CALIAN ®

Confidence. Engineered.

Orchestrator

Calian's multi-orbit resource orchestration platform

The Calian Orchestrator is an advanced resource orchestration platform to optimize and manage Software-Defined GEO and NGSO satellites and ground systems for satcom, earth observation and defence solutions.
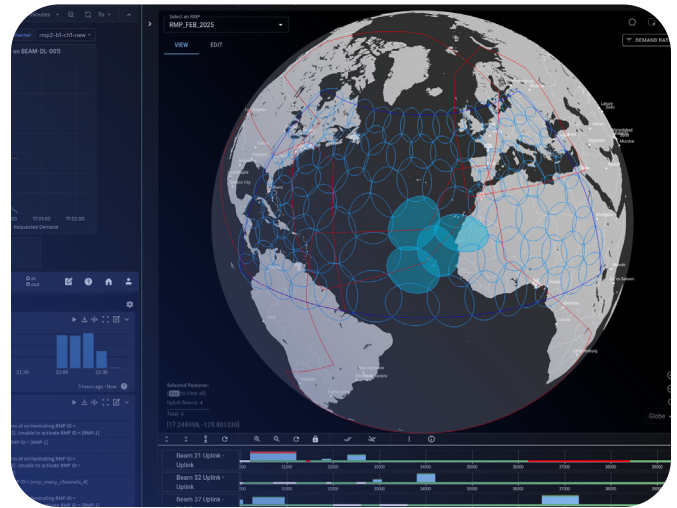
Maximize Network Capacity and Ensure Resilient Connectivity. Resource orchestration empowers satellite operators to manage GEO, LEO, and multi-orbit networks with unparalleled flexibility, efficiency, and service quality. By automating and orchestrating the management of space and ground segment resources, operators can precisely deliver services to meet customer demands. This capability allows them to maximize market reach, boost sellable capacity, enhance service delivery, and swiftly adapt their network for emerging business opportunities. Operators can plan for and autonomously adjust resource assignments across the network, optimizing space and ground resources to where and when they are needed most.

The Orchestrator platform offers a powerful and intuitive interface to maximize the capabilities of your satellite network.

Increased Satcom Monetization

Identify new market opportunities and amplify your presence by seamlessly reconfiguring your network for an ever-changing landscape. With the Orchestrator, you have the power to define beam layouts, channels, carriers, and power allocation—automatically or manually—with unmatched flexibility.

Our innovative platform ensures rapid reconfiguration, enabling your network to swiftly adapt to both planned changes and unforeseen world events. This dynamic flexibility allows you to maintain optimal performance and achieve higher utilization.

The Orchestrator user interface provides data-rich visualizations to monitor and control the network.

Increased Throughput

Software-Defined Satellites can target resources to high demand geographical areas. The Orchestrator allows you to use both historical and forecasted traffic demand to craft optimized beam layouts and channel plans to meet these demands. By dynamically coordinating changes between payload and ground systems, the Orchestrator ensures peak system utilization and an exceptional customer experience.

Reduced Operator Workload

The Orchestrator provides operators with actionable insights into network performance, enabling a competitive edge. It features automated deployment mechanisms for seamless configuration updates and sophisticated orchestration with external systems to minimize user disruption. By simplifying system management, it frees operations personnel to focus on optimizing system and network performance, driving efficiency and excellence.

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The Orchestrator provides interactive displays of network metrics, like traffic demand, for analysis and planning purposes.

Reduced Validation Effort

Calian's Orchestrator considers multi-dimensional and multi-domain optimizations when configuring your network, including:

- Regional power and spectrum restrictions
- Historical demand
- Quality of service
- Ground station capabilities
- Satellite capabilities
- Baseband capabilities

It provides comprehensive feedback of expected network performance results and confidence when deploying resources.

Multi-orbit Orchestration

NGSO resource management involves the planning, coordination and operation of the resources of a LEO/MEO network. The Orchestrator includes orbit modelling and prediction, contact determination to ground gateways and between satellites, link planning, user and beam management and payload power control. The Orchestrator platform abstracts the physical network and provides necessary connectivity as required. It coordinates the interplay between the disparate vendor-based networks creating a cohesive system.

Earth Observation Support

Utilizing awareness of ground station constraints, satellite capabilities, mission and data collection priority; the Orchestrator's task planning capabilities weigh the value of tasking activities across missions and stakeholders to deliver the greatest value possible from the spacecraft.

Dynamically coordinating commands, data downlink, and pass orchestration allows for a highly agile system which can respond to last minute changes in the operational environment.

Mission planning for scientific, earth observation, and SAR applications demands schedule arbitration and pass planning. The Orchestrator efficiently prepares and deconflicts mission demands on satellite assets. The Orchestrator executes pass schedules and coordinates with gateways and ground antennas to ensure seamless support. Orbit calculations are performed to determine contact opportunities and used to prioritize and prepare passes. Advanced ML algorithms can enable agile adjustments to pass plans, accommodating urgent commands or maneuvers with ease.

A Complete Solution

- **Align Space and Ground** - Alignment of space resources with the ground segment to meet customer demands.
- **End-to-End Orchestration** - Automation of resource assignments and service allocations across payloads and ground platforms.
- **Plan Capacity Usage** - Deployment of resources at the right times and locations to deliver better services.
- **Interoperability** - A vendor-agnostic and standards-base solution which creates a resilient and adaptable network.