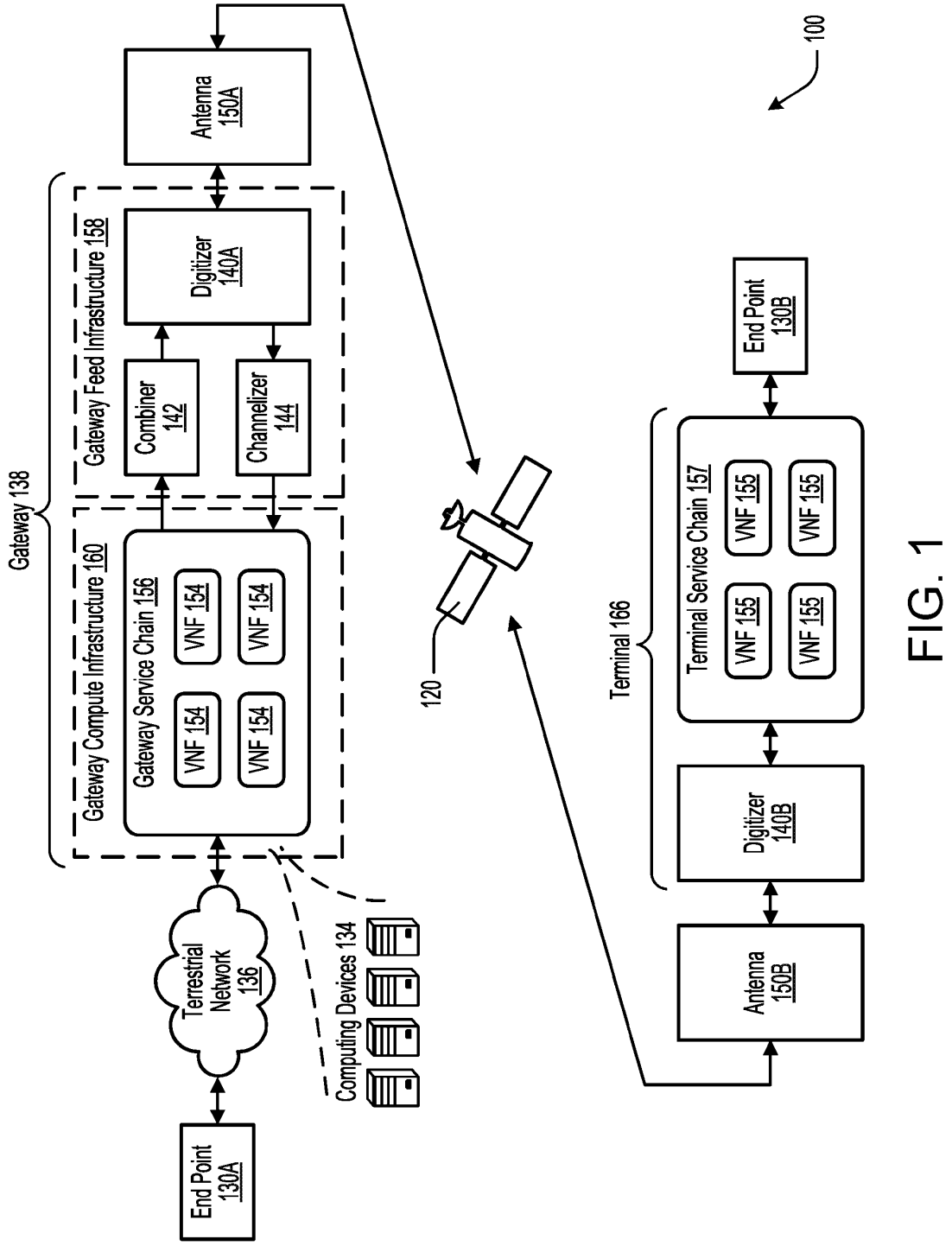

100
Gateway 138
Gateway Compute Infrastructure 160
Gateway Feed Infrastructure 158
Gateway Service Chain 156
VNF 154
VNF 154
VNF 154
VNF 154
Combiner 142
Channelizer 144
Digitizer 140A
Antenna 150A
Terrestrial Network 136
End Point 130A
Computing Devices 134
120
Terminal 166
Terminal Service Chain 157
VNF 155
VNF 155
VNF 155
VNF 155
Digitizer 140B
Antenna 150B
End Point 130B

FIG. 1

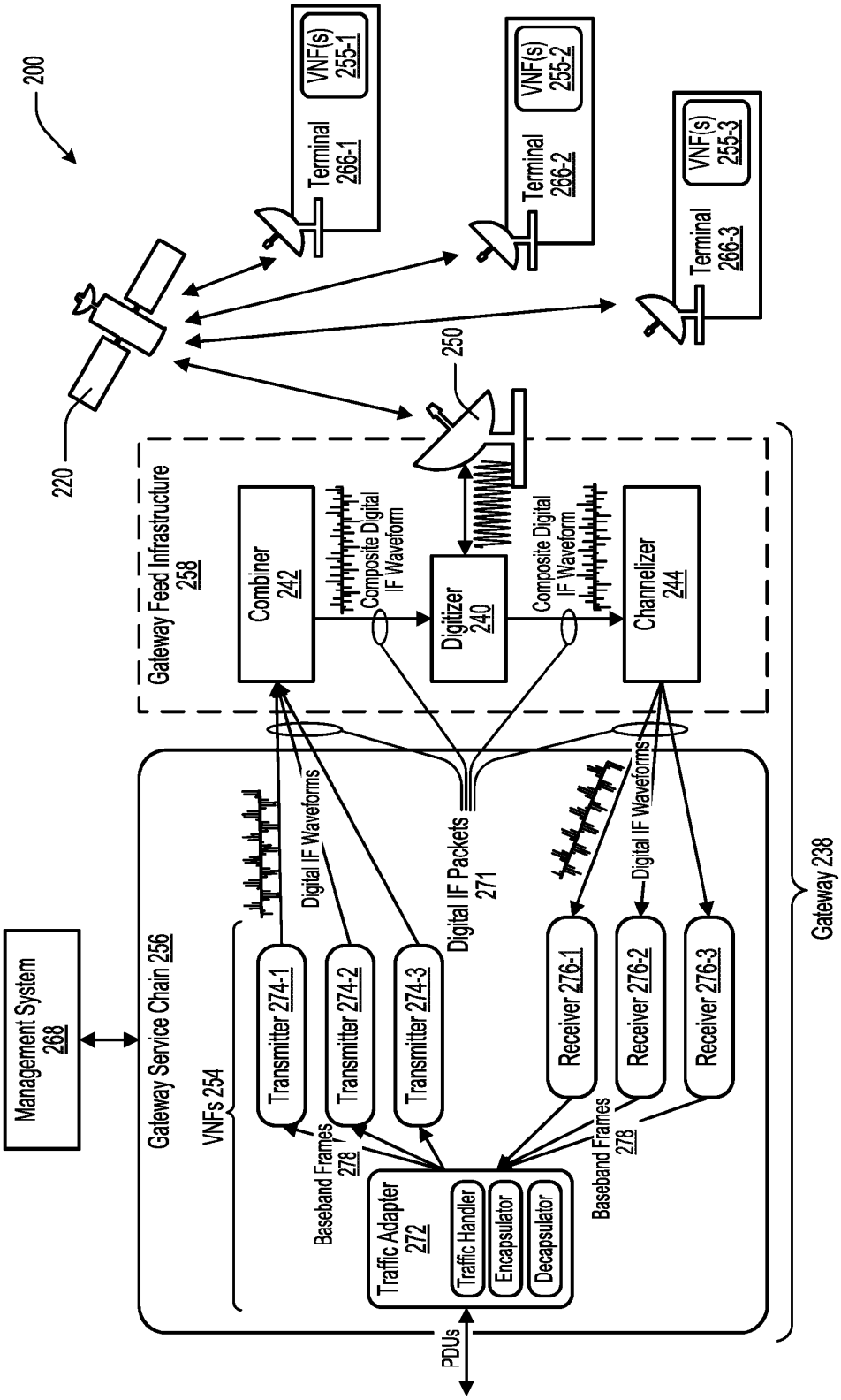

200
Terminal 266-1
VNF(s) 255-1
Terminal 266-2
VNF(s) 255-2
Terminal 266-3
VNF(s) 255-3
220
250
Gateway Feed Infrastructure 258
Combiner 242
Composite Digital IF Waveform
Digitizer 240
Composite Digital IF Waveform
Channelizer 244
Digital IF Packets 271
Digital IF Waveforms
Digital IF Waveforms
Management System 268
Gateway Service Chain 256
VNFs 254
Transmitter 274-1
Transmitter 274-2
Transmitter 274-3
Receiver 276-1
Receiver 276-2
Receiver 276-3
Baseband Frames 278
Baseband Frames 278
Traffic Adapter 272
Traffic Handler
Encapsulator
Decapsulator
PDUs
Gateway 238

FIG. 2

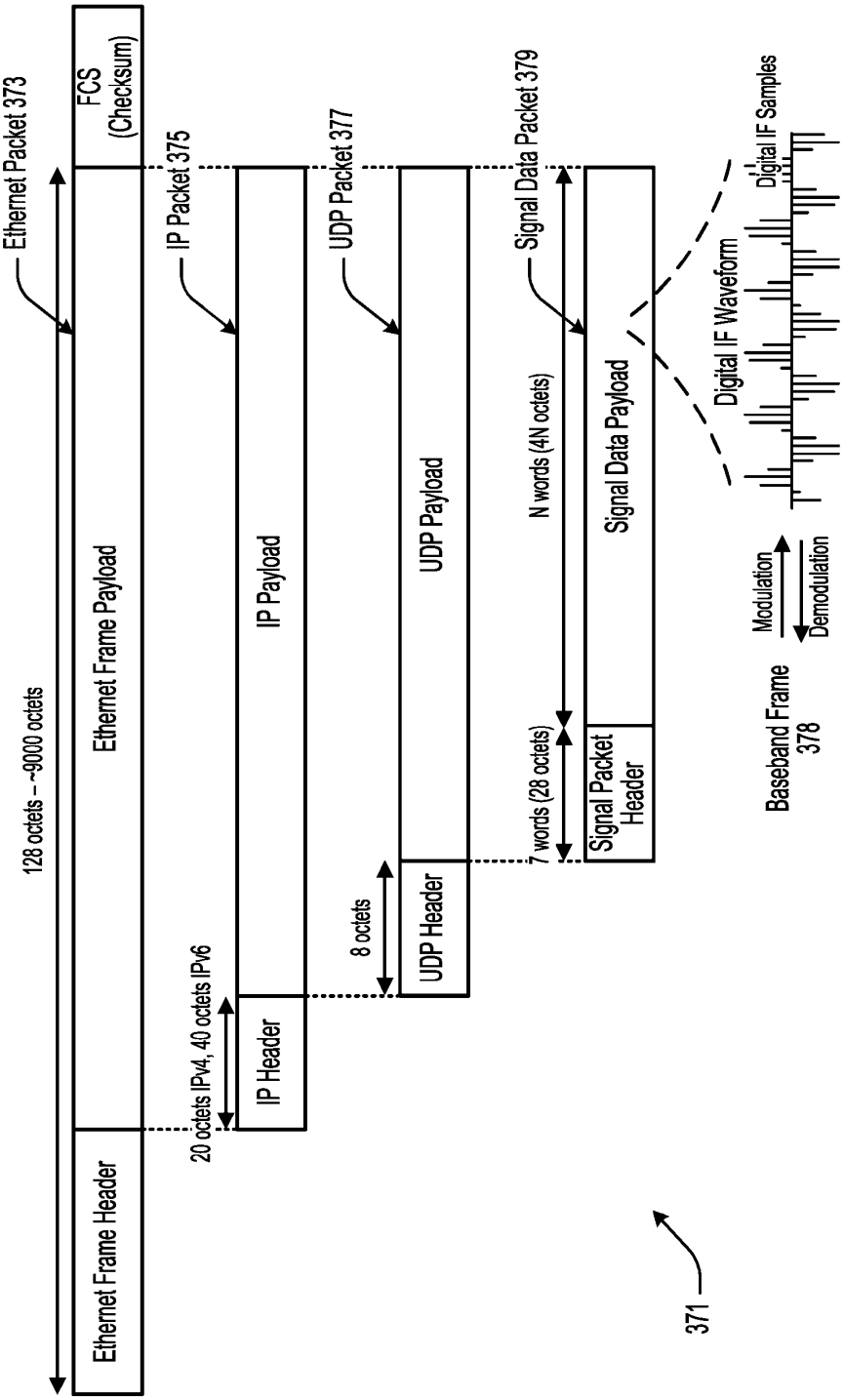

Ethernet Packet 373
FCS (Checksum)
IP Packet 375
UDP Packet 377
Signal Data Packet 379
Digital IF Samples
Digital IF Waveform
128 octets – ~9000 octets
Ethernet Frame Payload
IP Payload
UDP Payload
N words (4N octets)
Signal Data Payload
Modulation
Demodulation
Ethernet Frame Header
20 octets IPv4, 40 octets IPv6
IP Header
8 octets
UDP Header
7 words (28 octets)
Signal Packet Header
Baseband Frame 378
371

FIG. 3

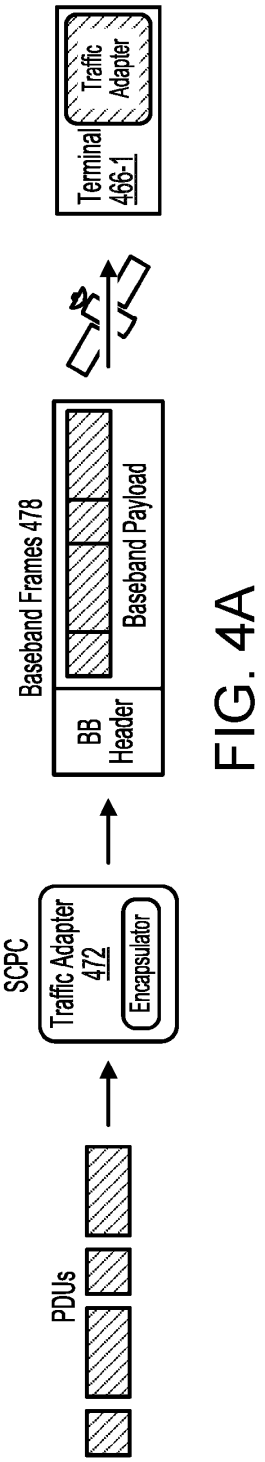


FIG. 4A

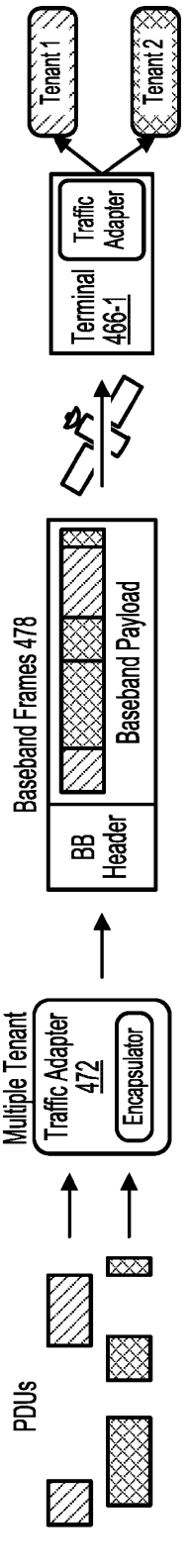


FIG. 4B

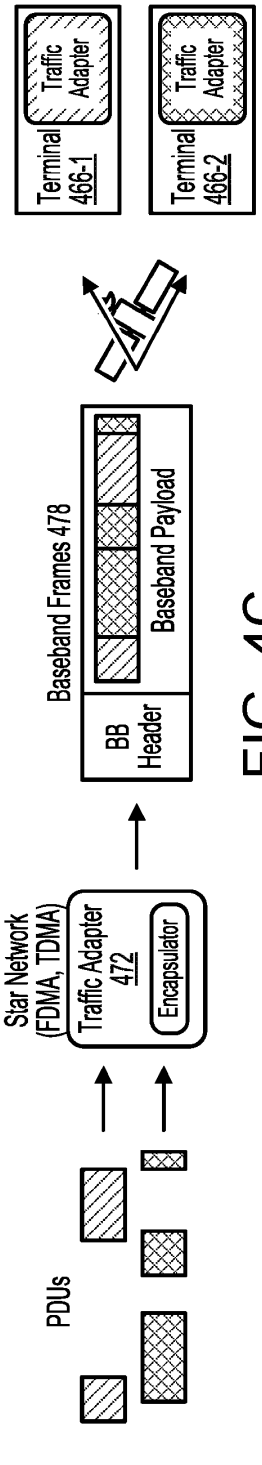


FIG. 4C

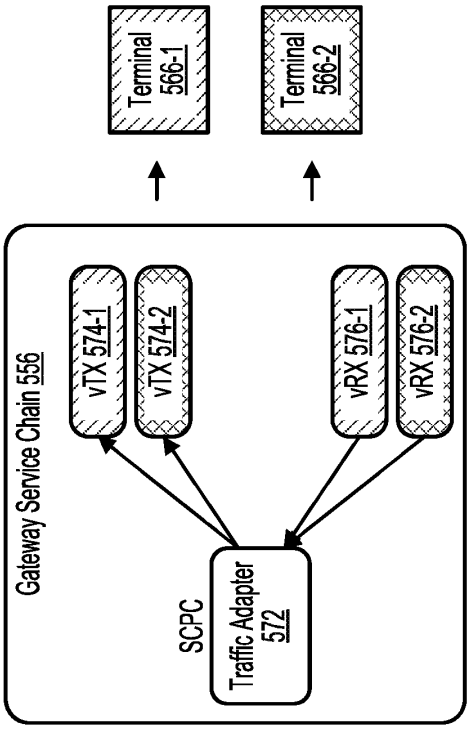


FIG. 5B

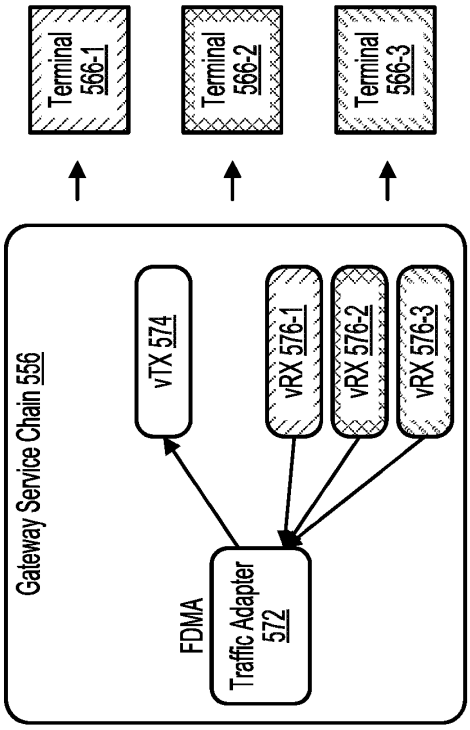


FIG. 5D

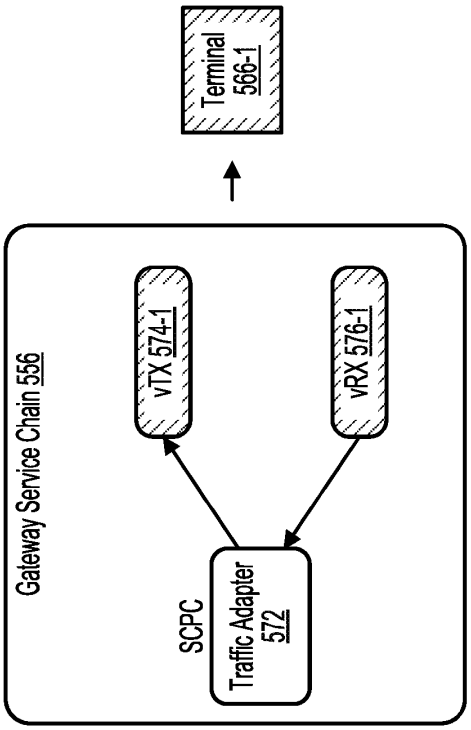


FIG. 5A

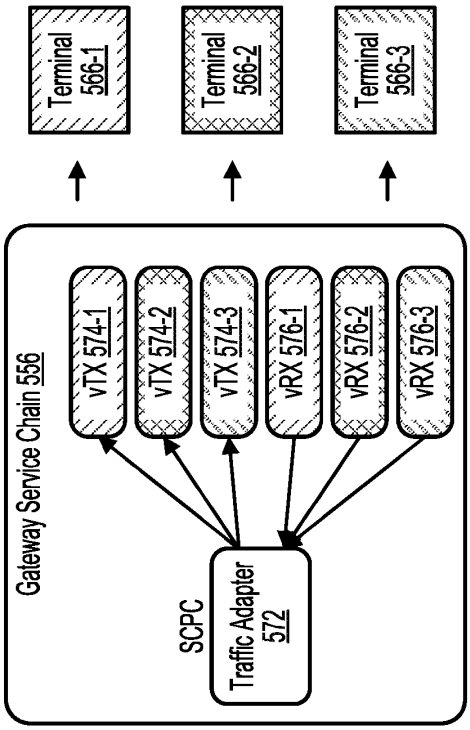


FIG. 5C

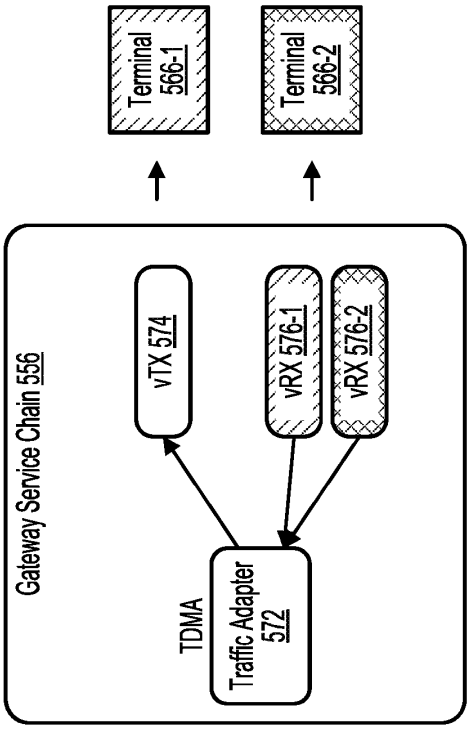


FIG. 5F

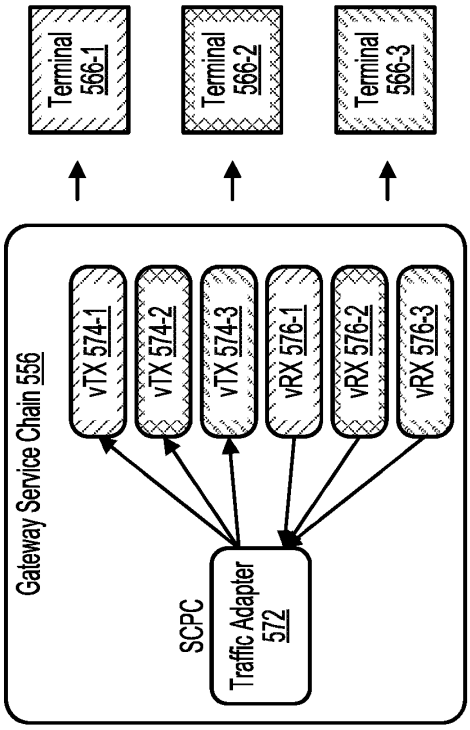


FIG. 5H

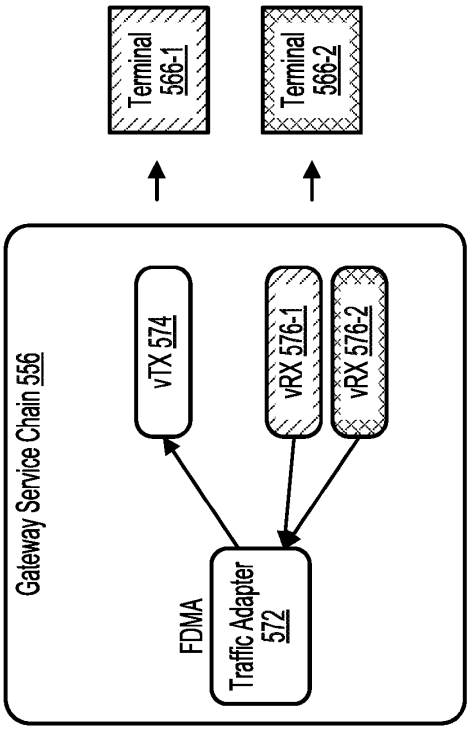


FIG. 5E

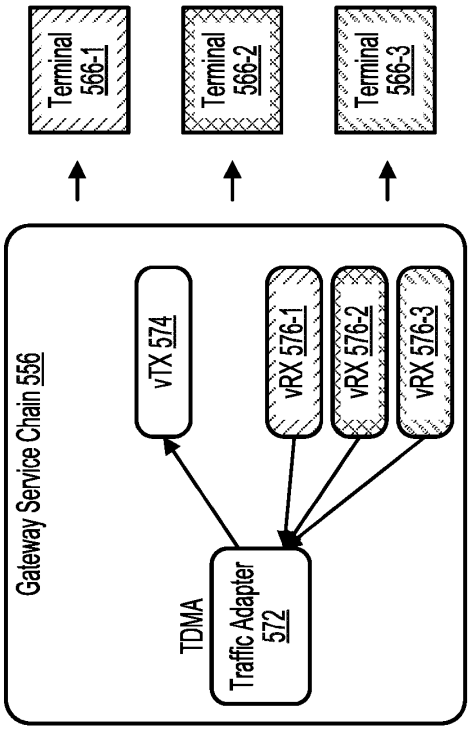


FIG. 5G

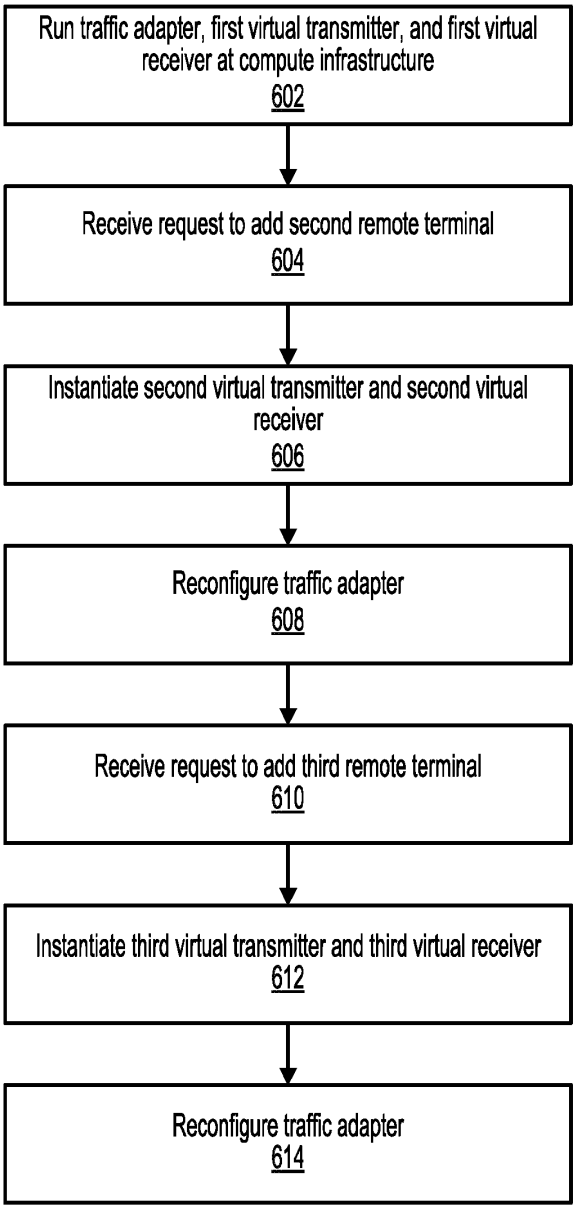

Run traffic adapter, first virtual transmitter, and first virtual receiver at compute infrastructure
602
Receive request to add second remote terminal
604
Instantiate second virtual transmitter and second virtual receiver
606
Reconfigure traffic adapter
608
Receive request to add third remote terminal
610
Instantiate third virtual transmitter and third virtual receiver
612
Reconfigure traffic adapter
614
600

FIG. 6

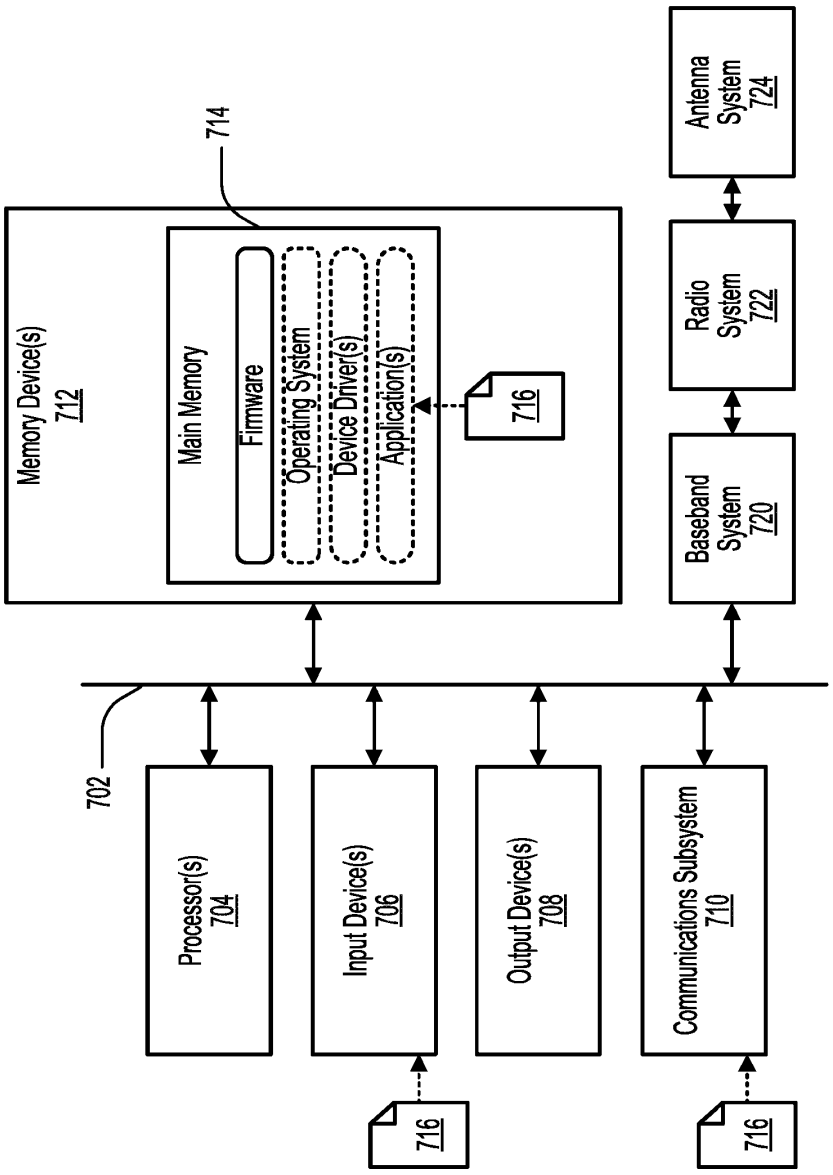

Memory Device(s)
712
714
Main Memory
Firmware
Operating System
Device Driver(s)
Application(s)
716
Antenna System
724
Radio System
722
Baseband System
720
702
Processor(s)
704
Input Device(s)
706
Output Device(s)
708
Communications Subsystem
710
716
716
700

FIG. 7