

Global Telecommunications Leader Builds a Network Digital Twin and Accelerates Root Cause Analysis with Selector



Global Telecommunications Leader | On-Prem Deployment

Problem/Opportunity



A global telecommunications provider sought to build a comprehensive digital twin of its global network to improve visibility, accelerate troubleshooting, and strengthen operational planning. The organization needed the ability to perform “what-if” analysis across both the control and data planes — modeling how network events, routing changes, or infrastructure failures might impact critical services and customer experiences.

Key challenges included:

- Lack of a unified model representing both infrastructure and service topology
- Limited capability for predictive failure simulation and path analysis
- Need for root cause correlation across vast telemetry datasets
- Requirement for insight generation without direct access to the live network for security and compliance reasons

Solution



The customer deployed the Selector AIOps platform on-premises to create a digital twin of its entire network, spanning more than 20,000 devices and processing over 3TB of data regularly.

Selector enabled the customer to:

- Ingest large-scale telemetry via flat-file exports (SNMP, BGP, OSPF LSAs, RIB, adjacency, and configuration data) from internal middleware systems
- Perform full path computation and dependency mapping across infrastructure and services
- Visualize control plane “highways” with BGP and IDP topology rendering
- Use Network DVR to replay historical paths for incident forensics and service impact analysis
- Leverage Generative AI and LLM capabilities for configuration summarization, anomaly detection, and dashboard insights
- Conduct “what-if” simulations to model the impact of link or node failures and plan augmentations proactively

Outcomes



- ✓ **Accelerated Troubleshooting:** Digital Twin modeling and AI-driven correlation reduced the time to diagnose and resolve incidents.
- ✓ **Faster Network Augmentation:** “What-if” simulations enabled proactive planning for capacity expansion and service optimization.
- ✓ **Safe, Non-Intrusive Analysis:** Selector provided deep insights without requiring access to the live production network.
- ✓ **End-to-End Visibility:** A complete virtualized view of both control and data plane behavior allowed engineers to visualize routing paths, dependencies, and potential service impacts in real time.

Key Technologies Used



- AI/ML-Driven Correlation
- Data Normalization & Context Enrichment
- Generative AI / Network LLM
- Root Cause Analysis
- Digital Twin / DVR Playback
- Selector Copilot

Results Snapshot



Metric	Impact
Devices Modeled	20,000+
Data Processed	3TB+ regularly
Time-Series Records	30 million
Data Sources	Flat-file integration via internal middleware
Time to Insight	Near real-time