

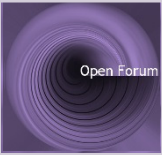
**nicc**<sup>®</sup>

UK Interoperability Standards

# Open Forum 2019



27<sup>th</sup> November 2019



# Emergency Location WG

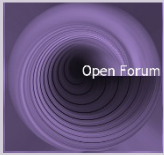


- Focus on securely providing location for 999/112 to:-
  - allow 999/112 emergency calls to be swiftly connected to correct local emergency authorities (EAs) and
  - enable (quicker) response for citizens as EAs have location
  - meet/inform regulatory expectations
- Membership is currently :-

CPs: BT, EE, Gigaclear, Magrathea, Resilient, Sky, TalkTalk, Telefonica, VM, Vodafone, and BT  
Suppliers: Atos, Metaswitch, Ribbon  
Government Agencies: NCSC/CPNI, Ofcom

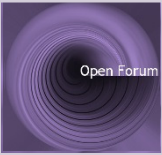
**We'd like more representatives, especially from ISPs and VSPs – please can NICC members help find willing participants.....**





- **ND1013 Emergency Location Information Interface**
  - interface used between mobile networks and BT 999 PSAP to transport location information associated with 999/112 voice calls provided by mobile network GMLC.
- **ND1432 SIP-PBX Configurations to Support Emergency Service**
  - identifies configuration options available to the enterprise's Private Network Maintainer to allow the Emergency Service to operate quickly/reliably in multi-site deployments
  - not all CPs provide the same options: an enterprise and its Private Network Maintainer must work with CPs to determine the most appropriate option
- ***ND1638 VOIP - Location for Emergency Calls***
  - *practical solution for identifying the physical locations of VoIP callers .....**now likely to be superseded by ETSI ES 203 178***
- **TSG 022 Routing of Emergency Calls in the UK**
  - describes principles currently used in the UK's SS7 networks to prioritise/protect emergency calls
- **TSG 023 Delivery of SIP emergency calls in the UK**
  - issue 1 December 2018 (see next slide)





# Delivery of SIP 999 calls in the UK - TSG 023 Issue 1



- Requirements for emergency calls for CPs introducing/using SIP networks
- 999 Sessions initiated by SIP - still primarily conversational voice (text/video considered more in future)
- All aspects of priority (signalling, media, bearer and access) should be used for SIP-based 999 calls:-
  - Priority shall be signalled in SIP by the inclusion of a Resource Priority Header field (ND1035)
  - At nodes, use differential SIP Call Admission Control, Rate Limits and reserved bearer bandwidth, along with load-sharing across multiple routes
  - Consideration of IP layer too: use Expedited Forwarding for voice signalling and media pkts.(RFC 2474)
- VSPs to support urn:service:sos, as well as 999 and 112, a VSP identifier, PAID (valid NN) and From (PN) Header Fields (ND1016). Must support at least G.711 A-law codec.
- VSPs to continue to support “out-of-band” location (so ongoing use of “ii” digits and cell/zone IDs within “called party number/To” number, and continued use of handset location using AML SMS).

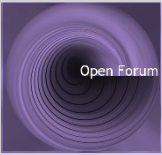
Also support for SIP Location Conveyance where feasible (see ETSI ES 203 283) as expected to be increasingly useful (see next slide)

- TDM to IP interworking is expected to be needed for 5 -6 years as the Stage 1 PSAP\*, large numbers of Stage 2 PSAPs and CPs will only make the progression to SIP at different times.

\*Stage 1 PSAP (BT's 999 Centres) transformation project underway and planned to be SIP-based by Spring 2021 – impact for CP providers for Stage 2 PSAPs to correctly manage CLI forwarded by Stage 1 PSAP (see SIN 278)





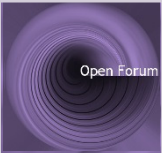


# Current Work – locating VoIP callers with ETSI approach

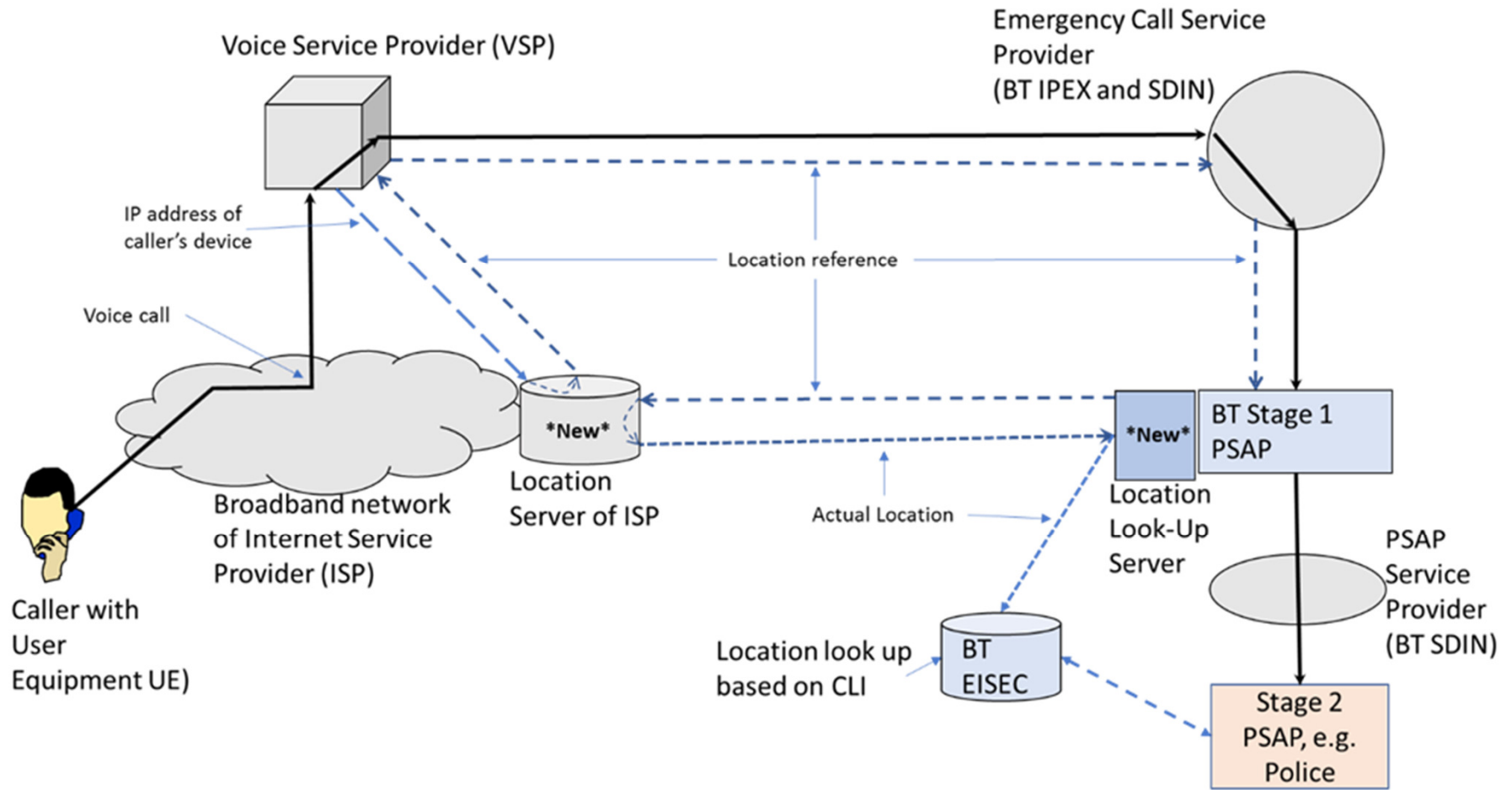


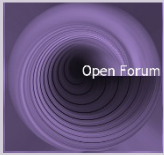
- UK review of ETSI architecture (ES 203 178) and protocols(ES 203 283) for locating VoIP emergency calls:-
  - impact on ISPs, VoIP SPs, transit networks, BT 999 PSAP
- Develop a UK profile of the ETSI standard explaining how architecture and protocols can practically be implemented, identifying impacts on CPs and adding performance standards/contingencies.
- ETSI approach covers 999s from VSPs with Call Servers overseas
- Progress this year has focussed on:-
  - High Level Exec Summary of the impact of implementing ETSI standards (provided for Government's Strategic 999 Group)
  - Highlighting Use Cases to understand how often the ETSI methods will be needed where no practical alternatives exist





# How could UK implement ETSI architecture – High Level Summary





# Implementing ETSI approach in the UK – some implications



- ISPs to provide Location Server (LS) that tracks in real time to which geographic access point an IP address is allocated
  - => new interfaces to LS for VSPs + for 999 CHA/PSAP
  - => new LS Discovery process to advertise ISP's LS URI and IP addresses\*\*
- VSPs to find caller location info, to route call and to provide location reference to emergency services: network location + device location\*
  - => new interfaces for VSP to discover and access appropriate ISP LS
  - => use of SIP location header and VSP identity in messaging
  - => needs to establish Trust Relationship with ECSP\*\*
- Providers of SBCs and Firewalls are affected (as well as those providing CP Call Servers): to allow IP “Flows” to be tracked across them, and not to remove vital information
- All parties (VSPs, ISPs, SDIN, Stage 1 PSAP) need to ensure SIP fields used to convey location and VSP identity are allowed by network components
- BT 999 PSAP would need to add ISP LS location query functionality

\*when available

\*\*Challenging: as description in ETSI documents sketchy - extra work to understand deployment






# Summary

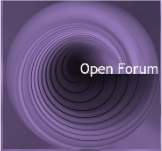
- Complex, gradual transition to IP/SIP for 999 over next few years as all parts of chain migrate
- NICC standard docs available to help with 999 challenges with location, continuity and resilience
- These docs will need to evolve to meet changing use case requirements and reflect practical experience
- More parties will need to be involved in future to support 999
- Opportunities for additional media as well as voice become possible (future study) in a NG999 environment.....







Thank You



# ETSI ES 203 178 and ETSI 203 283

