Unified Edge Operations
Dell NativeEdge with Nokia Private Wireless for Enhanced Enterprise Efficiency

What is Dell NativeEdge with Nokia Private Wireless?

- A Dell Technologies offer for enterprise modernization, including an advanced end-to-end Edge Operations software platform with a private 4G/5G solution based on Nokia's award-winning NDAC (Nokia Digital Automation Cloud).

- Allowing enterprise digital transformation at scale –centralized management, secure device onboarding, zero-touch deployment, and automated management of infrastructure and applications.

- Designed for simplicity - easy-to-deploy, provides agile, secure, and reliable connectivity to mission-critical operations without complexity.

- Enable enterprises to securely scale their edge platform and orchestrate applications across any location.

- Leveraging Nokia's NDAC (Nokia Digital Automation Cloud) for wireless connectivity, with 760+ customers and over 1100 networks.

- Rich ecosystem of partners, validated devices, and applications.

- Dell is the single point of contact for NDAC solution deployment & support.

In the era of Industry 4.0, data analytics, and AI, enterprises must have full control and visibility of their OT network to enable effective data-driven operations. The distributed nature of enterprise IT and OT networks mandates action at the edge, deploying and managing systems, devices, and sensors. This context presents two main challenges for enterprises.

The first is the ability to deploy, secure, and manage the lifecycle of this highly distributed and dynamic network of devices at scale.

The second challenge involves the connectivity of these devices.

Most enterprises are not telecom experts and need an easy-to-operate connectivity solution that is flexible, secure, and cost-effective while also meeting the stringent availability and latency requirements of critical enterprise operations. This is where the synergy between Dell NativeEdge and Nokia Private Wireless comes into play.

- **Dell NativeEdge** is an edge operations software platform that helps businesses securely scale their edge and orchestrate applications across any location. It streamlines edge operations at scale through centralized management, secure device onboarding, zero-touch deployment, and automated management of infrastructure and applications. It enables enterprises to optimize edge investments and secure the edge estate with zero trust to achieve the required business outcomes.

- **Nokia Private Wireless** forms the backbone of a robust, secure, and reliable private wireless network, leveraging the inherent security features of 3GPP technologies.
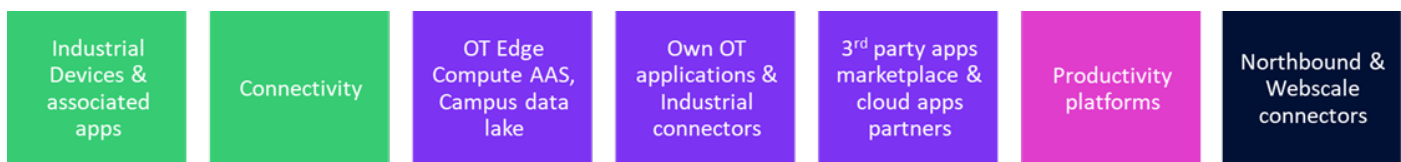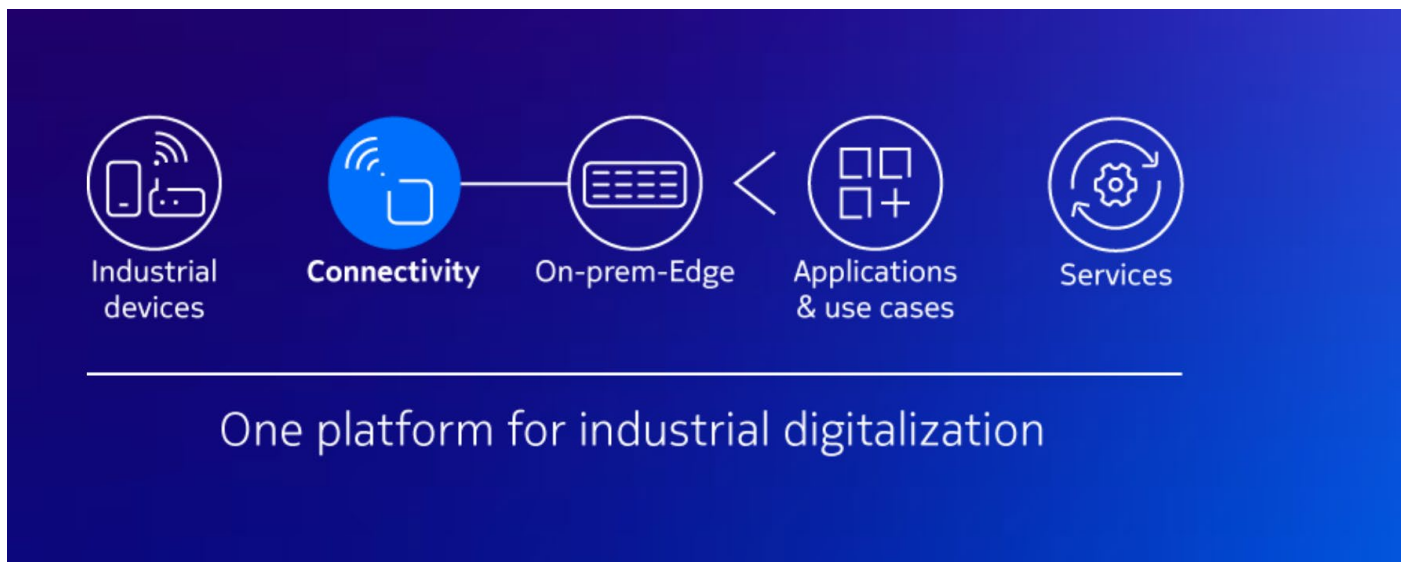
When combined, Dell NativeEdge with Nokia Private Wireless provides enterprises with a seamless foundation for fully connected, secure, and agile operations at the edge.

Enterprises are increasingly adopting Private Wireless for several key reasons:

Enhanced Operational Efficiency: Private networks are pivotal as large organizations progress with digital transformation. They facilitate this transformation by converting enterprise data into a digital format, paving the way for creating innovative digital products and services. Automating processes and remote asset management are often highlighted as primary reasons for implementing private networks. A data-secure deterministic network must connect critical OT processes with improved reliability.

Substitution for Outdated Networks: Private wireless networks offer a dynamic and cost-effective solution for supporting applications like automated guided vehicles, which can be preferable to expanding existing wired networks.

Wi-Fi Limitations Overcome: While Private 4G/5G networks are not typically established to completely supplant Wi-Fi networks, they are expected to exist alongside them. Private cellular networks are particularly advantageous for applications that challenge Wi-Fi's capabilities, such as providing coverage across extensive areas where Wi-Fi may be impractical, or in indoor environments like factories where a dedicated spectrum can outperform Wi-Fi amidst interference-heavy signal conditions. Private 4G/5G wireless networks provide enterprises with greater throughput and improved latency compared to Wi-Fi networks for mission-critical OT use cases.

Industrial devices — Connectivity — On-prem-Edge < Applications & use cases — Services

One platform for industrial digitalization

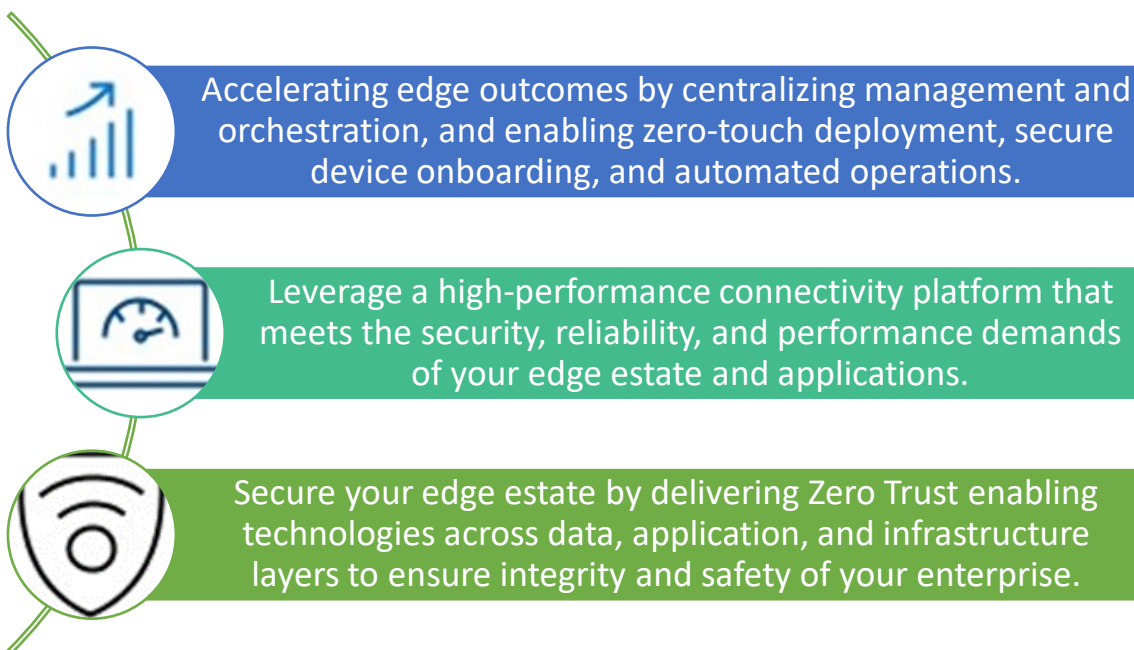| Industrial Devices & associated apps | Connectivity | OT Edge Compute AAS, Campus data lake | Own OT applications & Industrial connectors | 3rd party apps marketplace & cloud apps partners | Productivity platforms | Northbound & Webscale connectors |

What issues do we address with Dell NativeEdge with Nokia Private Wireless?

Enterprise Concerns	Dell NativeEdge with Nokia Private Wireless
Complex and time-consuming edge operations.	Dell NativeEdge automates the deployment and operation of the edge estate and allows hardware, software, and application orchestration to reduce operational complexity.
How can I secure my distributed edge operations?	Dell NativeEdge secures device onboarding with zero-trust security from the point of manufacturing through the supply chain, point of production, and retirement of the device.
I need to flexibly connect sensors and devices to automate my operations.	Nokia Private Wireless enables agile 4G/5G connectivity. It is designed for enterprises and delivers all the necessary components from the infrastructure to the use case.
Our company is not ready for the complexity of deploying and operating a private wireless network.	Dell NativeEdge with Nokia Private Wireless is designed for simplicity. It includes all the necessary elements to enable all deployment aspects – spectrum, SIM cards, provisioning system, devices, and a single point of contact for support.
I need to interconnect my operational processes using the private wireless network, but I don't know where to start.	Dell Technologies and its ecosystem of partners can help you from the design phase and implementation through integration and operations. We want to be your partner to simplify your edge operations.

Dell NativeEdge with Nokia Private Wireless value proposition:

Unify edge operations and wireless connectivity to unleash business potential.

Accelerating edge outcomes by centralizing management and orchestration, and enabling zero-touch deployment, secure device onboarding, and automated operations.

Leverage a high-performance connectivity platform that meets the security, reliability, and performance demands of your edge estate and applications.

Secure your edge estate by delivering Zero Trust enabling technologies across data, application, and infrastructure layers to ensure integrity and safety of your enterprise.

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Deploy your secure connected edge without complexity.

By bundling all the necessary elements for an agile edge operations platform deployment, including HW, SW, Services, Spectrum, SIM cards, and applications, we expect to reduce enterprises' efforts, costs, and complexity to embrace this technology. Dell Technologies will be your single point of contact.

Leading Enterprise/Edge Ecosystem:

- Edge Operations SW platform
- Private Wireless (4G/5G)
- Industrial IoT applications
- Applications (Use cases)
- Industrial devices
- Systems Integration

Radios for all wireless needs (5G)

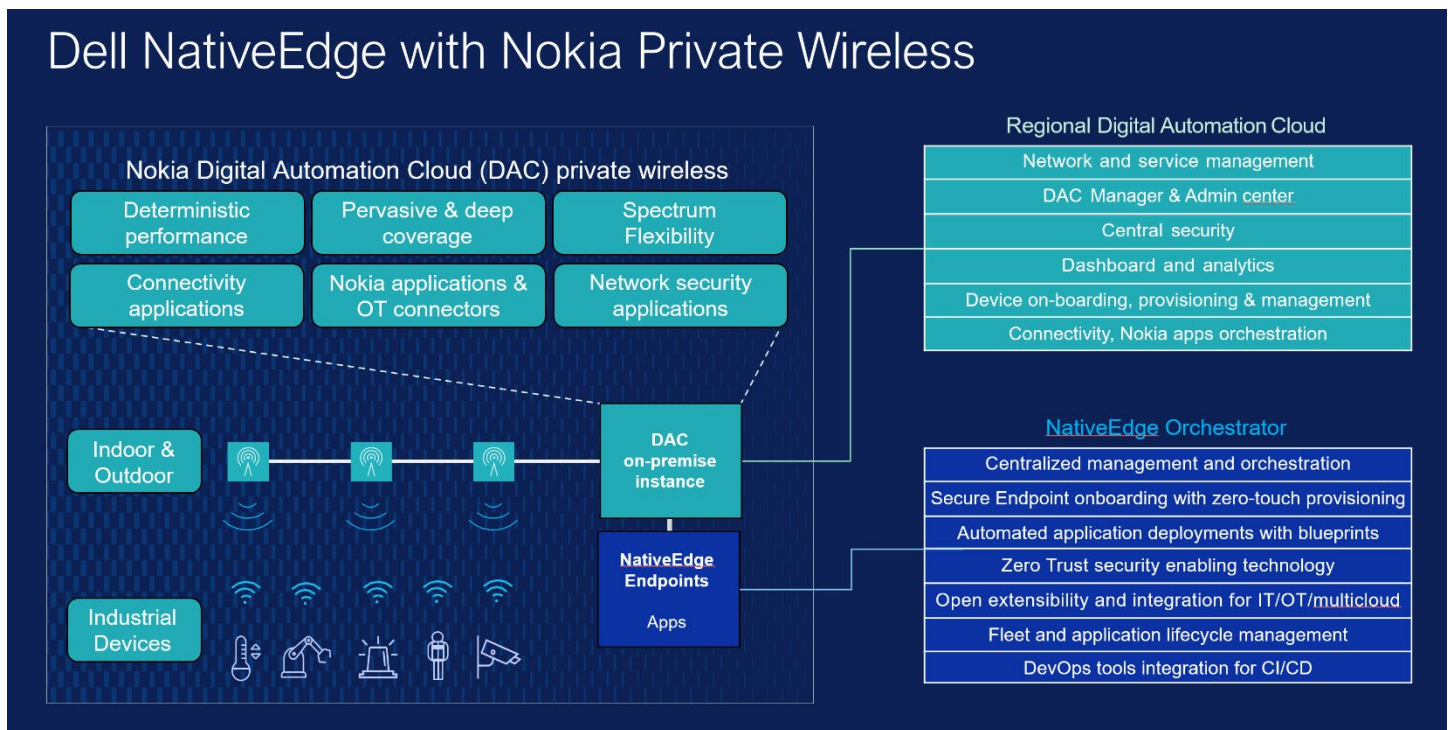| Pico Remote Radio Heads	Millimeter Wave radios	Micro Remote Radio Heads	Macro Remote Radio Heads	Massive MIMO radios

- **Enterprise agile edge operation able to orchestrate HW, SW and applications.**
- **Secure Wirelessly Connected Enterprise.**
- **Designed for Operation simplicity.**
- **Ready for data driven operation.**

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Dell NativeEdge with Nokia Private Wireless

Designed for Enterprise: By combining Dell's NativeEdge platform with Nokia Private Wireless, which is based on Nokia's NDAC, this solution provides scalable, secure, and efficient edge-to-edge connectivity tailored for enterprise environments. It offers seamless integration with existing IT/OT systems, ensures compliance with industry regulations, and enables advanced capabilities such as IoT deployment, AI/ML at the edge, and predictive maintenance. The solution's embedded unified management interface, SIM card management function, and device management capabilities help enterprises optimize operational efficiency and reduce total ownership costs.

Dell NativeEdge with Nokia Private Wireless

Nokia Digital Automation Cloud (DAC) private wireless

Deterministic performance	Pervasive & deep coverage	Spectrum Flexibility
Connectivity applications	Nokia applications & OT connectors	Network security applications

Indoor & Outdoor

Industrial Devices

DAC on-premise instance

NativeEdge Endpoints

Apps

Regional Digital Automation Cloud

Network and service management
DAC Manager & Admin center
Central security
Dashboard and analytics
Device on-boarding, provisioning & management
Connectivity, Nokia apps orchestration

NativeEdge Orchestrator

Centralized management and orchestration
Secure Endpoint onboarding with zero-touch provisioning
Automated application deployments with blueprints
Zero Trust security enabling technology
Open extensibility and integration for IT/OT/multicloud
Fleet and application lifecycle management
DevOps tools integration for CI/CD

Spectrum: Nokia Private Wireless works with various spectrum bands for 4G/5G technologies worldwide, covering sub-6 GHz and mm-wave frequencies. The spectrum-agnostic system can be easily reconfigured for different bands, supporting multi-band operation and dynamic spectrum sharing. It fully supports CBRS in the United States and other country-specific enterprise spectrum allocations globally, making it a versatile solution for enterprises deploying private wireless networks across different regions and regulatory environments. It's particularly well-suited for leveraging dedicated enterprise spectrum like CBRS and similar initiatives worldwide.

Dell and Nokia have formed partnerships with local and regional carriers in areas where dedicated spectrum isn't available to businesses. We can utilize the carriers' spectrum to set up private wireless networks through these agreements.

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Local Host: The Nokia Private Wireless local host is the central management and orchestration platform for private wireless networks. It offers comprehensive network management capabilities, including automated network planning, deployment, and optimization. The controller enables real-time network performance monitoring, providing insights into key metrics and allowing for proactive troubleshooting. It also manages spectrum resources, which is particularly important for technologies like CBRS, ensuring compliance with regulatory requirements and optimal spectrum utilization.

Connectivity Applications: Dell has developed a broad Edge ecosystem of partners and applications in different verticals such as:

Manufacturing:

Dell Technologies accelerates your path to smart manufacturing outcomes through end-to-end edge solutions that unify IT, OT, and the business. Our edge Partners are creating innovative solutions to transform manufacturing in the areas of Yield Optimization, Predictive Maintenance, Production Quality, Asset Optimization, OT Cybersecurity, Secure Remote Access, Digital Twin, and Overall Equipment Effectiveness

Retail:

Dell Technologies Edge Partners enable retailers to deliver products and services proactively, predictively, and conveniently to customers, while yielding higher profits in the areas of Loss Prevention, Store Operations and Analytics, and Order Fulfillment.

D&LL Technologies

Energy:

With Dell Technologies Utility Edge Solutions, the concept of "fail-safe" operations can now be applied to IT / OT architectures. This helps keep aging systems up to date with new technology while mitigating significant vulnerabilities due to: Legacy issues, Siloed data, Multiple IT assets management and Disconnected applications. Our solutions cover Data Aggregation solutions, Substation Automation, Distribution Automation, Virtual Protection and Control

Smart Cities:

Dell Technologies Edge Partners are bridging the gap between global issues today and the digital future of cities with endless possibilities for human advancement constantly improving quality of life. Learn more about our partners' ready to configure solutions for a more connected future in the areas, but not limited to: Urban Mobility, Sustainability, Safety and Security.
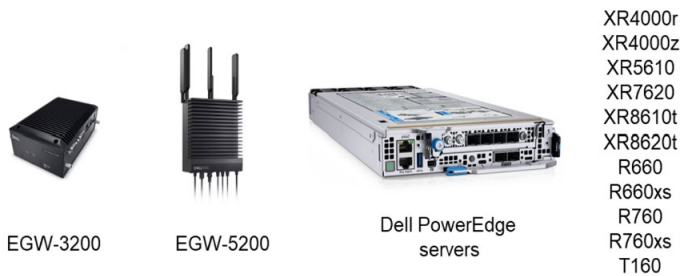

Other verticals:

The above-described enterprise verticals are not the only ones to benefit from modern, connected and secure operations at the edge. Among the customers interested to leverage the benefits of Dell NativeEdge with Nokia Private Wireless, we find all sorts of verticals and campuses including but not limited to: Healthcare, Finance and Banking, Transportation, Logistics, Education, Government and Public Sector, Hospitality, and others.

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Industrial Devices:

A series of advanced ruggedized devices are optionally offered to complement the deployment of the private wireless network. These devices provide connectivity to workers and systems, including but not limited to live communication, digital-twin view, and worker safety, enabling 4G/LTE or 5G communication capabilities to sensors, machines, or any industrial systems.

Purpose-built and designed to meet demanding Industrial requirements needs, including high IP protection, our offering spans from Industrial PCs and Gateways to handhelds, smartphones, work pads, dongles, field routers, hotspots, cameras, and accessories.

Devices as NativeEdge Endpoints:

EGW-3200 EGW-5200 Dell PowerEdge servers

XR4000r
XR4000z
XR5610
XR7620
XR8610t
XR8620t
R660
R660xs
R760
R760xs
T160

Ruggedized devices compatible with Nokia Private Wireless:

Handhelds IP68 Dongles IP67 Field routers IP67 and IP32 Indoor unit Hotspots Indoor gateway

Smartphones ATEX, IP68, MIL-810 Dongles IP65 Field routers IP67 and IP32 CPEs 5G video camera IP67

Dell NativeEdge with Nokia Private Wireless – Services to reduce complexity and accelerate time to value.

Dell Technologies serves as the single point of contact for the Dell NativeEdge with Nokia Private Wireless solution and associated services, helping enterprises reduce the complexity of deploying and maintaining enterprise edge networks.

Designed with simplicity in mind, in collaboration with our partners, our services allow our customers to concentrate on their core business, achieve strategic planned outcomes, improve employee safety and productivity, and reduce nonconformity and operational costs.

- o Services include:
- o Project Management
- o Design services
- o RAN deployment/commissioning/integration services
- o System integration services
- o Optimization services
- o On-site support

Nokia NDAC provides the foundation for Private Wireless.

NDAC is a leader in private wireless deployments with 760+ customers from all over the world.
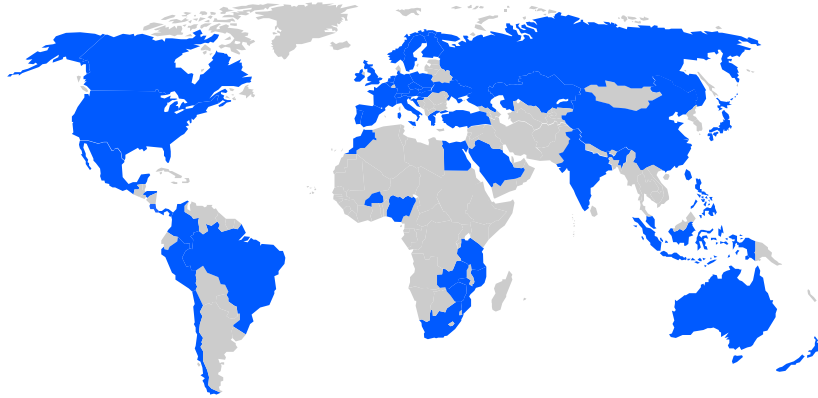
The Dell Advantage:

Dell Technologies is committed to guiding businesses through transforming their IT and OT infrastructures, utilizing a cutting-edge data-centric approach to unlock new possibilities and capitalize on emerging revenue streams. Collaborating with Nokia, we deliver a unified solution that streamlines operations at the edge for enterprises. As a comprehensive ecosystem integrator, Dell Technologies simplifies the intricate challenges businesses face, offering a complete package for effective deployment and transformation. Our offering encompasses a Secure Edge Operations platform and an all-inclusive wireless connectivity suite that includes spectrum, SIM cards, core network components, RAN, operations and maintenance, industrial devices, and applications alongside the necessary platforms and services.

Enterprises partnering with Dell Technologies gain access to the most recent advancements in hardware and software, benefit from a world-class supply chain, and engage with a diverse network of partners dedicated to fostering innovation based on open standards and cloud-native philosophies.

Experience the simplicity of data-centric operations with Dell NativeEdge with Nokia Private Wireless, backed by Dell's services and a network of Dell-validated partners. We have conducted thorough validation processes to ensure you can quickly implement and reap the advantages of connected edge operations, accelerating your time to value.

Together, Dell and Nokia enable a secure, connected enterprise edge.

For more information, contact your Dell Sales representative.