



MetroTel – AI-Powered Performance Management Tool

Background

In the telecommunications industry, ensuring strong network performance is crucial. With the rise of 5G technology, service providers need real-time insights to detect issues, optimize performance, and make data-driven decisions. MetroTel's Performance Management Tool was developed to help network engineers, data analysts, and management teams monitor and analyze network health using AI-driven insights and automated performance tracking.

Key Challenges

Engineers needed a way to track network issues as they happened to reduce downtime. The system had to process massive amounts of performance data from 5G networks efficiently. Network performance indicators had to be calculated and visualized accurately for better decision-making. The tool needed an intuitive interface to present technical data in an easy-to-understand format. The system had to be flexible enough to grow with increasing data loads while ensuring secure data handling.

Our Solution

To address these challenges, we developed an AI-powered performance management platform that automates network monitoring and analysis. The system pulls real-time performance logs from Nokia's infrastructure, ensuring accurate and up-to-date tracking of network health. AI models analyze network data, identify trends, and predict potential failures before they occur. Advanced algorithms filter and organize performance data, reducing noise and improving efficiency. AI-powered insights are presented in interactive dashboards, making it easy for engineers and analysts to diagnose issues. A microservices-based approach ensures smooth scaling, while strict security protocols safeguard sensitive network data.

Tech Stack

Data Processing: Apache Spark, Apache Airflow

Storage: Hadoop Distributed File System (HDFS), Apache Hive

Data Ingestion: File Collector Microservices

BI & Visualization: Apache Superset

Security & Governance: Role-Based Access Control

Deployment: Docker, Kubernetes

Value Delivered

AI-powered insights reduced troubleshooting time, improving network reliability.

Real-time analytics helped management make data-driven investment and optimization decisions.

The flexible design ensures seamless integration with future network expansions, including 4G and beyond.

Engineers and analysts can now access real-time performance insights through a modern, user-friendly interface.

Automated data collection and processing minimized manual efforts, optimizing resource utilization.

This Tool has transformed how network performance is monitored and optimized, driving efficiency, security, and scalability for the future.