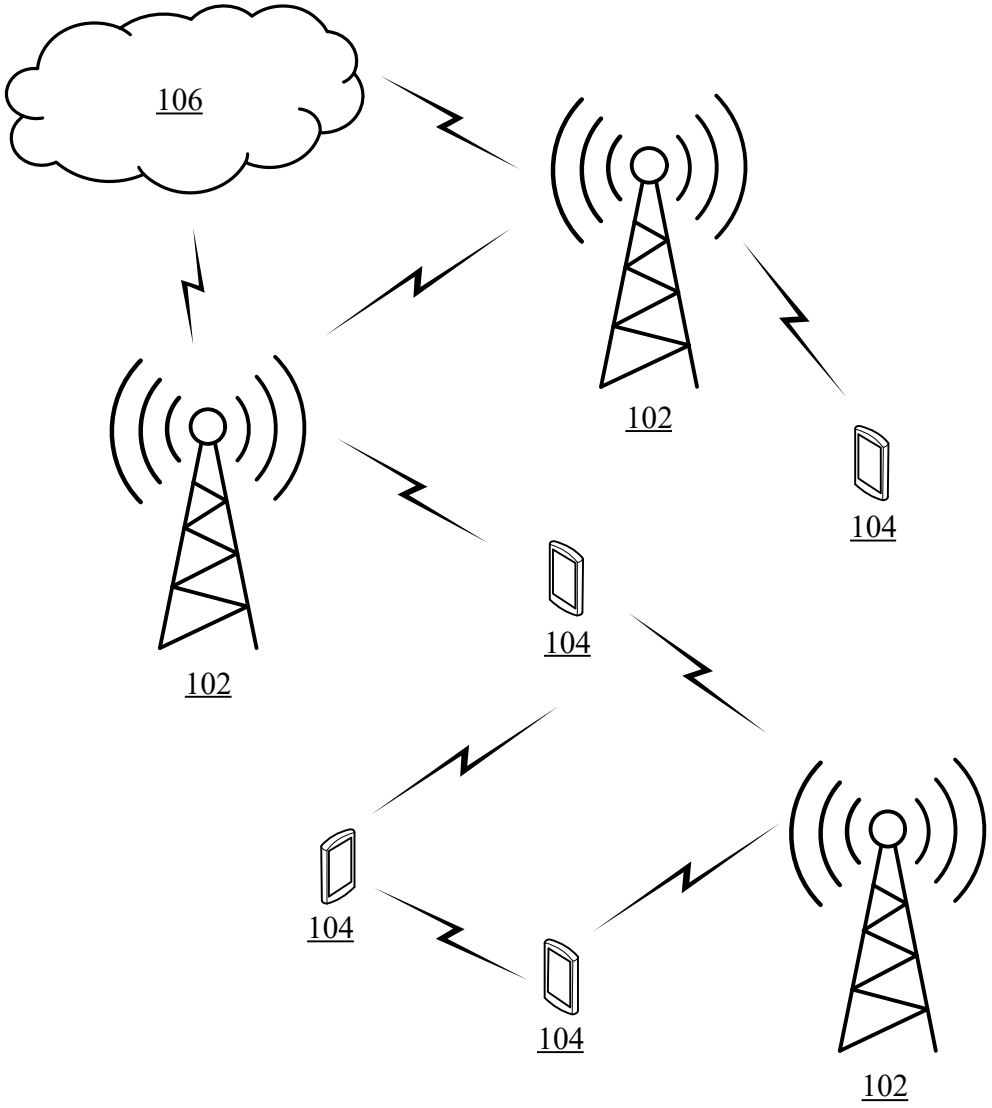


Figure 1

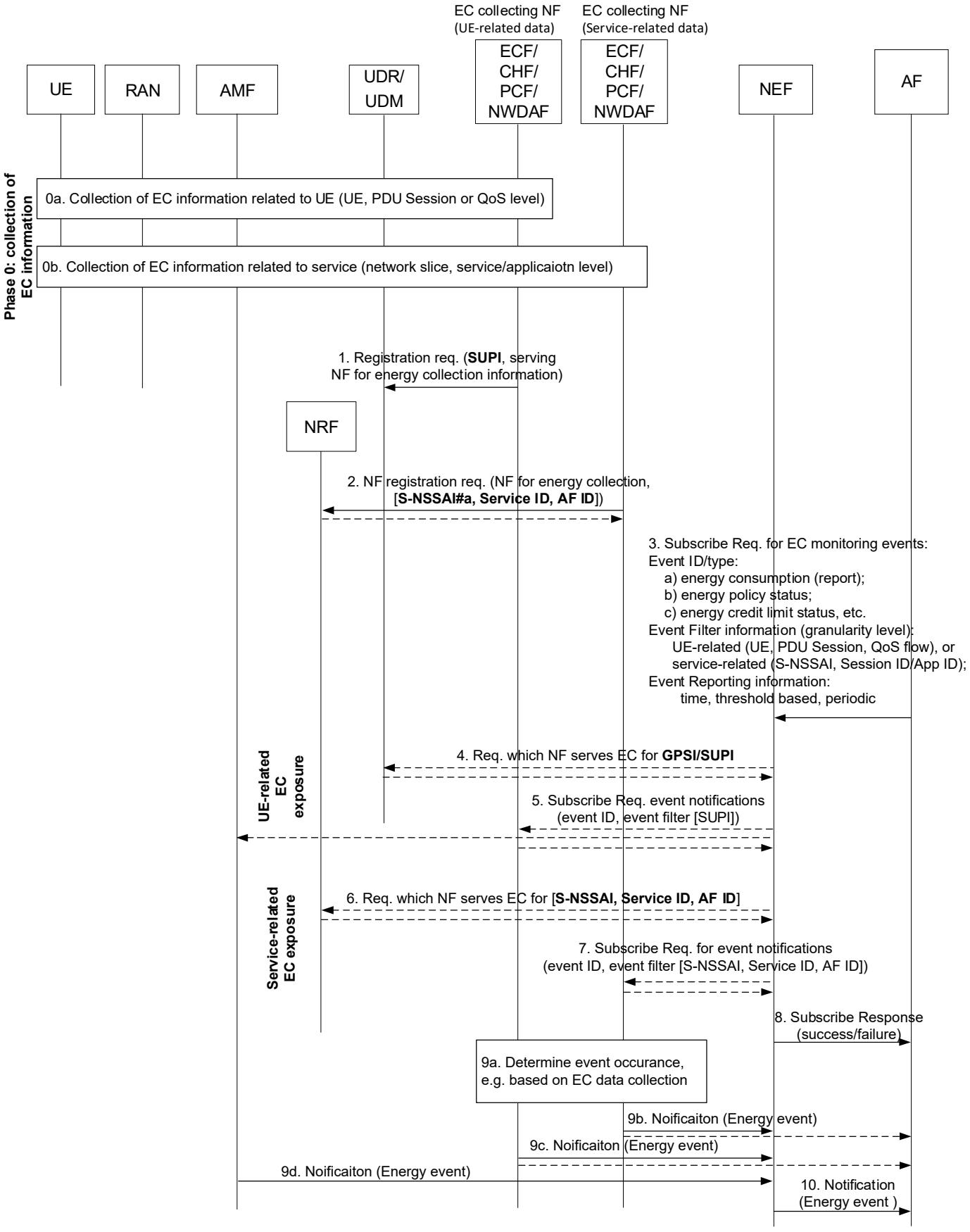

EC collecting NF (UE-related data)
EC collecting NF (Service-related data)
UE
RAN
AMF
UDR/ UDM
ECF/ CHF/ PCF/ NWDAF
ECF/ CHF/ PCF/ NWDAF
NEF
AF
Phase 0: collection of EC information
0a. Collection of EC information related to UE (UE, PDU Session or QoS level)
0b. Collection of EC information related to service (network slice, service/applicaiotn level)
1. Registration req. (SUPI, serving NF for energy collection information)
NRF
2. NF registration req. (NF for energy collection, [S-NSSAI#a, Service ID, AF ID])
3. Subscribe Req. for EC monitoring events:
Event ID/type:
a) energy consumption (report);
b) energy policy status;
c) energy credit limit status, etc.
Event Filter information (granularity level):
UE-related (UE, PDU Session, QoS flow), or
service-related (S-NSSAI, Session ID/App ID);
Event Reporting information:
time, threshold based, periodic
4. Req. which NF serves EC for GPSI/SUPI
UE-related EC exposure
5. Subscribe Req. event notifications (event ID, event filter [SUPI])
Service-related EC exposure
6. Req. which NF serves EC for [S-NSSAI, Service ID, AF ID]
7. Subscribe Req. for event notifications (event ID, event filter [S-NSSAI, Service ID, AF ID])
8. Subscribe Response (success/failure)
9a. Determine event occurance, e.g. based on EC data collection
9b. Noificaiton (Energy event)
9c. Noificaiton (Energy event)
9d. Noificaiton (Energy event)
10. Notification (Energy event)

Figure 2

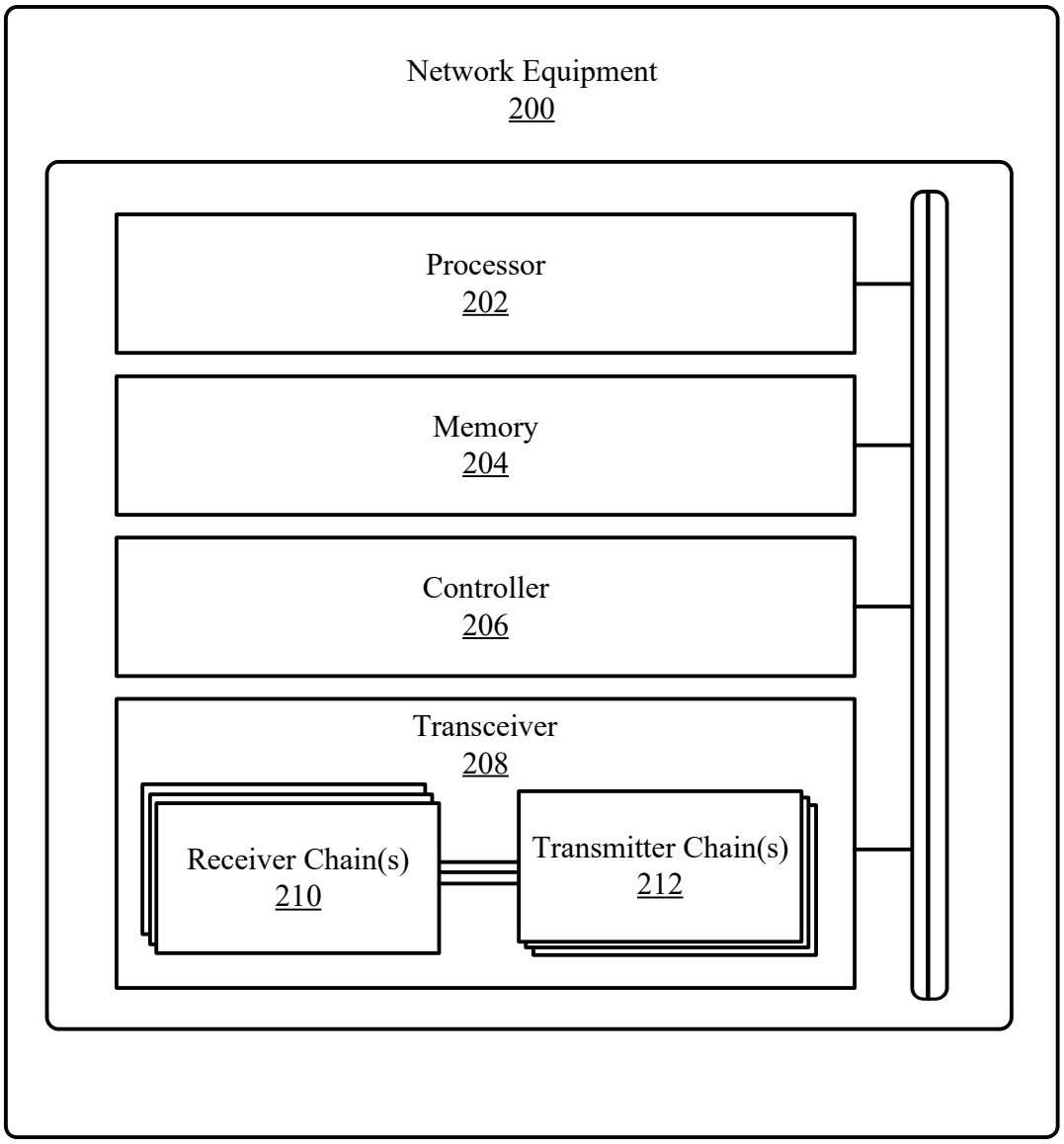

Network Equipment
200
Processor
202
Memory
204
Controller
206
Transceiver
208
Receiver Chain(s)
210
Transmitter Chain(s)
212

Figure 3

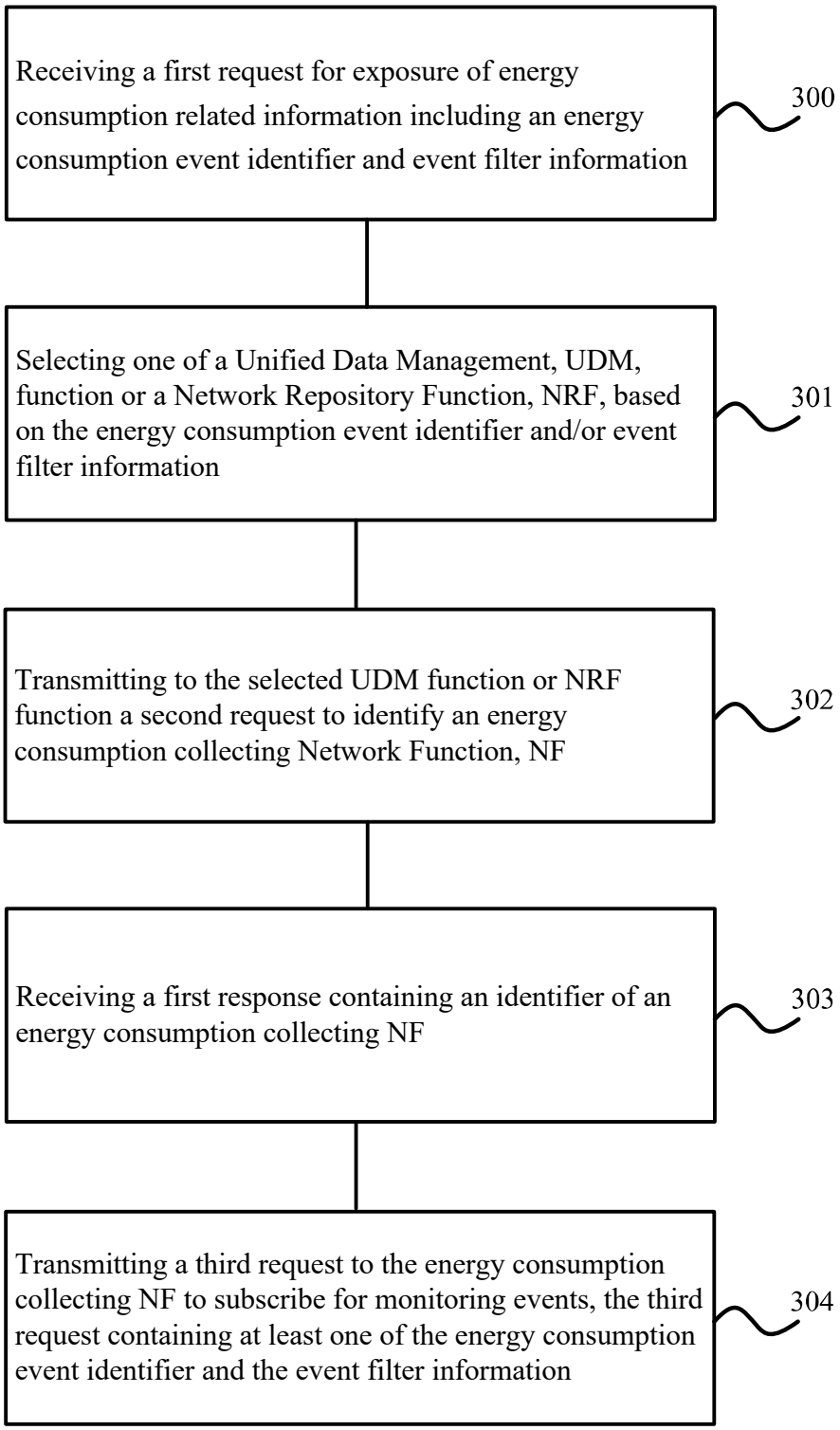

Receiving a first request for exposure of energy consumption related information including an energy consumption event identifier and event filter information
300
Selecting one of a Unified Data Management, UDM, function or a Network Repository Function, NRF, based on the energy consumption event identifier and/or event filter information
301
Transmitting to the selected UDM function or NRF function a second request to identify an energy consumption collecting Network Function, NF
302
Receiving a first response containing an identifier of an energy consumption collecting NF
303
Transmitting a third request to the energy consumption collecting NF to subscribe for monitoring events, the third request containing at least one of the energy consumption event identifier and the event filter information
304

Figure 4

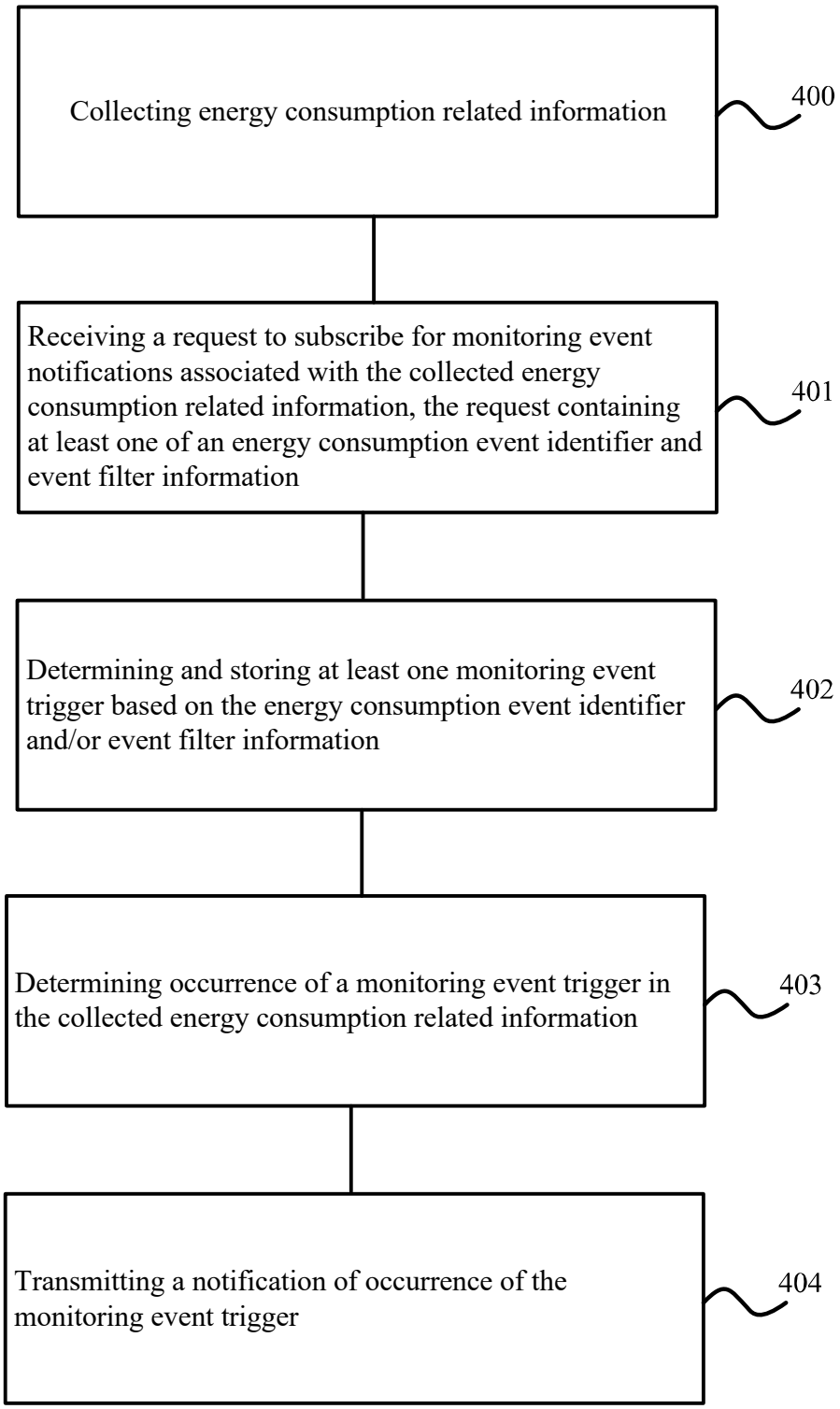

Collecting energy consumption related information
400
Receiving a request to subscribe for monitoring event notifications associated with the collected energy consumption related information, the request containing at least one of an energy consumption event identifier and event filter information
401
Determining and storing at least one monitoring event trigger based on the energy consumption event identifier and/or event filter information
402
Determining occurrence of a monitoring event trigger in the collected energy consumption related information
403
Transmitting a notification of occurrence of the monitoring event trigger
404

Figure 5