Emergency Call
VCON Use Case

Brian Rosen
br@brianrosen.net
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 if 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.