



## Modernizing Network Operations for a European Telecom Giant: An AI-Powered Infrastructure Overhaul

### Overview

A leading European telecom multinational company sought to modernize its network infrastructure to meet rising data demands and deliver uninterrupted, high-speed connectivity worldwide. Working with Black Box and Juniper Networks, they rolled out an AI-driven routing platform paired with a thoroughly modernized network architecture. The goal? Better reliability, more flexibility, and lower energy costs. The result was infrastructure built to support not just today's demands but tomorrow's innovations.

### Challenges

Running a global telecom network is no small feat, and this operator was feeling the strain. Mobile data usage was climbing fast, and customers expected low-latency connections as a baseline. The legacy infrastructure simply couldn't keep pace. The existing network struggled to scale efficiently and lacked the agility required for continuous optimization. Managing operations had become increasingly complex. Manual configuration and troubleshooting introduced delays and inconsistencies, making it difficult to detect issues before they impacted end users. Without automation, there was no way to monitor performance in real time or anticipate what might break under heavy load. WAN connectivity across multiple regions posed additional challenges, with high operational costs and latency issues affecting service reliability. Power efficiency and sustainability targets further complicated infrastructure planning, as expanding capacity risked increased energy consumption. The enterprise needed a comprehensive, intelligent platform, one capable of automating performance management, enhancing scalability, and aligning operational efficiency with sustainability objectives. To achieve this, it turned to Black Box for a next-generation solution that could unify, optimize, and future-proof its network.

### AT A GLANCE

#### CHALLENGES

- Growing data traffic demanding a scalable, resilient network infrastructure
- Complex network management with limited optimization capabilities
- Need for high uptime, agility, and power efficiency at telecom scale
- WAN connectivity limitations increasing operational costs
- Requirement for flexible cloud capabilities for future scalability

#### SOLUTIONS

- AI-driven routing powered by Juniper Networks for intelligent performance
- Optimization of access, aggregation, and pre-aggregation layers
- Advanced automation to simplify operations and improve visibility
- Scalable, cloud-ready architecture for next-generation readiness

#### RESULTS

- Better uptime, more responsive network, lower energy bills
- Operations got simpler through automation and intelligence
- Infrastructure costs came down while reducing environmental impact
- The network can now handle whatever comes next

#### BENEFITS

- Reliable, high-speed connectivity with AI-based optimization
- Improved operational efficiency and sustainability
- Unified visibility across network layers and sites
- Scalable design supporting future telecom growth
- Consistent, seamless user experience across global operations



## Solutions

Black Box teamed up with Juniper Networks to completely rethink the client's infrastructure. At the heart of the solution were Juniper's AI-powered routers, which actively optimize network performance and identify problems before users notice them. We rebuilt the access, aggregation, and pre-aggregation layers to keep data flowing smoothly at every level and also introduced automation tools that provided the client with centralized visibility across the entire network, streamlining configuration and enabling predictive analytics to flag potential issues early. By designing the architecture to be cloud-ready and scalable, the network can seamlessly accommodate future technologies and handle traffic spikes without disruption.

The new setup didn't just perform better; it used less energy and demanded less manual intervention. In short, we built them a smarter, faster, greener network that could support global operations without constant firefighting.

## Why Black Box?

The client chose Black Box for its deep expertise in telecom-grade networking, strong global delivery capability, and proven leadership in AI-driven infrastructure transformation. As a trusted Juniper Elite Plus Partner, Black Box brought together design excellence, implementation precision, and post-deployment support tailored to the client's scale and complexity.

This project shows why major telecom companies trust us with their most critical upgrades. We're committed to automation, sustainability, and building systems that last. Black Box helps global networks run smarter, faster, and more efficiently because that's what the connected world demands.

## Result

The improvements showed up immediately. Automated analytics drove downtime way down. AI-based routing made traffic management more efficient and cut response times. With full visibility into network health, the IT team could stop playing whack-a-mole with problems and start focusing on innovation.

The redesigned architecture delivered more agility and better power efficiency, which translated directly into lower costs, both operational and environmental. The company made real progress on its sustainability targets by cutting carbon emissions and using energy more intelligently, and customers got more reliable, higher-quality connections no matter where they logged in. Through their partnership with Juniper Networks and Black Box, the telecom leader achieved more than modernization; they built a network foundation designed to evolve as rapidly as the industry itself.