

ULTIMATE VISIBILITY INTO YOUR NETWORK



ST Engineering iDirect's Intuition NMS is built from the ground up to capitalize on the industry advancements and simplify the network management process from start to finish. Operators are equipped with a comprehensive set of tools to centrally manage their network, ensure reliable and secure operations, quickly identify and troubleshoot issues, and cost-effectively provision services.

Intuition NMS has a cloud-based microservices architecture which drives productivity, resiliency, and scalability of the overall system. It boasts a comprehensive API suite to seamlessly integrate into OSS/BSS systems and leverages industry standards to be interoperable with the broader global communications domain. End-to-end orchestration capabilities ensure effective resource allocation, seamless global coverage, process automation, and full network control to deliver exceptional customer experience.

The NMS is designed to support networks of any size with the agility to scale up or down while effectively managing increasingly complex network operations. Flexible deployment options allow operators to tailor their networks in the manner that best aligns with their needs.

WITH INTUITION NMS, SATELLITE OPERATORS AND SERVICE PROVIDERS GAIN:

- Streamlined monitoring and control across all network elements
- High availability and adaptability through web-scale design
- Significant scale to hundreds of thousands of terminals
- Standards-based API-driven architecture
- NIST and OWASP security compliance
- Cloud, on premises, or hybrid deployments

MAXIMUM NETWORK OPTIMIZATION

Built to dynamically allocate resources, maintain high network efficiency, and continuously optimize performance.

Intuition NMS provides a multi-faceted approach to orchestrating today's complex communications networks to meet ever-changing customer demands. Our networking and orchestration technologies work in unison across multi-orbit satellite, terrestrial, and mobile networks to enable a truly seamless service offering. Resource and end-to-end service orchestration achieve this as they align software-defined satellite constellations with software-defined networks. The ability to orchestrate space and ground resources enables mass scalability and flexible integration between the satellite payload, the ground system, and ultimately, global telco networks. Service orchestration across all network functions ensure services are implemented in an automated and seamless manner to expediate time-to-market and revenue recognition.

Intuition NMS's extensive suite of tools increases operational efficiency and ensures network health. Users can leverage in-depth reports with data visualization to glean traffic patterns, trends, and actionable intelligence for reduced bottlenecks and maximized uptime. The microservices architecture also enables continuous improvements to the performance and availability of the system.

Global Bandwidth Management

Our industry-leading Global Bandwidth Management (GBWM) allows satellite operators to optimize their dynamic space segment to deliver highly differentiated services with strict SLAs and a multi-tier revenue model. GBWM enables intelligent bandwidth pooling and partitioning across the operator's entire global network which may consist of many satellites across different orbits and numerous beams that are dynamically created and resized.

GBWM allows operators to mitigate congestion and contention and optimize fill rates across numerous customers. This assures quality of service for fluctuating network load and user demand.



POWERFUL MONITORING AND CONTROL

Continuous monitoring and advanced, customizable analytical tools allow for quick identification and resolution of issues resulting in greater network uptime, reliability, and efficiency.

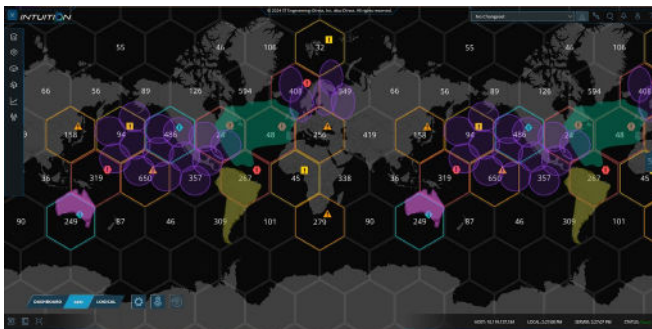
Actionable Data Insights

Intuition NMS provides real-time visibility into the health of the overall network and across various network elements. Users can control all aspects of network operations like configuring, monitoring, and troubleshooting from a single pane of glass by tracking performance metrics such as bandwidth and capacity utilization, latency, packet loss, and throughput rates. Users can also gain insight into the status of a particular element by accessing all relevant data in one centralized location for ease-of-use.

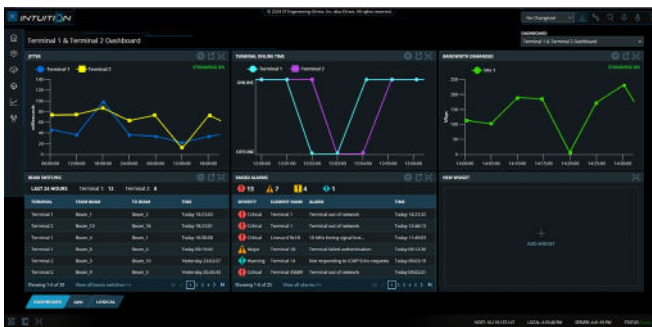
For example, a terminal summary consists of key configuration data, a count of current alarms by severity against that element, the current on-line time, and charts of the current IP traffic and RF throughput. These insights into resource usage patterns help with capacity planning by anticipating future growth and allocating resources appropriately.

The NMS provides multiple ways to examine network data. The geographical view allows a user to visualize the network on a map to easily spot trends such as localized outages or issues with service area misconfigurations. Searching and filtering can be used to reduce the visible items on the screen to only those of interest. Users can focus on specific areas on the map to quickly see alarms tied to those elements. The map provides users the ability to overlay weather and service maps to spot areas of concern from rain fade. The logical view provides a hierarchical tree view of the data complete with alarm notifications on the tree nodes so users can drill down the branches to get to the source of the issue.

GEOGRAPHICAL VIEW



CUSTOM DASHBOARD



Customized Reports

Intuition NMS allows users to create a custom dashboard with data visualization to streamline their daily tasks and troubleshoot issues more efficiently. Custom dashboards can mix tabular data, charts, and graphs into a single view, which can be shared across user groups. Dashboards can also be defined as a landing page so users can see their preferred view when they log in or return to "home". For example, satellite operators can provide customized dashboards for their HNOs and VNOs or tenants, with designated colors and logos for sub-tenants.

Custom reporting tools allow users to make specialized charts for any data within the system. Service-level agreement (SLA) monitoring stats can be added to any report or dashboard to track performance metrics against service expectations. The data can then be visualized in different ways and exported as a .CSV file to be used in other tools.

Multi-tenant Hierarchy

A multi-tenant hierarchy was built into Intuition NMS to allow users to share network resources across VNOs or HNOs and to enable QoS and SLA tracking. Both granular and comprehensive access controls can be applied throughout the system for a customizable implementation at each level.

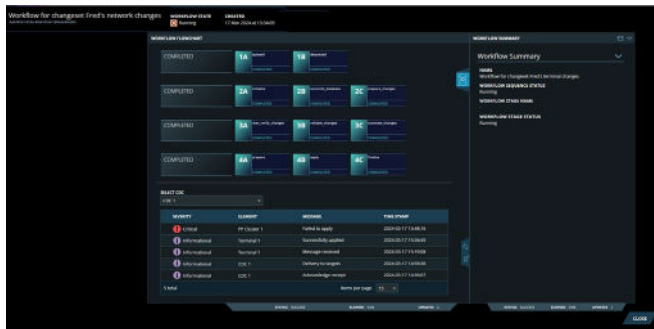
Comprehensive APIs

Intuition NMS leverages standards-based APIs that cover all aspects of network configuration, monitoring, and troubleshooting so the NMS can be integrated with external OSS/BSS systems. An operator can use both the web user interface and the API to execute all management activities. The NMS also acts as an element management system (EMS) within a larger, external ecosystem ensuring a unity of operations. GraphQL is its query language, which is ideal for queries involving larger, more complex, and interrelated data sources. GraphQL streamlines the overall process by fetching data from multiple data sources with a single API call, therefore reducing the load on the system.

Configuration Management

Intuition NMS enables users to group their changes in separate “changesets” of one or more. These changes can be made immediately or staged for an extended period. This allows upgrades to be prepared in advance and validated for accuracy before network application.

CHANGESSET



as well as rich APIs for end-to-end service delivery. This enables business and operational automation across the end-to-end network.

Web Security

Security is an integral part of Intuition NMS including NIST and OWASP standards as well as conventional security tools for authentication, authorization, and accounting (AAA) practices, certificate authority management, and role-based access control (RBAC). Single sign-on (SSO) and multi-factor authorization (MFA) for remote accessibility further protects the NMS. Users can be confident that their system is secured using industry standard best practices and adheres to regulatory compliance.

Flexible Deployment Options

Deployable on dedicated hardware, in a private or public cloud, or hybrid, Intuition NMS provides flexible deployment options so operators can lower capital expenditures up front and grow their network at their own pace.

STANDARDS-BASED ARCHITECTURE

Industry standards for smoother integration and interoperability creating a network of networks or hybrid, rich APIs for end-to-end service delivery, web security standards, and flexible deployment options.

Intuition NMS has a microservice architecture based on a virtualized design which allows network operators to deploy services independently improving the fault tolerance of the overall system. This enables the NMS to be updated and integrated with the latest industry standards quickly and with confidence. Validation and testing can be more localized to the specific areas affected speeding up time-to-service for any system updates. Its web-scale design enables high network availability and adaptability with geo-redundancy and rapid response.

Industry Standards

To enable seamless interoperability with the broader telecommunications ecosystem, Intuition NMS leverages 5G standards such as 3GPP and Metro Ethernet Forum Lifecycle Service Orchestration (MEF LSO)

HIGHLY SCALABLE NETWORKS

Elastic architecture to support networks of any size.

With the increasing need for scale, the cloud-based Intuition NMS can support hundreds of thousands of terminals. The NMS is an elastic system that can grow or be scaled down to align with its changing demands. Despite network size, users have the tools and insights to manage the system effectively.

Intuition NMS uses industry-proven open-source platforms and a time-series optimized database (TSDB) to process and store data for the hundreds of thousands of terminals that the network supports. External interfaces allow for external integrations to retrieve their data for long-term data warehousing, custom data analytics, or other OSS/BSS systems.

ELEVATING NETWORK MANAGEMENT TO A STRATEGIC ADVANTAGE

ST Engineering iDirect's Intuition NMS provides ultimate visibility into your network ensuring reliability, security, performance, and a unity of operations. With its virtualized, cloud-based infrastructure, operators can easily orchestrate resources and scale services to support the widest range of go-to-market strategies and deliver reliable communication services globally.

Intuition NMS is a critical asset for operators managing the increasingly complex satellite networks today with:

Maximum network optimization for enhanced performance

- Dynamic resources allocation
- Streamlined network efficiency
- Automation and performance improvement

Powerful monitoring and control for high network availability and reliability

- Proactive issue management
- Data-driven decisions
- Customized dashboards

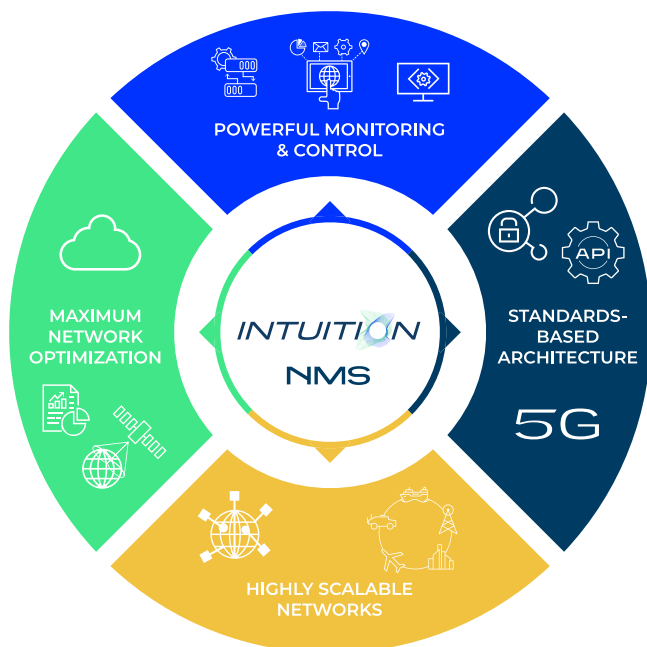
Standards-based architecture for seamless integration and interoperability

- Industry protocols
- API-centric design
- Enhanced security
- Flexible deployments

Highly scalable and elastic networks

- Cloud-based scale
- Open-source platforms

Intuition NMS provides the flexibility for operators to get the peak performance out of their networks with the agility to quickly adapt to changing conditions resulting in high network availability, reliable SLA fulfillment, and exceptional customer satisfaction.



**Contact your ST Engineering iDirect Account
Team to schedule an Intuition NMS demo!**