



OpsCenter Unified Management Across the Ground System

Challenge – Increasing Growth and Complexity

In today's new space world... innovations in satellite technology are bringing more capacity and capabilities than ever before. From multi-constellations, multi-orbits to software-defined payloads these advancements are driving the ground to keep pace with the innovations in the sky.

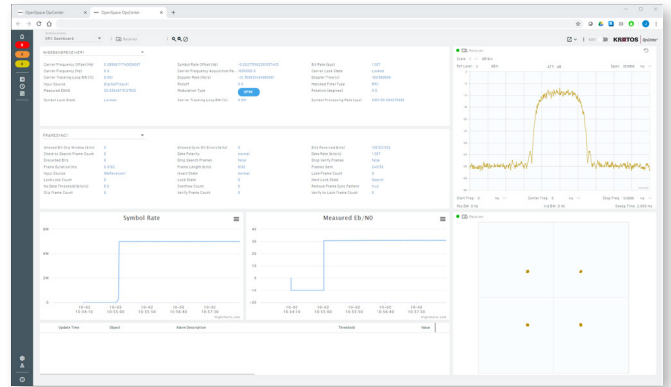
Delivering on the promise of space means the ground system needs to dramatically improve operational efficiencies and become more dynamic. As the ground system is becoming more virtualized, software-defined and service centric, a new management approach needs to be leveraged to optimize operations.

Streamline Management of Complex Space Networks

The management approach needs to move beyond monitoring just hardware components in a siloed fashion to a unified approach that monitors all elements across a changing ground system including virtualized infrastructure, IT devices, RF signal quality and all elements that are part of end-to-end service quality.

Solution – OpenSpace OpsCenter and Unified Management

OpsCenter is part of OpenSpace, the industry's only fully virtual satellite ground system platform. OpenSpace enables dynamic space operations that adapt to evolving mission needs and technologies. OpsCenter is a unified manager which bridges the management of the physical and virtualized world from an infrastructure, services and business perspective.



OpsCenter unifies management across the ground system to optimize operations.

Monitor Infrastructure Fully from Physical to Virtual

OpsCenter enables the management of ground system infrastructure including the physical network devices, RF gateway components and virtualized infrastructure in the form of Virtual Network Functions (VNFs) in a single solution.



Monitor all elements across the ground system from RF, IP and spectrum.

- 1 Monitor RF hardware and antenna
- 2 Track uptime of virtualized infrastructure
- 3 View RF signal quality of service
- 4 Display status of servers for virtualized infrastructure

- Monitor and control all types of network element types such as antennas, RF equipment, IT devices, facility systems, security gear and much more
- Track uptime and health across the entire ground system infrastructure from physical to virtual
- Reduce the Mean-Time-to-Repair (MTTR) by identifying the root cause of device issues faster
- Scale to hundreds of thousands of assets as demand grows

Manage Services Dynamically

OpsCenter enables the management of traditional hardware, completely virtualized devices and a combination of both as service chains to deliver services end-to-end.



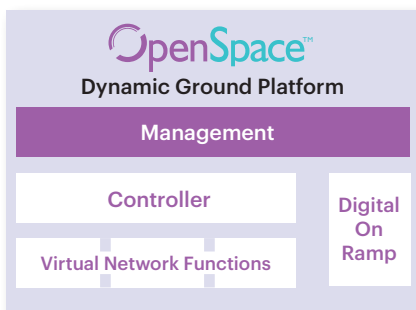
Track status and health of virtualized service chain.

- 1 Monitor health of virtual service chain
- 2 View RF signal performance
- 3 Track events and status
- 4 See receiver performance

- Design dynamic service templates on top of the physical and virtual infrastructure to provision services faster
- Simplify the provisioning and monitoring of services in a single and unified management system
- Develop services on the fly to instantly respond to changes in supply, demand and threat
- Manage hundreds of thousands of services as demand grows rapidly

Assure Service Performance and SLAs to Optimize Business Impact

OpsCenter enables operations staff to keep track of all the service health and SLAs in real-time. Effectively manage the ground system for optimal business impact by minimizing SLA penalties, allocating resources to the highest priority services and addressing areas where QoS is at risk.



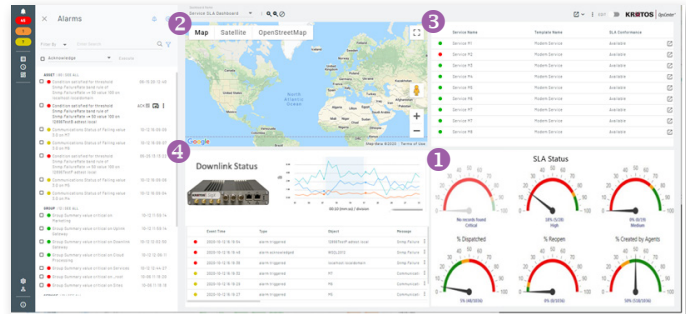
OpenSpace is the industry's first and only fully virtualized, software-defined and orchestrated satellite ground system platform. The OpenSpace platform includes Virtual Network Functions (VNFs) for assured WAN transport, signal processing and stream processing and recording that form an EO/RS service chain. The OpenSpace Controller administers how service chains are deployed and OpenSpace OpsCenter provides unified management across the entire satellite ground system.



Phone: +1.703.254.2000 • Space@KratosDefense.com • www.KratosDefense.com

Key Benefits of OpsCenter

- Optimize operations with unified management
- Ensure health, uptime and performance for mission-critical services
- Streamline ground operations and improve staff productivity
- Scale to manage growing infrastructure, services and SLAs
- Automate to save time and increase operational efficiency



Monitor service and SLA performance across ground system.

- 1 Monitor health of SLAs
- 2 View status of teleports across the globe
- 3 Gain insight into alarm status for services
- 4 Track status of all elements of service including RF performance

- Monitor services end-to-end to assure health, performance and SLAs
- Track and monitor usage of ground system resources to maximize utilization
- Reduce outages from minutes to seconds by correlating analytics across the ground
- Forward SLA-related events and alarms to northbound applications
- Report on services to optimize performance, budgeting and planning for the future

Flexible and Cost-Effective Deployment Options

OpenSpace OpsCenter can be deployed on premise or in the cloud. With a cloud deployment reduce infrastructure costs, ease the administration effort, scale as needed and assure a highly secure environment.