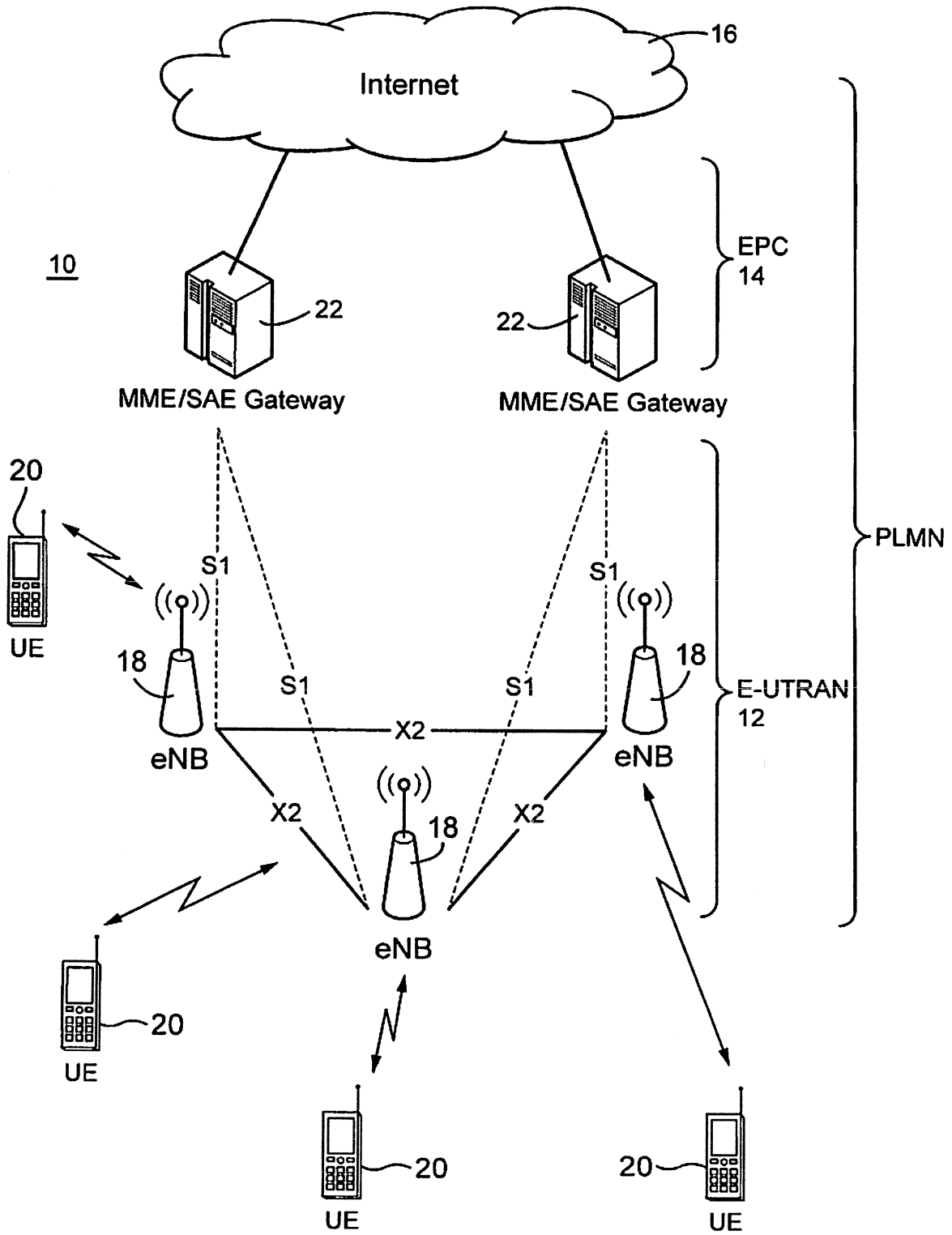
16
Internet
10
EPC
14
22
22
MME/SAE Gateway
MME/SAE Gateway
20
PLMN
S1
S1
UE
18
S1
S1
18
E-UTRAN
12
X2
eNB
eNB
X2
X2
18
eNB
20
UE
20
20
UE
UE

Figure 1

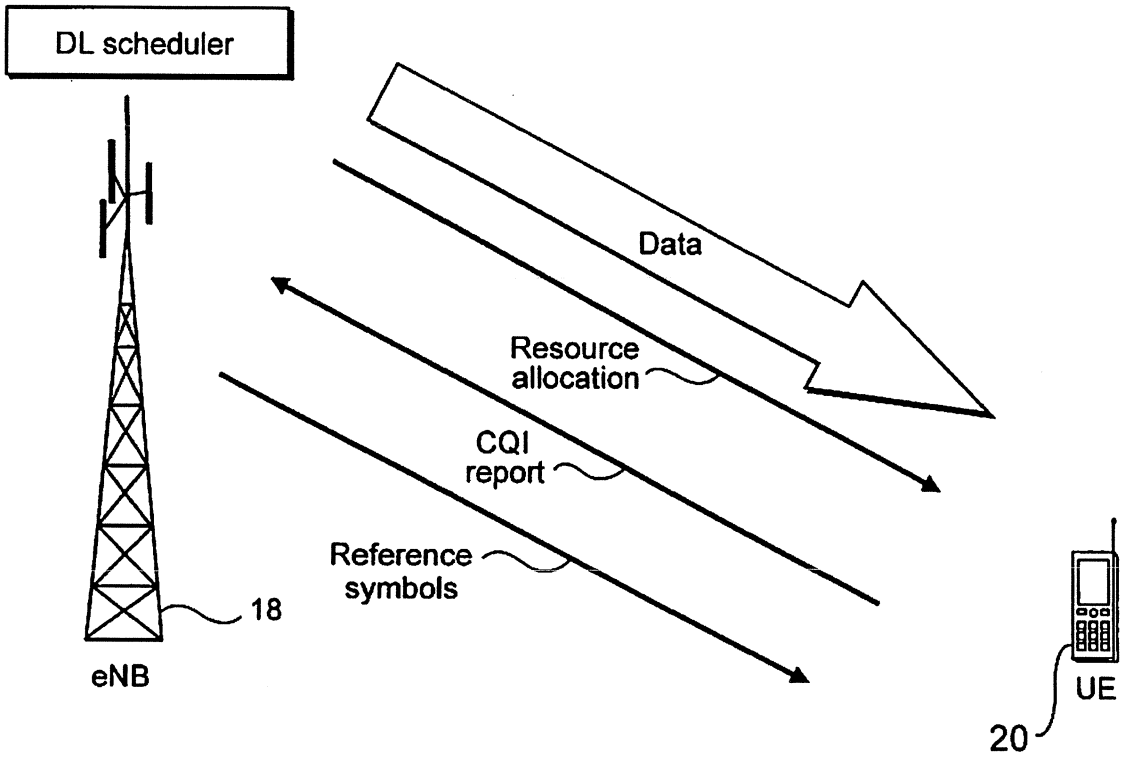

Figure 2

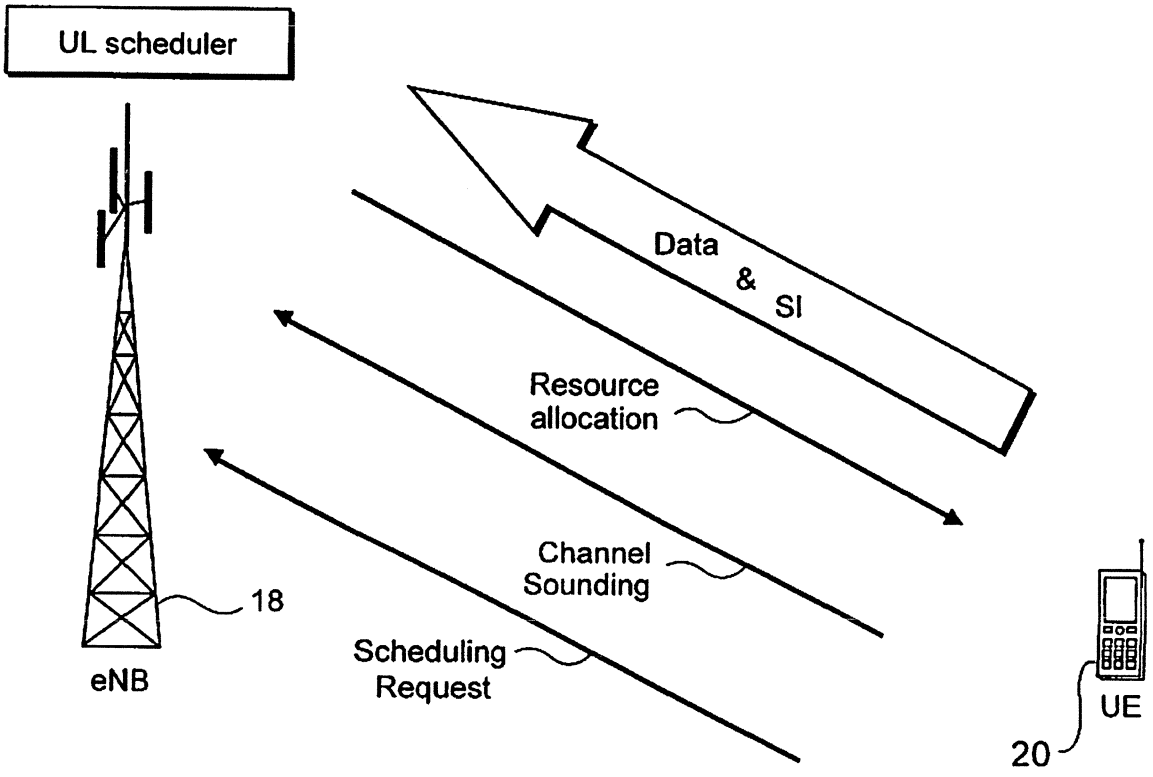

Figure 3

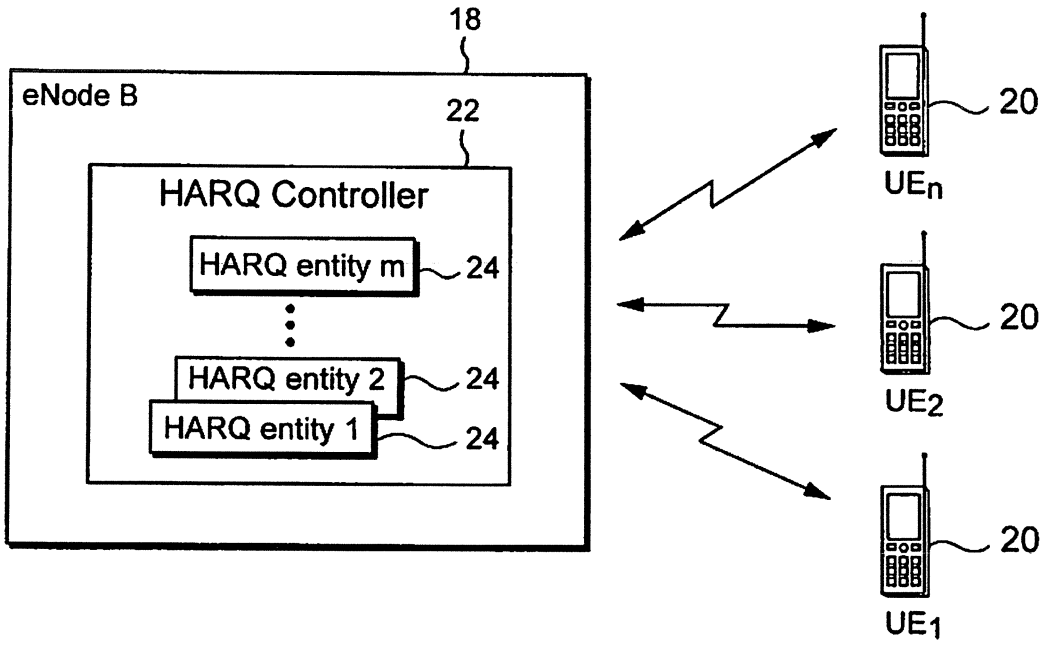

Figure 4

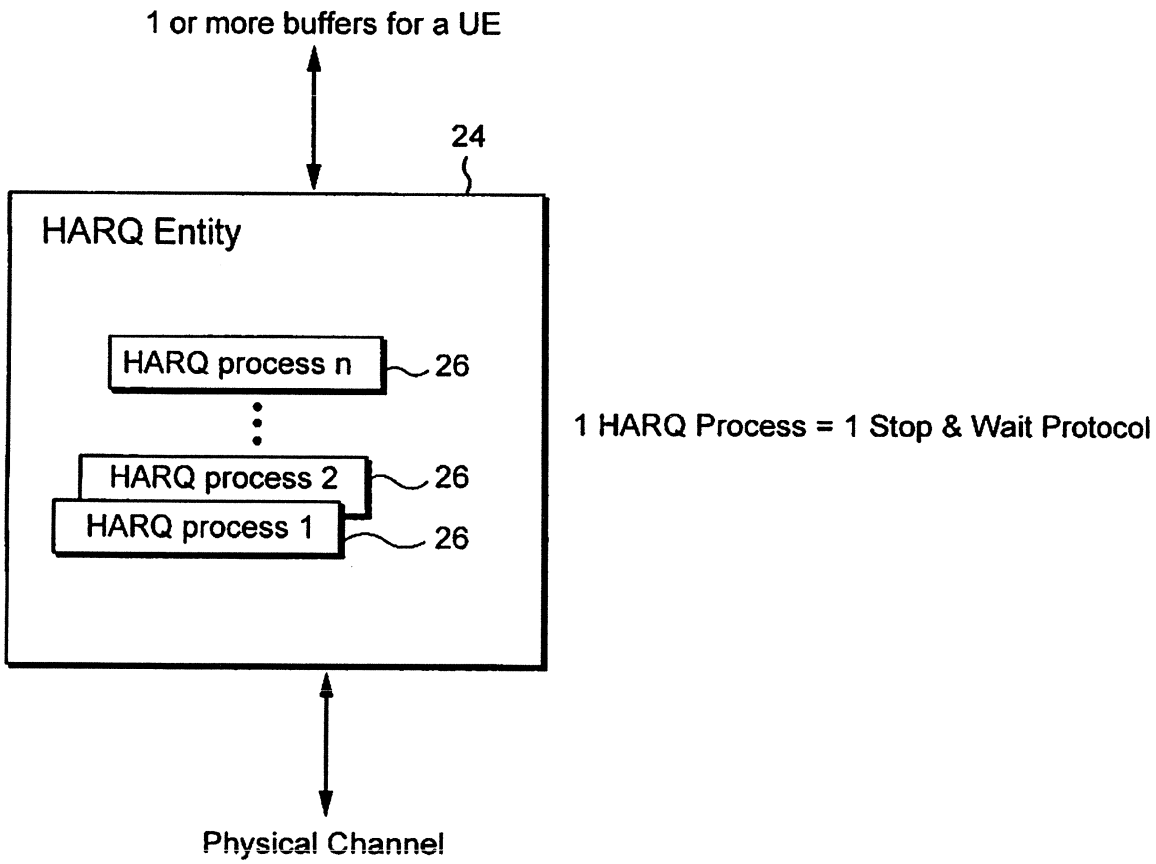

Figure 5

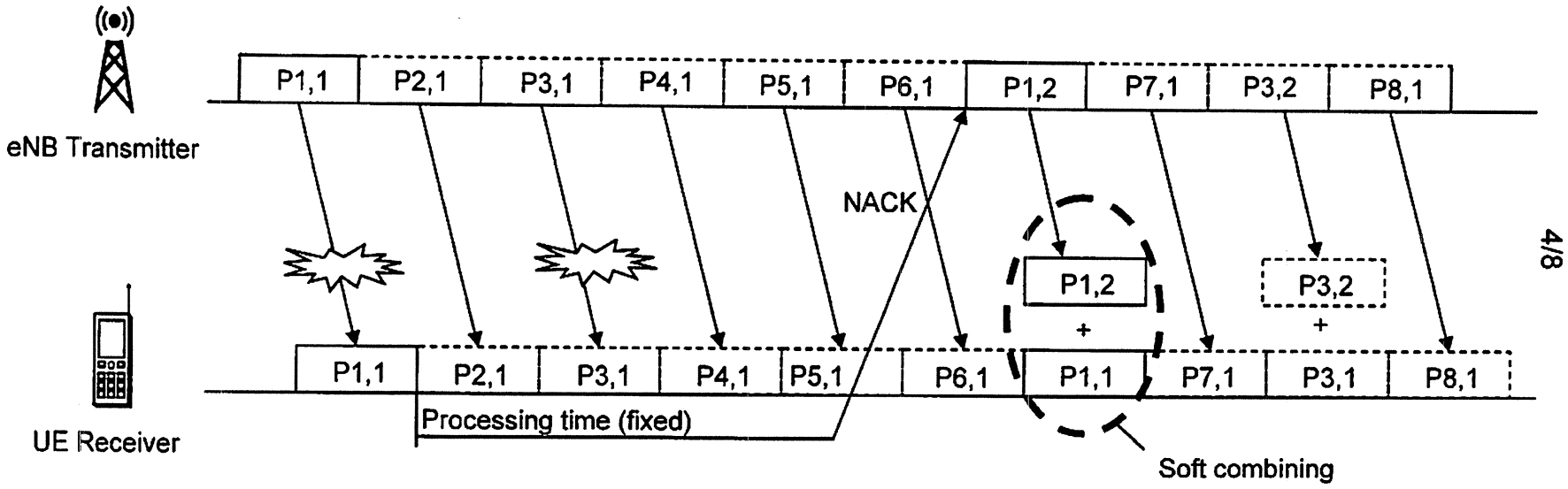
eNB Transmitter
UE Receiver
P1,1
P2,1
P3,1
P4,1
P5,1
P6,1
P1,2
P7,1
P3,2
P8,1
NACK
P1,2
+
P3,2
+
P1,1
P2,1
P3,1
P4,1
P5,1
P6,1
P1,1
P7,1
P3,1
P8,1
Processing time (fixed)
Soft combining
4/8

Figure 6

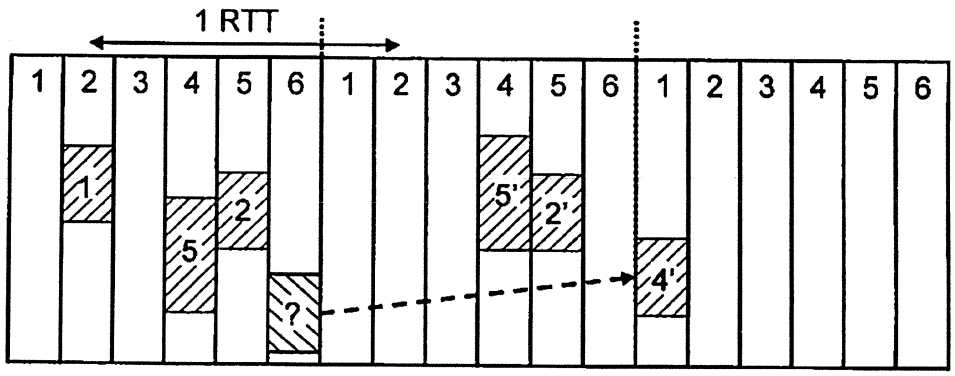

Figure 7

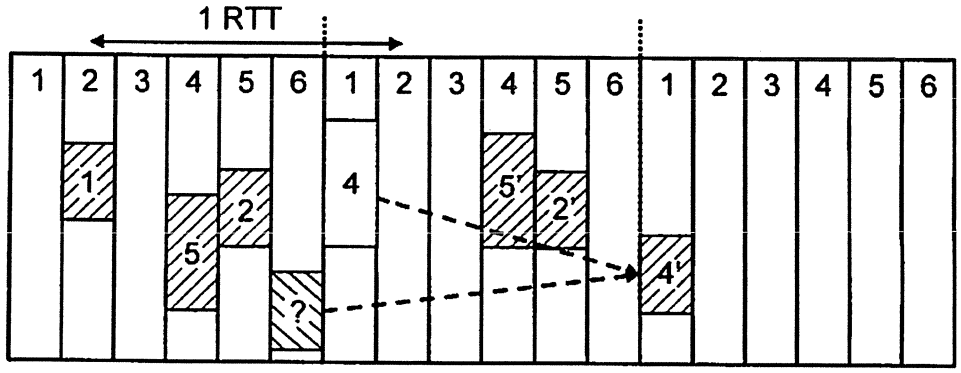

Figure 8

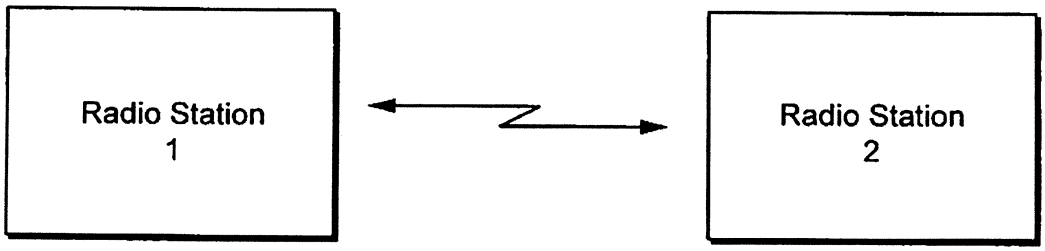

Figure 9

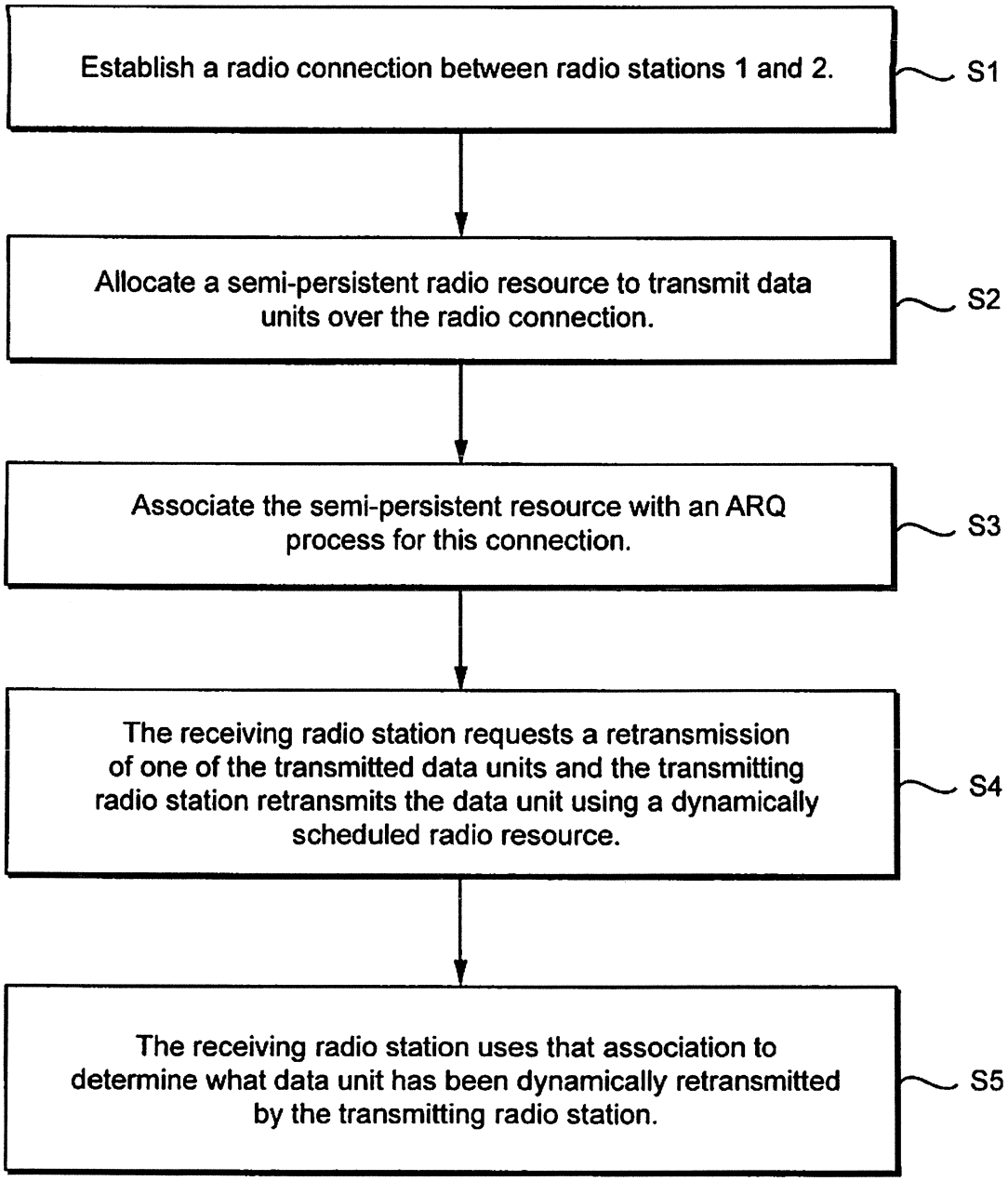
Establish a radio connection between radio stations 1 and 2.
S1
Allocate a semi-persistent radio resource to transmit data units over the radio connection.
S2
Associate the semi-persistent resource with an ARQ process for this connection.
S3
The receiving radio station requests a retransmission of one of the transmitted data units and the transmitting radio station retransmits the data unit using a dynamically scheduled radio resource.
S4
The receiving radio station uses that association to determine what data unit has been dynamically retransmitted by the transmitting radio station.
S5

Figure 10

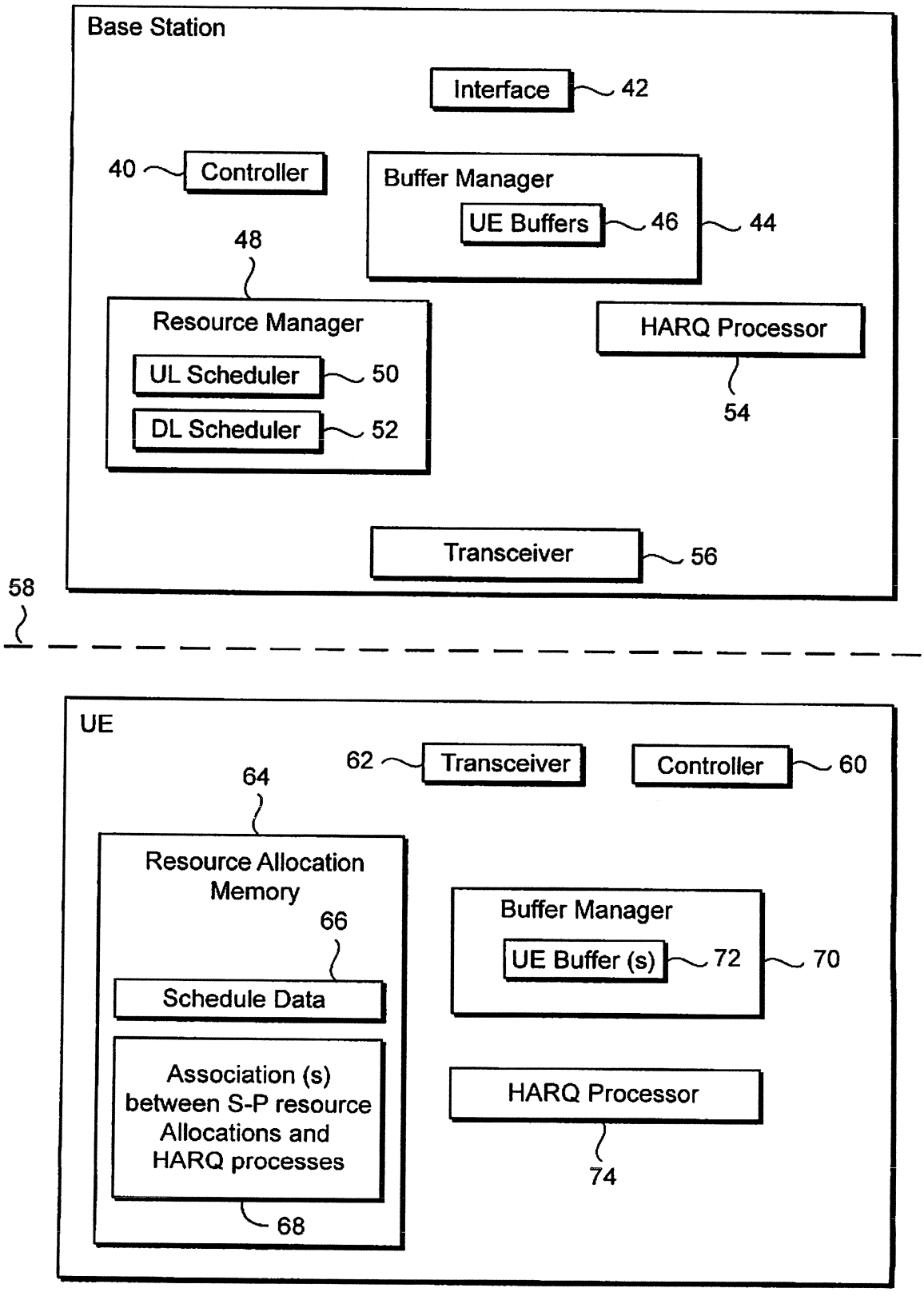
Base Station
Interface
42
40
Controller
Buffer Manager
UE Buffers
46
44
48
Resource Manager
UL Scheduler
50
DL Scheduler
52
HARQ Processor
54
Transceiver
56
58
UE
62
Transceiver
Controller
60
64
Resource Allocation Memory
66
Schedule Data
Association (s) between S-P resource Allocations and HARQ processes
68
Buffer Manager
UE Buffer (s)
72
70
HARQ Processor
74

Figure 11

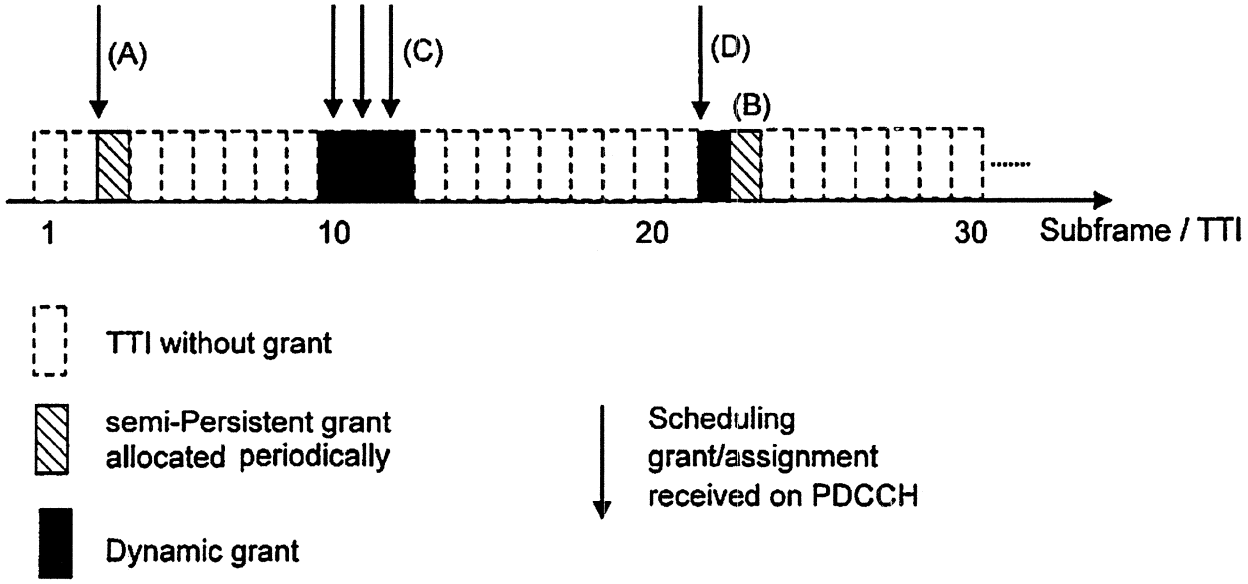
(A)
(C)
(D)
(B)
1
10
20
30
Subframe / TTI
TTI without grant
semi-Persistent grant allocated periodically
Dynamic grant
Scheduling grant/assignment received on PDCCH

Figure 12