When failure is not an option—Ericsson OSS/BSS for mission-critical networks

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Build a future-ready foundation for mission-critical networks

For mission-critical networks, used by sectors such as railway, public safety, utilities, and defence, service failure is not simply a commercial inconvenience. It can have significant implications for human safety and security, emergency response, regulatory compliance, and continuity of essential services. Mission-critical networks, therefore, need more than traditional IT systems—they need a platform that delivers real-time visibility, deterministic control, and end-to-end accountability across both network and business domains.

Ericsson offers a robust, reliable, and secure Operations Support Systems/ Business Support Systems (OSS/BSS) portfolio and related services, which is purpose-built for mission-critical networks. The solution combines business intent, service orchestration, assurance, analytics, intelligent automation, simple and efficient ordering, and real-time billing and charging capabilities to support resilient and operationally assured environments.

It is designed to support complex, multi-stakeholder ecosystems. The modular solution helps operators improve operational efficiency, service assurance, and service level agreement (SLA) management while maintaining governance, operational oversight, and accountability. Rather than replacing operational decision-making, artificial intelligence (AI)-assisted intelligence and automation are used to support faster insights, improved operational consistency, and more proactive issue resolution, with human oversight remaining central to operations.

By combining telecom-grade reliability with open architecture, assisted intelligent operations, and deep ecosystem integration, operators can manage mission-critical services with greater confidence, agility, resilience, and operational transparency.

By working with Ericsson, operators can benefit from three strategic outcomes simultaneously:

- reliable and resilient operations
- assured service delivery
- new business models

Ericsson OSS/BSS not only addresses current operational challenges but also provides a future-ready foundation for scalable, intelligent, and secure mission-critical networks.

Beyond connectivity: Why mission-critical networks require a new operational model

Technology evolution and more demanding requirements are leading to the obsolescence of current mission-critical technologies. At the same time, the growing frequency and scale of emergencies are intensifying the need for more performant, reliable, and resilient systems. As a result, mission-critical networks are transitioning from legacy communication models to 4G/5G-enabled platforms, where highly sensitive, complex, and critical services must be supported.

This shift is occurring across multiple market segments, each progressing at a different pace, including Future Railway Mobile Communication System, public safety communications such as TETRA and P25, utilities, and defence. These sectors demand far more than just connectivity. They require service assurance, operational control, governance, and accountability to provide the highest level of robustness, reliability, resiliency, and security.

Unlike traditional OSS/BSS platforms, which are focused mainly on consumer mobility and standard enterprise services, Ericsson's OSS/BSS portfolio is designed to support the resiliency, governance, and operational assurance requirements of mission-critical networks at scale.

Conventional OSS/BSS systems are typically optimized for transaction-centric operations, which can create limitations when addressing the operational continuity, multi-domain coordination, and service assurance demands of mission-critical environments. The key limitations include:

- limited-service awareness, with insufficient end-to-end visibility of service impact
- insufficient real-time capabilities, delaying detection and response
- minimal closed-loop automation, increasing operational risk
- weak multi-agency and B2B2X governance, limiting accountability across stakeholders

Mission-critical services require near-zero tolerance for failure. Performance expectations are significantly higher compared to traditional consumer and enterprise services. Any delays in detection, response, or service recovery may have serious consequences. The operating model must support deterministic performance, real-time response, strong service-level governance, and coordination across multiple parties and domains.

The operational backbone: How OSS/BSS enables end-to-end mission-critical service delivery

OSS/BSS is the operational backbone that enables the full lifecycle of a service, from design and activation to assurance and monetization. It also provides the governance and visibility needed to manage risk, maintain service quality, and support multiple stakeholders.

End-to-end lifecycle control is a foundational capability. The solution must support service definition, catalog-driven service orchestration, provisioning, activation, assurance, and billing in a coordinated and consistent manner. This reduces fragmentation, accelerates time-to-service, and creates a repeatable model for launching and operating mission-critical services at scale.
In mission-critical environments, ordering and service fulfillment must also be fast, intuitive, and operationally efficient. Unlike traditional environments that often rely on long and complex commercial processes driven by configure-price-quote, mission-critical operations frequently require rapid service requests and immediate activation.

Whether onboarding agencies, enabling devices, activating priority services, or provisioning operational resources, streamlined and low-touch ordering experiences become essential to support time-sensitive operational scenarios.

Another essential role is SLA-driven service-aware assurance. Mission-critical services are governed by strict thresholds for latency, availability, reliability, and priority handling. These business and service expectations must be translated into operational control and monitoring mechanisms. This means moving beyond network-centric metrics to service-aware visibility, where performance is interpreted in the context of actual service impact.

OSS/BSS plays a central role in multi-agency governance and accountability. Many mission-critical network scenarios involve complex multiple entities such asoperators, public institutions, enterprises, partners government, and regulatory bodies. The platform must therefore support enterprise hierarchy, segmentation, partner and ecosystem management, usage tracking, and settlement. This is especially important where shared accountability and transparency are required across service delivery chains.

Monetization through billing and charging is needed to enable transparent, accurate, and policy-driven cost allocation across multiple departments and stakeholders. Unlike traditional models, mission-critical environments such as public safety and utilities require support for shared services, cross-agency usage, and priority-based charging. A robust monetization layer ensures that usage is properly tracked, costs are attributed to the right entities, and flexible commercial models are enabled. This is essential to maintain financial accountability, precise billing, and sustainable service delivery in multi-organization environments.

OSS/BSS also provides real-time operational visibility across network and IT environments. By integrating data from orchestration, assurance, monetization, and analytics domains, the system supports faster operational insight, improved coordination, and more proactive operational responses. Assisted intelligence and guided automation can help improve operational efficiency and resilience while maintaining governance, human oversight, and accountability in mission-critical operations.

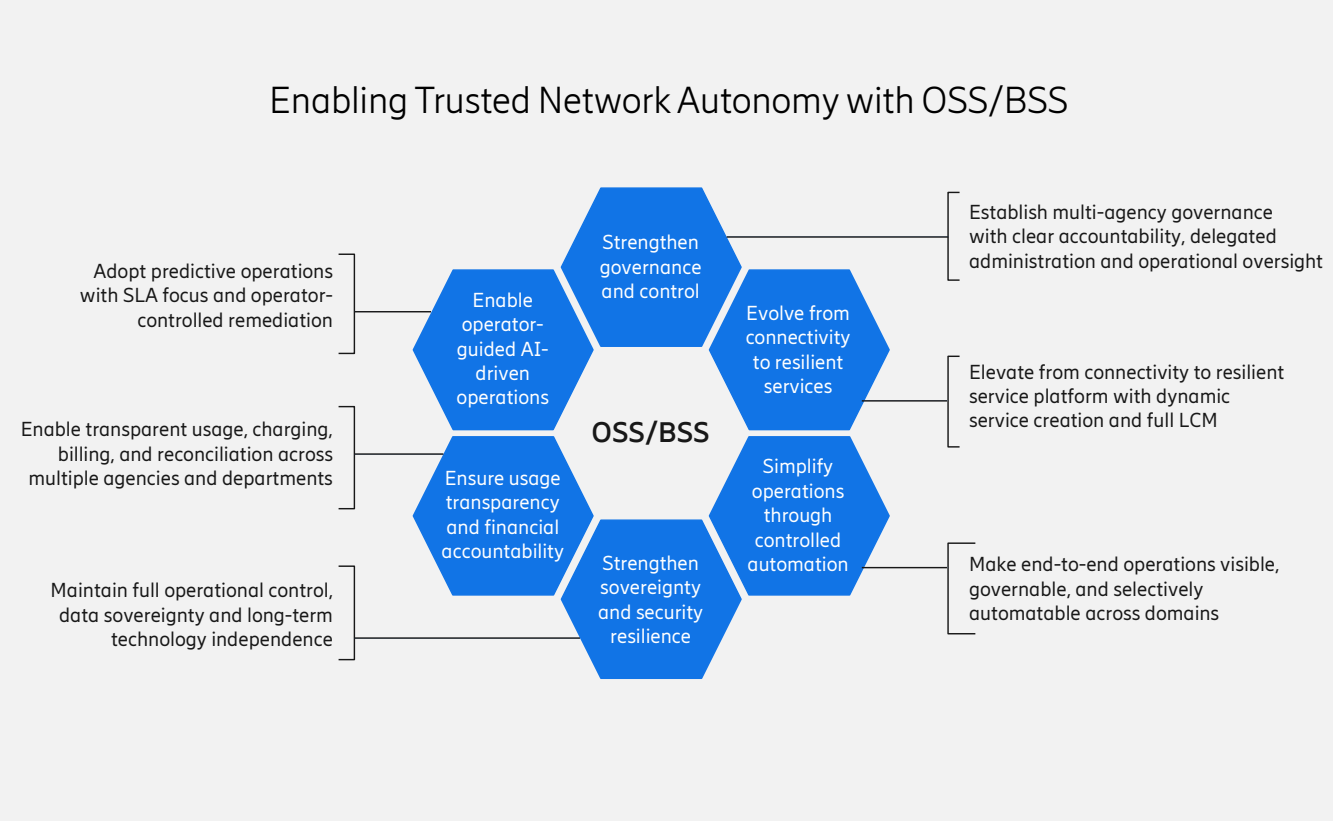


Figure 1: Support resilient and intelligent mission-critical operations with human oversight and controlled automation

Ericsson OSS/BSS: The intelligent control layer for mission-critical networks

Ericsson OSS/BSS serves as the control and intelligence layer for mission critical network. The solution is designed to bring together design, fulfillment, assurance, analytics, automation and monetization within a unified yet modular architecture. This is particularly important in mission-critical networks, where integration complexity, service sensitivity, and operational accountability are significantly elevated.

Ericsson's approach is built on a modular yet pre-integrated architecture. It provides strong deployment readiness while allowing flexibility for ecosystem integration and future evolution. The architecture is designed to align with 3rd Generation Partnership Project (3GPP), TM Forum, and open application programming interface (API) principles, making it suitable for complex multi-vendor ecosystems while reducing lock-in and supporting long-term evolution.

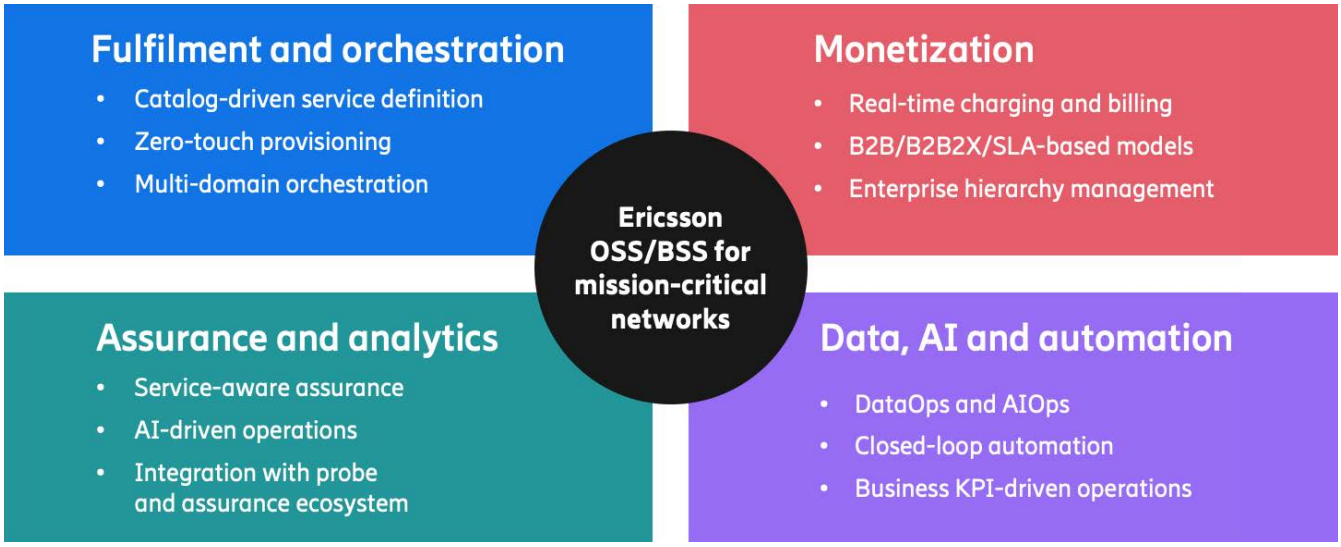


Figure 2: Ericsson OSS/BSS capabilities enabling mission critical services

Fulfillment and orchestration

Ericsson supports catalog-driven service definition with streamlined ordering and controlled provisioning across network and IT domains. This enables faster, more consistent service rollout while preserving operational control, governance, and end-to-end oversight.

The fulfillment and orchestration capabilities provide the mechanism for translating business to service intent into operational execution. Through catalog-driven and model-based service design, services can be defined once and managed consistently across domains and across multiple parties. This helps reduce manual configuration, standardizes service creation, and improves speed to market.

In mission-critical networks, consistent and coordinated service activation across multiple systems and layers is essential. Assisted automation and guided provisioning help improve operational consistency, reduce manual effort, and support scalable service delivery while maintaining operational oversight. Multi-domain orchestration further supports this by coordinating workflows across network and IT domains, helping ensure that end-to-end service activation is executed in a controlled, synchronized, and governable manner.

For mission-critical networks, where service introduction often involves multiple systems and operational handoffs, this orchestration layer is essential for enabling efficiency, precision, resilience, and operational certainty at scale.

Ericsson enables fulfilment and orchestration capabilities through its core commerce and orchestration portfolio that includes Catalog Manager, Order Care, Digital Experience Platform, Digital Monetization Platform, and Service Orchestration and Assurance.

Another critical enabler is Adaptive Inventory, which provides a real-time, service-aware view of network, service, and device resources. It maintains topology, dependencies, and service-to-resource mappings, including logical and physical device inventory such as SIM/eSIM, internet of things (IoT) devices, drones, extended reality (XR) endpoints, and other mission-critical assets. This enables accurate service decomposition and resource allocation, topology-aware orchestration across network and device layers, and full lifecycle management of devices and associated SIM/eSIM assets (activation, configuration, swap, suspension, retirement).

Value: Faster rollout, reduced risk, device-aware orchestration, and predictable service delivery

Relevance: Ensures end-to-end control across network and device layers, including SIM/eSIM and critical endpoints

Assurance and analytics

Ericsson's assurance and analytics capabilities are designed around service awareness and are SLA driven rather than isolated network monitoring. It is enabled by Service Orchestration and Assurance and Expert Analytics platforms.

Standardized assurance and analytics capabilities are powered by AI-driven observability, anomaly detection, predictive analysis, and proactive remediation. This helps to detect issues and identify degraded service conditions early and act before service quality is impacted. In addition, the ability to integrate with probes and third-party assurance tools enhances visibility and depth of monitoring and gives a broader operational picture.

Closed-loop automation and predictive insights further strengthen mission-critical operations by linking detection, analysis, decision-making, and action in one cycle. This optimizes manual effort, reduces response time, improves reliability, and supports more resilient operations. This is especially valuable in mission-critical use cases where proactive intervention is preferable to reactive recovery.

Transparent reporting is important to SLA assurance in mission-critical environment, providing visibility into service performance. It enables CSPs to corelate and comply with stringent business contractual and regulatory commitments ensuring consistent service delivery.

Value: Unified, cross-domain monitoring, predictive assurance, auto remediation, and improved reliability

Relevance: Enables SLA compliance and uninterrupted service delivery

Monetization

Real-time charging and billing capabilities can support dynamic, SLA-based, and ecosystem-driven business models. Services may be priced based on quality, priority, usage, outcome, or partner arrangements. It supports financial transparency, reconciliation, and partner settlement aligned with enterprise and multi-agency requirements.

These monetization capabilities, powered by Charging and Billing Evolved are particularly relevant in mission-critical networks because many business models extend beyond standard consumer billing. Services may involve enterprise usage, shared networks, priority access, partner settlement, or outcome-based charging. To support this, the monetization layer must be highly flexible, real-time, and capable of handling complexity.

Real-time charging and billing ensure immediate financial visibility and control, while support for B2B and B2B2X models enables the solution to adapt to partner-based and ecosystem-driven monetization structures.

Enterprise hierarchy management, allocation, settlement, and usage transparency are also important in mission-critical networks. They enable control and accountability across multiple parties while supporting diverse revenue models.

Value: Financial control, flexibility, and business model innovation

Relevance: Enables multi-agency accountability and sustainable operations

Data, AI, and automation

Rising operational complexity demands smarter automation, where data and AI work together to keep mission-critical systems running at scale. Ericsson addresses this through it's DataOps and AIOps capabilities, powered by Telco DataOps Platform and Telco IT AI Apps. These capabilities enable intelligent correlation across network, service, and business data, providing a deeper operational context and supporting faster, better-informed decisions.

Telco DataOps Platform ingests data from multiple sources-RAN, Core, OSS/BSS and IT systems. It refines the data and makes it ready for consumption by AI and analytics applications to generate insights for data-driven decision making.

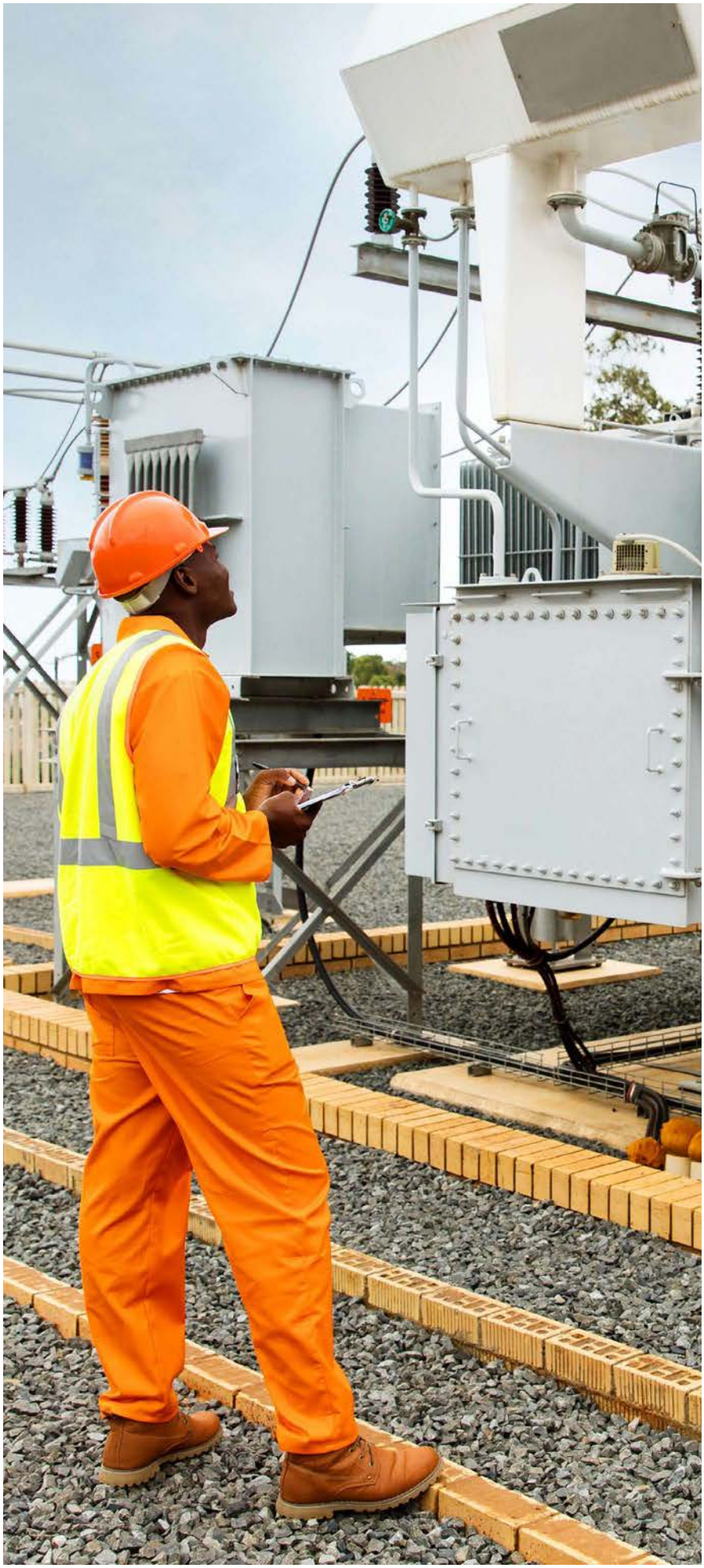
Agentic AI powered closed-loop automation enables transition from manual operations to more autonomous behaviors. The system leverages multiple AI agents to collect data, detect anomalies, predict service degradation, and recommend corrective actions without human intervention, upholding service experience, improving consistency, and reducing operational overhead.

When combined with business key performance indicator (KPI)- driven monitoring, the result is a system that links technical performance directly to business and service outcomes.

Value: Unified, cross-domain monitoring, predictive assurance, auto remediation, and improved reliability

Relevance: Enables SLA compliance and uninterrupted service delivery

Overall, Ericsson OSS/BSS is the operational and business control layer that enables mission-critical networks to run as a governed, intelligent, and scalable service platform.



Efficiently managing OSS/BSS operations for mission-critical networks

IT operations play a major role in ensuring the business outcomes for which the mission-critical networks were designed. Given the presence of multiple clients that interact with the OSS/BSS regularly, it is essential to ensure their positive experiences through efficient business processes. This can be achieved through data-driven operations with significant use of AI and automation. These technologies not only monitor the quality of business services but also predict possible degradations and correct them through closed-loop automation.

For example, mission-critical service fulfillment and operational workflows often involve coordination across multiple network, IT, and cloud domains. As these environments become more distributed and operationally complex, maintaining service consistency and visibility through traditional processes becomes increasingly challenging.

Outcome-focused operations provide enhanced visibility into key operational indicators such as service activation status, operational readiness, and assurance metrics. Intelligent analytics can help identify potential degradations proactively, while guided automation and operator-assisted workflows support timely issue resolution and service continuity within governed operational frameworks.

In mission-critical networking, an end-to-end (E2E) perspective is essential. Ericsson delivers this with a comprehensive portfolio, fully integrated solutions, and vast experience. Ericsson's IT managed services ensure operational continuity, E2E security, and reliability. They perform the following functions.

Application development

Customization and enhancement: Developing and customizing OSS/BSS applications to meet the specific needs of mission-critical networks to ensure that they support unique operational requirements.
Integration: Ensuring seamless integration of OSS/BSS with other critical systems |such as core and radio networks to ensure real-time data flow and operational coherence.
Innovation: Innovating and upgrading OSS/BSS applications to incorporate the latest technologies and best practices to enhance the capability to support mission-critical operations.
Read more about Ericsson's Cloud-Native Application Development

Application maintenance

Performance monitoring: Continuously monitoring the performance of OSS/BSS applications to ensure they are running efficiently and effectively will minimize downtime and operational disruptions.
Issue resolution: Promptly addressing and resolving any issues or bugs that arise, ensuring OSS/BSS operates smoothly and without interruption.
Updates and patches: Regularly applying updates and patches, keeping OSS/BSS applications secure and up to date with the latest functionalities and security protocols.

Automated business service management

Business process monitoring: The purpose of a mission-critical OSS/BSS is to identify key service KPIs that reflect the health of business processes, such as order success ratio, continuously monitor these KPIs, predict performance degradation using AI, and implement proactive measures through closed-loop automation to |achieve desired business outcomes.
SLAs: Adhering to stringent SLAs to ensure high availability and performance of BSS applications is crucial for mission-critical networks.
Read more about Ericsson's Automated Business Service Management

Security management

Security enhancements: Implementing robust security measures protects OSS/BSS applications from cyber threats and ensures the integrity and confidentiality of sensitive data.
Compliance and governance: Ensuring that OSS/BSS applications comply with all relevant regulatory and industry standards maintains trust and reliability in mission-critical environments.
Data sovereignty and deployment flexibility: Mission-critical environments often require strict data sovereignty and hosting control. OSS/BSS solutions should therefore support flexible deployment models across on-premises, private cloud, and public cloud environments while aligning with regulatory and security requirements.

Operational support

24/7 support: Providing round-the-clock support ensures that any issues affecting OSS/BSS operations are swiftly addressed, maintaining the reliability of mission-critical services.

Modular, open, and intelligent: Ericsson's mission-critical network end-to-end solution blueprint

Ericsson's end-to-end solution blueprint for mission--critical networks implements a layered control model. At the top are the mission-critical applications that serve various vertical-specific use cases, such as rail, public safety, utilities, defence, and many industrial services. These applications consume services that must be provisioned, monitored, and assured in real time.

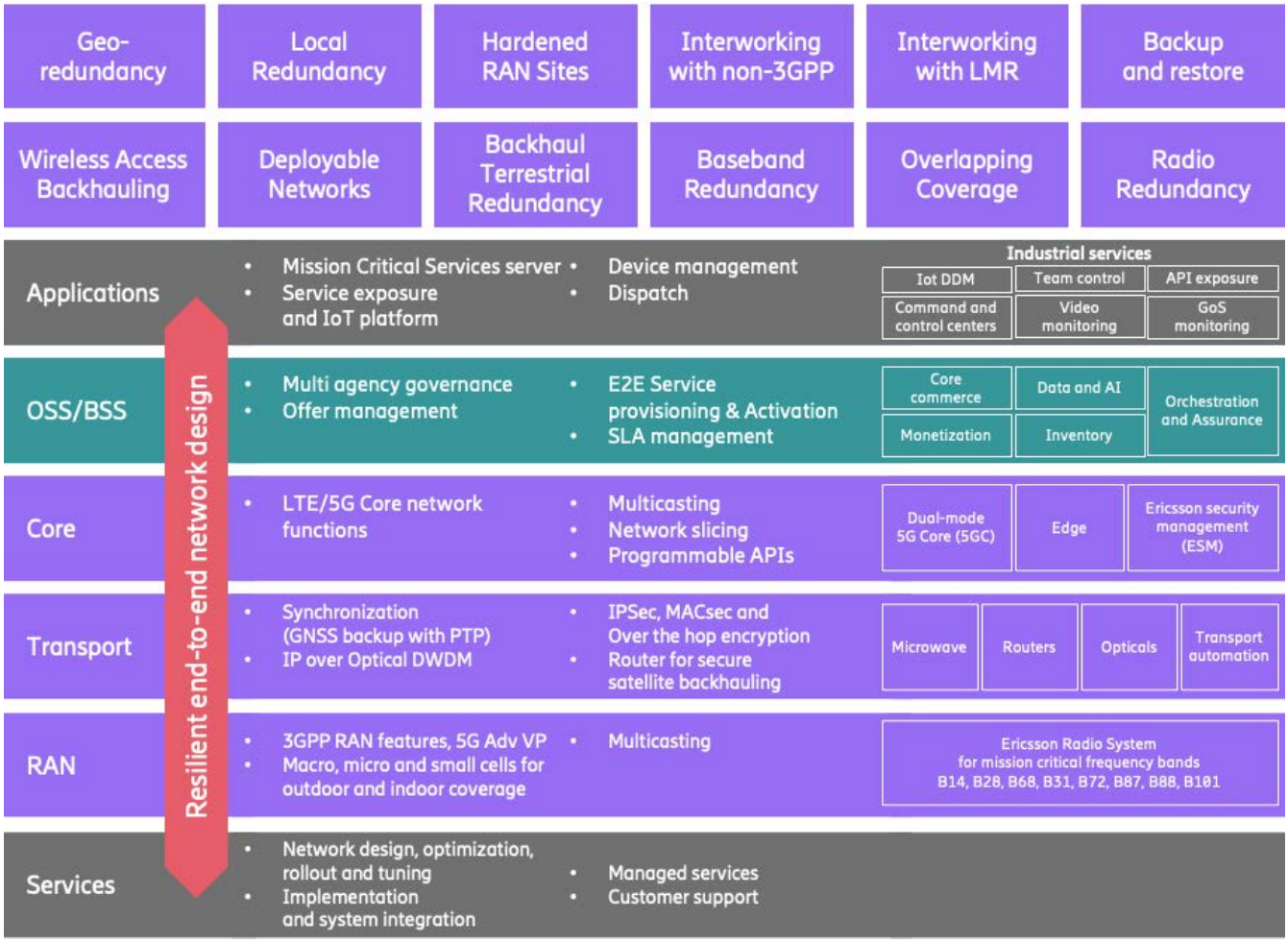


Figure 3: Resilient end-to-end network design

The RAN, core, transport, and underlying infrastructure provide the connectivity foundation; however, they are not designed to manage the service logic, operational flow, or business constraints associated with mission-critical networks.

The OSS/BSS layer acts as the intelligence and control layer between infrastructure and applications. It coordinates service orchestration, assurance, monetization, and policy-driven control, ensuring services are delivered in line with the strict mission-critical needs.

Key capability is closed-loop assurance, where operational data is used to detect issues, drive decisions, and trigger corrective actions. This closed-loop model is essential because it supports fast responses and system-wide alignment.

The architecture is built on standardized integration through APIs and modular interfaces. This is important for enabling interoperability across multiple vendors, simplifying future evolution, and ensuring the platform can remain flexible as use cases are added.

Tailored solutions powering various mission-critical verticals

Mission-critical requirements vary by vertical, but the core need remains the same: reliable, secure, and accountable service delivery. Ericsson OSS/BSS supports various verticals through a common robust architecture while adapting to the vertical specific operational needs:

Public safety

For public safety, the requirements include prioritization, emergency response support, and real-time coordination across agencies. The OSS/BSS layer must support the ability to allocate service priority, maintain service continuity under pressure, and ensure accurate tracking and accountability across participants.

Defense

For defense, the priorities are sovereignty, isolation, resilience, and secure operations. OSS/BSS must provide a controlled and auditable environment that aligns with security and availability requirements. In such cases, operational trust and system integrity are as important as functional performance.

Emergency Services Network, UK

Ericsson has partnered with IBM to deliver the Emergency Services Network (ESN) in Great Britain. The ESN will coordinate efforts and responses from frontline staff, making the streets safer and delivering on the UK government's Plan for Change. Ericsson will leverage its core network, and OSS/BSS portfolios, alongside its mission-critical expertise and other professional services to deliver the new network.

The ESN will support more than **300,000** emergency responders in Great Britain, providing them with better technology and faster access to data in emergency situations and frontline operations. Police forces, fire services and ambulance trusts will be able to share live data and imagery, location reports, and essential public safety information as they work on time-critical rescue and response efforts.

Utilities

For utilities, the environment often involves large-scale IoT, distributed infrastructure, and highly reliable control systems. OSS/BSS must support flexible monetization, operational transparency, and service assurance at scale. This is particularly relevant when multiple operational or business entities are involved.

Rail

For rail, particularly Future Railway Mobile Communication System (FRMCS), the focus is on communication continuity, safe mobility, and strict operational coordination. Services must support uninterrupted handover, predictable performance, and SLA compliance for safety-related operations. OSS/BSS plays a role in ensuring that these services are controlled and monitored.

Beyond the technology: Facilitate the full ecosystem for mission-critical success

Delivering mission-critical networks is rarely about a single product alone. Success depends on a controlled ecosystem that includes application providers, assurance vendors, and system integrators within a governed framework.

The application ecosystem, including services such as customer interfaces, partner systems, or vertical-specific applications, must be aligned through open APIs, orchestration, and common data models. This ensures consistent end-to-end service behavior and reduces the risk of integration failure in a complex environment.

Assurance vendors contribute with probes, testing, observability, and service validation capabilities. These elements are important for ensuring that mission-critical performance is measurable and enforceable. However, they must be integrated within a broader operational framework to avoid fragmentation and inconsistent service behaviour.

System integrators play a critical role in implementation, customization, migration, and cross-domain integrations. Ericsson has the capabilities to align various providers' solutions with the architectural principles and delivery governance needed to ensure that the overall solution remains coherent and supportable.

Ensuring a single point of accountability is essential. This is crucial not only for delivery control, but also for architecture governance, roadmap alignment, and long-term solution integrity.

Ericsson supports this approach through coordinated solution integration and governance across the ecosystem, helping ensure:

- end-to-end architectural consistency
- controlled integration across ecosystem partners
- aligned roadmap and lifecycle governance
- long-term solution sustainability and scalability

This integrated approach reduces delivery risk and ensures the solution operates as a cohesive, high-performing system rather than a collection of components.

Validate, co-create, and industrialize: a phased path to scalable solutions

Follow a structured, outcome-driven engagement model with Ericsson to ensure successful adoption and scale:

Validation
Focused pilots and proof of concepts validate technical feasibility and business impact, with clear success metrics such as SLA performance, operational readiness, and service quality.

Co-creation
Collaborative design phase involving joint workshops, use-case modelling, and iterative refinement ensures alignment on architecture, operations, and business requirements.

Industrialization
Transition from concept to scale by creating standardized architectures, reusable assets, and repeatable delivery models enables efficient rollout across domains and use cases.

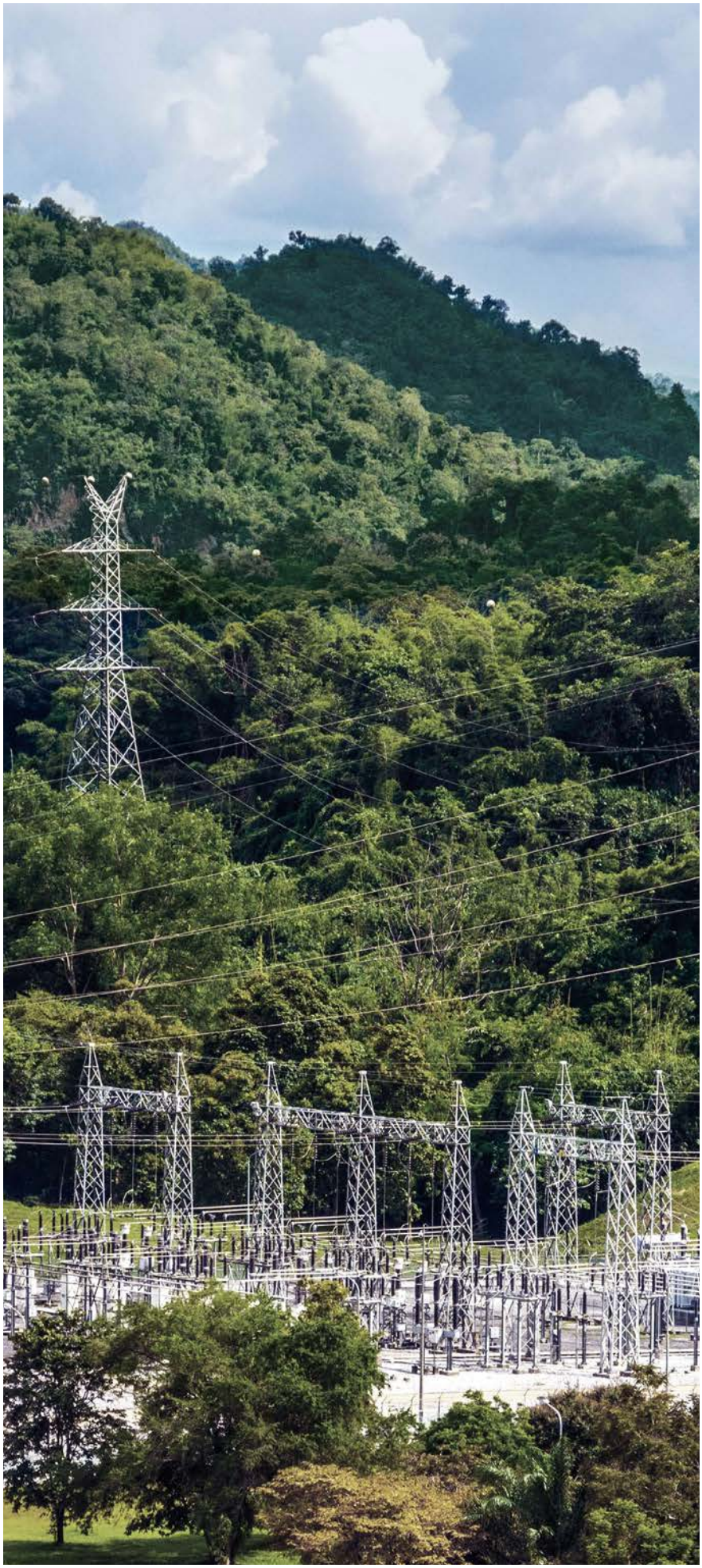
This phased approach ensures the solution is not only technically sound but also operationally sustainable and commercially scalable.

OSS/BSS: The digital foundation for mission-critical networks

OSS/BSS provides a strong foundation for mission-critical networks by combining reliable operations, fast service rollout, SLA assurance, and support for new revenue models. It is about enabling secure, controlled, and resilient service delivery in environments where reliability is essential.

By acting as the digital control plane, OSS/BSS enables operations with greater transparency, stronger governance, and higher service confidence. In addition, the solution supports evolution toward more autonomous operations, making it relevant for long-term strategic growth.

It is time to plan your low-risk, execution-ready platform for mission-critical environments, while also creating a clear path toward future flexibility, innovation, and scale.



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Further reading

Omdia report - Mission Critical networks demand more: Rethink your OSS & BSS
RCR Wireless: IBM Partnership for CSPs' Efficiency and Competitiveness
Advancing mission-critical networks with robust and reliable BSS solutions
OSS/BSS Solutions - Sell. Deliver. Get paid.
Core Commerce: Drive new business models
AI-enabled service orchestration solutions
Telecom charging and billing solutions
AI-powered telecom data and analytics solutions
BSS is the foundation for monetizing 5G and fueling growth beyond connectivity

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