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Flexibility is the key

Audio recordings at emergency call and service control centres

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TECHNOLOGY
... in the media

The vast majority of daily communications are verbal – images, graphics and videos play “only” a supporting role. This means that in the event of an emergency, communication equipment should be available at control centres which enables natural dialogue to take place between the scene of the incident and staff at the control centre. This enables the transmission of the actual message to be increasingly secure, as in addition to purely vocal information, moods and other “noise” that may form part of the content of the information can also be used to assess the situation. And it must all be totally state of the art.

Emergency calls form the basis of other processes too, such as deployments, accident reports or the documentation of an incident at an emergency call centre of the kind operated by the police, fire service or private security companies. Even though all of these emergency call centres have their own distinct duties to perform, in an emergency they are often all directly involved, sometimes jointly.

Variable technology

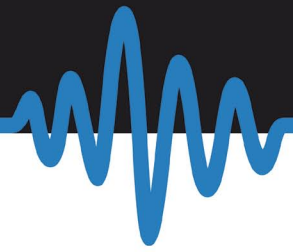
The audio recording and processing systems used at emergency call centres therefore need to cover a wide range of applications. Firstly, the emergency call itself must be documented. But in addition, it is also conceivable that details of this emergency call will need to be immediately forwarded to emergency crews or an “emergency conference” held in which the relevant emergency staff can all be alerted simultaneously. It is important that in the event of such an incident this type of system not only

adapts to the procedures used by the various emergency crews, but also supports them. This starts with the communications equipment they use. For example, some control centres still use analogue radio systems as well as digital or ISDN-based connections and modern VoIP technologies. Modern voice recording systems must be capable of supporting these different types of equipment simultaneously in a single system and also of extracting radio telegrams (FSK) which are also, for example, modelled on analogue voice channels. The recording must be accurate to the nearest thousandth of a second in order to retain the transferred information packets correctly in the same sequence as they are saved.

User friendliness

One important point when using a modern voice documentation system is the user interface. The emergency crew should be able to select their own language, be that German, English, Italian or Turkish. Also, its operation should not be restricted to fixed workstations, but should also be possible from an “arbitrary” location within the control centre as long as the personnel involved have the requisite authorisation. Appropriate internet-based software should be used for this purpose – but without having to install special client software.

Whilst voice documentation in the past used to be split into long term and short term documentation for technical reasons, these days one single system is required. If the emergency personnel want to listen to conversations that were recorded in the recent past,



the system administrator can take an on site decision as to which timeframe is available in short term mode, and who is authorised to listen to this documentation again.

Not only is there an opportunity for all conversations to be recorded, selected calls can also be recorded by pressing a button during the actual conversation. If it becomes apparent during a call that the content is relevant, modern systems also have a memory function which will record a conversation even after it has started – or, for example, the last three conversations from the moment they started. This is made possible by a configurable ring memory system that normally deletes the content once its configured time has elapsed, but which can also save this content if necessary.

A so-called instant recall function can offer the quickest route to the previous call. Recordings during which it was not possible to ask a question, or in which asking a question would have taken too much time, can be played back at the touch of a button. Even live playback during a crew meeting is possible.

The emergency calls recorded are stored on a central SQL database, as are any video images. The messages can be retrieved in a matter of seconds by using the flexible filter and research function. This function enables searches to be conducted using deployment numbers and phone numbers, the time or the duration of the call – or even by simply searching for conversations in a certain category. Once they have been located the documents can be exported or dispatched immediately by email to authorised colleagues, investigation authorities or the Public Prosecutors' Department with just a few clicks of the mouse.

As well as a memory function, a modern system should also have open interfaces to deployment control computers, as well as other external systems and software modules

so that, for example, keyword monitoring or so-called speaker identification can be supported. Keyword monitoring allows certain words such as „bomb“ to be identified and appropriate predefined action being taken – such as triggering an alarm or notifying emergency crews by email or SMS.

Manipulation

The recorded conversations are subject to data protection to prevent the unauthorised use of both the information and the personal data contained in them. Steps need to be taken, for example, to prevent identity theft and insider trading in the database environment or the disclosure of personal and emergency call data and details held at control centres. This means roles need to be defined which determine who can listen again to stored conversation data, and who can forward it on. Any stored conversation is assigned a time stamp and a type of ‚watermark‘. This is designed to prevent its being manipulated. It is easy to see whether the conversation is the original or a copy. If a conversation has been marked appropriately, for example, it can only be opened using the Four-Eyes principle.

Another safeguard is provided by the encryption of the data, another feature that can be preconfigured. The encryption process is carried out automatically by the system using codes specific to each customer. This makes it impossible to remove the storage medium and to run it on another system produced by the same manufacturer or on other external systems. All this means that perfectly verified documents can be produced which are also recognised by the Courts.

Requirements for a modern voice recording system

- **Modern IT design:**

It must be possible to rapidly adjust and expand the scope of functions.

- **Configurable:**

It should be possible to set and change all the parameters used for administration and configuration without the need for additional software.

- **Scalability:**

It should be possible to use the same software and hardware architecture for everything from the smallest system to systems with several hundred or even thousands of channels. It should also be possible to easily upgrade the system at any time on site.

- **Connections:**

It should be possible to connect the system to all conventional communication cables and signal sources, such as ISDN cables, analogue and digital radio, broadband VoIP cables and modern glass fibre networks.

- **Availability:**

Redundant systems are essential in security-relevant environments. This may range from redundant components to cluster systems which instantly switch to the redundant system in the event of a fault. This also applies to incoming telecommunications cables. Redundancies with ratios of 1:1, N+1, N+M are supported.

- **User interface:**

Support for the local language or even several languages in parallel that can be selected as required at any time are important features.

- **Internet technology-based:**

This means that any computer can be used as a replacement device without the software needing to be first installed on that computer.

- **Integrated evaluation of FSK / FMS telegrams**

VOXTRONIC is a global leader in digital voice and data recordings and their analysis. It has also pioneered the development of security solutions for industry, commerce and local authorities.

Bruno Weis, a graduate in Mathematics, is the manager of the German branch of VOXTRONIC. He has many years' experience in the field of system integration and specialises in major international security, monitoring and surveillance projects.

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