



From Legacy Complexity to Automated Reliability

Lessons from Nokia's Global Data
Center Network Migration

Nokia's global data center network evolved over decades of growth and acquisitions, resulting in a highly complex multi-vendor environment. While the infrastructure remained functional, its complexity made consistent operations increasingly difficult, slowing troubleshooting efforts and eroding confidence during change implementation.

To address these challenges, Nokia IT transitioned to a modern data center fabric solution built on Nokia [data center switches](#), running the [Nokia SR Linux](#) network operating system, and managed by the [Nokia Event-Driven Automation \(EDA\)](#) platform.

The challenge was not only technical, but also operational. The IT team faced fragmented tooling, manual processes, and uncertainty around the impact of routine updates. As environments expanded and hybrid workloads increased, the existing operating model struggled to scale predictably.

Key Drivers for Data Center Network Migration



Structural complexity:

Multi-vendor platforms created fragmented operations and inconsistent workflows.



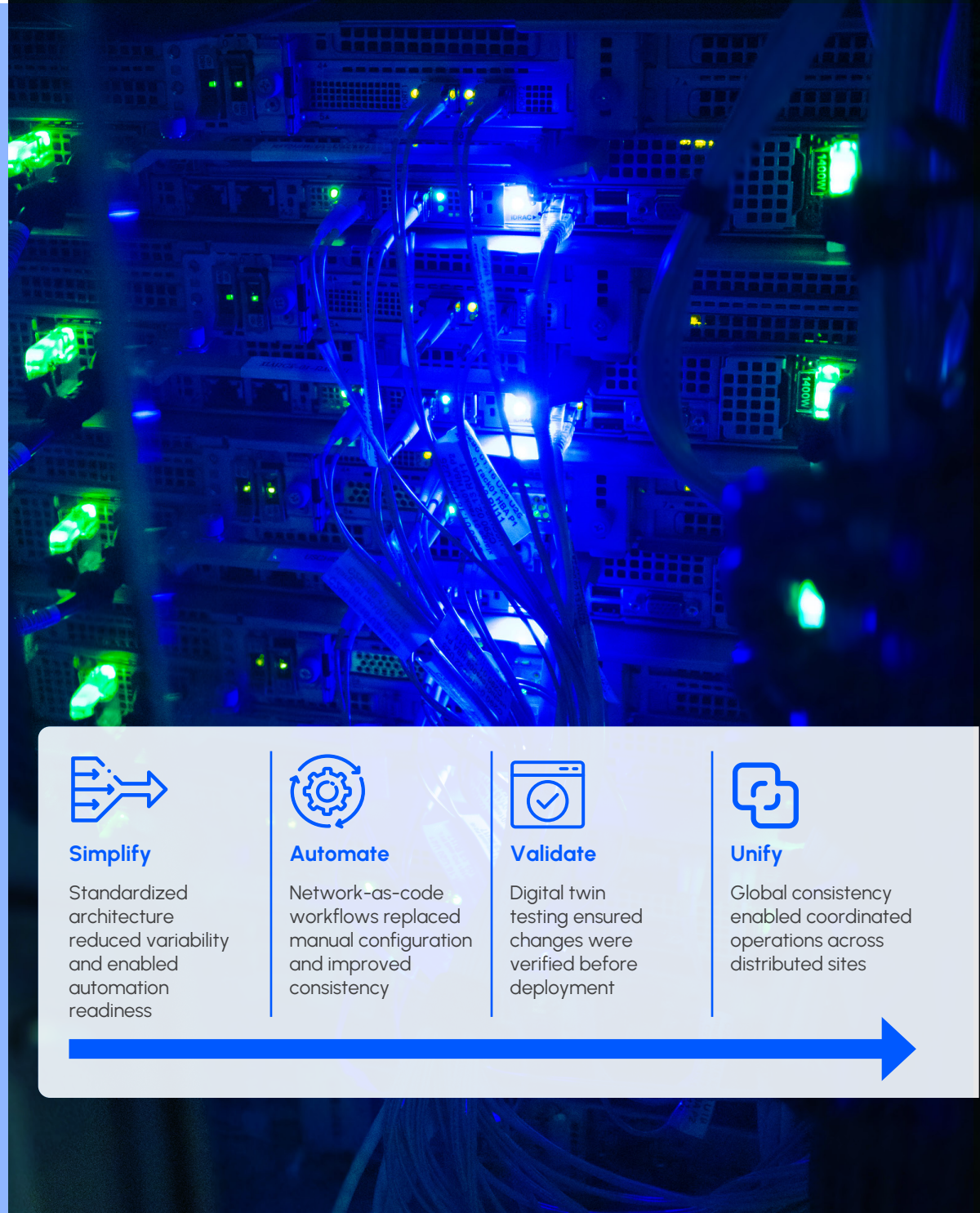
Low confidence in change:

Fear of unintended outages slowed modernization and limited agility.



Hybrid expansion pressure:

Distributed environments amplified operational risk and coordination challenges.



Designing for Simplicity, Automation, and Reliable Operations

To address legacy complexity and the risks associated with change, Nokia IT defined a modernization strategy centered on simplicity, automation, and consistency. The objective was not only infrastructure renewal, but an operating model capable of supporting predictable change at scale.

The transformation introduced a standardized spine-leaf architecture paired with an automation-first approach. By managing the network as code with intent-driven provisioning and CI/CD workflows, Nokia enabled changes to be validated before deployment rather than being introduced through manual processes.

Using a digital twin approach provided a controlled environment for testing configurations, reducing uncertainty and risk about the impact of change. Combined with globally consistent architecture and a SaaS-delivered automation platform, this approach reduced operational burden while enabling more reliable, coordinated operations.



Simplify

Standardized architecture reduced variability and enabled automation readiness



Automate

Network-as-code workflows replaced manual configuration and improved consistency



Validate

Digital twin testing ensured changes were verified before deployment



Unify

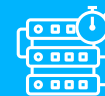
Global consistency enabled coordinated operations across distributed sites

Building Confidence Through a Phased Approach

Rather than pursuing a disruptive overhaul, Nokia IT adopted a cautious brownfield migration strategy designed to increase stability and manage risk at every stage. The new data center fabric was introduced incrementally, allowing teams to confirm operational readiness before expanding deployment and applying continuous learning into the next phases of the transformation.

Early deployments provided an opportunity to test architecture, automation workflows, and operational processes in real environments. As confidence grew, rollout expanded to additional data centers, with legacy and new environments operating in parallel to enable controlled cutovers and fallback if needed.

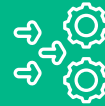
Validation practices and gradual workload migration ensured that modernization progressed without compromising service continuity. This phased approach transformed migration from a high-risk event into a predictable and manageable process.



Phased Rollout



Validation



Parallel Operation



Application Migration



Controlled Cutover

Proof that Simplification Enables Reliability

Early deployments delivered immediate, measurable, and verifiable improvements, validating both the architectural and operational approaches. Reduced incident volume, predictable change processes, and simplified operations enabled Nokia to move from reactive troubleshooting to proactive innovation and continuous improvement.

Proven Results

- **Simplified operations and greater efficiency:** A unified data center network fabric reduced operational complexity and enabled teams to manage more with fewer resources.
- **80% fewer network incidents:** Substantial improvement in reliability and reduction in troubleshooting effort.
- **Near-zero change-induced downtime:** Validated automation workflows eliminated outages caused by configuration changes.

Operational Improvements

- **Chronic outages eliminated:** Recurring disruptions in legacy environments were replaced by stable continuous operation.
- **Mitigate risks:** Configuration updates validated before deployment removed uncertainty and reduced risk.
- **From firefighting to innovation:** Engineers redirected effort from incident response to automation, optimization, and scaling initiatives.



Simplified Operations

From:

Three disparate legacy network systems

To:

One consistent automated data center fabric

Higher productivity with fewer operational resources



Reduction in Network Incidents

Before:

Frequent network-related incident tickets

After:

Approximately 80% fewer incidents at the initial deployment site

Massive improvement in reliability and operational efficiency



Zero Change-Induced Downtime

Legacy environment:

High risk of outages during configuration changes

New automated environment:

All changes validated through CI/CD pipeline and digital twin

Zero outages while continuously deploying changes

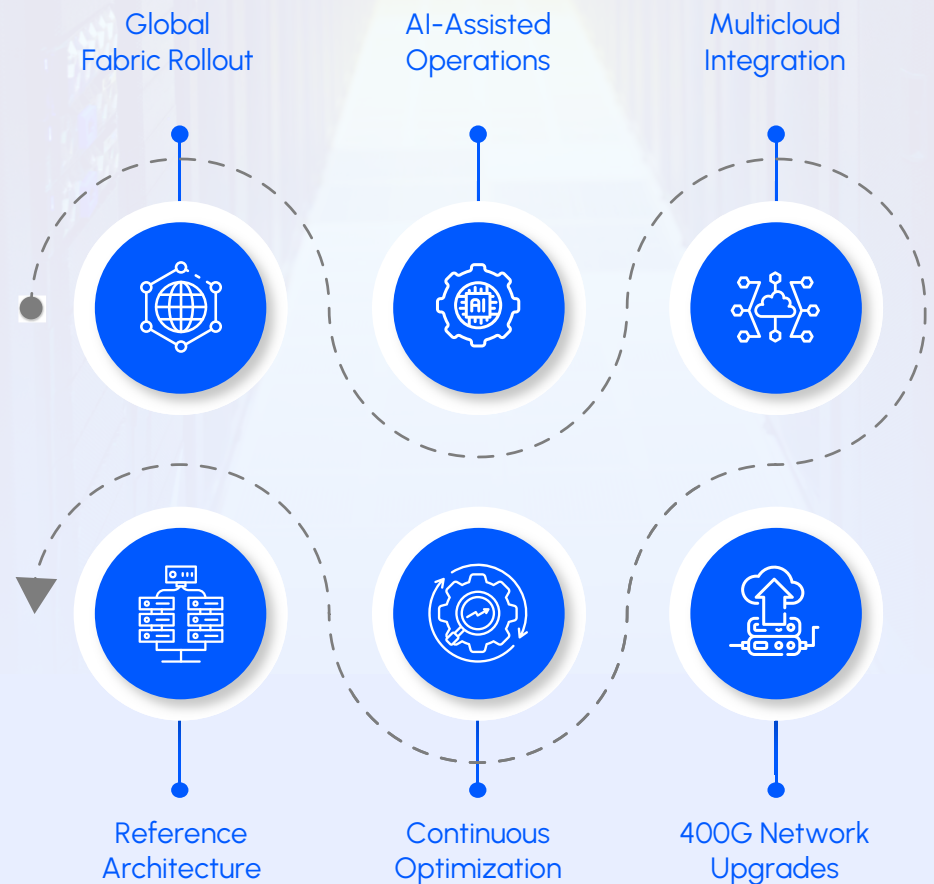
Building on the Foundation: The Next Phase of the Modern Data Center Network

With a simplified and automated foundation in place, Nokia continues to evolve its data center fabric to support future scalability, operational intelligence, and hybrid connectivity. Modernization has shifted from a discrete migration effort to an ongoing capability that enables continuous improvement and expansion.

Strategic Focus Areas

- **AI-assisted operations:** Applying analytics and machine learning to telemetry, anomaly detection, and predictive maintenance.
- **Hybrid and WAN integration:** Extending validation and automation across data center and WAN connectivity.
- **Next-generation performance:** Evaluating 400G infrastructure to support future high-performance workloads.
- **Continuous optimization:** Using operational telemetry to refine automation policies and improve reliability over time.
- **Reference architecture at scale:** Leveraging deployment insights to guide future product and operational evolution.

Roadmap





A completed migration is not the end state; it becomes the foundation for the future. Nokia's move from legacy complexity to automated reliability created the operational conditions for what comes next: AI-assisted anomaly detection, 400G performance infrastructure, and a hybrid environment that extends governance and automation beyond the data center. Organizations that treat modernization as discrete projects forfeit this strategic capability.

What Nokia IT built was more than a modernized data center network. The deeper outcome was organizational: the capability to absorb change, validate it before it becomes a risk, and extend automation into new domains without introducing new complexity. As AI workloads increasingly enter the data center, demanding higher performance, tighter operational precision, and faster iteration cycles, that capability matters more than any single architectural or operational decision. Organizations that are still firefighting legacy environments will struggle to take on what comes next. Nokia deliberately built the foundation to meet it, with operational resilience as a durable characteristic rather than stability continuously out of reach.

Read the complete [Futurum Research](#) report for a deeper look at the migration strategy, architecture, and operational outcomes behind this transformation.



ABOUT NOKIA

Nokia is a global leader in connectivity for the AI era. With expertise across fixed, mobile, and transport networks, we're advancing connectivity to secure a brighter world.



ABOUT THE FUTURUM GROUP

The Futurum Group is an independent research, analysis, and advisory firm, focused on digital innovation and market-disrupting technologies and trends. Every day our analysts, researchers, and advisors help business leaders from around the world anticipate tectonic shifts in their industries and leverage disruptive innovation to either gain or maintain a competitive advantage in their markets.

The Futurum Group LLC | futurumgroup.com | (833) 722-5337

© 2026 The Futurum Group. All rights reserved.