optionally, the storage unit is a storage unit in the chip, for example, a register or a buffer, or the storage unit may be a storage unit in the SMF entity but outside the chip, for example, a ROM, another type of static storage device capable of storing static information and instructions, or a RAM.

[0036] The processor mentioned anywhere above may be a general-purpose central processing unit (CPU), a microprocessor, an ASIC, or one or more integrated circuits for controlling program execution of the session handling method in the first aspect.

[0037] According to an eighth aspect, this application provides an apparatus. The apparatus may be an AMF entity, or may be a chip in an AMF entity. The apparatus has functions of implementing various embodiments of the fourth aspect. The functions may be implemented by hardware, or may be implemented by hardware executing corresponding software. The hardware or the software includes one or more modules corresponding to the foregoing functions.

[0038] In a possible design, when the apparatus is an AMF entity, the AMF entity includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, a transceiver, and the transceiver includes a radio frequency circuit. Optionally, the AMF entity further includes a storage unit, and the storage unit may be, for example, a memory. When the AMF entity includes the storage unit, the storage unit is configured to store a computer-

executable instruction. The processing unit is connected to the storage unit. The processing unit executes the computer-executable instruction stored in the storage unit, to enable the AMF entity to perform the session handling method in any design of the fourth aspect.

5 **[0039]** In another possible design, when the apparatus is a chip in an AMF entity, the chip includes a processing unit and a communications unit. The processing unit may be, for example, a processor. The communications unit may be, for example, an input/output interface, a pin, or a circuit. The processing unit may execute a computer-executable instruction stored in a storage unit, to enable the session handling method in
10 any design of the fourth aspect to be performed. Optionally, the storage unit is a storage unit in the chip, for example, a register or a buffer, or the storage unit may be a storage unit in the AMF entity but outside the chip, for example, a ROM, another type of static storage device capable of storing static information and instructions, or a RAM.

[0040] The processor mentioned anywhere above may be a general-purpose central
15 processing unit (CPU), a microprocessor, an ASIC, or one or more integrated circuits for controlling program execution of the session handling method in the fourth aspect.

[0041] According to a ninth aspect, this application further provides a computer-readable storage medium. The computer-readable storage medium stores an instruction, and when the instruction is run on a computer, the computer is enabled to perform the
20 method in the first aspect. The computer may be, for example, a terminal.

[0042] According to a tenth aspect, this application further provides a computer-readable storage medium. The computer-readable storage medium stores an instruction, and when the instruction is run on a computer, the computer is enabled to perform the method in the second aspect. The computer may be, for example, an SMF entity.

25 **[0043]** According to an eleventh aspect, this application further provides a computer-readable storage medium. The computer-readable storage medium stores an instruction, and when the instruction is run on a computer, the computer is enabled to perform the method in the third aspect. The computer may be, for example, an SMF entity.

30 **[0044]** According to a twelfth aspect, this application further provides a computer-

readable storage medium. The computer-readable storage medium stores an instruction, and when the instruction is run on a computer, the computer is enabled to perform the method in the fourth aspect. The computer may be, for example, an AMF entity.

5 [0045] According to a thirteenth aspect, this application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method in any design of the first aspect.

10 [0046] According to a fourteenth aspect, this application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method in any design of the second aspect.

15 [0047] According to a fifteenth aspect, this application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method in any design of the third aspect.

20 [0048] According to a sixteenth aspect, this application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method in any design of the fourth aspect.

[0049] In addition, for technical effects brought by any design manner of the second aspect to the sixteenth aspect, refer to technical effects brought by different design manners of the first aspect. Details are not described herein again.

25 [0050] These aspects or other aspects of the present invention are clearer and more comprehensible in descriptions of the following embodiments.

BRIEF DESCRIPTION OF DRAWINGS

[0051] FIG. 1 is a schematic diagram of a possible network architecture to which this application is applicable;

[0052] FIG. 2 is a flowchart of a session handling method according to this application;

[0053] FIG. 3 is a flowchart of another session handling method according to this application; and

5 [0054] FIG. 4 is a schematic structural diagram of an apparatus according to this application.

DESCRIPTION OF EMBODIMENTS

[0055] To make the objectives, technical solutions, and advantages of this application clearer, the following further describes this application in detail with
10 reference to the accompanying drawings.

[0056] It should be noted that, a session handling method in this application may be performed by an apparatus. On a network side, the apparatus may be a session management function (Session Management Function, SMF) entity or a chip in an SMF entity, or the apparatus may be an access and mobility management function (Access
15 and Mobility Management Function, AMF) entity or a chip in an AMF entity. On a terminal side, the apparatus may be a terminal or a chip in a terminal.

[0057] For ease of description, in this application, the session handling method is described by using an example in which the apparatus is an AMF entity, an SMF entity, or a terminal. For an implementation method in which the apparatus is a chip in an AMF
20 entity, a chip in an SMF entity, or a chip in a terminal, refer to specific descriptions about the session handling method in which the apparatus is an AMF entity, an SMF entity, or a terminal. Details are not described again.

[0058] FIG. 1 is a schematic diagram of a possible network architecture to which this application is applicable. The schematic diagram of the network architecture
25 includes a terminal, a third generation partnership project (3rd Generation Partnership Project, 3GPP) access network entity, a non-3GPP (Non-3GPP) access network, an N3IWF, an AMF entity, a session management function (session management function, SMF) entity, a user plane function (user plane function, UPF) entity, a data network

(data Network, DN), and the like.

[0059] The terminal is a device having wireless receiving and sending functions. The terminal may be deployed on land, for example, an indoor or outdoor device, a handheld device, or a vehicle-mounted device, or may be deployed on a water surface
5 (for example, on a ship), or may be deployed in the air (for example, on an airplane, a balloon, or a satellite). The terminal may be a mobile phone (mobile phone), a tablet computer (pad), a computer with a wireless transceiver function, a virtual reality (virtual reality, VR) terminal, an augmented reality (augmented reality, AR) terminal, a wireless terminal in industrial control (industrial control), a wireless terminal in self driving (self
10 driving), a wireless terminal in remote medical (remote medical), a wireless terminal in a smart grid (smart grid), a wireless terminal in transportation safety (transportation safety), a wireless terminal in a smart city (smart city), a wireless terminal in a smart home (smart home), or the like.

[0060] The 3GPP access network entity is also referred to as a radio access network
15 (radio access network, RAN) entity, and may be, for example, a base station in 5G. The non-3GPP access network is an access network other than the 3GPP access network, for example, a wireless local area network (wireless local area networks, WLAN) access network. The N3IWF is similar to an evolved packet data gateway (evolved packet data gateway, ePDG) in long term evolution (long term evolution, LTE), and is
20 configured to: when UE accesses a 5G network by using a non-3GPP technology, establish an Internet protocol security (internet protocol security, IPsec) tunnel with the UE. In a future 5G definition, the name N3IWF may be changed.

[0061] The AMF entity is responsible for access management and mobility management of the terminal. In actual application, the AMF entity includes a mobility
25 management function in a mobility management entity (mobility management entity, MME) in a network framework in long term evolution (long term evolution, LTE), and an access management function is added to the AMF entity.

[0062] The SMF entity is responsible for session management, that is, a session management function in the MME entity, for example, establishment of a session for a
30 user. The UPF entity is a user plane function entity of the terminal, and is mainly

responsible for connecting to an external network. The UPF entity provides related functions of a serving gateway (serving gateway, SGW) and a public data network (public data network, PDN) gateway (gateway) of LTE. The DN is responsible for providing a data service for the terminal, for example, providing a network access
5 function and a text messaging function for the terminal.

[0063] In this application, a DN identifier is used to identify a data network. A new attribute DN type is added. The DN type (Type) is used to indicate a type of a data network. For example, the DN type includes Internet (internet), Ethernet (Ethernet), and an unstructured (unstructured) network.

10 **[0064]** In this application, the DN identifier and/or the DN type may be collectively referred to as DN information. To be specific, the DN information includes the DN identifier, or the DN information includes the DN type, or the DN information includes the DN identifier and the DN type.

[0065] In an implementation, in a 3GPP standard, a currently defined data network
15 name (data network name, DNN) is used to identify a data network, and according to the currently defined DNN, the DNN is used only as an identifier of the data network, that is, the DN identifier. In this application, after the DN type is newly added, there are the following two implementations of indicating the DN type.

[0066] In a first implementation, the DN identifier and the DN type may be
20 separately indicated by using independent information elements. To be specific, the DN identifier is still identified by using the DNN defined in the current 3GPP standard, and a new information element DN Type is independently defined to identify the DN type.

[0067] In a second implementation, the DN identifier and the DN type may be indicated by a same information element. For example, the definition of the current
25 DNN is extended, so that the DNN can indicate both the DN identifier and the DN type. To be specific, a field, that is, the DN type, is added to the current DNN. In other words, the extended DNN includes the DN identifier and the DN type. In an example, a field of the DNN may be defined as two parts. A value of a former part of the field is used to identify the DN identifier. For example, 0001 identifies an intra-enterprise network. A
30 value of a latter part of the field is used to identify the DN type. For example, 0002

identifies that the intra-enterprise network is of an Ethernet type. In this case, a whole field 00010002 is a specific value of the DNN. In the implementation, this information element of DNN includes two pieces of information: the DN identifier and the DN type.

[0068] According to the foregoing two implementations, it may be understood that the DN identifier mentioned in subsequent embodiments refers to the DNN (the first implementation), or the field that is in the DNN and that is used to identify the data network (the second implementation).

[0069] Based on the system architecture shown in FIG. 1, this application provides a session handling method, including: initiating, by a terminal, an application APP, and determining a session type of a packet data unit PDU session based on the application APP; and sending, by the terminal, a first message to an access and mobility management function AMF entity, where the first message includes the session type, and the first message is used to request to establish the PDU session of the session type. In the method, when initiating, to the AMF entity, the first message used to request to establish the PDU session, the terminal adds the session type of the PDU session to the first message, so that a network side can establish the PDU session of the corresponding type based on the session type of the PDU session that is sent by the terminal, so as to establish the PDU session of the correct type for the terminal, thereby improving correctness of communication between the terminal and the network side.

[0070] The following specifically describes the session handling method provided in this application with reference to the accompanying drawings.

Embodiment 1

[0071] In Embodiment 1, a terminal may determine a session type of a PDU session, and send the session type to a network side to establish the PDU session.

[0072] FIG. 2 is a flowchart of a session handling method according to this application. The method includes the following steps.

[0073] Step 201. The terminal initiates an APP, and determines a session type of a PDU session based on the application APP.

[0074] The application (APP) may be a specific application such as "Youku" or "Baidu", or may be a type of application such as a video application, a text application, or a picture application.

[0075] When determining to initiate an application (APP), the terminal may
5 determine a session type of a PDU session based on the APP. The following provides two implementations as examples for description.

[0076] Implementation 1: The terminal determines, based on a first correspondence, the session type of the PDU session that corresponds to the APP.

[0077] The first correspondence records a correspondence between the APP and the
10 session type of the PDU session that corresponds to the APP.

[0078] The first correspondence may be recorded in a form of a table, or may be recorded in a form of an array, or may be recorded in a form of a function. This is not limited in this application.

[0079] For example, in a specific implementation, the first correspondence may be
15 implemented in combination with a terminal route selection policy (UE Route Selection Policies, URSP) table in the prior art. Table 1 is a URSP table in the prior art.

Table 1

Data matching rule (Traffic filter)	App=DummyApp (a video application)
Data offload policy (Direct offload)	Prohibited
Slice information (Slice Info)	S-NSSAI-a
Session continuity type (Continuity Types)	SSC Mode 3
DN identifier	internet
Access type (Access Type)	3GPP access

[0080] Traffic filter refers to a data matching rule, and the parameter is used to
20 determine, based on an APP initiated by the terminal, whether the following other policies are applicable. For example, in Table 1, when the terminal initiates a Youku

APP, because Youku is a video APP, this policy determines that the other policies in the table are applicable to the Youku APP. When the terminal initiates a WeChat APP, the other policies in the table are not applicable.

5 [0081] Direct offload refers to a data offload policy, and the parameter is used to determine that the APP or a type of APPs can use data offloading. For example, in the foregoing Table 1, Prohibited means that a video application cannot use data offloading.

[0082] Slice Info is slice information, and the parameter is used to determine slice information that needs to be used to initiate the APP, so that the UE adds the slice information when initiating a PDU session. For example, in the foregoing Table 1, when
10 initiating the APP, the UE determines that the slice information S-NSSAI-a needs to be used.

[0083] Continuity Types is a session continuity type, and the parameter is used to determine a session continuity type required by the APP. For example, in the foregoing Table 1, when initiating the APP, the UE determines that the required session continuity
15 type is SSC mode 3.

[0084] The DN identifier is an identifier of a data network, and the parameter is used to indicate a name of the data network. For example, in the foregoing Table 1, a data network indicated by the DN identifier is the internet.

[0085] Access Type is an access type, and the parameter is used to determine an
20 access type required by the APP. For example, in the foregoing Table 1, when initiating the APP, the UE determines that the required access type is a 3GPP access type.

[0086] Based on Table 1, if a correspondence between the DummyApp and the session type of the PDU session that corresponds to the APP needs to be recorded, a "PDU Type" attribute may be added to the foregoing Table 1. "PDU Type" is a session
25 type of a PDU session, so that the first correspondence is established. Table 2 is a URSP table to which the attribute "PDU Type" is added.

Table 2

Data matching rule (Traffic filter)	App=DummyApp (a video application)
Data offload policy (Direct offload)	Prohibited
Slice information (Slice Info)	S-NSSAI-a
Session continuity type (Continuity Types)	SSC Mode 3
DN identifier	internet
Access type (Access Type)	3GPP access
Packet data unit session type (PDU Type)	Ethernet

[0087] Therefore, when initiating an application DummyApp, the terminal may determine, according to the first correspondence in the foregoing Table 2, to be specific, the correspondence between DummyApp and PDU Type, that the PDU Type corresponding to the DummyApp is Ethernet.

[0088] The first correspondence may be preconfigured on the terminal, or may be obtained by the terminal from a network side, for example, an AMF entity.

[0089] The implementation of the foregoing Table 2 is used as an example. The foregoing URSP table may be preconfigured on the terminal. Alternatively, when moving to coverage of a data network, the terminal may receive a URSP table broadcast by the data network, and the terminal may locally store the received URSP table, or update a locally stored URSP table based on the received URSP table.

[0090] Implementation 2: The terminal determines the session type of the PDU session based on the APP, a DN identifier, and a DN type.

[0091] In this manner, the terminal may first obtain DN information from a network side such as an AMF entity, where the DN information includes the DN identifier and the DN type. An obtaining method includes but is not limited to:

[0092] Obtaining method 1: The terminal sends a request message to the AMF

entity, to request to obtain the DN identifier and the DN type.

[0093] For example, when moving to a data network, the terminal may send a registration request message to an AMF entity. After receiving the registration request message, the AMF entity obtains, from a database, DN information to which the terminal subscribes, where the DN information includes a DN identifier and a DN type. Then, the AMF entity sends the DN identifier and the DN type to the terminal, so that the terminal obtains the DN identifier and the DN type.

[0094] Optionally, the registration request message includes capability indication information of the terminal, where the capability indication information is used to indicate a data network supported by the terminal. In this case, the subscribed DN information sent by the AMF entity to the terminal is DN information corresponding to the data network supported by the terminal. For example, if the capability indication information indicates that the data network supported by the terminal is the internet, the subscribed DN information sent by the AMF entity to the terminal includes a DN identifier and a DN type that are related to the internet, rather than a DN identifier and a DN type that are of another data network.

[0095] Optionally, the AMF entity sends the DN information or the DN identifier to a PCF entity. Optionally, the PCF entity determines a service range of the DN based on the DN information or the DN identifier, and sends the service range to the AMF entity.

[0096] Optionally, the AMF entity determines, based on current location information of the terminal, whether the terminal is currently in the service range of the DN. If the terminal is currently in the service range of the DN, the AMF entity determines to send the DN information to the terminal. For example, the AMF sends a response message to the terminal, where the response message includes the DN information, and the DN information includes the DN identifier and the DN type.

[0097] Optionally, the AMF entity notifies the terminal of the service range of the DN, and the terminal determines whether the terminal is currently in the service range of the DN.

[0098] Obtaining method 2: The terminal receives the DN identifier and the DN

type that are broadcast by a RAN device such as a base station.

5 **[0099]** Based on a premise that the terminal can obtain the DN identifier and the DN type from the network side, when initiating an application APP, the terminal first determines, based on a second correspondence, a DN identifier corresponding to the APP. The second correspondence is a correspondence between an APP and a DN identifier. For example, the second correspondence may be recorded in the foregoing Table 1. The DN identifier corresponding to the APP may be obtained based on the APP. In addition, the DN identifier is the DN identifier obtained by the terminal from the network side.

10 **[0100]** Then, the terminal determines a DN type corresponding to the DN identifier. The DN type is the DN type obtained by the terminal from the network side.

[0101] Then, the terminal determines, based on a third correspondence, a session type of a PDU session that corresponds to the DN type. The third correspondence is a correspondence between a DN type and a session type of a PDU session. The third
15 correspondence may be preconfigured on the terminal.

[0102] In Implementation 2, the correspondence between an APP and a DN identifier and the correspondence between a DN type and a session type of a PDU session are preconfigured on the terminal. Therefore, after obtaining the DN identifier and the DN type from the network side, the terminal may determine a DN identifier
20 based on a to-be-initiated APP, determine a DN type based on the DN identifier, and determine a session type of a PDU session based on the DN type.

[0103] Step 202. The terminal sends a first message to the AMF entity, and the AMF entity receives the first message from the terminal.

[0104] The first message includes the session type of the PDU session, and the first
25 message is used to request to establish the PDU session of the session type.

[0105] In this embodiment, when sending, to the AMF entity, the first message used to request to establish the PDU session, the terminal adds the session type of the PDU session to the first message, so that the network side can establish the PDU session of the corresponding type based on the session type of the PDU session that is sent by the
30 terminal, so as to establish the PDU session of the correct type for the terminal, thereby

ensuring correct communication between the terminal and the network side.

[0106] Optionally, after the foregoing step 202, the method further includes the following steps.

[0107] Step 203. The terminal sends first DN information to the AMF entity, and
5 the AMF entity receives the first DN information from the terminal. The first DN information includes the DN identifier, or the first DN information includes the DN identifier and the DN type (a specific form of the first DN information may be any one of the foregoing two implementations).

[0108] It should be noted that step 203 may alternatively be performed before step
10 202. Alternatively, step 202 and step 203 are combined into one step. In other words, the terminal simultaneously sends the first message and the first DN information to the AMF entity, for example, sends the first message and the first DN information by using a NAS message.

[0109] Step 204. The AMF entity determines an SMF entity based on the first DN
15 information.

[0110] When the first DN information includes the DN identifier, the AMF entity further needs to determine the DN type based on the DN identifier. Further, the AMF entity selects an SMF entity based on the DN identifier and the DN type.

[0111] When the first DN information includes the DN identifier and the DN type,
20 the AMF entity selects an SMF entity based on the DN identifier and the DN type.

[0112] For example, the AMF entity sends the DN identifier and the DN type to a network function repository function (Network Function Repository Function, NRF) entity, and the NRF entity selects an SMF entity based on the received DN identifier and DN type, and sends the SMF entity to the AMF entity, so that the AMF entity can
25 determine a to-be-used SMF entity.

[0113] Step 205. The AMF entity sends a second message to the SMF entity.

[0114] The second message is obtained based on the first message. To be specific, after receiving the first message, the AMF entity does not obtain content of the first message, but generates the second message based on the first message, and sends the
30 second message to the SMF entity. That is, the second message includes the first

message.

[0115] Optionally, in step 205, the second message further includes second DN information. The second DN information includes the DN identifier, or the second DN information includes the DN identifier and the DN type (a specific form of the second DN information may be any one of the foregoing two implementations).

[0116] If the second DN information sent by the AMF entity to the SMF entity includes the DN identifier, the SMF entity further determines the DN type based on the DN identifier. Further, the SMF entity may determine a type of a PDU session based on the DN type.

10 [0117] If the second DN information sent by the AMF entity to the SMF entity includes the DN identifier and the DN type, the SMF entity may determine a type of a PDU session based on the DN type.

[0118] Optionally, the SMF entity compares the session type of the PDU session that is obtained from the second message with the session type of the PDU session that is determined by the SMF entity. If the two session types are the same, the SMF entity performs step 206; or if the two session types are different, the SMF entity performs step 207.

[0119] Step 206. The SMF entity establishes the PDU session based on the second message.

20 [0120] Specifically, the SMF entity establishes the PDU session based on the session type of the PDU session that is obtained from the second message. Specifically, the SMF entity obtains the session type of the PDU session that is carried in the first message in the second message.

[0121] Because the session type of the PDU session that is obtained by the SMF entity from the second message is the same as the session type of the PDU session that is determined by the SMF entity, the SMF entity may directly establish the PDU session based on the session type of the PDU session that is in the second message.

[0122] The procedure ends.

[0123] Through step 201 to step 206, the terminal adds the session type of the PDU session to the first message when sending the first message to the AMF entity, and then

the AMF entity sends the session type of the PDU session to the SMF entity by using the second message, so that the SMF entity establishes the PDU session based on the session type. In this way, the PDU session of the correct type is established.

5 **[0124]** Step 207. The SMF entity sends a session reject message to the terminal by using the AMF entity.

10 **[0125]** If the session type of the PDU session that is obtained by the SMF entity from the second message is different from the session type of the PDU session that is determined by the SMF entity, the SMF entity sends the session reject message to the terminal. Optionally, the session reject message includes the session type of the PDU session that is determined by the SMF entity based on the DN information.

15 **[0126]** To be specific, the SMF entity considers that the session type of the PDU session that is carried in the first message sent by the terminal in the foregoing step 202 is incorrect, and further, considers that another parameter related to the first message is also incorrect. Therefore, the SMF entity sends the session reject message to the terminal, where the session reject message carries the session type of the PDU session that is determined by the SMF entity, so that the terminal re-initiates a process of requesting to establish a PDU session, and adds the correct session type of a PDU session to a new request, and adds another correct parameter to the new request, where the correct session type of a PDU session is the session type that is sent by the SMF entity to the terminal by using the session reject message.

20 **[0127]** Step 208. The terminal sends a third message to the AMF entity, and the AMF entity receives the third message from the terminal.

25 **[0128]** This step is similar to step 202. However, the third message in step 208 carries the session type of the PDU session that is added by the SMF entity to the session reject message, that is, the correct session type of a PDU session. The third message is used to request to establish the PDU session.

30 **[0129]** Step 209. The AMF entity sends a fourth message to the SMF entity, and the SMF entity receives the fourth message from the AMF entity.

30 **[0130]** This step is similar to step 205. However, the fourth message in step 209 is generated based on the third message, and the AMF entity does not learn of content of

the third message and content of the fourth message. The fourth message carries the correct session type of a PDU session. The fourth message is used to request to establish the PDU session.

5 [0131] Step 210. The SMF entity establishes the PDU session based on the fourth message.

[0132] The procedure ends.

10 [0133] Through step 201 to step 205 and step 207 to step 210, the terminal adds the session type of the PDU session to the first message when sending the first message to the AMF entity, then the AMF entity sends the session type of the PDU session to the SMF entity by using the second message, when determining that the received session type of a PDU session is incorrect, the SMF entity instructs the terminal to re-initiate the third message, and the SMF entity receives the fourth message from the AMF entity, to receive the correct session type by using the fourth message, and establish the PDU session. In this way, a correct type of PDU session is established.

15 [0134] Optionally, after step 205, alternatively, the SMF entity may directly establish the PDU session. In other words, the SMF entity directly establishes, based on the session type of the PDU session that is in the second message, the PDU session corresponding to the session type. To be specific, the SMF entity does not determine whether the session type of the PDU session that is determined by the SMF entity is the same as the session type of the PDU session that is carried in the second message.

20 [0135] Optionally, in step 206 or step 210, when establishing the PDU session, the SMF entity establishes the PDU session together with a UPF entity. Therefore, the SMF entity further needs to select a UPF entity. Optionally, the SMF entity determines the UPF entity based on the DN identifier and the session type of the PDU session, where
25 the DN identifier may be sent by the AMF entity to the SMF entity.

Embodiment 2

[0136] A main difference between this embodiment and Embodiment 1 lies in that the terminal does not send a session type of a PDU session to a network side, but an

SMF entity on the network side determines a session type of a PDU session, and establishes the PDU session.

[0137] FIG. 3 is a flowchart of another session handling method according to this application. The method includes the following steps.

5 **[0138]** Step 301. A terminal initiates an APP, and determines a DN identifier.

[0139] In the step, when initiating the APP, the terminal cannot obtain a session type of a PDU session, but may determine the DN identifier corresponding to the APP. In other words, the terminal may determine an identifier of a data network that the terminal needs to access.

10 **[0140]** For example, in an implementation, the terminal may obtain, according to Table 1 in the foregoing Embodiment 1, the DN identifier corresponding to the APP.

[0141] Step 301 may be implemented according to the prior art, and details are not described again.

15 **[0142]** Step 302. The terminal sends a first message and first DN information to an AMF entity.

[0143] The first DN information includes the DN identifier. The first message is used to request to establish a PDU session, and the first DN information may be used by the AMF entity to determine an SMF entity.

[0144] Optionally, the method further includes the following steps.

20 **[0145]** Step 303. The AMF entity determines the SMF entity based on the first DN information.

[0146] Step 303 is similar to step 204 in Embodiment 1. To be specific, the AMF entity first determines a DN type based on the DN identifier in the DN information, and then the AMF entity determines the SMF entity based on the DN type and the DN
25 identifier. For details, refer to descriptions of step 204. Details are not described again.

[0147] Step 304. The AMF entity sends a second message to the SMF entity.

[0148] The second message is generated based on the first message, and the second message is used to request to establish the PDU session. The second message further includes second DN information. In other words, the second message includes the first
30 message and the second DN information. In addition, the AMF entity does not learn of

specific content of the first message.

[0149] The second DN information includes the DN identifier, or the second DN information includes the DN identifier and the DN type.

[0150] Step 305. The SMF entity determines a session type of a PDU session based
5 on the second message.

[0151] After the SMF entity receives the second DN information, if the second DN information includes the DN identifier, the SMF entity determines the DN type based on the DN identifier, and then determines the session type of the PDU session based on the DN type.

10 **[0152]** If the second DN information includes the DN identifier and the DN type, the SMF entity obtains the DN type from the second DN information, and then determines the session type of the PDU session based on the DN type.

[0153] After step 305, there are two implementations. One is directly establishing the PDU session, in other words, performing step 306. The other is instructing the
15 terminal to re-initiate a process of requesting to establish a PDU session, in other words, performing step 307. The two implementations are described below.

[0154] Step 306. The SMF entity establishes the PDU session.

[0155] In the foregoing step 305, the SMF entity has determined the session type of the PDU session. Therefore, the SMF entity may directly establish the PDU session
20 of the session type.

[0156] The procedure ends.

[0157] Step 307. The SMF entity sends a session reject message to the terminal by using the AMF entity.

[0158] To improve accuracy of establishing the PDU session, the SMF entity may
25 further send the session reject message to the terminal by using the AMF entity, where the session reject message carries the session type of the PDU session that is determined by the SMF entity, so that the terminal re-initiates a session establishment procedure.

[0159] Step 308. The terminal sends a third message to the AMF entity, and the AMF entity receives the third message from the terminal.

30 **[0160]** Step 309. The AMF entity sends a fourth message to the SMF entity, and the

SMF entity receives the fourth message from the AMF entity.

[0161] Step 310. The SMF entity establishes the PDU session based on the fourth message.

[0162] The foregoing Step 308 to step 310 are similar to step 208 to step 210 in Embodiment 1. For details, refer to the foregoing descriptions. Details are not described again.

[0163] The procedure ends.

[0164] Through step 301 to step 305 and step 307 to step 310, the terminal adds the DN identifier to the first message when sending the first message to the AMF entity, then the AMF entity sends the DN identifier to the SMF entity by using the second message, after determining the session type of the PDU session, the SMF entity instructs the terminal to re-initiate the third message, and the SMF entity receives the fourth message from the AMF entity, to receive the correct session type by using the fourth message, and establish the PDU session. In this way, a correct type of PDU session is established.

[0165] Optionally, in step 306 or step 310, when establishing the PDU session, the SMF entity establishes the PDU session together with a UPF entity. Therefore, the SMF entity further needs to select a UPF entity. Optionally, the SMF entity determines the UPF entity based on the DN identifier and the session type of the PDU session, where the DN identifier may be sent by the AMF entity to the SMF entity.

[0166] FIG. 4 is a schematic diagram of an apparatus according to this application. The apparatus may be the terminal, the AMF entity, or the SMF entity in any one of the foregoing embodiments. The apparatus may be the terminal in the system architecture shown in FIG. 1 or a chip in the terminal, may be the AMF entity in the system architecture shown in FIG. 1 or a chip in the AMF entity, or may be the SMF entity in the system architecture shown in FIG. 1 or a chip in the SMF entity.

[0167] The apparatus 200 may be configured to perform a method performed by the terminal, the AMF entity, or the SMF entity in any foregoing session handling method.

[0168] The apparatus 200 includes at least one processing unit 21 and a

communications unit 22, and optionally, further includes a storage unit 23. The processing unit 21, the communications unit 22, and the storage unit 23 are connected by using a communications bus.

5 [0169] The processing unit 21 may be a general-purpose central processing unit (CPU), a microprocessor, an application-specific integrated circuit (application-specific integrated circuit, ASIC), or one or more integrated circuits configured to control program execution in the solutions of the present invention.

[0170] The communications bus may include a path for transmitting information between the foregoing units.

10 [0171] The communications unit 22 may be an apparatus with a transceiver function, and is configured to communicate with another device or a communications network, for example, Ethernet, a radio access network (RAN), or a wireless local area network (wireless local area networks, WLAN).

[0172] The storage unit 23 may be a read-only memory (read-only memory, ROM),
15 another type of static storage device capable of storing static information and instructions, a random access memory (random access memory, RAM), or another type of dynamic storage device that capable of storing information and instructions; or may be an electrically erasable programmable read-only memory (Electrically erasable programmable read-only memory, EEPROM), a compact disc read-only memory (compact
20 disc read-only memory, CD-ROM) or another optical disk storage, an optical disc storage (including a compact optical disc, a laser disc, an optical disc, a digital versatile disc, a Blu-ray disc, or the like), a magnetic disk storage medium or another magnetic storage device, or any other medium that can be configured to carry or store expected program code in a form of an instruction or a data structure and that can be accessed by
25 a computer. However, this is not limited herein. The storage unit 23 may exist independently, and is connected to the processing unit 21 by using the communications bus. The storage unit 23 may alternatively be integrated with the processing unit. The storage unit 23 is configured to store application program code used to execute the solutions of the present invention, and the application program code is executed under
30 control of the processing unit 21. The processing unit 21 is configured to execute the

application program code stored in the storage unit 23.

[0173] In a specific implementation, in an embodiment, the processing unit 21 may include one or more CPUs, for example, a CPU 0 and a CPU 1 in FIG. 4.

[0174] In a specific implementation, in an embodiment, the apparatus 200 may include a plurality of processing units, for example, the processing unit 21 and a processing unit 28 in FIG. 4. Each of the processing units may be a single-core (single-CPU) processor, or may be a multi-core (multi-CPU) processor. Herein, the processor may refer to one or more devices, a circuit, and/or a processing core for processing data (for example, a computer program instruction).

[0175] In a possible design, when the apparatus is a terminal, an AMF entity, or an SMF entity, the processing unit 21 may be, for example, a processor, the communications unit 22 may be, for example, a transceiver, and the transceiver includes a radio frequency circuit. When the apparatus further includes the storage unit 23, the storage unit 23 is configured to store a computer-executable instruction, the processing unit 21 is connected to the storage unit 23, and the processing unit 21 executes the computer-executable instruction stored in the storage unit 23, so that the base station or the terminal performs the session handling method in any one of the foregoing embodiments.

[0176] In another possible design, when the apparatus is a chip in a terminal, a chip in an AMF entity, or a chip in an SMF entity, the processing unit 21 may be, for example, a processor, and the communications unit 22 may be, for example, an input/output interface, a pin, or a circuit. The processing unit 21 may execute a computer-executable instruction stored in the storage unit, to enable the chip to perform the session handling method in the foregoing embodiment. Optionally, the storage unit is a storage unit in the chip, for example, a register or a buffer, or the storage unit may be a storage unit in the base station or the terminal but outside the chip, for example, a ROM, another type of static storage device capable of storing static information and instructions, or a RAM.

[0177] That the chip performs the session handling method may be understood as follows: The chip completes the session handling method with other components in the apparatus.

[0178] For example, when the chip is the chip in the terminal, the communications unit of the chip is connected to a transceiver of the terminal. The processing unit of the chip initiates an application APP, determines a session type of a PDU session, generates a first message, and then sends the first message to the transceiver of the terminal by using the communications unit of the chip. The transceiver of the terminal sends the first message to an AMF entity. Therefore, the chip in the terminal implements the session handling method in the embodiments of the present invention.

[0179] For another example, when the chip is the chip in the SMF entity, the communications unit of the chip is connected to a transceiver of the SMF entity. The transceiver of the SMF entity receives a second message from an AMF entity, and then sends the second message to the communications unit of the chip. Then, the processing unit of the chip establishes a PDU session based on a session type, of a PDU session, in the second message. Therefore, the chip in the SMF entity implements the session handling method in the embodiments of the present invention.

[0180] For another example, when the chip is the chip in the SMF entity, the communications unit of the chip is connected to a transceiver of the SMF entity. The transceiver of the SMF entity receives a second message from an AMF entity, and then sends the second message to the communications unit of the chip. Then, the processing unit of the chip determines a session type of a PDU session based on DN information in the second message. Therefore, the chip in the SMF entity implements the session handling method in the embodiments of the present invention.

[0181] For another example, when the chip is the chip in the AMF entity, the communications unit of the chip is connected to a transceiver of the AMF entity. The transceiver of the AMF entity receives a first message and DN information from a terminal, and then sends the first message and the DN information to the communications unit of the chip. Then, the processing unit of the chip generates a second message based on the first message, and controls the communications unit of the chip to send the second message and the DN information to the transceiver of the AMF entity. The transceiver of the AMF entity sends the second message and the DN information to an SMF entity. Therefore, the chip in the AMF entity implements the

session handling method in the embodiments of the present invention.

5 [0182] For example, when the apparatus is divided in the method shown in FIG. 4, the processing unit 21 cooperates with the communications unit 22, so that the apparatus can implement the session handling method in any one of the foregoing embodiments of this application.

[0183] For example, when the apparatus shown in FIG. 4 is the terminal or the chip in the terminal,

the processing unit 21 is configured to initiate an application APP, and determine a session type of a packet data unit PDU session based on the application APP; and
10 APP; and

the communications unit 22 is configured to send a first message to an access and mobility management function AMF entity, where the first message includes the session type, and the first message is used to request to establish the PDU session of the session type.

15 [0184] In a possible design, the processing unit 21 is specifically configured to:
determine, based on a first correspondence, the session type corresponding to the APP, where

the first correspondence is a correspondence between an APP and a session type of a PDU session.

20 [0185] In a possible design, the first correspondence is preconfigured on the terminal; or

the first correspondence is obtained by the terminal from the AMF entity.

[0186] In a possible design, the processing unit 21 is specifically configured to:
determine, based on a second correspondence, a DN identifier
25 corresponding to the APP;

determine a DN type corresponding to the DN identifier; and

determine, based on a third correspondence, the session type corresponding to the DN type, where

the second correspondence is a correspondence between an APP and a DN identifier, and the third correspondence is a correspondence between a DN type and a
30 identifier, and the third correspondence is a correspondence between a DN type and a

session type of a PDU session.

[0187] In a possible design, the communications unit 22 is further configured to:
send a request message to the AMF entity; and
receive the DN identifier and the DN type that are sent by the AMF entity

5 based on the request message; or

receive the DN identifier and the DN type that are broadcast by a radio access network RAN device.

[0188] In a possible design, the communications unit 22 is further configured to:
send first DN information to the AMF entity, where the first DN information includes
10 the DN identifier or includes the DN identifier and the DN type, the first DN information is used by the AMF entity to determine an SMF entity based on the DN identifier, and the SMF entity is configured to establish the PDU session of the session type.

[0189] It should be understood that, the terminal or the chip in the terminal may be
15 configured to implement steps performed by the terminal in the session handling method in the embodiments of the present invention. For related features, refer to the foregoing descriptions. Details are not described herein again.

[0190] For example, when the apparatus shown in FIG. 4 is the SMF entity or the chip in the SMF entity,

20 the communications unit 22 is configured to receive a second message from an access and mobility management function AMF entity, where the second message includes a session type, of a packet data unit PDU session, requested by a terminal, and the second message is used to request to establish the PDU session; and

the processing unit 21 is configured to establish the PDU session based on
25 the session type of the PDU session.

[0191] In a possible design, the communications unit 22 is further configured to receive a DN identifier from the AMF entity; and

the processing unit 21 is further configured to determine a user plane function UPF entity based on the DN identifier and the session type of the PDU session,
30 where the UPF entity is configured to establish the PDU session of the session type.

[0192] It should be understood that, the SMF entity or the chip in the SMF entity may be configured to implement steps performed by the SMF entity in the session handling method in the embodiments of the present invention. For related features, refer to the foregoing descriptions. Details are not described herein again.

5 **[0193]** For example, when the apparatus shown in FIG. 4 is the SMF entity or the chip in the SMF entity,

the communications unit 22 is configured to receive a second message from an access and mobility management function AMF entity, where the second message includes second data network DN information, and the second message is used to request to establish a PDU session; and

10 the processing unit 21 is configured to determine a session type of a PDU session based on the second DN information.

[0194] In a possible design, the second DN information includes a DN identifier, and the processing unit 21 is specifically configured to:

15 determine a DN type based on the DN identifier, and determine the session type of the PDU session based on the DN type; or

the second DN information includes a DN type, and the processing unit 21 is specifically configured to determine, by the SMF entity, the session type of the PDU session based on the DN type.

20 **[0195]** In a possible design, if the second message carries a session type, of a PDU session, requested by a terminal, when the session type of the PDU session that is determined by the processing unit 21 based on the second DN information is inconsistent with the session type, of a PDU session, requested by the terminal, the communications unit 22 is configured to send a session reject message to the terminal, where the session reject message includes the session type of the PDU session that is determined by the processing unit 21 based on the second DN information.

[0196] In a possible design, the processing unit 21 is further configured to:

establish the PDU session based on the session type of the PDU session.

[0197] In a possible design, the processing unit 21 is further configured to:

30 determine a user plane function UPF entity based on the second DN

information; and

establish the PDU session of the session type with the UPF entity.

[0198] It should be understood that, the SMF entity or the chip in the SMF entity may be configured to implement steps performed by the SMF entity in the session handling method in the embodiments of the present invention. For related features, refer to the foregoing descriptions. Details are not described herein again.

[0199] For example, when the apparatus shown in FIG. 4 is the AMF entity or the chip in the AMF entity,

the communications unit 22 is configured to receive a first message and first data network DN information from a terminal, where the first message is used to request to establish a PDU session; and

the processing unit 21 is configured to: determine a session management function SMF entity based on the first DN information; and send a second message to the SMF entity based on the first message, where the second message is used to request to establish the PDU session, and a session type of the PDU session corresponds to the first DN information.

[0200] In a possible design, the first message and the second message include a session type, of a PDU session, requested by the terminal; or

the first DN information includes a DN identifier, the second message includes the DN identifier, and the DN identifier is used by the SMF entity to determine the session type of the PDU session based on the DN identifier.

[0201] In a possible design, the first DN information includes the DN identifier, and the communications unit 22 is further configured to receive the data network DN identifier from the terminal;

the processing unit 21 is specifically configured to determine a DN type based on the DN identifier; and

the communications unit 22 is further configured to: send the DN identifier and the DN type to an NRF entity; and receive the SMF entity from the NRF entity, where the SMF entity is determined by the NRF entity based on the DN identifier and the DN type.

[0202] In a possible design, the communications unit 22 is further configured to:
receive a registration request message from the terminal;

obtain, from a database based on the registration request message, DN
information to which the terminal subscribes, where the subscribed DN information
5 includes a DN identifier and a DN type; and

send, to the terminal, the DN information to which the terminal subscribes.

[0203] In a possible design, the registration request message includes capability
indication information of the terminal, where the capability indication information is
used to indicate a data network supported by the terminal; and

10 the DN information to which the terminal subscribes corresponds to the data
network supported by the terminal.

[0204] It should be understood that, the AMF entity or the chip in the AMF entity
may be configured to implement steps performed by the AMF entity in the session
handling method in the embodiments of the present invention. For related features, refer
15 to the foregoing descriptions. Details are not described herein again.

[0205] This application further provides a computer-readable storage medium. The
computer-readable storage medium stores an instruction, and when the instruction is
run on a computer, the computer is enabled to perform operations performed by the
terminal in the foregoing session handling method. The computer may be a terminal.

20 **[0206]** This application further provides a computer-readable storage medium. The
computer-readable storage medium stores an instruction, and when the instruction is
run on a computer, the computer is enabled to perform operations performed by the
SMF entity in the foregoing session handling method. The computer may be an SMF
entity.

25 **[0207]** This application further provides a computer-readable storage medium. The
computer-readable storage medium stores an instruction, and when the instruction is
run on a computer, the computer is enabled to perform operations performed by the
AMF entity in the foregoing session handling method. The computer may be an AMF
entity.

30 **[0208]** This application provides a computer program product. The computer

program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method performed by the terminal in any one of the foregoing embodiments.

5 [0209] This application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method performed by the SMF entity in any one of the foregoing embodiments.

10 [0210] This application provides a computer program product. The computer program product includes a computer software instruction, and the computer software instruction may be loaded by a processor to implement a procedure of the session handling method performed by the AMF entity in any one of the foregoing embodiments.

[0211] According to the foregoing description of this specification in this application, technologies in the art may use or implement the content of this application.

15 Any modification based on the disclosed content shall be considered obvious in the art. The basic principles described in this application may be applied to other variations without departing from the essence and scope of this application. Therefore, the content disclosed in this application is not limited to the described embodiments and designs but may also be extended to a maximum scope that is consistent with the principles and

20 disclosed new features of this application.

CLAIMS

What is claimed is:

1. A session handling method, comprising:

initiating, by a terminal, an application APP, and determining a session type of a
5 packet data unit PDU session based on the application APP; and

sending, by the terminal, a first message to an access and mobility management
function AMF entity, wherein the first message comprises the session type, and the first
message is used to request to establish the PDU session of the session type.

2. The method according to claim 1, wherein the determining, by a terminal, a
10 session type of a PDU session comprises:

determining, by the terminal based on a first correspondence, the session type
corresponding to the APP, wherein

the first correspondence is a correspondence between an APP and a session type
of a PDU session.

15 3. The method according to claim 2, wherein

the first correspondence is preconfigured on the terminal; or

the first correspondence is obtained by the terminal from the AMF entity.

4. The method according to claim 1, wherein the determining, by a terminal, a
session type of a PDU session comprises:

20 determining, by the terminal based on a second correspondence, a DN identifier
corresponding to the APP;

determining, by the terminal, a DN type corresponding to the DN identifier; and

determining, by the terminal based on a third correspondence, the session type
corresponding to the DN type, wherein

25 the second correspondence is a correspondence between an APP and a DN
identifier, and the third correspondence is a correspondence between a DN type and a
session type of a PDU session.

5. The method according to claim 4, wherein the method comprises:

sending, by the terminal, a request message to the AMF entity, and receiving the

DN identifier and the DN type that are sent by the AMF entity based on the request message; or

receiving, by the terminal, the DN identifier and the DN type that are broadcast by a radio access network RAN device.

5 6. The method according to any one of claims 1 to 5, further comprising:

 sending, by the terminal, first DN information to the AMF entity, wherein the first DN information comprises the DN identifier or comprises the DN identifier and the DN type, the first DN information is used by the AMF entity to determine an SMF entity based on the DN identifier, and the SMF entity is configured to establish the PDU
10 session of the session type.

 7. A session handling method, wherein the method comprises:

 receiving, by a session management function SMF entity, a second message from an access and mobility management function AMF entity, wherein the second message comprises a session type, of a packet data unit PDU session, requested by a terminal,
15 and the second message is used to request to establish the PDU session; and
 establishing, by the SMF entity, the PDU session based on the session type of the PDU session.

 8. The method according to claim 7, further comprising:

 receiving, by the SMF entity, a DN identifier from the AMF entity; and
20 determining, by the SMF entity, a user plane function UPF entity based on the DN identifier and the session type of the PDU session, wherein the UPF entity is configured to establish the PDU session of the session type.

 9. A session handling method, wherein the method comprises:

 receiving, by a session management function SMF entity, a second message from
25 an access and mobility management function AMF entity, wherein the second message comprises second data network DN information, and the second message is used to request to establish a PDU session; and

 determining, by the SMF entity, a session type of the PDU session based on the second DN information.

30 10. The method according to claim 9, wherein

if the second DN information comprises a DN identifier, the determining, by the SMF entity, a session type of the PDU session based on the second DN information comprises: determining, by the SMF entity, a DN type based on the DN identifier, and determining the session type of the PDU session based on the DN type; or

- 5 if the second DN information comprises a DN type, the determining, by the SMF entity, a session type of the PDU session based on the second DN information comprises: determining, by the SMF entity, the session type of the PDU session based on the DN type.

11. The method according to claim 9 or 10, wherein if the second message carries
10 a session type, of a PDU session, requested by the terminal, when the session type of the PDU session that is determined by the SMF entity based on the second DN information is inconsistent with the session type, of the PDU session, requested by the terminal, the method further comprises:

- 15 sending, by the SMF entity, a session reject message to the terminal, wherein the session reject message comprises the session type of the PDU session that is determined by the SMF entity based on the DN information.

12. The method according to claim 9 or 10, further comprising:

establishing, by the SMF entity, the PDU session based on the session type of the PDU session.

- 20 13. The method according to claim 9 or 10, further comprising:

determining, by the SMF entity, a user plane function UPF entity based on the second DN information; and

establishing the PDU session of the session type with the UPF entity.

14. A session handling method, wherein the method comprises:

- 25 receiving, by an access and mobility management function AMF entity, a first message and first data network DN information from a terminal, wherein the first message is used to request to establish a PDU session; and determining, by the AMF entity, a session management function SMF entity based on the first DN information; and

- 30 sending, by the AMF entity, a second message to the SMF entity based on the first

message, to request the SMF entity to establish the PDU session, wherein a session type of the PDU session corresponds to the first DN information.

15. The method according to claim 14, wherein

the first message and the second message comprise the session type, of the PDU
5 session, requested by the terminal; or

the first DN information comprises a DN identifier, the second message comprises the DN identifier, and the DN identifier is used by the SMF entity to determine the session type of the PDU session based on the DN identifier.

16. The method according to claim 14 or 15, wherein the first DN information
10 comprises the DN identifier;

the determining, by the AMF entity, a session management function SMF entity based on the first DN information comprises:

determining, by the AMF entity, a DN type based on the DN identifier;

sending, by the AMF entity, the DN identifier and the DN type to a network
15 function repository function NRF entity; and

receiving, by the AMF entity, the SMF entity from the NRF entity, wherein the SMF entity is determined by the NRF entity based on the DN identifier and the DN type.

17. The method according to any one of claims 14 to 16, wherein the method
20 further comprises:

receiving, by the AMF entity, a registration request message from the terminal;
and

obtaining, by the AMF entity from a database based on the registration request message, DN information to which the terminal subscribes, wherein the DN
25 information to which the terminal subscribes comprises a DN identifier and a DN type;
and

sending, by the AMF entity to the terminal, the DN information to which the terminal subscribes.

18. The method according to claim 17, wherein the registration request message
30 comprises capability indication information of the terminal, wherein the capability

indication information is used to indicate a data network supported by the terminal; and
the DN information to which the terminal subscribes corresponds to the data network supported by the terminal.

19. An apparatus, comprising a processing unit and a communications unit,
5 wherein

the processing unit is configured to initiate an application APP, and determine a session type of a packet data unit PDU session based on the application APP; and

the communications unit is configured to send a first message to an access and mobility management function AMF entity, wherein the first message comprises the
10 session type, and the first message is used to request to establish the PDU session of the session type.

20. The apparatus according to claim 19, wherein the processing unit is specifically configured to:

determine, based on a first correspondence, the session type corresponding to the
15 APP, wherein
the first correspondence is a correspondence between an APP and a session type of a PDU session.

21. The apparatus according to claim 20, wherein

the first correspondence is preconfigured on the terminal; or
20 the first correspondence is obtained by the terminal from the AMF entity.

22. The apparatus according to claim 19, wherein the processing unit is specifically configured to:

determine, based on a second correspondence, a DN identifier corresponding to the APP;

25 determine a DN type corresponding to the DN identifier; and

determine, based on a third correspondence, the session type corresponding to the DN type, wherein

the second correspondence is a correspondence between an APP and a DN identifier, and the third correspondence is a correspondence between a DN type and a
30 session type of a PDU session.

23. The apparatus according to claim 22, wherein the communications unit is further configured to:

send a request message to the AMF entity; and

receive the DN identifier and the DN type that are sent by the AMF entity based
5 on the request message; or

receive the DN identifier and the DN type that are broadcast by a radio access network RAN device.

24. The apparatus according to any one of claims 19 to 23, wherein the communications unit is further configured to:

10 send first DN information to the AMF entity, wherein the first DN information comprises the DN identifier or comprises the DN identifier and the DN type, the first DN information is used by the AMF entity to determine an SMF entity based on the DN identifier, and the SMF entity is configured to establish the PDU session of the session type.

15 25. An apparatus, comprising a processing unit and a communications unit, wherein

the communications unit is configured to receive a second message from an access and mobility management function AMF entity, wherein the second message comprises a session type, of a packet data unit PDU session, requested by a terminal, and the
20 second message is used to request to establish the PDU session; and

the processing unit is configured to establish the PDU session based on the session type of the PDU session.

26. The apparatus according to claim 25, wherein

the communications unit is further configured to receive a DN identifier from the
25 AMF entity; and

the processing unit is further configured to determine a user plane function UPF entity based on the DN identifier and the session type of the PDU session, wherein the UPF entity is configured to establish the PDU session of the session type.

27. An apparatus, comprising a processing unit and a communications unit,
30 wherein

the communications unit is configured to receive a second message from an access and mobility management function AMF entity, wherein the second message comprises second data network DN information, and the second message is used to request to establish a PDU session; and

- 5 the processing unit is configured to determine a session type of a PDU session based on the second DN information.

28. The apparatus according to claim 27, wherein the second DN information comprises a DN identifier, and the processing unit is specifically configured to: determine a DN type based on the DN identifier, and determine the session type of the
10 PDU session based on the DN type; or

the second DN information comprises a DN type, and the processing unit is specifically configured to determine the session type of the PDU session based on the DN type.

29. The apparatus according to claim 27 or 28, wherein
15 if the second message carries a session type, of a PDU session, requested by the terminal, when the session type of the PDU session that is determined by the processing unit based on the second DN information is inconsistent with the session type, of a PDU session, requested by the terminal, the communications unit is configured to send a session reject message to the terminal, wherein the session reject message comprises
20 the session type of the PDU session that is determined by the processing unit based on the second DN information.

30. The apparatus according to claim 27 or 28, wherein the processing unit is further configured to:

establish the PDU session based on the session type of the PDU session.

25 31. The apparatus according to claim 27 or 28, wherein the processing unit is further configured to:

determine a user plane function UPF entity based on the second DN information; and

establish the PDU session of the session type with the UPF entity.

30 32. An apparatus, comprising a processing unit and a communications unit,

wherein

the communications unit is configured to receive a first message and first data network DN information from a terminal, wherein the first message is used to request to establish a PDU session; and

5 the processing unit is configured to: determine a session management function SMF entity based on the first DN information; and send a second message to the SMF entity based on the first message, wherein the second message is used to request the SMF entity to establish the PDU session, and a session type of the PDU session corresponds to the first DN information.

10 33. The apparatus according to claim 32, wherein

the first message and the second message comprise the session type, of the PDU session, requested by the terminal; or

the first DN information comprises a DN identifier, the second message comprises the DN identifier, and the DN identifier is used by the SMF entity to determine the
15 session type of the PDU session based on the DN identifier.

34. The apparatus according to claim 32, wherein the first DN information comprises a DN identifier;

the communications unit is further configured to receive the data network DN identifier from the terminal;

20 the processing unit is specifically configured to determine a DN type based on the DN identifier; and

the communications unit is further configured to: send the DN identifier and the DN type to an NRF entity; and receive the SMF entity from the NRF entity, wherein the SMF entity is determined by the NRF entity based on the DN identifier and the DN
25 type.

35. The apparatus according to any one of claims 32 to 34, wherein the communications unit is further configured to:

receive a registration request message from the terminal;

obtain, from a database based on the registration request message, DN information
30 to which the terminal subscribes, wherein the subscribed DN information comprises a

DN identifier and a DN type; and

send, to the terminal, the DN information to which the terminal subscribes.

36. The apparatus according to claim 35, wherein the registration request message comprises capability indication information of the terminal, wherein the capability
5 indication information is used to indicate a data network supported by the terminal; and
the DN information to which the terminal subscribes corresponds to the data network supported by the terminal.

37. A session handling apparatus, comprising a communications interface and at least one processor, wherein the communications interface and the at least one processor
10 are interconnected by using a line, and the communications interface is configured to perform message sending and receiving operations performed on the apparatus side in the method according to any one of claims 1 to 6; and

the at least one processor invokes an instruction, to perform a message processing or control operation performed on the apparatus side in the method according to any
15 one of claims 1 to 6.

38. The apparatus according to claim 37, wherein the apparatus is a terminal.

39. An information transmission apparatus, comprising a communications interface and at least one processor, wherein the communications interface and the at least one processor are interconnected by using a line, and the communications interface
20 is configured to perform message sending and receiving operations performed on the apparatus side in the method according to any one of claims 7 to 13; and

the at least one processor invokes an instruction, to perform a message processing or control operation performed on the apparatus side in the method according to any one of claims 7 to 13.

25 40. The apparatus according to claim 39, wherein the apparatus is a session management function SMF entity.

41. An information transmission apparatus, comprising a communications interface and at least one processor, wherein the communications interface and the at least one processor are interconnected by using a line, and the communications interface
30 is configured to perform message sending and receiving operations performed on the

apparatus side in the method according to any one of claims 14 to 18; and

the at least one processor invokes an instruction, to perform a message processing or control operation performed on the apparatus side in the method according to any one of claims 14 to 18.

5 42. The apparatus according to claim 41, wherein the apparatus is an access and mobility management function AMF entity.

10 43. A chip system, wherein the chip system comprises at least one processor and an interface circuit, the interface circuit and the at least one processor are interconnected by using a line, and the processor runs an instruction to perform the method according to any one of claims 1 to 6.

44. A chip system, wherein the chip system comprises at least one processor and an interface circuit, the interface circuit and the at least one processor are interconnected by using a line, and the processor runs an instruction to perform the method according to any one of claims 7 to 13.

15 45. A chip system, wherein the chip system comprises at least one processor and an interface circuit, the interface circuit and the at least one processor are interconnected by using a line, and the processor runs an instruction to perform the method according to any one of claims 14 to 18.

20 46. An information transmission apparatus, configured to perform the method according to any one of claims 1 to 6.

47. An information transmission apparatus, configured to perform the method according to any one of claims 7 to 13.

48. An information transmission apparatus, configured to perform the method according to any one of claims 14 to 18.

25 49. A computer program product comprising an instruction, wherein when the computer program product is run on a computer, the computer is enabled to perform the method according to any one of claims 1 to 6.

30 50. A computer program product comprising an instruction, wherein when the computer program product is run on a computer, the computer is enabled to perform the method according to any one of claims 7 to 13.

51. A computer program product comprising an instruction, wherein when the computer program product is run on a computer, the computer is enabled to perform the method according to any one of claims 14 to 18.

52. A computer-readable storage medium, comprising an instruction, wherein
5 when the instruction is run on a computer, the computer is enabled to perform the method according to any one of claims 1 to 6.

53. A computer-readable storage medium, comprising an instruction, wherein when the instruction is run on a computer, the computer is enabled to perform the method according to any one of claims 7 to 13.

10 54. A computer-readable storage medium, comprising an instruction, wherein when the instruction is run on a computer, the computer is enabled to perform the method according to any one of claims 14 to 18.

55. A communications system, comprising the apparatus according to claim 25 or 26 and the apparatus according to any one of claims 32 to 36.

15 56. A communications system, comprising the apparatus according to any one of claims 27 to 31 and the apparatus according to any one of claims 32 to 36.

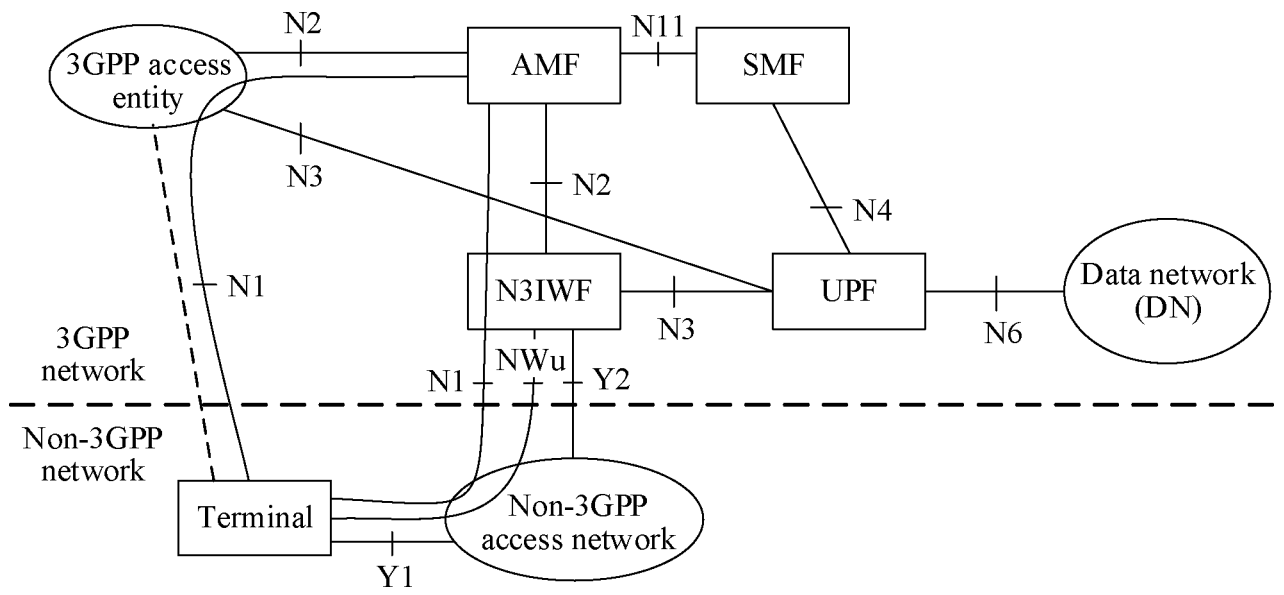


FIG. 1

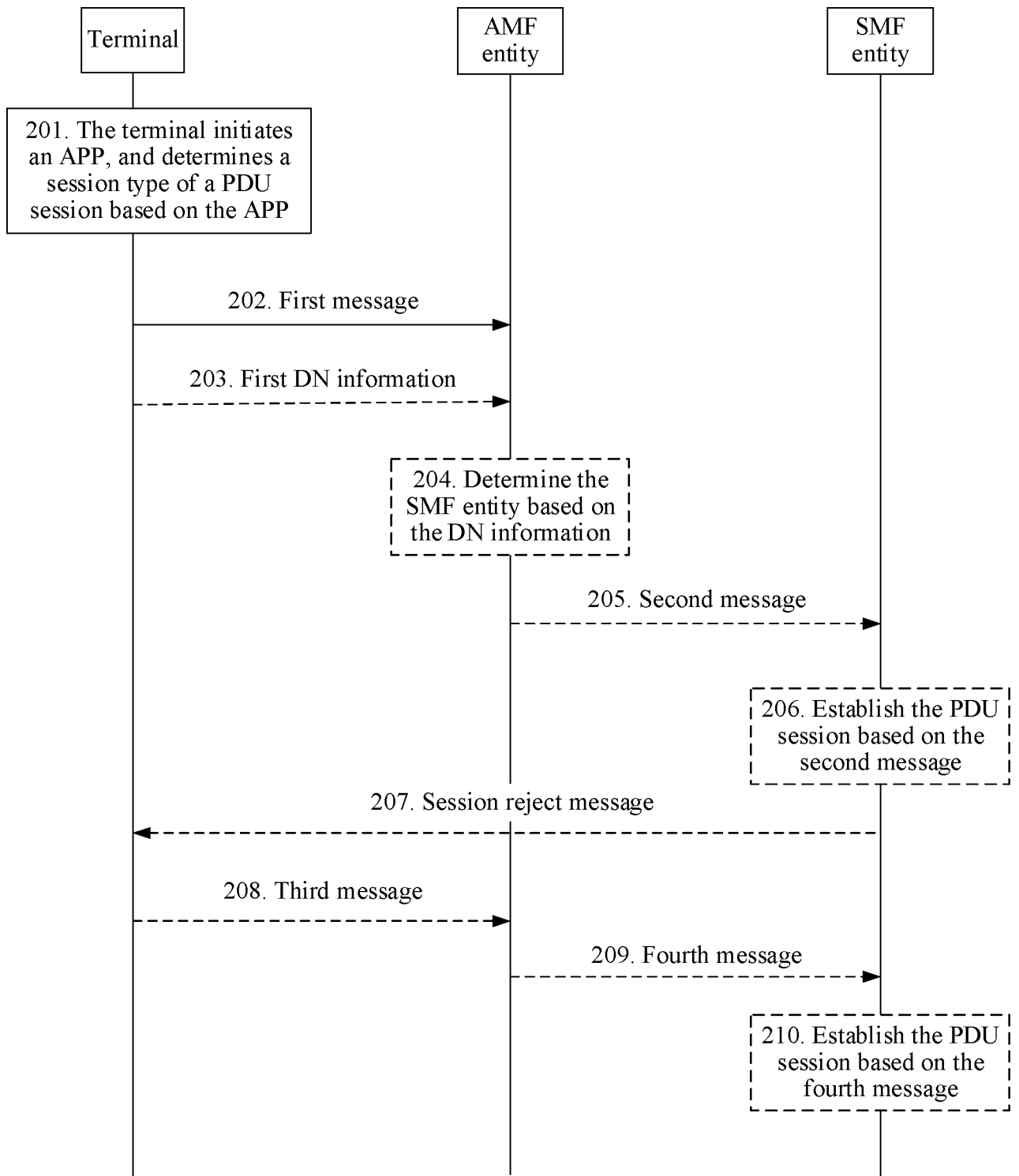


FIG. 2

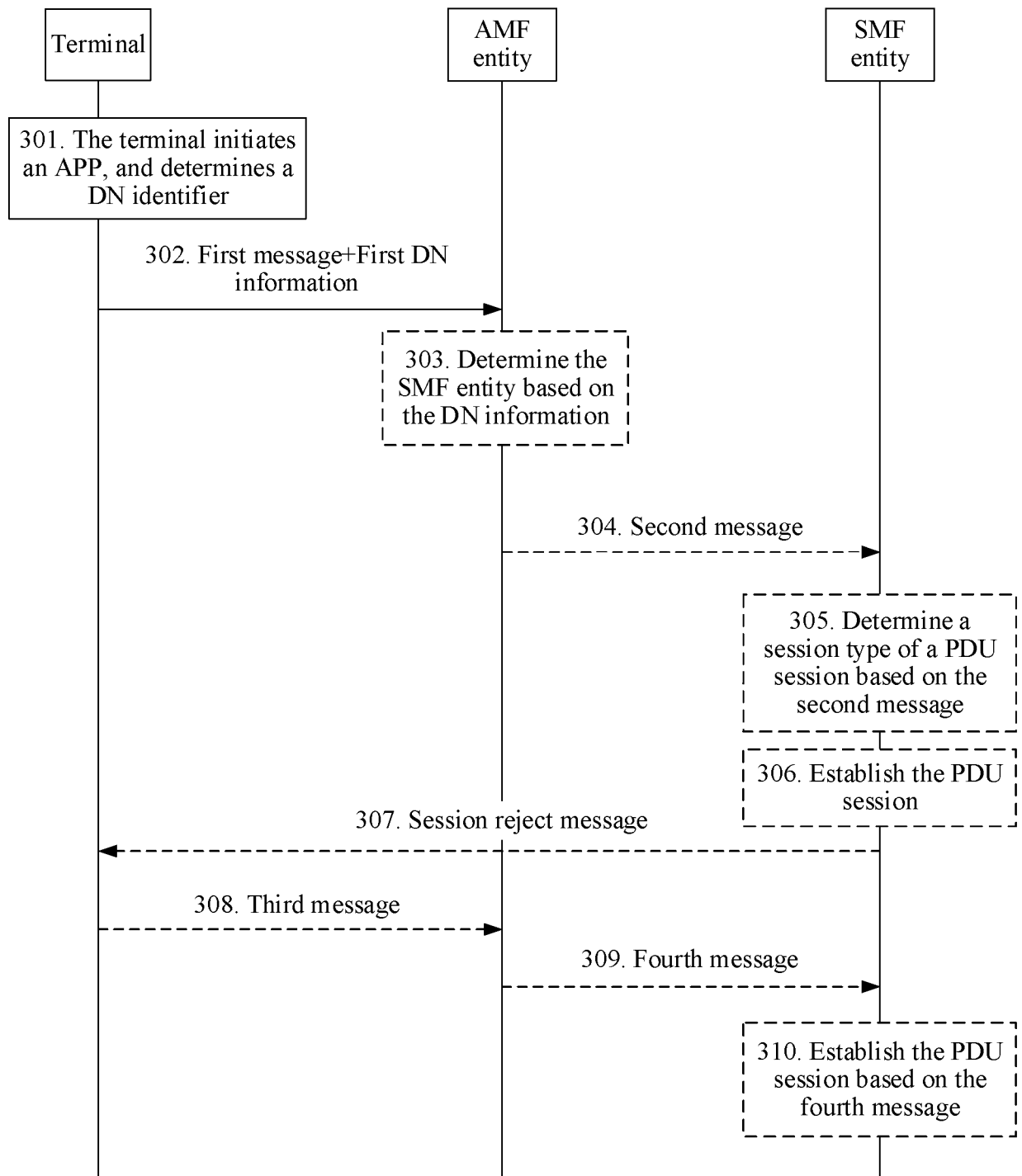


FIG. 3

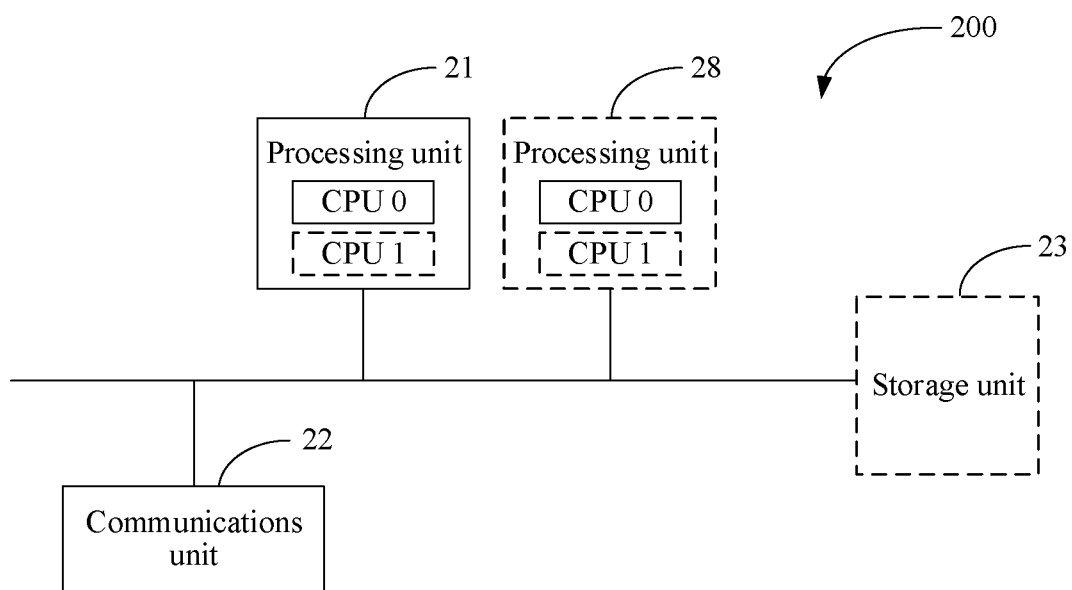


FIG. 4