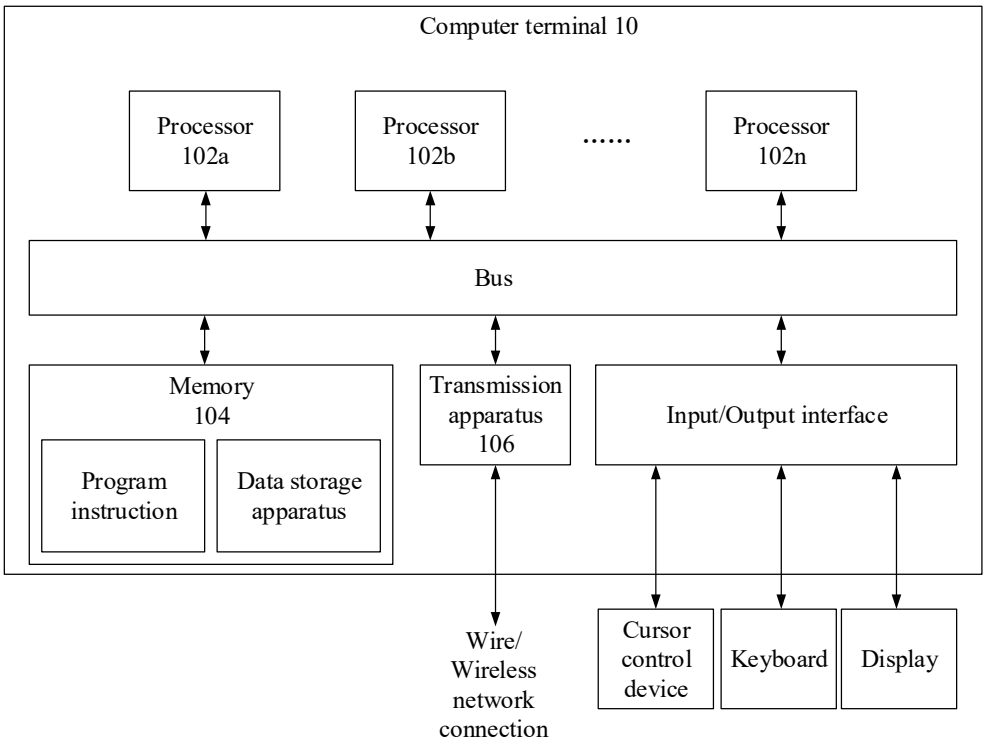

Computer terminal 10
Processor 102a
Processor 102b
.....
Processor 102n
Bus
Memory 104
Program instruction
Data storage apparatus
Transmission apparatus 106
Input/Output interface
Wire/ Wireless network connection
Cursor control device
Keyboard
Display

Fig. 1

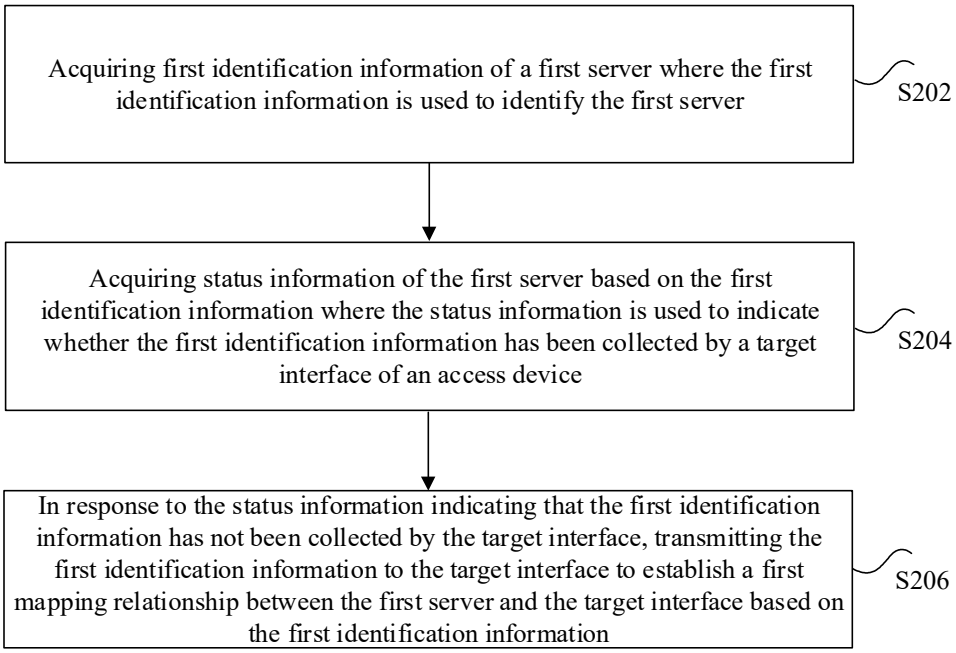

Acquiring first identification information of a first server where the first identification information is used to identify the first server
S202
Acquiring status information of the first server based on the first identification information where the status information is used to indicate whether the first identification information has been collected by a target interface of an access device
S204
In response to the status information indicating that the first identification information has not been collected by the target interface, transmitting the first identification information to the target interface to establish a first mapping relationship between the first server and the target interface based on the first identification information
S206

Fig. 2

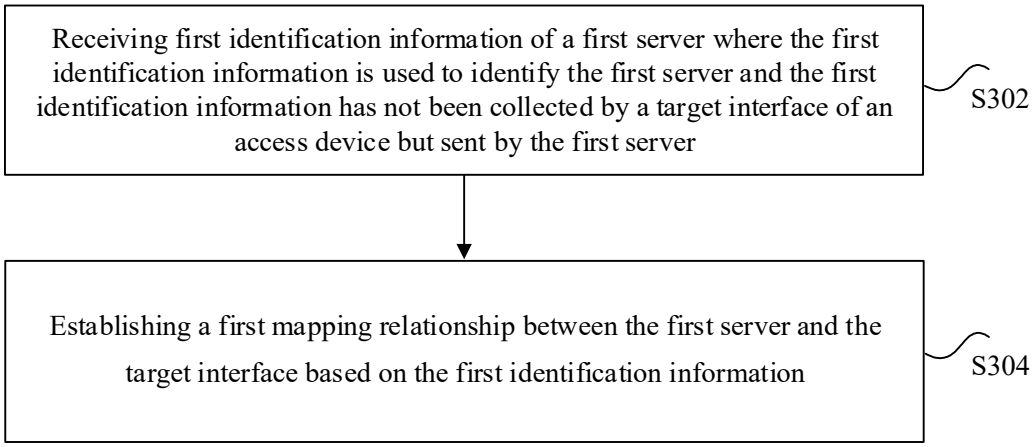

Receiving first identification information of a first server where the first identification information is used to identify the first server and the first identification information has not been collected by a target interface of an access device but sent by the first server
S302
Establishing a first mapping relationship between the first server and the target interface based on the first identification information
S304

Fig. 3

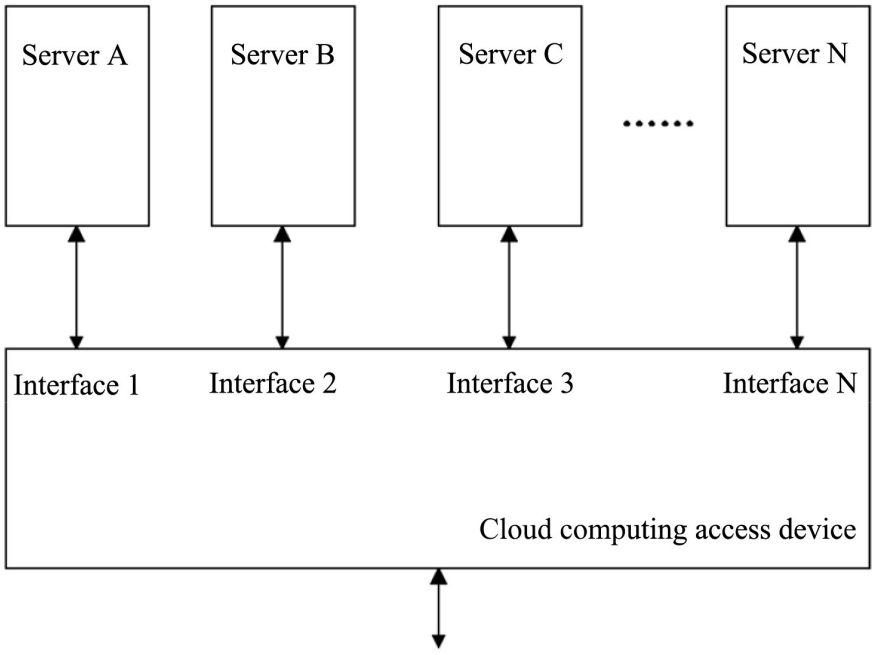

Server A
Server B
Server C
.....
Server N
Interface 1
Interface 2
Interface 3
Interface N
Cloud computing access device
Cloud network

Fig. 4

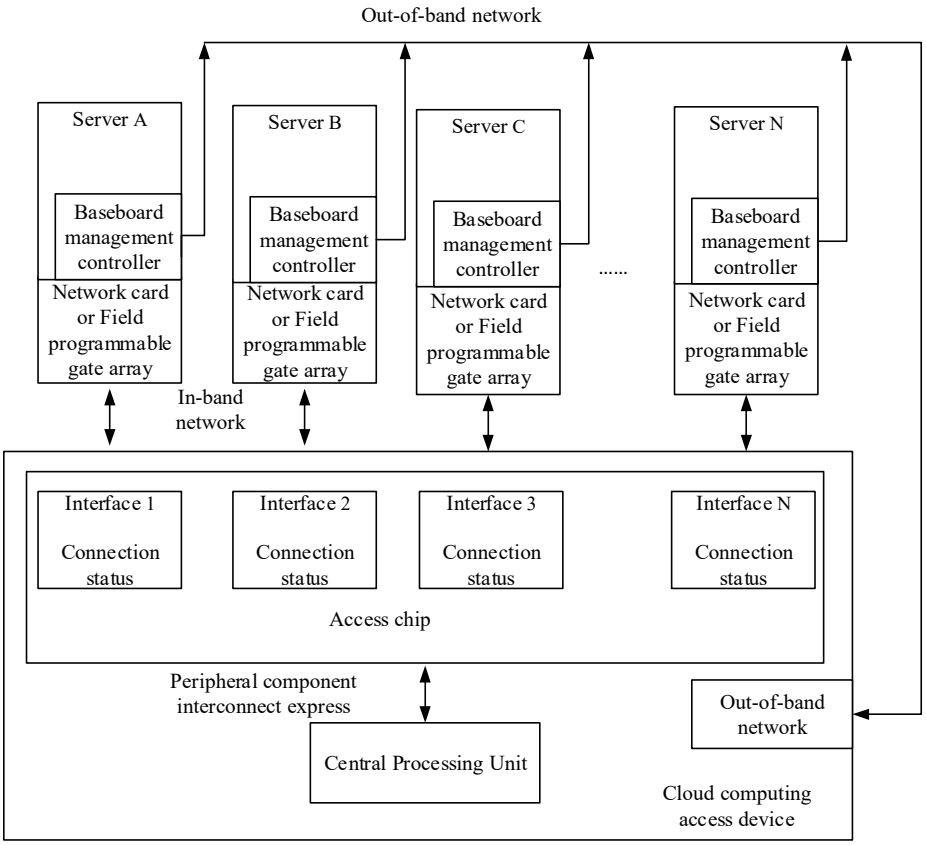

Out-of-band network
Server A
Server B
Server C
Server N
Baseboard management controller
Baseboard management controller
Baseboard management controller
Baseboard management controller
.....
Network card or Field programmable gate array
Network card or Field programmable gate array
Network card or Field programmable gate array
Network card or Field programmable gate array
In-band network
Interface 1
Connection status
Interface 2
Connection status
Interface 3
Connection status
Interface N
Connection status
Access chip
Peripheral component interconnect express
Central Processing Unit
Out-of-band network
Cloud computing access device

Fig. 5

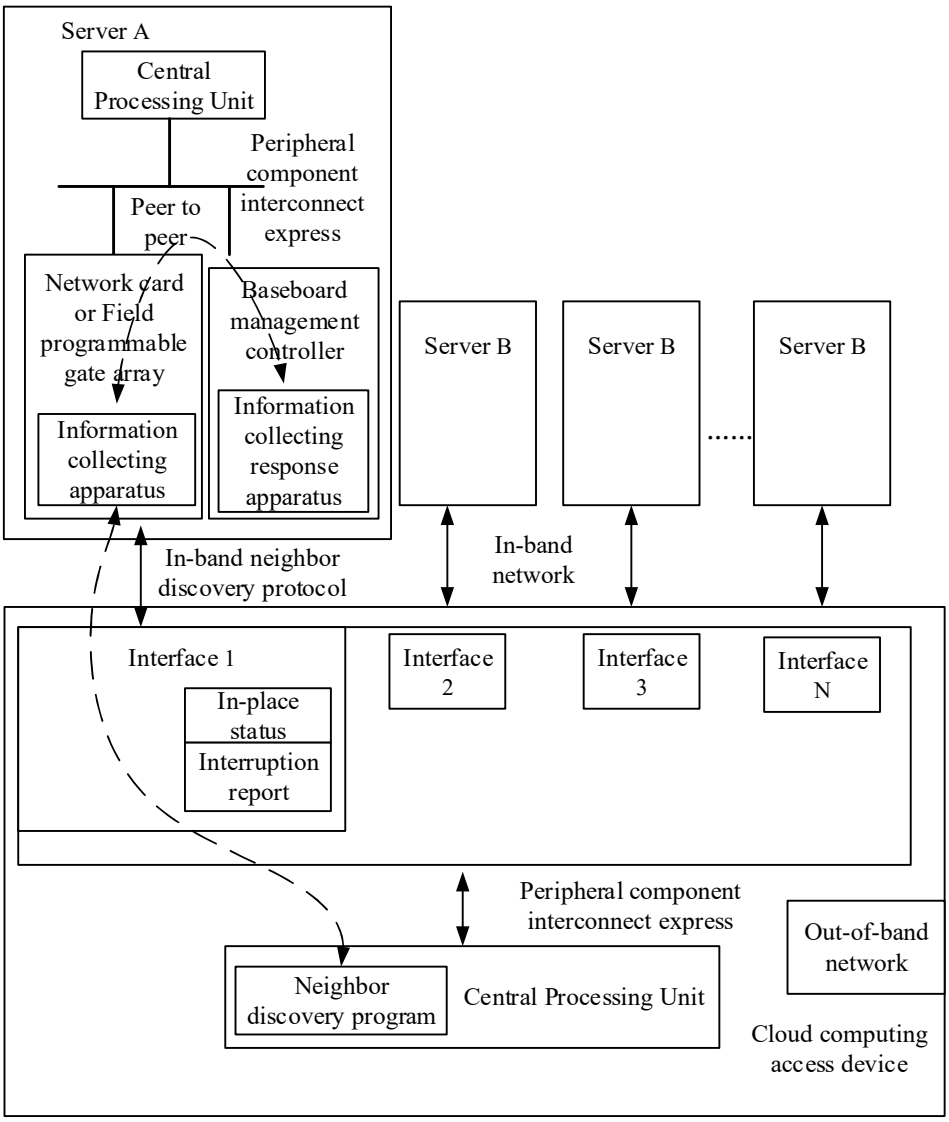

Server A
Central Processing Unit
Peripheral component interconnect express
Peer to peer
Network card or Field programmable gate array
Baseboard management controller
Information collecting apparatus
Information collecting response apparatus
Server B
Server B
Server B
In-band network
In-band neighbor discovery protocol
Interface 1
In-place status
Interruption report
Interface 2
Interface 3
Interface N
Peripheral component interconnect express
Out-of-band network
Neighbor discovery program
Central Processing Unit
Cloud computing access device

Fig. 6

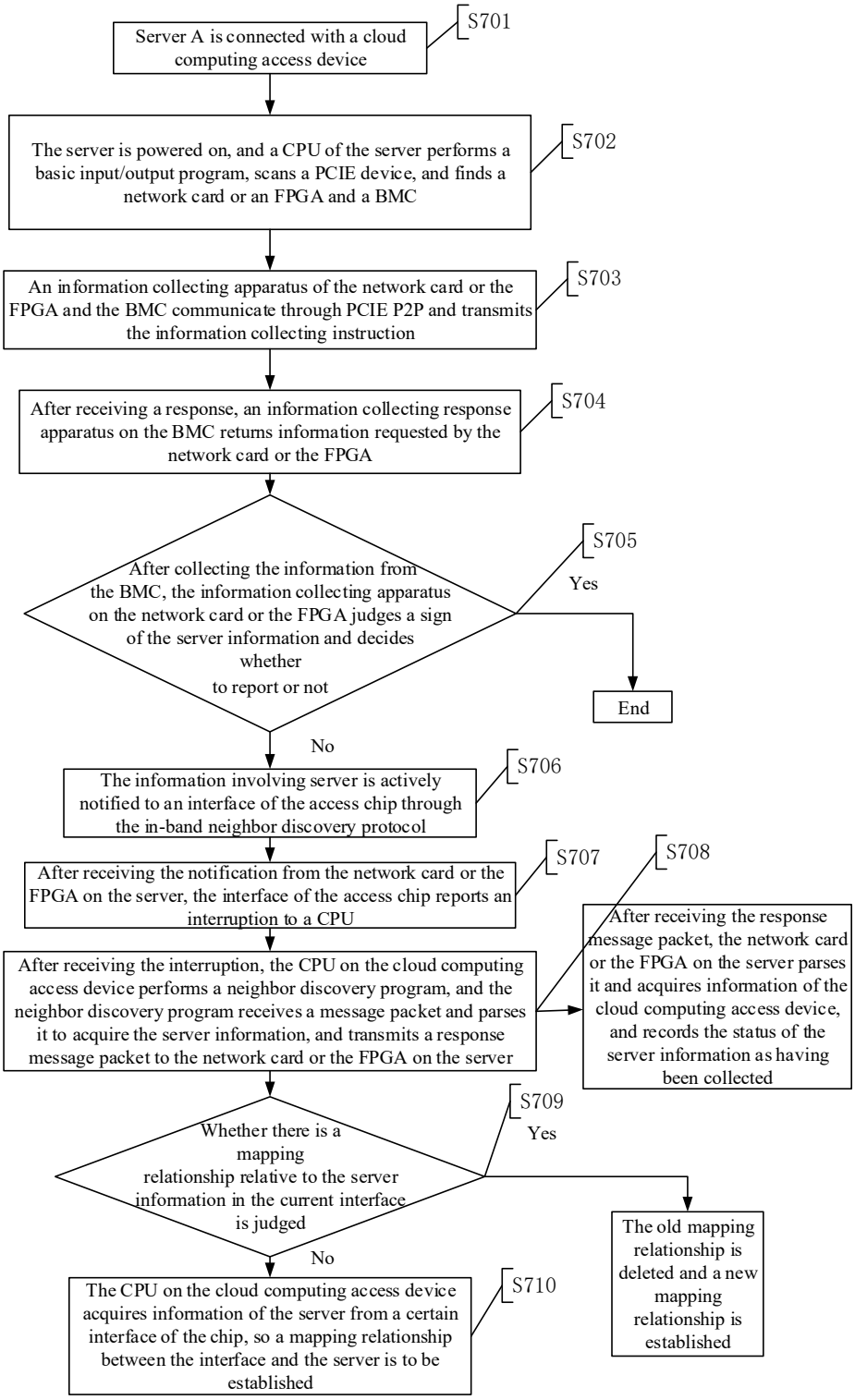

S701
Server A is connected with a cloud computing access device
S702
The server is powered on, and a CPU of the server performs a basic input/output program, scans a PCIE device, and finds a network card or an FPGA and a BMC
S703
An information collecting apparatus of the network card or the FPGA and the BMC communicate through PCIE P2P and transmits the information collecting instruction
S704
After receiving a response, an information collecting response apparatus on the BMC returns information requested by the network card or the FPGA
S705
After collecting the information from the BMC, the information collecting apparatus on the network card or the FPGA judges a sign of the server information and decides whether to report or not
Yes
End
No
S706
The information involving server is actively notified to an interface of the access chip through the in-band neighbor discovery protocol
S707
After receiving the notification from the network card or the FPGA on the server, the interface of the access chip reports an interruption to a CPU
S708
After receiving the interruption, the CPU on the cloud computing access device performs a neighbor discovery program, and the neighbor discovery program receives a message packet and parses it to acquire the server information, and transmits a response message packet to the network card or the FPGA on the server
After receiving the response message packet, the network card or the FPGA on the server parses it and acquires information of the cloud computing access device, and records the status of the server information as having been collected
S709
Whether there is a mapping relationship relative to the server information in the current interface is judged
Yes
The old mapping relationship is deleted and a new mapping relationship is established
No
S710
The CPU on the cloud computing access device acquires information of the server from a certain interface of the chip, so a mapping relationship between the interface and the server is to be established

Fig. 7

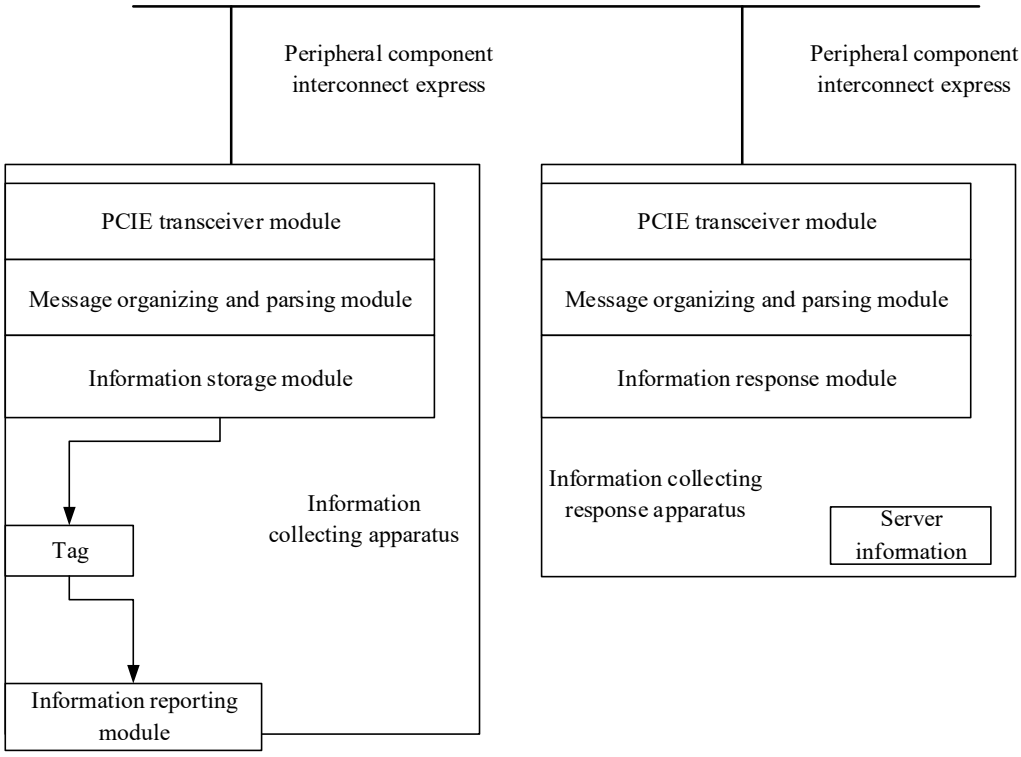

Peripheral component interconnect express
Peripheral component interconnect express
PCIE transceiver module
Message organizing and parsing module
Information storage module
Tag
Information reporting module
Information collecting apparatus
PCIE transceiver module
Message organizing and parsing module
Information response module
Information collecting response apparatus
Server information

Fig. 8

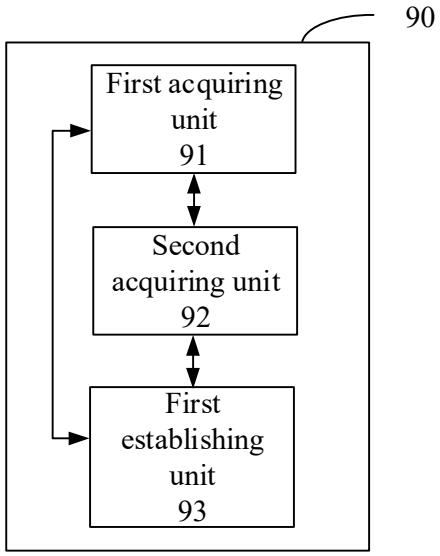

90
First acquiring unit 91
Second acquiring unit 92
First establishing unit 93

Fig. 9

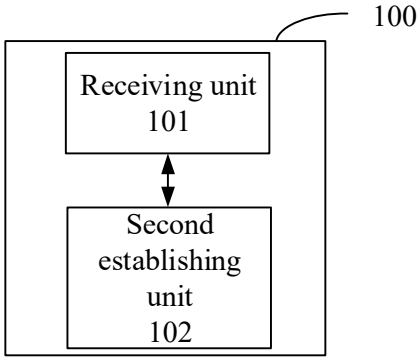

100
Receiving unit 101
Second establishing unit 102

Fig. 10

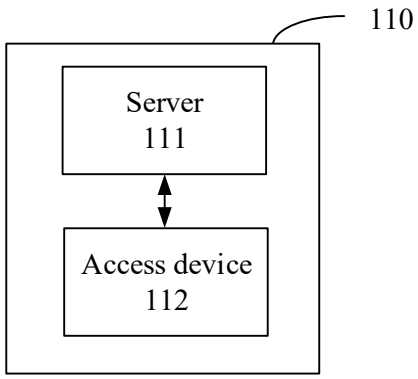

110
Server
111
Access device
112

Fig. 11

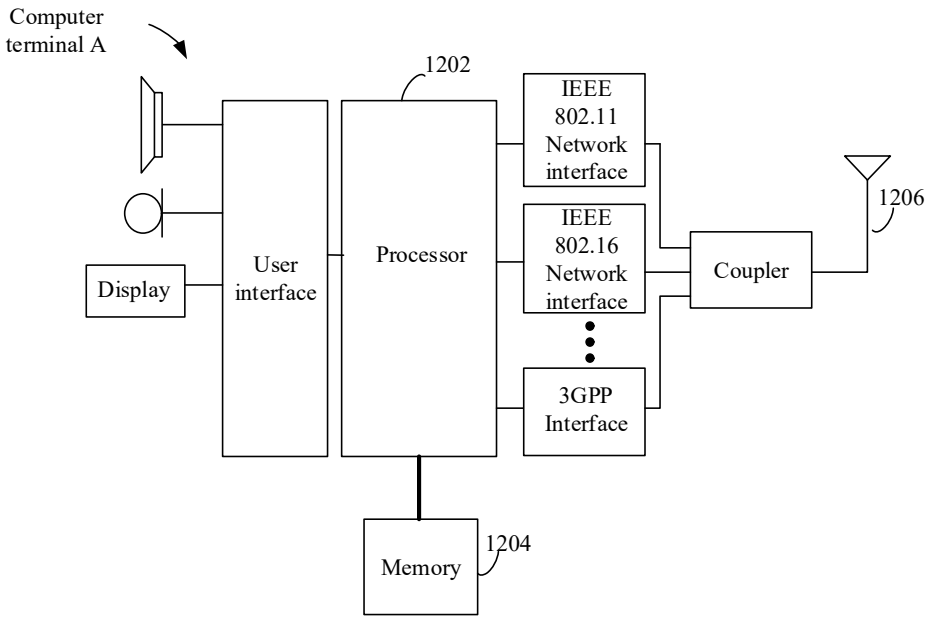

Computer
terminal A
1202
IEEE
802.11
Network
interface
IEEE
802.16
Network
interface
3GPP
Interface
1206
Coupler
Display
User
interface
Processor
Memory
1204

Fig. 12