

Ground Segment Architectures and Design

Modernizing Satellite Operations using Virtual Infrastructure & Unified Ground Networks

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Modernizing Satellite Operations

Operators demand more agility and availability when it comes to communicating with their spacecraft. Additionally, their businesses require increased amounts of data to be delivered to support complex analytical, compliance, and data sovereignty environments.

By combining the ability to downlink and process data from multiple ground segment providers with high-speed, robust, global networks, satellite operators can now receive data and process at scale from anywhere in the world. This allows customers to accelerate their time-to-value.

To help satellite operators facilitate these capabilities, KSAT and Amazon Web Services (AWS) Ground Station are collaborating to make satellite operations easier and more accessible to the rapidly growing satellite industry.

KSAT also provides value added operational Ground Segment as a service (GSaaS) services in the form of managing software-defined radios (SDRs) and scheduling interfaces so that customers receive a common experience across both antenna networks. This enables data to move faster from orbit into the customers' commercial cloud environments, where satellite data can be seamlessly integrated into automated processing pipelines to create analytics-ready data. Then users can apply AWS artificial intelligence and machine learning (AI&ML) algorithms to gain valuable, near real-time insights that drive impactful decision making by leaders on Earth.

Together, KSAT and AWS provide innovative solutions, solve technical challenges and deliver value to our mutual customers.

Virtual Infrastructures & Unified Ground Networks

The AWS Partner Network (APN) is a global community of partners that leverages programs, expertise, and resources to build, market, and sell customer offerings. Partners build services to enable access across multiple ground networks at global scale, improving performance, security and resiliency for their end customers.

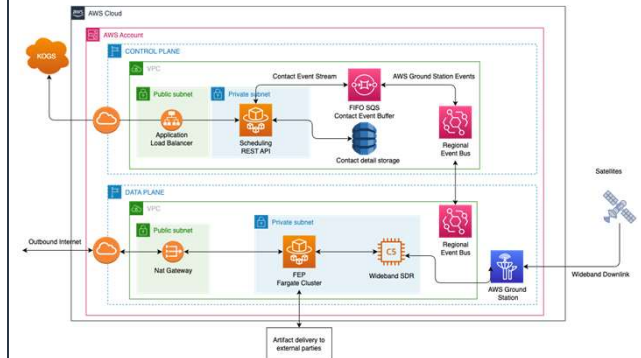
Combining the APN with KSAT's worldwide network provides customers global ground station coverage and enables communication for missions in all orbits, from LEO to the moon.



The figure above shows the combined ground network coverage that will be available to KSAT and AWS customers through a federated contact booking model.

Through this collaboration, KSAT and AWS provide support for lower latency access to data, reservation and site status, onboarding support and data plane management across all antenna sites.

Pilot Integration Architecture



The diagram above illustrates the “as-built” reference design for KSAT’s integration of AWS Ground Station.

With AWS & KSAT, companies can now receive low-latency satellite data more frequently with direct access to other AWS services for data processing, storage, analysis, and dissemination.

KSAT will continue to operate its One KSAT global network which will include AWS Ground Station network as an integral part, thus allowing customer to access both networks via a single interface.