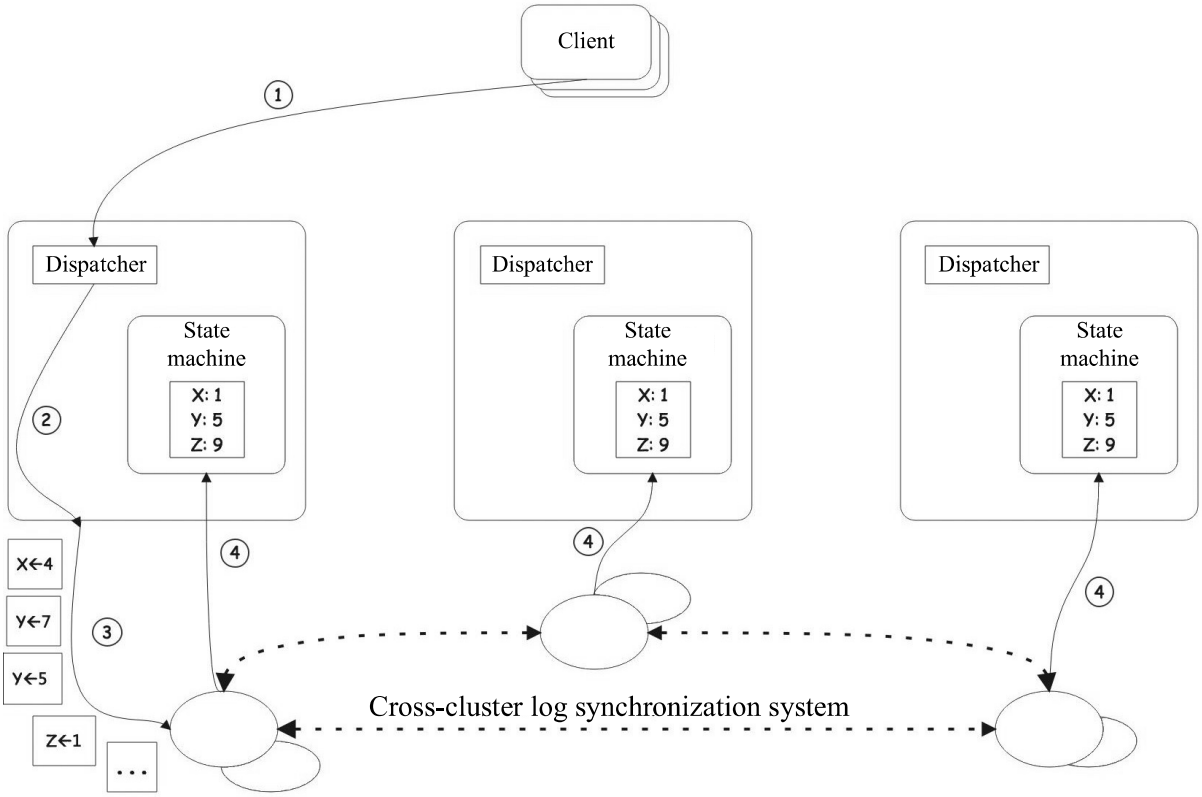

Client
1
Dispatcher
State machine
X: 1
Y: 5
Z: 9
2
X←4
Y←7
Y←5
Z←1
...
3
4
Cross-cluster log synchronization system

FIG. 1

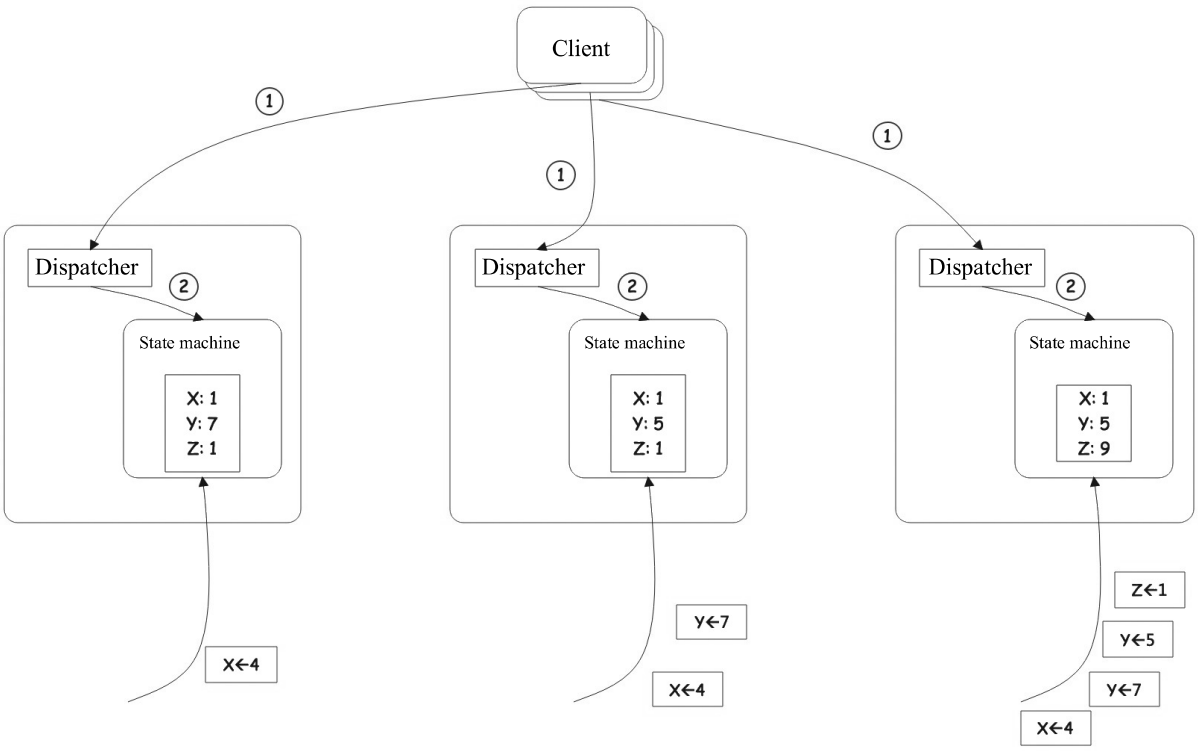

Client
1
1
1
Dispatcher
2
State machine
X: 1
Y: 7
Z: 1
Dispatcher
2
State machine
X: 1
Y: 5
Z: 1
Dispatcher
2
State machine
X: 1
Y: 5
Z: 9
X←4
Y←7
X←4
Z←1
Y←5
Y←7
X←4

FIG. 2

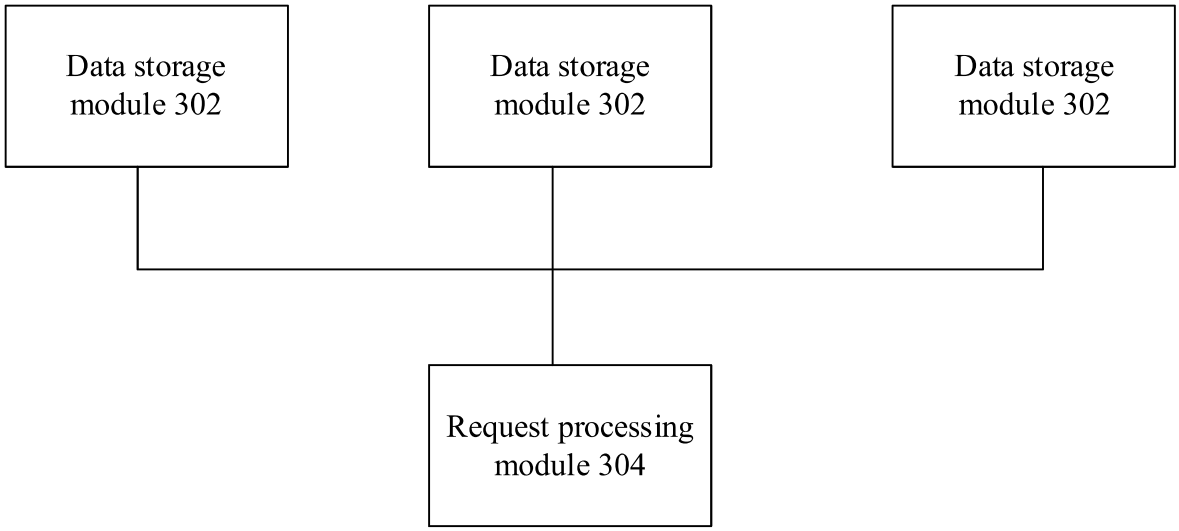

Data storage module 302
Data storage module 302
Data storage module 302
Request processing module 304

FIG. 3

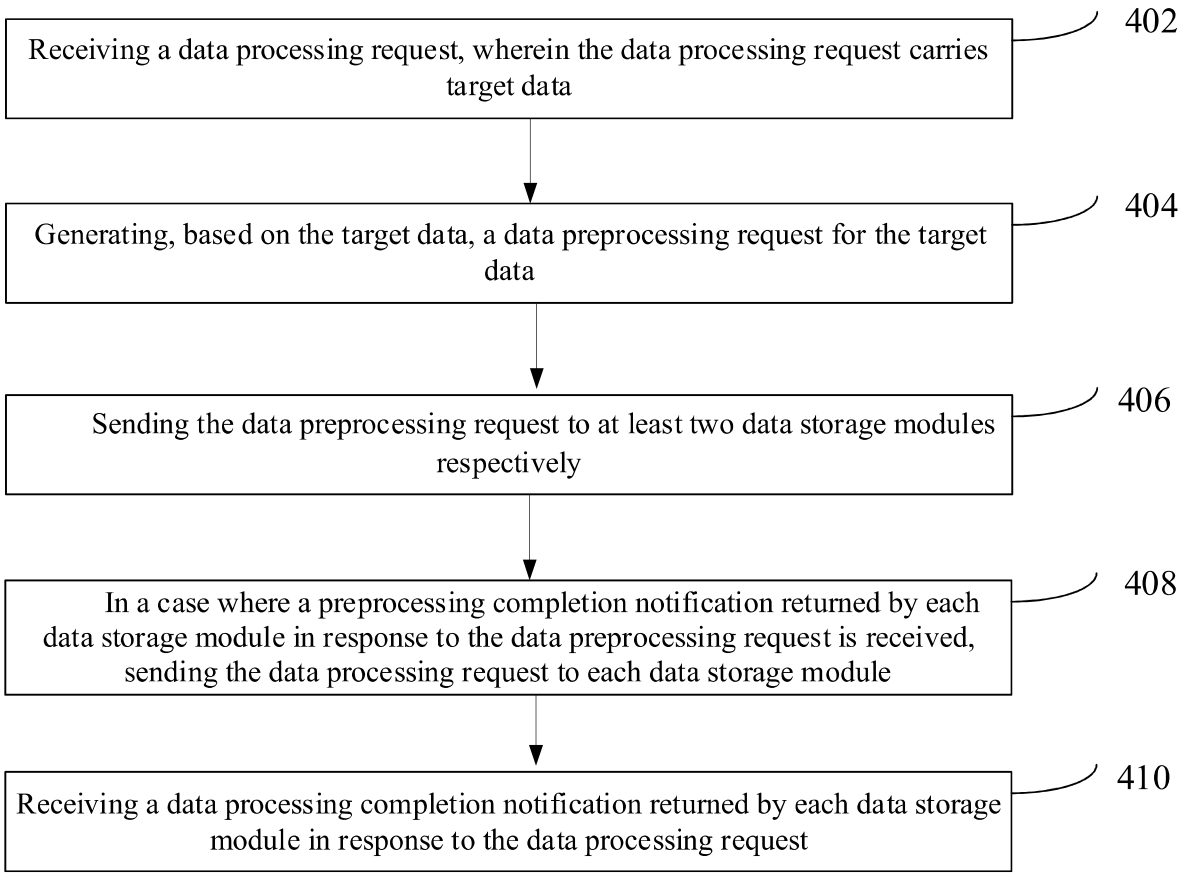

Receiving a data processing request, wherein the data processing request carries target data
402
Generating, based on the target data, a data preprocessing request for the target data
404
Sending the data preprocessing request to at least two data storage modules respectively
406
In a case where a preprocessing completion notification returned by each data storage module in response to the data preprocessing request is received, sending the data processing request to each data storage module
408
Receiving a data processing completion notification returned by each data storage module in response to the data processing request
410

FIG. 4

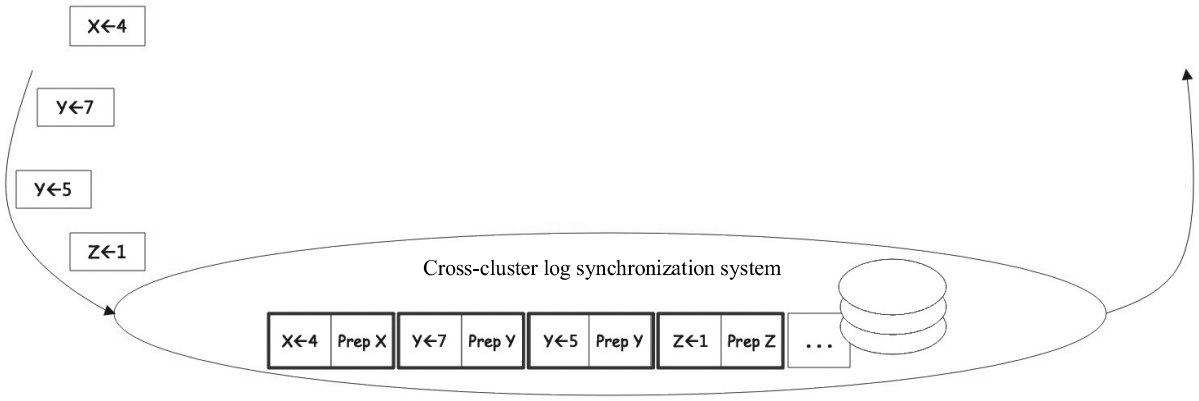

X←4
Y←7
Y←5
Z←1
Cross-cluster log synchronization system
X←4
Prep X
Y←7
Prep Y
Y←5
Prep Y
Z←1
Prep Z
...

FIG. 5

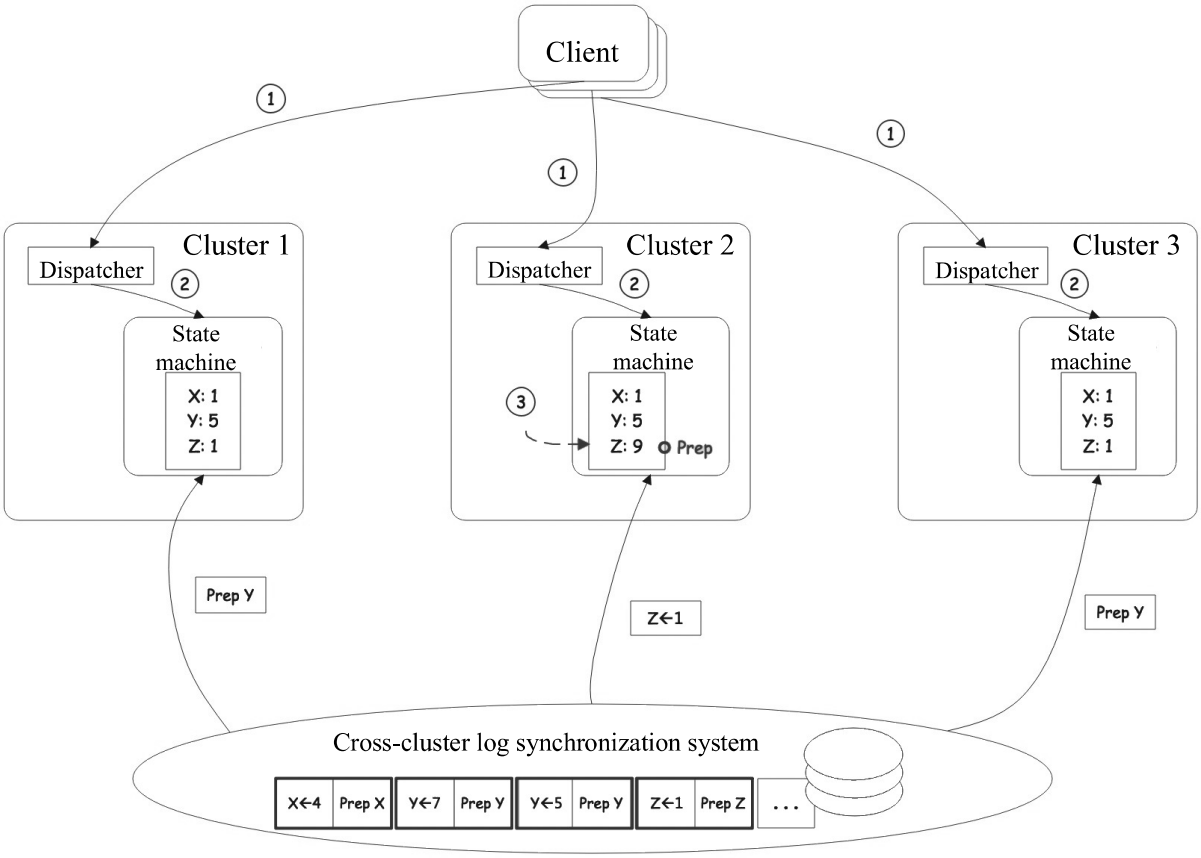

Client
1
1
1
Cluster 1
Dispatcher
2
State machine
X: 1
Y: 5
Z: 1
Cluster 2
Dispatcher
2
State machine
3
X: 1
Y: 5
Z: 9
Prep
Cluster 3
Dispatcher
2
State machine
X: 1
Y: 5
Z: 1
Prep Y
Z←1
Prep Y
Cross-cluster log synchronization system
X←4
Prep X
Y←7
Prep Y
Y←5
Prep Y
Z←1
Prep Z
...

FIG. 6

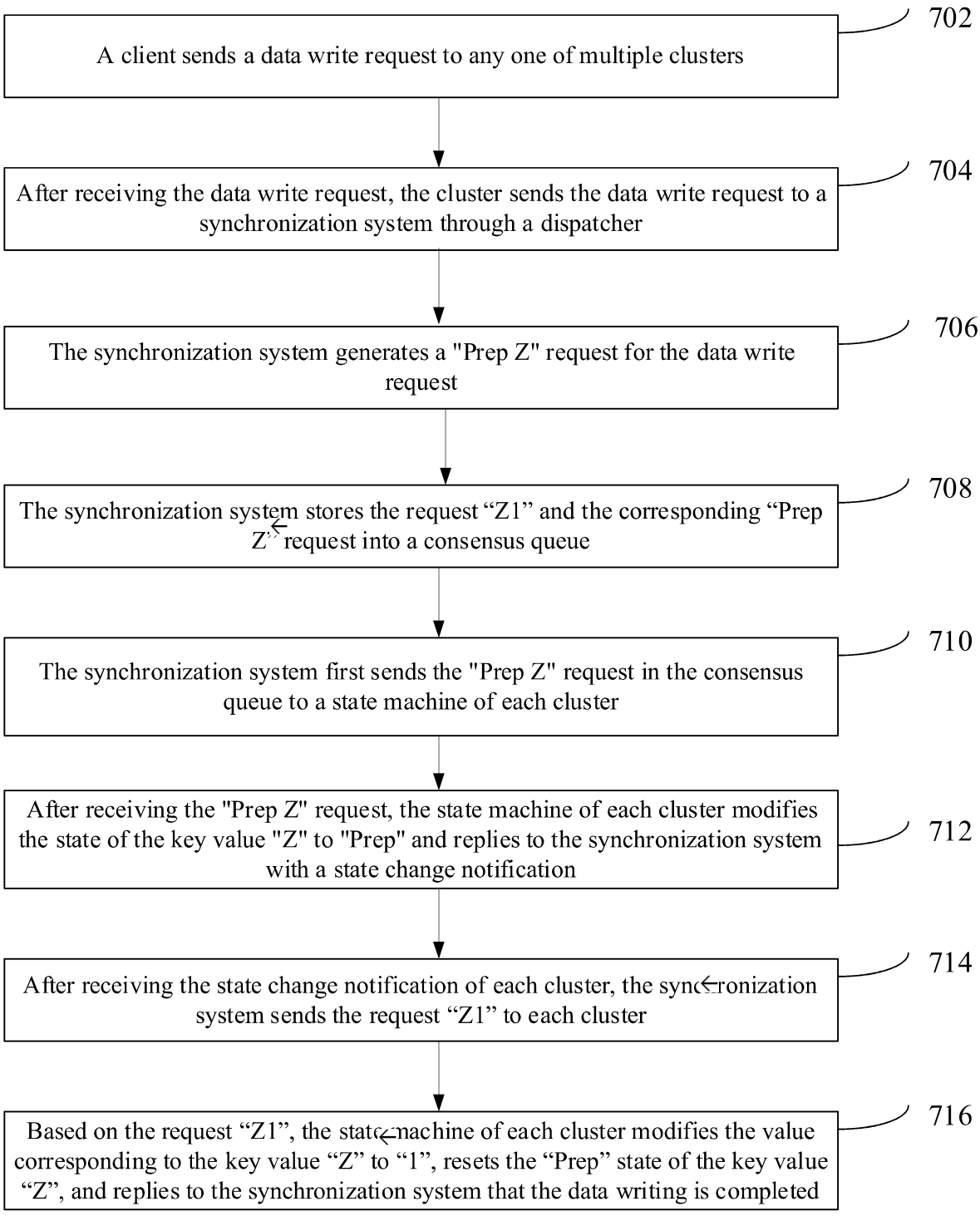

A client sends a data write request to any one of multiple clusters
702
After receiving the data write request, the cluster sends the data write request to a synchronization system through a dispatcher
704
The synchronization system generates a "Prep Z" request for the data write request
706
The synchronization system stores the request “Z1” and the corresponding “Prep Z” request into a consensus queue
708
The synchronization system first sends the "Prep Z" request in the consensus queue to a state machine of each cluster
710
After receiving the "Prep Z" request, the state machine of each cluster modifies the state of the key value "Z" to "Prep" and replies to the synchronization system with a state change notification
712
After receiving the state change notification of each cluster, the synchronization system sends the request “Z1” to each cluster
714
Based on the request “Z1”, the state machine of each cluster modifies the value corresponding to the key value “Z” to “1”, resets the “Prep” state of the key value “Z”, and replies to the synchronization system that the data writing is completed
716

FIG. 7

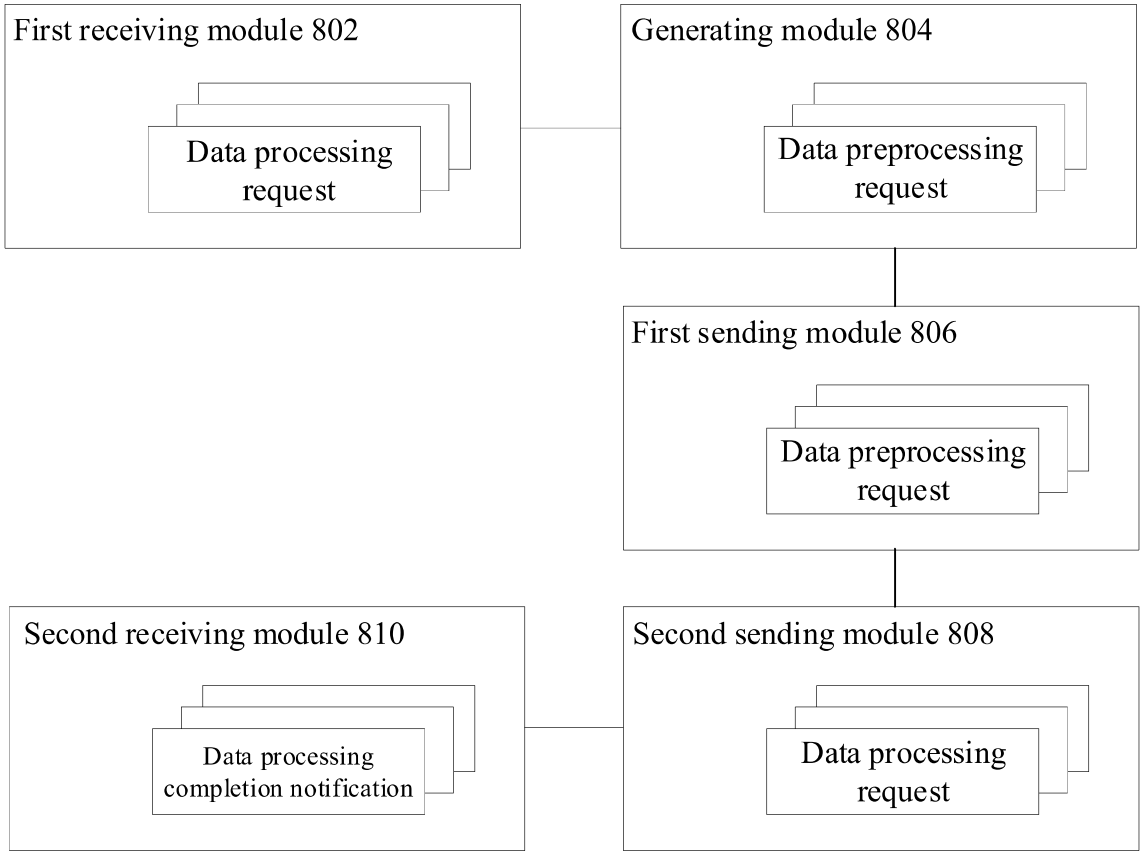

First receiving module 802
Data processing request
Generating module 804
Data preprocessing request
First sending module 806
Data preprocessing request
Second receiving module 810
Data processing completion notification
Second sending module 808
Data processing request

FIG. 8

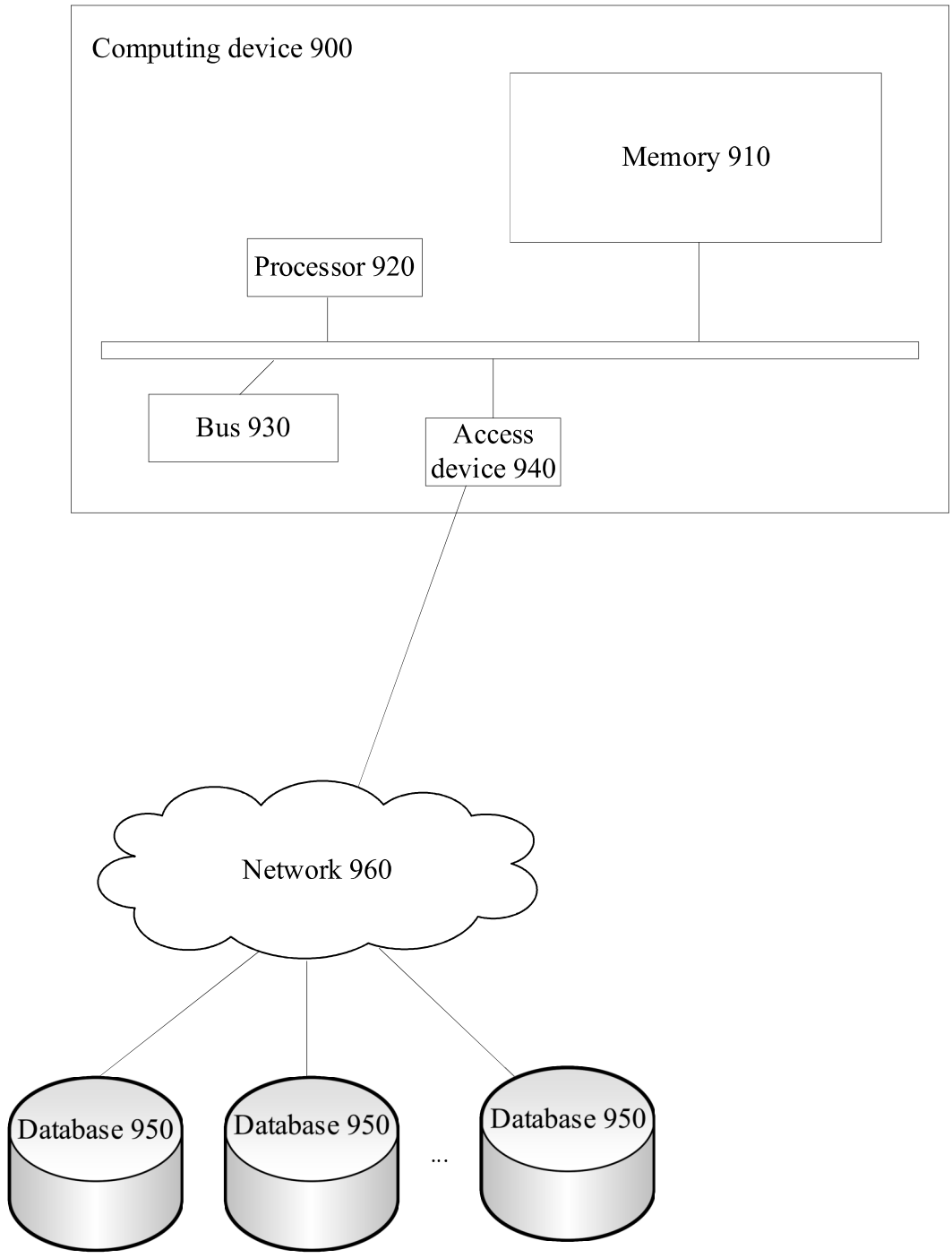

Computing device 900
Memory 910
Processor 920
Bus 930
Access device 940
Network 960
Database 950
Database 950
...
Database 950

FIG. 9