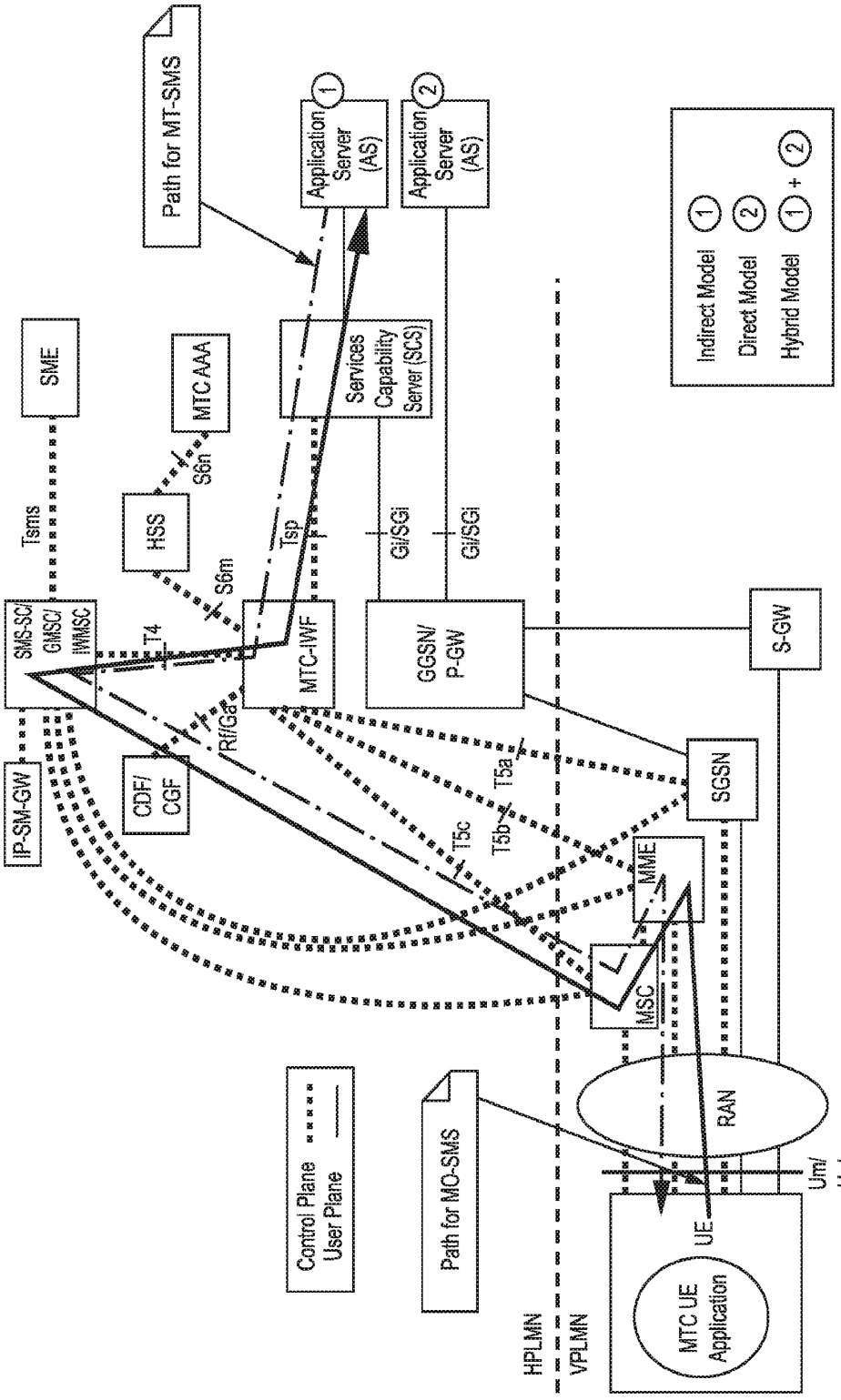
Path for MT-SMS
Application Server (AS)
Application Server (AS)
Indirect Model
Direct Model
Hybrid Model
SME
MTC AAA
Services Capability Server (SCS)
Tsms
S6n
HSS
S6m
Tsp
Gi/SGi
Gi/SGi
SMS-SC/ GMSC/ IWMSC
T4
MTC-IWF
GGSN/ P-GW
S-GW
Rf/Gz
IP-SM-GW
CDF/ CGF
T5a
T5b
T5c
SGSN
MME
MSC
Control Plane
User Plane
Path for MO-SMS
RAN
Um/ Uu/ LET-Uu
UE
MTC UE Application
HPLMN
VPLMN

Figure 1

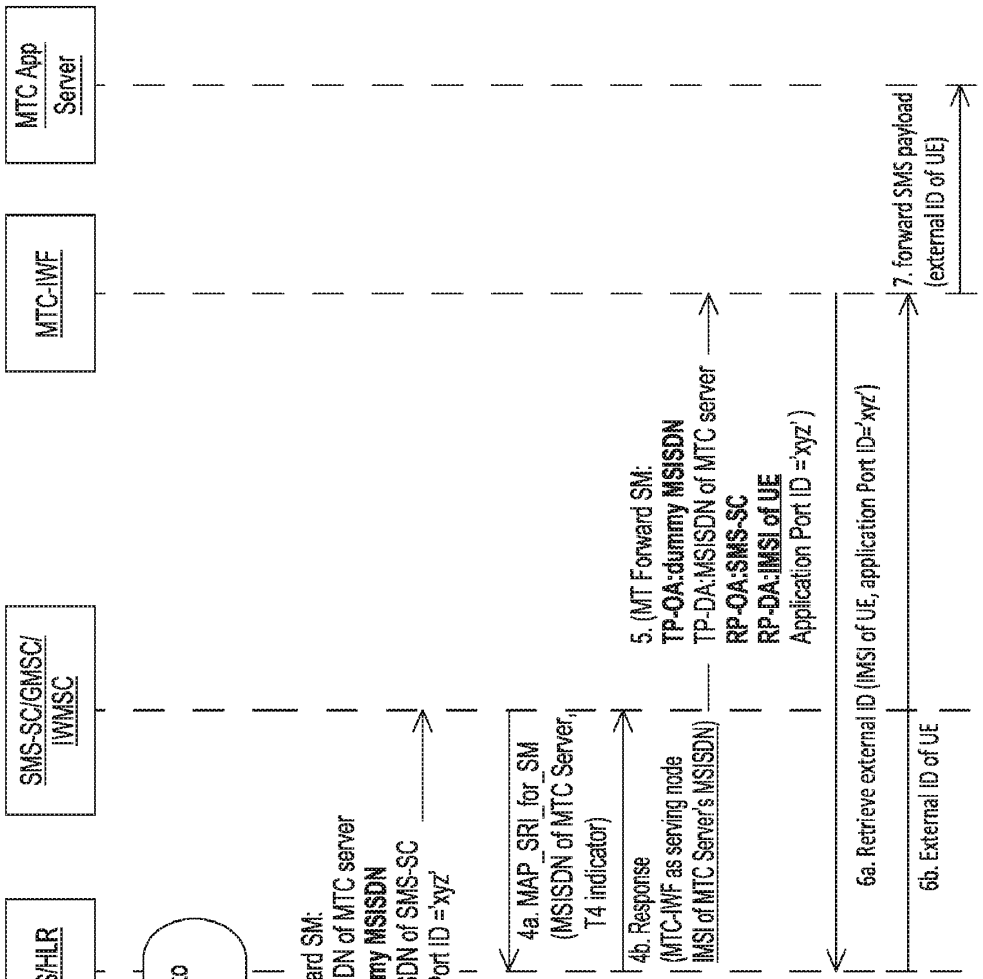
UE
MME
MSC/VLR
HSS/HLR
SMS-SC/GMSC/ IWMSC
MTC-IWF
MTC App Server
1. combined IMSI attach (TS 23.272), dummy MSISDN is loaded into MSC/VLR from HSS/HLR
2. (SMS Submit: TP-DA:MSISDN of MTC server RP-DA:MSISDN of SMS-SC Application Port ID = 'xyz')
3. (MO Forward SM: TP-DA:MSISDN of MTC server RP-OA:dummy MSISDN RP-DA:MSISDN of SMS-SC Application Port ID ='xyz' IMSI of UE)
4a. MAP_SRI_for_SM (MSISDN of MTC Server, T4 indicator)
4b. Response (MTC-IWF as serving node IMSI of MTC Server's MSISDN)
5. (MT Forward SM: TP-OA:dummy MSISDN TP-DA:MSISDN of MTC server RP-OA:SMS-SC RP-DA:IMSI of UE Application Port ID ='xyz')
6a. Retrieve external ID (IMSI of UE, application Port ID='xyz')
6b. External ID of UE
7. forward SMS payload (external ID of UE)

Figure 2

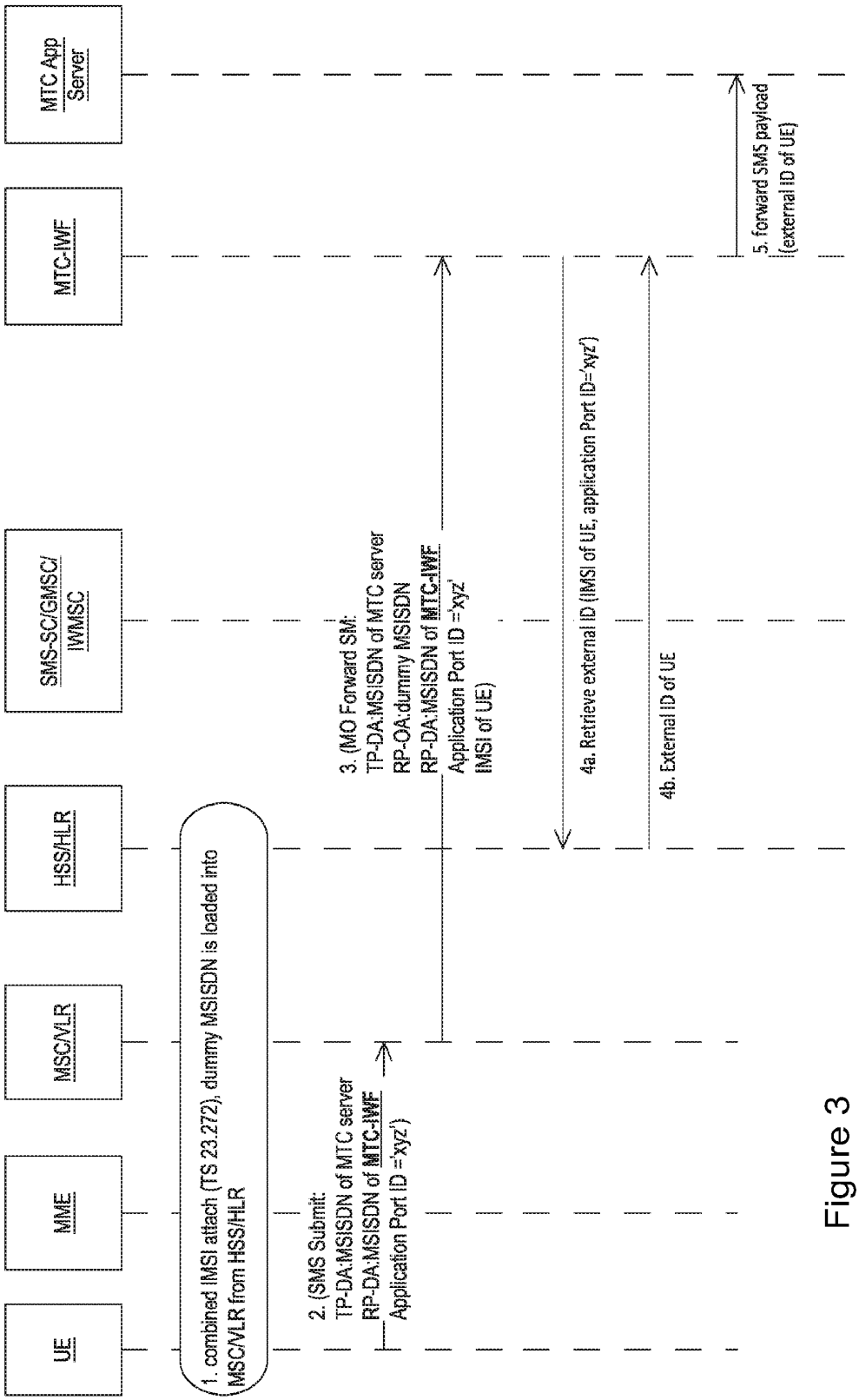
UE
MME
MSC/VLR
HSS/HLR
SMS-SC/GMSC/ IWMSC
MTC-IWF
MTC App Server
1. combined IMSI attach (TS 23.272), dummy MSISDN is loaded into MSC/VLR from HSS/HLR
2. (SMS Submit:
TP-DA:MSISDN of MTC server
RP-DA:MSISDN of MTC-IWF
Application Port ID ='xyz')
3. (MO Forward SM:
TP-DA:MSISDN of MTC server
RP-OA:dummy MSISDN
RP-DA:MSISDN of MTC-IWF
Application Port ID ='xyz'
IMSI of UE)
4a. Retrieve external ID (IMSI of UE, application Port ID='xyz')
4b. External ID of UE
5. forward SMS payload (external ID of UE)

Figure 3

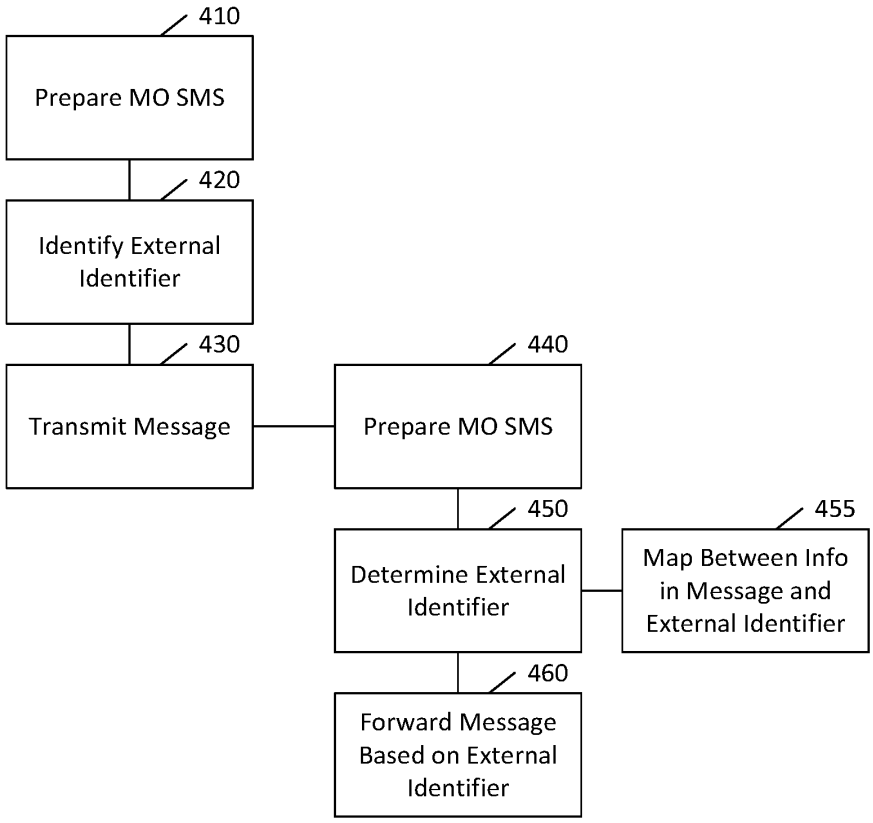
410
Prepare MO SMS
420
Identify External Identifier
430
Transmit Message
440
Prepare MO SMS
450
Determine External Identifier
455
Map Between Info in Message and External Identifier
460
Forward Message Based on External Identifier

Figure 4

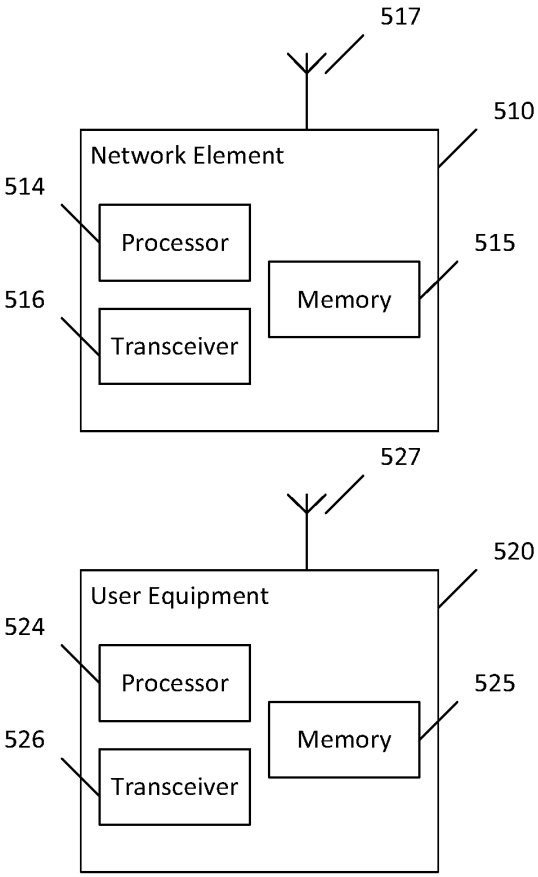
517
510
Network Element
514
Processor
515
Memory
516
Transceiver
527
520
User Equipment
524
Processor
525
Memory
526
Transceiver

Figure 5