Securing the Connected Utility: Core | Edge | AI

A guide for utility leaders to modernize securely and confidently

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The Path to Secure Modernization

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Defend critical core infrastructure with a Zero Trust approach to private 4G & 5G networks

Identify and mitigate edge risk across the expanded attack surface created by cellular connectivity

Safeguard networks with AI from core to edge with proven, compliane-ready measures

Align technology and security leaders to drive unified success

Private 4G/5G networks, whether dedicated or delivered as a service, together with AI and edge computing, are transforming how utilities manage all parts of their network, including generation, transmission,distribution, and smart meters. Secure, low-latency connectivity enables real-time monitoring, rapid incident response, and advanced automation across the grid.

The Connected Grid Revolution

For utility leaders, this convergence presents a powerful opportunity to enhance service reliability, boost operational efficiency, and elevate customer experience, while meeting stringent regulatory and performance requirements.

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Building Confidence in a Connected Future in 3 Steps

See everything, everywhere

Achieve unified visibility across every location, layer, and device in your private 4G/5G network.

Trust nothing, secure everything

Embed Zero Trust principles from the core to the farthest edge.

Build the future with confidence

Ensure device integrity and trustworthy behavior to power the next wave of AI innovation.

Regulatory Alignment

Aligned with key utility regulations such as NERC CIP and regional mandates, our approach helps utilities advance modernization while maintaining compliance. Security policies are enforced consistently across sites without disrupting operations or violating data sovereignty requirements.

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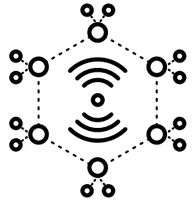
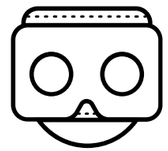
Driving Innovation and Resilience Across the Grid

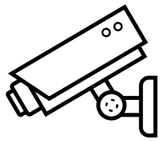
Private 4G/5G is not just a network upgrade — it's an enabler for the next generation of utility operations.



Grid Operations & Automation
Enable real-time monitoring, support SCADA over cellular, integrate DERs, and automate fault detection and restoration to improve reliability.

Field Workforce Enablement
Provide secure mobile access, AR-assisted maintenance, and live field data to increase safety and productivity.





Safety & Security
Strengthen protection of facilities and workers with video surveillance, access control, and IoT safety sensors.

Asset & Emergency Management
Enhance resilience with predictive maintenance, drone and robotic inspections, and reliable communications during outages or disasters.

Together, these use cases enable utilities to deliver reliability, resilience, and trust.

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Operating in a High-Stakes Environment

Utilities and other mission-critical networks face a threat landscape where cyberattacks carry real-world consequences. Disruptions to power or essential services can endanger public safety, slow emergency response, and erode trust, making security both a business imperative and a societal responsibility.

Greater connectivity adds new layers of complexity. Legacy systems, dispersed assets, and intelligent devices expand the attack surface, with nearly 70% of executives citing 5G-connected devices as a top risk. In utilities, even a single breach can disrupt service, threaten safety, and undermine public confidence.

Because uptime drives both compliance and trust, delaying secure private 4G/5G adoption risks slowing modernization and weakening resilience.

Secure private 4G/5G adoption

Strengthening Grid Resilience

The Utility

A major North American utility modernizing its operations with private 4G/5G.

The Challenge

Outage detection blind spots across remote substations and mobile crews made it difficult to ensure uninterrupted service and customer confidence.

The Approach

Deployed a private 4G/5G network with security embedded from the core to the edge, covering substation devices, AMI aggregation, and roaming interfaces.

The Outcome

Achieved uninterrupted network operations, strengthened grid resilience, and ensured full regulatory compliance, delivering more reliable service to customers.

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Leadership Alignment for Success

Success with private 4G/5G requires leadership alignment around security by design, modernization, and operational priorities.

1

Security by design

Embed protections from the start of network modernization, integrating security and network architecture planning from the outset rather than treating security as an afterthought.

2

Aligned KPIs

Define common measures for uptime, modernization milestones, and overall security posture.

3

Trusted innovation

Map AI and automation use cases to risk profiles before deployment to balance efficiency with safety and trust.

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Looking Ahead

Over the next three to five years, private 4G/5G in utilities will evolve from operational connectivity to the foundation for AI-driven, self-optimizing grids. Predictive and autonomous capabilities will enhance both service quality and security outcomes, creating a future where innovation and protection are inseparable.

Utilities are accelerating private 4G/5G adoption to modernize operations and meet growing demands. Leaders who integrate security into network transformation can modernize faster, reduce risk, and strengthen customer trust.

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Next Steps

The first step toward secure private 4G/5G is understanding your current posture, from the control center to remote assets.

Questions to consider:

Does your current security posture extend consistently from the control center to remote assets?

How quickly could you detect and isolate a threat in your private 4G/5G environment?

Are AI-enabled applications secured at both the network and workload levels?

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Let's start the conversation on how we can help you deliver modernization, resilience, and trusted operations at scale.