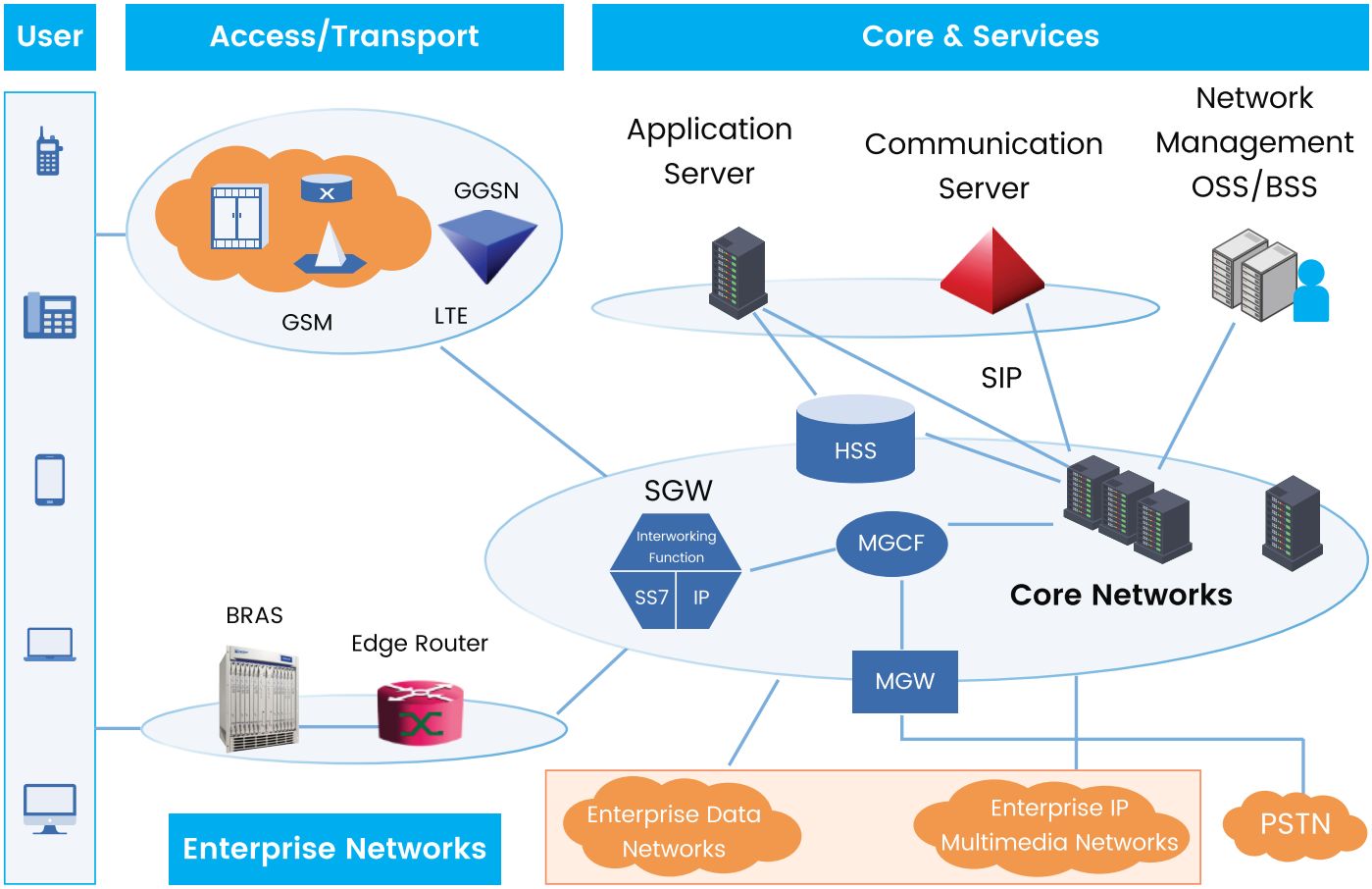
Networking Applications

Leveraging extensive experience in networking applications,
TMA provides end-to-end software services to accelerate time to market

29
Years of experience in Networking

700+
Engineers in networking, EMS, NMS

R&D Centers
for leading companies



Domains of expertise

- Fixed Access Networks
- Access Management & Provisioning
- Network Management & Automation
- Network Inventory & Discovery
- Network Monitoring & Controlling
- Enterprise LAN & Routing
- DDI & IP Management
- Enterprise & Cloud Networking
- AI-Powered Network Operations
- Network Data Analytics & Security

Technologies

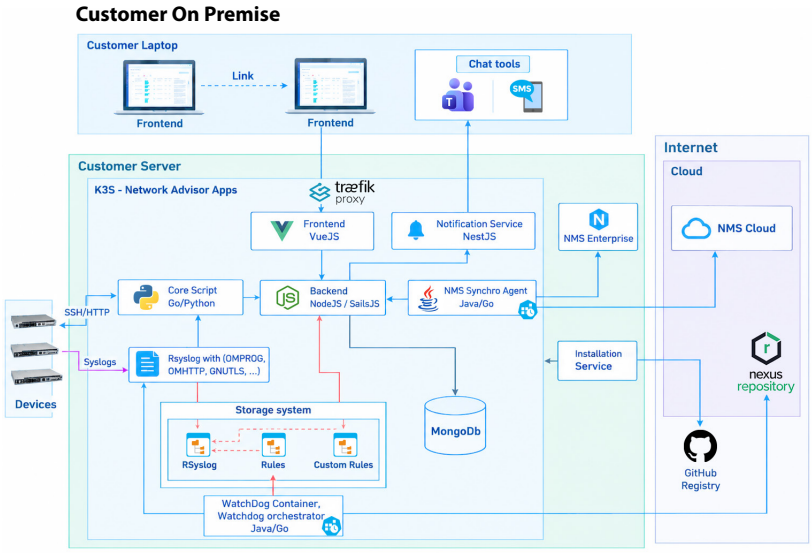
Area	Key Technologies
AI & Agentic	OpenAI GPT · Gemini · LangChain · LangGraph · RAG · MCP · TensorFlow/ML
Data & Streaming	Kafka · Pulsar · Flink · OpenSearch · TimescaleDB · MongoDB · Redis
Security	Nessus · OpenVAS · Rapid7 · Keycloak · RADIUS · IPsec · TLS
Cloud-Native & Automation	Kubernetes · Docker · Helm · AWS · Terraform · Ansible · Microservices
Observability	Prometheus · Grafana · Kibana · OpenSearch · Rsyslog
Network Management	NETCONF/YANG · RESTCONF · SNMPv2c/v3 · REST APIs · OSS/BSS · NMS/EMS
Networking & Telecom Foundations	IPv4/IPv6 · BGP · OSPF · IS-IS · MPLS · Ethernet · VLAN · QoS · SIP · SS7 · LTE · GSM · PSTN

Case Studies

Network Advisor

AI-powered network advisor for proactive issue detection, troubleshooting, and network performance optimization.

- Applied AI/ML to anticipate network issues and minimize downtime.
- Built real-time monitoring and intelligent alerting from network logs & metrics.
- Developed real-time alerts and daily/weekly reporting.
- Integrated with NMS platforms and network devices

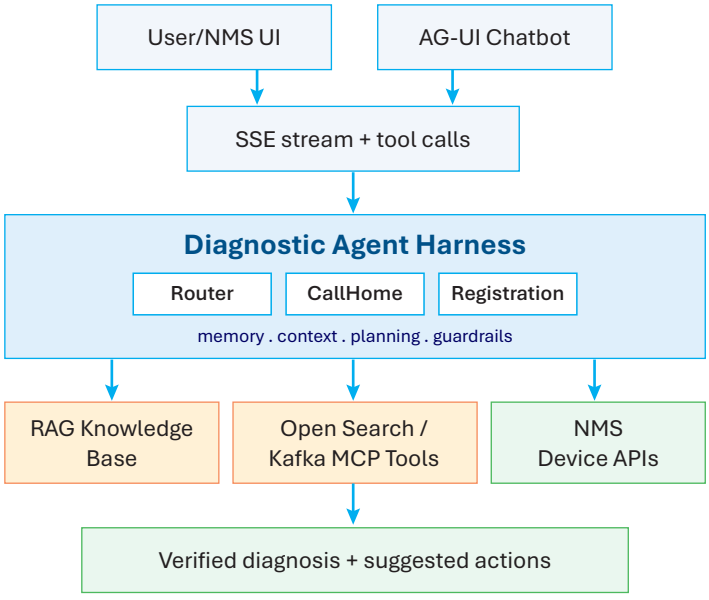


AI Diagnostic Assistant for NMS

Build an AI-powered diagnostic assistant inside an enterprise NMS to help user clients and support teams resolve device onboarding and network issues faster with context-aware troubleshooting.

- Designed and implemented a conversational NMS assistant using AG-UI
- Integrated RAG knowledge base, OpenSearch/Kafka MCP tools, and NMS Device APIs
- Added evaluator, memory/context management, guardrails, and human-in-the-loop controls

Architecture / Flow Highlights

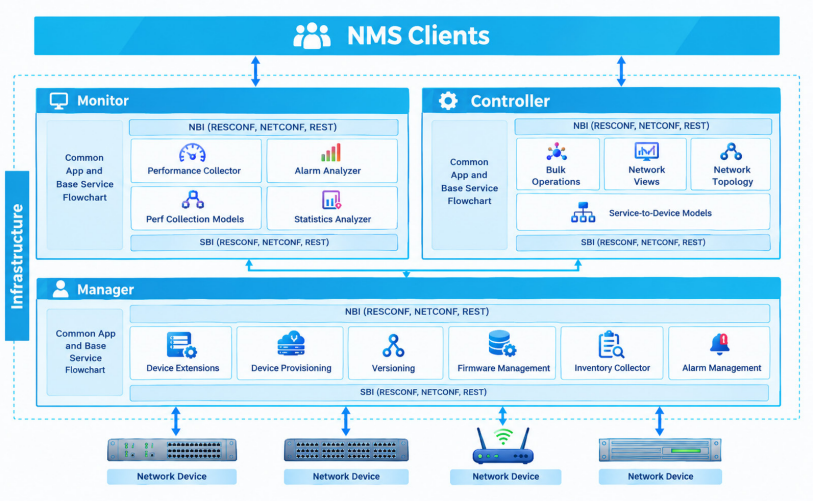


Case Studies

Access Controller for Fixed Access Networks

Cloud-native access controller for unified network management, multi-vendor automation and IT/OSS integration

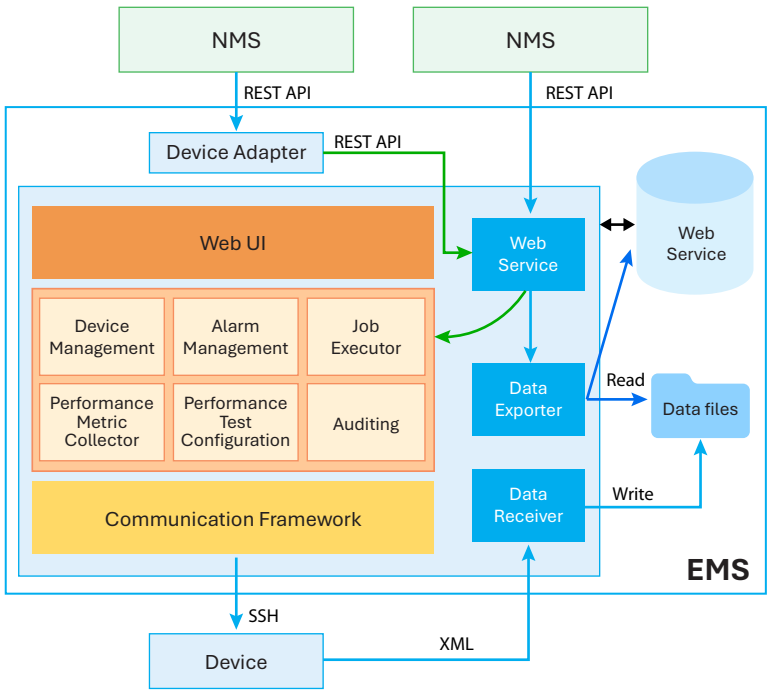
- Developed EMS/NMS features for provisioning, topology, alarms, firmware and inventory.
- Integrated multi-vendor devices via RESTCONF/NETCONF.
- Delivered functional, system and performance testing
- Built test automation scripts.



Network Element Management System

Web-based EMS to deploy, monitor and manage network elements.

- Developed performance monitoring, statistics aggregation and device configuration adapters.
- Delivered functional, system, performance and security testing, including TWAMP, SNMP and RFC 2544.
- Validated wire-speed metering, policing, capture and active testing up to 100 Gbps.
- Enabled 24/7 testing across 60+ test benches with 10,000+ adaptable test cases.

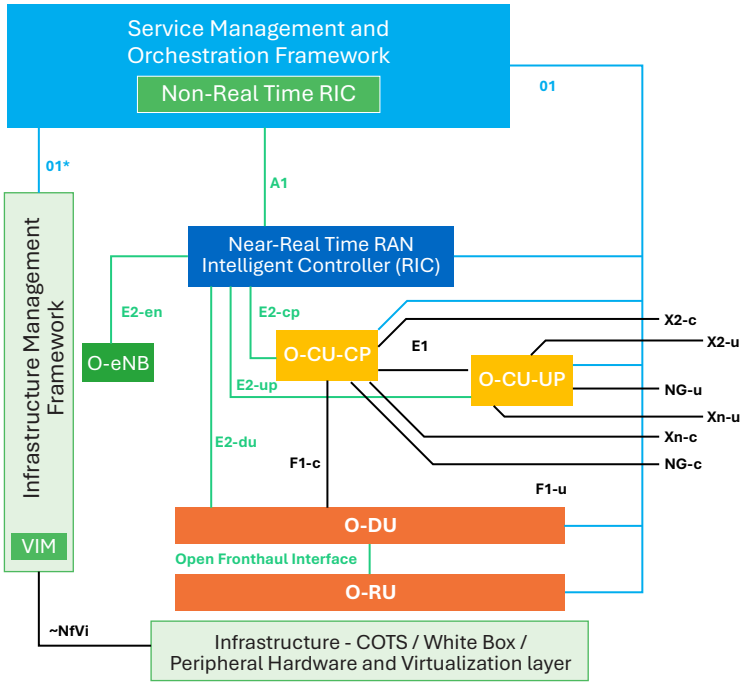


Case Studies

O-RAN Development

Open RAN solution covering CU, DU, OAM and a cloud-based platform

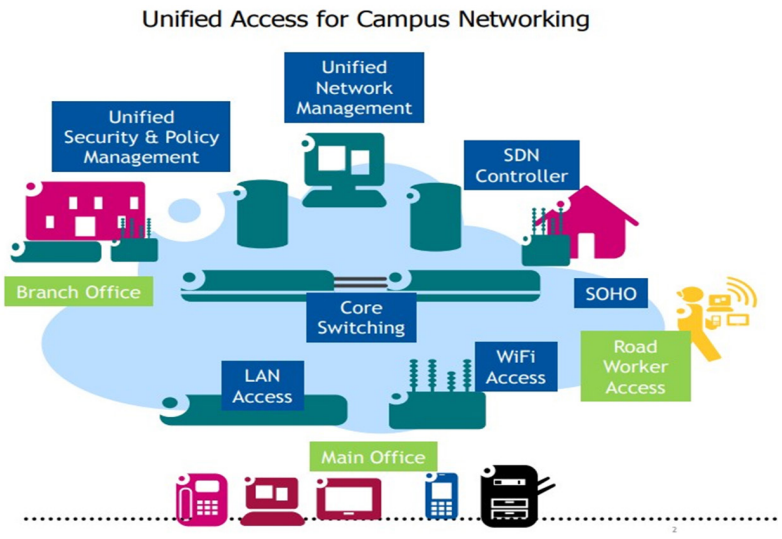
- Developed features, maintenance updates and hotfixes for O-RAN components and UE simulators.
- Delivered functional, system and performance testing.
- Built test automation frameworks and scripts.



Network Switches

High-performance firmware for fixed and chassis switches in campus and data center networks.

- Designed, developed and maintained switch firmware.
- Delivered functional, system and performance testing.
- Delivered manual and automated L2/L3 protocol and performance testing.

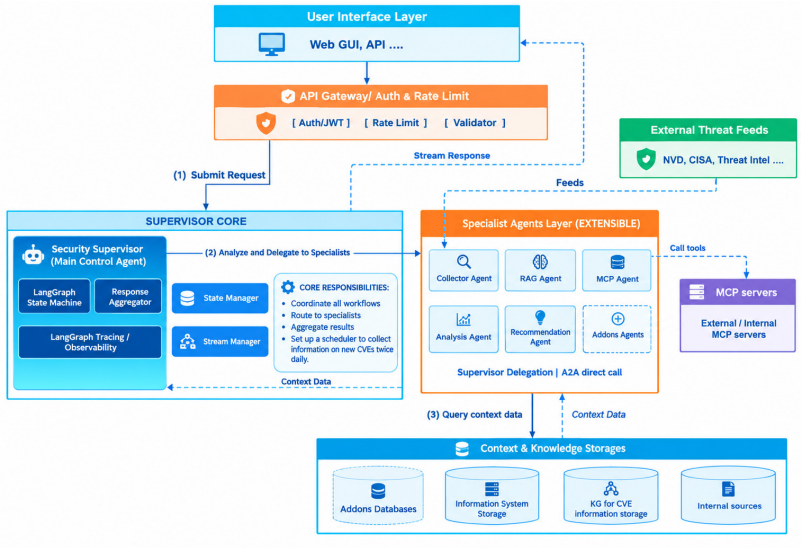


Case Studies

Intelligent Security Vulnerability Analysis

AI-powered vulnerability analysis for faster and deeper assessment of CVE risks and remediation.

- Developed an AI-powered CVE analysis solution using LLMs and AI agents.
- Built multi-agent workflows for vulnerability analysis & recommendations.
- Integrated graph and vector databases for contextual security intelligence.
- Automated analysis of impact, attack vectors & remediation actions



Cloud NMS

Cloud-based, multi-tenant NMS for centralized network management, provisioning, and secure customer connectivity.

- Developed a multi-tenant SaaS NMS architecture.
- Built network provisioning and management capabilities.
- Enabled secure customer connectivity through VPN.
- Implemented cloud deployment and automation for scalable operations.

