Scale at Speed™

Casestudy

Leveraging AWS to Transform Operations for the Future

Platform Approach to Attaining Level 4+ Maturity in Autonomous Networks

Overview

A leading European Communication Service Provider (CSP), sought to modernize its expanding 5G and IoT networks through autonomous operations to address challenges from manual incident resolution, inefficient field services, resulting in inordinate delays, high costs and poor customer experience.

Tech Mahindra, in collaboration with AWS, deployed its Autonomous Network Operations Platform (ANOP). Leveraging AI/ML and GenAI capabilities, ANOP transformed the CSP's Network Operations Center (NOC) with cognitive solutions for alarm management, intelligent troubleshooting, and automated incident resolution.

This transformation significantly improved operational metrics while accelerating the CSP's journey toward Level 3+ autonomous network maturity as defined by the TM Forum.

Reduced Mean Time to Resolve (MTTR) by more than 50%

Reduced ticket creation time by 30%

Optimized field visits reducing truck rolls.

Cost reduction of 20% through optimized resource allocation and cloud-driven efficiencies.

Client Background and Challenge

The client, a leading European CSP and subsidiary of a global telecom group, has been at the forefront of connectivity and digital transformation in a highly competitive market. Serving millions through mobile, broadband, IoT, and 5G services, the company has accelerated its 5G rollout while expanding its IoT ecosystem.

As the urgency to modernize network operations toward an autonomous vision increased, the CSP encountered significant hurdles in maintaining operational efficiency and service quality:

Manual Incident Handling:

70% of network engineers' time was spent on manual incident resolution, leading to prolonged resolution times and lower network availability

Inefficient Field Operations:

High ‘truck rolls’ per site resulted in inefficient utilization of field engineers and resources

Service Impacting Events:

Deviations in change execution frequently led to service disruptions.

Our Approach and Solution

Leveraging over two decades of experience, Tech Mahindra (TechM) partnered with AWS to develop an AIOps solution framework incorporating GenAI capabilities. This framework combines TechM's extensive multi-vendor network expertise with AWS' managed AI infrastructure, enabling CSP to achieve Level 3+ Autonomous Operations aligned with TMForum standards.

TechM's ANOP, a key part of this AIOps framework, transforms the Network Operations Center (NOC) from manual, skill-dependent functions to automated, data-driven operations using AWS AI/ML and GenAI services. ANOP's cognitive NOC solution encompasses cross-domain alarm management, intelligent incident management, AI-driven troubleshooting, and field dispatch optimization, significantly improving cost efficiency, network availability, service quality, and customer experience.

Key features implemented in this NOC solution for the CSP include:

Real-time Network Alarm Optimization:

Correlates incoming alarms using historical learning to identify root causes while suppressing dependent or associated events

Cognitive Resolution Advisor:

Provides contextual troubleshooting guidance and incident resolution steps through adaptive operational dashboards for NOC and field teams to resolve incidents faster

Automated Incident Ticket Creation:

Generates intelligent tickets from correlated events with validation checks

Field Dispatch Optimization:

Delivers step-by-step resolution guides based on historical analysis

Service-Resource Correlation:

Uses AI/ML to correlate service and resource metrics for faster issue resolution

Architecture

The ANOP platform integrates AI models trained on CSP datasets and a comprehensive network knowledge base. Its architecture comprises the following key components (refer to Figure 1):

Data Pipeline:

Consolidates TechM's synthetic operations knowledge sets, network documentation, incident resolution history, and script repositories using AWS Aurora, S3, and DynamoDB databases

Alarm Correlation Model:

Utilizes AWS SageMaker Classical AI methods trained on historical data and events from the data pipeline

GenAI Advisor Models:

Leverages AWS Bedrock Large Language Models to power GenAI resolution guides, adaptive automation, and field dispatch advisories

Cloud-Native Solutions:

Deploys serverless applications and GenAI agents for robust operations

External Integrations:

Enables seamless integration with Trouble Ticket Management Systems (ITSM) and Network Management Systems (NMS) via Open and TMForum APIs

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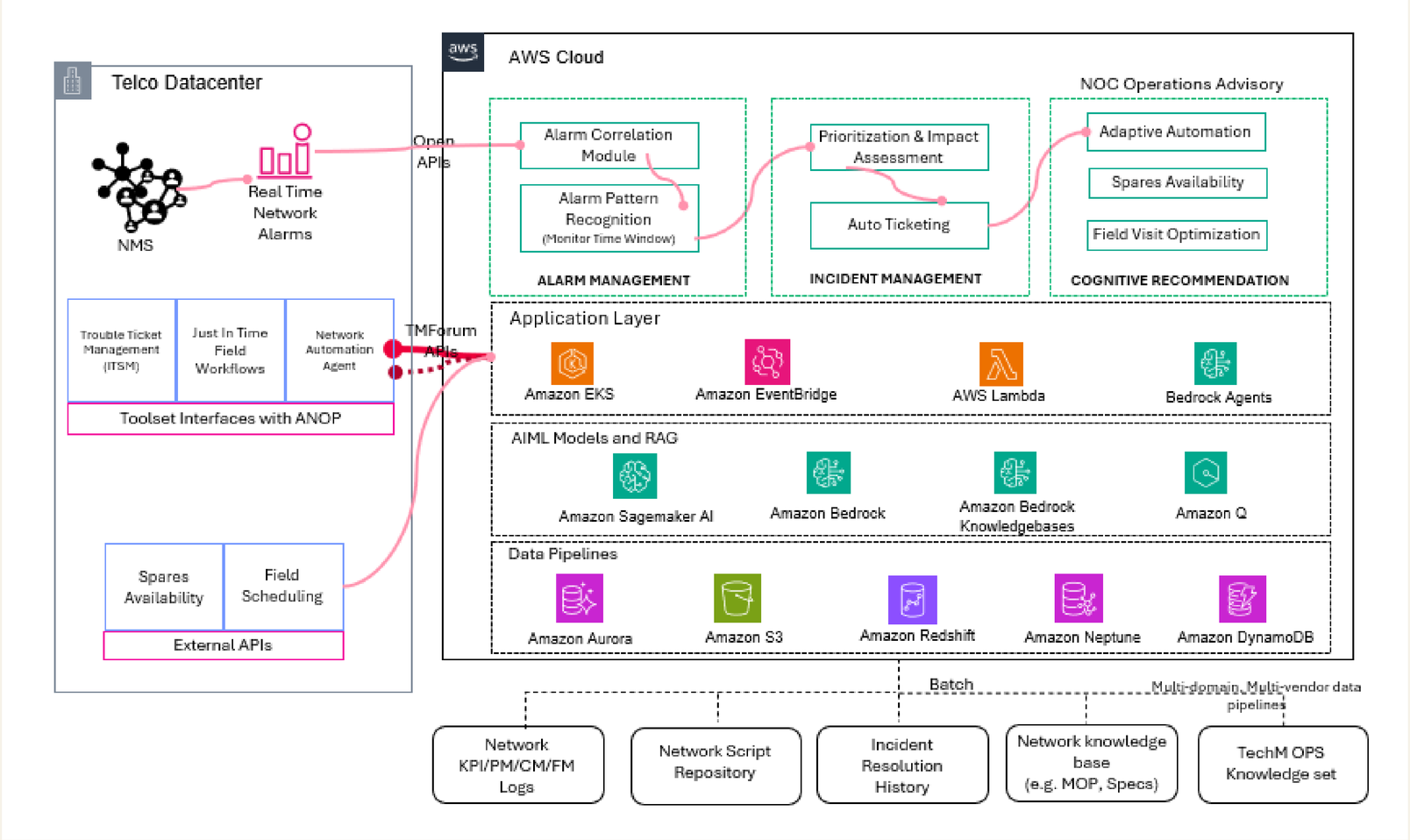


Figure 1: TechM Autonomous Network Operations Platform (ANOP) Architecture on AWS

Business Impact

TechM's ANOP helped the CSP elevate manual operations to a more innovative, semi-autonomous paradigm, with full autonomy achievable within 3-5 years. Key outcomes delivered:

Improved Ticket Creation Time:

Reduced by 30%

Enhanced Mean Time to Resolve (MTTR):

Improved by more than 50% through automation

Optimized Field Visits:

Achieved significant efficiencies in field operations

Cost Reduction:

Delivered 20% savings through optimized resource allocation and cloud-driven efficiencies

Scalability:

Leveraged AWS cloud capabilities for flexible and scalable operations

Innovation Enablement:

Streamlined processes to foster continuous technological advancements

Industry Leadership:

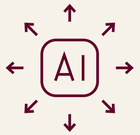
Strengthened the CSP's position as an innovator in telecommunications

Future-Readiness:

Established a robust foundation for ongoing digital transformation and 5G network expansion

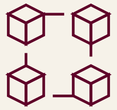
Future Roadmap

TechM has built a future feature roadmap to deliver the following use cases and enhancements:



Intelligent decision-making, AI-enabled service reliability function

GenAI-driven closed-loop incident resolution



Migration to an agentic framework

Agentic change management advisor

Conclusion

Leveraging its ANOP platform, TechM has transformed operations into an AI/ML-powered Services Experience Center. This has successfully reduced costs, improved service quality, and enhanced the end-customer experience. This case underscores the critical role of cloud-delivered AI, phased implementation, and workforce upskilling in achieving network operations autonomy.
Reflecting on this transformation, several key takeaways emerged:

Start with pilot projects to validate ROI

Ensure use cases are developed with telco operations domain expertise and fully integrated by the operations team

Collaborate with ecosystem partners (vendors, standards bodies)

Prioritize explainable AI to build trust in autonomous decisions

About Tech Mahindra

Tech Mahindra (NSE: TECHM) offers technology consulting and digital solutions to global enterprises across industries, enabling transformative scale at unparalleled speed. With 152,000+ professionals across 90+ countries helping 1100+ clients, Tech Mahindra provides a full spectrum of services including consult-ing, information technology, enterprise applications, business process services, engineering services, network services, customer experience & design, Al & analytics, and cloud & infrastructure services. It is the first Indian company in the world to have been awarded the Sustainable Markets Initiative's Terra Carta Seal, which recognises global companies that are actively leading the charge to create a climate and nature-positive future. Tech Mahindra is part of the Mahindra Group, founded in 1945, one of the largest and most admired multinational federation of companies. For more information on how TechM can partner with you to meet your Scale at Speed™ imperatives, please visit https://www.techmahindra.com/.

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