2G3G sunsets introduced specific issues for roamers

especially access to emergency services

eddygoffin **- Orange Innovation -** Roaming & Interconnection Architecture

Showcase Live #8 - VoLTE Taskforce discussion - 2023-04-19 r 1.0

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Emergency services 2G/3G sunset
Issues and Operator requirements

Some OEMs and/or Operators' VoLTE device settings prevent VoLTE roaming calls including Emergency calls:
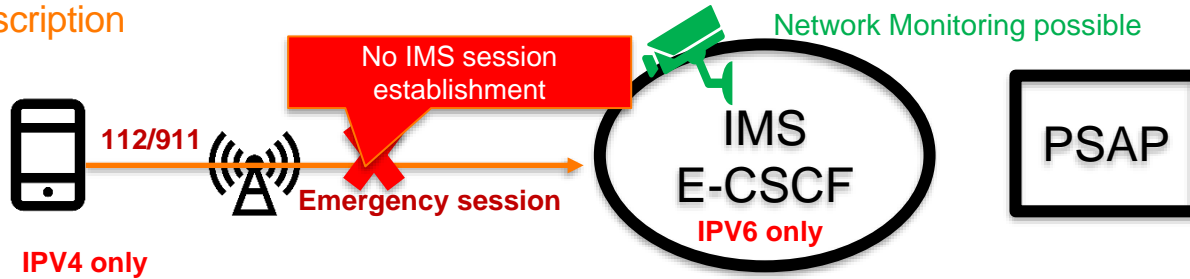
- Operator requesting OEM to limit IMS IP stack to only one IP version (V4/V6)
- Operator requesting OEM to block VoLTE Roaming
- OEM blocking ALL VoLTE calls for SIM cards from non-HPMN non-certified SIM card
- OEM blocking ALL VoLTE calls if no VoLTE roaming agreement

After 2G/3G sunset, the requirements are:

- Emergency service shall be accessible by ALL VoLTE capable devices
- Emergency service shall be accessible by all users including all roamers with or without roaming agreement

Operator requests to OEM to limit IMS IP stack to only one IP version ➔ Emergency session blocked

Issue description

Network Monitoring possible

No IMS session establishment

112/911

Emergency session

IMS E-CSCF

IPV6 only

PSAP

IPV4 only

IR.92 section 5.1 – Recommendation:

The UE and the network must support both IPv4 and IPv6 for all protocols that are used

Recommended action

- Who: Operator
- What: Follow IR92 recommendation and Stop to request IP stack limitation to OEM

Operator requests to OEM to block VoLTE Roaming
➔ All IMS services blocked

Issue description

UE blocks IMS service Including Emergency session

NO Network Monitoring possible

112/911

IMS E-CSCF

PSAP

UKN Network

Recommended action

- Who: Operator
- What: Stop request to OEM to block VoLTE roaming

IMS network UKN in UE DB (Network with 1:1 testing not completed)
→ All IMS Services blocked.

Issue description – depending OEM

NO Network Monitoring possible

UE blocks IMS service Including Emergency session

112/911

UKN Network

IMS
E-CSCF

PSAP

Recommended action

- Who - OEM
- What – Change behavior to not block IMS usage for UKN network

No VoLTE roaming agreement
➔ All IMS Services blocked

Issue description – depending OEM

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EPS network feature support
.... ..1.  = Emergency bearer service in S1 mode: Supported
.... ...0  = IMS voice over PS session in S1 mode : Not Supported
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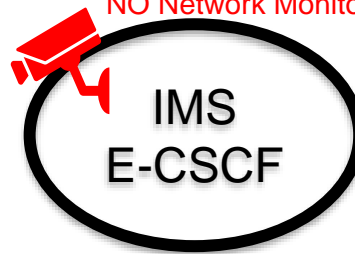
Mandatory with 2G/3G Sunset

No Roaming agreement!

NO Network Monitoring possible

112/911

MME

IMS
E-CSCF

PSAP

UE blocks IMS service Including Emergency session

Recommended action

- Who: OEM
- What: Emergency bearer should be supported also if no roaming agreement exist.

GSMA VoLTE Roaming & Emergency Task Force   (VRE)

Board Task Force formed in Q3/22 to address issues raised in the media concerning VoLTE Interoperability and Emergency Calling

VRE Task Force clarified requirements regarding VoLTE Emergency Calls

Positive response from operators and OEMs

Key requirement:

A **device shall try every means possible to make emergency calls**,
regardless of restrictions requested or made by the network or operator
(including limited-service state and reduced/limited voice capabilities).

Key results

GSMA Networks Group (NG) & Terminal Steering Group (TSG) held several joint meetings to ensure a consistent and co-ordinated set of changes to GSMA technical documents with several CRs already approved:

- Clarification of emergency call behaviour in limited-service state in GSMA PRD IR.88 ("EPS Roaming Guidelines")
- Clarification of emergency call behaviour in limited-service state in GSMA PRD IR.92 ("IMS Profile for Voice and SMS")
- Additional test cases for emergency call behaviour in limited-service state added to GSMA PRD IR.25 ("Network Roaming Tests")
- Enhanced description of emergency call behaviour in limited-service state added to the GSMA VoLTE Roaming Implementation Guide

3GPP ➔ In addition, NG Working Group sent a Liaison Statement to 3GPP concerning device behaviour on detecting an emergency call whilst in limited-service state.

- GSMA's request was to consider enhancing annex H.5 of 3GPP 23.167 ("Domain Priority and Selection Rules for Emergency Session Attempts") which currently covers scenarios when the device is not in limited-service state.
- 3GPP applied a CR to clarify behaviour when in a limited-service state

Conclusions / Next Steps

Requirements has been clarified for Emergency Call Handling when normal VoLTE is not available, including further clarifications in 3GPP specifications and additional test case procedures defined to ensure device / network compliance

Co-ordinated communication to GSMA members as well as external bodies to educate all parties and demonstrate to the industry the progress in addressing the concerns raised around emergency calling and voice services for inbound roamers during 2022