



Kontron Transportation

End-to-end Communication Solutions
for Mission-Critical Networks

Reliability for all Mission-Critical Sectors

Kontron's solutions are deployed wherever reliable communication and security are essential for protection, coordination, and operational success:

Transportation & Mobility, Public Safety & Emergency Services, Industry & Critical Infrastructure, Energy & Utilities, Government & Public Administration and Defense & National Security.

- Energy & Utilities
- Railway and Public Transport
- Public Safety, Emergency & Security Forces
- Industrial Sector

From Detailed Planning to Long-Term Support

Unlike conventional communication systems, mission-critical radio networks must ensure availability, resilience, and real-time performance, even under extreme condition.

This is where Kontron Transportation excels:

Our end-to-end services portfolio covers the entire solution lifecycle from initial analysis and planning to implementation, maintenance, and long-term support. We ensure that all components work together seamlessly to deliver reliable and secure communications.

Our solutions comply with EU cybersecurity requirements, enable operations with full data sovereignty, and support digital sovereignty while fostering long-term customer relationships.

Kontron's MCx solutions are based on open and international standards and comply with all relevant requirements.

Designed for seamless migration and integration, they enable customers to modernize their communications infrastructure efficiently while minimizing disruption. By leveraging standards-based technologies and a future-proof architecture, our solutions help organizations keep their total cost of ownership (TCO) low throughout the entire lifecycle.

At a Glance

- Mission-critical communications (MCx)
- End-to-end expertise (networks, applications & integration)
- High resilience and availability
- Migration from existing radio systems to 5G broadband

Modern Communication Solution with Future-Proof Technology

Our innovative MCx Over-the-Top solution has been **successfully deployed in Germany for several years**: The solution is already being used by numerous users in their day-to-day operations and has proven its reliability under real-world conditions.

The cloud-based architecture provides flexibility and scalability, while the **managed-services operating model** and the use of existing mobile networks significantly reduce costs.

MCx Key Features

- Push-to-Talk (PTT)
- Video Calling
- Messaging Service
- Voice Recording
- Heartbeat Function
- Emergency Calls
- Network Selection for Maximum Availability
- Status Indication
- GIS Location Tracking
- Advanced Call Features
- Interoperability
- Signaling Support
- Role-Based Communication

One Platform. All Sectors. No Compromises.

Kontron's MCx solution delivers mission-critical communication services for voice, video, and data based on 3GPP standards.

Native MCx

The Native MCx solution uses a private campus network as its transmission medium, ensuring prioritized, high-quality, secure, and reliable communications for both everyday operations and emergency situations.

MCx Over-the-Top

MCx Over-the-Top leverages existing mobile networks as its transport medium.

It replaces outdated legacy analog radio systems with modern communication technology—without requiring additional infrastructure investments.

MCx as a Service

MCx as a Service is a cloud-based model in which Kontron provides MCx as a managed service from a highly available carrier-grade data center in Germany.

The solution offers high scalability and flexibility while significantly reducing operational costs.

MCx End Devices



Next-Gen Dispatcher

As an MCx communication hub, the Next-Gen Dispatcher is a compact and flexible terminal solution for voice, data, and video communications.

Mobile End Devices

Rugged, IP68-certified smartphones with integrated MCx client software ensure reliable performance in demanding environments.

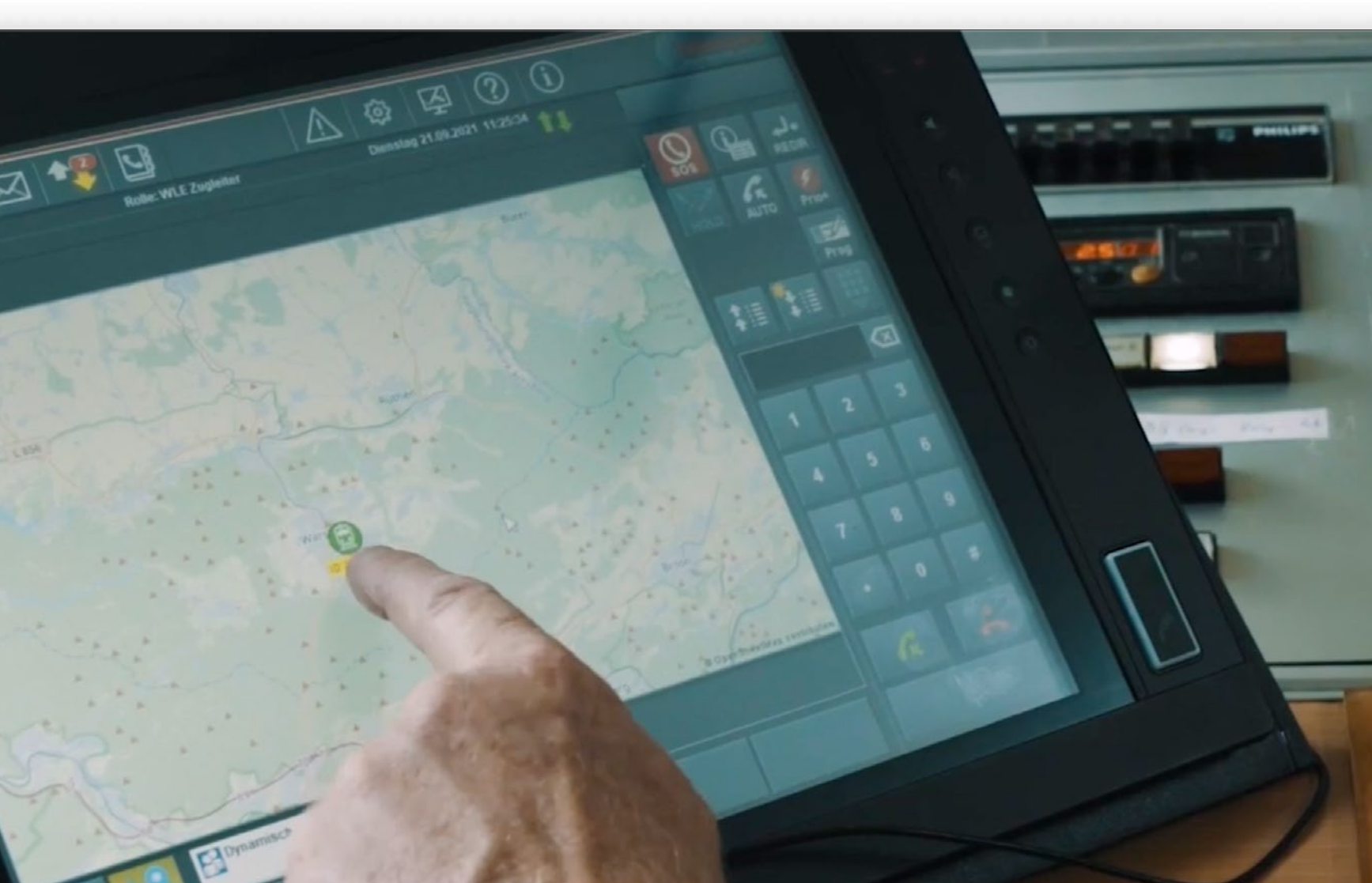
Deep Dive

Overview of Key MCx Functionalities

At the core of the solution, Kontron Transportation provides "MCx as a Service (MCxaaS)" from a carrier-grade data center.

The mobile MCx client runs on rugged, industrial-grade end devices (e.g., IP-rated smartphones) and is complemented by an IP-enabled dispatcher/control room system featuring a user-friendly interface. The solution is designed for interoperability and is based on 3GPP standards for mission-critical communications.

As public networks cannot guarantee seamless coverage or consistent service quality in all locations, the MCx OTT solution has been enhanced to ensure greater transmission reliability and robust operation in challenging radio environments.



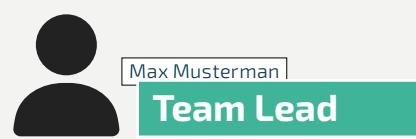
Heartbeat

In addition to the use of multi-SIM concepts (e.g., two SIM cards from different network providers), a heartbeat function has been developed to keep the MCx client synchronized with the server application at predefined intervals.

This enables users to immediately recognize whether the connection to the MCx platform is active and to react at an early stage if any issues occur.

If no data connection is available, communication can—depending on the device configuration and the organization's operational requirements—fall back to alternative voice services.

This feature enhances both operational transparency and reliability, ensuring greater communication resilience in mission-critical environments.



Role-Based Communication

The MCx solution supports Functional Aliases (FA), enabling users and roles (e.g., Control Center, Team Leader, Response Team, or Technical Support) to be addressed through unique functional identifiers, independent of specific devices or personal phone numbers.

A configurable mapping mechanism within the core network translates functional identifiers into technical identities and vice versa.

This stateless mapping approach simplifies interoperability with existing communication environments and supports organization-specific calling and role-based communication models.



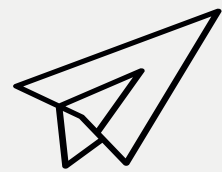
Status Indication

The status indication feature available on both the end device and the dispatcher interface enables users to see whether relevant roles or contacts (e.g., the control center, team/shift supervisors, or other users) are available, busy, or unreachable.

Conversely, the control center can identify whether a user is currently speaking or available to accept a call.

These presence indicators reduce the need for follow-up inquiries, accelerate coordination, and help users reach the right person more quickly during periods of high communication traffic.

Advanced Features



Chat

An integrated messaging service extends the MCx solution with predefined or freely composed text messages.

This enables the reliable exchange of important information between the control center/coordinating office and mobile users, even in environments with limited bandwidth.

As standardization progresses, additional services may be available depending on the deployment level, including video transmission, file transfer, and the transmission of structured incident or operational data.



Next Generation Dispatcher

The flexible dispatcher solution in various configurations is a central component of the MCx solution. In addition to proven functions such as individual calls, group calls, and emergency calls, it supports a range of intelligent features for operational coordination and incident management.

Configurable call lists and predefined messages help users handle recurring communications quickly and consistently. The dispatcher's keypad and user interface are fully configurable and can be adapted to specific operational requirements. Particularly suitable for control centers and coordination centers with high communication volumes.



Voice Recording

For many mission-critical communication scenarios, voice recording is an essential capability, providing traceability, quality assurance, and compliance with regulatory or organizational requirements.

The MCx solution therefore supports voice recording and can, depending on project requirements, be integrated with proven recording solutions to enable a secure, auditable, and operationally reliable implementation.



GIS-Supported Location Services

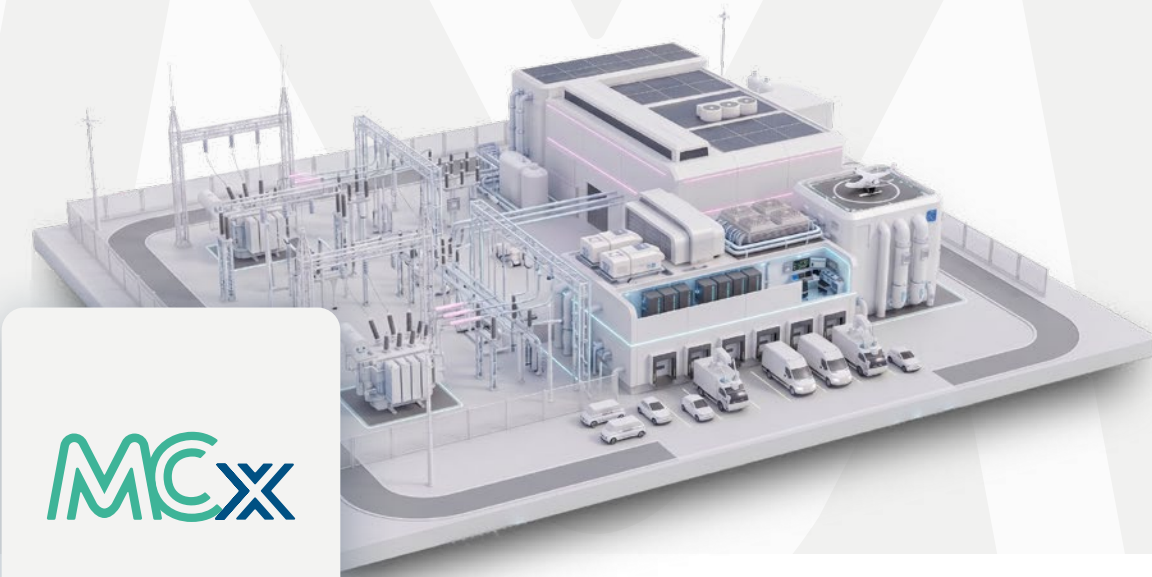
The solution provides location management and reporting for mission-critical users by utilizing location information from GPS, cellular networks, Bluetooth beacons, and other sources.

The availability of accurate location data is essential for critical services, including geofencing scenarios and the dynamic determination of emergency call and alerting zones, ensuring that all affected participants can be identified and engaged effectively.

Combined with user status information, these capabilities assist dispatch centers in identifying areas with limited radio coverage at an early stage and initiating appropriate measures.

In addition, configurable call lists and predefined messages support fast and consistent communication, while the dispatcher's control panel and user interface can be freely configured to meet operational needs.

MCx for Utility Companies



Utility providers are part of the critical infrastructure sector, operate under strict regulatory requirements, and must be prepared for blackout scenarios.

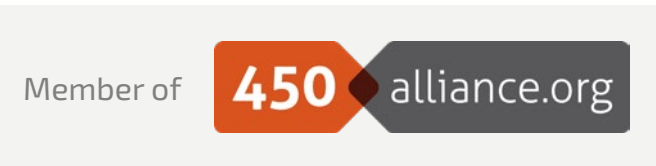
Kontron's MCx solution enables highly available mission-critical communications for operators in the energy and utility industry. Based on 3GPP Mission Critical standards, it delivers secure voice, data, and video services that are optimized for operation and designed to operate even during large-scale disruptions and crisis situations.

The MCx 450 solution operates over private LTE450 networks and provides end-to-end Quality of Service (QoS) policy control. It is deployed on-premises within a secure private cloud environment featuring a fully geo-redundant high-availability architecture.

This creates a secure and highly available communications platform for utilities and critical infrastructure operators.

Kontron's MCx offers

- Blackout-resilient communication
- Integration with 450-MHz-network



MCx for Public Transport Operators



Public transport operators require reliable, secure, and prioritized communication at all times between control centers, drivers, security personnel, and maintenance teams both during daily operations and in the event of disruptions, major incidents, or emergencies.

Kontron's MCx solution, based on 3GPP mission-critical standards, delivers secure voice, data, and video services and is optimized for operation in demanding radio environments such as tunnels, depots, workshops, and extensive rail and transport networks.

The solution is already successfully deployed by several regional railway operators in Germany and supports end-to-end Quality of Service (QoS) and can be deployed in a private and public LTE/5G network or within a cloud environment and through a Kontron MCx Secure Cloud, featuring a geo-redundant high-availability architecture to ensure maximum service availability.

This provides a robust foundation for resilient, secure, and mission-critical operational and emergency communications in both urban and long-distance transportation systems.

Kontron's MCx offers

- Integration of private radio and data networks
- Improved operational efficiency

MCx for Emergency Services Organizations



Emergency services organizations require reliable, secure, and prioritized communication between dispatch centers, incident commanders, and field personnel under all circumstances—during routine operations as well as major incidents, disasters, or periods of network congestion.

Based on 3GPP mission-critical standards, Kontron's MCx solution provides secure voice, data, and video services, supporting group communications, emergency calls, and interoperable collaboration across organizational boundaries.

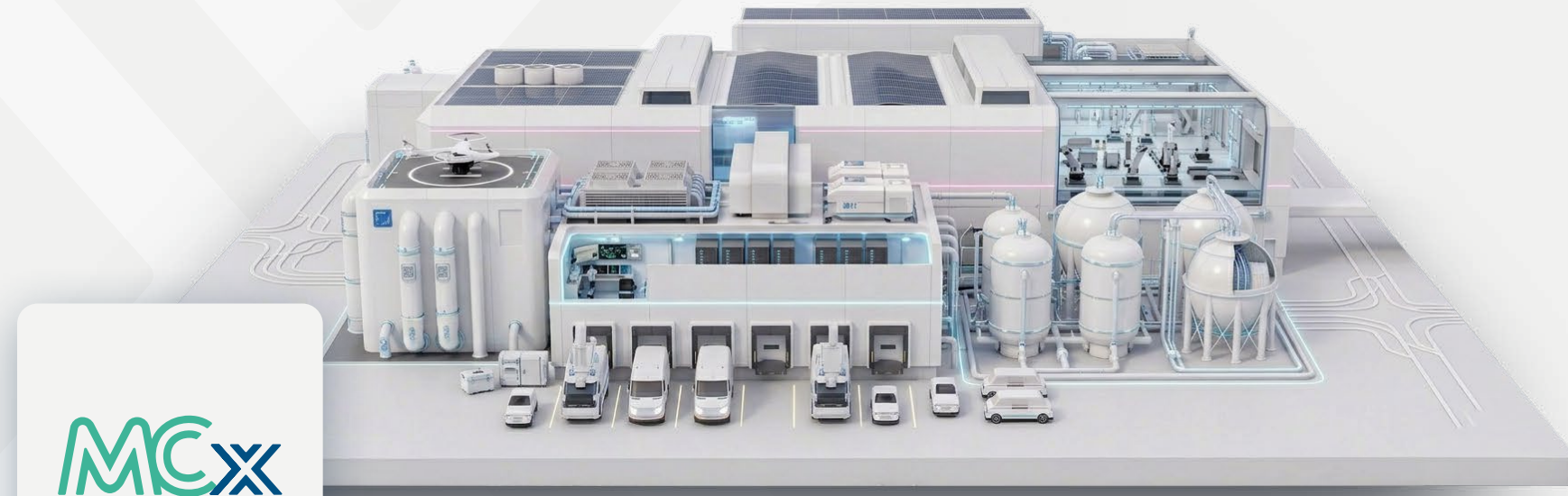
The solution enables prioritization of critical communications even during periods of high network utilization to ensure consistent prioritization of critical services and can be deployed in private LTE/5G networks and within a secure on-premises private cloud environment. Its geo-redundant high-availability architecture ensures maximum service availability.

MCx therefore provides a robust foundation for resilient, secure, and mission-critical communications in the public safety sector.

Kontron's MCx offers

- MCPTT/MCVideo/MCData
- Interoperability and enhanced situational awareness

MCx for Industrial Enterprises



Industrial enterprises require reliable, secure, and prioritized communication at all times between operations control centers/control rooms and teams in production, maintenance, plant security, and HSE (Health, Safety & Environment)—both during daily operations and in the event of equipment failures, shutdowns, or emergencies.

Based on 3GPP mission-critical standards, Kontron's MCx solution provides secure voice, data, and video services and supports group communications as well as efficient coordination across sites, shifts, and external contractors through interoperability.

The solution enables prioritization of critical communications even during periods of high network utilization to ensure consistent prioritization of critical services and can be deployed in private LTE/5G networks and within a secure on-premises private cloud environment. Its geo-redundant high-availability architecture ensures maximum service availability.

MCx therefore provides a robust foundation for resilient, secure, and mission-critical operational and safety communications in industrial environments.

Kontron's MCx offers

- Private LTE/5G campus network
- Automation & IoT integration

About Kontron Transportation

Kontron Transportation is a leading global supplier of end-to-end communication solutions for mission-critical networks. The company specializes in systems that produce, transport, and process voice, data, and video — reliably, securely, sustainably, and efficiently.

Headquartered in Vienna, the company employs more than 700 people across 11 European sites.

Kontron Transportation is part of the Kontron Group.

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The Power of IoT