MissionX

Mission-critical services and applications
on the track to FRMCS

Public Transport

FREQUENTIS

FOR A SAFER WORLD

Bearer-independent communication and 3GPP standardised MCX services define the journey to FRMCS

Public transport organisations depend on reliable communications in the field to ensure safe and uninterrupted operation of trains as well as to recover from incidents as quickly as possible. At the same time, control room operators who manage and guide railway operations need to be aware of the right information at the right time. For the owners and providers of the mission-critical communications infrastructure that supports these operations, demand for non-stop availability, rock-solid security and increasing capacity is always growing. The result is a perfect storm for existing mission-critical communications, demanding a fresh approach.

After more than 20 years of the GSM-R success story, the next generation of rail mobile communication technology, known as FRMCS (Future Railway Mobile Communication System), is currently in the specification phase. The 3GPP standard for mission critical services (MCX) covers MCPush-To-Talk for voice (MCPTT), MCData for secure and reliable messaging as well as file distribution, and MCVideo. The MCX standards include security measures for E2E encryption, user management and QoS-control. Together with 5G networks, MCX forms the technology base for implementing the vision of the new FRMCS.

For a smooth transition from legacy technology to FRMCS, Frequentis offers a wide range of solutions and products designed for each step of the customer´s specific technology journey.

The Fixed Terminal System 3020 (FTS 3020) draws upon our expertise as the number one provider of voice and data operations communication for control rooms using the existing GSM-R technology. The Frequentis bearer-independent communication solution (BIC) abstracts applications and services from communication bearers, enabling railways to run newer communication technologies alongside GSM-R during a controlled transition period. This solution includes interworking functions for parallel usage of various communication networks. It also provides a single integrated working position with a unified user interface, supporting operators in working more effectively and efficiently, while helping organisations reduce complexity, cut costs and accelerate the deployment of new services.

Our MissionX offering spans voice, data, and video communication, as well as new communication features and multi-organisation networks. Users and consumers of mission-critical information in the field can draw on our applications and user-experience services, while owners and providers of critical infrastructure can make use of our network services.

Finally, control room operators can take advantage of new features and integration with multimedia powered by our product bundles. Our solutions work with all standard networks and any device that can host our services.

Advantages of Frequentis MissionX

Compliant and customised
We provide a base server architecture that complies with industry standards, then add features tailored to our customers.

Open and easy to integrate
Designed for interoperability with other vendors, our solutions avoid lock-in and enable organisations to continue using existing equipment.

End-to-end service portfolio
Our product bundles include mission-critical applications for use in the field, networks, service infrastructure and control room solutions.

MissionX – a route to a standardised FRMCS solution

MissionX is an integrated, end-to-end solution, which reliably ensures mission-critical multimedia communication over public, dedicated (private) and hybrid standardised 4G/5G mobile networks, satellite or WiFi provided by various network operators. As a bridging platform, MissionX includes the interworking and usage of legacy communication networks like GSM-R and TETRA. As a bridging technology, it is available for pre-FRMCS as well as for fully compliant FRMCS solutions.

The MissionX E2E solution consists of three main components – the core components, the mobile client applications of the MissionX platform, and the control centre client applications. Concerning

FRMCS, all components communicate via the standard interfaces defined by 3GPP MCX.

Third-party mobile applications or control centre solutions can be used in exactly the same way as the applications contained in the MissionX solution, as long as they comply with the 3GPP MCX standard. The MissionX solution architecture meets the most stringent specifications for mobile mission critical (broadband) communication, especially the high requirements for system availability and reliability, resilience, using sophisticated security concepts, and a new concept around data ownership for multi-tenant solutions.
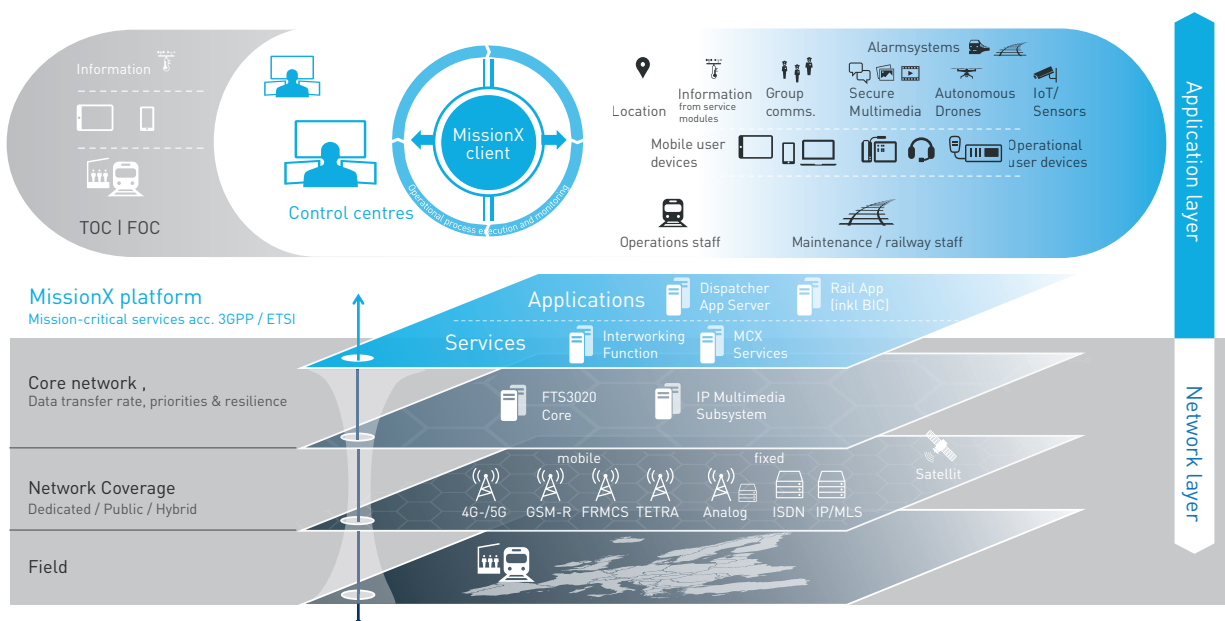
Mobile client – implementing diversity in client apps

The Frequentis mobile client provides MissionX services for mobile devices. In addition to the standard MCX functions, the development of additional mobile apps is supported by a Software Developer Kit (SDK). This enables the efficient integration of existing applications and new developments into the MissionX E2E solution and ensures a standardised transfer to the MissionX core services.

Control centre client

The third core component is the Frequentis MissionX control centre client, a multimedia communication service developed specifically for mission-critical communication. This is done for migration purposes via the well-known DICORA application of FTS 3020 or, in case of new solutions, via the web based OCM (Operations Communication Manager) application. A third-party control centre client can also be connected to MissionX as long as it complies with the 3GPP MCX standard. This enables all multimedia deployment communication (group calls, text, image and video transmissions, various database queries, etc.) to be conducted within a single incident processing tool. Frequentis supports customers with the integration of customer-specific data sources.

The Frequentis solution: MissionX

- Targeting 99.999% availability, even during peak demand and across geographies.

- In-built redundancy to minimize the likelihood of failure.

- Integrated security features including advanced authentication and encryption of signalling and media.

- High performance for both up- and download of information.

- Support for new devices such as ruggedised smartphones and tablets; provision of SDKs and customised applications for media-supported operations in the field.

- Support for integration of mobile control rooms or offices, and placing maps, videos and images at users' fingertips.

- Reuse of existing investments from FTS 3020 Release 4 onwards (via a gateway approach and/or reuse of existing DICORA X20 controller terminals).

- Use of the rail application services (BIC) of FTS 3020 for pre-FRMCS solutions to start now with a bridging technology until FRMCS is available.

With MissionX Frequentis offers rail customers the solutions and products to support a smooth transition from their current technology to FRMCS. To make things easier, Frequentis decouples functional requirements from the underlying technology.

Our clients manage trains, we manage technology.

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