The impact of real-time multimedia data in emergency services

From information overload to informed decisions: the path to omni-channel efficiency

Executive Summary

Public safety control centres can now access more data from more sources at ever greater speed. There are significant potential benefits in infusing rich, real-time multimedia data into workflows: faster and better-informed decision-making, enhanced service quality, and greater cost-efficiency.

There are also risks inherent in this omni-channel vision: too much data can overload operators and front-line personnel, degrading the quality of decision-making, and reducing safety margins. Equally, the transformation costs and risks can seem unacceptably high.

Control centre communication and information solution providers should offer advice and solutions that empower public safety organisations to embrace end-to-end omni-channel operations in a controlled way, avoiding information-overload while enabling optimised workflows and enhanced service quality.

This white paper explains how organisations can minimise the risk and cost of transition, support the latest NG112 and MCx standards alongside legacy communications systems, and make the switch to omni-channel at their own pace. The end result? Public safety services that are more accessible and responsive to the needs of their users.

Public Safety

FREQUENTIS

Identifying the challenges

The technologies and data sources available to public safety organisations are changing rapidly. The public can now request help from landlines, smartphones, or any other internet-connected device. New data sources are coming into the mix too: social media feeds, real time video or telemetry from drones and other sensors. These sources feed a range of multimedia directly into the decision-making process: voice, text messaging, email, images, video and telemetry data.

However, simply plugging more data sources into the business processes does not "automagically" improve them.

As the volume and velocity of data grow, control centres are increasingly targeting omni-channel operations. By embracing multiple communications channels and integrating them in a controlled manner into their business processes, organisations can augment situational awareness, enable faster, better-informed decision-making, improve levels of service offered to the public and generate efficiency savings.
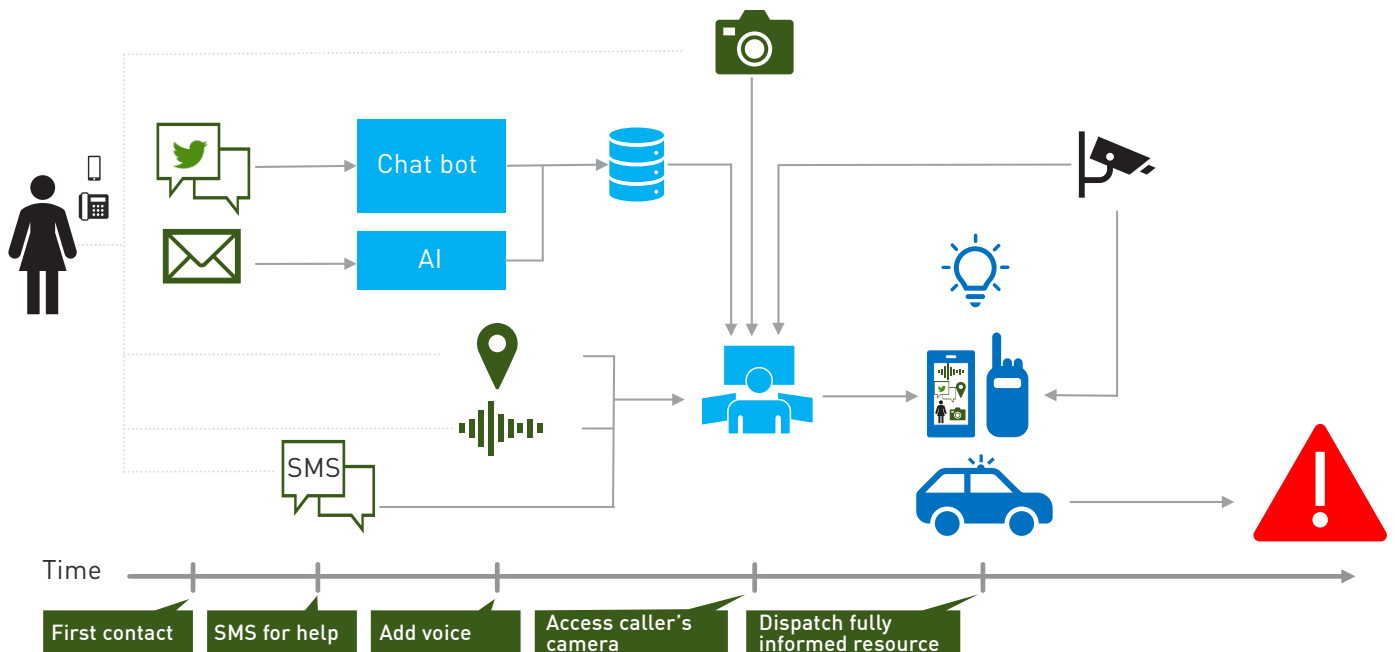
Why omni-channel?

In the control centre, omni-channel operations use multimedia data to enable effective and efficient interaction between members of the public and front-line officers alike. It is important to note that omni-channel operations are distinct from multi-channel operations. In a multi-channel environment, people communicate with the agency using one channel at a time (for example, a landline or mobile call, an SMS message or a tweet). By contrast, an omni-channel approach enables a single conversation to span several communication channels seamlessly over a discontinuous timespan: for instance, during a landline voice call, a customer may SMS a photo to the operator or refer to an email sent earlier, which is forwarded seamlessly, with enriched data where applicable, to an officer on the street.

The potential benefits are clear. For example, enriching a report about a fire with previously reported chemical risks at the site and a live video would provide critical new information for emergency responders, enabling them to assess the cause and identify potential hazards while en-route to the incident.

Figure 1: Omni-channel handling of contact requests, information and dispatch

Time

| First contact | SMS for help | Add voice | Access caller's camera | Dispatch fully informed resource |

Equally, by deflecting simple, low-priority requests to channels such as chatbots, an omni-channel approach could enable control centres to reduce operator workloads and free up people to focus on true emergencies. Practice shows that resolving a request at the first point of contact is substantially cheaper than sending resources to follow up on the request. Omni-channel handling opens the door to handle requests differently by deference to, for example, web pages, reporting forms, chat agents or even automated rejection. One customer reported a 40 percent drop in emergency calls by deferring simple non-emergency requests to an interactive voice response bot: the simple requests had previously taken up valuable operator time, driving non-emergency callers to call the emergency number in order to get through.

The right approach

To engage with customers across new channels and bring new information sources to front-line operatives in a future-proof way, control centres need a native IP-based communications infrastructure. However, in most countries, the emergency services infrastructure has not kept pace with advances in IP standards, so a significant change is needed.

In Europe, the next-generation 112 architecture long-term definition standard (NG112 LTD, henceforth "NG112") aims to address this challenge. NG112 enables the public to engage with public safety answering points (PSAPs) via voice, text, pictures or video calls while providing a more accurate GPS-based localisation. NG112 is based on standard IP-network-based interfaces, and needs native support in the infrastructure and solution.

North Wales Police

3020 LifeX for web chat

Reduces traffic on phone lines

85% increase in digital requests

But multimedia should not stop here. First responders have historically relied on low-throughput legacy services to support data-sharing. To enable cost-effective multimedia communication with front-line teams, many agencies are now embracing commercial 4G LTE and 5G networks. Rigorous standards are available to facilitate rapid and reliable data-sharing on these new networks. The standards for mission-critical communication services over LTE include push-to-talk (MCPTT), video (MCVIDEO) and data (MCDATA), collectively known as "MCx". Again, MCx is IP-based and also needs native support.

To provide the optimal foundation for end-to-end omni-channel safety-critical operations, control centres should therefore target both the NG112 and MCx standards.

An end-to-end omni-channel approach will change the way that operators engage with customers. This cultural change can be challenging to organisations. Successful omni-channel transformation projects will use the new channels in new workflows and new services, recognise the inherent cultural change and realise both cost and operational benefits.

Major European police force

3020 LifeX: web chat, social, SMS

Real-time AI translation

Boosts service accessibility

Chatbot triages requests

Omni-channel change happens gradually. Many control centres are still focusing on the move from Terrestrial Trunked Radio (TETRA) to VoIP on 4G or 5G networks. The need to carry out transformation work within lean budgets and while fulfilling existing operational demands implies the requirement to cope with continuous change. Can your infrastructure support this?

Seamless transition

As control centres chart a course towards future-ready, end-to-end omni-channel operations, one key challenge will be maintaining a reliable, high-quality service during a period of significant change.

Control centres should seek an approach that permits the old and new ways of working to continue in parallel until all parts of the organisation are ready to fully switch to omni-channel operations. This requires an open-standards-based technical solution that can connect to legacy (e.g. TETRA, P25, IP telephony) and new (e.g. NG112, MCx, multimedia) communication infrastructures.

Support basic radio and telephony use cases first, and then switch on new capabilities (for example, voice, text, email, webchat or video) as you go without triggering the need for re-training. Control centres will thus have the freedom to train operators and deploy new capabilities at their own pace.

UK Home Office

3020 LifeX over MCx-based network

Will share images / videos with officers...

...for higher situational awareness

Communication does not take place in isolation and requires a flexible solution that is completely at home in a multi-system environment; *no single system does it all.*

Streamlined comms

For ten years, Frequentis has been revolutionising control rooms and empowering public safety organisations to realise the benefits of end-to-end omni-channel with 3020 LifeX: a future-oriented multimedia communication and collaboration platform designed for the demands of next-generation control rooms, enabling the aforementioned transition and offering flexibility in deployment (on-premises, private / public cloud).
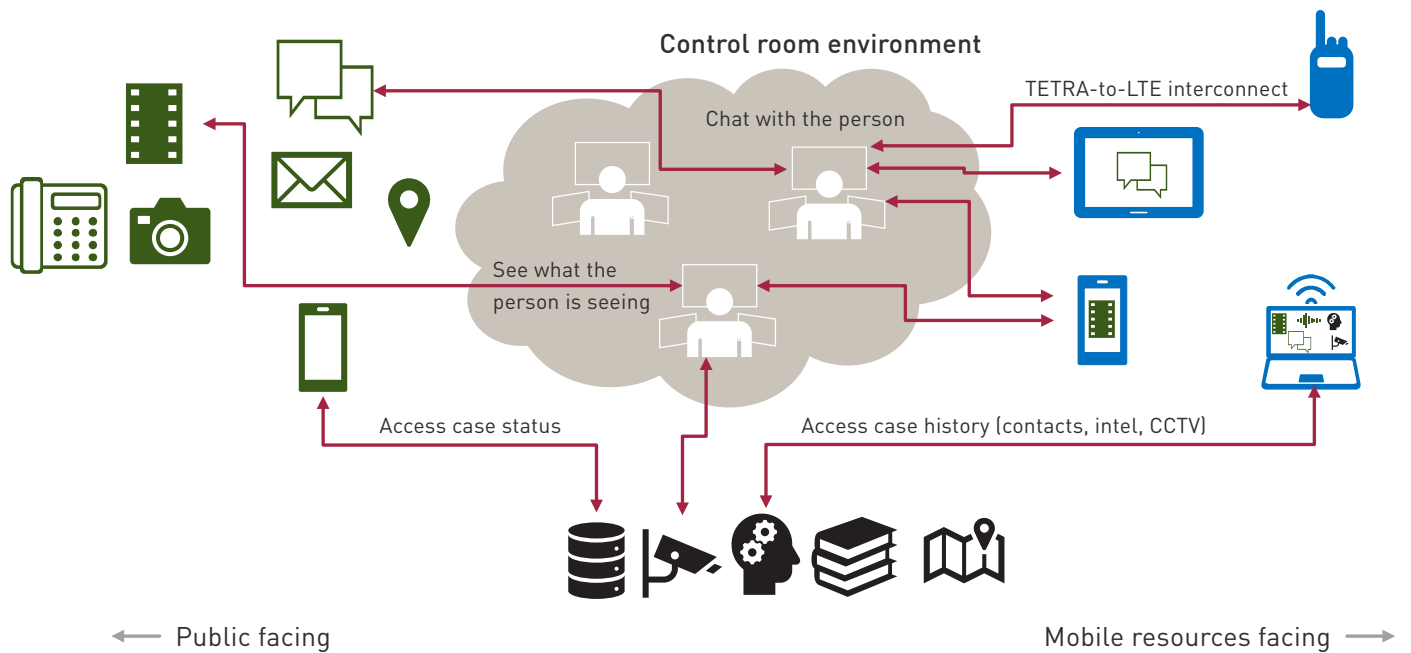
Built on a modular, fault-tolerant, carrier-grade architecture, LifeX leverages IP-based communication technologies that meet the highest demands of mission-critical public-safety use cases. The solution can integrate seamlessly with a wide range of systems via common industry standards, including Web APIs, XMPP, NG112, TETRA, P25 and MCx. It also allows secure integration with other applications via standards-based APIs, dissolving solution silos.

Most important, LifeX supports legacy and future-facing protocols and systems in parallel. As a result, control centres can introduce new technologies such as MCx without changing existing workflows, support MCx and TETRA/P25 systems side-by-side, and enable a seamless transition to end-to-end omni-channel.

Bavarian Police

3020 LifeX: digital radio for >40,000 officers

Reduced noise levels; faster training

More efficient distribution of calls to operators

Able to handle more simultaneous emergency calls

Figure 2: Re-think processes to cross system and domain borders

Control room environment

Chat with the person

TETRA-to-LTE interconnect

See what the person is seeing

Access case status

Access case history (contacts, intel, CCTV)

⟵ Public facing

Mobile resources facing ⟶

POC in Italy, Austria, Denmark

3020 LifeX for smart comms routing...

...via NG112-compliant SMS, video and voice...

...to optimal PSAP based on sender's location...

...ensuring help comes from the right place in border regions

Pioneering projects

In the UK, North Wales Police uses LifeX to enable citizens to contact the force via web chat, helping divert traffic from phone lines, freeing operators to focus on genuine emergency calls. The result: an 85 percent increase in requests via the digital channel, contributing to the more efficient handling of non-critical requests.

The UK Home Office is working to ensure that all control rooms using LifeX will have access to UK's next-generation MCx-based Emergency Services Network (ESN). When the ESN goes live, LifeX operators will be able to share, in the final rollout of this technology, images and videos from the public with front-line officers—boosting situational awareness.

Control centres in Italy, Austria and Denmark have recently taken part in a proof-of-concept to demonstrate that LifeX is capable of intelligently routing emergency communications via NG112-compliant text, video and voice calls to the responsible PSAP based on the sender's location. This capability is particularly valuable in border regions, helping to ensure that assistance is rendered in a timely manner by the responsible public safety agency.

In Germany, the Bavarian Police force is using LifeX at the heart of its new communication hub, supporting digital radio connections between control centres and over 40,000 uniformed officers. The Police force will bring each of its ten control centres onto the Frequentis LifeX platform, enabling it to consolidate multiple communication systems into a single, intuitive interface. Significant benefits already achieved

are reduced noise levels, faster training, and more efficient distribution of calls to operators—increasing the volume of simultaneous emergency calls that it can handle.

Another large police force in Europe has deployed LifeX to open up new contact channels including web chat, social media and SMS messages. The solution is integrated with an AI-powered, real-time translation service, increasing the accessibility of services and empowering operators to act faster. Where requests come through the website, a chatbot determines the nature and urgency of the request, and routes the conversation to a human operator where necessary.

Conclusion

With LifeX by their side, organisations stand ready to embrace whatever tomorrow may bring. Whether for managing crises, optimising operations, or safeguarding communities, LifeX is the cornerstone to saving lives when seconds count. To arrange a consultation with a Frequentis consultant, visit our website today: https://www.frequentis.com/en/contact-us

Note: All forward-looking statements contained in this white paper have been prepared in good faith but by their very nature they can only be given upon Frequentis' reasonable and well evaluated assumptions. As future events and developments could differ materially from the basis of the assumptions made at the time being, neither assurance for the accuracy of such statements in the future can be given nor can any responsibility of liability be taken over in this respect.