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# Introduction test melody2

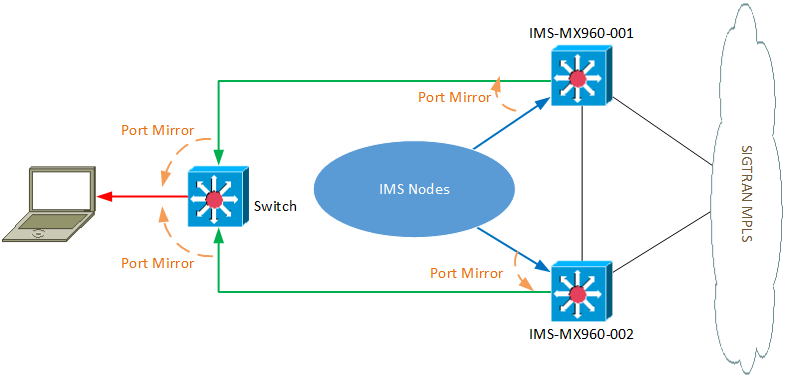
This document describes the E2E System Acceptance Tests for Basic Call in FarEasTone VoLTE Project.

## Document History

|  |  |  |  |
| --- | --- | --- | --- |
| Revision | Date | Author | Comments |
|  | 2017-12-29 | Nick Lv | First revision |

# Test Environment

## IP Environment



## Tools

* VoLTE Enabled Terminal : Sony Z2, Samsung Note 4
* SS7 monitoring tool provided by FET
* Wireshark: For each case, please open the WIRESHARK software, and start the capture first. When the case is finished, please save the capture using name “TestID\_SiteName\_Date.pcap”. For example, when you do the Initial registration case at NH468 at 20150107, you should save the name as “FET\_PH0\_BC\_001\_NH468\_20150107.pcap”
* EMM: For the cases mark there will be CDR created in the TOL, please record the CDR Filename as well as the ICID number from the EMM. How to check the CDR please sees the attachment.



## Test Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | UE #1 | UE #2 | UE #3 | UE #4 | UE #5 |
| UE Model |  |  |  |  |  |
| IMEI |  |  |  |  |  |
| IMSI |  |  |  |  |  |
| MSISDN |  |  |  |  |  |
| IMPI |  |  |  |  |  |
| IMPU |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Test Number 1 | Test Number 2 | Test Number 3 | Test Number 4 | Test Number 5 |
| PSTN Number |  |  |  |  |  |
| PLMN Number |  |  |  |  |  |
| IDD Number |  |  |  |  |  |
| Port-out Number |  |  |  |  |  |
| Port-in number |  |  |  |  |  |
| Short code Number |  |  |  |  |  |
| OCB number |  |  |  |  |  |

# Responsibility

## Responsibilities of FET

* To coordinate the access to the sites to perform the End to End System Acceptance Test.
* To sign off the End to End System Acceptance Test upon successful completion.

## Responsibilities of ERT

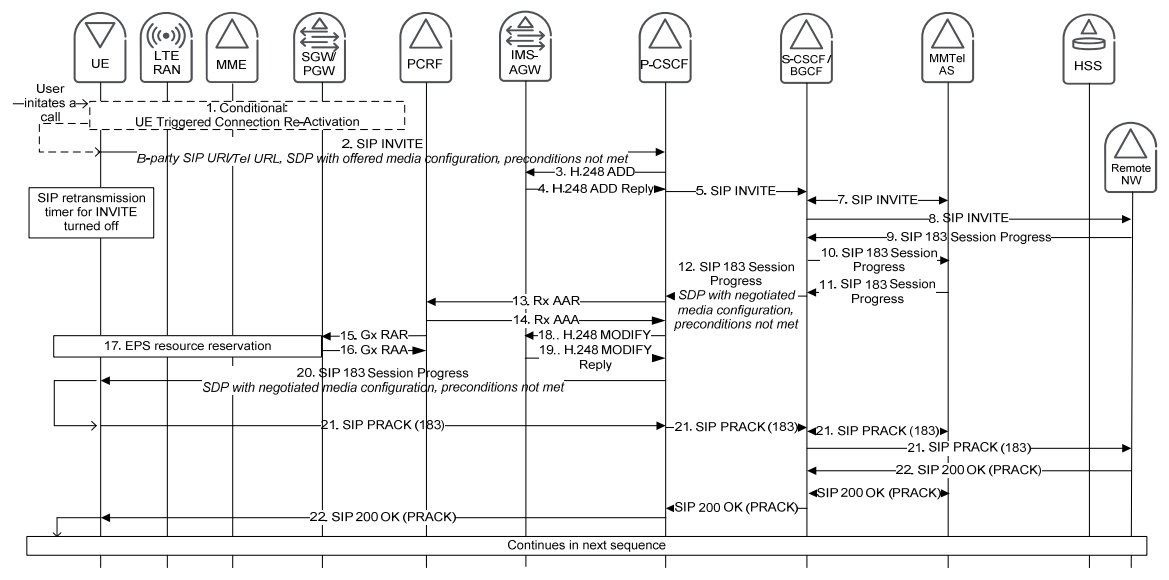
* To perform the End to End System Acceptance Test based on the procedures described in this document in the presence of FET representatives.

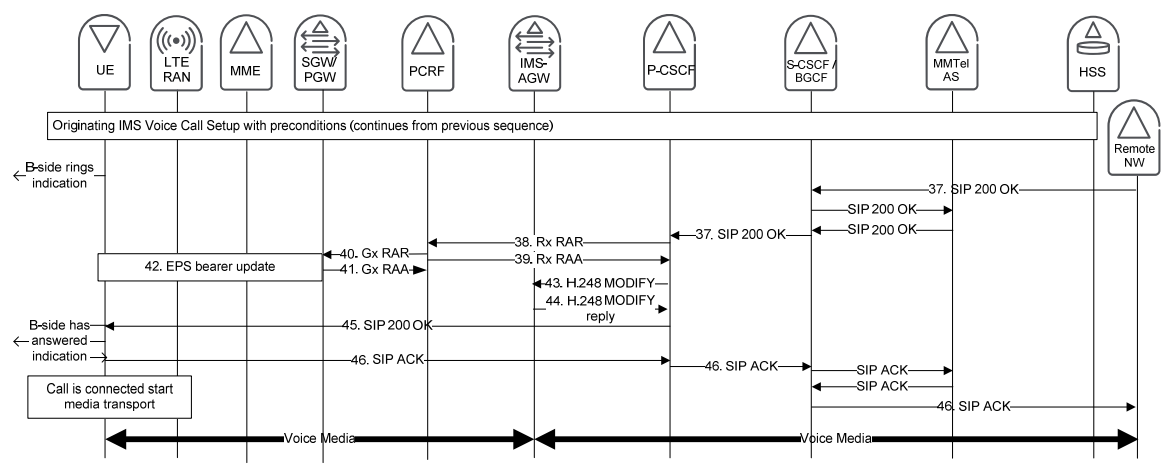
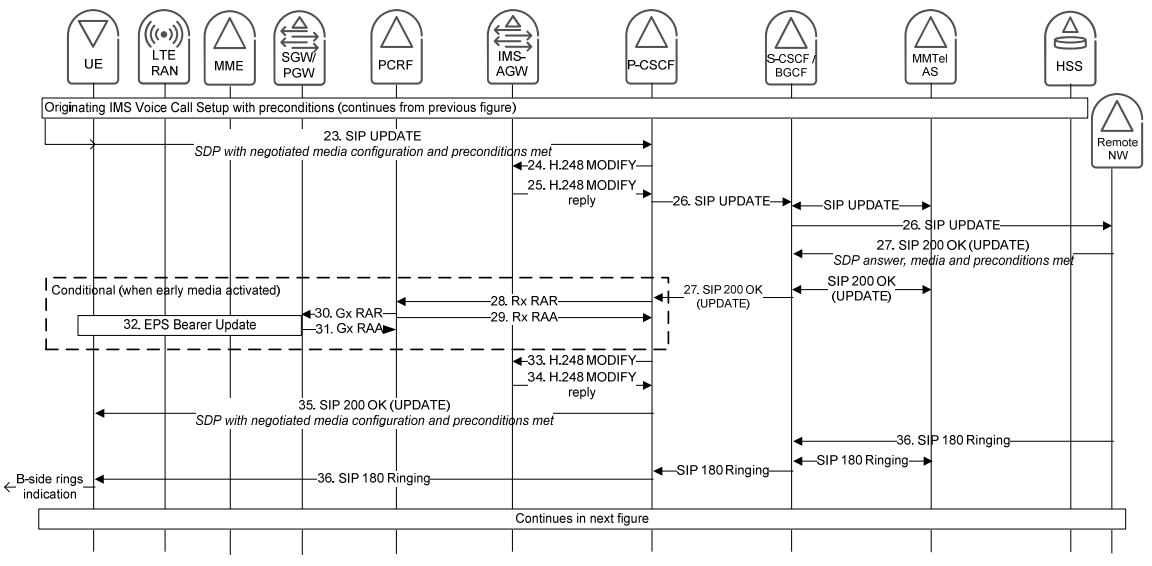
# Call Flow

## Originating Call with Pre-Conditions

Pre-conditions can be negotiated to ensure that resources are available in the network before the called subscriber is alerted, thus when the called subscriber answers the call the users can communicate, avoiding the possible problem of ‘ghost ringing’.

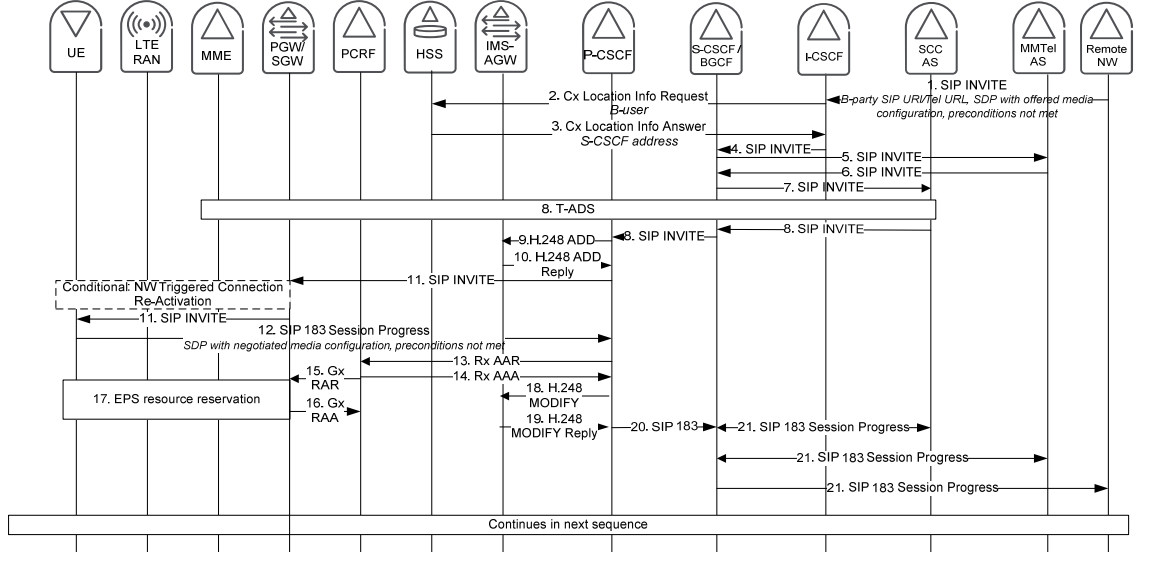
The usage of pre-conditions implies more SIP signaling during the session establishment and several invocations from IMS to EPC to update the resources with new session information during call establishment.

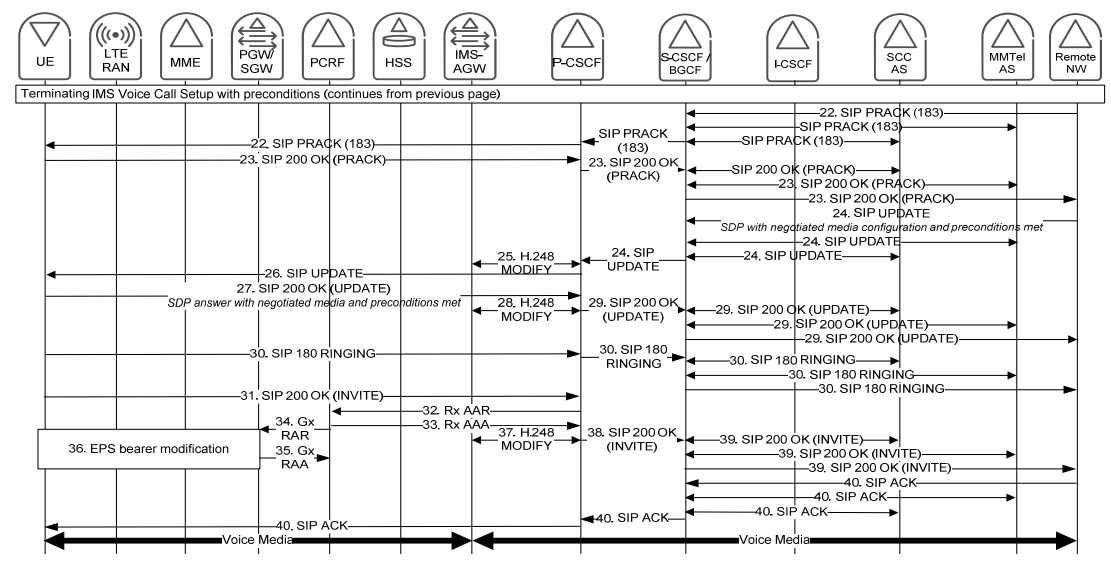




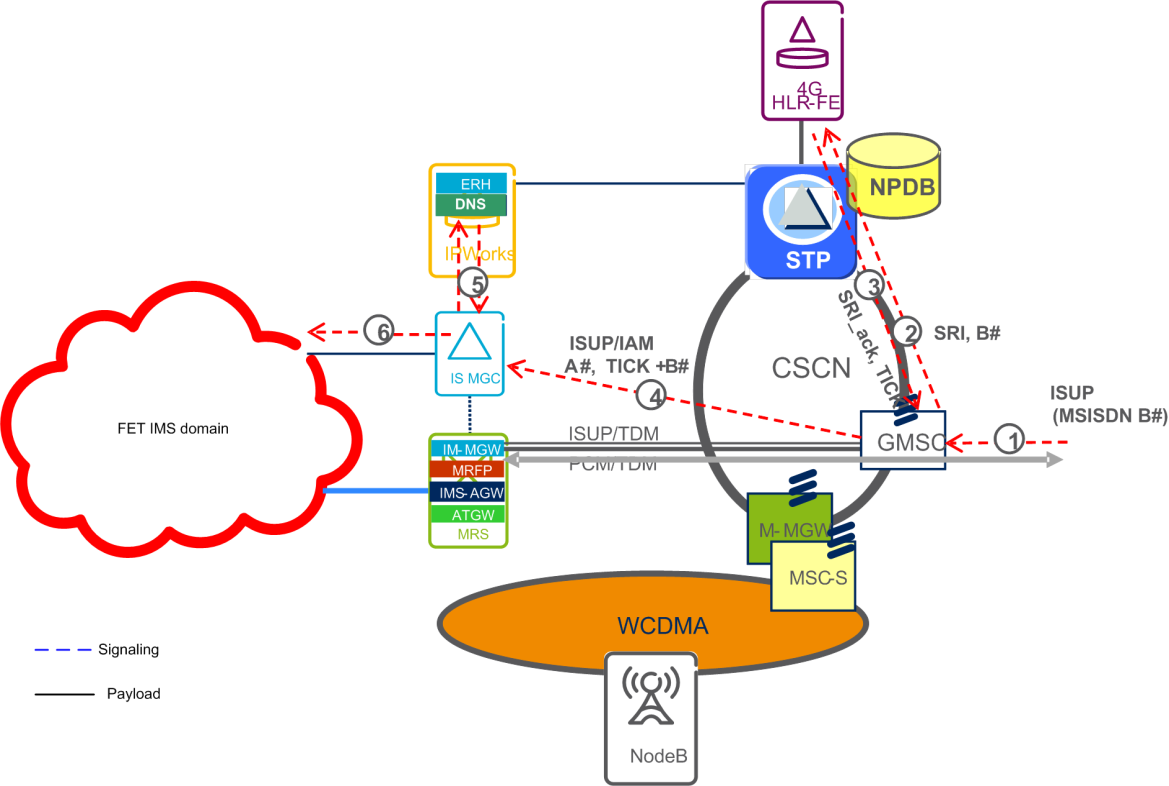
## Terminating Call with Pre-Conditions

Pre-conditions can be negotiated to ensure that resources are available in the network before the called subscriber is alerted, thus when the called subscriber answers the call the users can communicate, avoiding the possible problem of ‘ghost ringing’.





## CS 🡪 VoLTE, terminated in PS



**Pre-requisites**

TICK should be assigned for VoLTE users in case TICK trigger will be used in this scenario.

**Call Case Description**

1. GMSC receives the IAM targeting to VoLTE user,

2. GMSC sends interrogation message SRI to HLR

3. HLR replies the SRI\_ack with TICK to GMSC.

* 8MIN route is triggered in GMSC (with BO=48)
* B analysis with prefixed-B and the result is RC=581 or 582. (TP0T/NH0T RC is 581 (TP01MGC), TY0T/WK0T RC is 582 (NNH01MGC))
* Calls will be directed to ISUP route through the Routing Case (RC= 581 or 582)

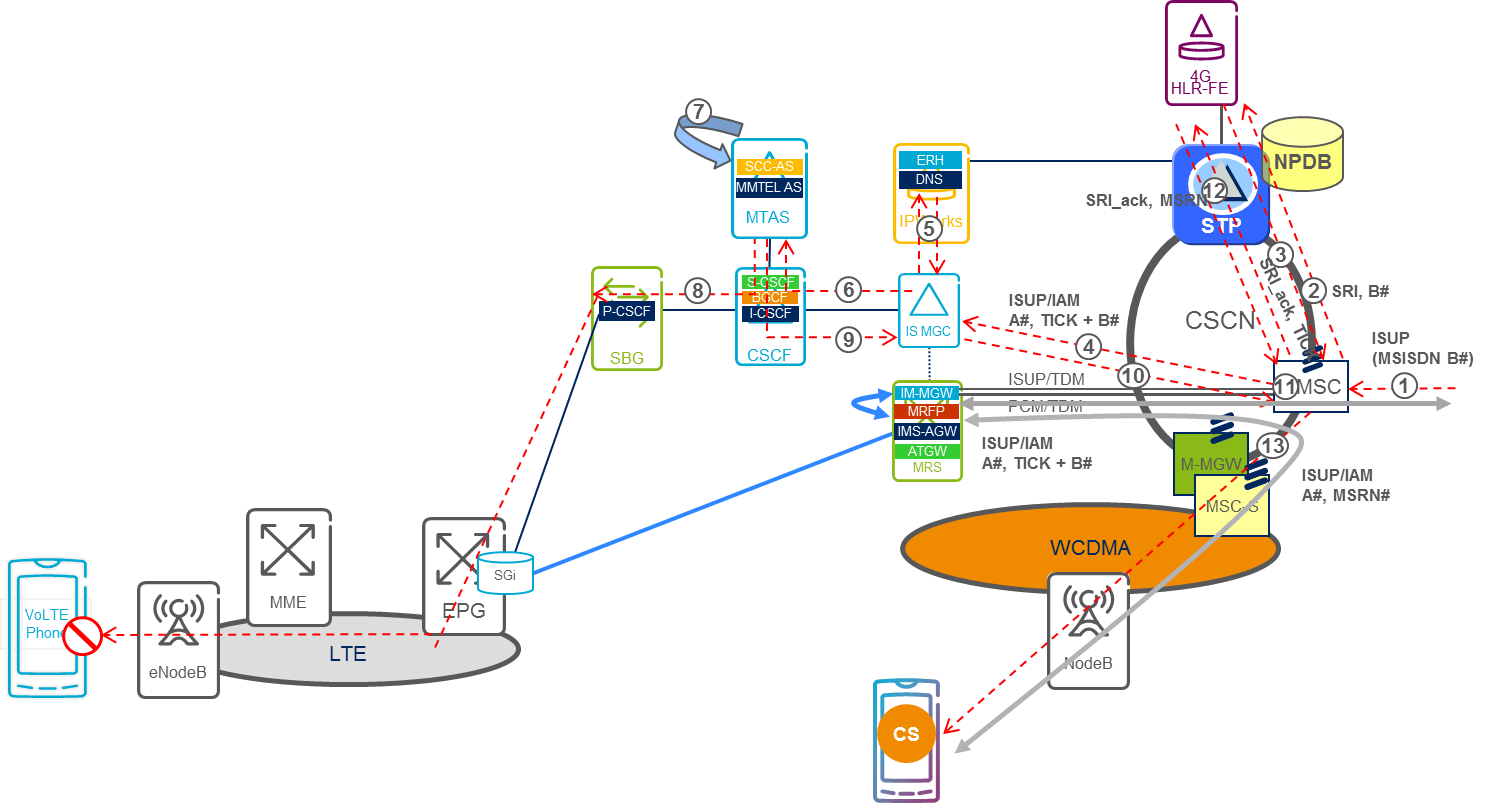
4. GMSC sends ISUP/IAM (A#, TICK+B#) to IS-MGC (ISUP/TDM).

5. IS-MGC executes Number Analysis, map the received ISUP IAM information into SIP INVITE using B-Number. DNS query to resolve address of I-CSCF

6. IS-MGC sends SIP Invite (Term) to I-CSCF

* Based on PS contact, the call setup (SIP INVITE) send to P-CSCF , EPG, eNB
* Received 200 OK from VOLTE UE (B) and ISUP ANM from IS-MGC. The call is connected between PLMN/PSTN and VoLTE user

## CS 🡪 VoLTE, terminated in CS



**Pre-requisites**

TICK should be assigned for VoLTE users in case TICK trigger will be used in this scenario.

SCC-AS with T-ADS should be supported.

**Call Case Description**

Step 1-4: GMSC receives the IAM targeting to VoLTE user, with this trigger GMSC can route the terminating call to IS-MGC (ISUP/TDM).

Step 5 & 6: Execute Number Analysis, Map the received ISUP IAM information into SIP INVITE using B-Number. DNS query to resolve address of I-CSCF.

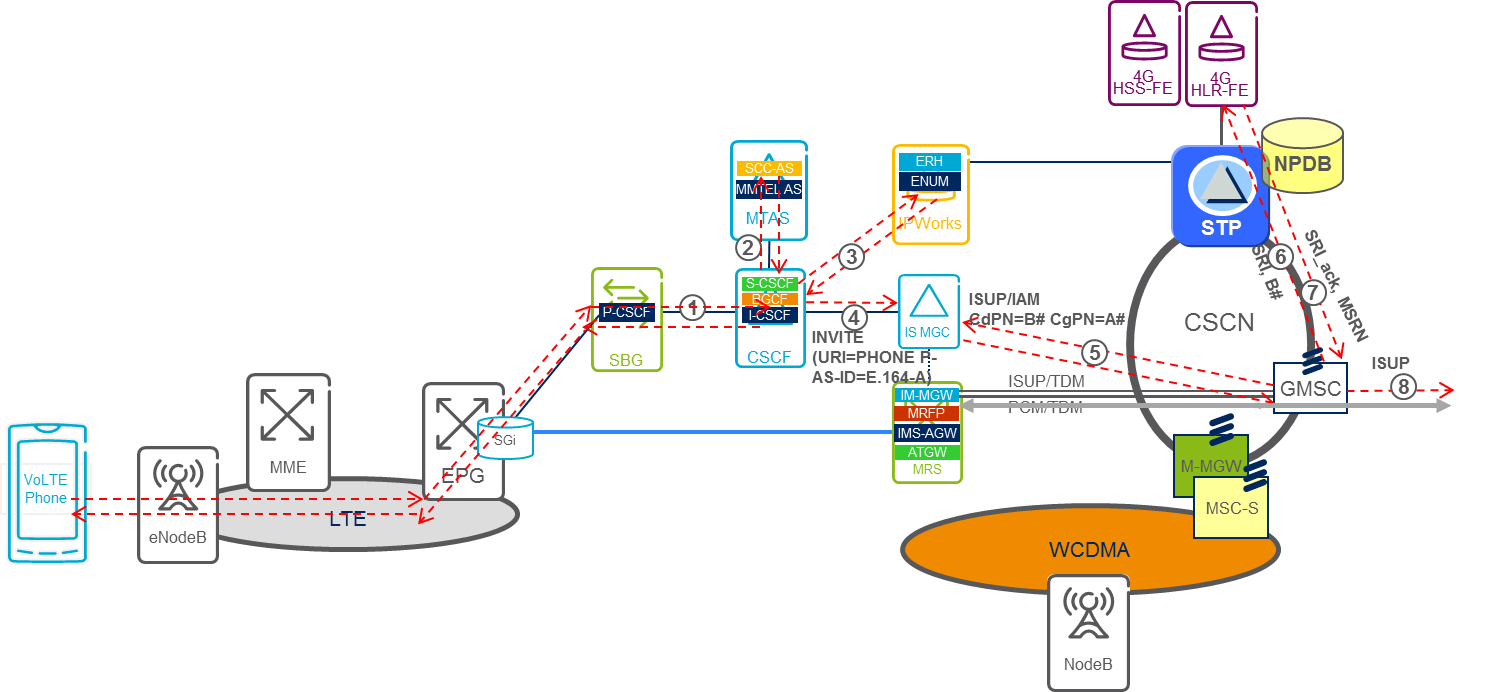
Step 7: T-ADS selection in SCC-AS, VoLTE UE Registration in PS (PS contact) and Retry CS If PS contact fails or timeout

Step 8 & 9: Based on PS contact, the call setup (SIP INVITE) send to P-CSCF, EPG, eNB first. After mtasTadsNoResponseTimer is Timeout, breakout (MSISDN with a configured prefix) to CS.

Step 10: IS-MGC removes the prefix and sends IAM to GMSC (called number B)

Step 11 & 12: loop back prevention (TICK suppression) as well as network announcement suppression in GMSC and normal SRI response for MSRN from 4G HLR-FE.

## VoLTE🡪 CS



Step 1. SIP-call is initialed from A towards phone B.INVITE message is sent to CSCF.

Step 2. CSCF triggers a’s Application Server

Step 3. CSCF generates a NAPTR DNS query of ENUM requesting resolution of E.164 number to SIP: URI

Step 4. CSCF check the “breakout tables” based on A subscriber’s number (in P-Asserted-id) and B subscriber number (in request URI), to see which MGC the INVITE should be sent.

Step 5. MGC maps the INVITE to an ISUP IAM containing the B subscriber’s E.164 number, sends to GMSC and the call proceeds.

Step 6-8. GMSC receives the IAM message and route the termination call to CS.

# Common Preconditions

## TTL setting in the IP Works

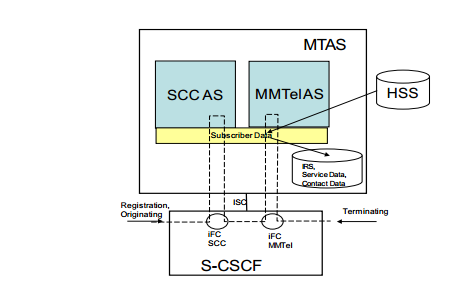
For NAPTR, SRV and A Record, the TTL is not specific and the default TTL for zone is used, which is 86400s. If the TTL does not expire, there will be no DNS query.

But for ENUM zone the TTL will be configured with 0 which means that the resource record can only be used for the transaction in progress, and should not be cached.

## SCC AS and MMTel AS on MTAS

The MTAS can be deployed as MMTel AS standalone node, SCC AS standalone node or MMTel AS and SCC AS nodes collocated. This is controlled with the MtasMmtAdministrativeState and MtasSccAdministrativeState CM attributes.

For originating call, S-CSCF will send INVITE to SCC AS then MMTel AS, but for terminating call, S-CSCF will send INVITE to MMTel AS then SCC AS.



## User Busy

The busy condition from the UE is signaled with the following SIP error responses ‘486 Busy Here’, ‘603 Decline’ or ‘600 Busy Everywhere’. In FET solution, we will use ‘486 Busy Here’ and ‘603 Decline’, since when user reject the call will also trigger the CDIV on busy. The VoLTE UE behavior for 486 and 603 response will be handled in the same way under such scenario.

## Early ACM

Which SIP response should be mapped is variable due to the reason in below;

An ACM message is sent in certain situations to indicate that the call is in progress in order to satisfy ISUP timers, rather than to signify that the callee is being alerted. This occurs for example in mobile networks, where roaming can delay call setup significantly. The early ACM is sent before the user is alerted to reset T7 and start T9. An ACM is considered an 'early ACM' if the Called Party's Status Indicator is set to 00 (no indication). After sending an early ACM, the ISUP network can be expected to indicate the further progress of the call by sending CPGs.   
  
So what ACM should be mapped to is depends on what is the status in “Called Party’s Status indicator” is. In another word, when “Called Party's Status Indicator” is “no indication”, then mapped to 183; when Called Party's Status Indicator is “Subscriber free”, then mapped to 180.

# System Acceptance Test

## OIP (A-MVPN-4G, B-MVPN-4G, PNP)

**Test ID**

FET\_MVPN\_SS\_001

**Description**

MVPN (4G) calls with PNP number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE B has OIP provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number , From: A MSISDN number).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: A PNP).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number , To :+886404+B number. PAI:A MSISDN number , From: A PNP).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP).

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A PNP.

## OIP (A-MVPN-4G, B-MVPN-ICS 3G, Long PNP)

**Test ID**

FET\_MVPN\_SS\_002

**Description**

MVPN (4G) calls with Long PNP number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B On Group
3. UE A calls UE B with Long PNP
4. UE B has OIP provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number , From: A MSISDN number).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: A PNP).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number , To :+886404+B number. PAI:A MSISDN number , From: A PNP).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP).

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A Long PNP.

## OIP (A-MVPN-3G, B-MVPN-4G, MSISDN)

**Test ID**

FET\_MVPN\_SS\_003

**Description**

MVPN (3G) calls with MSISDN number within On Group.

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with MSISDN number.
4. UE B has OIP provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. GMSC send SRI with TCSI suppress to HLR , HLR send back volte MVPN user indicator ST-31,
2. MGCF send INVITE to IBCF with (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A PNP).

MT part

1. CSCF send INVITE to SB with (Req Uri:+886+B number , To :+886404+B number. PAI:A MSISDN number , From: A PNP).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP).

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A PNP.

## OIP (A-MVPN-4G, B-MVPN-4G, Off Group)

**Test ID**

FET\_MVPN\_SS\_004

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B OFF Group
3. UE A calls UE B with B number.
4. UE B has OIP provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. 1.According to IFC trigger, CSCF send INVITE to SB with Req Uri:B number, PAI:A MSISDN number , From: A MSISDN number.
2. 2.After SB IN Trigger procedure, SB send INVITE to CSCF, not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A MSISDN number).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:+886+B number , To :+886+B number. PAI:A MSISDN number , From: A MSISDN number.
2. 4.SB not suppress IN trigger, send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A number).

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A number.

## OIP (A-MVPN-4G, B-MVPN-ICS 3G, Off Group)

**Test ID**

FET\_MVPN\_SS\_005

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B OFF Group
3. UE A calls UE B with B number.
4. UE B has OIP provisioned

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:B number, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB send INVITE to CSCF, not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A MSISDN number).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:+886+B number , To :+886+B number. PAI:A MSISDN number , From: A MSISDN number.
2. SB not suppress IN trigger, send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A number)..

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A number.

## OIP (A-MVPN-3G, B-MVPN-4G, Off Group)

**Test ID**

FET\_MVPN\_SS\_006

**Description**

MVPN (3G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G)
2. UE A UE B OFF Group
3. UE A calls UE B with B number.
4. UE B has OIP provisioned

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. TSC send SRI to HLR and get TICK.
2. MGCF send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and B MSISDN.
3. MGCF send INVITE to IBCF with (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A PNP).

MT part

1. CSCF send INVITE to SB with (Req Uri:+886+B number , To :+886404+B number. PAI:A MSISDN number , From: A PNP).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP.

**SB part**

1. TBD

**Pass Criteria**

UE B display UE A number.

## OIR (A-MVPN-4G, B-MVPN-4G, PNP)

**Test ID**

FET\_MVPN\_SS\_007

**Description**

MVPN (4G) calls with PNP number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE A has OIR provisioned

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:Anonymous,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:Anonymous,Privacy: “id”)

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number ,To :+886404+B number. PAI:A MSISDN number ,From:Anonymous,Privacy: “id”).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number, From:Anonymous,Privacy:"id"..

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-MVPN-3G, PNP)

**Test ID**

FET\_MVPN\_SS\_008

**Description**

MVPN (4G) calls with PNP number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
3. MTAS-A execute OIR service, add ""id"" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:Anonymous,Privacy: “id;user;header”)

MT part

1. BGCF breaks out call to MGCF with INVITE (Req Uri:+886404+B Number To:+886404+B Number PAI:A MSISDN number From:Anonymous,Privacy:“id;user;header”)
2. MGCF Removes 404 prefix in B number, Suppress TICK in SRI to HLR, suppress IN trigger in MSC.

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-MVPN-ICS 3G, MSISDN)

**Test ID**

FET\_MVPN\_SS\_009

**Description**

MVPN (4G) calls with MSISDN number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:0B , PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: A PNP,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:PNP,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:Anonymous,Privacy: “id”)

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number ,To :+886404+B number. PAI:A MSISDN number ,From:Anonymous,Privacy: “id”).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number, From:Anonymous,Privacy:"id"..

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-MVPN-ICS 3G, MSISDN)

**Test ID**

FET\_MVPN\_SS\_010

**Description**

MVPN (4G) calls with MSISDN number within On Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:0B , PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: A PNP,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:PNP,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886404+B Number,PAI: A number,From:Anonymous,Privacy: “id”)

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number ,To :+886404+B number. PAI:A MSISDN number ,From:Anonymous,Privacy: “id”).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number, From:Anonymous,Privacy:"id".

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-MVPN-4G, Off Group)

**Test ID**

FET\_MVPN\_SS\_011

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, do not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id”)

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number ,To :+886+B number. PAI:A MSISDN number ,From:Anonymous,Privacy: “id”).
2. SB do not suppress IN trigger, send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI: A number, From:Anonymous,Privacy:"id"..

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-MVPN-ICS 3G, Off Group)

**Test ID**

FET\_MVPN\_SS\_012

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, do not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A MSISDN number,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:A number,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id”)

MT part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:+886+B number ,To :+886+B number. PAI:A MSISDN number ,From:Anonymous,Privacy: “id”).
2. SB do not suppress IN trigger, send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI: A number, From:Anonymous,Privacy:"id".
3. BGCF breaks out call to MGCF with INVITE (Req Uri:+886+B MSRN Number To:+886+B Number PAI:A MSISDN number From:Anonymous,Privacy:“id”).

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-VoLTE-4G, Off Group)

**Test ID**

FET\_MVPN\_SS\_013

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:Volte (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on Service Broker and IMS.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, do not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id;user;header”)
4. MTAS-B execute OIR service, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id”).

**SB part**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## OIR (A-MVPN-4G, B-FET 3G, Off Group)

**Test ID**

FET\_MVPN\_SS\_014

**Description**

MVPN (4G) calls with B number within OFF Group.

**Preconditions**

1. A:MVPN (4G), B:FET (3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE A has OIR provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B answers the call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, do not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: Anonymous,Privacy: “header”).
3. MTAS-A execute OIR service, add "id" in Privacy header, send invite to CSCF(Req-uri:+886+B Number, To:+886+B Number,PAI: A number,From:Anonymous,Privacy: “id;user;header”)

MT part

1. BGCF breaks out call to MGCF with INVITE (Req Uri:+886+B Number To:+886+B Number PAI:A MSISDN number From:Anonymous,Privacy:“id;user;header”)
2. The call set up in MGCF.

**SB part:**

1. TBD

**Pass Criteria**

UE B display vacant A number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_015

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(4G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(INVITE INVITE: R-URI:+886+C Number; To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404)

MT part

1. CSCF send invite to SB(INVITE INVITE: R-URI:+886+C Number
2. To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
3. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1). .

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_016

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(ICS 3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call.

UE C answer the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. CSCF send 486 Busy here to SB-A.
4. SB-A send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A PNP, Hist-info: <B> index1, <404+C> index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <404+C>,cause=486,index1.1,info=404).
6. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1). .

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_017

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call.

UE C answer the diverted call

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. SB-A not reply timer timeout.
4. After SB IN procedure，SB-A send invite to CSCF(R-URI:+886404+C Number, To: +886+B Number, PAI: A number From: A PNP, Hist-info: <B> index1, <C>cause=408, index1.1 info=404)
5. IBCF send invite to MGCF(R-URI:+886404+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>cause=408, index1.1)..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_018

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(PBX/F5)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE B power off

UE A calls UE B.

UE C answers the diverted call

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. CSCF send 480 Temp Unavailable with warning header to SB-A.
4. SB-A send invite to CSCF(R-URI:+99014010+C Number, To: +886+B Number, PAI: A number From: A PNP, Hist-info: <B> index1, <C>cause=480, index1.1 info=404)
5. BGCF send invite to MGCF(R-URI:+99014010+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>cause=480, index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_019

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(4G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE B remove the battery

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. CSCF send 480 Temp Unavailable q.850 cause code 20 to SB-A.
4. SB-A send invite to CSCF(R-URI:+886+C Number To: +886+B Number PAI: A number From: A PNP, Hist-info: <B> index1, <C> index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <404+C>,cause=480,index1.1,info=404).
6. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=480, index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_020

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(ICS 3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A PNP)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(INVITE: R-URI:+886+C Number; To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=xxx,index1.1,info=404)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+C Number,To: +886+B Number,PAI:A MSISDN number From:A PNP,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
2. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1)..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_021

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. CSCF send 486 Busy here to SB-A.
4. SB-A send invite to CSCF.(R-URI:+886404+C Number To: +886+B Number PAI: A number From: A PNP, Hist-info: <B> index1, <404+C>cause=486, index1.1 info=404)
5. IBCF send invite to MGCF(R-URI:+886404+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <404+C>cause=486, index1.1,info=404).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_022

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(PBX/F5)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. MO part, according to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886404+B Number,PAI: A number From: A PNP)
3. MT part, CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886404+B Number,PAI: A number From: A PNP).
4. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
5. SB-A not reply time timeout.
6. SB-A send invite to CSCF(R-URI:+99014010+C Number, To: +886+B Number, PAI: A number From: A PNP, Hist-info: <B> index1, <C>cause=408, index1.1 info=404)
7. BGCF send invite to MGCF(R-URI:+99014010+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>cause=408, index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_023

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(4G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
3. BGCF send INVITE to MGCF.(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
4. Not reply timer timeout in SB-A.
5. SB-A send invite to CSCF(R-URI:+886+C Number To: +886+B Number PAI: A number From: A PNP, Hist-info: <B> index1, <C> index1.1 info=404)
6. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=408,index1.1,info=404).
7. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=408, index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_024

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(ICS 3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE B remove the battery

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
3. BGCF send INVITE to MGCF.(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
4. CSCF send 480 Temp Unavailable to SB-A with Q.850 cause code .
5. SB-A send invite to CSCF(R-URI:+886+C Number To: +886+B Number PAI: A number From: A PNP, Hist-info: <B> index1, <C> cause=503 index1.1 info=404)
6. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
7. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=503, index1.1)..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_025

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN ( 3G), C:MVPN(3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A PNP)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(INVITE: R-URI:+886+404C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404)
3. IBCF send invite to MGCF(R-URI:+886404+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>cause=302, index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_026

**Description**

MVPN ON Group Cdiv calls A trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(PBX/F5)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
3. BGCF send INVITE to MGCF(R-URI:+886404+B Number, To: +886404+B Number,PAI: A number From: A PNP)
4. MGCF send 486 Busy here to BGCF.
5. CSCF send 486 Busy here to SB-A.
6. SB-A send invite to CSCF(R-URI:+99014010+C Number, To: +886+B Number, PAI: A number From: A PNP, Hist-info: <B> index1, <C>cause=486, index1.1 info=404)
7. BGCF send invite to MGCF(R-URI:+99014010+C Number, To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>cause=468, index1.1)

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A PNP number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_027

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(4G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. CSCF send 486 Busy here to SB-B.
4. SB-A send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=486,index1.1,info=404).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_028

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(ICS 3G)

2. UE A UE B Off group, UE B UE C ON Group

3. UE A calls UE B with CFNRY to UE C.

4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: PNP).
3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=486,index1.1,info=404).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1)..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_029

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(3G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE B remove the battery

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB 480 Temp Unavailable with cause 503.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1 info=404)
5. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
6. MGCF send SRI for UE C with TICK supression to HLR and get SRI ACK with UE C MSRN..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_030

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(PBX/F5)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

1. MO part, according to IFC trigger,CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:9901+4010x+C Number,To:+886+B Number,PAI: A Number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
3. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
4. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_BC\_031

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(4G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
  2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

* 1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
  2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
  3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP
  4. SB-B send invite to CSCF(R-URI:886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C>cause=408, index1.1 info=404)

1. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=408,index1.1,info=404).
2. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_032

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN ( 3G), C:MVPN(3G)
2. UE A UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE B power off

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
  2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

* 1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
  2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
  3. CSCF send to SB 480 Temp Unavailable with q.850 cause 18.
  4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1 info=404)
  5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).

1. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1)

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_033

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

* 1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(3G)
  2. UE A UE B Off group, UE B UE C ON Group
  3. UE A calls UE B with CFU to UE C.
  4. UE B has CFU provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger,CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
  2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

* 1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
  2. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=302,index1.1 info=404)
  3. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
  4. MGCF send SRI with TICK supression to HLR and get SRI ACK with MSRN.

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_034

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(PBX/F5)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
  2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part,

* 1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
  2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
  3. CSCF send 486 Busy here to SB-B.
  4. SB send INVITE to CSCF(R-URI:9901+4010x+C Number,To:+886+B Number,PAI: A Number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1,info=404).
  5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).

1. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_035

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

* 1. A:MVPN (4G), B:MVPN (3G), C:MVPN(4G)
  2. UE A UE B Off group, UE B UE C ON Group
  3. UE A calls UE B with CFU to UE C.
  4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
  2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
  3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
  4. MGCF send SRI to HLR with B msisdn number and get SRI ACK with TICK.
  5. MGCF send SRI to HLR with TICK suppress with C MSISDN number and get roaming number..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_036

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(ICS 3G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP, PAI:A MSISDN number,From: A MSISDN number)
  2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
  3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
  4. MGCF send SRI to HLR and get SRI ACK with TICK.
  5. MGCF send SRI to HLR and get MSRN.
  6. MGCF send 486 busy here to BGCF.

1. CSCF send 486 busy here to SB-A.
2. SB-A send invite to CSCF(R-URI:886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> index1.1 info=404)
3. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1,info=404).
4. SB send send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486, index1.1) .

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_037

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

* 1. A:MVPN (4G), B:MVPN ( 3G), C:MVPN(3G)
  2. UE A UE B Off group, UE B UE C ON Group
  3. UE A calls UE B with CFNRY to UE C.
  4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker.

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

**IMS part:**

MO part

* 1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B number, PAI:A MSISDN number,From: A MSISDN number)
  2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

1. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
2. MGCF send SRI to HLR and get SRI ACK with TICK.
3. MGCF send SRI to HLR and get MSRN.
4. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
5. SB-B send invite to CSCF(R-URI:886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C>cause=408, index1.1 info=404)
6. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1,info=404).
7. MGCF send SRI with TICK supression to HLR and get SRI ACK with MSRN..

**SB part:**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_038

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

* 1. A:MVPN (4G), B:MVPN (3G), C:MVPN(PBX/F5)
  2. UE A UE B Off group, UE B UE C ON Group
  3. UE A calls UE B with CFNRC to UE C.
  4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B.

UE C answers the diverted call

**Expected Result**

**IMS part**

MO part,

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B PNP,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB 480 Temp Unavailable with q.850 cause 18.
4. SB-B send invite to CSCF.(R-URI:9901+4010x+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1 info=404)
5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

**SB part**

MO part

* 1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_039

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(4G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B remove the battery

UE A calls UE B.

UE C answers the diverted call

**Expected Result**

**IMS part**

MO part

1. GMSC send SRI without TCSI suppress to HLR , HLR send back TICK.
2. GMSC send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB-B 480 Temp Unavailable with cause 503.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1).

**SB part**

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_040

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(ICS 3G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE C answers the call.

**Expected Result**

**IMS part**

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE C with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE C MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+C number,To:+886+C number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+C number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+C Number,To: +886+404+C Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+C Number,To:+886+C Number,PAI: A Number From: A MSISDN number).

**SB part**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_041

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

* + 1. A:MVPN (3G), B:MVPN (4G), C:MVPN(3G)
    2. UE A UE B Off group, UE B UE C ON Group
    3. UE A calls UE B with CFB to UE C.
    4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB-B 486 Busy here with cause 486.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=486,index1.1 info=404)
5. BGCF send invite to MGCF(R-URI:+886+C Number, To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>cause=486, index1.1 info=404)
6. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
7. MGCF send SRI for UE C with TICK supression to HLR and get SRI ACK with MSRN for UE C.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_042

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(PBX/F5)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
4. SB-B send invite to CSCF.(R-URI:9901+4010x+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=408,index1.1 info=404)
5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1,info=404).
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_043

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(4G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE C answers the diverted call.

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE C with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE C MSISDN.
3. MGCF send INVITE to IBCF for UE C(Req Uri:+886+C number,To:+886+C number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+C number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+C Number,To: +886+404+C Number,PAI: A number From: A MSISDN number).
2. SB-B send invite to CSCF for UE C.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=302,index1.1 info=404)
3. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A PNP,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
4. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1).

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_044

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(ICS 3G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and UE C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE B reject the call

UE C answers the diverted call.

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
3. CSCF send 486 busy here to SB-B.
4. SB-B send invite to CSCF(R-URI:886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=486,index1.1 info=404)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1,info=404).
6. SB-C send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).

SB part

MO part,

* 1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_045

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(3G)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and UE C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B.

UE B doesn’t answer the call

UE C answers the diverted call.

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=408,index1.1 info=404)
5. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1,info=404).
6. MGCF send SRI for UE C with TICK supression to HLR and get SRI ACK with MSRN for UE C.

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_046

**Description**

MVPN OFF Group Cdiv calls A,B trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(PBX/F5)
2. UE A UE B Off group, UE B UE C ON Group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part,

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB-B(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
3. CSCF send to SB-B 480 Temp Unavailable with cause 503.
4. SB-B send invite to CSCF.(R-URI:9901+4010x+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1 info=404)
5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1,info=404).
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_PH0\_SS\_047

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(4G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part,

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=408, index1.1)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).

SB part

MO part,

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_048

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB-B 480 Temp Unavailable with cause 503.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503, index1.1)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1)..

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_049

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+C Number,To:+886+B Number,PAI: A Number From: A MSISDN number, Hist-info: <B> index1, <C> cause=302, index1.1) ).
3. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1).
4. MGCF send SRI for UE C and get SRI ACK with TICK.
5. MGCF send SRI for UE C with TICK suppression and get SRI ACK with MSRN.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-4G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_050

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G), C:MVPN(PBX/F5)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CSCF send to SB-B 486 Here with cause 486.
4. SB-B send invite to CSCF.(R-URI:9901+4010x+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=486,index1.1)
5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_051

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(4G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. MGCF send 486 Busy here to IBCF.
4. CSCF send 486 Busy here to SB-B.
5. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=486,index1.1)
6. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).
7. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=486,index1.1).

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_052

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. SB-B not reply timer timeout.SB-B trigger ERB No reply event to SCP.
4. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=408, index1.1)
5. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).
6. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_053

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. MGCF send to BGCF 480 Temp Unavailable with q.850 cause 18.
4. CSCF send to SB 480 Temp Unavailable with q.850 cause 18.
5. SB-B send invite to CSCF.(R-URI:+886+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=503,index1.1)
6. CF part,BGCF send invite to MGCF(R-URI:+886+C Number To:+886+C Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1).
7. MGCF send SRI for UE C and get SRI ACK with TICK.
8. MGCF send SRI for UE C with TICK suppression and get SRI ACK with MSRN.

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_054

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G), C:MVPN(PBX/F5)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number,PAI:A MSISDN number,From: A MSISDN number)
2. After SB IN Trigger procedure, SB sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
3. MT part, CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+B Number,PAI: A number From: A MSISDN number).
4. SB-B send invite to CSCF.(R-URI:9901+4010x+C Number To: +886+B Number PAI: A number From: A MSISDN number, Hist-info: <B> index1, <C> cause=302,index1.1)
5. CF part,BGCF send invite to MGCF(R-URI:9901+4010x+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1).
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_056

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(4G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
4. MGCF send SRI to HLR and get SRI ACK with TICK.
5. MGCF send SRI with TICK suppression to HLR and get MSRN.
6. MGCF send SRI for UE C without TCSI suppress to HLR , HLR send back TICK.
7. MGCF send SRI for UE C with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and C MSISDN.
8. MGCF send INVITE to IBCF (Req Uri:+886+C number,To:+886+B number, From: A MSISDN number,PAI: A number,Hist-info: <B> index1, <C>,cause=408,index1.1).
9. IBCF add 404 prefix in To header(To:+886404+C number).
10. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).
11. SB-C send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=408,index1.1).

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_056

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B remove battery

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
4. MGCF send SRI to HLR and get SRI ACK with TICK.
5. MGCF send SRI with TICK suppression to HLR and get MSRN.
6. MGCF send SRI for UE C without TCSI suppress to HLR , HLR send back TICK.
7. MGCF send SRI for UE C with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and C MSISDN.
8. MGCF send INVITE to IBCF (Req Uri:+886+C number,To:+886+B number, From: A MSISDN number,PAI: A number,Hist-info: <B> index1, <C>,cause=503,index1.1).
9. IBCF add 404 prefix in To header(To:+886404+C number).
10. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1).
11. SB-C send INVITE to CSCF(R-URI:+886+C Number,To: +886+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=503,index1.1)

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_057

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
4. MGCF send SRI for UE B to HLR and get SRI ACK with TICK.
5. MGCF send SRI for UE C to HLR and get SRI ACK with TICK.
6. MGCF send SRI for UE C with TCSI suppress to HLR and get MSRN for UE C

SB part

MO part,

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-4G, B-MVPN-3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_058

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G), C:MVPN(PBX/F5)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with (Req Uri:B Number, PAI:A MSISDN number,From: A MSISDN number)
2. After SB-A IN Trigger procedure, SB-A sends INVITE to CSCF(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
3. BGCF send INVITE to MGCF.(R-URI:+886+B Number, To: +886+B Number,PAI: A number From: A MSISDN number)
4. MGCF send SRI for UE B to HLR and get SRI ACK with TICK.
5. MGCF send SRI for UE B with TICK suppression to HLR and get MSRN.
6. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

MO part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_059

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(4G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. MGCF send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. MGCF send SRI for UE C without TCSI suppress to HLR, HLR send back TICK for UE C.
3. MGCF send SRI for UE C with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE C MSISDN.
4. MGCF send INVITE to IBCF (Req Uri:+886+C number,To:+886+C number, From: A MSISDN number,PAI: A number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
5. IBCF add 404 prefix in To header(To:+886404+C number).
6. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+404+C Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
7. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+C Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1).

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_60

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger.

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

UE C answer the diverted call

**Expected Result**

IMS part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. CF part , MGCF send SRI for UE C without TCSI suppress to HLR , HLR send back TICK for UE C.
4. MGCF send SRI for UE C with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE C MSISDN.
5. IBCF add 404 prefix in To header(To:+886404+C number).
6. MT part, CSCF send invite to SB(INVITE: R-URI:+886+C Number,To: +886+404+C Number,PAI: A number From: A MSISDN number).
7. SB send INVITE to CSCF(R-URI:+886+C Number,To:+886+C Number,PAI: A Number From: A MSISDN number)..

**SB part**

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-3G

**Test ID**

FET\_MVPN\_SS\_61

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted cal

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. MGCF send SRI for UE C without TCSI suppress to HLR , HLR send back TICK for UE C.
4. MGCF send SRI for UE C with TCSI suppress to HLR,HLR send back UE C MSRN number.

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-4G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_062

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G), C:MVPN(PBX/F5)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB send INVITE to CSCF(R-URI:+886+B Number,To:+886+B Number,PAI: A Number From: A MSISDN number).
3. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number. r.

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_063

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(4G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRC to UE C.
4. UE B has CFNRC provisioned to UE C.

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE B remove the battery

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. CSCF send invite to SB-B(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
2. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
3. MGCF send SRI for UE C and get SRI ACK with TICK.
4. MGCF send SRI for UE C with TICK suppression ,HLR send back volte MVPN indicator ST-31 and UE C MSISDN. .
5. CF part, MGCF send INVITE to IBCF for UE C(Req Uri:+886+C number,To:+886+C number, From: A MSISDN number,PAI: A number,Hist-info: <B> index1, <C> cause=503,index1.1).
6. IBCF add 404 prefix in To header(To:+886404+C number).
7. CSCF send invite to SB-C(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C> cause=503,index1.1).
8. SB-C send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN numberHist-info: <B> index1, <C> cause=503,index1.1)

SB part

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_064

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFB to UE C.
4. UE B has CFB provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE C answer the diverted call

**Expected Result**

IMS part

MO part,

1. MGCF send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. MGCF send SRI for UE C without TCSI suppress to HLR, HLR send back TICK for UE C.
3. MGCF send SRI for UE C with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE C MSISDN.
4. MGCF send INVITE to IBCF (Req Uri:+886+C number,To:+886+C number, From: A MSISDN number,PAI: A number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
5. IBCF add 404 prefix in To header(To:+886404+C number).
6. CF part,CSCF send invite to SB-C(R-URI:+886+C Number To: +886+404+C Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1,info=404).
7. SB send INVITE to CSCF(R-URI:+886+C Number,To: +886+C Number,PAI: A number From: A MSISDN number,Hist-info: <B> index1, <C>,cause=302,index1.1). .

SB part

MO part,

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_065

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(ICS 3G)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFU to UE C.
4. UE B has CFU provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).
5. MT part, CSCF send invite to SB-B(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
6. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
7. MGCF send SRI for UE C and get SRI ACK with TICK.
8. MGCF send SRI for UE C with TICK suppression and get SRI ACK with MSRN.

SB part

MO part,

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## CDiv (A-MVPN-3G, B-MVPN-ICS 3G, C-MVPN-PBX/F5)

**Test ID**

FET\_MVPN\_SS\_066

**Description**

MVPN OFF Group Cdiv calls A,B,C trigger.

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS 3G), C:MVPN(PBX/F5)
2. UE A UE B UE C Off group
3. UE A calls UE B with CFNRY to UE C.
4. UE B has CFNRY provisioned to UE C..

**Check Points**

UE A and C setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B doesn’t answer the call

UE C answer the diverted call

**Expected Result**

IMS part

MO part

1. GMSC send SRI for UE B without TCSI suppress to HLR , HLR send back TICK for UE B.
2. GMSC send SRI for UE B with TCSI suppress to HLR, HLR send back volte MVPN indicator ST-31 and UE B MSISDN.
3. MGCF send INVITE to IBCF for UE B(Req Uri:+886+B number,To:+886+B number, From: A MSISDN number,PAI: A number).
4. IBCF add 404 prefix in To header(To:+886404+B number).
5. MT part
6. CSCF send invite to SB-B(INVITE: R-URI:+886+B Number,To: +886+404+B Number,PAI: A number From: A MSISDN number).
7. SB-B send invite to CSCF for UE B.(R-URI:+886+B Number To: +886+B Number PAI: A number From: A MSISDN number)
8. MGCF send IAM to TSC with B number:\*+4010x+C Number,CPN:A Number.

SB part

MO part,

1. TBD

**Pass Criteria**

CDIV Call successful with UE C display A MSISDN number.

## MVPN (4G) voice call MVPN (4G)

**Test ID**

FET\_MVPN\_SS\_067

**Description**

MVPN On group Call waiting

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE B was in conversation and has Call waiting provisioned

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:B PNP, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, adds prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886404+B number, PAI:A MSISDN number , From: A PNP).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:+886+B number , To :+886404+B number. PAI:A MSISDN number , From: A PNP.
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP) .
3. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
4. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>.
5. CSCF send SIP 180 to SB-A with Alert-Info: <urn:alert:service:call-waiting>.
6. SB-A send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>..

SB part

MT part

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A PNP number.

## MVPN (3G) voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_SS\_068

**Description**

MVPN On group Call waiting

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. GMSC send SRI with TCSI suppress to HLR , HLR send back volte MVPN user indicator ST-31,
2. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A PNP).
3. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+B number,From: A PNP).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP).
3. BGCF send INVITE to MGCF(Req Uri:B MSRN, To:B MSRN, From: A PNP)
4. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
5. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>.

SB part

MO part,

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A PNP number.

## MVPN (4G) voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_SS\_69

**Description**

MVPN Off group Call waiting

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:B PNP, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB send INVITE to CSCF, not add prefix 404 into To header of INVITE, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A MSISDN number).

MT part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:+886+B number , To :+886+B number. PAI:A MSISDN number , From: A MSISDN number.
2. SB not suppress IN trigger, send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A number).
3. BGCF send INVITE to MGCF (Req Uri:B MSRN, To:B MSRN, From: A MSISDN number)
4. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
5. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>.

SB part

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A MSISDN number.

## MVPN (3G) voice call MVPN (4G)

**Test ID**

FET\_MVPN\_SS\_070

**Description**

MVPN Off group Call waiting

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. GMSC send SRI without TCSI suppress to HLR , HLR send back TICK.
2. GMSC trigger terminating IDP procedure, SCP send CONNECT with DESTADDR(+886404+B)
3. GMSC send SRI with TCSI suppress to HLR,HLR send back volte MVPN indicator ST-31 and B MSISDN.
4. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number).
5. IBCF add 404 prefix in To header(To:+886404+B number).
6. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A number From:A PNP).
7. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
8. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>..

SB part

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A MSISDN number.

## MVPN (4G) voice call FET 3G

**Test ID**

FET\_MVPN\_SS\_071

**Description**

MVPN Off group Call waiting

**Preconditions**

1. A:MVPN (4G), B:FET 3G
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:B number, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, (Req Uri:+886+B number , To :+886+B number, PAI:A MSISDN number , From: A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:+886+B, To:B number, From: A MSISDN number)
4. CSCF send SIP 180 to SB with Alert-Info: <urn:alert:service:call-waiting>.
5. SB send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>.

SB part

MO part,

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A MSISDN number.

## VoLTE (4G) voice call MVPN (4G)

**Test ID**

FET\_MVPN\_SS\_072

**Description**

MVPN Off group Call waiting.

**Preconditions**

1. A:VOLTE(4G), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. MO part, according to IFC trigger, CSCF not send INVITE to SB .
2. MT part, according to IFC trigger, CSCF send INVITE to SB with Req Uri:+886+B number , To :+886+B number. PAI:A MSISDN number , From: A MSISDN number.
3. SB send invite to CSCF(Req Uri:+886+B number, To:+886+B number, PAI:A MSISDN number From:A number).
4. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
5. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>. .

SB part

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A MSISDN number.

## FET 3G voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_SS\_073

**Description**

MVPN Off group Call waiting

**Preconditions**

1. A:FET 3G, B:MVPN (ICS 3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.
4. UE B was in conversation and has Call waiting provisioned.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. GMSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
2. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, From: A MSISDN number).
3. IBCF add 404 prefix in To header(To:+886404+B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+B number,From: A MSISDN number).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI:A MSISDN number From:A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:MSRN, To:MSRN,From: A MSISDN number)
4. CSCF send SIP 180 to SB-B with Alert-Info: <urn:alert:service:call-waiting>.
5. SB-B send SIP 180 to CSCF with Alert-Info: <urn:alert:service:call-waiting>. .

SB part

1. TBD

**Pass Criteria**

Call Waiting successful with UE B display A MSISDN number.

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_BC\_074

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (4G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B and hold

UE A calls UE C

UE A merge

UE B release the call

UE C release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_076

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE A hold and calls UE C

UE A merge

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_077

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G),C:MVPN (4G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned..

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE A hold and calls UE C

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_078

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned..

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B and hold

UE A calls UE C

UE A merge

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-ICS 3G, C-MVPN-3G)

**Test ID**

FET\_MVPN\_SS\_079

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (ICS 3G),C:MVPN (3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned..

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE C release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-3G, C-MVPN-4G)

**Test ID**

FET\_MVPN\_SS\_080

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G),C:MVPN (4G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## Conference (A-MVPN-4G, B-MVPN-4G, C-MVPN-ICS 3G)

**Test ID**

FET\_MVPN\_SS\_075

**Description**

MVPN On Group Ad-Hoc Conf Call

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G),C:MVPN (ICS 3G),
2. UE A UE B UE C On Group
3. On Group call with PNP number.
4. UE A has Ad-Hoc Conf service provisioned.

**Check Points**

Conference call setup successfully; Signaling flows on IMS and Service Broker

**Test Execution**

UE B calls UE A

UE C calls UE A

UE A merge

UE B release the call

UE A release the call

**Expected Result**

IMS part

MO part

1. TBD

SB part

1. TBD

**Pass Criteria**

TBD

## MVPN (4G) voice call PSTN

**Test ID**

FET\_MVPN\_BC\_045

**Description**

MVPN (4G) calls with PNP number within Virtual On Net.

**Preconditions**

1. A:MVPN (4G), B:PSTN
2. UE A UE B Virtual On Net.
3. UE A calls UE B with PNP.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:B PNP number, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, (Req Uri:0B number , To : 0B number, PAI:A MSISDN number , From: A PNP number).
3. BGCF send INVITE to MGCF(Req Uri:+886+B, To:0B number, From: A PNP number)
4. MGCF send IAM to TSC.

SB part

1. TBD

**Pass Criteria**

Virtual On net call set up successfully.

## MVPN (4G) voice call PSTN

**Test ID**

FET\_MVPN\_BC\_046

**Description**

MVPN (4G) calls with B number OFF Net.

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. MO part, according to IFC trigger, CSCF send INVITE to SB with Req Uri:0B number, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, (Req Uri:0B number , To : 0B number, PAI:A MSISDN number , From: A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:+886+B, To:0B number, From: A MSISDN number)

SB part

MO part,

1. SB receive INVITE from CSCF with Req Uri:B number, PAI:A number , From: A number.
2. SB query CUDB by PAI to get OICK, then mapping local service key table to get Service Key: SC
3. SB send IDP with callingPartyNumber=PAI,calledPartyNumber=OICK+B number,SC
4. SB get CONNECT from IN, destinationRoutingAddress=B4XXX+B number, no CUDB query

**Pass Criteria**

UE A and PSTN Off Net setup the call. PSTN display A number.

## MVPN (4G) voice call Other PLMN

**Test ID**

FET\_MVPN\_BC\_037

**Description**

MVPN (4G) calls with B number OFF Net.

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. According to IFC trigger, CSCF send INVITE to SB with Req Uri:0B number, PAI:A MSISDN number , From: A MSISDN number.
2. After SB IN Trigger procedure, SB sends INVITE to CSCF, (Req Uri:0B number , To :0B number, PAI:A MSISDN number , From: A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:+886+14xx+B number, To:0B number, From: A MSISDN number).

SB part

MO part,

1. SB receive INVITE from CSCF with Req Uri:B number, PAI:A number , From: A number.
2. SB query CUDB by PAI to get OICK, then mapping local service key table to get Service Key: SC
3. SB send IDP with callingPartyNumber=PAI,calledPartyNumber=OICK+B number,SC
4. SB get CONNECT from IN, destinationRoutingAddress=B number, no CUDB query

**Pass Criteria**

UE A and Other PLMN Off Net setup the call.

B party display A number.

## MVPN (4G) voice call IDD

**Test ID**

FET\_MVPN\_BC\_048

**Description**

MVPN (4G) calls with B number OFF Net.

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. 002+CC+B number dialling method.
2. MO part, according to IFC trigger, CSCF send INVITE to SB with Req Uri:002+CC+B number, PAI:A MSISDN number , From: A MSISDN number.
3. After SB IN Trigger procedure, SB sends INVITE to CSCF, (Req Uri::002+CC+B number, To :002+CC+B number, PAI:A MSISDN number , From: A MSISDN number).
4. BGCF send INVITE to MGCF(Req Uri:002+CC+B number, To:002+CC+B number, From: A MSISDN number)

SB part

MO part,

1. SB receive INVITE from CSCF with Req Uri:B number, PAI:A number , From: A number.
2. SB query CUDB by PAI to get OICK, then mapping local service key table to get Service Key: SC
3. SB send IDP with callingPartyNumber=PAI,calledPartyNumber=OICK+B number,SC
4. SB get CONNECT from IN, destinationRoutingAddress=B number, no CUDB query

**Pass Criteria**

UE A and Other PLMN Off Net setup the call.

B party display A number.

## PSTN voice call MVPN (4G)

**Test ID**

FET\_MVPN\_BC\_049

**Description**

PSTN calls with B number Off Net.

**Preconditions**

1. A:PSTN, B:MVPN(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. PSTN send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).

SB part

1. No IN trigger

**Pass Criteria**

UE A and UE B Off Net setup the call. B party display A number.

## PSTN voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_BC\_050

**Description**

PSTN calls with B number Off Net.

**Preconditions**

1. A:PSTN, B:MVPN(ICS 3G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. PSTN send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).
5. MT part ,according to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
6. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).
7. BGCF send INVITE to MGCF(Req Uri:MSRN, To:MSRN,from: A MSISDN number)

SB part

1. No IN trigger

**Pass Criteria**

UE A and UE B Off Net setup the call.

B party display A number.

## Other PLMN voice call MVPN (4G)

**Test ID**

FET\_MVPN\_BC\_051

**Description**

Other PLMN calls with B number Off Net.

**Preconditions**

1. A:Other PLMN, B:MVPN(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. Other PLMN send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TMSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).

SB part

1. No IN trigger

**Pass Criteria**

UE A and UE B Off Net setup the call.

B party display A number.

## Other PLMN voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_BC\_052

**Description**

Other PLMN calls with B number Off Net.

**Preconditions**

1. A:Other PLMN, B:MVPN(ICS 3G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. Other PLMN send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TMSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:MSRN, To:MSRN,from: A MSISDN number)

SB part

1. No IN trigger

**Pass Criteria**

UE A and B setup the call, only one IN query IDP(DP12) from TSC.

## IDD voice call MVPN (4G)

**Test ID**

FET\_MVPN\_BC\_053

**Description**

IDD calls with B number Off Net.

**Preconditions**

1. A:IDD, B:MVPN(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. IDD send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).
5. MT part
6. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
7. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).

SB part

1. No IN trigger

**Pass Criteria**

UE A and UE B Off Net setup the call.

B party display A number.

## IDD voice call MVPN (ICS 3G)

**Test ID**

FET\_MVPN\_BC\_054

**Description**

IDD calls with B number Off Net.

**Preconditions**

1. A:IDD, B:MVPN(ICS 3G)
2. UE A UE B Off Net
3. UE A calls UE B with B number

**Check Points**

UE A and B setup the call, signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B answer the call

**Expected Result**

IMS part

MO part

1. IDD send IAM to TSC,TSC SRI query HLR FE, HLR send TICK to TSC.
2. TMSC send SRI to HLR with TICK suppress,HLR send SRI-ACK with B Number, ST.
3. MGCF send INVITE to IBCF (Req Uri:+886+B number,To:+886+B number, from: A MSISDN number).
4. IBCF add 404 prefix in To header(To:+886404+0B number).

MT part

1. According to IFC trigger,CSCF send INVITE to SB(Req Uri:+886+B number,To:+886404+0B number,from: A MSISDN number).
2. SB suppress IN trigger, send invite to CSCF, remove 404 prefix in To header(Req Uri:+886+B number, To:+886+B number, PAI: A MSISDN number from:A MSISDN number).
3. BGCF send INVITE to MGCF(Req Uri:MSRN, To:MSRN,from: A MSISDN number)

SB part

1. No IN trigger

**Pass Criteria**

UE A and UE B Off Net setup the call.

B party display A number.

## Announcement (MVPN 4G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_055

**Description**

MVPN (4G) calls with PNP number within On Group, subscriber Busy.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

**Expected Result**

IMS part

1. CSCF send SIP 486 Busy Here to SB-A
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oCalledPartyBusy to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1823) from MVPN
7. SB-A send SIP info(MSML) with 1823.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry,the number you have dialed is busy,please try later

## Announcement (MVPN 4G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_056

**Description**

MVPN (4G) calls with PNP number within On Group. Power-Off.

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B

**Expected Result**

IMS part

1. CSCF send SIP 480 Temp Unavailable with q.850 cause code 20 to SB-A
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oCalledPartyNotReachable to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1826) from MVPN
7. SB-A send SIP info(MSML) with 1826.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry,,the number you have dialed is out coverage,please try later.

## Announcement (MVPN 4G - MVPN 3G)

**Test ID**

FET\_MVPN\_BC\_057

**Description**

MVPN (4G) calls with PNP number within On Group. Unreachable.

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. CSCF send SIP 480 Temp Unavailable with q.850 cause code 18 to SB-A
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oCalledPartyNotReachable to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1826) from MVPN
7. SB-A send SIP info(MSML) with 1826.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry,,the number you have dialed is out coverage,please try later

## Announcement (MVPN 4G - MVPN PBX/F5)

**Test ID**

FET\_MVPN\_BC\_058

**Description**

MVPN (4G) calls with PNP number within On Group. NoReply.

**Preconditions**

1. A:MVPN (4G), B:MVPN (PBX/F5)
2. UE A UE B On Group
3. UE A calls UE B with PNP..

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. SB-A Noreply timer timeout.
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oNoAnswer to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1812) from MVPN
7. SB-A send SIP info(MSML) with 1812.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry,the number you have dialed is no answer,please try later

## Announcement (MVPN 3G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_059

**Description**

MVPN (3G) calls with PNP number within On Group. Unreachable

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

MO part

1. IBCF send SIP 480 Temp Unavailable with q.850 cause code 18 to MGCF
2. MGCF trigger ERB to SCP and SCP send Play announcement to MGW.

SB part

1. SB should suppress MT trigger

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later.

## Announcement (MVPN 3G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_060

**Description**

MVPN (3G) calls with PNP number within On Group. NoReply

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS)
2. UE A UE B On Group
3. UE A calls UE B with PNP number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. MGCF Noreply timer timeout, trigger ERB to SCP.
2. SCP send Play announcement to MGCF MGW.

SB part

1. SB should suppress MT trigger

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry, the number you have dialed is no answer, please try later

## Announcement (MVPN PBX/F5 - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_061

**Description**

MVPN (PBX/F5) calls with PNP number within On Group.Busy.

**Preconditions**

1. A:MVPN (PBX/F5), B:MVPN (4G)
2. UE A UE B On Group
3. UE A calls UE B with PNP number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

**Expected Result**

IMS part

1. IBCF send SIP 486 Busy Here to MGCF.
2. MGCF send ACM to TSC
3. TSC trigger ERB to SCP and SCP send Play announcement to TSC.

SB part

1. TBD

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry, the number you have dialed is busy, please try later

## Announcement (MVPN PBX/F5 - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_062

**Description**

MVPN (PBX/F5) calls with PNP number within On Group; Power-Off.

**Preconditions**

1. A:MVPN (PBX/F5), B:MVPN (ICS 3G)
2. UE A UE B On Group
3. UE A calls UE B with PNP number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE B power off

UE A calls UE B

**Expected Result**

IMS part

MO part

1. IBCF send SIP 486 Busy Here to MGCF.
2. MGCF send ACM to TSC
3. TSC trigger ERB to SCP and SCP send Play announcement to TSC.

SB part

1. TBD

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (MVPN 4G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_063

**Description**

MVPN (4G) calls with PNP number Off Group, subscriber Busy.

**Preconditions**

1. A:MVPN (4G), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

**Expected Result**

IMS part

1. CSCF send SIP 486 Busy Here to SB-B
2. SB-B trigger Play announcement in SB-MRF.

SB part

1. SB-B report tCalledPartyBusy to MVPN
2. MVPN response ETC(Correlation ID) to SB-B
3. SB-B INVITE to SBMRF and get 200 OK
4. SB-B perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1823) from MVPN
7. SB-B send SIP info(MSML) with 1823.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry, the number you have dialed is busy, please try later

## Announcement (MVPN 4G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_064

**Description**

MVPN (4G) calls with PNP number within Off Group. Power-Off

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE B is power off

UE A calls UE B

**Expected Result**

IMS part

1. CSCF send SIP 480 Temp Unavailable with cause Waring to SB-B.
2. SB-B trigger Play announcement in SB-MRF.

SB part

1. SB-B report tRouteSelectFailure to MVPN
2. MVPN response ETC(Correlation ID) to SB-B
3. SB-B INVITE to SBMRF and get 200 OK
4. SB-B perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1826) from MVPN
7. SB-B send SIP info(MSML) with 1826.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (MVPN 4G - MVPN 3G)

**Test ID**

FET\_MVPN\_BC\_065

**Description**

MVPN (4G) calls with PNP number Off Group. Unreachable

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. MGCF receive REL with cause q.850=18.
2. MGCF send ERB-NoAnswer to SCP.
3. SCP request CS to Playannouncent

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (MVPN 4G - MVPN PBX/F5)

**Test ID**

FET\_MVPN\_BC\_066

**Description**

MVPN (4G) calls with PNP number Off Group. No Reply.

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. SB-A Noreply timer timeout.
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. N/A

**Pass Criteria**

TBD

## Announcement (MVPN 3G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_067

**Description**

MVPN (3G) calls with PNP number Off Group. Busy

**Preconditions**

1. A:MVPN (3G), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is reject the call

**Expected Result**

IMS part

1. ICSCF send SIP 486 Busy Here to MGCF
2. MGCF send ERB-Busy to SCP to trigger Play announcement in CS SRF.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry, the number you have dialed is busy, please try later

## Announcement (MVPN 3G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_068

**Description**

MVPN (3G) calls with PNP number Off Group. NoReply

**Preconditions**

1. A:MVPN (3G), B:MVPN (ICS)
2. UE A UE B On Group
3. UE A calls UE B with PNP number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. ICSCF send SIP 480 Temp Unavailable with cause code Warning to MGCF
2. MGCF send ERB-Noreachable to SCP to trigger Play announcement in CS MGW.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry,,the number you have dialed is out coverage, please try later

## Announcement (MVPN PBX/F5 - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_069

**Description**

MVPN (PBX/F5) calls with PNP number Off Group. Unreachable.

**Preconditions**

1. A:MVPN (PBX/F5), B:MVPN (4G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. ICSCF send SIP 480 Temp Unavailable with cause code 18 to MGCF
2. MGCF send IAM to TSC.
3. TSC send ERB-Notreachable to SCP to trigger Play announcement in CS MGW.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (MVPN PBX/F5 - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_070

**Description**

MVPN (PBX/F5) calls with PNP number Off Group. Power-Off

**Preconditions**

1. A:MVPN (PBX/F5), B:MVPN (ICS 3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. No reply timer timeout in MGCF/TSC.
2. MGCF/TSC send ERB-Noreply to SCP trigging PA in MGCF MGW/TSC.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry, the number you have dialed is no answer, please try later

## Announcement (MVPN 4G - VoLTE 4G)

**Test ID**

FET\_MVPN\_BC\_071

**Description**

MVPN (4G) calls with B number ON Net. Unreachable

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. CSCF send 480 Temp Unavailable with to MTAS.
2. MTAS trigger MRS play announcement.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (MVPN 4G - VoLTE ICS 3G)

**Test ID**

FET\_MVPN\_BC\_072

**Description**

MVPN (4G) calls with B number ON Net. No reply

**Preconditions**

1. A:MVPN (4G), B:VoLTE(ICS 3G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. NoReply timer timeout in SB-A.SB-A send cancel to UE-B,
2. SB-A send ERB-Noreply to MVPN and trigger PA in SB-MRF.

SB part

1. SB-A report oNoAnswer to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1812) from MVPN
7. SB-A send SIP info(MSML) with 1812.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry, the number you have dialed is no answer, please try later

## Announcement (MVPN 4G - FET 3G)

**Test ID**

FET\_MVPN\_BC\_073

**Description**

MVPN (4G) calls with B number ON Net. Busy

**Preconditions**

1. A:MVPN (4G), B:FET (3G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

**Expected Result**

IMS part

1. MGCF receive REL with cause subscriber busy from UE, play announcement in CS-SRF.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry, the number you have dialed is busy, please try later

## Announcement (VoLTE 4G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_074

**Description**

VoLTE (4G) calls with B number ON Net. Power off

**Preconditions**

1. A:MVPN (4G), B:MVPN (3G)
2. UE A UE B Off Group
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE B is power off

UE A calls UE B

**Expected Result**

IMS part

1. CSCF send 480 Temp Unavailable to MTAS-B.
2. MTAS-B trigger play announcemnt in MRS.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (VoLTE 4G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_074

**Description**

VoLTE(4G) calls with B number ON Net. Power off

**Preconditions**

1. A:VoLTE(4G), B:MVPN(ICS 3G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE B is power off

UE A calls UE B

**Expected Result**

IMS part

1. CSCF send 480 Temp Unavailable with 8.850 cause warning to MTAS-A.
2. MTAS-A trigger play announcement in MRS.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (FET 3G - MVPN 4G)

**Test ID**

FET\_MVPN\_BC\_076

**Description**

FET(3G) calls with B number On Net. Unreachable

**Preconditions**

1. A:FET 3G, B:MVPN(4G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B is unreachable

**Expected Result**

IMS part

1. ICSCF send SIP 480 Temp Unavailable Q.850=18 to MGCF
2. MGCF send ERB-NotReachble to SCP to trigger Play announcement in CS SRF.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1826.wav 很抱歉,您撥的號碼無回應,請稍後再撥

2126.wav Sorry, the number you have dialed is out coverage, please try later

## Announcement (FET 3G - MVPN ICS 3G)

**Test ID**

FET\_MVPN\_BC\_077

**Description**

FET(3G) calls with B number On Net. No reply

**Preconditions**

1. A:FET 3G, B:MVPN(ICS 3G)
2. UE A UE B On Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. ICSCF send SIP 480 Temp Unavailable Q.850=18 to MGCF
2. MGCF send ERB-NotReachble to SCP to trigger Play announcement in CS.

SB part

1. N/A

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry,the number you have dialed is no answer, please try later

## Announcement (MVPN 4G - PSTN)

**Test ID**

FET\_MVPN\_BC\_078

**Description**

MVPN (4G) calls with B number OFF Net. No reply

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. SB-A Noreply timer timeout.
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oNoAnswer to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1812) from MVPN
7. SB-A send SIP info(MSML) with 1812.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

2112.wav Sorry,the number you have dialed is no answer, please try later

## Announcement (MVPN 4G - Other PLMN)

**Test ID**

FET\_MVPN\_BC\_079

**Description**

MVPN (4G) calls with B number OFF Net. Busy

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B reject the call

**Expected Result**

IMS part

1. MGCF send SIP 486 Busy here to CSCF.
2. CSCF send SIP 486 Busy Here to SB-A.
3. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oCalledPartyBusy to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1823) from MVPN
7. SB-A send SIP info(MSML) with 1823.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1823.wav 您所撥的電話目前忙線中,請稍後再撥

2123.wav Sorry,the number you have dialed is busy, please try later

## Announcement (MVPN 4G - IDD)

**Test ID**

FET\_MVPN\_BC\_080

**Description**

MVPN (4G) calls with B number OFF Net. No reply

**Preconditions**

1. A:MVPN (4G), B:VoLTE(4G)
2. UE A UE B Off Net
3. UE A calls UE B with B number.

**Check Points**

Signaling flows on IMS and Service Broker

**Test Execution**

UE A calls UE B

UE B don’t answer the call

**Expected Result**

IMS part

1. SB-A Noreply timer timeout.
2. SB-A trigger Play announcement in SB-MRF.

SB part

1. SB-A report oNoAnswer to MVPN
2. MVPN response ETC(Correlation ID) to SB-A
3. SB-A INVITE to SBMRF and get 200 OK
4. SB-A perfom codec negotiation with UE-A
5. SBMRF reponse ARI(Correlation ID) to MVPN
6. SBMRF get PA(1812) from MVPN
7. SB-A send SIP info(MSML) with 1812.wav to SBMRF
8. SBMRF send RTP to MRS

**Pass Criteria**

Correct announcement heard.

1812.wav 很抱歉,您撥的號碼無人接聽.請稍後再撥

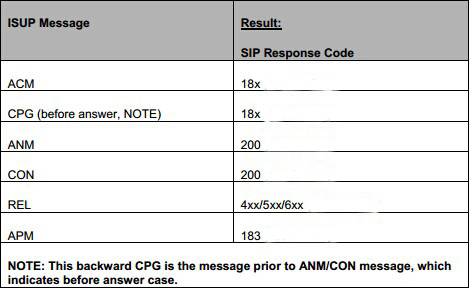
2112.wav Sorry,the number you have dialed is no answer, please try laterr

# Sign-off

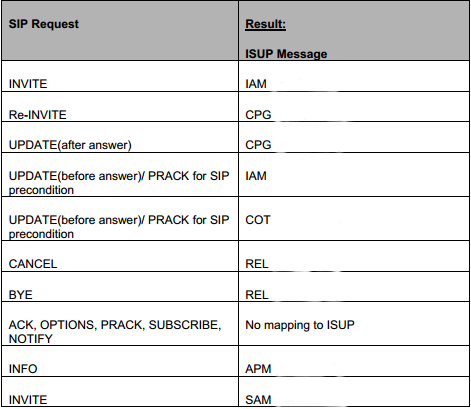
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test Object | Acceptance type | Test Object Description | Test Date | Pass/Fail | Ericsson | FET | Notes/Comments |
| Sign off | Sign off |
| 6.1 | **E2E SAT** | Initial registration |  |  |  |  |  |
| 6.2 | **E2E SAT** | Re-registration |  |  |  |  |  |
| 6.3 | **E2E SAT** | UE de-registration |  |  |  |  |  |
| 6.4 | **E2E SAT** | Network de-registration |  |  |  |  |  |
| 6.5 | **E2E SAT** | VoLTE (4G) voice call VoLTE (4G) |  |  |  |  |  |
| 6.6 | **E2E SAT** | VoLTE (4G) voice call VoLTE (3G) |  |  |  |  |  |
| 6.7 | **E2E SAT** | VoLTE (3G) voice call VoLTE (4G) |  |  |  |  |  |
| 6.8 | **E2E SAT** | VoLTE (3G) voice call VoLTE (3G) |  |  |  |  |  |
| 6.9 | **E2E SAT** | VoLTE (4G) voice call FET 3G |  |  |  |  |  |
| 6.10 | **E2E SAT** | FET 3G voice call VoLTE (4G) |  |  |  |  |  |
| 6.11 | **E2E SAT** | VoLTE (4G) voice call non-FET 3G |  |  |  |  |  |
| 6.12 | **E2E SAT** | non-FET 3G voice call VoLTE (4G) |  |  |  |  |  |
| 6.13 | **E2E SAT** | VoLTE (4G) voice call PSTN |  |  |  |  |  |
| 6.14 | **E2E SAT** | PSTN voice call VoLTE (4G) |  |  |  |  |  |
| 6.15 | **E2E SAT** | VoLTE (4G) voice call IDD |  |  |  |  |  |
| 6.16 | **E2E SAT** | IDD voice call VoLTE (4G) |  |  |  |  |  |
| 6.17 | **E2E SAT** | VoLTE (4G) voice call ported-out number (FET Number) |  |  |  |  |  |
| 6.18 | **E2E SAT** | VoLTE (4G) voice call VoLTE ported-in number |  |  |  |  |  |
| 6.19 | **E2E SAT** | Announcement unreachable (IMS registered) |  |  |  |  |  |
| 6.20 | **E2E SAT** | Announcement unreachable (IMS not registered) |  |  |  |  |  |
| 6.21 | **E2E SAT** | Announcement unreachable (Power-off) |  |  |  |  |  |
| 6.22 | **E2E SAT** | Announcement No Reply (4G) |  |  |  |  |  |
| 6.23 | **E2E SAT** | Announcement Unallocated Number (4G) |  |  |  |  |  |
| 6.24 | **E2E SAT** | Announcement Busy or User Denying Call (4G) |  |  |  |  |  |
| 6.25 | **E2E SAT** | Announcement SIP 500 or 503 |  |  |  |  |  |
| 6.26 | **E2E SAT** | Announcement No Reply (3G) |  |  |  |  |  |
| 6.27 | **E2E SAT** | Announcement Unallocated Number (3G) |  |  |  |  |  |
| 6.28 | **E2E SAT** | Announcement Busy or User Denying Call (3G) |  |  |  |  |  |
| 6.29 | **E2E SAT** | MO video call failure case (4G) |  |  |  |  |  |
| 6.30 | **E2E SAT** | Short Code Call |  |  |  |  |  |
| 6.31 | **E2E SAT** | Ongoing VoLTE call drops when moving out of 4G coverage |  |  |  |  |  |
| 6.32 | **E2E SAT** | VoLTE (4G) voice call VoLTE (4G) Long duration calls (2 hours) |  |  |  |  |  |
| 6.33 | **E2E SAT** | VoLTE (4G) voice call FET 3G Long duration calls (2 hours) |  |  |  |  |  |
| 6.34 | **E2E SAT** | FET 3G voice call VoLTE (4G) Long duration calls (2 hours) |  |  |  |  |  |
| 6.35 | **E2E SAT** | VoLTE (4G) voice call PSTN Long duration calls (2 hours) |  |  |  |  |  |
| 6.36 | **E2E SAT** | PSTN voice call VoLTE (4G) Long duration calls (2 hours) |  |  |  |  |  |

# Appendix

## Mapping of IAM/SAM/REL/APM forward message into SIP



## Mapping of SIP request into ISUP message



## Mapping of REL into 4xx/5xx/6xx final response



## INVITE—IAM mapping rule

