

Emergency Call VCON Use Case

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Emergency Calls are Citizen to Authority

- Most countries have organized emergency call schemes usually using 3 digit dial codes (1-1-2, 9-1-1, 9-9-9)
- In some countries there is a single dial code for all emergencies, while in others there is a dial code for each type of responder
- There are very often laws and regulations that govern the emergency call system
- Calls are made from many forms of public communications networks (Originating Service Providers)
- Calls are answered at a specialized call center, a Public Safety Answering Point (PSAP)

IETF and Emergency Calls, NG1-1-2 and NG9-1-1

- Most calling today is SIP based (RFC3261)
- IETF ecrit defined standards for emergency calls, routing of calls based on location, and protocols/formats for obtaining and distributing location
- These standards formed the basis for Next Generation 9-1-1 and in North America and Next Generation 1-1-2 in the EU
- NG9-1-1 is being deployed in the US and Canada
- Some aspects of NG1-1-2 are being deployed and others will begin soon
- This discussion focusses on those emerging standards

Participants in an Emergency Call

- Caller
- Call Taker, sometimes called a Telecommunicator
- Dispatcher (for some calls)
- Responder(s) (rarely talk to caller directly, but it can happen)
- All calls are logged (recorded) for legal purposes and QA by a Logging Service
- In most jurisdictions privacy restrictions otherwise in force are waived, but there are still limits on disclosure

Three Most Important things about emergency calls

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- Location
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Location is used in two primary ways

- Many jurisdictions have many PSAPs
 - The call must be routed to the one that serves the location of the caller
- Responders must be dispatched to the right location
 - The caller's location may or may not be the same as the incident location
- But obviously location is the most important meta data for this conversation

Start of Call

- Queues of calls arrive at PSAPs
- Clearly wait time is really important (who finds any wait time acceptable on emergency calls?) but it happens
 - Some PSAPs have IVR/IMR for short waits
- You CAN get a busy, although NG9-1-1/NG1-1-2 aims to eliminate that if connectivity is available
- There may be multiple queues of call takers, but true skill based routing is rare
- Media is negotiated (SIP): audio, video, real time text, instant messaging are all supported

Conversations

- Calls always start with a 2 way call between call taker and caller
- In some circumstances a call is transferred to a dispatcher
- The transfer is “attended”
 - A bridge is used to mix media from multiple participants
 - Both call taker and dispatcher hear/see caller at all times
 - After dispatcher is on the call, call taker and dispatcher can converse, without caller knowing (uses muting functions)
 - After this discussion, all parties can converse, true 3-way
 - Then call taker drops, leaving a 2 way
- Transfer to responder is rare, but would be same attended transfer as above
- Data transfers using standardized data is used to communicate incident data from call taker to dispatcher to responder when actual call transfers are not needed

Logging

- EVERYTHING is logged in the Logging Service
- Logging Service has standardized logging and retrieval protocols and data formats
 - Real time media logging uses siprec to record and RTSP to play back
- All calls have a globally unique Call Identifier assigned by the first entity encountering the call
- All incidents have a globally unique Incident Identifier
 - Incidents are real word events
 - Every new call is initially assumed to be a separate incident and gets a unique Incident Identifier
 - If Call Taker or Dispatcher discovers call is part of an already known incident, the call gets reassigned to the all ready in progress incident by “merging” the Incidents
- All log events include the incident identifier. All log events have a call identifier if it can be associated with a particular call.

Persons

- We track people associated with an incident (and therefore calls)
- Agents (Call Takers, Dispatchers, Responders, some times even tow truck drivers) have Agent Identifiers and the Agency they work for have agency identifiers
- We track people involved in an incident (caller, victim, bystander, parent....) with a standardized person object (which has a unique identifier)
- ***So we can tie conversation participants to our notions of agents and persons.***

Operations on Conversation Data

- Today, we have limited use of automated transcriptions and AI, but that is changing
- Logging is primarily for legal proceedings. QA use is secondary, but again, increasing
- Because NG9-1-1 and NG1-1-2 standardizes protocols and data formats much more than prior incarnations, use of these, and vcons will be much more likely to occur.