

## Use Case:

# Proactive Network Management and Performance Optimization

through AI/ML-Powered Predictions

## Problem Statement:

**Network operators often struggle with unpredictable performance issues that can lead to service disruptions.**

Traditional monitoring systems are reactive, detecting problems only after they occur. This delayed detection results in longer recovery times, higher operational costs, and customer dissatisfaction. The lack of a predictive capability makes it challenging to stay ahead of potential outages, leading to missed opportunities for proactive maintenance and resource optimization.

## Solution Overview:

**TechNarts addresses this challenge with its AI/ML-powered Performance & Outage Predictor (POP), which uses machine learning and deep learning algorithms to predict performance degradation and potential outages before they happen.**

- **Advanced Predictive Techniques:** Leverages time series analysis (e.g., LSTM and ARIMA/SARIMA) and classification models (e.g., SVM, Decision Tree, and MLP), along with XGBoost for boosting accuracy, analyzing both historical data and real-time performance metrics.
- **Proactive Approach:** Enables operators to anticipate and address potential challenges early, ensuring continuous service availability and minimizing downtime.
- **Informed Decision-Making:** Empowers operators to optimize resource allocation and maintain a stable and reliable network infrastructure.

## About TechNarts

TechNarts is a leading **OSS provider** with deep expertise in telecom software **since 2007**. Through its **NART OSS Suite** product family, it delivers modular, future-proof solutions for **Resource Management, Network Assurance and Network Fulfillment & Orchestration**. Its systems align with **TM Forum's ODA and Open APIs**, helping operators boost service reliability, optimize resources, and accelerate digital transformation.

## Result:

**By predicting issues before they escalate, the solution turned network management from a reactive process into a measurable driver of cost savings and customer retention.**

- **Reduced Maintenance Costs by 2.5% :** The solution predicts possible outages in advance, allowing maintenance to be scheduled in proper time windows. Better planning and fewer outages reduce maintenance costs.
- **Reduced SLA Breaches up to 9.6%:** By predicting and responding to outages, operators can meet SLA commitments more reliably.
- **Reduced Customer Churn by 18.4% :** Fewer outages mean higher service continuity and customer satisfaction..