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Griot et al.

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(54) **ESTABLISHING CONNECTIVITY TO LEGACY GENERATION WIRELESS NETWORK VIA A FULLY SERVICE BASED NETWORK**

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H04W 4/50 (2018.01)
H04W 48/08 (2009.01)

(52) **U.S. Cl.**

CPC ***H04W 76/10*** (2018.02); ***H04W 4/50*** (2018.02); ***H04W 48/08*** (2013.01)

(58) **Field of Classification Search**

CPC H04W 76/10; H04W 76/16; H04W 4/00; H04W 4/50; H04W 48/00; H04W 48/08; H04W 2012/5618; H04W 4/203; H04W 40/18; H04W 88/18; H04L 27/2603; H04L 69/08; H04L 69/085; H04L 47/2408; H04L 49/20; H04L 61/00; H04L 65/00; H04L 65/40; H04L 67/00; H04L 67/50

See application file for complete search history.

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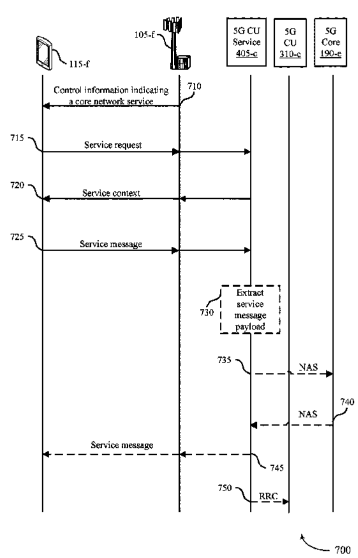
Primary Examiner — Warner Wong
(74) *Attorney, Agent, or Firm* — Holland & Hart LLP

(57) **ABSTRACT**

Methods, systems, and devices for wireless communications are described. Techniques described herein provide for establishing connectivity to legacy generation wireless network via a fully service based wireless network. The fully service based wireless network may offer a core network service that is associated with a central unit of the legacy generation wireless network. A distributed unit (DU) of the fully service based wireless network may indicate to a user equipment (UE) the offered core network service. The UE may receive a service context for communications with the core network service, and the UE may transmit a service message, in accordance with the service context, to the core network service via the DU that may be forwarded to a legacy generation core network.

30 Claims, 18 Drawing Sheets



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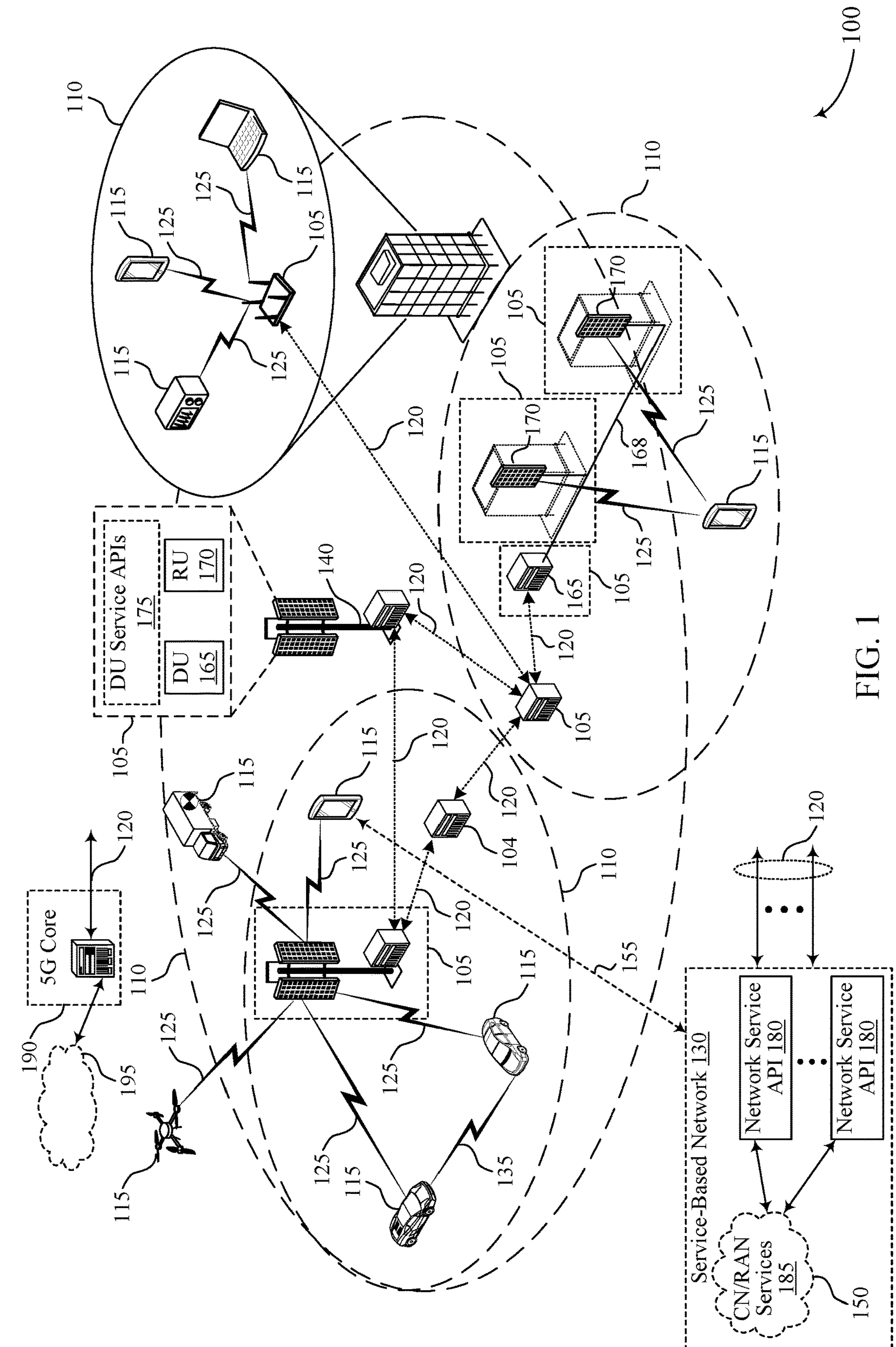

100
110
115
125
105
120
170
168
165
140
DU Service APIs 175
DU 165
RU 170
5G Core
190
195
104
155
135
Service-Based Network 130
Network Service API 180
Network Service API 180
CN/RAN Services 185
150

FIG. 1

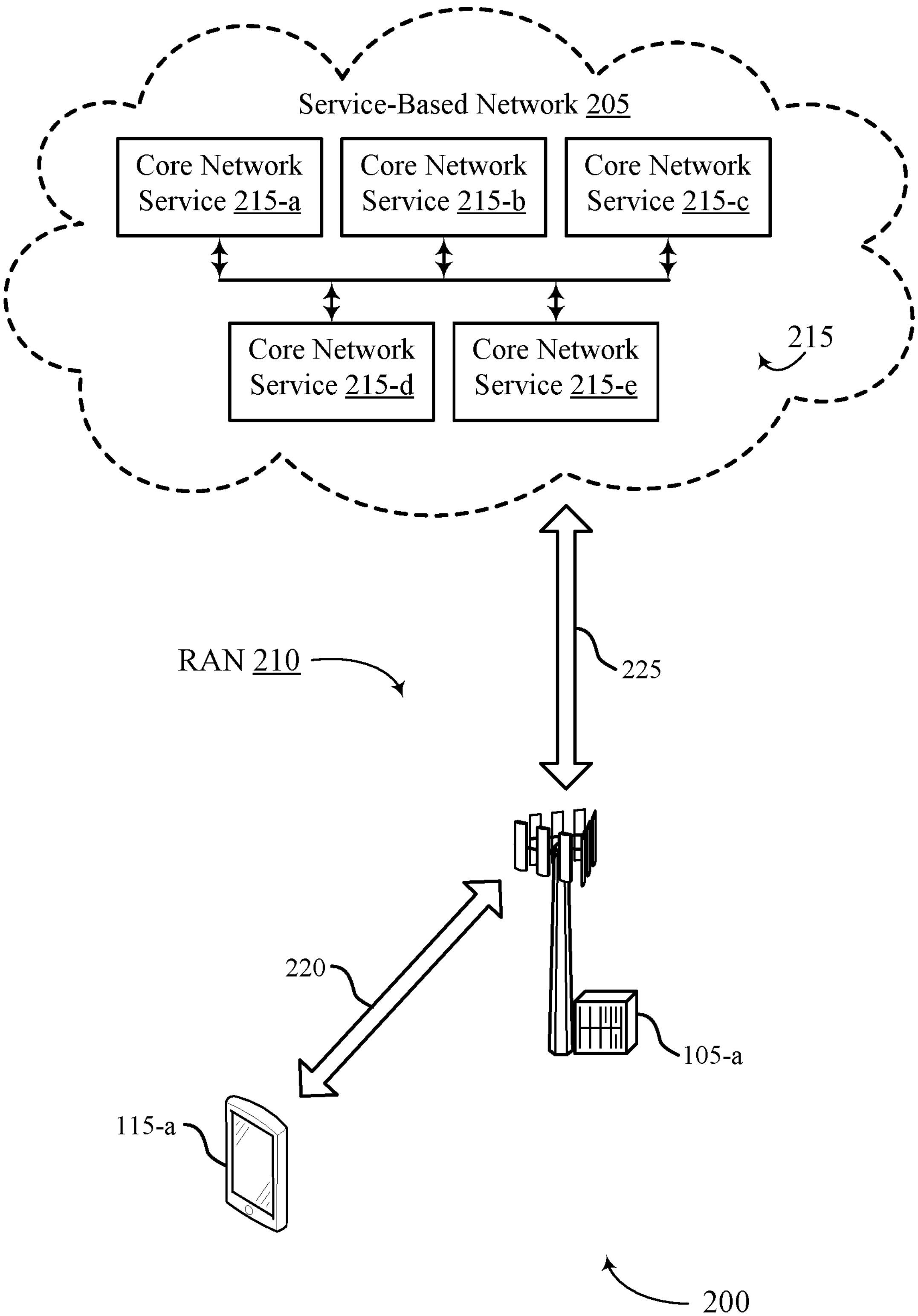

Service-Based Network 205
Core Network Service 215-a
Core Network Service 215-b
Core Network Service 215-c
Core Network Service 215-d
Core Network Service 215-e
215
RAN 210
225
220
105-a
115-a
200

FIG. 2

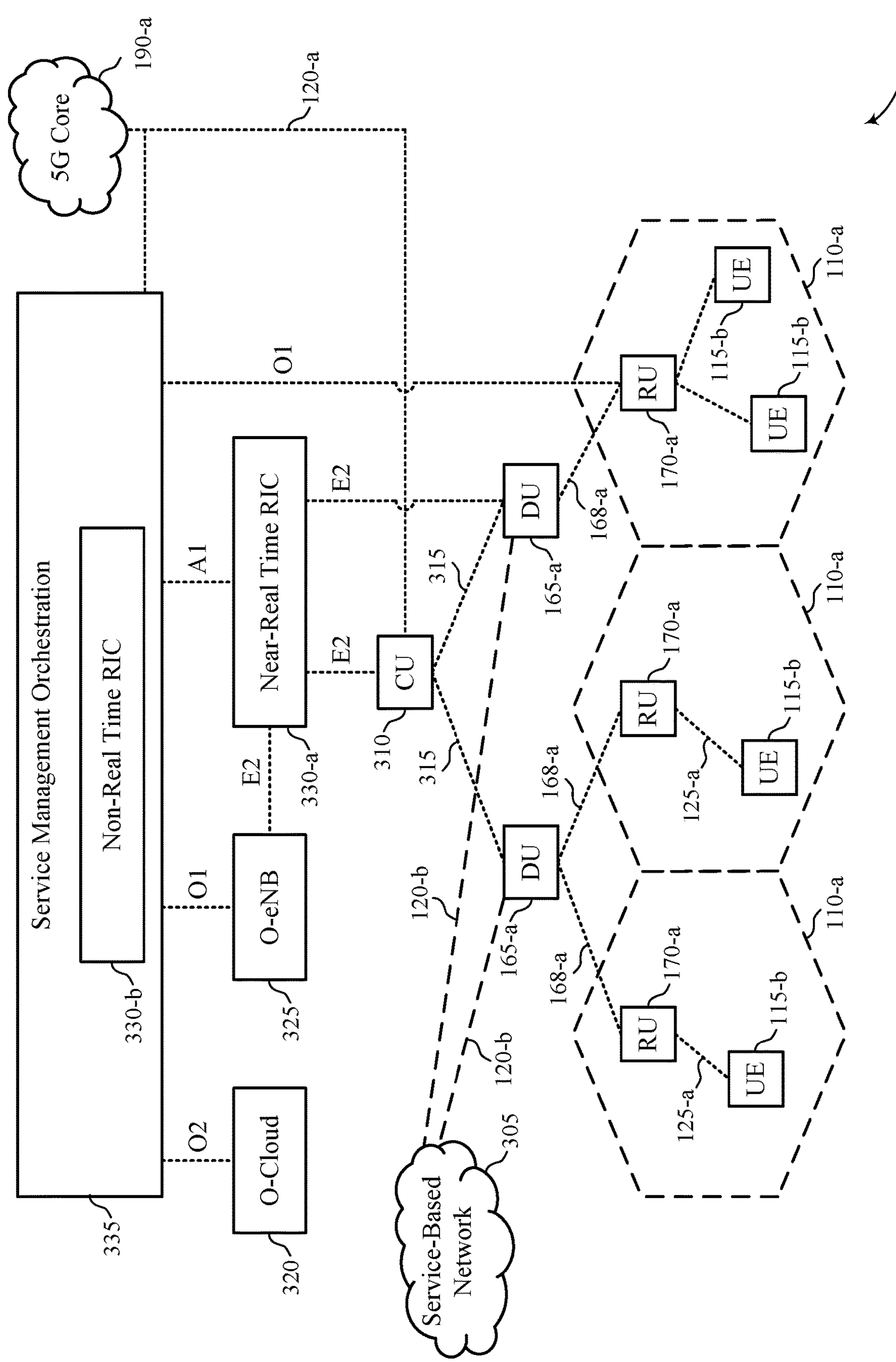
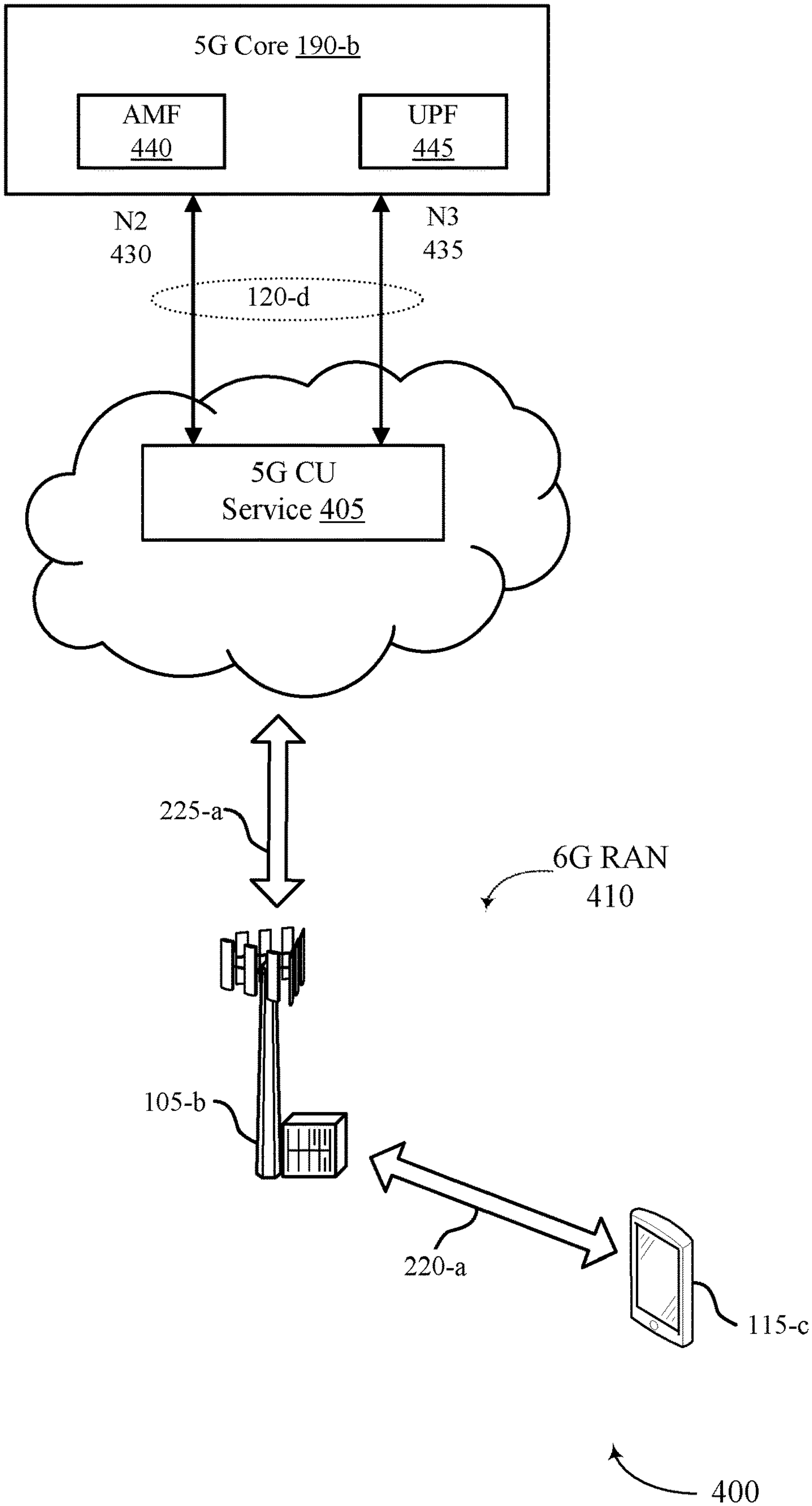

5G Core
190-a
120-a
300
Service Management Orchestration
Non-Real Time RIC
330-b
335
A1
O1
O2
Near-Real Time RIC
330-a
E2
O-eNB
325
O-Cloud
320
CU
310
315
DU
165-a
168-a
RU
170-a
UE
115-b
125-a
110-a
120-b
Service-Based Network
305

FIG. 3



5G Core 190-b
AMF 440
UPF 445
N2 430
N3 435
120-d
5G CU Service 405
225-a
6G RAN 410
105-b
220-a
115-c
400

FIG. 4

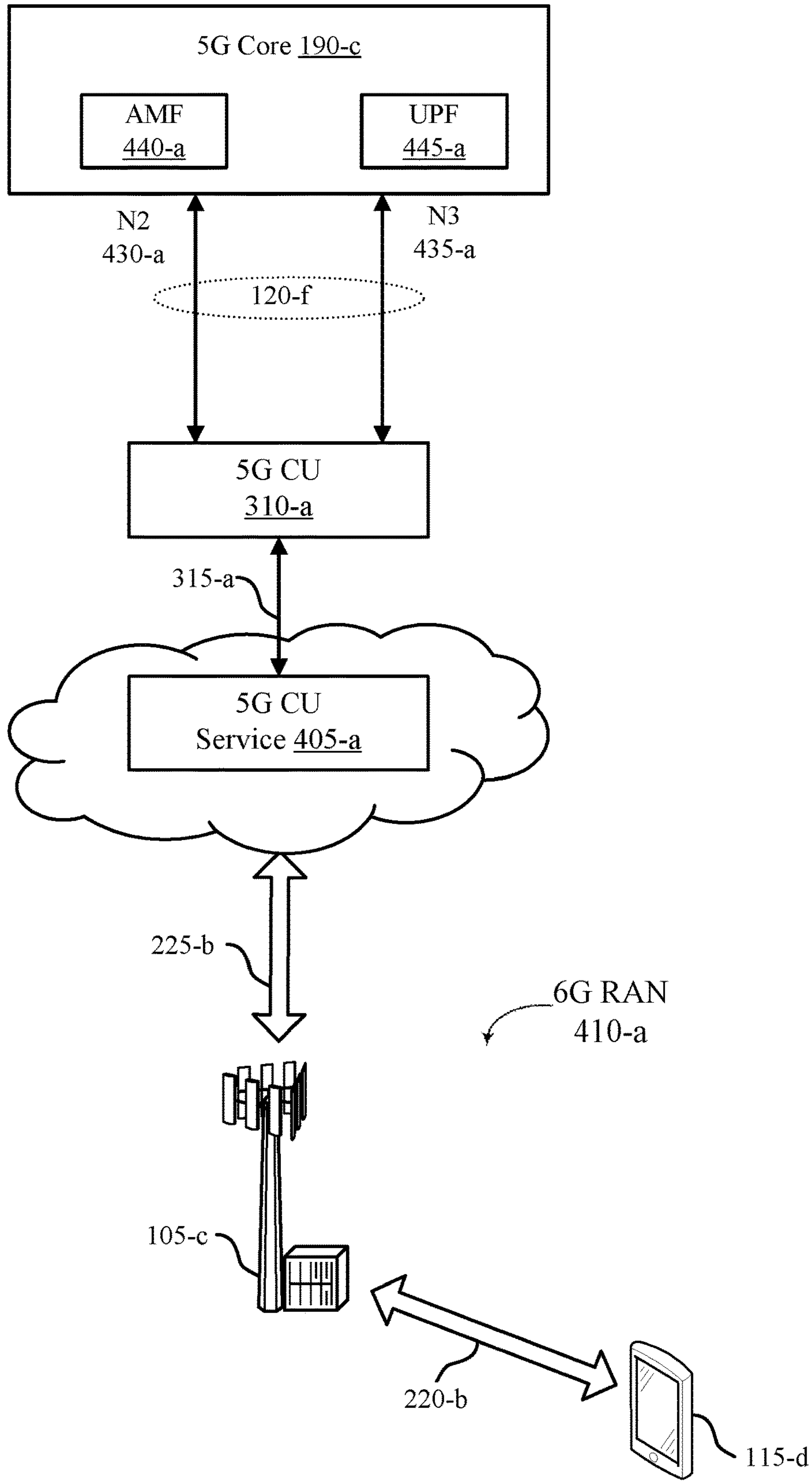

5G Core 190-c
AMF
440-a
UPF
445-a
N2
430-a
N3
435-a
120-f
5G CU
310-a
315-a
5G CU
Service 405-a
225-b
6G RAN
410-a
105-c
220-b
115-d

FIG. 5

500

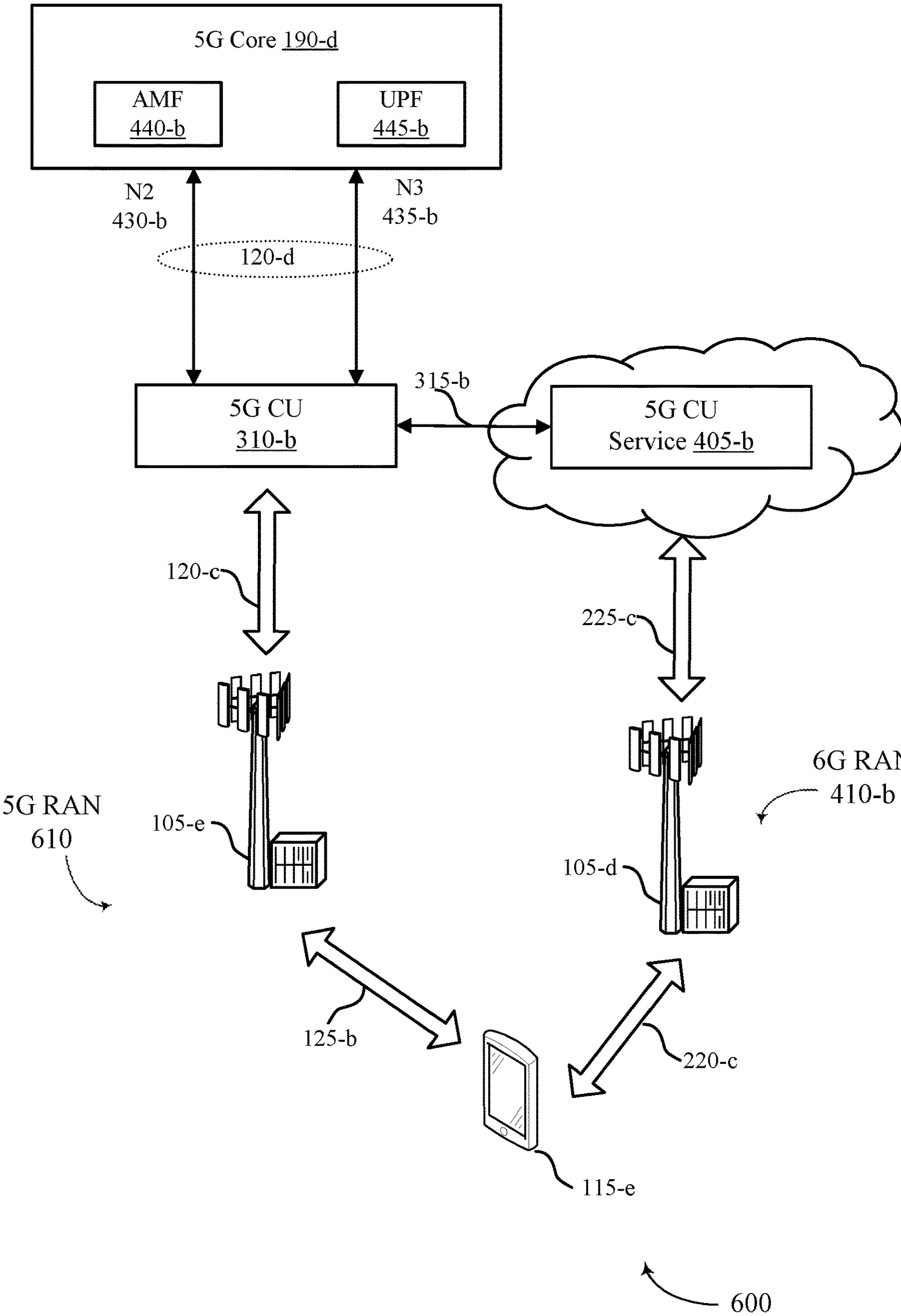
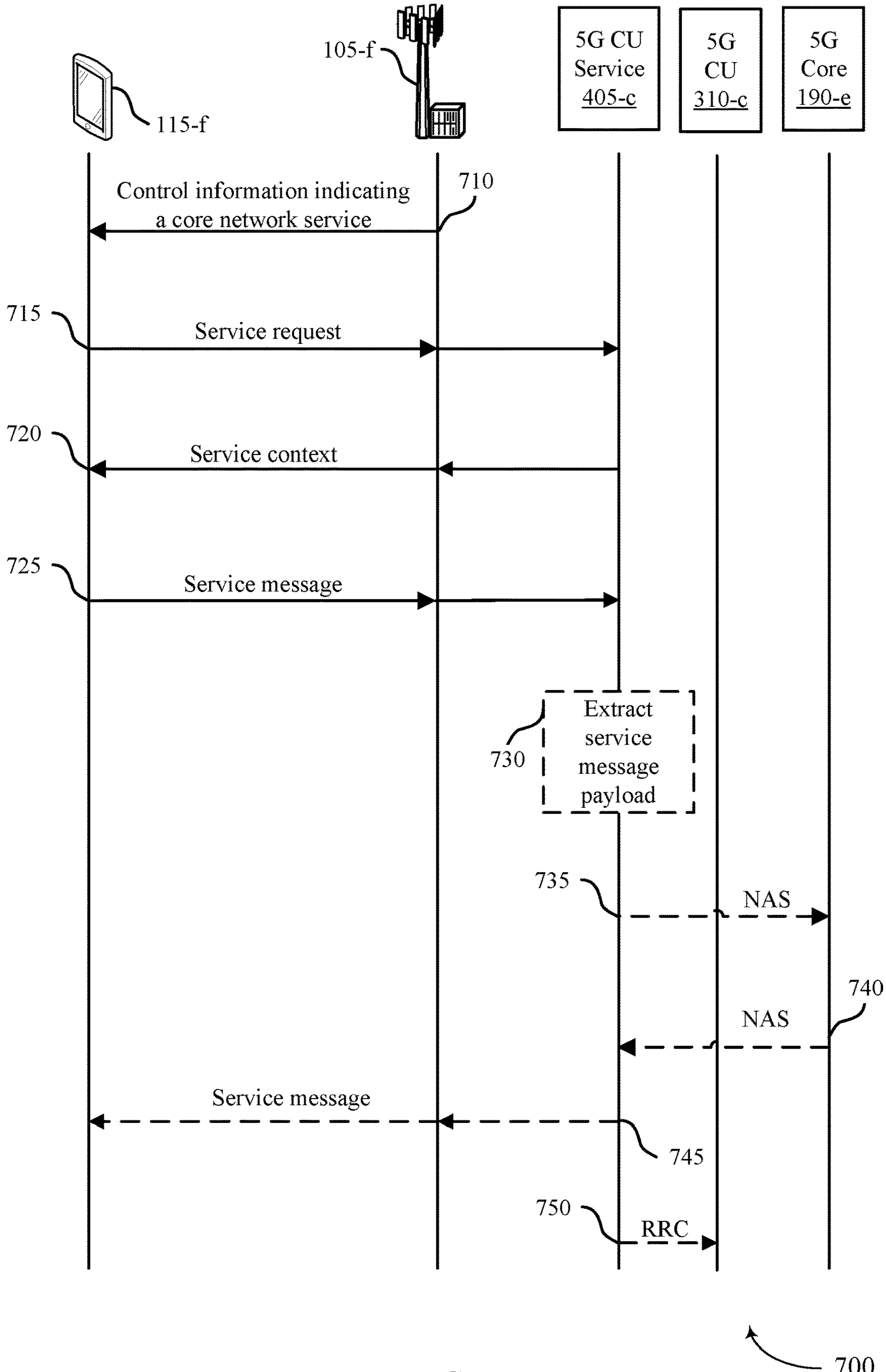

5G Core 190-d
AMF
440-b
UPF
445-b
N2
430-b
N3
435-b
120-d
5G CU
310-b
315-b
5G CU
Service 405-b
120-c
225-c
6G RAN
410-b
5G RAN
610
105-e
105-d
125-b
220-c
115-e
600

FIG. 6



105-f
115-f
5G CU Service 405-c
5G CU 310-c
5G Core 190-e
710
Control information indicating a core network service
715
Service request
720
Service context
725
Service message
Extract service message payload
730
735
NAS
740
NAS
Service message
745
750
RRC
700

FIG. 7

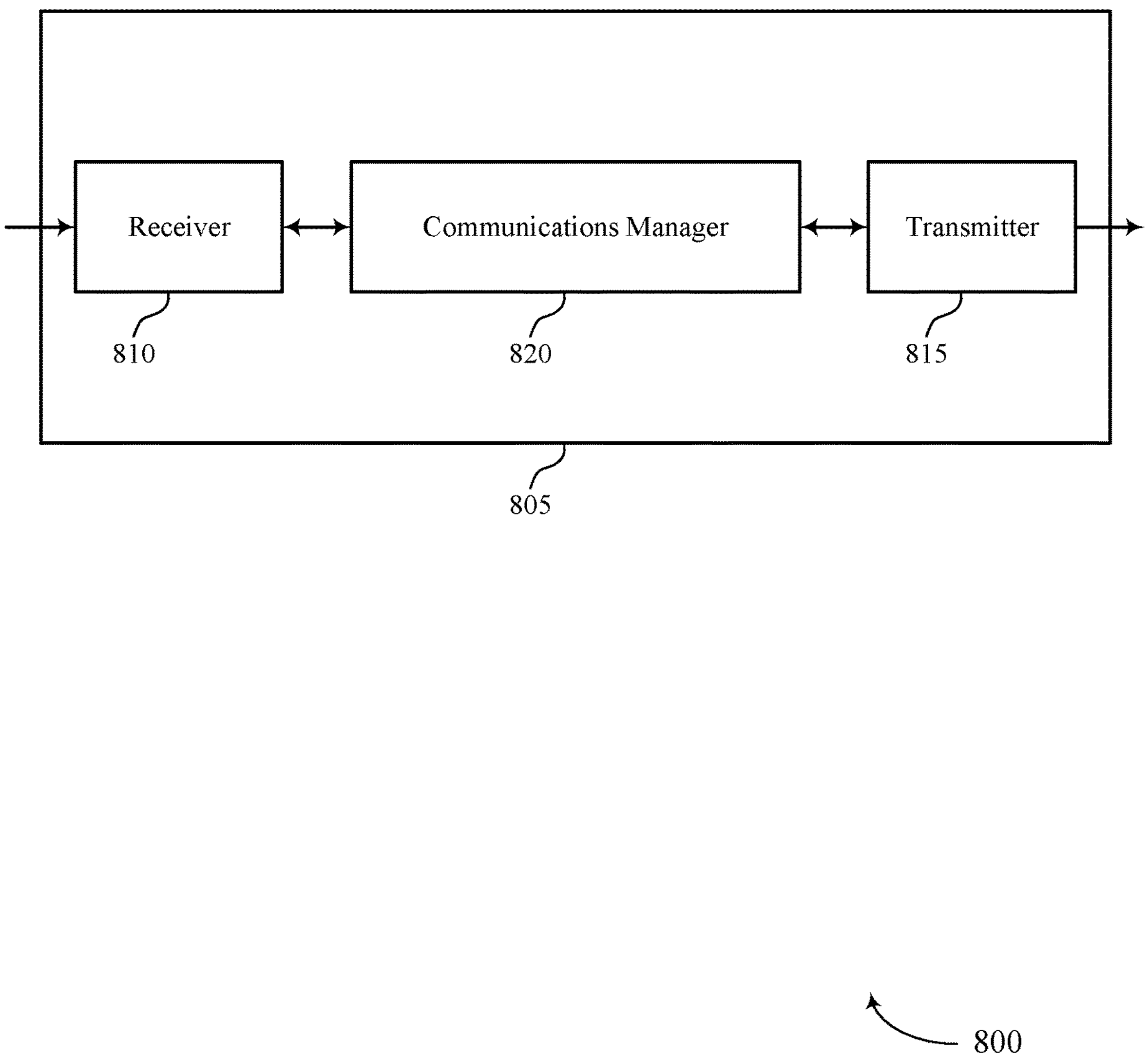
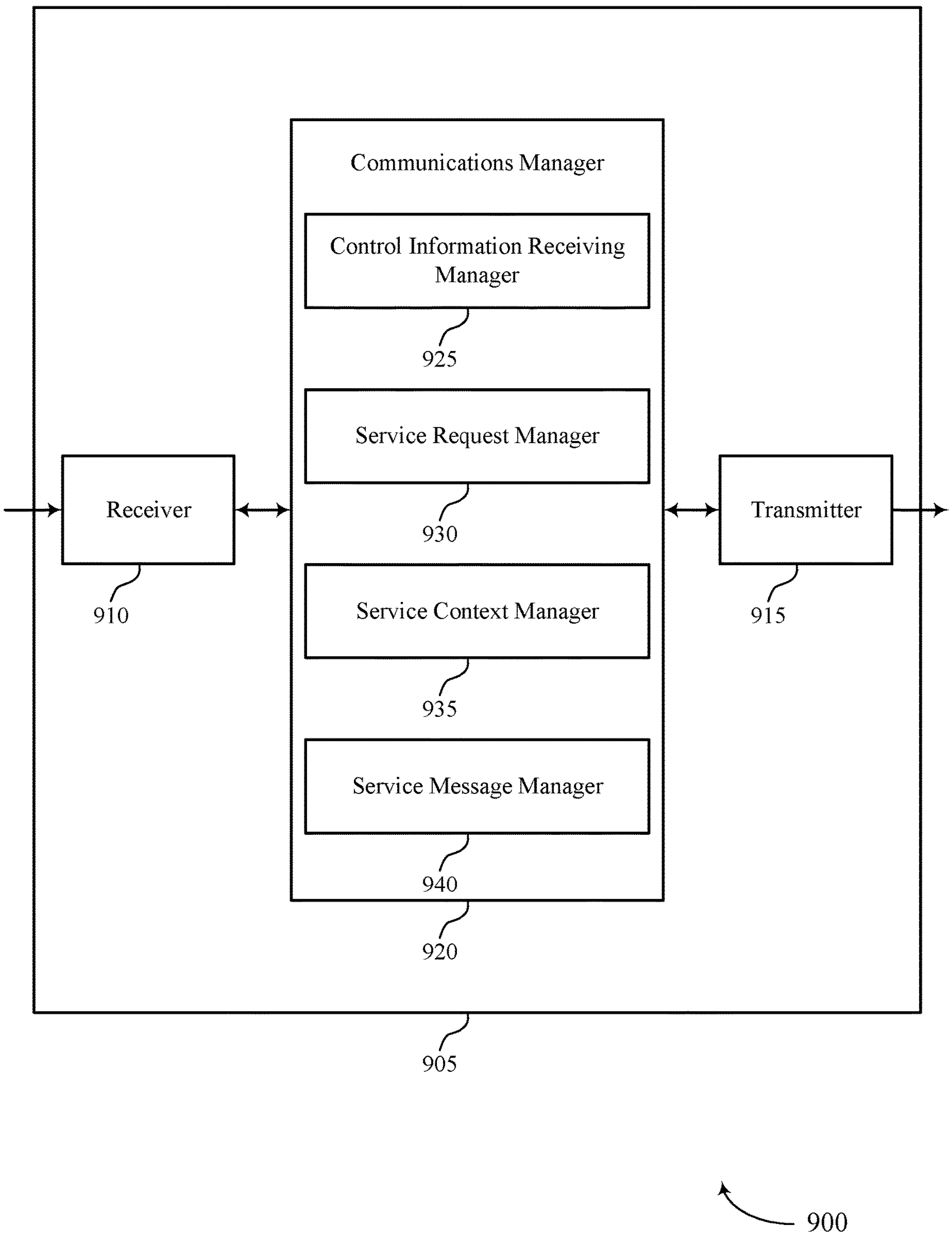

Receiver
Communications Manager
Transmitter
810
820
815
805
800

FIG. 8



Communications Manager
Control Information Receiving Manager
925
Service Request Manager
930
Receiver
910
Transmitter
915
Service Context Manager
935
Service Message Manager
940
920
905
900

FIG. 9

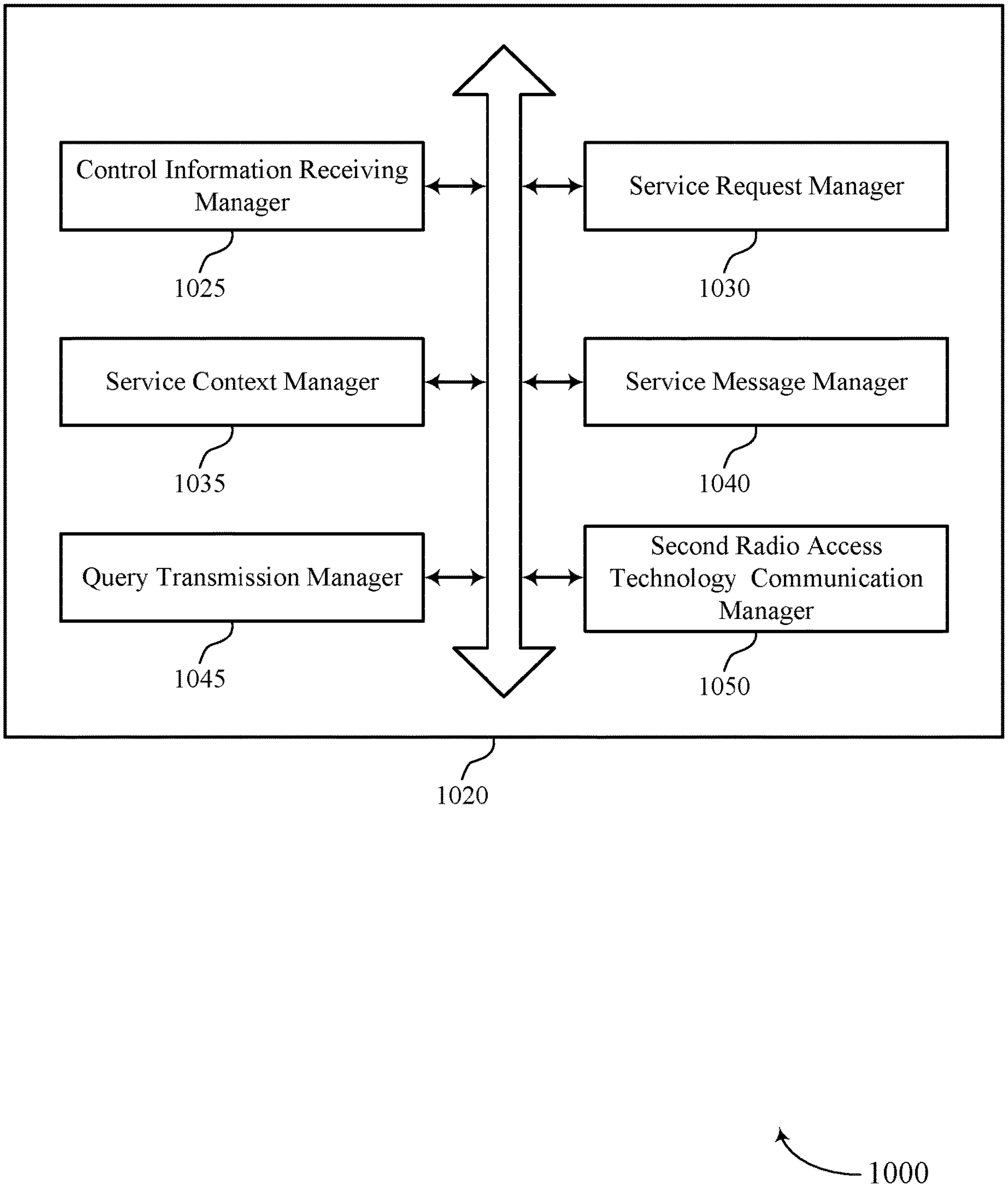

Control Information Receiving Manager
1025
Service Request Manager
1030
Service Context Manager
1035
Service Message Manager
1040
Query Transmission Manager
1045
Second Radio Access Technology Communication Manager
1050
1020
1000

FIG. 10

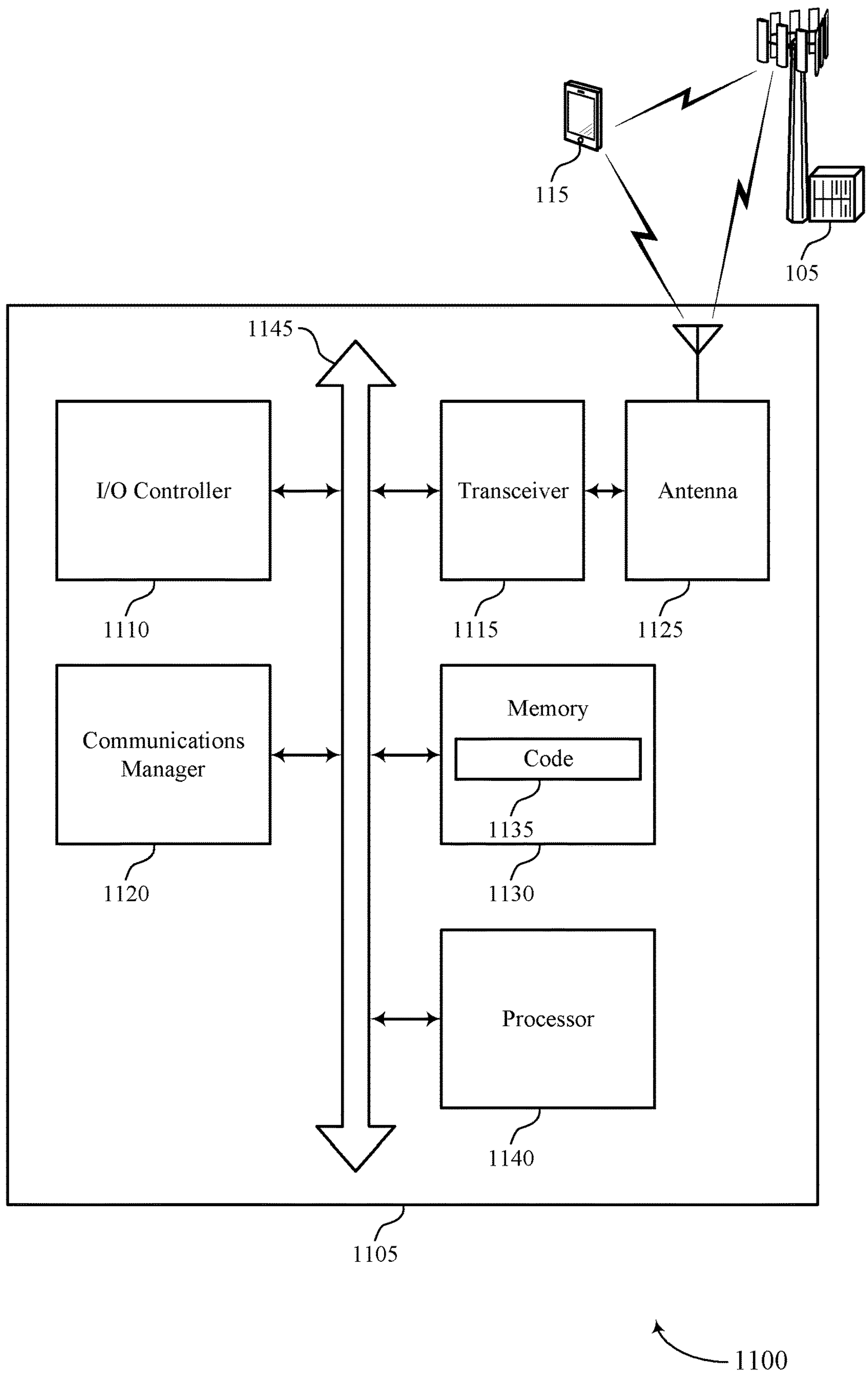

115
105
1145
I/O Controller
Transceiver
Antenna
1110
1115
1125
Memory
Code
Communications Manager
1135
1120
1130
Processor
1140
1105
1100

FIG. 11

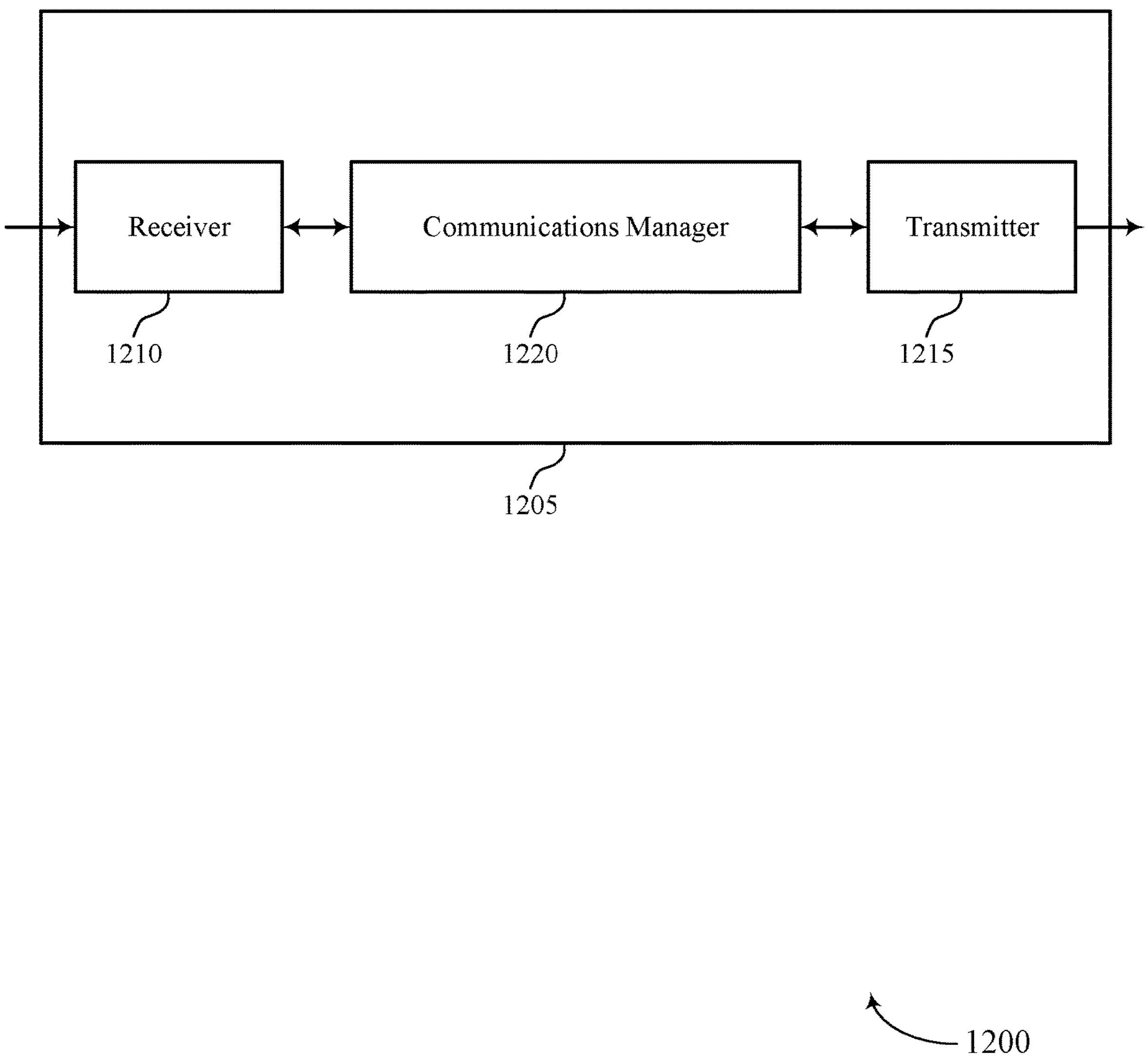

Receiver
Communications Manager
Transmitter
1210
1220
1215
1205
1200

FIG. 12

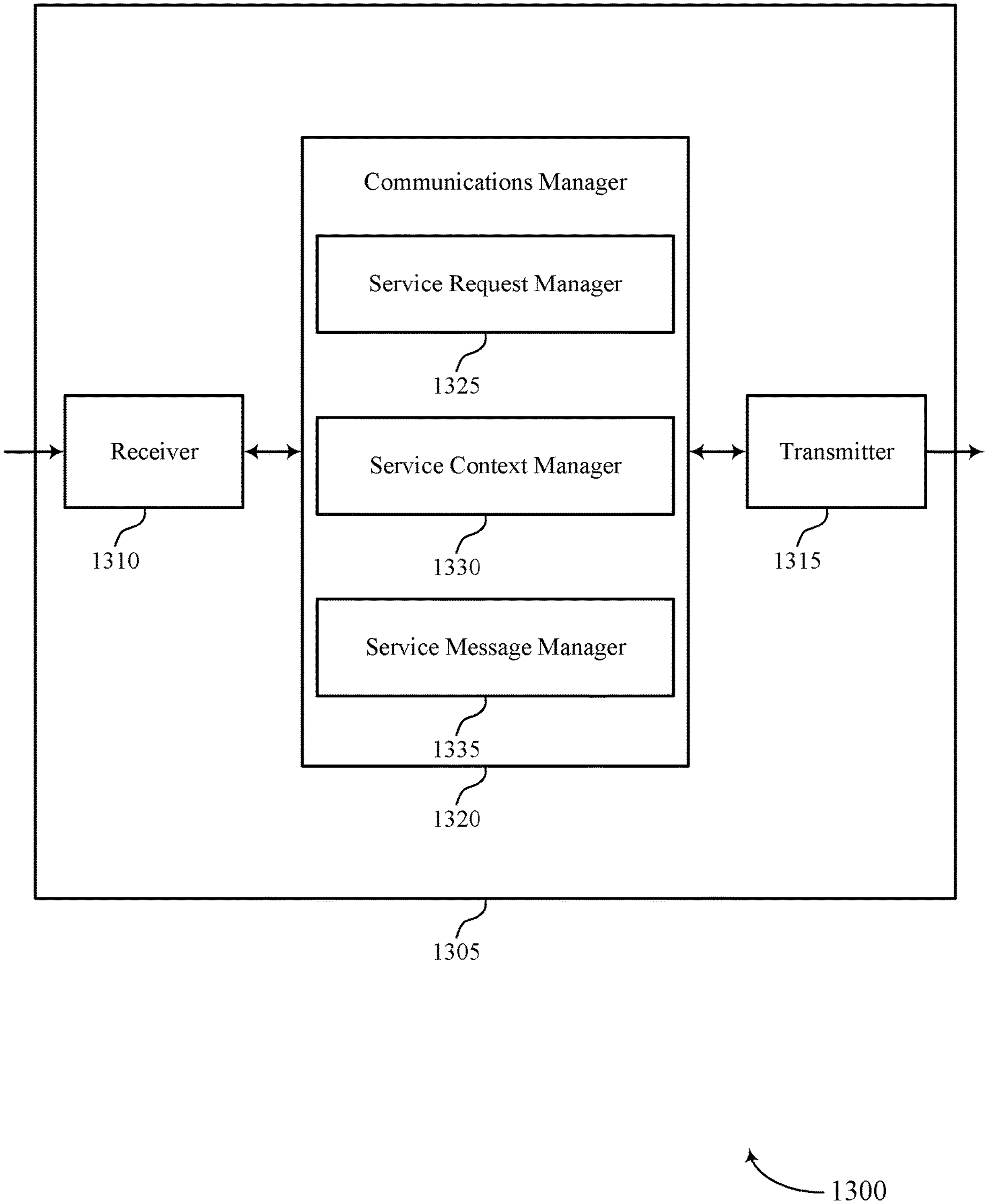

Communications Manager
Service Request Manager
1325
Receiver
Service Context Manager
Transmitter
1310
1330
1315
Service Message Manager
1335
1320
1305
1300

FIG. 13

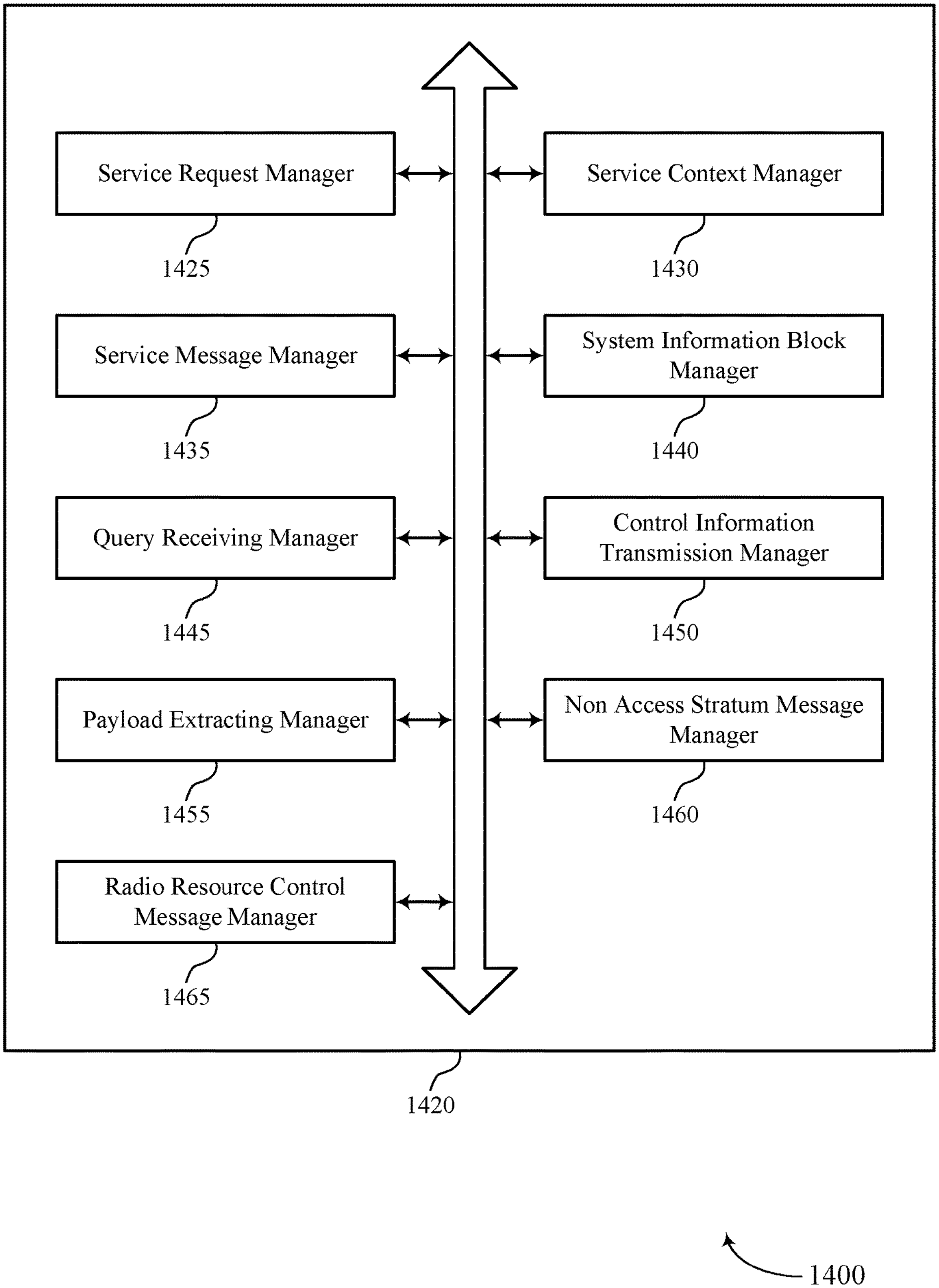

Service Request Manager
1425
Service Context Manager
1430
Service Message Manager
1435
System Information Block Manager
1440
Query Receiving Manager
1445
Control Information Transmission Manager
1450
Payload Extracting Manager
1455
Non Access Stratum Message Manager
1460
Radio Resource Control Message Manager
1465
1420
1400

FIG. 14

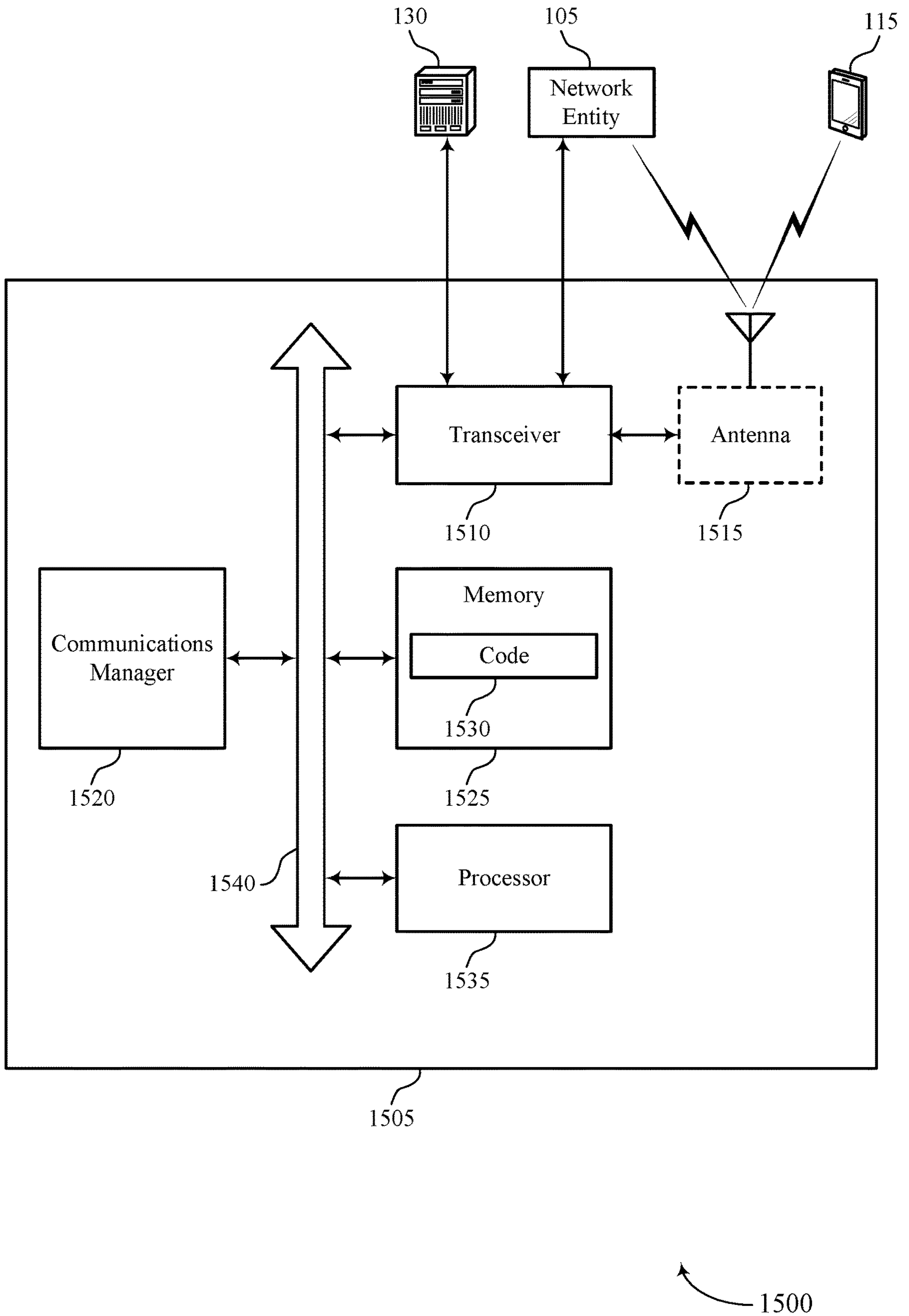

130
105
Network Entity
115
Transceiver
Antenna
1510
1515
Communications Manager
Memory
Code
1530
1525
1520
1540
Processor
1535
1505
1500

FIG. 15

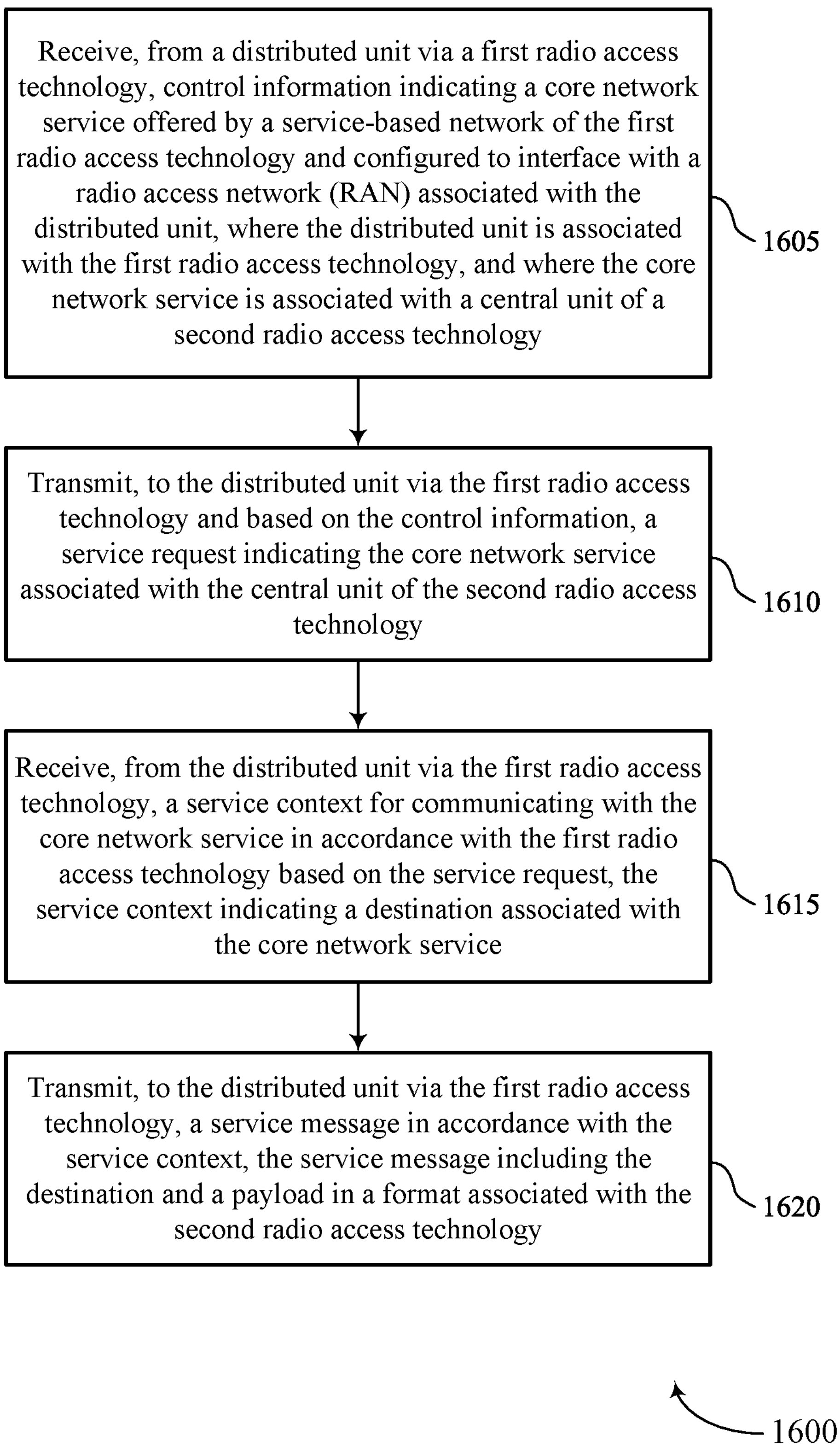

Receive, from a distributed unit via a first radio access technology, control information indicating a core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network (RAN) associated with the distributed unit, where the distributed unit is associated with the first radio access technology, and where the core network service is associated with a central unit of a second radio access technology
1605
Transmit, to the distributed unit via the first radio access technology and based on the control information, a service request indicating the core network service associated with the central unit of the second radio access technology
1610
Receive, from the distributed unit via the first radio access technology, a service context for communicating with the core network service in accordance with the first radio access technology based on the service request, the service context indicating a destination associated with the core network service
1615
Transmit, to the distributed unit via the first radio access technology, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second radio access technology
1620
1600

FIG. 16

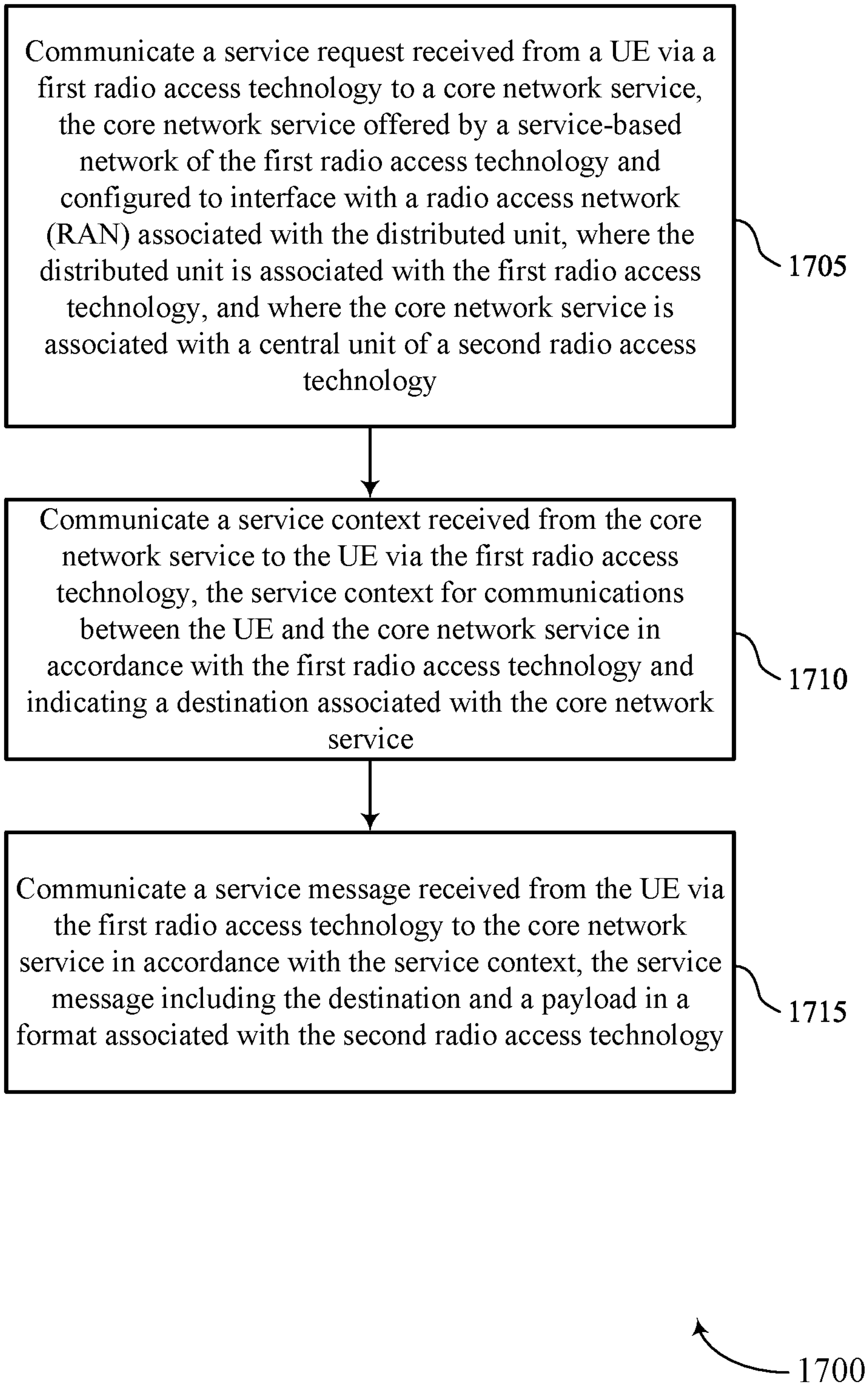

Communicate a service request received from a UE via a first radio access technology to a core network service, the core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network (RAN) associated with the distributed unit, where the distributed unit is associated with the first radio access technology, and where the core network service is associated with a central unit of a second radio access technology
1705
Communicate a service context received from the core network service to the UE via the first radio access technology, the service context for communications between the UE and the core network service in accordance with the first radio access technology and indicating a destination associated with the core network service
1710
Communicate a service message received from the UE via the first radio access technology to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second radio access technology
1715
1700

FIG. 17

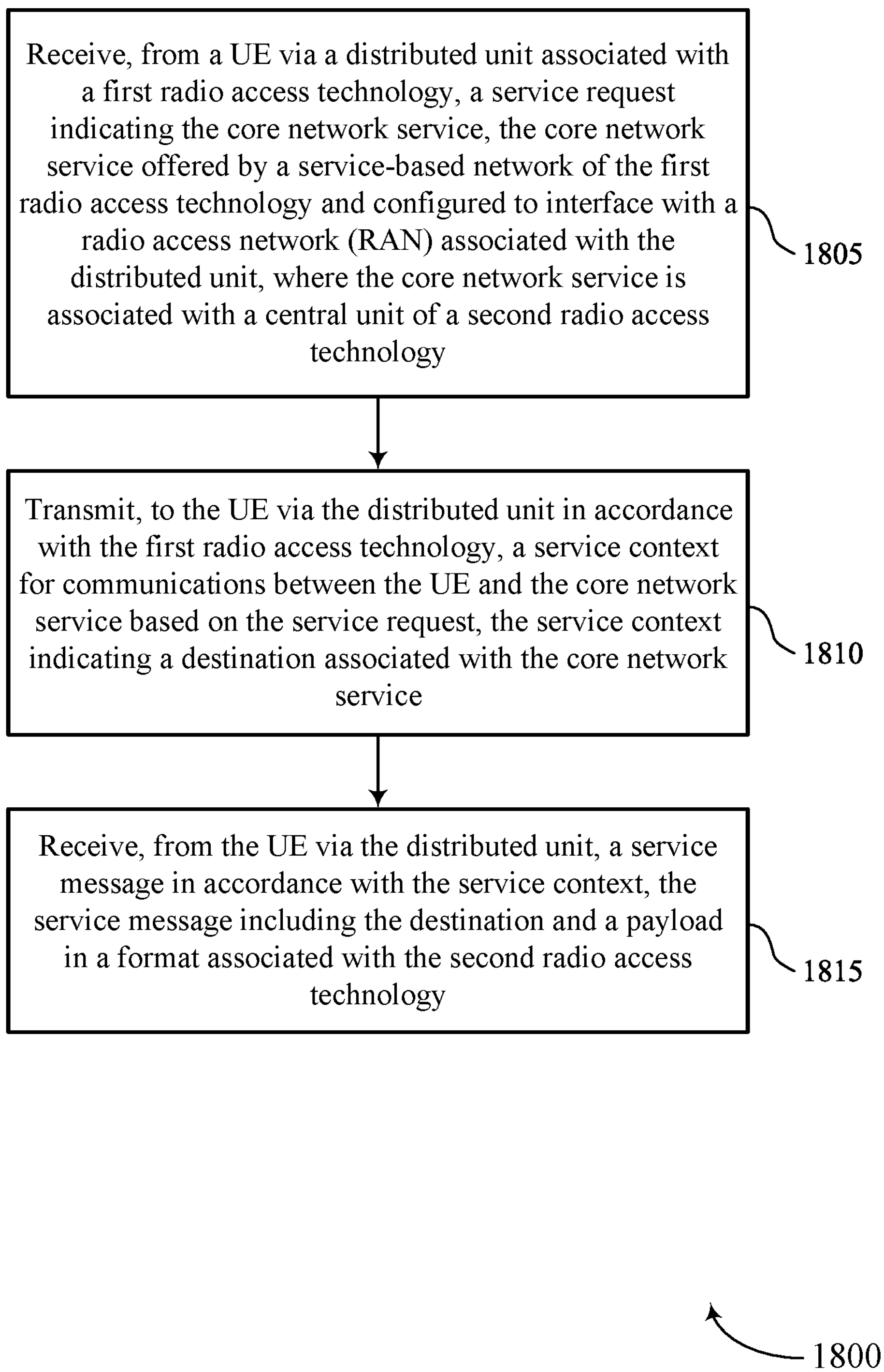

Receive, from a UE via a distributed unit associated with a first radio access technology, a service request indicating the core network service, the core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network (RAN) associated with the distributed unit, where the core network service is associated with a central unit of a second radio access technology
1805
Transmit, to the UE via the distributed unit in accordance with the first radio access technology, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service
1810
Receive, from the UE via the distributed unit, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second radio access technology
1815
1800

FIG. 18

ESTABLISHING CONNECTIVITY TO LEGACY GENERATION WIRELESS NETWORK VIA A FULLY SERVICE BASED NETWORK

FIELD OF TECHNOLOGY

The following relates to wireless communications, including establishing connectivity to legacy generation wireless network via a fully service based network.

BACKGROUND

Wireless communications systems are widely deployed to provide various types of communication content such as voice, video, packet data, messaging, broadcast, and so on. These systems may be capable of supporting communication with multiple users by sharing the available system resources (e.g., time, frequency, and power). Examples of such multiple-access systems include fourth generation (4G) systems such as Long Term Evolution (LTE) systems, LTE-Advanced (LTE-A) systems, or LTE-A Pro systems, and fifth generation (5G) systems which may be referred to as New Radio (NR) systems. These systems may employ technologies such as code division multiple access (CDMA), time division multiple access (TDMA), frequency division multiple access (FDMA), orthogonal FDMA (OFDMA), or discrete Fourier transform spread orthogonal frequency division multiplexing (DFT-S-OFDM). A wireless multiple-access communications system may include one or more base stations, each supporting wireless communication for communication devices, which may be known as user equipment (UE).

In the context of a service-based wireless system, a random access network (RAN) may interface with a service-based network that offers or provides various core network services. Each respective core network service may be hosted or provided by a different operator or entity, and may be associated with different sets of parameters for communicating with the respective core network service.

SUMMARY

The described techniques relate to improved methods, systems, devices, and apparatuses that support establishing connectivity to legacy generation wireless networks via a service based network. For example, the described techniques provide for the service based network, such as a Sixth Generation (6G) communications system, to offer a core network service that is associated with a central unit (CU) of the legacy generation, such as Fifth Generation (5G), radio access technology (RAT). The core network service associated with the 5G CU (5G CU service) may act as a 5G CU or may interface with the 5G CU. A 6G radio access network (RAN) may provide a 6G enhanced distributed unit (eDU) that may indicate to a user equipment (UE) that the 6G RAN offers the 5G CU service. The 5G CU service may indicate to the UE via the eDU a service context that the UE may use for communications with a 5G core network via the 5G CU service. The UE may transmit messages to the 5G CU service via the eDU that are forwarded to the 5G core network. The 5G CU service may forward messages from 5G core network to the UE.

A method for wireless communications at a UE is described. The method may include receiving, from a distributed unit (DU) via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT, receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service, and transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

An apparatus for wireless communications at a UE is described. The apparatus may include a processor and memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to receive, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, transmit, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT, receive, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service, and transmit, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Another apparatus for wireless communications at a UE is described. The apparatus may include means for receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, means for transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT, means for receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service, and means for transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

A non-transitory computer-readable medium storing code for wireless communications at a UE is described. The code may include instructions executable by a processor to receive, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, transmit, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT, receive, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service, and transmit, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, receiving the control information may include operations, features, means, or instructions for receiving the control information via a system information block transmitted by the DU.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for transmitting, to the DU, a query for service via the second RAT, where receiving the control information may be responsive to the query.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, transmitting the service message may include operations, features, means, or instructions for transmitting the service message including the payload including a non access stratum (NAS) message associated with a core network destination of the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, transmitting the service message may include operations, features, means, or instructions for transmitting the service message including the payload including a radio resource control message associated with the CU of the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, transmitting the service message may include operations, features, means, or instructions for transmitting the service message including a packet data unit in the format associated with the second RAT.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for receiving, from the DU, a second service message in accordance with the service context, the second service message including a second payload in the format associated with the second RAT.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for communicating with a network entity associated with the second RAT and the CU.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the service context includes a RAN configuration for communicating with the DU as part of the core network service.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the destination associated with the core network service may be a network address.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the core network service may be associated with an application programing interface.

A method for wireless communications at a DU is described. The method may include communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service, and communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

An apparatus for wireless communications at a DU is described. The apparatus may include a processor and memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to communicate a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, communicate a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service, and communicate a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Another apparatus for wireless communications at a DU is described. The apparatus may include means for communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, means for communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service, and means for communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

A non-transitory computer-readable medium storing code for wireless communications at a DU is described. The code may include instructions executable by a processor to communicate a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT, communicate a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service, and communicate a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for transmitting, via the first RAT, a system information block indicating the core network service may be offered by the service-based network of the first RAT, where the service request may be response to transmission of the system information block.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for receiving, from the UE via the first RAT, a query for service via the second RAT and transmitting, to the UE in response to the query and via the first RAT, control information indicating the core network service may be offered by the service-based network of the first RAT, where the service request may be responsive to transmission of the control information.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for communicating a second service message received from the core network service to the UE via the first RAT in accordance with the service context, the service message including second payload in the format associated with the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the service context includes a RAN configuration for communicating with the DU as part of the core network service.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the destination associated with the core network service may be a network address.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the core network service may be associated with an application programing interface.

A method for wireless communications at a core network service is described. The method may include receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT, transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service, and receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

An apparatus for wireless communications at a core network service is described. The apparatus may include a processor and memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to receive, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT, transmit, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service, and receive, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Another apparatus for wireless communications at a core network service is described. The apparatus may include means for receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT, means for transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service, and means for receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

A non-transitory computer-readable medium storing code for wireless communications at a core network service is described. The code may include instructions executable by a processor to receive, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT, transmit, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service, and receive, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for extracting, from the payload, a NAS message associated with the second RAT and transmitting the NAS message to a core network destination of the second RAT, where the payload indicates the core network destination.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, transmitting the NAS message may include operations, features, means, or instructions for transmitting the NAS message to an access and mobility management function via an N2 interface.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, transmitting the NAS message may include operations, features, means, or instructions for transmitting the NAS message to a user plane function via an N3 interface.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for receiving a second NAS message from a core network entity of the second RAT addressed to the UE and communicating a second service message to the UE via the DU in accordance with the service context, the second service message including a second payload including the second NAS message.

Some examples of the method, apparatuses, and non-transitory computer-readable medium described herein may further include operations, features, means, or instructions for extracting, from the payload, a radio resource control message associated with the second RAT and transmitting the radio resource control message to the CU.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, receiving the service message may include operations, features, means, or instructions for receiving the service message including the payload including a packet data unit in the format associated with the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the destination associated with the core network service may be a network address.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples of the method, apparatuses, and non-transitory computer-readable medium described herein, the core network service may be associated with an application programing interface.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates an example of a wireless communications system that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **2** illustrates an example of a wireless communications system that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **3** illustrates an example of a network architecture that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **4** illustrates an example of a wireless communications system that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **5** illustrates an example of a wireless communications system that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **6** illustrates an example of a wireless communications system that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **7** illustrates an example of a process flow that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIGS. **8** and **9** illustrate block diagrams of devices that support establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **10** illustrates a block diagram of a communications manager that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **11** illustrates a diagram of a system including a device that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIGS. **12** and **13** illustrate block diagrams of devices that support establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **14** illustrates a block diagram of a communications manager that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIG. **15** illustrates a diagram of a system including a device that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

FIGS. **16** through **18** illustrate flowcharts showing methods that support establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure.

DETAILED DESCRIPTION

Some wireless systems may exhibit a relatively vertical, hierarchical architecture that includes many "layers" of different devices that perform functions for the system. For example, a wireless system may include user equipments (UEs), base stations/network entities, and numerous back-end (e.g., core network) devices associated with one or more functions for the system. Such a hierarchical structure may result in processing and other functions being performed at multiple devices (e.g., duplicative processing or capabilities across multiple back-end devices), thereby leading to wasted resources and excess power consumption. Additionally, the back-end architecture of some wireless systems may be owned and maintained by a small handful of operators, which may make it difficult for other parties/entities to integrate with the systems and may complicate the ability of the systems to offer customized services and functionality to wireless devices.

Comparatively, some wireless systems, such as Sixth Generation (6G) systems, may exhibit a flatter, service-based architecture in which a radio access network (RAN) (e.g., network entities) interfaces with a service-based network in order to connect UEs to core network services maintained at various network addresses within the service-based network. In the context of a service-based system, operations and functions that may otherwise be performed by a few centralized back-end components (e.g., in some systems) may be distributed across a number of core network services that may be hosted at different network addresses, such as in a cloud-based architecture. As a result, UEs in a service-based system may be able to establish and maintain connections with (e.g., “subscribe” to) different core network services or groups thereof on an à la carte basis, where each core network service offers or provides a respective network functionality or service. For example, a service-based system may include a mobility service, a security service, a privacy service, a location service, and the like. In this regard, each UE within a service-based system may be able to select to which core network services the UE will subscribe based on the individualized characteristics or needs of the respective UE.

In some wireless systems, a RAN may interface with a service-based network that offers various core network services, and may relay communications between UEs and the respective core network service. In particular, the UE may subscribe to various core network services offered by the service-based network. However, each respective core network service may be hosted or provided by a different operator or entity, and may be associated with different sets of parameters for communicating with the respective core network services. In other words, communications parameters used to communicate with one core network service may not be used to communicate with another core network service.

Service based wireless communications systems (e.g., service based radio access technologies (RATs)) may have a higher throughput and increased spectrum with respect to legacy wireless communications systems (e.g., legacy RAT). As operators transition to service based systems, some operators may not offer a full suite of services (e.g., 6G services), but may provide a 6G RAN to take advantage of the higher throughput and increased spectrum provided by 6G. Accordingly, an operator may wish to provide access to the 5G core network via a 6G RAN.

A service based communications system may offer a central unit (CU) service that acts as a legacy CU or interfaces with a legacy CU (e.g., a 5G CU). A UE may communicate with the legacy core network (e.g., a 5G core network) via a service based RAN (e.g., a 6G RAN), such as via a 6G enhanced distributed unit (eDU). The 6G eDU may indicate to the UE that the 6G RAN offers the legacy (e.g., 5G) CU service. For example, the eDU may broadcast a system information block (SIB) indicating the availability of the 5G CU service, or the UE may query the eDU regarding whether the associated service based RAN offers a legacy CU service. The legacy CU service may then indicate to the UE, via the eDU, a service context that the UE may use for communications with the legacy core network (e.g., the 5G core network) via the legacy CU service. For example, the service context may indicate a network address of the legacy CU service and a message format for legacy messages (e.g., 5G messages) transmitted over the service based protocol (e.g., the 6G protocol). Accordingly, the UE may transmit messages to the legacy CU service via the eDU in the service based protocol format, where the messages include the legacy CU service as the destination and a payload that includes a message in the legacy message format. The legacy CU service may accordingly extract the legacy message in the service based message payload, and forward the legacy message to the target legacy core network entity/function, such as an access and mobility management function (AMF) or a user plane function (UPF). The legacy CU service may similarly forward messages from legacy core network functions/entities to the UE.

Aspects of the disclosure are initially described in the context of wireless communications systems. Additional aspects of the disclosure are described in the context of an example network architecture, example wireless communications systems and an example process flow. Aspects of the disclosure are further illustrated by and described with reference to apparatus diagrams, system diagrams, and flowcharts that relate to techniques for service establishment in a service-based wireless system.

FIG. **1** illustrates an example of a wireless communications system **100** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The wireless communications system **100** may include one or more network entities **105**, one or more UEs **115**, and a service-based network **130**. In some examples, the wireless communications system **100** may implement aspects of a 6G network, a 5G network (e.g., a New Radio (NR) network), a 4G network (e.g., a Long Term Evolution (LTE) network, an LTE-Advanced (LTE-A) network, an LTE-A Pro network), or a network operating in accordance with other systems and radio technologies, including future systems and radio technologies not explicitly mentioned herein.

The network entities **105** may be dispersed throughout a geographic area to form the wireless communications system **100** and may include devices in different forms or having different capabilities. In various examples, a network entity **105** may be referred to as a network element, a mobility element, a RAN node, access point, or network equipment, among other nomenclature. In some examples, network entities **105** and UEs **115** may wirelessly communicate via one or more communication links **125** (e.g., a radio frequency (RF) access link). For example, a network entity **105** may support a coverage area **110** (e.g., a geographic coverage area) over which the UEs **115** and the network entity **105** may establish one or more communication links **125**. The coverage area **110** may be an example of a geographic area over which a network entity **105** and a UE **115** may support the communication of signals according to one or more RATs.

The UEs **115** may be dispersed throughout a coverage area **110** of the wireless communications system **100**, and each UE **115** may be stationary, or mobile, or both at different times. The UEs **115** may be devices in different forms or having different capabilities. Some example UEs **115** are illustrated in FIG. **1**. The UEs **115** described herein may be capable of supporting communications with various types of devices, such as other UEs **115** or network entities **105**, as shown in FIG. **1**.

As described herein, a node of the wireless communications system **100**, which may be referred to as a network node, or a wireless node, may be a network entity **105** (e.g., any network entity described herein), a UE **115** (e.g., any UE described herein), a network controller, an apparatus, a device, a computing system, one or more components, or another suitable processing entity configured to perform any of the techniques described herein. For example, a node may be a UE **115**. As another example, a node may be a network entity **105**. As another example, a first node may be configured to communicate with a second node or a third node. In one aspect of this example, the first node may be a UE **115**, the second node may be a network entity **105**, and the third node may be a UE **115**. In another aspect of this example, the first node may be a UE **115**, the second node may be a network entity **105**, and the third node may be a network entity **105**. In yet other aspects of this example, the first, second, and third nodes may be different relative to these examples. Similarly, reference to a UE **115**, network entity **105**, apparatus, device, computing system, or the like may include disclosure of the UE **115**, network entity **105**, apparatus, device, computing system, or the like being a node. For example, disclosure that a UE **115** is configured to receive information from a network entity **105** also discloses that a first node is configured to receive information from a second node.

In some examples, network entities **105** may communicate with the service-based network **130**, or with one another, or both. For example, network entities **105** may communicate with the service-based network **130** via one or more backhaul communication links **120** (e.g., in accordance with an S1, N2, N3, or other interface protocol). Similarly, UEs **115** may communicate with the service-based network **130** via one or more communication links **155**. In some examples, network entities **105** may communicate with one another via a backhaul communication link **120** (e.g., in accordance with an X2, Xn, or other interface protocol) either directly (e.g., directly between network entities **105**) or indirectly (e.g., via a service-based network **130**). In some examples, network entities **105** may communicate with one another via one or more communication links such as a fronthaul communication link **168** (e.g., between a radio unit **170** and a distributed unit (DU) **165**). The backhaul communication links **120** or fronthaul communication links **168**, or other communication links between network entities **105**, may be or include one or more wired links (e.g., an electrical link, an optical fiber link), one or more wireless links (e.g., a radio link, a wireless optical link), among other examples or various combinations thereof.

In some examples, network entities **105** may communicate with a service platform **150** (e.g., a cloud platform) that provides one or more core network services (CN services), one or more RAN services, or any combinations thereof (CN/RAN services **185**). The CN/RAN services may be provided via the service-based network **130**, using one or more APIs. For example, one or more DU service APIs **175** may provide an interface for one or more services at a UE **115**. The services at the UE **115** may correspond to one or more CN/RAN services **185** at service platform **150**. For example, network service APIs **180** at service-based network **130** may interface with corresponding DU service APIs **175** at a DU **165**, which interface with corresponding APIs at a UE **115** to provide service connectivity between the one or more UE **115** services and corresponding CN/RAN services **185**.

One or more of the network entities **105** described herein may include or may be referred to as a base station **140** (e.g., a base transceiver station, a radio base station, an access point, a radio transceiver, a NodeB, an eNodeB (eNB), a next-generation NodeB or a giga-NodeB (either of which may be referred to as a gNB), a 5G NB, a next-generation eNB (ng-eNB), a Home NodeB, a Home eNodeB, a 6G NB, or other suitable terminology). In some examples, a network entity **105** (e.g., a base station **140**) may be implemented in an aggregated (e.g., monolithic, standalone) base station architecture, which may be configured to utilize a service-based architecture and provide radio access within a single network entity **105** (e.g., a single RAN node, such as a base station **140**, may include a RU **170**, a DU **165**, and DU APIs **175** for CN/RAN services **185**). An RU **170** may also be referred to as a radio head, a smart radio head, a remote radio head (RRH), a remote radio unit (RRU), or a transmission reception point (TRP).

Additionally, in some examples, one or more network entities **105** may be implemented in a disaggregated architecture (e.g., a disaggregated base station architecture, a disaggregated RAN architecture), which may be configured to utilize a protocol stack that is physically or logically distributed among two or more network entities **105**, such as an integrated access backhaul (IAB) network, an open RAN (O-RAN) (e.g., a network configuration sponsored by the O-RAN Alliance), or a virtualized RAN (vRAN) (e.g., a cloud RAN (C-RAN)). For example, a network entity **105** may include one or more of a CU, a DU **165**, RU **170**, a RAN Intelligent Controller (RIC) (e.g., a Near-Real Time RIC (Near-RT RIC), a Non-Real Time RIC (Non-RT RIC)), a Service Management and Orchestration (SMO) system, or any combination thereof. One or more components of the network entities **105** in a disaggregated RAN architecture may be co-located, or one or more components of the network entities **105** may be located in distributed locations (e.g., separate physical locations). In some examples, one or more network entities **105** of a disaggregated RAN architecture may be implemented as virtual units (e.g., a virtual CU (VCU), a virtual DU (VDU), a virtual RU (VRU)).

The split of functionality between components (e.g., CU, DU, and RU) is flexible and may support different functionalities depending on which functions (e.g., network layer functions, protocol layer functions, baseband functions, RF functions, and any combinations thereof) are performed at a component. For example, a functional split of a protocol stack may be employed between a CU and a DU **165** such that the CU may support one or more layers of the protocol stack and the DU **165** may support one or more different layers of the protocol stack. In some examples, the CU may host upper protocol layer (e.g., layer 3 (L3), layer 2 (L2)) functionality and signaling (e.g., Radio Resource Control (RRC), service data adaption protocol (SDAP), Packet Data Convergence Protocol (PDCP)). In some examples, the CU may host one or more service APIs for one or more CN/RAN services **185** via corresponding network service APIs **180** of service-based network **130**. The CU may be connected to one or more DUs **165** or RUs **170**, and the one or more DUs **165** or RUs **170** may host lower protocol layers, such as layer 1 (L1) (e.g., physical (PHY) layer) or L2 (e.g., radio link control (RLC) layer, medium access control (MAC) layer) functionality and signaling, and may each be at least partially controlled by the CU. Additionally, or alternatively, a functional split of the protocol stack may be employed between a DU **165** and an RU **170** such that the DU **165** may support one or more layers of the protocol stack and the RU **170** may support one or more different layers of the protocol stack. The DU **165** may support one or multiple different cells (e.g., via one or more RUs **170**). In some cases, a functional split between a CU and a DU **165**, or between a DU **165** and an RU **170** may be within a protocol layer (e.g., some functions for a protocol layer may be performed by one of a CU, a DU **165**, or an RU **170**, while other functions of the protocol layer are performed by a different one of the CU, the DU **165**, or the RU **170**). A DU **165** may be connected to one or more RUs **170** via a fronthaul communication link **168** (e.g., open fronthaul (FH) interface). In some examples, a fronthaul communication link **168** may be implemented in accordance with an interface (e.g., a channel) between layers of a protocol stack supported by respective network entities **105** that are in communication via such communication links.

In wireless communications systems (e.g., wireless communications system **100**), infrastructure and spectral resources for radio access may support wireless backhaul link capabilities to supplement wired backhaul connections, providing an IAB network architecture (e.g., to a service-based network **130**). In some cases, in an IAB network, one or more network entities **105** (e.g., IAB nodes **104**) may be partially controlled by each other. One or more IAB nodes **104** may be referred to as a donor entity or an IAB donor. One or more DUs **165** or one or more RUs **170** may be partially controlled by a donor network entity **105** (e.g., a donor base station **140**). The one or more donor network entities **105** (e.g., IAB donors) may be in communication with one or more additional network entities **105** (e.g., IAB nodes **104**) via supported access and backhaul links (e.g., backhaul communication links **120**). IAB nodes **104** may include an IAB mobile termination (IAB-MT) controlled (e.g., scheduled) by DUs **165** of a coupled IAB donor. An IAB-MT may include an independent set of antennas for relay of communications with UEs **115**, or may share the same antennas (e.g., of an RU **170**) of an IAB node **104** used for access via the DU **165** of the IAB node **104** (e.g., referred to as virtual IAB-MT (vIAB-MT)). In some examples, the IAB nodes **104** may include DUs **165** that support communication links with additional entities (e.g., IAB nodes **104**, UEs **115**) within the relay chain or configuration of the access network (e.g., downstream). In such cases, one or more components of the disaggregated RAN architecture (e.g., one or more IAB nodes **104** or components of IAB nodes **104**) may be configured to operate according to the techniques described herein.

In the case of the techniques described herein applied in the context of a disaggregated RAN architecture, one or more components of the disaggregated RAN architecture may be configured to support techniques for capability indication to multiple services in a service-based wireless system as described herein. For example, some operations described as being performed by a UE **115** or a network entity **105** (e.g., a base station **140**) may additionally, or alternatively, be performed by one or more components of the disaggregated RAN architecture (e.g., IAB nodes **104**, DUs **165**, CUs, RUs **170**, RIC, SMO).

A UE **115** may include or may be referred to as a mobile device, a wireless device, a remote device, a handheld device, or a subscriber device, or some other suitable terminology, where the "device" may also be referred to as a unit, a station, a terminal, or a client, among other examples. A UE **115** may also include or may be referred to as a personal electronic device such as a cellular phone, a personal digital assistant (PDA), a tablet computer, a laptop computer, or a personal computer. In some examples, a UE **115** may include or be referred to as a wireless local loop (WLL) station, an Internet of Things (IoT) device, an Internet of Everything (IoE) device, or a machine type communications (MTC) device, among other examples, which may be implemented in various objects such as appliances, or vehicles, meters, among other examples.

The UEs **115** described herein may be able to communicate with various types of devices, such as other UEs **115** that may sometimes act as relays as well as the network entities **105** and the network equipment including macro eNBs or gNBs, small cell eNBs or gNBs, or relay base stations, among other examples, as shown in FIG. **1**.

The UEs **115** and the network entities **105** may wirelessly communicate with one another via one or more communication links **125** (e.g., an access link) using resources associated with one or more carriers. The term "carrier" may refer to a set of RF spectrum resources having a defined physical layer structure for supporting the communication links **125**. For example, a carrier used for a communication link **125** may include a portion of a RF spectrum band (e.g., a bandwidth part (BWP)) that is operated according to one or more physical layer channels for a given RAT (e.g., 4G, 5G, 6G RAT). Each physical layer channel may carry acquisition signaling (e.g., synchronization signals, system information), control signaling that coordinates operation for the carrier, user data, or other signaling. The wireless communications system **100** may support communication with a UE **115** using carrier aggregation or multi-carrier operation. A UE **115** may be configured with multiple downlink component carriers and one or more uplink component carriers according to a carrier aggregation configuration. Carrier aggregation may be used with both frequency division duplexing (FDD) and time division duplexing (TDD) component carriers. Communication between a network entity **105** and other devices may refer to communication between the devices and any portion (e.g., entity, sub-entity) of a network entity **105**. For example, the terms "transmitting," "receiving," or "communicating," when referring to a network entity **105**, may refer to any portion of a network entity **105** (e.g., a base station **140**, a CU, a DU **165**, a RU **170**) of a RAN communicating with another device (e.g., directly or via one or more other network entities **105**).

In some examples, such as in a carrier aggregation configuration, a carrier may also have acquisition signaling or control signaling that coordinates operations for other carriers. A carrier may be associated with a frequency channel (e.g., an evolved universal mobile telecommunication system terrestrial radio access (E-UTRA) absolute RF channel number (EARFCN)) and may be identified according to a channel raster for discovery by the UEs **115**. A carrier may be operated in a standalone mode, in which case initial acquisition and connection may be conducted by the UEs **115** via the carrier, or the carrier may be operated in a non-standalone mode, in which case a connection is anchored using a different carrier (e.g., of the same or a different RAT).

The communication links **125** shown in the wireless communications system **100** may include downlink transmissions (e.g., forward link transmissions) from a network entity **105** to a UE **115**, uplink transmissions (e.g., return link transmissions) from a UE **115** to a network entity **105**, or both, among other configurations of transmissions. Carriers may carry downlink or uplink communications (e.g., in an FDD mode) or may be configured to carry downlink and uplink communications (e.g., in a TDD mode).

A carrier may be associated with a particular bandwidth of the RF spectrum and, in some examples, the carrier bandwidth may be referred to as a "system bandwidth" of the carrier or the wireless communications system **100**. For example, the carrier bandwidth may be one of a set of bandwidths for carriers of a particular RAT (e.g., 1.4, 3, 5, 10, 15, 20, 40, or 80 megahertz (MHz)). Devices of the wireless communications system **100** (e.g., the network entities **105**, the UEs **115**, or both) may have hardware configurations that support communications using a particular carrier bandwidth or may be configurable to support communications using one of a set of carrier bandwidths. In some examples, the wireless communications system **100** may include network entities **105** or UEs **115** that support concurrent communications using carriers associated with multiple carrier bandwidths. In some examples, each served UE **115** may be configured for operating using portions (e.g., a sub-band, a BWP) or all of a carrier bandwidth.

Signal waveforms transmitted via a carrier may be made up of multiple subcarriers (e.g., using multi-carrier modulation (MCM) techniques such as orthogonal frequency division multiplexing (OFDM) or discrete Fourier transform spread OFDM (DFT-S-OFDM)). In a system employing MCM techniques, a resource element may refer to resources of one symbol period (e.g., a duration of one modulation symbol) and one subcarrier, in which case the symbol period and subcarrier spacing may be inversely related. The quantity of bits carried by each resource element may depend on the modulation scheme (e.g., the order of the modulation scheme, the coding rate of the modulation scheme, or both), such that a relatively higher quantity of resource elements (e.g., in a transmission duration) and a relatively higher order of a modulation scheme may correspond to a relatively higher rate of communication. A wireless communications resource may refer to a combination of an RF spectrum resource, a time resource, and a spatial resource (e.g., a spatial layer, a beam), and the use of multiple spatial resources may increase the data rate or data integrity for communications with a UE **115**.

One or more numerologies for a carrier may be supported, and a numerology may include a subcarrier spacing (Δf) and a cyclic prefix. A carrier may be divided into one or more BWPs having the same or different numerologies. In some examples, a UE **115** may be configured with multiple BWPs. In some examples, a single BWP for a carrier may be active at a given time and communications for the UE **115** may be restricted to one or more active BWPs.

The time intervals for the network entities **105** or the UEs **115** may be expressed in multiples of a basic time unit which may, for example, refer to a sampling period of $T_s=1/(\Delta f_{max} \cdot N_f)$ seconds, for which Δf_{max} may represent a supported subcarrier spacing, and N_f may represent a supported discrete Fourier transform (DFT) size. Time intervals of a communications resource may be organized according to radio frames each having a specified duration (e.g., 10 milliseconds (ms)). Each radio frame may be identified by a system frame number (SFN) (e.g., ranging from 0 to 1023).

Each frame may include multiple consecutively-numbered subframes or slots, and each subframe or slot may have the same duration. In some examples, a frame may be divided (e.g., in the time domain) into subframes, and each subframe may be further divided into a quantity of slots. Alternatively, each frame may include a variable quantity of slots, and the quantity of slots may depend on subcarrier spacing. Each slot may include a quantity of symbol periods (e.g., depending on the length of the cyclic prefix prepended to each symbol period). In some wireless communications systems **100**, a slot may further be divided into multiple mini-slots associated with one or more symbols. Excluding the cyclic prefix, each symbol period may be associated with one or more (e.g., N_f) sampling periods. The duration of a symbol period may depend on the subcarrier spacing or frequency band of operation.

A subframe, a slot, a mini-slot, or a symbol may be the smallest scheduling unit (e.g., in the time domain) of the wireless communications system **100** and may be referred to as a transmission time interval (TTI). In some examples, the TTI duration (e.g., a quantity of symbol periods in a TTI) may be variable. Additionally, or alternatively, the smallest scheduling unit of the wireless communications system **100** may be dynamically selected (e.g., in bursts of shortened TTIs (STTIs)).

Physical channels may be multiplexed for communication using a carrier according to various techniques. A physical control channel and a physical data channel may be multiplexed for signaling via a downlink carrier, for example, using one or more of time division multiplexing (TDM) techniques, frequency division multiplexing (FDM) techniques, or hybrid TDM-FDM techniques. A control region (e.g., a control resource set (CORESET)) for a physical control channel may be defined by a set of symbol periods and may extend across the system bandwidth or a subset of the system bandwidth of the carrier. One or more control regions (e.g., CORESETs) may be configured for a set of the UEs **115**. For example, one or more of the UEs **115** may monitor or search control regions for control information according to one or more search space sets, and each search space set may include one or multiple control channel candidates in one or more aggregation levels arranged in a cascaded manner. An aggregation level for a control channel candidate may refer to an amount of control channel resources (e.g., control channel elements (CCEs)) associated with encoded information for a control information format having a given payload size. Search space sets may include common search space sets configured for sending control information to multiple UEs **115** and UE-specific search space sets for sending control information to a specific UE **115**.

A network entity **105** may provide communication coverage via one or more cells, for example a macro cell, a small cell, a hot spot, or other types of cells, or any combination thereof. The term "cell" may refer to a logical communication entity used for communication with a network entity **105** (e.g., using a carrier) and may be associated with an identifier for distinguishing neighboring cells (e.g., a physical cell identifier (PCID), a virtual cell identifier (VCID), or others). In some examples, a cell also may refer to a coverage area **110** or a portion of a coverage area **110** (e.g., a sector) over which the logical communication entity operates. Such cells may range from smaller areas (e.g., a structure, a subset of structure) to larger areas depending on various factors such as the capabilities of the network entity **105**. For example, a cell may be or include a building, a subset of a building, or exterior spaces between or overlapping with coverage areas **110**, among other examples.

A macro cell generally covers a relatively large geographic area (e.g., several kilometers in radius) and may allow unrestricted access by the UEs **115** with service subscriptions with the network provider supporting the macro cell. A small cell may be associated with a lower-powered network entity **105** (e.g., a lower-powered base station **140**), as compared with a macro cell, and a small cell may operate using the same or different (e.g., licensed, unlicensed) frequency bands as macro cells. Small cells may provide unrestricted access to the UEs **115** with service subscriptions with the network provider or may provide restricted access to the UEs **115** having an association with the small cell (e.g., the UEs **115** in a closed subscriber group (CSG), the UEs **115** associated with users in a home or office). A network entity **105** may support one or multiple cells and may also support communications via the one or more cells using one or multiple component carriers.

In some examples, a carrier may support multiple cells, and different cells may be configured according to different protocol types (e.g., MTC, narrowband IoT (NB-IoT), enhanced mobile broadband (eMBB)) that may provide access for different types of devices.

In some examples, a network entity **105** (e.g., a base station **140**, an RU **170**) may be movable and therefore provide communication coverage for a moving coverage area **110**. In some examples, different coverage areas **110** associated with different technologies may overlap, but the different coverage areas **110** may be supported by the same network entity **105**. In some other examples, the overlapping coverage areas **110** associated with different technologies may be supported by different network entities **105**. The wireless communications system **100** may include, for example, a heterogeneous network in which different types of the network entities **105** provide coverage for various coverage areas **110** using the same or different radio access technologies.

Some UEs **115**, such as MTC or IoT devices, may be low cost or low complexity devices and may provide for automated communication between machines (e.g., via Machine-to-Machine (M2M) communication). M2M communication or MTC may refer to data communication technologies that allow devices to communicate with one another or a network entity **105** (e.g., a base station **140**) without human intervention. In some examples, M2M communication or MTC may include communications from devices that integrate sensors or meters to measure or capture information and relay such information to a central server or application program that uses the information or presents the information to humans interacting with the application program. Some UEs **115** may be designed to collect information or enable automated behavior of machines or other devices. Examples of applications for MTC devices include smart metering, inventory monitoring, water level monitoring, equipment monitoring, healthcare monitoring, wildlife monitoring, weather and geological event monitoring, fleet management and tracking, remote security sensing, physical access control, and transaction-based business charging.

The wireless communications system **100** may be configured to support ultra-reliable communications or low-latency communications, or various combinations thereof. For example, the wireless communications system **100** may be configured to support ultra-reliable low-latency communications (URLLC). The UEs **115** may be designed to support ultra-reliable, low-latency, or critical functions. Ultra-reliable communications may include private communication or group communication and may be supported by one or more services such as push-to-talk, video, or data. Support for ultra-reliable, low-latency functions may include prioritization of services, and such services may be used for public safety or general commercial applications. The terms ultra-reliable, low-latency, and ultra-reliable low-latency may be used interchangeably herein.

In some examples, a UE **115** may be configured to support communicating directly with other UEs **115** via a device-to-device (D2D) communication link **135** (e.g., in accordance with a peer-to-peer (P2P), D2D, or sidelink protocol). In some examples, one or more UEs **115** of a group that are performing D2D communications may be within the coverage area **110** of a network entity **105** (e.g., a base station **140**, an RU **170**), which may support aspects of such D2D communications being configured by (e.g., scheduled by) the network entity **105**. In some examples, one or more UEs **115** of such a group may be outside the coverage area **110** of a network entity **105** or may be otherwise unable to or not configured to receive transmissions from a network entity **105**. In some examples, groups of the UEs **115** communicating via D2D communications may support a one-to-many (1:M) system in which each UE **115** transmits to each of the other UEs **115** in the group. In some examples, a network entity **105** may facilitate the scheduling of resources for D2D communications. In some other examples, D2D communications may be carried out between the UEs **115** without an involvement of a network entity **105**.

In some systems, a D2D communication link **135** may be an example of a communication channel, such as a sidelink communication channel, between vehicles (e.g., UEs **115**). In some examples, vehicles may communicate using vehicle-to-everything (V2X) communications, vehicle-to-vehicle (V2V) communications, or some combination of these. A vehicle may signal information related to traffic conditions, signal scheduling, weather, safety, emergencies, or any other information relevant to a V2X system. In some examples, vehicles in a V2X system may communicate with roadside infrastructure, such as roadside units, or with the network via one or more network nodes (e.g., network entities **105**, base stations **140**, RUs **170**) using vehicle-to-network (V2N) communications, or with both.

In some deployments, multiple RANs may be accessed by one or more UEs **115** or network entities **105** such as, for example, a 6G RAT and a 5G RAT. In some examples, the 6G RAT may be associated with service-based network **130** and the 5G RAT may be associated with a 5G core network **190**. The 5G core network **190** may provide user authentication, access authorization, tracking, Internet Protocol (IP) connectivity, and other access, routing, or mobility functions. The 5G core network **190** may be an evolved packet core (EPC), which may include at least one control plane entity that manages access and mobility (e.g., a mobility management entity (MME), an AMF) and at least one user plane entity that routes packets or interconnects to external networks (e.g., a serving gateway (S-GW), a Packet Data Network (PDN) gateway (P-GW), or a user plane function (UPF)). The control plane entity may manage non access stratum (NAS) functions such as mobility, authentication, and bearer management for the UEs **115** served by the network entities **105** (e.g., base stations **140**) associated with the 5G core network **190**. User IP packets may be transferred through the user plane entity, which may provide IP address allocation as well as other functions. The user plane entity may be connected to IP services **195** for one or more network operators. The IP services **195** may include access to the Internet, Intranet(s), an IP Multimedia Subsystem (IMS), or a Packet-Switched Streaming Service.

The wireless communications system **100** may operate using one or more frequency bands, which may be in the range of 300 megahertz (MHz) to 300 gigahertz (GHz). Generally, the region from 300 MHz to 3 GHz is known as the ultra-high frequency (UHF) region or decimeter band because the wavelengths range from approximately one decimeter to one meter in length. UHF waves may be blocked or redirected by buildings and environmental features, which may be referred to as clusters, but the waves may penetrate structures sufficiently for a macro cell to provide service to the UEs **115** located indoors. Communications using UHF waves may be associated with smaller antennas and shorter ranges (e.g., less than 100 kilometers) compared to communications using the smaller frequencies and longer waves of the high frequency (HF) or very high frequency (VHF) portion of the spectrum below 300 MHz.

The wireless communications system **100** may also operate using a super high frequency (SHF) region, which may be in the range of 3 GHz to 30 GHz, also known as the centimeter band, or using an extremely high frequency

(EHF) region of the spectrum (e.g., from 30 GHz to 300 GHz), also known as the millimeter band. In some examples, the wireless communications system **100** may support millimeter wave (mmW) communications between the UEs **115** and the network entities **105** (e.g., base stations **140**, RUs **170**), and EHF antennas of the respective devices may be smaller and more closely spaced than UHF antennas. In some examples, such techniques may facilitate using antenna arrays within a device. The propagation of EHF transmissions, however, may be subject to even greater attenuation and shorter range than SHF or UHF transmissions. The techniques disclosed herein may be employed across transmissions that use one or more different frequency regions, and designated use of bands across these frequency regions may differ by country or regulating body.

The wireless communications system **100** may utilize both licensed and unlicensed RF spectrum bands. For example, the wireless communications system **100** may employ License Assisted Access (LAA), LTE-Unlicensed (LTE-U) RAT, or NR technology using an unlicensed band such as the 5 GHz industrial, scientific, and medical (ISM) band. While operating using unlicensed RF spectrum bands, devices such as the network entities **105** and the UEs **115** may employ carrier sensing for collision detection and avoidance. In some examples, operations using unlicensed bands may be based on a carrier aggregation configuration in conjunction with component carriers operating using a licensed band (e.g., LAA). Operations using unlicensed spectrum may include downlink transmissions, uplink transmissions, P2P transmissions, or D2D transmissions, among other examples.

A network entity **105** (e.g., a base station **140**, an RU **170**) or a UE **115** may be equipped with multiple antennas, which may be used to employ techniques such as transmit diversity, receive diversity, multiple-input multiple-output (MIMO) communications, or beamforming. The antennas of a network entity **105** or a UE **115** may be located within one or more antenna arrays or antenna panels, which may support MIMO operations or transmit or receive beamforming. For example, one or more base station antennas or antenna arrays may be co-located at an antenna assembly, such as an antenna tower. In some examples, antennas or antenna arrays associated with a network entity **105** may be located at diverse geographic locations. A network entity **105** may include an antenna array with a set of rows and columns of antenna ports that the network entity **105** may use to support beamforming of communications with a UE **115**. Likewise, a UE **115** may include one or more antenna arrays that may support various MIMO or beamforming operations. Additionally, or alternatively, an antenna panel may support RF beamforming for a signal transmitted via an antenna port.

The network entities **105** or the UEs **115** may use MIMO communications to exploit multipath signal propagation and increase spectral efficiency by transmitting or receiving multiple signals via different spatial layers. Such techniques may be referred to as spatial multiplexing. The multiple signals may, for example, be transmitted by the transmitting device via different antennas or different combinations of antennas. Likewise, the multiple signals may be received by the receiving device via different antennas or different combinations of antennas. Each of the multiple signals may be referred to as a separate spatial stream and may carry information associated with the same data stream (e.g., the same codeword) or different data streams (e.g., different codewords). Different spatial layers may be associated with different antenna ports used for channel measurement and reporting. MIMO techniques include single-user MIMO (SU-MIMO), for which multiple spatial layers are transmitted to the same receiving device, and multiple-user MIMO (MU-MIMO), for which multiple spatial layers are transmitted to multiple devices.

Beamforming, which may also be referred to as spatial filtering, directional transmission, or directional reception, is a signal processing technique that may be used at a transmitting device or a receiving device (e.g., a network entity **105**, a UE **115**) to shape or steer an antenna beam (e.g., a transmit beam, a receive beam) along a spatial path between the transmitting device and the receiving device. Beamforming may be achieved by combining the signals communicated via antenna elements of an antenna array such that some signals propagating along particular orientations with respect to an antenna array experience constructive interference while others experience destructive interference. The adjustment of signals communicated via the antenna elements may include a transmitting device or a receiving device applying amplitude offsets, phase offsets, or both to signals carried via the antenna elements associated with the device. The adjustments associated with each of the antenna elements may be defined by a beamforming weight set associated with a particular orientation (e.g., with respect to the antenna array of the transmitting device or receiving device, or with respect to some other orientation).

A network entity **105** or a UE **115** may use beam sweeping techniques as part of beamforming operations. For example, a network entity **105** (e.g., a base station **140**, an RU **170**) may use multiple antennas or antenna arrays (e.g., antenna panels) to conduct beamforming operations for directional communications with a UE **115**. Some signals (e.g., synchronization signals, reference signals, beam selection signals, or other control signals) may be transmitted by a network entity **105** multiple times along different directions. For example, the network entity **105** may transmit a signal according to different beamforming weight sets associated with different directions of transmission. Transmissions along different beam directions may be used to identify (e.g., by a transmitting device, such as a network entity **105**, or by a receiving device, such as a UE **115**) a beam direction for later transmission or reception by the network entity **105**.

Some signals, such as data signals associated with a particular receiving device, may be transmitted by transmitting device (e.g., a transmitting network entity **105**, a transmitting UE **115**) along a single beam direction (e.g., a direction associated with the receiving device, such as a receiving network entity **105** or a receiving UE **115**). In some examples, the beam direction associated with transmissions along a single beam direction may be determined based on a signal that was transmitted along one or more beam directions. For example, a UE **115** may receive one or more of the signals transmitted by the network entity **105** along different directions and may report to the network entity **105** an indication of the signal that the UE **115** received with a highest signal quality or an otherwise acceptable signal quality.

In some examples, transmissions by a device (e.g., by a network entity **105** or a UE **115**) may be performed using multiple beam directions, and the device may use a combination of digital precoding or beamforming to generate a combined beam for transmission (e.g., from a network entity **105** to a UE **115**). The UE **115** may report feedback that indicates precoding weights for one or more beam directions, and the feedback may correspond to a configured set of beams across a system bandwidth or one or more subbands. The network entity **105** may transmit a reference signal (e.g., a cell-specific reference signal (CRS), a channel state information reference signal (CSI-RS)), which may be precoded or unprecoded. The UE **115** may provide feedback for beam selection, which may be a precoding matrix indicator (PMI) or codebook-based feedback (e.g., a multi-panel type codebook, a linear combination type codebook, a port selection type codebook). Although these techniques are described with reference to signals transmitted along one or more directions by a network entity **105** (e.g., a base station **140**, an RU **170**), a UE **115** may employ similar techniques for transmitting signals multiple times along different directions (e.g., for identifying a beam direction for subsequent transmission or reception by the UE **115**) or for transmitting a signal along a single direction (e.g., for transmitting data to a receiving device).

A receiving device (e.g., a UE **115**) may perform reception operations in accordance with multiple receive configurations (e.g., directional listening) when receiving various signals from a receiving device (e.g., a network entity **105**), such as synchronization signals, reference signals, beam selection signals, or other control signals. For example, a receiving device may perform reception in accordance with multiple receive directions by receiving via different antenna subarrays, by processing received signals according to different antenna subarrays, by receiving according to different receive beamforming weight sets (e.g., different directional listening weight sets) applied to signals received at multiple antenna elements of an antenna array, or by processing received signals according to different receive beamforming weight sets applied to signals received at multiple antenna elements of an antenna array, any of which may be referred to as "listening" according to different receive configurations or receive directions. In some examples, a receiving device may use a single receive configuration to receive along a single beam direction (e.g., when receiving a data signal). The single receive configuration may be aligned along a beam direction determined based on listening according to different receive configuration directions (e.g., a beam direction determined to have a highest signal strength, highest signal-to-noise ratio (SNR), or otherwise acceptable signal quality based on listening according to multiple beam directions).

In some examples, the wireless communications system **100** may include a packet-based network that operates using a cloud platform, such as service platform **150**, that provides CN/RAN services **185**. The CN/RAN services **185**, in some examples, may be hosted based on a deployment topology and capabilities for service parameters associated with each service. Providing CN/RAN services **185** allows for separation of particular services (e.g., mobility, connection state management, security, paging, radio access services, quality of service (QOS) configuration and data services, UE capability management, location, messaging, among others) from transport functions (e.g., data radio bearer (DRB) and logical channel (LC) management, data service configuration, among others). Service-based functions (e.g., a message broker decouple radio network procedures from network delivery mechanisms) may allow for flexibility of some functions (e.g., layer 2 (L2) functions) to be hosted anywhere in the cloud, and may enable enhanced scalability, resiliency, elasticity, agility, reuse, visibility, automation, failover, or any combinations thereof (e.g., each service across RAN and core network may scale independently by increasing or decreasing resources allocated across functions independently). Further, efficiency may be enhanced through providing real-time link management to the RAN edge, and allowing for adaptation at the DU **165** for more efficient activation, deactivation, or selection of features based on UE conditions.

In some implementations, the wireless communications system **100** support signaling and other mechanisms that enable UEs **115** to establish wireless connections with the service-based network **130** (e.g., 6G network). In particular, aspects of the present disclosure are directed to signaling between UEs **115**, network entities **105** (e.g., DUs **165**), and core network services (e.g., CN/RAN services **185**) of a service-based network architecture that enable UEs **115** to establish and maintain connections with different core network services (e.g., CN/RAN services **185**) offered by the network. As such, techniques described herein may enable UEs **115** to obtain service contexts for each respective core network service to which the UE **115** subscribes, where the service contexts include core network service-specific communications parameters for communicating with the respective core network services.

For example, a UE **115** of the wireless communications system **100** may establish a connection with a DU **165** of a network entity **105**, and may receive control signaling indicating core network services (e.g., CN/RAN services **185**) offered by the network, as well as network addresses for each of the offered core network services. The UE **115** may then transmit (via relay by the DU **165**) a service request to a network address of an offered core network service, and may receive (via relay by the DU **165**) a service context for communicating with the core network service. The UE **115** may then communicate with the core network service (via the DU **165**) in accordance with the service context.

In some aspects, UEs **115** may be able to request core network services that are offered by the network. For example, UEs **115** may be able to query a discovery service (e.g., core network discovery service) that is configured to provide a list of offered core network services that are able to be accessed by the respective querying UEs **115**. The core network services indicated to the UE **115** as being available may be based on the capabilities of each respective UE **115**. Some core network services may include or depend on other network functionality services. For example, in order for a UE **115** to subscribe/communicate with a first core network service, the UE **115** may also be required to subscribe/communicate with a second core network service that is associated with the first core network service.

Techniques described herein may enable UEs **115** to establish and maintain connections with (e.g., subscribe to) core network services offered by a service-based network, such as within a 6G system. In particular, techniques described herein may enable UEs **115** to acquire service contexts for each respective core network service to which the UEs **115** subscribe, where the service contexts include core network service-specific parameters for communicating with the respective core network services. By enabling UEs **115** to subscribe to multiple different core network services, aspects of the present disclosure may enable UEs **115** to establish connections with a wide variety of core network services that may be offered by different operators or entities. As such, techniques described herein may enable UEs **115** to subscribe to different core network services on an à la carte basis depending on the needs or requirements of the respective UEs **115**, thereby improving customization and overall user experience at the UEs **115**. Moreover, by enabling UEs **115** to subscribe to specific core network services, techniques described herein may enable UEs **115** to refrain from communicating with unneeded or unwanted core network services, thereby reducing control signaling within the network, improving resource utilization, and reducing power consumption at the UEs **115**.

Service based wireless communications systems (e.g., service based radio access technologies (RATs)) may have a higher throughput and increased spectrum with respect to legacy wireless communications systems (e.g., legacy RAT). As operators transition to service based systems, some operators may not offer a full suite of services (e.g., 6G services), but may provide a 6G RAN to take advantage of the higher throughput and increased spectrum provided by 6G. Accordingly, an operator may wish to provide access to the 5G core network via a 6G RAN.

A service based communications system may offer a CU service that acts as a legacy CU or interfaces with a legacy CU (e.g., a 5G CU). A UE **115** may communicate with the legacy core network (e.g., a 5G core network **190**) via a service based RAN (e.g., a 6G RAN), such as via a 6G eDU. The 6G eDU may indicate to the UE **115** that the 6G RAN offers the legacy CU (e.g., 5G CU) service. For example, the eDU may broadcast a SIB indicating the availability of the legacy CU service, or the UE **115** may query the eDU regarding whether the associated service based RAN offers a legacy CU service. The legacy CU service may then indicate to the UE **115**, via the eDU, a service context that the UE **115** may use for communications with the legacy core network (e.g., the 5G core network) via the legacy CU service. For example, the service context may indicate a network address of the legacy CU service and a message format for legacy messages (e.g., 5G messages) transmitted over the service based protocol (e.g., the 6G protocol). Accordingly, the UE **115** may transmit messages to the legacy CU service via the eDU in the service based protocol format, where the messages include the legacy CU service as the destination and a payload that includes a message in the legacy message format. The legacy CU service may accordingly extract the legacy message in the service based message payload, and forward the legacy message to the target legacy core network entity/function, such as an AMF or a UPF. The legacy CU service may similarly forward messages from legacy core network functions/entities to the UE **115**.

FIG. **2** illustrates an example of a wireless communications system **200** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. Aspects of the wireless communications system **200** may implement, or be implemented by, aspects of the wireless communications system **100**. In some implementations, the wireless communications system **200** illustrates an example architecture of a service-based wireless communications system, such as a 6G network as described with reference to FIG. **1**.

The wireless communications system **200** may include one or more UEs **115** (e.g., UE **115**-*a*), one or more network entities (e.g., network entity **105**-*a*), and a service-based network **205**. In some aspects, the service-based network **205** may be configured to communicate or interface with a RAN **210** of the wireless communications system **200**, where the RAN **210** includes the one or more network entities (e.g., network entity **105**-*a*). The service-based network **205** may support or offer a set of core network services **215** (e.g., core network services **215**-*a*, **215**-*b*, **215**-*c*, **215**-*d*, **215**-*d*, **215**-*e*). In some implementations, the service-based network **205** may include or be associated with a cloud platform, where the respective core network services **215** are hosted at respective network addressees in the cloud platform.

The UE **115**-*a* may communicate with the network entity **105**-*a* using one or more communication links **220**, which may include an example of an access link (e.g., a Uu link). The communication link **220** may include a bi-directional link that can include both uplink and downlink communication. Similarly, the network entity **105**-*a* of the RAN **210** may be configured to communicate with (e.g., interface with) the service-based network **205** via one or more communication links (e.g., communication link **225**), where the communication link **215** may be configured to facilitate bi-directional communications between the network entity **105**-*a* and each of the respective core network services **215** of the service-based network **205**.

As shown in FIG. **2**, the wireless communications system **200** may exhibit a service-based architecture where the entities of the RAN **210** (e.g., network entity **105**-*a*) are configured to connect the UE **115**-*a* to core network services **215** of the service-based network **205**. In particular, the RAN **210** (e.g., network entity **105**-*a*) may be configured to relay communications between the UE **115**-*a* and the various core network services **215** of the service-based network to enable the UE **115**-*a* to establish and maintain wireless connections with the respective core network services **215** in order to exchange communications associated with the various network functionalities that are supported by the respective core network services **215**. In other words, the wireless communications system **200** may enable the UE **115**-*a* to "subscribe" to the respective core network services **215** on an à la carte basis depending on the needs or requirements of the UE **115**-*a*. In this regard, different UEs **115** within the wireless communications system **200** may be able to subscribe to different subsets of core network services **215** depending on the capabilities of the UEs **115**, applications executed at the UEs **115**, a mobility of the UEs **115**, etc.

Each core network service **215** may be associated with a respective network address within the service-based network **205**. Stated differently, each core network service **215** may be hosted at one or more components of a cloud-based network, where the components of each core network service **215** may be associated with a respective network address. The respective core network services **215** may be provided by network providers, third-party entities, etc., where each core network service **215** is configured to support a respective service or functionality offered to the components of the wireless communications system **200** (e.g., UE **115**-*a*, network entity **105**-*a*).

Different services, functionalities, and core network functions that may be supported or offered by the respective core network services **215** may include, but are not limited to, a mobility service, a security service, a privacy service, a location service, etc. For example, the first core network service **215**-*a* may include a core network mobility service that that hosts information and provides signaling that facilitate the geographical movement of the UE **115**-*a* throughout wireless communications system. By way of another example, the second core network service **215**-*b* may include a security service that provides security and encryption services to subscribing UEs **115** within the wireless communications system **200**.

In some aspects, each core network service **215** may include a respective API configured to facilitate wireless communications with the network entity **105**-*a* and the UE **115**-*a*, such as the network service APIs **180** illustrated in FIG. **1**. APIs at the respective core network services **215** may include routing APIs, configuration APIs, or both. Routing APIs may be configured for service data unit communications between the UE **115**-*a* and the respective core network services **215**. Comparatively, configuration APIs may be configured to facilitate communications between the network entity **105**-*a* and the respective core network services **215** to negotiate service requirements and service-specific operation.

In some aspects, the network entity **105**-*a* (e.g., eDU) may facilitate traffic routing (e.g., service data unit routing) from the UE **115**-*a* to the core network services **215**, and vice versa. The network entity **105**-*a* may facilitate traffic routing between the respective devices directly, via other network entities **105**-*a*, via proxy, or any combination thereof. Moreover, in some cases, the UE **115**-*a* may be communicatively coupled to multiple network entities **105** (e.g., dual connectivity), where the multiple network entities **105** facilitate traffic routing with the same or different sets of core network services **215**. Additionally, the network entity **105**-*a* may support service configurations or service contexts associated with communications parameters within the system, such as QoS flows, security, and UE **115** service contexts. In some aspects, the communication link **220** between the network entity **105**-*a* and the UE **115**-*a* may be associated with an access stratum configuration that facilitates over-the-air service awareness. The access stratum configuration may include including logical channels, access stratum security, access stratum context, and the like. For example, the access stratum configuration may be associated with a service-specific configuration (e.g., logical channels corresponding to QoS flows for each respective core network service **215**) and a service-agnostic configuration (e.g., parameters which are common to all core network services **215**).

The service-based wireless communications system **200** (e.g., 6G network) illustrated in FIG. **2** may exhibit several differences and advantages as compared to some other types of wireless systems, such as networks that instead exhibit a relatively more vertical, hierarchical architecture that includes many "layers" of different devices that perform functions for the network. A more hierarchical structure may result in processing and other functions being performed at multiple devices (e.g., network entity **105** and one or more back-end devices), thereby leading to inefficient use of resources and high power consumption. Additionally, the back-end architecture of a network with a more vertical, hierarchical architecture may be owned and maintained by a small handful of operators, which may render it difficult for other parties/entities to integrate with such systems, and services offered to UEs **115** and other devices may be difficult to customize within such systems.

Comparatively, service-based wireless communications system **200** illustrated in FIG. **2** exhibits a flatter, horizontal architecture which enables the respective functions of wireless communications systems to be distributed across different components (e.g., core network services **215**) of the system. For example, such functions and protocols may be divided up and distributed across the set of core network services **215** such that each core network service **215** may support or enable a small portion of the capabilities and functionality of conventional wireless communications systems. In other words, the service-based architecture may enable functions and protocols to be split into self-contained services (e.g., core network services **215**) as compared to components that provide all-encompassing network functions and protocols (e.g., modularization of network services/functionality across multiple core network services **215**).

In this regard, the wireless communications system **200** may illustrate an example of a cloud-native platform configured to host a merger of CORE and RAN services, which may simplify protocols and reduce a duplication of processing operations across CORE and RAN (e.g., redistribution of CORE and RAN **210** services). In other words, the convergence of RAN **210** and CN functions may reduce repeated operations and functionality to serve one UE at different layers.

The wireless communications system **200** may extend benefits associated with the service-based architecture of the service-based network **205** to the RAN **210**, including benefits of increased scalability, resiliency, elasticity, agility, reuse, visibility, automation, and failover. Additionally, the service-based architecture may enable each core network service **215** across RAN **210** and CORE to scale independently by increasing or decreasing resources allocated across the respective core network services **215** independently.

In some implementations, as will be described in further detail herein, the wireless communications system **200** may support signaling that enables the UE **115**-*a* to establish and maintain communications with the core network services **215** of the service-based network **205**, such as a 6G network. In particular, aspects of the present disclosure are directed to signaling that enables the UE **115**-*a* to subscribe to core network services **215** on an à la carte basis depending on the needs or requirements of the UE **115**-*a*. For example, as described herein, one of the core network services **215** may be a legacy CU service (e.g., a 5G CU service) through which UE may communicate with the legacy core network (e.g., a 5G core network) via the RAN **210** and the service-based network **205**.

FIG. **3** illustrates an example of a network architecture **300** (e.g., a disaggregated base station architecture, a disaggregated RAN architecture) that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The network architecture **300** may illustrate an example for implementing one or more aspects of the wireless communications system **100**. The network architecture **300** may include a service-based network **305**, which may be an example of a service-based network **130** or **205**, that communicates with DUs **165**-*a* via links **120**-*b*. In this example, DUs **165** may also communicate with one or more CUs **310** that may communicate directly with a 5G core network **190**-*a* via a backhaul communication link **120**-*a*, or indirectly with the 5G core network **190**-*a* through one or more disaggregated network entities **105** (e.g., a Near-RT RIC **330**-*a* via an E2 link, or a Non-RT RIC **330**-*b* associated with an SMO **335** (e.g., an SMO Framework), or both). A CU **310** may communicate with one or more DUs **165**-*a* via respective midhaul communication links **315** (e.g., an F1 interface). The DUs **165**-*a* may communicate with one or more RUs **170**-*a* via respective fronthaul communication links **168**-*a*. The RUs **170**-*a* may be associated with respective coverage areas **110**-*a* and may communicate with UEs **115**-*b* via one or more communication links **125**-*a*. In some implementations, a UE **115**-*b* may be simultaneously served by multiple RUs **170**-*a*.

Each of the network entities **105** of the network architecture **300** (e.g., CUs **310**, DUs **165**-*a*, RUs **170**-*a*, Non-RT RICs **330**-*a*, Near-RT RICs **330**-*b*, SMOs **335**, Open Clouds (O-Clouds) **320**, Open eNBs (O-eNBs) **325**) may include one or more interfaces or may be coupled with one or more interfaces configured to receive or transmit signals (e.g., data, information) via a wired or wireless transmission medium. Each network entity **105**, or an associated processor (e.g., controller) providing instructions to an interface of the network entity **105**, may be configured to communicate with one or more of the other network entities **105** via the transmission medium. For example, the network entities **105** may include a wired interface configured to receive or transmit signals over a wired transmission medium to one or more of the other network entities **105**. Additionally, or alternatively, the network entities **105** may include a wireless interface, which may include a receiver, a transmitter, or transceiver (e.g., an RF transceiver) configured to receive or transmit signals, or both, over a wireless transmission medium to one or more of the other network entities **105**.

In some examples, a CU **310** may host one or more higher layer control functions. Such control functions may include RRC. PDCP, SDAP, or the like. Each control function may be implemented with an interface configured to communicate signals with other control functions hosted by the CU **310**. A CU **310** may be configured to handle user plane functionality (e.g., CU-UP), control plane functionality (e.g., CU-CP), or a combination thereof. In some examples, a CU **310** may be logically split into one or more CU-UP units and one or more CU-CP units. A CU-UP unit may communicate bidirectionally with the CU-CP unit via an interface, such as an E1 interface when implemented in an O-RAN configuration. A CU **310** may be implemented to communicate with a DU **165**-*a*, as necessary, for network control and signaling.

A DU **165**-*a* may correspond to a logical unit that includes one or more functions (e.g., base station functions, RAN functions) to control the operation of one or more RUs **170**-*a*. In some examples, when interfacing with service-based network **305**, a DU **165**-*a* may host one or more APIs for one or more services of the service-based network **305** and one or more corresponding services at one or more UEs **115**-*b*. In some examples, when interfacing with CUs **310**, a DU **165**-*a* may host, at least partially, one or more of an RLC layer, a MAC layer, and one or more aspects of a PHY layer (e.g., a high PHY layer, such as modules for FEC encoding and decoding, scrambling, modulation and demodulation, or the like) depending, at least in part, on a functional split, such as those defined by the 3rd Generation Partnership Project (3GPP). In some examples, a DU **165**-*a* may further host one or more low PHY layers. Each layer may be implemented with an interface configured to communicate signals with other layers hosted by the DU **165**-*a*, or with control functions hosted by a CU **310**.

In some examples, lower-layer functionality may be implemented by one or more RUs **170**-*a*. For example, an RU **170**-*a*, controlled by a DU **165**-*a*, may correspond to a logical node that hosts RF processing functions, or low-PHY layer functions (e.g., performing fast Fourier transform (FFT), inverse FFT (iFFT), digital beamforming, physical random access channel (PRACH) extraction and filtering, or the like), or both, based at least in part on the functional split, such as a lower-layer functional split. In such an architecture, an RU **170**-*a* may be implemented to handle over the air (OTA) communication with one or more UEs **115**-*b*. In some implementations, real-time and non-real-time aspects of control and user plane communication with the RU(s) **170**-*a* may be controlled by the corresponding DU **165**-*a*. In some examples, such a configuration may enable a DU **165**-*a* and a CU **310** to be implemented in a cloud-based RAN architecture, such as a vRAN architecture.

The SMO **335** may be configured to support RAN deployment and provisioning of non-virtualized and virtualized network entities **105**. For non-virtualized network entities **105**, the SMO **335** may be configured to support the deployment of dedicated physical resources for RAN coverage requirements which may be managed via an operations and maintenance interface (e.g., an O1 interface). For virtualized network entities **105**, the SMO **335** may be configured to interact with a cloud computing platform (e.g., an O-Cloud **320**) to perform network entity life cycle management (e.g., to instantiate virtualized network entities **105**) via a cloud computing platform interface (e.g., an O2 interface). Such virtualized network entities **105** can include, but are not limited to, CUs **310**, DUs **165**-*a*. RUs **170**-*a*, and Near-RT RICs **330**-*a*. In some implementations, the SMO **335** may communicate with components configured in accordance with a 4G RAN (e.g., via an O1 interface). Additionally, or alternatively, in some implementations, the SMO **335** may communicate directly with one or more RUs **170**-*a* via an O1 interface. The SMO **335** also may include a Non-RT RIC **330**-*b* configured to support functionality of the SMO **335**.

The Non-RT RIC **330**-*b* may be configured to include a logical function that enables non-real-time control and optimization of RAN elements and resources, Artificial Intelligence (AI) or Machine Learning (ML) workflows including model training and updates, or policy-based guidance of applications/features in the Near-RT RIC **330**-*a*. The Non-RT RIC **330**-*b* may be coupled to or communicate with (e.g., via an A1 interface) the Near-RT RIC **330**-*a*. The Near-RT RIC **330**-*a* may be configured to include a logical function that enables near-real-time control and optimization of RAN elements and resources via data collection and actions over an interface (e.g., via an E2 interface) connecting one or more CUs **310**, one or more DUs **165**-*a*, or both, as well as an O-eNB **325**, with the Near-RT RIC **330**-*a*.

In some examples, to generate AI/ML models to be deployed in the Near-RT RIC **330**-*b*, the Non-RT RIC **330**-*b* may receive parameters or external enrichment information from external servers. Such information may be utilized by the Near-RT RIC **330**-*a* and may be received at the SMO **335** or the Non-RT RIC **330**-*b* from non-network data sources or from network functions. In some examples, the Non-RT RIC **330**-*b* or the Near-RT RIC **330**-*a* may be configured to tune RAN behavior or performance. For example, the Non-RT RIC **330**-*b* may monitor long-term trends and patterns for performance and employ AI or ML models to perform corrective actions through the SMO **335** (e.g., reconfiguration via **01**) or via generation of RAN management policies (e.g., A1 policies).

In some implementations, as will be described in further detail herein, the network architecture **300** may support signaling that enables UEs **115** to establish and maintain communications with core network services of a service-based network, such as a 6G network. In particular, aspects of the present disclosure are directed to signaling between UEs **115**, DUs **165**, and core network services that enable the UEs **115** to subscribe to core network services on an à la carte basis depending on the needs or requirements of the respective UEs **115**.

FIG. **4** illustrates an example of a wireless communications system **400** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. In some examples, aspects of the wireless communications system **400** may implement, or be implemented by, aspects of the wireless communications system **100**, the wireless communications system **200**, the network architecture **300**, or any combination thereof.

The wireless communications system **400** may include a UE **115**-*c*, a network entity **105**-*b*, and a 5G core network **190**-*b*. In some examples, UE **115**-*c* may be an example of a UE **115** as described herein, the network entity **105**-*b* may be an example of a network entity **105** as described herein, and the 5G core network **190**-*b* may be an example of the 5G core network **190** as described herein. In some examples, the network entity **105**-*b* may include an example of an O-RAN entity which includes multiple components, such as one or more DUs, as shown and described in FIG. **3**. In this regard, the network entity **105**-*b* illustrated in FIG. **4** may additionally or alternatively be referred to as a DU or eDU **105**-*b*. The eDU **105**-*b* may be associated with (e.g., transmit and receive messages in accordance with) a first RAT (e.g., a 6G protocol). The 5G core network **190**-*b* is associated with a second RAT (e.g., a 5G RAT).

The wireless communications system **400** may include a 5G CU service **405** as a core network service. The 5G CU service **405** may be offered by a service-based network of a first RAT (e.g., a 6G RAT), such as the service-based network **205** illustrated in FIG. **2**. The service-based network including the 5G CU service **405** may communicate or interface with a 6G RAN **410** of the wireless communications system **400**, where the 6G RAN **410** includes the one or more network entities (e.g., eDU **105**-*b*). In some examples, the 5G CU service **405** may be one of several core network services associated with, or hosted by, a cloud platform, where the 5G CU service **405** may be hosted at a destination in the cloud platform. In some examples, the destination associated with the 5G CU service **405** may be a network address in the cloud platform.

The UE **115**-*c* may communicate with the eDU **105**-*b* using a communication link **220**-*a*, which may be an example of a communication link **220** as described herein. The eDU **105**-*b* of the 6G RAN **410** may be configured to communicate with (e.g., interface with) the 5G CU service **405** of the 6G service-based network via a communication link **225**-*a*, which may be an example of a communication link **225** as described herein. In some examples, the 5G CU service **405** may include a 5G CU service API configured to facilitate wireless communications with the eDU **105**-*b* and the UE **115**-*c*, such as the network service APIs **180** illustrated in FIG. **1**.

In some examples, the eDU **105**-*b* may facilitate traffic routing (e.g., service data unit routing) from the UE **115**-*c* to the 5G CU service **405**, and vice versa. In other words, the eDU **105**-*b* may be configured to relay communications, such as control information and service messages from the UE **115**-*c* to the 5G CU service **405**, and vice versa. The eDU **105**-*b* may facilitate traffic routing between the respective devices directly, via other network entities **105**, via proxy, or any combination thereof.

As operators transition from 5G to 6G, some operators may not offer a full suite of 6G services, but may provide the 6G RAN **410** to take advantage of the higher throughput and increased spectrum provided by 6G RAT. Accordingly, an operator may wish to provide access to the 5G core network **190**-*b* via the 6G RAN **410**. The 6G communications system may offer the 5G CU service **405** that acts as a 5G CU so that the UE **115**-*c* may communicate with the 5G core network **190**-*b* via the 6G RAN **410** via the eDU **105**-*b*. Control plane procedures for the 5G CU service **405** may include a 5G CU service discovery procedure, a 5G CU service configuration procedure, a RRC procedure over the 5G CU service **405**, and a NAS procedure over the 5G CU service **405**.

In an example 5G CU service discovery procedure, the eDU **105**-*b* may indicate to the UE **115**-*c* that the 6G RAN **410** offers the 5G CU service **405**. For example, the eDU **105**-*b* may broadcast a SIB indicating the availability of the 5G CU service **405**, and the UE **115**-*c* may discover the 5G CU service **405**. In some examples, the UE **115**-*c* may query the eDU **105**-*b* or a discovery service not in the eDU **105**-*b* regarding whether the associated 6G RAN **410** offers the 5G CU service **405**, and the eDU **105**-*b* or the discovery service may respond to the UE **115**-*c* indicating that the 6G RAN **410** offers the 5G CU service **405**.

In some examples, after the UE **115**-*c* discovers the 5G CU service **405**, the UE **115**-*c* may select to use the 5G CU service **405** and may complete a 5G CU service configuration procedure. For example, the UE **115**-*c* may transmit, to the eDU **105**-*b* via the communication link **220**-*a*, a service request for the 5G CU service **405** to establish a connection with the eDU **105**-*b*. After receiving the service request from the UE **115**-*c*, the eDU **105**-*b* may communicate the service request to the 5G CU service **405** via the communication link **225**-*a*. In response to the service request, a service configuration may be established for communications involving the 5G CU service **405** and the UE **115**-*c*. For example, the 5G CU service **405** may communicate to the eDU **105**-*b* via communication link **225**-*a* a service context for communication between the UE **115**-*c* and the 5G CU service **405**. The eDU **105**-*b* may communicate the service context to the UE **115**-*c* via the communication link **220**-*a*. For example, the service context may indicate a destination associated with the 5G CU service **405** and a message format for 5G messages transmitted over the 6G protocol. The service context may indicate a RAN configuration for communicating with the eDU **105**-*b*. In another example, the service context may indicate information or an ID for the eDU **105**-*b* to route to the 5G CU service **405**. In some examples, the service context may indicate an identifier that the UE **115**-*c* may use and the 5G CU service **405** may use to route to a 5G core network function of the 5G core network **190**-*b*, such as AMF **440** and UPF **445**.

In some examples, the UE **115**-*c* may transmit a service message to the 5G CU service **405** via the eDU **105**-*b* in the 6G protocol format. The service message may include the destination or the network address of the 5G CU service **405** and a payload that includes a 5G message in a 5G message format. The 5G CU service **405** may extract the 5G message from the payload of the service message, and may forward the 5G message to one of the functions/entities, such as a AMF **440** or a UPF **445**, of the 5G core network **190**-*b* via communication link **120**-*d*.

Transmissions between the UE **115**-*c* and the 5G core network **190**-*b* may involve NAS procedures. For example, the UE **115**-*c* may transmit a service message with a NAS message of the 5G RAT as the payload of the service message. Additionally, the payload of the service message may indicate a 5G core network **190**-*b* destination for the NAS message, such as AMF **440** and UPF **445**. The 5G CU service **405** may extract the NAS message from the payload, and the 5G CU service **405** may transmit the NAS message to the 5G core network **190**-*b* via communication link **120**-*d*. For example, the 5G CU service **405** may operate as a 5G CU towards the AMF **440** for an N2 procedure (e.g., terminates the N2 interface **430**) and/or the 5G CU service **405** may operate as a 5G CU towards the UPF **445** for an N3 procedure (e.g., terminates the N3 interface **435**). In some examples, UE **115**-*c* may also communicate with a 5G CU in the 5G network via the 5G CU service **405**. In this example, the UE **115**-*c* may use the 5G CU service **405** to communicate with the 5G core network **190**-*b* and to communicate with a 5G gNB-CU or 5G CU. The communications from the UE **115**-*c* via the 5G CU service **405** to the 5G core network **190**-*b* may use NAS messages, and the communications from the UE **115**-*c* via the 5G CU service **405** to the 5G CU may use RRC messages.

In some examples, for example as shown in FIG. **5**, the 5G CU service may communicate with a 5G CU, which may communicate with the 5G core network. For a 5G CU service **405** that acts as a 5G CU, for example as shown in FIG. **4**, 5G RRC may not be used, and a service protocol between the 5G CU service **405**, the eDU **105**-*b*, and the UE **115**-*c* may be a 6G protocol that replaces 5G RRC. In some examples, transmissions of NAS messages between the UE **115**-*c* and the 5G core network **190**-*b* may involve a re-configuration of the 5G CU service **405** for the UE **115**-*c* for transmission of NAS, a local configuration between the UE **115**-*c* and eDU **105**-*b* and/or a configuration between the eDU **105**-*b* and 5G CU service **405**. In some examples, the 5G CU service **405** may connect to a 5G CU in the 5G network, and the UE **115**-*c* may transmit RRC messages to the 5G CU via the 5G CU service **405**. This may be considered an example of dual connectivity with the UE **115**-*c* using the 5G CU as a primary CU and the 5G CU service **405** acts as a secondary CU.

The 5G CU service **405** may receive 5G messages from 5G core network functions/entities of the 5G core network **190**-*b*, such as AMF **440** or UPF **445**, may prepare another service message with the 5G message as payload, and may transmit the service message to the UE **115**-*c* via the eDU **105**-*b*. The UE **115**-*c* may receive the service message and may extract the 5G message from the payload of the service message. In some examples, the 5G CU service **405** may receive a NAS message from the 5G core network **190**-*b* that is addressed to the UE **115**-*c*. The 5G CU service **405**-*c* may communicate the NAS message in a payload of the service message to the UE **115**-*c* via the eDU **105**-*b* in accordance with the service context. The UE **115**-*c* may receive the service message and may extract the NAS message from the payload.

In some examples, once the UE **115**-*c* establishes the service context with the 5G CU service **405**, the UE **115**-*c* may perform 5G control plane procedures, such as registration, and a packet data unit (PDU) session establishment, using the 6G transport and service signaling provided with the 5G CU service **405** toward the 5G core network **190**-*b*. The UE **115**-*c* may also transmit data toward the 5G CU service **405** with the intention that the data may be received by the UPF **445** (e.g., the 5G PDU session user plane anchor).

In some examples, the 5G CU service **405** may convert signaling from the 5G core network **190**-*b* intended for RAN configuration and affecting the eDU **105**-*b* into requests to eDU **105**-*b* configuration API. The 5G CU service **405** may forward 5G signaling to the UE **115**-*c* received from 5G core network **190**-*b* to eDU **105**-*b* for the eDU **105**-*b* to forward to the UE **115**-*c*. The 5G CU service **405** may forward signaling received from the UE **115**-*c* to the AMF **440** depending on payload type, such as the NAS message.

FIG. **5** illustrates an example of a wireless communications system **500** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. In some examples, aspects of the wireless communications system **500** may implement, or be implemented by, aspects of the wireless communications system **100**, the wireless communications system **200**, the network architecture **300**, the wireless communications system **400** or any combination thereof. The wireless communications system **500** may include a UE **115**-*d*, a network entity **105**-*c*, a 5G core network **190**-*c* and 5G CU service **405**-*a* which may be examples of UEs **115**, network entities **105**, 5G core networks **190** and 5G CU service **405** described herein. In some examples, the network entity **105**-*c* may include an example of an O-RAN entity which includes multiple components, such as one or more DUs, as shown and described in FIG. **3**. In this regard, the network entity **105**-*c* illustrated in FIG. **5** may additionally or alternatively be referred to as a DU or eDU **105**-*c*. The wireless communications system **500** may include a 5G CU **310**-*a*. In some examples, the 5G CU **310**-*a* may be an example of a 5G CU **310** as described herein. The eDU **105**-*b* may be associated with (e.g., transmit and receive messages in accordance with) a first RAT (e.g., a 6G protocol). The 5G core network **190**-*b* is associated with a second RAT (e.g., a 5G RAT).

The 5G CU service **405**-*a* may be offered by a 6G service-based network, such as the service-based network **205** illustrated in FIG. **2**. The 6G service-based network including the 5G CU service **405**-*a* may communicate or interface with a 6G RAN **410**-*a* of the wireless communications system **500**, where the 6G RAN **410**-*a* includes the one or more network entities (e.g., eDU **105**-*c*). In some examples, the 5G CU service **405**-*a* may be one of several core network services associated with, or hosted by, a cloud platform, where the 5G CU service **405**-*a* may be hosted at a network address in the cloud platform. In some examples, the 5G CU service **405**-*a* may be co-located with the eDU **105**-*c* or may be co-located with the 5G CU **310**-*a*.

The UE **115**-*d* may communicate with the eDU **105**-*c* using a communication link **220**-*b*, which may be an example of a communication link **220** as described herein. The eDU **105**-*c* of the 6G RAN **410**-*a* may be configured to communicate with (e.g., interface with) the 5G CU service **405**-*a* of the 6G service-based network via a communication link **225**-*b*, which may be an example of a communication link **225** as describe herein. In some examples, the 5G CU service **405**-*a* may include a 5G CU service API configured to facilitate wireless communications with the eDU **105**-*c* and the UE **115**-*d*, such as the network service APIs **180** illustrated in FIG. **1**.

In some examples, the eDU **105**-*c* may facilitate traffic routing (e.g., service data unit routing) from the UE **115**-*d* to the 5G CU service **405**-*a*, and vice versa. In other words, the eDU **105**-*c* may be configured to relay communications, such as control information and service messages from the UE **115**-*d* to the 5G CU service **405**-*a*, and vice versa. The eDU **105**-*c* may facilitate traffic routing between the respective devices directly, via other network entities **105**, via proxy, or any combination thereof.

As operators transition to from 5G to 6G, some operators may not offer a full suite of 6G services, but may provide the 6G RAN **410**-*a* to take advantage of the higher throughput and increased spectrum provided by 6G. Accordingly, an operator may wish to provide access to the 5G core network **190**-*c* via a 6G RAN **410**-*a*. The 6G communications system may offer the 5G CU service **405**-*a* that interfaces with the 5G CU **310**-*a* so that the UE **115**-*d* may communicate with the 5G core network **190**-*c* via the 6G RAN **410**-*a* via the eDU **105**-*c*. Control plane procedures for the 5G CU service **405**-*a* may include a 5G CU service discovery procedure, a 5G CU service configuration procedure, and a RRC procedure over the 5G CU service **405**-*a*.

In an example 5G CU service discovery procedure, the eDU **105**-*c* may indicate to the UE **115**-*d* that the 6G RAN **410**-*a* offers the 5G CU service **405**-*a*. For example, the eDU **105**-*c* may broadcast a SIB indicating the availability of the 5G CU service **405**-*a*, and the UE **115**-*d* may discover the 5G CU service **405**-*a*. In some examples, the UE **115**-*d* may query the eDU **105**-*c* or a discovery service not in the eDU **105**-*c* regarding whether the associated 6G RAN **410**-*a* offers the 5G CU service **405**-*a*, and the eDU **105**-*c* or the discovery service may respond to the UE **115**-*d* indicating that the 6G RAN **410** offers the 5G CU service **405**.

In some examples, after the UE **115**-*d* discovers the 5G CU service **405**-*a*, the UE **115**-*d* may select to use the 5G CU service **405**-*a* and may complete a 5G CU service configuration procedure. For example, the UE **115**-*d* may transmit, to the eDU **105**-*c* via the communication link **220**-*b*, a service request for the 5G CU service **405**-*a* to establish a connection with the eDU **105**-*c*. After receiving the service request from the UE **115**-*d*, the eDU **105**-*c* may communicate the service request to the 5G CU service **405**-*a* via the communication link **225**-*b*. In response to the service request, a service configuration may be established for communications involving the 5G CU service **405**-*a* and the UE **115**-*d*. For example, the 5G CU service **405**-*a* may communicate to the eDU **105**-*c* via communication link **225**-*b* a service context for communication between the UE **115**-*d* and the 5G CU service **405**-*a*. The eDU **105**-*c* may communicate the service context to the UE **115**-*d* via the communication link **220**-*b*. For example, the service context may indicate a destination associated with the 5G CU service **405**-*a* and a message format for 5G messages transmitted over the 6G protocol. In another example, the service context may indicate information or an ID for the eDU **105**-*c* to route to the 5G CU service **405**-*a*. In some examples, the service context may indicate an identifier that the UE **115**-*d* may use and the 5G CU service **405**-*a* may use to route to a 5G core network function of the 5G core network **190**-*c*, such as AMF **440**-*a* and UPF **445**-*b*. In some examples, the service context may indicate an identifier that the UE **115**-*d* may use and the 5G CU service **405**-*a* may use to route to a 5G CU **310**-*a*.

In some examples, the UE **115**-*d* may transmit a service message to the 5G CU service **405**-*a* via the eDU **105**-*c* in the 6G protocol format. The service message may include the destination or the network address of the 5G CU service **405**-*a* and a payload that includes a 5G message in a 5G message format. The 5G CU service **405**-*a* may extract the 5G message from the payload of the service message, and the 5G CU service **405**-*a* may forward the 5G message to the 5G CU **310**-*a* via the communication link **315**-*a* (e.g., an F1 interface). The 5G CU **310**-*a* may forward the 5G message to one of the functions/entities, such as a AMF **440**-*a* or a UPF **445**-*a*, of the 5G core network **190**-*c* via communication link **120**-*f*, such as via N2 interface **430**-*a* and N3 interface **435**-*a*. Accordingly, the 5G CU service **405**-*a* may route communications between the 5G CU **310**-*a* and the UE **115**-*d*.

Transmissions between the UE **115**-*d* and the 5G CU **310**-*a* may involve RRC procedures. For example, the UE **115**-*d* may transmit a service message with an RRC message of the 5G RAT as the payload of the service message. The 5G CU service **405**-*a* may extract the RRC message from the payload, and the 5G CU service **405**-*a* may transmit the RRC message to the 5G CU **310**-*a* for a F1 procedure via the F1-U/C interface. Additionally, the 5G CU service **405**-*a* may receive an RRC message from the 5C CU **310**-*a*, and the 5C CU service **405**-*a* may transmit a service message with a payload of the RRC message to the UE **115**-*d*. In some examples, transmissions of RRC messages between the UE **115**-*d* and the 5G CU **310**-*a* may involve a reconfiguration of the 5G CU service **405**-*a* for the UE **115**-*d* for transmission of RRC, a local configuration between the UE **115**-*d* and eDU **105**-*c*, and/or configuration between the eDU **105**-*c* and 5G CU service **405**-*a*. In some examples, UE **115**-*d* may also communicate with the 5G core network **190**-*c* via the 5G CU service **405**-*a*. In this example, the UE **115**-*d* may use the 5G CU service **405**-*a* to communicate with the 5G CU **310**-*a* and to communicate with the 5G core network **190**-*c*. The communications from the UE **115**-*c* via the 5G CU service **405**-*a* to the 5G core network **190**-*c* may use NAS messages, and the communications via the 5G CU service **405**-*a* to the 5G CU **310**-*a* may use RRC messages.

The 5G CU service **405**-*a* may receive 5G messages from 5G core network functions/entities of the 5G core network **190**-*b*, such as AMF **440**-*a* or UPF **445**-*a*, via the 5G CU **310**-*a*. The 5G CU service **405**-*a* may prepare another service message with the 5G message as payload, and may transmit the service message to the UE **115**-*d* via the eDU **105**-*c*. The UE **115**-*d* may receive the service message and may extract the 5G message from the payload of the service message. The 5G CU service **405**-*a* may forward signaling received from the UE **115**-*d* to the CU **310**-*a* depending on payload type, such as the RRC message. In some examples, the payload of the service message may be a PDU in the 5G format.

FIG. **6** illustrates an example of a wireless communications system **600** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. In some examples, aspects of the wireless communications system **600** may implement, or be implemented by, aspects of the wireless communications system **100**, the wireless communications system **200**, the network architecture **300**, the wireless communications system **400**, the wireless communications system **500** or any combination thereof. The wireless communications system **600** may include a UE **115**-*e*, a network entity **105**-*d*, a network entity **105**-*e*, a 5G core network **190**-*d*, a 5G CU service **405**-*b* and a 5G CU **310**-*b* which may be examples of UEs **115**, network entities **105**, 5G core networks **190**, 5G CU services **405**, and 5G CUs **310** described herein. In some examples, the network entity **105**-*d* may include an example of an O-RAN entity which includes multiple components, such as one or more DUs, as shown and described in FIG. **3**. In this regard, the network entity **105**-*d* illustrated in FIG. **6** may additionally or alternatively be referred to as a DU or eDU **105**-*d*.

The wireless communications system **600** may include a 6G RAN **410**-*b* and a 5G RAN **610**. In some examples, the UE **115**-*e* may use the 5G RAN **610** as a primary network, and the UE **115**-*e* may use the 6G RAN **410**-*b* as a secondary or back-up network. For example, the UE **115**-*e* may communicate with the network entity **105**-*e* using a communication link **125**-*b*, which may be an example of a communication link **125** as described. The network entity **105**-*e* of the 5G RAN **610** may be configured to communicate with (e.g., interface with) the 5G CU **310**-*b* of the 5G RAN **610** via communication link **120**-*c*, which may be an example of a communication link **120** as described herein. For example, the communication link **120**-*c* may be configured to facilitate bi-directional communications between the network entity **105**-*e* and the 5G CU **310**-*b*. The 5G CU **310**-*b* may communicate with the 5G core network **190**-*d* via a communication link **120**-*d*. The UE **115**-*e* may communicate messages in a 5G format to the network entity **105**-*e* of the 5G RAN **610**.

The 6G RAN **410**-*b* may have similar architecture and operation as the 6G RAN **410**-*a* of FIG. **5**. For example, the 5G CU service **405**-*b* may be offered by a 6G service-based network, such as the service-based network **205** illustrated in FIG. **2**. The 6G service-based network including the 5G

CU service **405**-*c* may communicate or interface with a 6G RAN **410**-*b* of the wireless communications system **600**, where the 6G RAN **410**-*b* includes the one or more network entities (e.g., eDU **105**-*d*). In some examples, the 5G CU service **405**-*b* may be one of several core network services associated with, or hosted by, a cloud platform, where the 5G CU service **405**-*b* may be hosted at a network address in the cloud platform. In some examples, the 5G CU service **405**-*b* may be co-located with the eDU **105**-*d* or may be co-located with the 5G CU **310**-*b*.

The UE **115**-*e* may communicate with the eDU **105**-*d* using a communication link **220**-*c*, which may be an example of a communication link **220** as described herein. The eDU **105**-*d* of the 6G RAN may be configured to communicate with (e.g., interface with) the 5G CU service **405**-*b* of the 6G service-based network via communication link **225**-*c*, which may be an example of a communication link **225** as described herein. In some examples, the 5G CU service **405**-*b* may include a 5G CU service API configured to facilitate wireless communications with the eDU **105**-*d* and the UE **115**-*e*, such as the network service APIs **180** illustrated in FIG. **1**.

In some examples, the eDU **105**-*d* may facilitate traffic routing (e.g., service data unit routing) from the UE **115**-*e* to the 5G CU service **405**-*b*, and vice versa. In other words, the eDU **105**-*d* may be configured to relay communications, such as control information and service messages from the UE **115**-*e* to the 5G CU service **405**-*c*, and vice versa. The eDU **105**-*d* may facilitate traffic routing between the respective devices directly, via other network entities **105**, via proxy, or any combination thereof.

The 5G CU service **405**-*b* may interface with the 5G CU **310**-*b* so that the UE **115**-*e* may communicate with the 5G core network **190**-*d* via the 6G RAN **410**-*b* via the 6G eDU **105**-*d*. In some examples, the UE **115**-*e* may transmit a service message to the 5G CU service **405**-*b* via the eDU **105**-*d* in the 6G protocol format. The service message may include the destination or the network address of the 5G CU service **405**-*b* and a payload that includes a 5G message in a 5G message format. The 5G CU service **405**-*b* may extract the 5G message from the payload of the service message, and may forward the 5G message to the 5G CU **310**-*b* via the communication link **315**-*b* (e.g., an F1 interface). The 5G CU **310**-*b* may forward the 5G message to one of the functions/entities, such as a AMF **440**-*b* or a UPF **445**-*b*, of the 5G core network **190**-*d* via communication link **120**-*d*, such as via N2 interface **430**-*b* and N3 interface **435**-*b*. With the 5G CU service **405**-*b* of the 6G RAN **410**-*b*, the UE **115**-*e* may operate in a dual connectivity mode. The UE **115**-*e* may communicate with the 5G core network **190**-*d* using the 5G CU service **405**-*b* of the 6G RAN **410**-*b*, and UE **115**-*e* may communicate with the 5G core network **190**-*d* using the 5G RAN **610**.

FIG. **7** illustrates an example of a process flow **700** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. In some examples, aspects of the process flow **700** may implement, or be implemented by, aspects of the wireless communications system **100**, the wireless communications system **200**, the network architecture **300**, the wireless communications system **400**, the wireless communications system **500**, or the wireless communications system **600** or any combination thereof.

The process flow **700** may include a UE **115**-*f*, an eDU **105**-*f* associated with a first RAT (e.g., a 6G RAT), a 5G CU service **405**-*c*, a 5G CU **310**-*c* associated with a second RAT (e.g., a 5G RAT), and a 5G core network **190**-*e*, which may be examples of UEs **115**, eDUs **105**, 5G CU services **405**, 5G CUs **310** and 5G core networks **190** described herein. In the following description of the process flow **700**, the operations between the UE **115**-*f*, an eDU **105**-*f*, a 5G CU service **405**-*c*, a 5G CU **310**-*c* and a 5G core network **190**-*d* may be transmitted in a different order than the example order shown, or the operations performed by the UE **115**-*f*, the eDU **105**-*f*, the 5G CU service **405**-*c*, the 5G CU **310**-*c*, and the 5G core network **190**-*d* may be performed in different orders or at different times. Some operations may also be omitted from the process flow **700**, and other operations may be added to the process flow **700**.

At **710**, the UE **115**-*f* may receive, from the eDU **105**-*f* via the first RAT, control information indicating the 5G CU service **405**-*c* is offered by the 6G service-based network of the first RAT. The 5G CU service **405**-*c* may be configured to interface with the 6G RAN associated with the eDU **105**-*f*. The eDU **105**-*f* may be associated with the first RAT, and in some examples, the 5G CU service associated with the 5G CU **310**-*c* of a second RAT.

At **715**, the UE **115**-*f* may transmit, to the eDU **105**-*f* via the first RAT, a service request indicating the 5G CU service **405**-*c*, and the eDU **105**-*f* may communicate the service request received from the UE **115**-*f* to the 5G CU service **405**-*c*.

At **720**, the 5G CU service **405**-*c* may transmit to the UE **115**-*f* via the eDU **105**-*f* in accordance with the first RAT, a service context for communications between the UE **115**-*f* and the 5G CU service **405**-*c*. The service context may indicate a destination associated with the 5G CU service **405**-*c*.

At **725**, the UE **115**-*f* may transmit, to the eDU **105**-*f* via the first RAT, a service message in accordance with the service context. The eDU **105**-*f* communicates the service message to the 5G CU service **405**-*c*. The service message may include the destination and a payload in a format associated with the second RAT.

At **730**, the 5G CU service **405**-*c* may extract the payload of the service message. In some examples, the payload of the service message may include a NAS message associated with the second RAT. Additionally, the payload of the service message may indicate a 5G core network **190**-*e* destination for the NAS message, such as AMF and UPF. At **735**, the 5G CU service **405**-*c* may transmit the NAS message to the 5G core network **190**-*e*. In some examples, the 5G CU service **405**-*c* may transmit the NAS message to the AMF via an N2 interface. In some examples, the 5G CU service **405**-*c* may transmit the NAS message to the UPF via an N3 interface.

In some examples, at **740**, the 5G CU service **405**-*c* may receive a second NAS message from the 5G core network **190**-*e* that is addressed to the UE **115**-*f*. At **745**, the 5G CU service **405**-*c* may communicate the second NAS message in a payload of a second service message to the UE **115**-*f* via the eDU **105**-*f* in accordance with the service context. The UE **115**-*f* may receive the second service message and may extract the second NAS message from the payload.

In some examples, the payload of the service message may include a RRC message associated with the second RAT. As discussed above at **730**, the 5G CU service **405**-*c* may extract the RRC message from the payload of the service message. At **750**, the 5G CU service **405**-*c* may transmit the RRC message to the 5G CU **310**-*c*. In some examples, the payload of the service message may include a PDU in the format associated with the second RAT.

In some examples, the UE **115**-*f* may receive the control information via a system information block transmitted by the eDU **105**-*f*. In some examples, the UE **115**-*f* may transmit, to the eDU **105**-*f*, a query for service via the second RAT and receiving the control information may be responsive to the query.

In some examples, the UE **115**-*f* may communicate with a network entity associated with the second RAT and the 5G CU **310**-*c* (e.g., the UE **115**-*f* may operate in a dual connectivity mode). In some examples, the service context may include a RAN configuration for communicating with the eDU **105**-*f* as part of the 5G CU service **405**-*c*. In some examples, the service context may indicate an identifier associated with a 5G core network **190**-*e* destination of the second RAT. The destination of the service context may be a network address. The 5G CU service **405**-*c* may be associated with an application programming interface.

FIG. **8** illustrates a block diagram **800** of a device **805** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **805** may be an example of aspects of a UE **115** as described herein. The device **805** may include a receiver **810**, a transmitter **815**, and a communications manager **820**. The device **805** may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

The receiver **810** may provide a means for receiving information such as packets, user data, control information, or any combination thereof associated with various information channels (e.g., control channels, data channels, information channels related to establishing connectivity to legacy generation wireless network via a fully service based network). Information may be passed on to other components of the device **805**. The receiver **810** may utilize a single antenna or a set of multiple antennas.

The transmitter **815** may provide a means for transmitting signals generated by other components of the device **805**. For example, the transmitter **815** may transmit information such as packets, user data, control information, or any combination thereof associated with various information channels (e.g., control channels, data channels, information channels related to establishing connectivity to legacy generation wireless network via a fully service based network). In some examples, the transmitter **815** may be co-located with a receiver **810** in a transceiver module. The transmitter **815** may utilize a single antenna or a set of multiple antennas.

The communications manager **820**, the receiver **810**, the transmitter **815**, or various combinations thereof or various components thereof may be examples of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **820**, the receiver **810**, the transmitter **815**, or various combinations or components thereof may support a method for performing one or more of the functions described herein.

In some examples, the communications manager **820**, the receiver **810**, the transmitter **815**, or various combinations or components thereof may be implemented in hardware (e.g., in communications management circuitry). The hardware may include a processor, a digital signal processor (DSP), a central processing unit (CPU), an application-specific integrated circuit (ASIC), a field-programmable gate array (FPGA) or other programmable logic device, a microcontroller, discrete gate or transistor logic, discrete hardware components, or any combination thereof configured as or otherwise supporting a means for performing the functions described in the present disclosure. In some examples, a processor and memory coupled with the processor may be configured to perform one or more of the functions described herein (e.g., by executing, by the processor, instructions stored in the memory).

Additionally, or alternatively, in some examples, the communications manager **820**, the receiver **810**, the transmitter **815**, or various combinations or components thereof may be implemented in code (e.g., as communications management software or firmware) executed by a processor. If implemented in code executed by a processor, the functions of the communications manager **820**, the receiver **810**, the transmitter **815**, or various combinations or components thereof may be performed by a general-purpose processor, a DSP, a CPU, an ASIC, an FPGA, a microcontroller, or any combination of these or other programmable logic devices (e.g., configured as or otherwise supporting a means for performing the functions described in the present disclosure).

In some examples, the communications manager **820** may be configured to perform various operations (e.g., receiving, obtaining, monitoring, outputting, transmitting) using or otherwise in cooperation with the receiver **810**, the transmitter **815**, or both. For example, the communications manager **820** may receive information from the receiver **810**, send information to the transmitter **815**, or be integrated in combination with the receiver **810**, the transmitter **815**, or both to obtain information, output information, or perform various other operations as described herein.

The communications manager **820** may support wireless communications at a UE in accordance with examples as disclosed herein. For example, the communications manager **820** may be configured as or otherwise support a means for receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The communications manager **820** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT. The communications manager **820** may be configured as or otherwise support a means for receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service. The communications manager **820** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

By including or configuring the communications manager **820** in accordance with examples as described herein, the device **805** (e.g., a processor controlling or otherwise coupled with the receiver **810**, the transmitter **815**, the communications manager **820**, or a combination thereof) may support techniques for more efficient utilization of communication resources.

FIG. **9** illustrates a block diagram **900** of a device **905** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **905** may be an example of aspects of a device **805** or a UE **115** as described herein. The device **905** may include a receiver **910**, a transmitter **915**, and a communications manager **920**. The device **905** may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

The receiver **910** may provide a means for receiving information such as packets, user data, control information, or any combination thereof associated with various information channels (e.g., control channels, data channels, information channels related to establishing connectivity to legacy generation wireless network via a fully service based network). Information may be passed on to other components of the device **905**. The receiver **910** may utilize a single antenna or a set of multiple antennas.

The transmitter **915** may provide a means for transmitting signals generated by other components of the device **905**. For example, the transmitter **915** may transmit information such as packets, user data, control information, or any combination thereof associated with various information channels (e.g., control channels, data channels, information channels related to establishing connectivity to legacy generation wireless network via a fully service based network). In some examples, the transmitter **915** may be co-located with a receiver **910** in a transceiver module. The transmitter **915** may utilize a single antenna or a set of multiple antennas.

The device **905**, or various components thereof, may be an example of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **920** may include a control information receiving manager **925**, a service request manager **930**, a service context manager **935**, a service message manager **940**, or any combination thereof. The communications manager **920** may be an example of aspects of a communications manager **820** as described herein. In some examples, the communications manager **920**, or various components thereof, may be configured to perform various operations (e.g., receiving, obtaining, monitoring, outputting, transmitting) using or otherwise in cooperation with the receiver **910**, the transmitter **915**, or both. For example, the communications manager **920** may receive information from the receiver **910**, send information to the transmitter **915**, or be integrated in combination with the receiver **910**, the transmitter **915**, or both to obtain information, output information, or perform various other operations as described herein.

The communications manager **920** may support wireless communications at a UE in accordance with examples as disclosed herein. The control information receiving manager **925** may be configured as or otherwise support a means for receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The service request manager **930** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT. The service context manager **935** may be configured as or otherwise support a means for receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service. The service message manager **940** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

FIG. **10** illustrates a block diagram **1000** of a communications manager **1020** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The communications manager **1020** may be an example of aspects of a communications manager **820**, a communications manager **920**, or both, as described herein. The communications manager **1020**, or various components thereof, may be an example of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **1020** may include a control information receiving manager **1025**, a service request manager **1030**, a service context manager **1035**, a service message manager **1040**, a query transmission manager **1045**, a second RAT communication manager **1050**, or any combination thereof. Each of these components may communicate, directly or indirectly, with one another (e.g., via one or more buses).

The communications manager **1020** may support wireless communications at a UE in accordance with examples as disclosed herein. The control information receiving manager **1025** may be configured as or otherwise support a means for receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The service request manager **1030** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT. The service context manager **1035** may be configured as or otherwise support a means for receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service. The service message manager **1040** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

In some examples, to support receiving the control information, the control information receiving manager **1025** may be configured as or otherwise support a means for receiving the control information via a system information block transmitted by the DU.

In some examples, the query transmission manager **1045** may be configured as or otherwise support a means for transmitting, to the DU, a query for service via the second RAT, where receiving the control information is responsive to the query.

In some examples, to support transmitting the service message, the service message manager **1040** may be configured as or otherwise support a means for transmitting the service message including the payload including a NAS message associated with a core network destination of the second RAT.

In some examples, to support transmitting the service message, the service message manager **1040** may be configured as or otherwise support a means for transmitting the service message including the payload including a RRC message associated with the CU of the second RAT.

In some examples, to support transmitting the service message, the service message manager **1040** may be configured as or otherwise support a means for transmitting the service message including a PDU in the format associated with the second RAT.

In some examples, the service message manager **1040** may be configured as or otherwise support a means for receiving, from the DU, a second service message in accordance with the service context, the second service message including a second payload in the format associated with the second RAT.

In some examples, the second RAT communication manager **1050** may be configured as or otherwise support a means for communicating with a network entity associated with the second RAT and the CU.

In some examples, the service context includes a RAN configuration for communicating with the DU as part of the core network service.

In some examples, the destination associated with the core network service is a network address.

In some examples, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples, the core network service is associated with an application programming interface.

FIG. **11** illustrates a diagram of a system **1100** including a device **1105** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **1105** may be an example of or include the components of a device **805**, a device **905**, or a UE **115** as described herein. The device **1105** may communicate (e.g., wirelessly) with one or more network entities **105**, one or more UEs **115**, or any combination thereof. The device **1105** may include components for bi-directional voice and data communications including components for transmitting and receiving communications, such as a communications manager **1120**, an input/output (I/O) controller **1110**, a transceiver **1115**, an antenna **1125**, a memory **1130**, code **1135**, and a processor **1140**. These components may be in electronic communication or otherwise coupled (e.g., operatively, communicatively, functionally, electronically, electrically) via one or more buses (e.g., a bus **1145**).

The I/O controller **1110** may manage input and output signals for the device **1105**. The I/O controller **1110** may also manage peripherals not integrated into the device **1105**. In some cases, the I/O controller **1110** may represent a physical connection or port to an external peripheral. In some cases, the I/O controller **1110** may utilize an operating system such as iOS®, ANDROID®, MS-DOS®, MS-WINDOWS®, OS/2®, UNIX®, LINUX®, or another known operating system. Additionally, or alternatively, the I/O controller **1110** may represent or interact with a modem, a keyboard, a mouse, a touchscreen, or a similar device. In some cases, the I/O controller **1110** may be implemented as part of a processor, such as the processor **1140**. In some cases, a user may interact with the device **1105** via the I/O controller **1110** or via hardware components controlled by the I/O controller **1110**.

In some cases, the device **1105** may include a single antenna **1125**. However, in some other cases, the device **1105** may have more than one antenna **1125**, which may be capable of concurrently transmitting or receiving multiple wireless transmissions. The transceiver **1115** may communicate bi-directionally, via the one or more antennas **1125**, wired, or wireless links as described herein. For example, the transceiver **1115** may represent a wireless transceiver and may communicate bi-directionally with another wireless transceiver. The transceiver **1115** may also include a modem to modulate the packets, to provide the modulated packets to one or more antennas **1125** for transmission, and to demodulate packets received from the one or more antennas **1125**. The transceiver **1115**, or the transceiver **1115** and one or more antennas **1125**, may be an example of a transmitter **815**, a transmitter **915**, a receiver **810**, a receiver **910**, or any combination thereof or component thereof, as described herein.

The memory **1130** may include random access memory (RAM) and read-only memory (ROM). The memory **1130** may store computer-readable, computer-executable code **1135** including instructions that, when executed by the processor **1140**, cause the device **1105** to perform various functions described herein. The code **1135** may be stored in a non-transitory computer-readable medium such as system memory or another type of memory. In some cases, the code **1135** may not be directly executable by the processor **1140** but may cause a computer (e.g., when compiled and executed) to perform functions described herein. In some cases, the memory **1130** may contain, among other things, a basic I/O system (BIOS) which may control basic hardware or software operation such as the interaction with peripheral components or devices.

The processor **1140** may include an intelligent hardware device (e.g., a general-purpose processor, a DSP, a CPU, a microcontroller, an ASIC, an FPGA, a programmable logic device, a discrete gate or transistor logic component, a discrete hardware component, or any combination thereof). In some cases, the processor **1140** may be configured to operate a memory array using a memory controller. In some other cases, a memory controller may be integrated into the processor **1140**. The processor **1140** may be configured to execute computer-readable instructions stored in a memory (e.g., the memory **1130**) to cause the device **1105** to perform various functions (e.g., functions or tasks supporting establishing connectivity to legacy generation wireless network via a fully service based network). For example, the device **1105** or a component of the device **1105** may include a processor **1140** and memory **1130** coupled with or to the processor **1140**, the processor **1140** and memory **1130** configured to perform various functions described herein.

The communications manager **1120** may support wireless communications at a UE in accordance with examples as disclosed herein. For example, the communications manager **1120** may be configured as or otherwise support a means for receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The communications manager **1120** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT. The communications manager **1120** may be configured as or otherwise support a means for receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service. The communications manager **1120** may be configured as or otherwise support a means for transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

By including or configuring the communications manager **1120** in accordance with examples as described herein, the device **1105** may support techniques for improved communication reliability, reduced latency, more efficient utilization of communication resources, and improved coordination between devices.

In some examples, the communications manager **1120** may be configured to perform various operations (e.g., receiving, monitoring, transmitting) using or otherwise in cooperation with the transceiver **1115**, the one or more antennas **1125**, or any combination thereof. Although the communications manager **1120** is illustrated as a separate component, in some examples, one or more functions described with reference to the communications manager **1120** may be supported by or performed by the processor **1140**, the memory **1130**, the code **1135**, or any combination thereof. For example, the code **1135** may include instructions executable by the processor **1140** to cause the device **1105** to perform various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein, or the processor **1140** and the memory **1130** may be otherwise configured to perform or support such operations.

FIG. **12** illustrates a block diagram **1200** of a device **1205** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **1205** may be an example of aspects of a network entity **105** as described herein. The device **1205** may include a receiver **1210**, a transmitter **1215**, and a communications manager **1220**. The device **1205** may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

The receiver **1210** may provide a means for obtaining (e.g., receiving, determining, identifying) information such as user data, control information, or any combination thereof (e.g., I/Q samples, symbols, packets, protocol data units, service data units) associated with various channels (e.g., control channels, data channels, information channels, channels associated with a protocol stack). Information may be passed on to other components of the device **1205**. In some examples, the receiver **1210** may support obtaining information by receiving signals via one or more antennas. Additionally, or alternatively, the receiver **1210** may support obtaining information by receiving signals via one or more wired (e.g., electrical, fiber optic) interfaces, wireless interfaces, or any combination thereof.

The transmitter **1215** may provide a means for outputting (e.g., transmitting, providing, conveying, sending) information generated by other components of the device **1205**. For example, the transmitter **1215** may output information such as user data, control information, or any combination thereof (e.g., I/Q samples, symbols, packets, protocol data units, service data units) associated with various channels (e.g., control channels, data channels, information channels, channels associated with a protocol stack). In some examples, the transmitter **1215** may support outputting information by transmitting signals via one or more antennas. Additionally, or alternatively, the transmitter **1215** may support outputting information by transmitting signals via one or more wired (e.g., electrical, fiber optic) interfaces, wireless interfaces, or any combination thereof. In some examples, the transmitter **1215** and the receiver **1210** may be co-located in a transceiver, which may include or be coupled with a modem.

The communications manager **1220**, the receiver **1210**, the transmitter **1215**, or various combinations thereof or various components thereof may be examples of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **1220**, the receiver **1210**, the transmitter **1215**, or various combinations or components thereof may support a method for performing one or more of the functions described herein.

In some examples, the communications manager **1220**, the receiver **1210**, the transmitter **1215**, or various combinations or components thereof may be implemented in hardware (e.g., in communications management circuitry). The hardware may include a processor, a DSP, a CPU, an ASIC, an FPGA or other programmable logic device, a microcontroller, discrete gate or transistor logic, discrete hardware components, or any combination thereof configured as or otherwise supporting a means for performing the functions described in the present disclosure. In some examples, a processor and memory coupled with the processor may be configured to perform one or more of the functions described herein (e.g., by executing, by the processor, instructions stored in the memory).

Additionally, or alternatively, in some examples, the communications manager **1220**, the receiver **1210**, the transmitter **1215**, or various combinations or components thereof may be implemented in code (e.g., as communications management software or firmware) executed by a processor. If implemented in code executed by a processor, the functions of the communications manager **1220**, the receiver **1210**, the transmitter **1215**, or various combinations or components thereof may be performed by a general-purpose processor, a DSP, a CPU, an ASIC, an FPGA, a microcontroller, or any combination of these or other programmable logic devices (e.g., configured as or otherwise supporting a means for performing the functions described in the present disclosure).

In some examples, the communications manager **1220** may be configured to perform various operations (e.g., receiving, obtaining, monitoring, outputting, transmitting) using or otherwise in cooperation with the receiver **1210**, the transmitter **1215**, or both. For example, the communications manager **1220** may receive information from the receiver **1210**, send information to the transmitter **1215**, or be integrated in combination with the receiver **1210**, the transmitter **1215**, or both to obtain information, output information, or perform various other operations as described herein.

The communications manager **1220** may support wireless communications at a DU in accordance with examples as disclosed herein. For example, the communications manager **1220** may be configured as or otherwise support a means for communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The communications manager **1220** may be configured as or otherwise support a means for communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service. The communications manager **1220** may be configured as or otherwise support a means for communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Additionally, or alternatively, the communications manager **1220** may support wireless communications at a core network service in accordance with examples as disclosed herein. For example, the communications manager **1220** may be configured as or otherwise support a means for receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT. The communications manager **1220** may be configured as or otherwise support a means for transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service. The communications manager **1220** may be configured as or otherwise support a means for receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

By including or configuring the communications manager **1220** in accordance with examples as described herein, the device **1205** (e.g., a processor controlling or otherwise coupled with the receiver **1210**, the transmitter **1215**, the communications manager **1220**, or a combination thereof may support techniques for more efficient utilization of communication resources.

FIG. **13** illustrates a block diagram **1300** of a device **1305** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **1305** may be an example of aspects of a device **1205** or a network entity **105** as described herein. The device **1305** may include a receiver **1310**, a transmitter **1315**, and a communications manager **1320**. The device **1305** may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses).

The receiver **1310** may provide a means for obtaining (e.g., receiving, determining, identifying) information such as user data, control information, or any combination thereof (e.g., I/Q samples, symbols, packets, protocol data units, service data units) associated with various channels (e.g., control channels, data channels, information channels, channels associated with a protocol stack). Information may be passed on to other components of the device **1305**. In some examples, the receiver **1310** may support obtaining information by receiving signals via one or more antennas. Additionally, or alternatively, the receiver **1310** may support obtaining information by receiving signals via one or more wired (e.g., electrical, fiber optic) interfaces, wireless interfaces, or any combination thereof.

The transmitter **1315** may provide a means for outputting (e.g., transmitting, providing, conveying, sending) information generated by other components of the device **1305**. For example, the transmitter **1315** may output information such as user data, control information, or any combination thereof (e.g., I/Q samples, symbols, packets, protocol data units, service data units) associated with various channels (e.g., control channels, data channels, information channels, channels associated with a protocol stack). In some examples, the transmitter **1315** may support outputting information by transmitting signals via one or more antennas. Additionally, or alternatively, the transmitter **1315** may support outputting information by transmitting signals via one or more wired (e.g., electrical, fiber optic) interfaces, wireless interfaces, or any combination thereof. In some examples, the transmitter **1315** and the receiver **1310** may be co-located in a transceiver, which may include or be coupled with a modem.

The device **1305**, or various components thereof, may be an example of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **1320** may include a service request manager **1325**, a service context manager **1330**, a service message manager **1335**, or any combination thereof. The communications manager **1320** may be an example of aspects of a communications manager **1220** as described herein. In some examples, the communications manager **1320**, or various components thereof, may be configured to perform various operations (e.g., receiving, obtaining, monitoring, outputting, transmitting) using or otherwise in cooperation with the receiver **1310**, the transmitter **1315**, or both. For example, the communications manager **1320** may receive information from the receiver **1310**, send information to the transmitter **1315**, or be integrated in combination with the receiver **1310**, the transmitter **1315**, or both to obtain information, output information, or perform various other operations as described herein.

The communications manager **1320** may support wireless communications at a DU in accordance with examples as disclosed herein. The service request manager **1325** may be configured as or otherwise support a means for communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The service context manager **1330** may be configured as or otherwise support a means for communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service. The service message manager **1335** may be configured as or otherwise support a means for communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Additionally, or alternatively, the communications manager **1320** may support wireless communications at a core network service in accordance with examples as disclosed herein. The service request manager **1325** may be configured as or otherwise support a means for receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT. The service context manager **1330** may be configured as or otherwise support a means for transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service. The service message manager **1335** may be configured as or otherwise support a means for receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

FIG. **14** illustrates a block diagram **1400** of a communications manager **1420** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The communications manager **1420** may be an example of aspects of a communications manager **1220**, a communications manager **1320**, or both, as described herein. The communications manager **1420**, or various components thereof, may be an example of means for performing various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein. For example, the communications manager **1420** may include a service request manager **1425**, a service context manager **1430**, a service message manager **1435**, a system information block manager **1440**, a query receiving manager **1445**, a control information transmission manager **1450**, a payload extracting manager **1455**, a NAS message manager **1460**, a radio resource control message manager **1465**, or any combination thereof. Each of these components may communicate, directly or indirectly, with one another (e.g., via one or more buses) which may include communications within a protocol layer of a protocol stack, communications associated with a logical channel of a protocol stack (e.g., between protocol layers of a protocol stack, within a device, component, or virtualized component associated with a network entity **105**, between devices, components, or virtualized components associated with a network entity **105**), or any combination thereof.

The communications manager **1420** may support wireless communications at a DU in accordance with examples as disclosed herein. The service request manager **1425** may be configured as or otherwise support a means for communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The service context manager **1430** may be configured as or otherwise support a means for communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service. The service message manager **1435** may be configured as or otherwise support a means for communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

In some examples, the system information block manager **1440** may be configured as or otherwise support a means for transmitting, via the first RAT, a system information block indicating the core network service is offered by the service-based network of the first RAT, where the service request is response to transmission of the system information block.

In some examples, the query receiving manager **1445** may be configured as or otherwise support a means for receiving, from the UE via the first RAT, a query for service via the second RAT. In some examples, the control information transmission manager **1450** may be configured as or otherwise support a means for transmitting, to the UE in response to the query and via the first RAT, control information indicating the core network service is offered by the service-based network of the first RAT, where the service request is responsive to transmission of the control information.

In some examples, the service message manager **1435** may be configured as or otherwise support a means for communicating a second service message received from the core network service to the UE via the first RAT in accordance with the service context, the service message including second payload in the format associated with the second RAT.

In some examples, the service context includes a RAN configuration for communicating with the DU as part of the core network service.

In some examples, the destination associated with the core network service is a network address.

In some examples, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples, the core network service is associated with an application programming interface.

Additionally, or alternatively, the communications manager **1420** may support wireless communications at a core network service in accordance with examples as disclosed herein. In some examples, the service request manager **1425** may be configured as or otherwise support a means for receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT. In some examples, the service context manager **1430** may be configured as or otherwise support a means for transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service. In some examples, the service message manager **1435** may be configured as or otherwise support a means for receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

In some examples, the payload extracting manager **1455** may be configured as or otherwise support a means for extracting, from the payload, a NAS message associated with the second RAT. In some examples, the NAS message manager **1460** may be configured as or otherwise support a means for transmitting the NAS message to a core network destination of the second RAT, where the payload indicates the core network destination.

In some examples, to support transmitting the NAS message, the NAS message manager **1460** may be configured as or otherwise support a means for transmitting the NAS to an AMF via an N2 interface.

In some examples, to support transmitting the NAS message, the NAS message manager **1460** may be configured as or otherwise support a means for transmitting the NAS message to a UPF via an N3 interface.

In some examples, the NAS message manager **1460** may be configured as or otherwise support a means for receiving a second NAS message from a core network entity of the second RAT addressed to the UE. In some examples, the service message manager **1435** may be configured as or otherwise support a means for communicating a second service message to the UE via the DU in accordance with the service context, the second service message including a second payload including the second NAS message.

In some examples, the payload extracting manager **1455** may be configured as or otherwise support a means for extracting, from the payload, a RRC message associated with the second RAT. In some examples, the radio resource control message manager **1465** may be configured as or otherwise support a means for transmitting the RRC message to the CU.

In some examples, to support receiving the service message, the service message manager **1435** may be configured as or otherwise support a means for receiving the service message including the payload including a PDU in the format associated with the second RAT.

In some examples, the destination associated with the core network service is a network address.

In some examples, the service context indicates an identifier associated with a core network destination of the second RAT.

In some examples, the core network service is associated with an application programming interface.

FIG. **15** illustrates a diagram of a system **1500** including a device **1505** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The device **1505** may be an example of or include the components of a device **1205**, a device **1305**, or a network entity **105** as described herein. The device **1505** may communicate with one or more network entities **105**, one or more UEs **115**, or any combination thereof, which may include communications over one or more wired interfaces, over one or more wireless interfaces, or any combination thereof. The device **1505** may include components that support outputting and obtaining communications, such as a communications manager **1520**, a transceiver **1510**, an antenna **1515**, a memory **1525**, code **1530**, and a processor **1535**. These components may be in electronic communication or otherwise coupled (e.g., operatively, communicatively, functionally, electronically, electrically) via one or more buses (e.g., a bus **1540**).

The transceiver **1510** may support bi-directional communications via wired links, wireless links, or both as described herein. In some examples, the transceiver **1510** may include a wired transceiver and may communicate bi-directionally with another wired transceiver. Additionally, or alternatively, in some examples, the transceiver **1510** may include a wireless transceiver and may communicate bi-directionally with another wireless transceiver. In some examples, the device **1505** may include one or more antennas **1515**, which may be capable of transmitting or receiving wireless transmissions (e.g., concurrently). The transceiver **1510** may also include a modem to modulate signals, to provide the modulated signals for transmission (e.g., by one or more antennas **1515**, by a wired transmitter), to receive modulated signals (e.g., from one or more antennas **1515**, from a wired receiver), and to demodulate signals. In some implementations, the transceiver **1510** may include one or more interfaces, such as one or more interfaces coupled with the one or more antennas **1515** that are configured to support various receiving or obtaining operations, or one or more interfaces coupled with the one or more antennas **1515** that are configured to support various transmitting or outputting operations, or a combination thereof. In some implementations, the transceiver **1510** may include or be configured for coupling with one or more processors or memory components that are operable to perform or support operations based on received or obtained information or signals, or to generate information or other signals for transmission or other outputting, or any combination thereof. In some implementations, the transceiver **1510**, or the transceiver **1510** and the one or more antennas **1515**, or the transceiver **1510** and the one or more antennas **1515** and one or more processors or memory components (for example, the processor **1535**, or the memory **1525**, or both), may be included in a chip or chip assembly that is installed in the device **1505**. In some examples, the transceiver may be operable to support communications via one or more communications links (e.g., a communication link **125**, a backhaul communication link **120**, a midhaul communication link **315**, a fronthaul communication link **168**).

The memory **1525** may include RAM and ROM. The memory **1525** may store computer-readable, computer-executable code **1530** including instructions that, when executed by the processor **1535**, cause the device **1505** to perform various functions described herein. The code **1530** may be stored in a non-transitory computer-readable medium such as system memory or another type of memory. In some cases, the code **1530** may not be directly executable by the processor **1535** but may cause a computer (e.g., when compiled and executed) to perform functions described herein. In some cases, the memory **1525** may contain, among other things, a BIOS which may control basic hardware or software operation such as the interaction with peripheral components or devices.

The processor **1535** may include an intelligent hardware device (e.g., a general-purpose processor, a DSP, an ASIC, a CPU, an FPGA, a microcontroller, a programmable logic device, discrete gate or transistor logic, a discrete hardware component, or any combination thereof). In some cases, the processor **1535** may be configured to operate a memory array using a memory controller. In some other cases, a memory controller may be integrated into the processor **1535**. The processor **1535** may be configured to execute computer-readable instructions stored in a memory (e.g., the memory **1525**) to cause the device **1505** to perform various functions (e.g., functions or tasks supporting establishing connectivity to legacy generation wireless network via a fully service based network). For example, the device **1505** or a component of the device **1505** may include a processor **1535** and memory **1525** coupled with the processor **1535**, the processor **1535** and memory **1525** configured to perform various functions described herein. The processor **1535** may be an example of a cloud-computing platform (e.g., one or more physical nodes and supporting software such as operating systems, virtual machines, or container instances) that may host the functions (e.g., by executing code **1530**) to perform the functions of the device **1505**. The processor **1535** may be any one or more suitable processors capable of executing scripts or instructions of one or more software programs stored in the device **1505** (such as within the memory **1525**). In some implementations, the processor **1535** may be a component of a processing system. A processing system may generally refer to a system or series of machines or components that receives inputs and processes the inputs to produce a set of outputs (which may be passed to other systems or components of, for example, the device **1505**). For example, a processing system of the device **1505** may refer to a system including the various other components or subcomponents of the device **1505**, such as the processor **1535**, or the transceiver **1510**, or the communications manager **1520**, or other components or combinations of components of the device **1505**. The processing system of the device **1505** may interface with other components of the device **1505**, and may process information received from other components (such as inputs or signals) or output information to other components. For example, a chip or modem of the device **1505** may include a processing system and one or more interfaces to output information, or to obtain information, or both. The one or more interfaces may be implemented as or otherwise include a first interface configured to output information and a second interface configured to obtain information, or a same interface configured to output information and to obtain information, among other implementations. In some implementations, the one or more interfaces may refer to an interface between the processing system of the chip or modem and a transmitter, such that the device **1505** may transmit information output from the chip or modem. Additionally, or alternatively, in some implementations, the one or more interfaces may refer to an interface between the processing system of the chip or modem and a receiver, such that the device **1505** may obtain information or signal inputs, and the information may be passed to the processing system. A person having ordinary skill in the art will readily recognize that a first interface also may obtain information or signal inputs, and a second interface also may output information or signal outputs.

In some examples, a bus **1540** may support communications of (e.g., within) a protocol layer of a protocol stack. In some examples, a bus **1540** may support communications associated with a logical channel of a protocol stack (e.g., between protocol layers of a protocol stack), which may include communications performed within a component of the device **1505**, or between different components of the device **1505** that may be co-located or located in different locations (e.g., where the device **1505** may refer to a system in which one or more of the communications manager **1520**, the transceiver **1510**, the memory **1525**, the code **1530**, and the processor **1535** may be located in one of the different components or divided between different components).

In some examples, the communications manager **1520** may manage aspects of communications with a core network (e.g., via one or more wired or wireless backhaul links). For example, the communications manager **1520** may manage the transfer of data communications for client devices, such as one or more UEs **115**. In some examples, the communications manager **1520** may manage communications with other network entities **105**, and may include a controller or scheduler for controlling communications with UEs **115** in cooperation with other network entities **105**. In some examples, the communications manager **1520** may support an X2 interface within an LTE/LTE-A wireless communications network technology to provide communication between network entities **105**.

The communications manager **1520** may support wireless communications at a DU in accordance with examples as disclosed herein. For example, the communications manager **1520** may be configured as or otherwise support a means for communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The communications manager **1520** may be configured as or otherwise support a means for communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service. The communications manager **1520** may be configured as or otherwise support a means for communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

Additionally, or alternatively, the communications manager **1520** may support wireless communications at a core network service in accordance with examples as disclosed herein. For example, the communications manager **1520** may be configured as or otherwise support a means for receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT. The communications manager **1520** may be configured as or otherwise support a means for transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service. The communications manager **1520** may be configured as or otherwise support a means for receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT.

By including or configuring the communications manager **1520** in accordance with examples as described herein, the device **1505** may support techniques for improved communication reliability, more efficient utilization of communication resources, and improved coordination between devices.

In some examples, the communications manager **1520** may be configured to perform various operations (e.g., receiving, obtaining, monitoring, outputting, transmitting) using or otherwise in cooperation with the transceiver **1510**, the one or more antennas **1515** (e.g., where applicable), or any combination thereof. Although the communications manager **1520** is illustrated as a separate component, in some examples, one or more functions described with reference to the communications manager **1520** may be supported by or performed by the transceiver **1510**, the processor **1535**, the memory **1525**, the code **1530**, or any combination thereof. For example, the code **1530** may include instructions executable by the processor **1535** to cause the device **1505** to perform various aspects of establishing connectivity to legacy generation wireless network via a fully service based network as described herein, or the processor **1535** and the memory **1525** may be otherwise configured to perform or support such operations.

FIG. **16** illustrates a flowchart showing a method **1600** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The operations of the method **1600** may be implemented by a UE or its components as described herein. For example, the operations of the method **1600** may be performed by a UE **115** as described with reference to FIGS. **1** through **11**. In some examples, a UE may execute a set of instructions to control the functional elements of the UE to perform the described functions. Additionally, or alternatively, the UE may perform aspects of the described functions using special-purpose hardware.

At **1605**, the method may include receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The operations of **1605** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1605** may be performed by a control information receiving manager **1025** as described with reference to FIG. **10**.

At **1610**, the method may include transmitting, to the DU via the first RAT and based on the control information, a service request indicating the core network service associated with the CU of the second RAT. The operations of **1610** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1610** may be performed by a service request manager **1030** as described with reference to FIG. **10**.

At **1615**, the method may include receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based on the service request, the service context indicating a destination associated with the core network service. The operations of **1615** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1615** may be performed by a service context manager **1035** as described with reference to FIG. **10**.

At **1620**, the method may include transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT. The operations of **1620** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1620** may be performed by a service message manager **1040** as described with reference to FIG. **10**.

FIG. **17** illustrates a flowchart showing a method **1700** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The operations of the method **1700** may be implemented by a network entity or its components as described herein. For example, the operations of the method **1700** may be performed by a network entity as described with reference to FIGS. **1** through **7** and **12** through **15**. In some examples, a network entity may execute a set of instructions to control the functional elements of the network entity to perform the described functions. Additionally, or alternatively, the network entity may perform aspects of the described functions using special-purpose hardware.

At **1705**, the method may include communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the DU is associated with the first RAT, and where the core network service is associated with a CU of a second RAT. The operations of **1705** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1705** may be performed by a service request manager **1425** as described with reference to FIG. **14**.

At **1710**, the method may include communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service. The operations of **1710** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1710** may be performed by a service context manager **1430** as described with reference to FIG. **14**.

At **1715**, the method may include communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT. The operations of **1715** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1715** may be performed by a service message manager **1435** as described with reference to FIG. **14**.

FIG. **18** illustrates a flowchart showing a method **1800** that supports establishing connectivity to legacy generation wireless network via a fully service based network in accordance with one or more aspects of the present disclosure. The operations of the method **1800** may be implemented by a network entity or its components as described herein. For example, the operations of the method **1800** may be performed by a network entity as described with reference to FIGS. **1** through **7** and **12** through **15**. In some examples, a network entity may execute a set of instructions to control the functional elements of the network entity to perform the described functions. Additionally, or alternatively, the network entity may perform aspects of the described functions using special-purpose hardware.

At **1805**, the method may include receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, where the core network service is associated with a CU of a second RAT. The operations of **1805** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1805** may be performed by a service request manager **1425** as described with reference to FIG. **14**.

At **1810**, the method may include transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based on the service request, the service context indicating a destination associated with the core network service. The operations of **1810** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1810** may be performed by a service context manager **1430** as described with reference to FIG. **14**.

At **1815**, the method may include receiving, from the UE via the DU, a service message in accordance with the service context, the service message including the destination and a payload in a format associated with the second RAT. The operations of **1815** may be performed in accordance with examples as disclosed herein. In some examples, aspects of the operations of **1815** may be performed by a service message manager **1435** as described with reference to FIG. **14**.

The following provides an overview of aspects of the present disclosure:

Aspect 1: A method for wireless communications at a UE, comprising: receiving, from a DU via a first RAT, control information indicating a core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, wherein the DU is associated with the first RAT, and wherein the core network service is associated with a CU of a second RAT; transmitting, to the DU via the first RAT and based at least in part on the control information, a service request indicating the core network service associated with the CU of the second RAT; receiving, from the DU via the first RAT, a service context for communicating with the core network service in accordance with the first RAT based at least in part on the service request, the service context indicating a destination associated with the core network service; and transmitting, to the DU via the first RAT, a service message in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second RAT.

Aspect 2: The method of aspect 1, wherein receiving the control information comprises: receiving the control information via a system information block transmitted by the DU.

Aspect 3: The method of any of aspects 1 through 2, further comprising: transmitting, to the DU, a query for service via the second RAT, wherein receiving the control information is responsive to the query.

Aspect 4: The method of any of aspects 1 through 3, wherein transmitting the service message comprises: transmitting the service message comprising the payload comprising a NAS message associated with a core network destination of the second RAT.

Aspect 5: The method of any of aspects 1 through 4, wherein transmitting the service message comprises: transmitting the service message comprising the payload comprising an RRC message associated with the CU of the second RAT.

Aspect 6: The method of any of aspects 1 through 5, wherein transmitting the service message comprises: transmitting the service message comprising a PDU in the format associated with the second RAT.

Aspect 7: The method of any of aspects 1 through 6, further comprising: receiving, from the DU, a second service message in accordance with the service context, the second service message comprising a second payload in the format associated with the second RAT.

Aspect 8: The method of any of aspects 1 through 7, further comprising: communicating with a network entity associated with the second RAT and the CU.

Aspect 9: The method of any of aspects 1 through 8, wherein the service context comprises a RAN configuration for communicating with the DU as part of the core network service.

Aspect 10: The method of any of aspects 1 through 9, wherein the destination associated with the core network service is a network address.

Aspect 11: The method of any of aspects 1 through 10, wherein the service context indicates an identifier associated with a core network destination of the second RAT.

Aspect 12: The method of any of aspects 1 through 11, wherein the core network service is associated with an application programing interface.

Aspect 13: A method for wireless communications at a DU, comprising: communicating a service request received from a UE via a first RAT to a core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, wherein the DU is associated with the first RAT, and wherein the core network service is associated with a CU of a second RAT; communicating a service context received from the core network service to the UE via the first RAT, the service context for communications between the UE and the core network service in accordance with the first RAT and indicating a destination associated with the core network service; and communicating a service message received from the UE via the first RAT to the core network service in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second RAT.

Aspect 14: The method of aspect 13, further comprising: transmitting, via the first RAT, a system information block indicating the core network service is offered by the service-based network of the first RAT, wherein the service request is response to transmission of the system information block.

Aspect 15: The method of any of aspects 13 through 14, further comprising: receiving, from the UE via the first RAT, a query for service via the second RAT; and transmitting, to the UE in response to the query and via the first RAT, control information indicating the core network service is offered by the service-based network of the first RAT, wherein the service request is responsive to transmission of the control information.

Aspect 16: The method of any of aspects 13 through 15, further comprising: communicating a second service message received from the core network service to the UE via the first RAT in accordance with the service context, the service message comprising second payload in the format associated with the second RAT.

Aspect 17: The method of any of aspects 13 through 16, wherein the service context comprises a RAN configuration for communicating with the DU as part of the core network service.

Aspect 18: The method of any of aspects 13 through 17, wherein the destination associated with the core network service is a network address.

Aspect 19: The method of any of aspects 13 through 18, wherein the service context indicates an identifier associated with a core network destination of the second RAT.

Aspect 20: The method of any of aspects 13 through 19, wherein the core network service is associated with an application programing interface.

Aspect 21: A method for wireless communications at a core network service, comprising: receiving, from a UE via a DU associated with a first RAT, a service request indicating the core network service, the core network service offered by a service-based network of the first RAT and configured to interface with a RAN associated with the DU, wherein the core network service is associated with a CU of a second RAT; transmitting, to the UE via the DU in accordance with the first RAT, a service context for communications between the UE and the core network service based at least in part on the service request, the service context indicating a destination associated with the core network service; and receiving, from the UE via the DU, a service message in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second RAT.

Aspect 22: The method of aspect 21, further comprising: extracting, from the payload, a NAS message associated with the second RAT; and transmitting the NAS message to a core network destination of the second RAT, wherein the payload indicates the core network destination.

Aspect 23: The method of aspect 22, wherein transmitting the NAS message comprises: transmitting the NAS message to an access and mobility management function via an N2 interface.

Aspect 24: The method of any of aspects 22 through 23, wherein transmitting the NAS message comprises: transmitting the NAS message to a user plane function via an N3 interface.

Aspect 25: The method of any of aspects 22 through 24, further comprising: receiving a second NAS message from a core network entity of the second RAT addressed to the UE; and communicating a second service message to the UE via the DU in accordance with the service context, the second service message comprising a second payload comprising the second NAS message.

Aspect 26: The method of any of aspects 21 through 25, further comprising: extracting, from the payload, an RRC message associated with the second RAT; and transmitting the RRC message to the CU.

Aspect 27: The method of any of aspects 21 through 26, wherein receiving the service message comprises: receiving the service message comprising the payload comprising a PDU in the format associated with the second RAT.

Aspect 28: The method of any of aspects 21 through 27, wherein the destination associated with the core network service is a network address.

Aspect 29: The method of any of aspects 21 through 28, wherein the service context indicates an identifier associated with a core network destination of the second RAT.

Aspect 30: The method of any of aspects 21 through 29, wherein the core network service is associated with an application programing interface.

Aspect 31: An apparatus for wireless communications at a UE, comprising a processor; and memory coupled with the processor the memory storing instructions executable by the processor to cause the apparatus to perform a method of any of aspects 1 through 12.

Aspect 32: An apparatus for wireless communications at a UE, comprising at least one means for performing a method of any of aspects 1 through 12.

Aspect 33: A non-transitory computer-readable medium storing code for wireless communications at a UE, the code comprising instructions executable by a processor to perform a method of any of aspects 1 through 12.

Aspect 34: An apparatus for wireless communications at a DU, comprising a processor; and memory coupled with the processor the memory storing instructions executable by the processor to cause the apparatus to perform a method of any of aspects 13 through 20.

Aspect 35: An apparatus for wireless communications at a DU, comprising at least one means for performing a method of any of aspects 13 through 20.

Aspect 36: A non-transitory computer-readable medium storing code for wireless communications at a DU, the code comprising instructions executable by a processor to perform a method of any of aspects 13 through 20.

Aspect 37: An apparatus for wireless communications at a core network service, comprising a processor; and memory coupled with the processor the memory storing instructions executable by the processor to cause the apparatus to perform a method of any of aspects 21 through 30.

Aspect 38: An apparatus for wireless communications at a core network service, comprising at least one means for performing a method of any of aspects 21 through 30.

Aspect 39: A non-transitory computer-readable medium storing code for wireless communications at a core network service, the code comprising instructions executable by a processor to perform a method of any of aspects 21 through 30.

It should be noted that the methods described herein describe possible implementations, and that the operations and the steps may be rearranged or otherwise modified and that other implementations are possible. Further, aspects from two or more of the methods may be combined.

Although aspects of an LTE, LTE-A, LTE-A Pro, or NR system may be described for purposes of example, and LTE, LTE-A, LTE-A Pro, or NR terminology may be used in much of the description, the techniques described herein are applicable beyond LTE, LTE-A, LTE-A Pro, or NR networks. For example, the described techniques may be applicable to various other wireless communications systems such as Ultra Mobile Broadband (UMB), Institute of Electrical and Electronics Engineers (IEEE) 802.11 (Wi-Fi), IEEE 802.16 (WiMAX), IEEE 802.20, Flash-OFDM, as well as other systems and radio technologies not explicitly mentioned herein.

Information and signals described herein may be represented using any of a variety of different technologies and techniques. For example, data, instructions, commands, information, signals, bits, symbols, and chips that may be referenced throughout the description may be represented by voltages, currents, electromagnetic waves, magnetic fields or particles, optical fields or particles, or any combination thereof.

The various illustrative blocks and components described in connection with the disclosure herein may be implemented or performed using a general-purpose processor, a DSP, an ASIC, a CPU, an FPGA or other programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof designed to perform the functions described herein. A general-purpose processor may be a microprocessor but, in the alternative, the processor may be any processor, controller, microcontroller, or state machine. A processor may also be implemented as a combination of computing devices (e.g., a combination of a DSP and a microprocessor, multiple microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration).

The functions described herein may be implemented using hardware, software executed by a processor, firmware, or any combination thereof. If implemented using software executed by a processor, the functions may be stored as or transmitted using one or more instructions or code of a computer-readable medium. Other examples and implementations are within the scope of the disclosure and appended claims. For example, due to the nature of software, functions described herein may be implemented using software executed by a processor, hardware, firmware, hardwiring, or combinations of any of these. Features implementing functions may also be physically located at various positions, including being distributed such that portions of functions are implemented at different physical locations.

Computer-readable media includes both non-transitory computer storage media and communication media including any medium that facilitates transfer of a computer program from one location to another. A non-transitory storage medium may be any available medium that may be accessed by a general-purpose or special-purpose computer. By way of example, and not limitation, non-transitory computer-readable media may include RAM, ROM, electrically erasable programmable ROM (EEPROM), flash memory, compact disk (CD) ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other non-transitory medium that may be used to carry or store desired program code means in the form of instructions or data structures and that may be accessed by a general-purpose or special-purpose computer, or a general-purpose or special-purpose processor. Also, any connection is properly termed a computer-readable medium. For example, if the software is transmitted from a website, server, or other remote source using a coaxial cable, fiber optic cable, twisted pair, digital subscriber line (DSL), or wireless technologies such as infrared, radio, and microwave, then the coaxial cable, fiber optic cable, twisted pair, DSL, or wireless technologies such as infrared, radio, and microwave are included in the definition of computer-readable medium. Disk and disc, as used herein, include CD, laser disc, optical disc, digital versatile disc (DVD), floppy disk and Blu-ray disc. Disks may reproduce data magnetically, and discs may reproduce data optically using lasers. Combinations of the above are also included within the scope of computer-readable media.

As used herein, including in the claims, "or" as used in a list of items (e.g., a list of items prefaced by a phrase such as "at least one of" or "one or more of") indicates an inclusive list such that, for example, a list of at least one of A, B, or C means A or B or C or AB or AC or BC or ABC (i.e., A and B and C). Also, as used herein, the phrase "based on" shall not be construed as a reference to a closed set of conditions. For example, an example step that is described as "based on condition A" may be based on both a condition A and a condition B without departing from the scope of the present disclosure. In other words, as used herein, the phrase "based on" shall be construed in the same manner as the phrase "based at least in part on."

The term "determine" or "determining" encompasses a variety of actions and, therefore, "determining" can include calculating, computing, processing, deriving, investigating, looking up (such as via looking up in a table, a database or another data structure), ascertaining and the like. Also, "determining" can include receiving (e.g., receiving information), accessing (e.g., accessing data stored in memory) and the like. Also, "determining" can include resolving, obtaining, selecting, choosing, establishing, and other such similar actions.

In the appended figures, similar components or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label by a dash and a second label that distinguishes among the similar components. If just the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label, or other subsequent reference label.

The description set forth herein, in connection with the appended drawings, describes example configurations and does not represent all the examples that may be implemented or that are within the scope of the claims. The term "example" used herein means "serving as an example, instance, or illustration," and not "preferred" or "advantageous over other examples." The detailed description includes specific details for the purpose of providing an understanding of the described techniques. These techniques, however, may be practiced without these specific details. In some instances, known structures and devices are shown in block diagram form in order to avoid obscuring the concepts of the described examples.

The description herein is provided to enable a person having ordinary skill in the art to make or use the disclosure. Various modifications to the disclosure will be apparent to a person having ordinary skill in the art, and the generic principles defined herein may be applied to other variations without departing from the scope of the disclosure. Thus, the disclosure is not limited to the examples and designs described herein but is to be accorded the broadest scope consistent with the principles and novel features disclosed herein.

What is claimed is:

1. An apparatus for wireless communications at a user equipment (UE), comprising:

a processor; and

memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to:

receive, from a distributed unit via a first radio access technology, control information indicating a core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network associated with the distributed unit, wherein the distributed unit is associated with the first radio access technology, and wherein the core network service is associated with a central unit of a second radio access technology;

transmit, to the distributed unit via the first radio access technology and based at least in part on the control information, a service request indicating the core network service associated with the central unit of the second radio access technology;

receive, from the distributed unit via the first radio access technology, a service context for communicating with the core network service in accordance with the first radio access technology based at least in part on the service request, the service context indicating a destination associated with the core network service; and

transmit, to the distributed unit via the first radio access technology, a service message in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second radio access technology.

2. The apparatus of claim **1**, wherein the instructions to receive the control information are executable by the processor to cause the apparatus to:

receive the control information via a system information block transmitted by the distributed unit.

3. The apparatus of claim **1**, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit, to the distributed unit, a query for service via the second radio access technology, wherein receiving the control information is responsive to the query.

4. The apparatus of claim **1**, wherein the instructions to transmit the service message are executable by the processor to cause the apparatus to:

transmit the service message comprising the payload comprising a non access stratum message associated with a core network destination of the second radio access technology.

5. The apparatus of claim **1**, wherein the instructions to transmit the service message are executable by the processor to cause the apparatus to:

transmit the service message comprising the payload comprising a radio resource control message associated with the central unit of the second radio access technology.

6. The apparatus of claim **1**, wherein the instructions to transmit the service message are executable by the processor to cause the apparatus to:

transmit the service message comprising a packet data unit in the format associated with the second radio access technology.

7. The apparatus of claim **1**, wherein the instructions are further executable by the processor to cause the apparatus to:

receive, from the distributed unit, a second service message in accordance with the service context, the second service message comprising a second payload in the format associated with the second radio access technology.

8. The apparatus of claim **1**, wherein the instructions are further executable by the processor to cause the apparatus to:

communicate with a network entity associated with the second radio access technology and the central unit.

9. The apparatus of claim **1**, wherein the service context comprises a radio access network configuration for communicating with the distributed unit as part of the core network service.

10. The apparatus of claim **1**, wherein the destination associated with the core network service is a network address.

11. The apparatus of claim **1**, wherein the service context indicates an identifier associated with a core network destination of the second radio access technology.

12. The apparatus of claim **1**, wherein the core network service is associated with an application programming interface.

13. An apparatus for wireless communications at a distributed unit, comprising:

a processor;

memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to:

communicate a service request received from a user equipment (UE) via a first radio access technology to a core network service, the core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network associated with the distributed unit, wherein the distributed unit is associated with the first radio access technology, and wherein the core network service is associated with a central unit of a second radio access technology;

communicate a service context received from the core network service to the UE via the first radio access technology, the service context for communications between the UE and the core network service in accordance with the first radio access technology and indicating a destination associated with the core network service; and

communicate a service message received from the UE via the first radio access technology to the core network service in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second radio access technology.

14. The apparatus of claim **13**, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit, via the first radio access technology, a system information block indicating the core network service is offered by the service-based network of the first radio access technology, wherein the service request is response to transmission of the system information block.

15. The apparatus of claim **13**, wherein the instructions are further executable by the processor to cause the apparatus to:

receive, from the UE via the first radio access technology, a query for service via the second radio access technology; and

transmit, to the UE in response to the query and via the first radio access technology, control information indicating the core network service is offered by the service-based network of the first radio access technology, wherein the service request is responsive to transmission of the control information.

16. The apparatus of claim **13**, wherein the instructions are further executable by the processor to cause the apparatus to:

communicate a second service message received from the core network service to the UE via the first radio access technology in accordance with the service context, the service message comprising second payload in the format associated with the second radio access technology.

17. The apparatus of claim **13**, wherein the service context comprises a radio access network configuration for communicating with the distributed unit as part of the core network service.

18. The apparatus of claim **13**, wherein the destination associated with the core network service is a network address.

19. The apparatus of claim **13**, wherein the service context indicates an identifier associated with a core network destination of the second radio access technology.

20. The apparatus of claim **13**, wherein the core network service is associated with an application programming interface.

21. An apparatus for wireless communications at a core network service, comprising:

a processor;

memory coupled with the processor, the memory storing instructions executable by the processor to cause the apparatus to:

receive, from a user equipment (UE) via a distributed unit associated with a first radio access technology, a service request indicating the core network service, the core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network associated with the distributed unit, wherein the core network service is associated with a central unit of a second radio access technology;

transmit, to the UE via the distributed unit in accordance with the first radio access technology, a service context for communications between the UE and the core network service based at least in part on the service request, the service context indicating a destination associated with the core network service; and

receive, from the UE via the distributed unit, a service message in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second radio access technology.

22. The apparatus of claim 21, wherein the instructions are further executable by the processor to cause the apparatus to:

extract, from the payload, a non access stratum message associated with the second radio access technology; and

transmit the non access stratum message to a core network destination of the second radio access technology, wherein the payload indicates the core network destination.

23. The apparatus of claim 22, wherein the instructions to transmit the non access stratum message are executable by the processor to cause the apparatus to:

transmit the non access stratum message to an access and mobility management function via an N2 interface.

24. The apparatus of claim 22, wherein the instructions to transmit the non access stratum message are executable by the processor to cause the apparatus to:

transmit the non access stratum message to a user plane function via an N3 interface.

25. The apparatus of claim 22, wherein the instructions are further executable by the processor to cause the apparatus to:

receive a second non access stratum message from a core network entity of the second radio access technology addressed to the UE; and

communicate a second service message to the UE via the distributed unit in accordance with the service context, the second service message comprising a second payload comprising the second non access stratum message.

26. The apparatus of claim 21, wherein the instructions are further executable by the processor to cause the apparatus to:

extract, from the payload, a radio resource control message associated with the second radio access technology; and

transmit the radio resource control message to the central unit.

27. The apparatus of claim 21, wherein the instructions to receive the service message are executable by the processor to cause the apparatus to:

receive the service message comprising the payload comprising a packet data unit in the format associated with the second radio access technology.

28. The apparatus of claim 21, wherein the destination associated with the core network service is a network address.

29. The apparatus of claim 21, wherein the service context indicates an identifier associated with a core network destination of the second radio access technology.

30. A method for wireless communications at a user equipment (UE), comprising:

receiving, from a distributed unit via a first radio access technology, control information indicating a core network service offered by a service-based network of the first radio access technology and configured to interface with a radio access network associated with the distributed unit, wherein the distributed unit is associated with the first radio access technology, and wherein the core network service is associated with a central unit of a second radio access technology;

transmitting, to the distributed unit via the first radio access technology and based at least in part on the control information, a service request indicating the core network service associated with the central unit of the second radio access technology;

receiving, from the distributed unit via the first radio access technology, a service context for communicating with the core network service in accordance with the first radio access technology based at least in part on the service request, the service context indicating a destination associated with the core network service; and

transmitting, to the distributed unit via the first radio access technology, a service message in accordance with the service context, the service message comprising the destination and a payload in a format associated with the second radio access technology.

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