MAVENIR™

MAVENIR'S NEXT-GENERATION OPERATIONS SUPPORT SYSTEMS (NGOSS)

Mavenir's Next-Generation Operations Support Systems (ngOSS) brings together a powerful combination of Artificial Intelligence (AI), Analytics, Automation, and Orchestration, backed by Mavenir's experience delivering telecom network solutions, that allow CSPs to deploy ngOSS in 4G networks today while preparing to fully realize the potential of 5G capabilities through intelligent network operations.

Mavenir's ngOSS uses enhanced AI and machine learning (ML) models to deliver advanced network performance. Engineered with a microservices-based architecture, Mavenir's ngOSS simplifies large, legacy, monolithic systems into smaller, autonomous components that offer intelligence, insights, and network control.

Automate, orchestrate, and efficiently operate the mobile network with Mavenir's ngOSS to improve the overall user experience, lower opex, and reduce the risk of manual errors more prevalent in legacy Operations Support Systems (OSS) systems.

Simplify Your Network with Intelligent OSS Automation

As the industry shifts from virtualization to automation of the network layer, more advanced OSS are required to address the automation and orchestration challenges of complex networks. Domain orchestration provides life cycle management of network functions across various domains, including RAN, Edge, and Core. Zero-touch service assurance powered by AI and Analytics delivers operational simplicity and agility to scale service workloads.

Drive Deep Innovation with Open Networking

Open architectures are critical in driving innovation throughout the digital transformation journey. An open architecture removes barriers to innovation introduced by inflexible OSS solutions of the pre-5G era. These OSS solutions were built with very few standards-compliant interfaces and without Open APIs, resulting in vendor lock-in. Innovative, standards-compliant solutions can integrate and interact with Open APIs and enable a multi-vendor ecosystem that offers intelligence, insights, and network control.

Lower 5G Investment Risk with Cloud-native ngOSS

The cost benefits of cloud-native solutions extend to automating the network layer. In addition to creating new revenue streams, ngOSS optimizes 5G costs through slice management and automated service fulfillment, which enable a better user experience and more efficient network resource utilization.

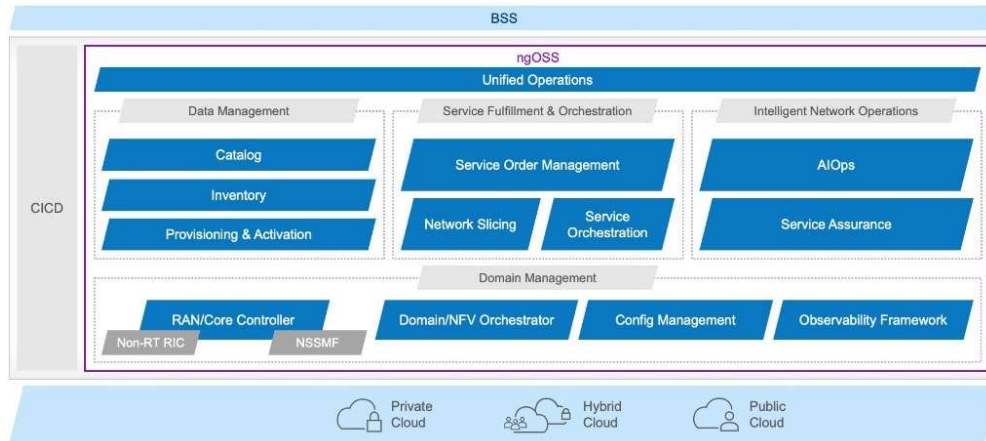# Start the OSS Digital Transformation Journey with Mavenir's ngOSS

Figure 1: Mavenir's Next-Generation Operations Support Systems (ngOSS) High-level Architecture

Data Management – Accelerate network automation with next-generation network inventory, catalog, and subscriber data management products built with accuracy and agility.

> **Catalog** enables CSPs to create, maintain, and expose network service, resource, and slice-level artifacts, such as NSDs/VNFDs, customer-facing service (CFS), and resource-facing service (RFS), and slice templates. It also exposes TMForum-compliant APIs for catalog-driven dynamic service fulfillment and orchestration.

> **Inventory** collects, maintains, and exposes a federated real-time view of available network resources and services across multi-cloud, multi-vendor environments. It acts as a single source of truth by integrating with cloud-native infrastructure and legacy NMS systems. It uses graph technology to store relationships and provides inventory administration capabilities by exposing open APIs to consume federated data.

> **Provisioning and Activation** function is radically different from the traditional provisioning offerings from the legacy vendors. It elevates provisioning to a whole new level by offering Provisioning-as-a-Service on any cloud, any vendor on any domain approach. Built as a fully cloud-native function, it acts as a platform enabling Business Support Systems (BSS)/OSS to provision network functions using open APIs. The provisioning function supports automated workflows for subscriber provisioning and activation, use case provisioning, subscriber policy provisioning, and others.

Service Fulfillment and Orchestration – Enable end-to-end service fulfillment and orchestration in the mobile network. These products, combined with Intelligent Network Operations, enable closed-loop automation.

> **Service Order Management** enables dynamic service fulfillment, integrates with BSS using Open APIs, supports complex workflow creation, and provides visibility and management into service order execution.

- > **Network Slicing** delivers 5G slice service by logically creating a slice over 5G infrastructure to allow multiple customers to share the network. This capability translates directly into lower costs by offering a better user experience and more efficient network resource utilization.
- > **Service Orchestration** provides end-to-end service orchestration of the mobile network, including service design center for service creation, network service orchestration, and 5G slice management functions. The solution drives innovation by supporting standard APIs (TMF, 3GPP, ETSI) and O-RAN interfaces (for SMO) and seamlessly integrates with Mavenir Service Assurance and Configuration Management for AI/ML-driven closed-loop automation.

Intelligent Network Operations – Achieve operational efficiency and opex savings with next-generation service assurance bundled with AI-driven Operations (AIOps).

- > **AIOps** drives agility and opex savings by performing vital functions such as AI-driven predictive alarm correlation and root cause analysis (RCA), ML-assisted ticket analysis, and auto RCA for increased productivity and shorter mean time to repair (MTTR).
- > **Service Assurance** powered by AI and Analytics delivers operational simplicity and end-to-end visibility into the network. It embraces open network principles by integrating with any cloud, any vendor, any technology domain.

Domain Management – Gain control of specific technology domains, including the RAN Intelligent Controller (RIC), Domain/NFV Orchestrator, Network Subnet Slice Management Function (NSSMF), Configuration Management, and Observability Framework.

- > **Non-RT RAN Intelligent Controller (RIC)** is a containerized application that uses advanced ML algorithms to optimize network performance and train ML models using long-term RAN data for dynamic and adaptive policy and control.
- > **Domain/NFV Orchestrator** provides ETSI-compliant, domain-specific Core, RAN, and Transport orchestration and life cycle management, including scaling, healing, and upgrading network functions.
- > **Network Subnet Slice Management Function (NSSMF)** is an open, cloud-native, and vendor-agnostic function that plays a crucial role in slice management. It performs the last-mile connections necessary to configure a slice. It can be a standalone NSSMF interworking with CSMF and NSMF that Mavenir or a third party can deploy. This function must reside at the domain level for a faster time to market of 5G slicing.
- > **Configuration Management** is responsible for zero-touch provisioning and configuration updates of the network functions.
- > **Observability Framework** provides domain-level metrics collection, monitoring, and data analysis of the infrastructure, including CaaS, PaaS, and network functions. It also integrates with the higher-level service assurance platform.

Why Mavenir for ngOSS

Mavenir is an OSS vendor with 4G/5G and mobile core/RAN expertise and in-depth understanding of orchestrating telco workloads required for enabling advanced 5G capabilities, including network slicing, which translates directly into efficiencies for the CSPs.

ngOSS purpose built for telco	Built with open interfaces to enable multi-vendor integration	Cloud-native design with microservice architecture
Improved agility and time to market with CI/CD integration	End-to-end service orchestration with closed-loop automation based on Analytics, RIC, and AI/ML	In-depth understanding and proven track record of orchestrating telco workloads

Learn more about Mavenir's ngOSS on the Mavenir website.

About Mavenir

Mavenir is building the future of networks and pioneering advanced technology, focusing on the vision of a single, software-based automated network that runs on any cloud. As the industry's only end-to-end, cloud-native network software provider, Mavenir is transforming the way the world connects, accelerating software network transformation for 250+ Communications Service Providers in over 120 countries, which serve more than 50% of the world's subscribers.

For more on Mavenir Solutions please visit our website at www.mavenir.com