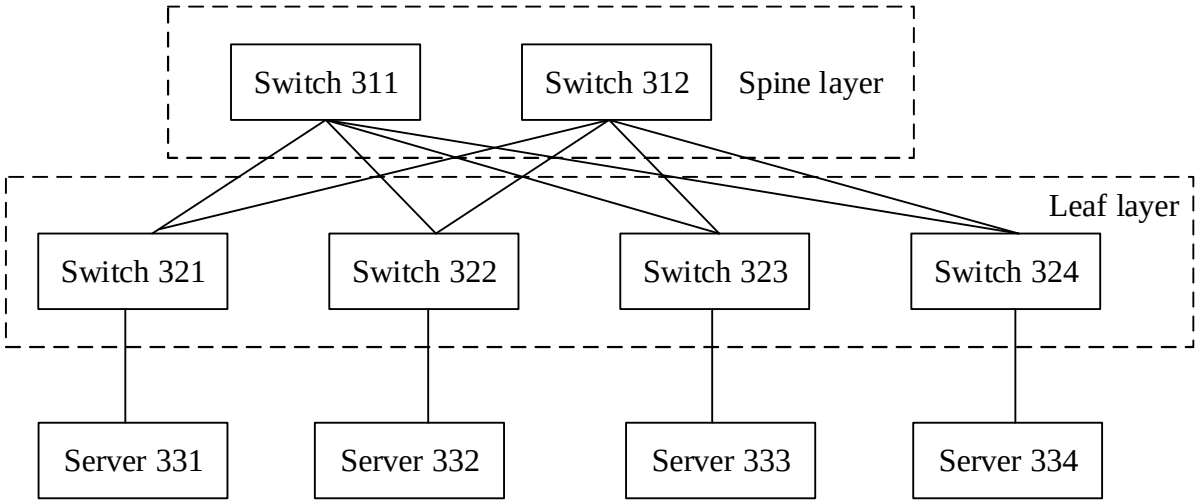

Switch 311
Switch 312
Spine layer
Leaf layer
Switch 321
Switch 322
Switch 323
Switch 324
Server 331
Server 332
Server 333
Server 334

FIG. 3

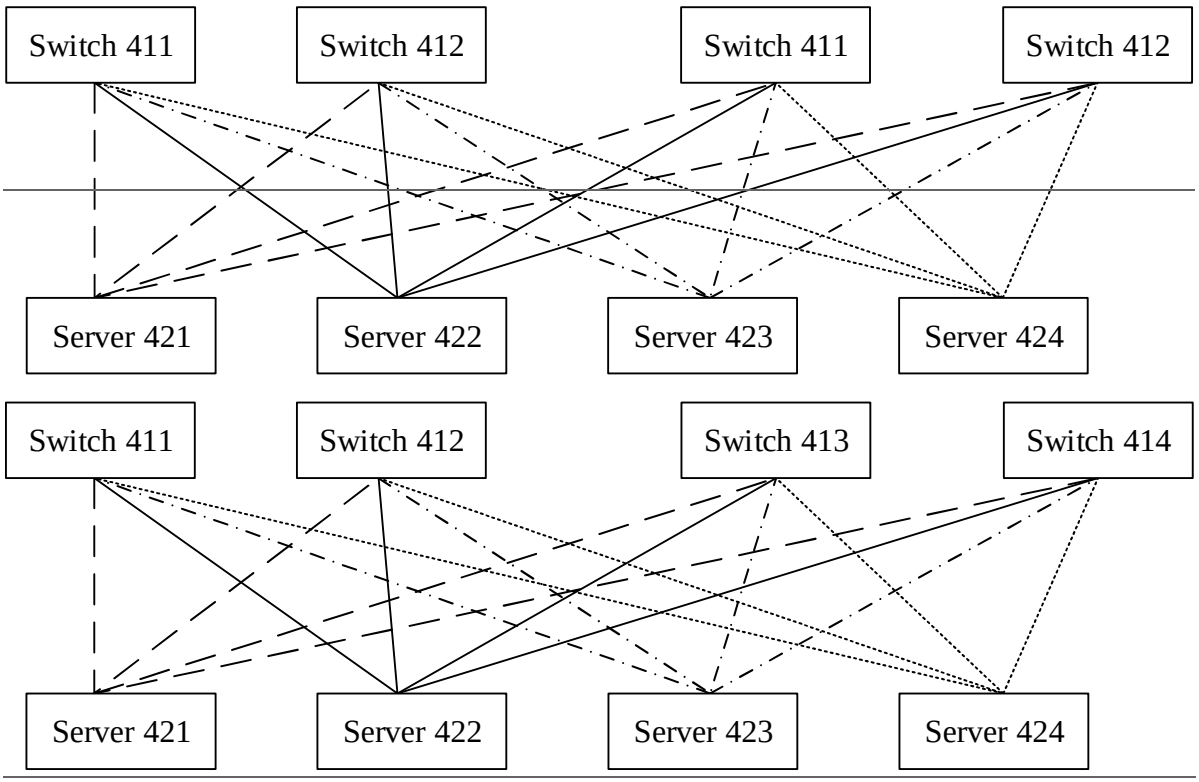
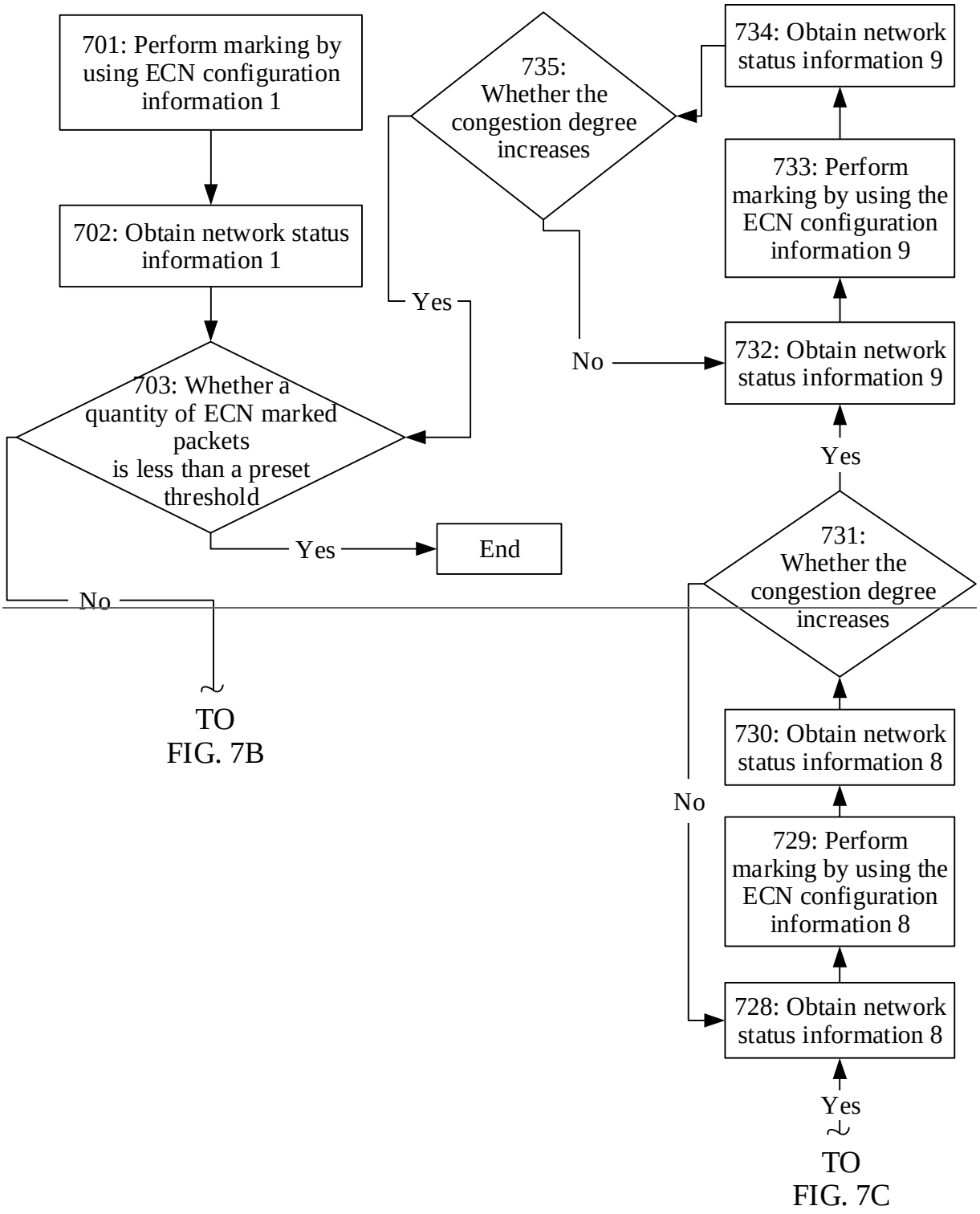

Switch 411
Switch 412
Switch 411
Switch 412
Server 421
Server 422
Server 423
Server 424
Switch 411
Switch 412
Switch 413
Switch 414
Server 421
Server 422
Server 423
Server 424

FIG. 4


701: Perform marking by using ECN configuration information 1
702: Obtain network status information 1
703: Whether a quantity of ECN marked packets is less than a preset threshold
Yes
End
No
TO FIG. 7B
735: Whether the congestion degree increases
Yes
734: Obtain network status information 9
733: Perform marking by using the ECN configuration information 9
No
732: Obtain network status information 9
731: Whether the congestion degree increases
Yes
730: Obtain network status information 8
729: Perform marking by using the ECN configuration information 8
No
728: Obtain network status information 8
Yes
TO FIG. 7C

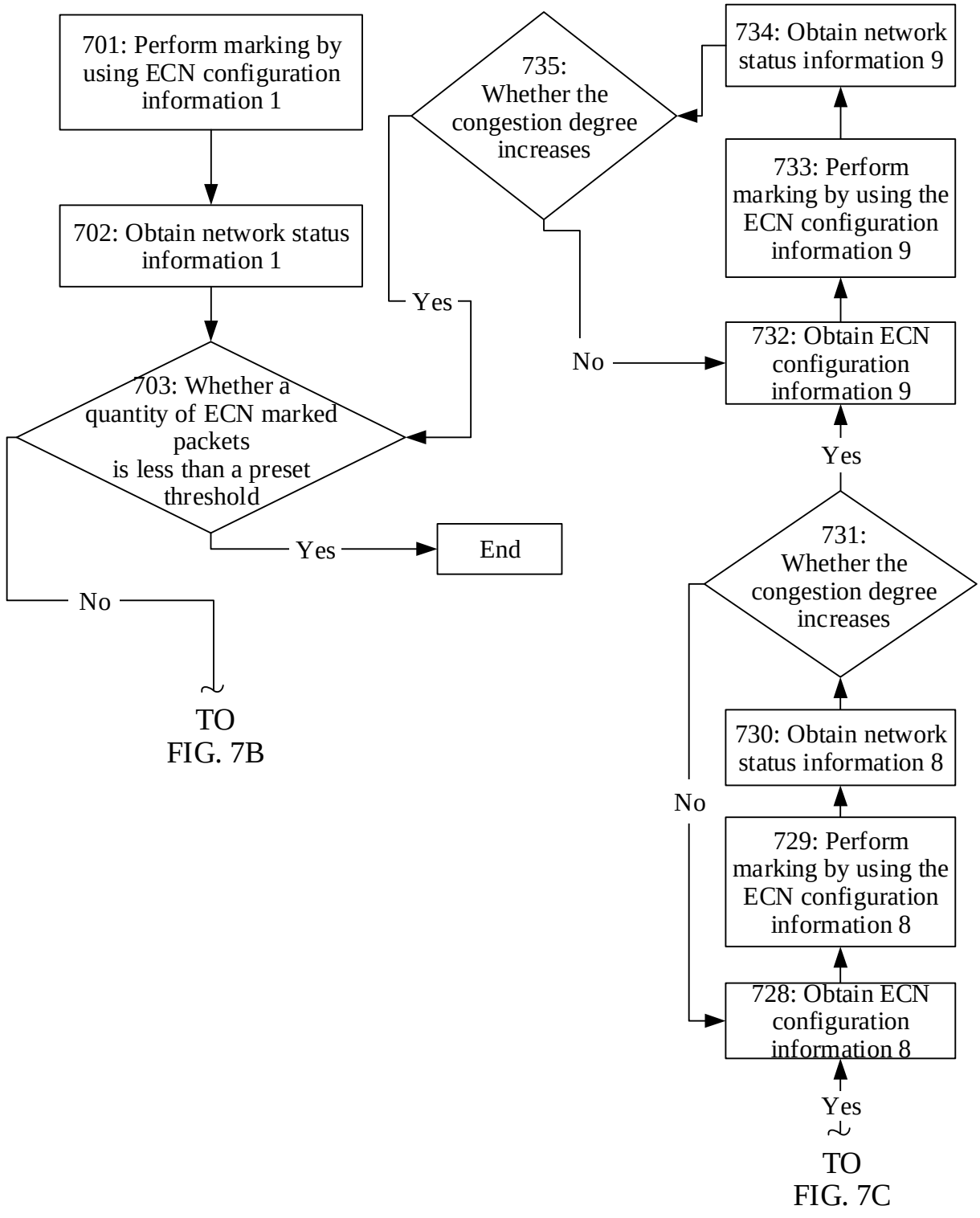
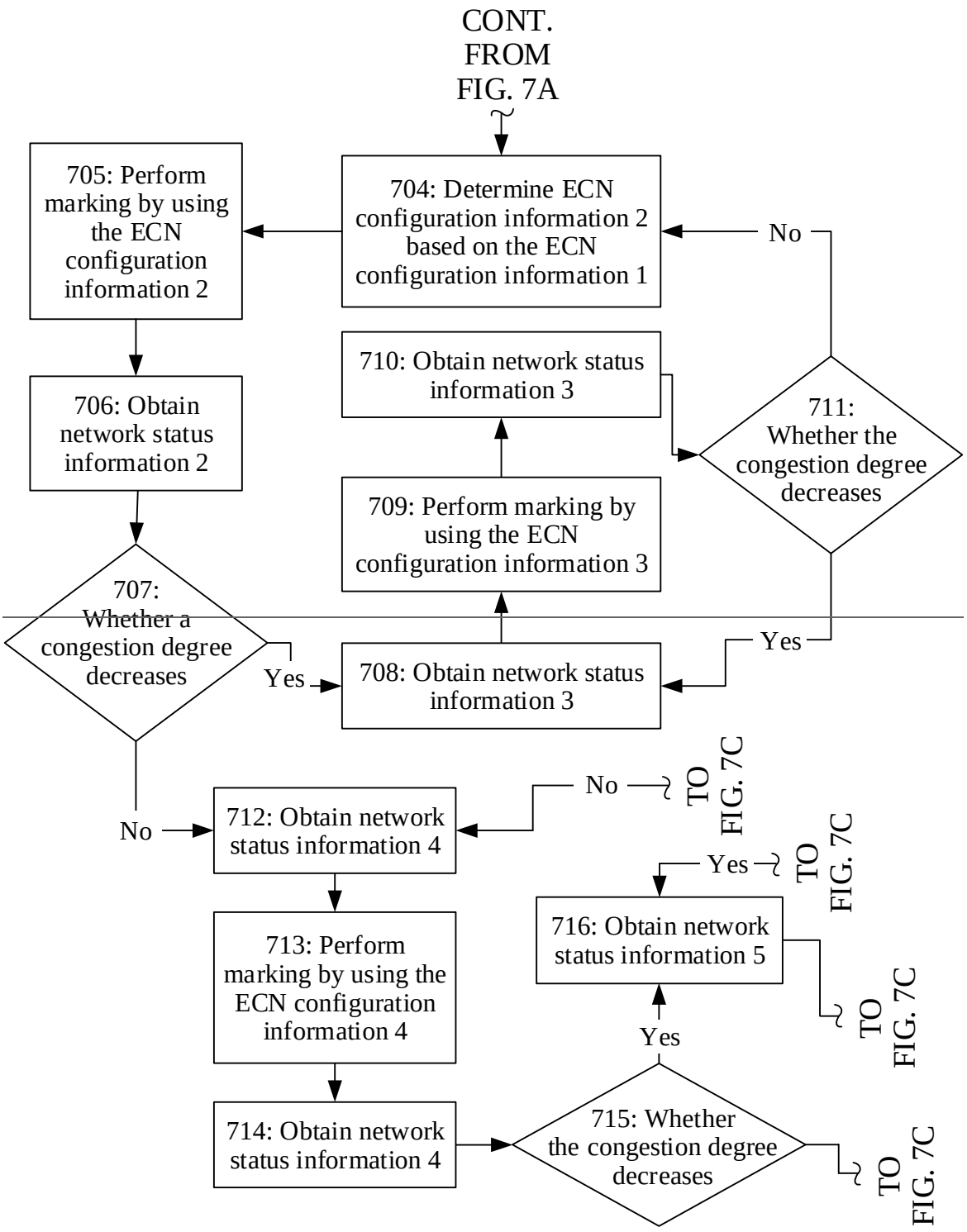

701: Perform marking by using ECN configuration information 1
702: Obtain network status information 1
703: Whether a quantity of ECN marked packets is less than a preset threshold
Yes
End
No
TO FIG. 7B
735: Whether the congestion degree increases
Yes
734: Obtain network status information 9
733: Perform marking by using the ECN configuration information 9
No
732: Obtain ECN configuration information 9
Yes
731: Whether the congestion degree increases
No
730: Obtain network status information 8
729: Perform marking by using the ECN configuration information 8
728: Obtain ECN configuration information 8
Yes
TO FIG. 7C

FIG. 7A


CONT. FROM FIG. 7A
704: Determine ECN configuration information 2 based on the ECN configuration information 1
705: Perform marking by using the ECN configuration information 2
706: Obtain network status information 2
707: Whether a congestion degree decreases
708: Obtain network status information 3
709: Perform marking by using the ECN configuration information 3
710: Obtain network status information 3
711: Whether the congestion degree decreases
712: Obtain network status information 4
713: Perform marking by using the ECN configuration information 4
714: Obtain network status information 4
715: Whether the congestion degree decreases
716: Obtain network status information 5
Yes
No
TO FIG. 7C

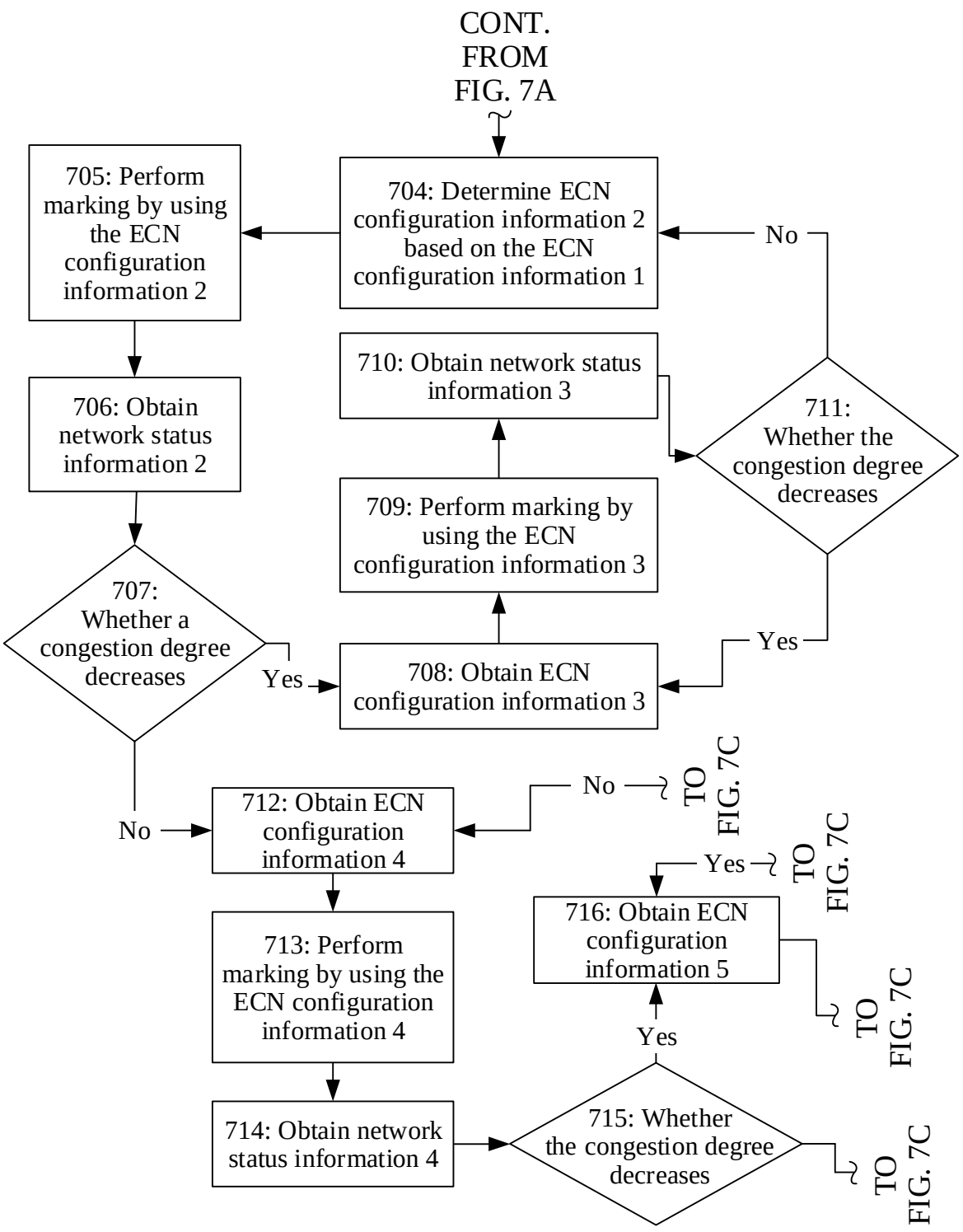
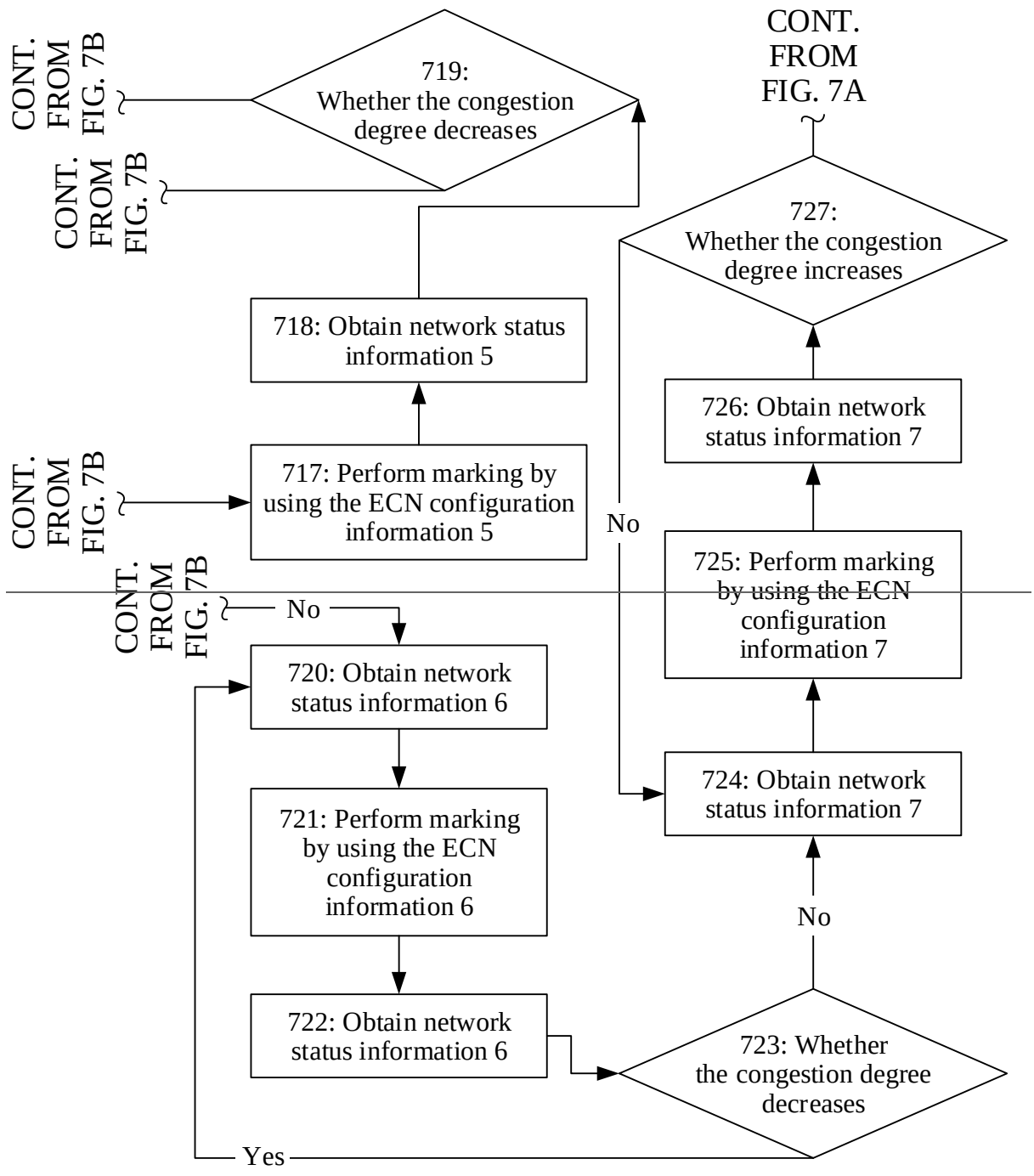

CONT. FROM FIG. 7A
704: Determine ECN configuration information 2 based on the ECN configuration information 1
705: Perform marking by using the ECN configuration information 2
706: Obtain network status information 2
707: Whether a congestion degree decreases
708: Obtain ECN configuration information 3
709: Perform marking by using the ECN configuration information 3
710: Obtain network status information 3
711: Whether the congestion degree decreases
712: Obtain ECN configuration information 4
713: Perform marking by using the ECN configuration information 4
714: Obtain network status information 4
715: Whether the congestion degree decreases
716: Obtain ECN configuration information 5
No
Yes
TO FIG. 7C

FIG. 7B


CONT. FROM FIG. 7B
719: Whether the congestion degree decreases
CONT. FROM FIG. 7B
CONT. FROM FIG. 7A
727: Whether the congestion degree increases
718: Obtain network status information 5
726: Obtain network status information 7
CONT. FROM FIG. 7B
717: Perform marking by using the ECN configuration information 5
No
725: Perform marking by using the ECN configuration information 7
CONT. FROM FIG. 7B
No
720: Obtain network status information 6
724: Obtain network status information 7
721: Perform marking by using the ECN configuration information 6
No
722: Obtain network status information 6
723: Whether the congestion degree decreases
Yes

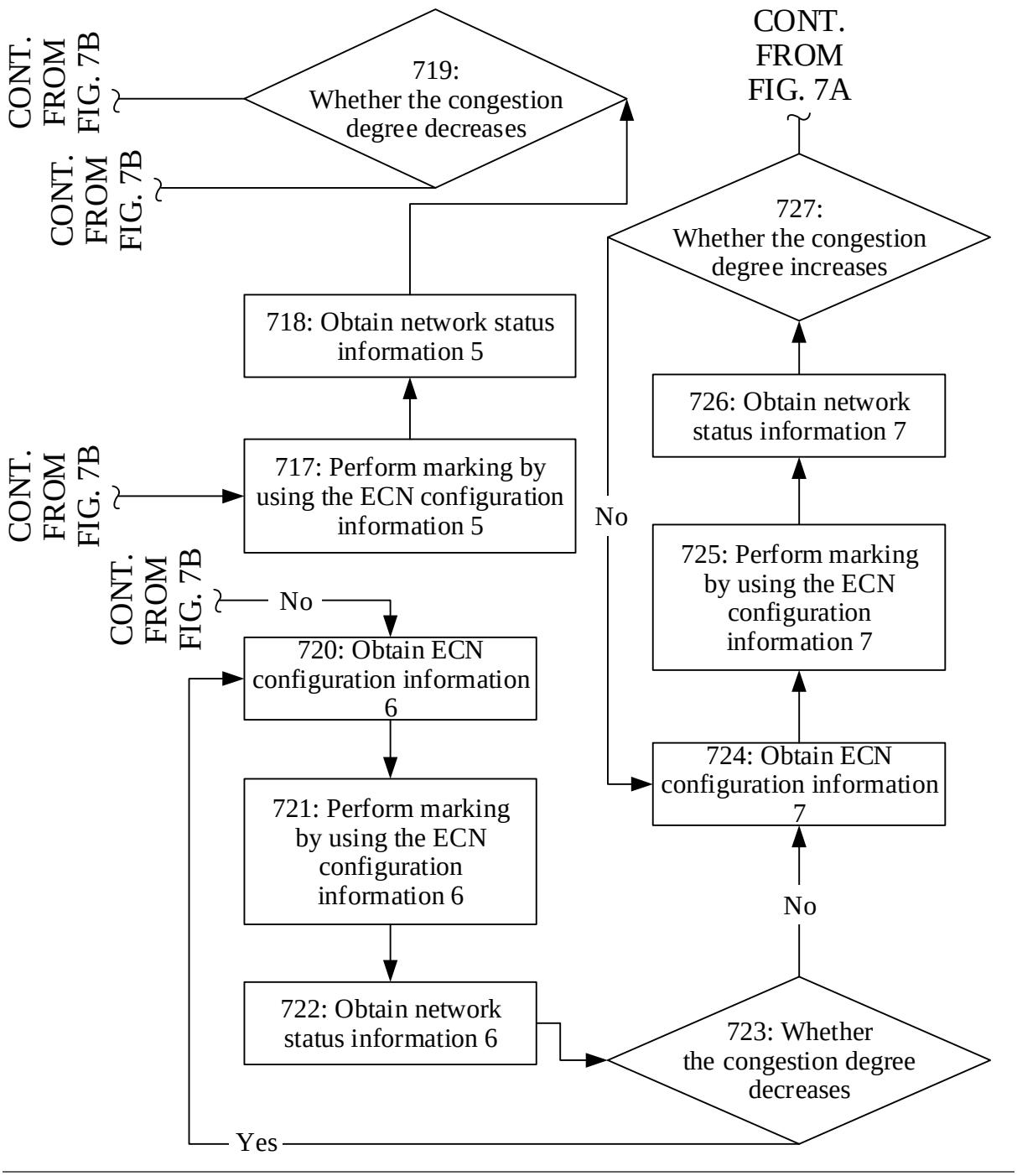

CONT. FROM FIG. 7B
719: Whether the congestion degree decreases
CONT. FROM FIG. 7B
CONT. FROM FIG. 7A
727: Whether the congestion degree increases
718: Obtain network status information 5
726: Obtain network status information 7
CONT. FROM FIG. 7B
717: Perform marking by using the ECN configuration information 5
No
725: Perform marking by using the ECN configuration information 7
CONT. FROM FIG. 7B
No
720: Obtain ECN configuration information 6
724: Obtain ECN configuration information 7
721: Perform marking by using the ECN configuration information 6
No
722: Obtain network status information 6
723: Whether the congestion degree decreases
Yes

FIG. 7C

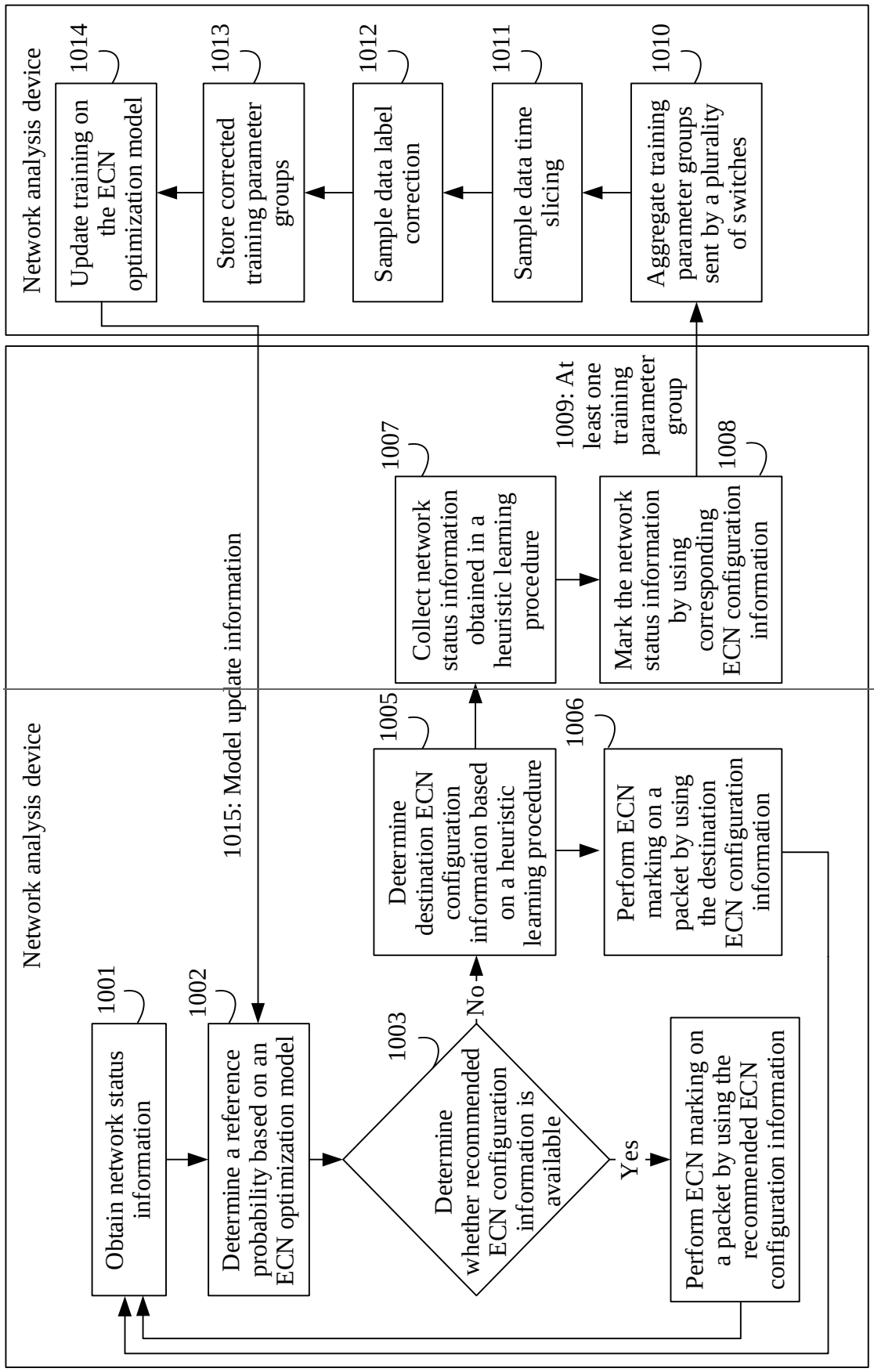

Network analysis device
1014
Update training on the ECN optimization model
1013
Store corrected training parameter groups
1012
Sample data label correction
1011
Sample data time slicing
1010
Aggregate training parameter groups sent by a plurality of switches
Network analysis device
1015: Model update information
1007
Collect network status information obtained in a heuristic learning procedure
1009: At least one training parameter group
1008
Mark the network status information by using corresponding ECN configuration information
1005
Determine destination ECN configuration information based on a heuristic learning procedure
1006
Perform ECN marking on a packet by using the destination ECN configuration information
1001
Obtain network status information
1002
Determine a reference probability based on an ECN optimization model
1003
Determine whether recommended ECN configuration information is available
No
Yes
Perform ECN marking on a packet by using the recommended ECN configuration information

FIG. 10

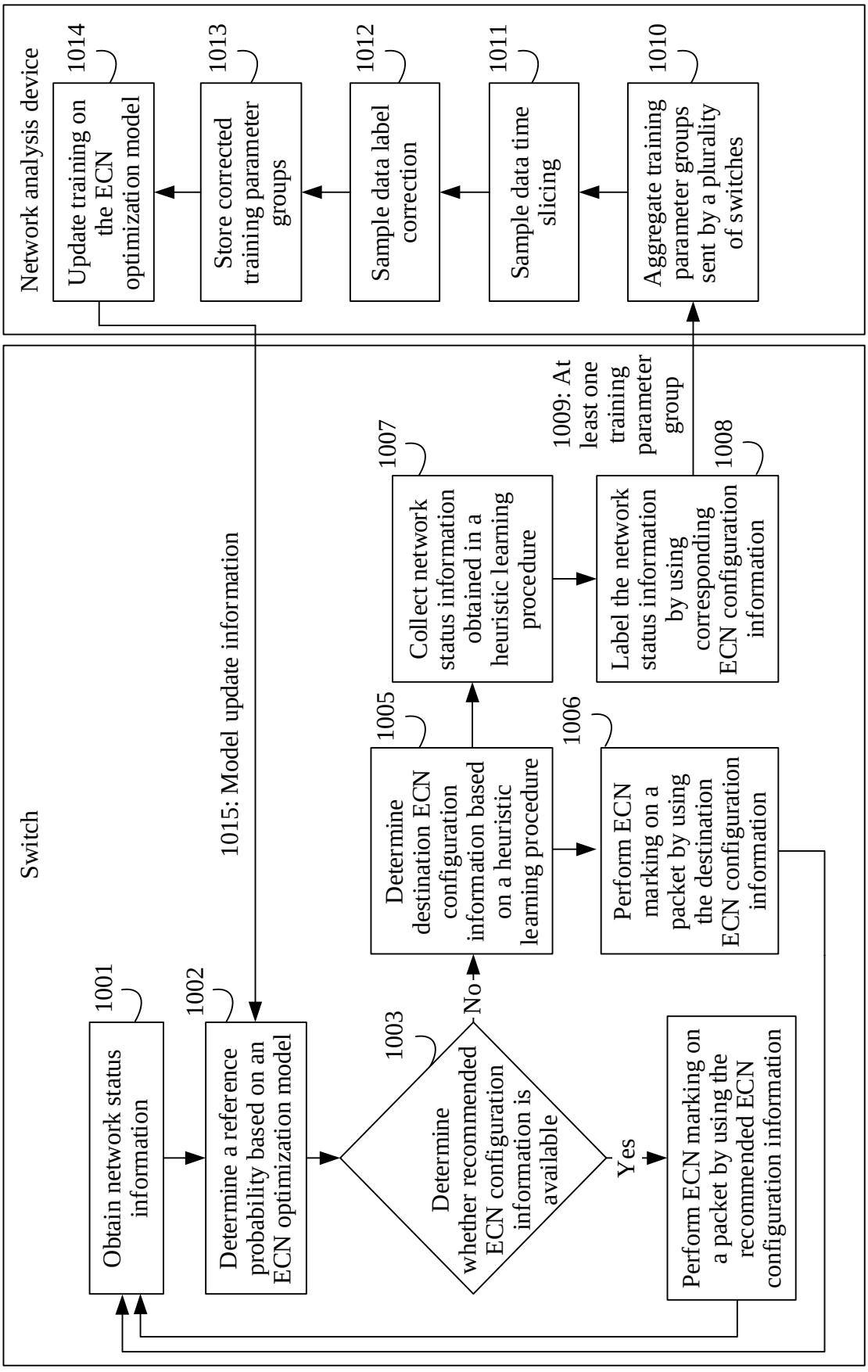

Network analysis device
1014
Update training on the ECN optimization model
1013
Store corrected training parameter groups
1012
Sample data label correction
1011
Sample data time slicing
1010
Aggregate training parameter groups sent by a plurality of switches
Switch
1015: Model update information
1009: At least one training parameter group
1007
Collect network status information obtained in a heuristic learning procedure
1008
Label the network status information by using corresponding ECN configuration information
1005
Determine destination ECN configuration information based on a heuristic learning procedure
1006
Perform ECN marking on a packet by using the destination ECN configuration information
1001
Obtain network status information
1002
Determine a reference probability based on an ECN optimization model
1003
Determine whether recommended ECN configuration information is available
No
Yes
Perform ECN marking on a packet by using the recommended ECN configuration information

FIG. 10