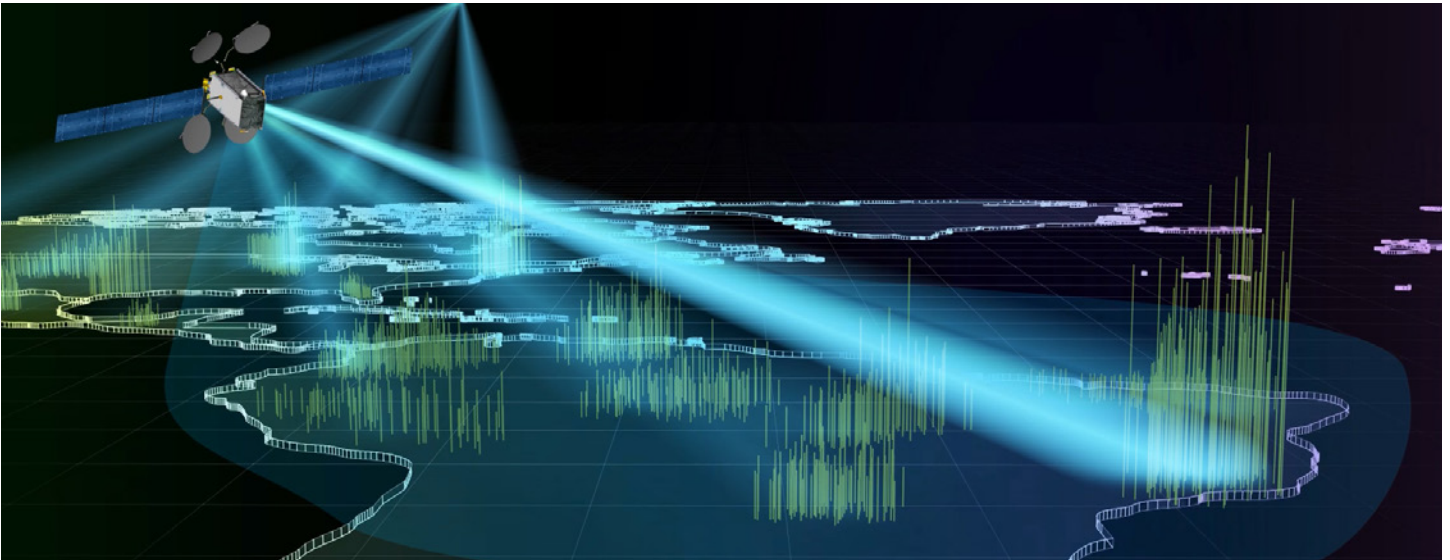


# Flexible Broadband System

## High-Capacity Broadband Satellite System for Government



### FLEXIBLE BROADBAND SYSTEM ADVANTAGES

#### Affordable, Integrated High-Capacity Satellite System

The Flexible Broadband System enables fast and cost-effective satellite broadband services for government and other applications. The unique system offers an easy entry point to high-capacity satellite networking with scalability to keep pace with ongoing bandwidth demand growth in an affordable way.

ViaSat is the innovator behind the world's highest capacity satellites and now we're enabling government and defense agencies to improve mission performance, increase warfighter dominance, and accelerate the worldwide deployment of high-speed broadband services with the ViaSat-2 Lite class of satellite.

Collaborating with Boeing Satellite Systems, we've adapted our patented high-capacity payload technology to the cost-effective Boeing 702SP satellite bus. Combined with a new flexible networking ground system, these powerful innovations deliver unprecedented flexibility and bandwidth economics.

With this system, you can acquire low-cost capacity, broad coverage, and the ability to dynamically shift capacity where it's needed, when it's needed within the expansive satellite footprint. The ViaSat-2 Lite satellite is a compact high-capacity satellite design with a price point ideal for fast, worldwide deployment.

Achieving the speed, capacity, scale, and economic advantage of the ViaSat-2 class satellites requires a sophisticated, tightly integrated ground infrastructure. ViaSat has developed compact Satellite Access Nodes to shrink the size of a satellite gateway, simplifying deployment and operation while reducing both upfront and ongoing costs.

#### Match Capacity to New and Changing Demand

Continuous changes in world events and global military operations force government organizations to be agile and adapt to shifts in bandwidth demand. Flexible capacity technology in the ViaSat-2 Lite satellite system allows you to match capacity to unpredictable demand, and shift or add capacity within the satellite footprint. You can quickly move capacity to respond to unexpected events and emerging military hotzones, move capacity from where the fight it today to where it goes tomorrow, and address future bandwidth needs.

#### Build Your Own Terminals or Use Ours

To meet your specific applications and demanding requirements, you can build your own end-user terminals with our embeddable chipsets and Satellite Terminal Reference Design. With these chipsets, you can develop and manufacture terminals to meet any unique service applications. ViaSat also offers a wide range of off-the-shelf terminals to serve many air, land, and sea missions.

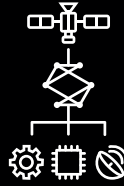
#### Quickly Deploy Bandwidth-Demanding Broadband Services

The Flexible Broadband System features a Service Delivery Platform that eases the provisioning of fixed, portable, mobile, and mission-specific services through well-defined interfaces. Satellite capacity can be assigned on a system-wide class-of-service basis giving higher priority services—such as real-time voice or video—higher bandwidth without affecting lower priority traffic such as email.

#### ViaSat Network Services

ViaSat's end-to-end system approach to satellite communications enables scalable, pervasive, quick-deploy, affordable broadband to where it's needed for better mission performance and warfighter dominance. ViaSat Network Services use the cloud-based software platform to provide a turnkey managed service. Private and secure cloud resources can be hosted in ViaSat-operated facilities or government-provided data centers.

# THE VIASAT FLEXIBLE BROADBAND SYSTEM



## FLEXIBLE CAPACITY

Match unpredictable demand. Shift or add capacity within your footprint.



## COMPACT ACCESS NODES

RF Gateways become smaller, cost-effective Satellite Access Nodes.



## TERMINAL CHOICE

Build your own terminals with chipsets and core technology.



## RESILIENCE

Reliability, recovery, and robustness to keep warfighters connected.



## MISSION PERFORMANCE PER \$

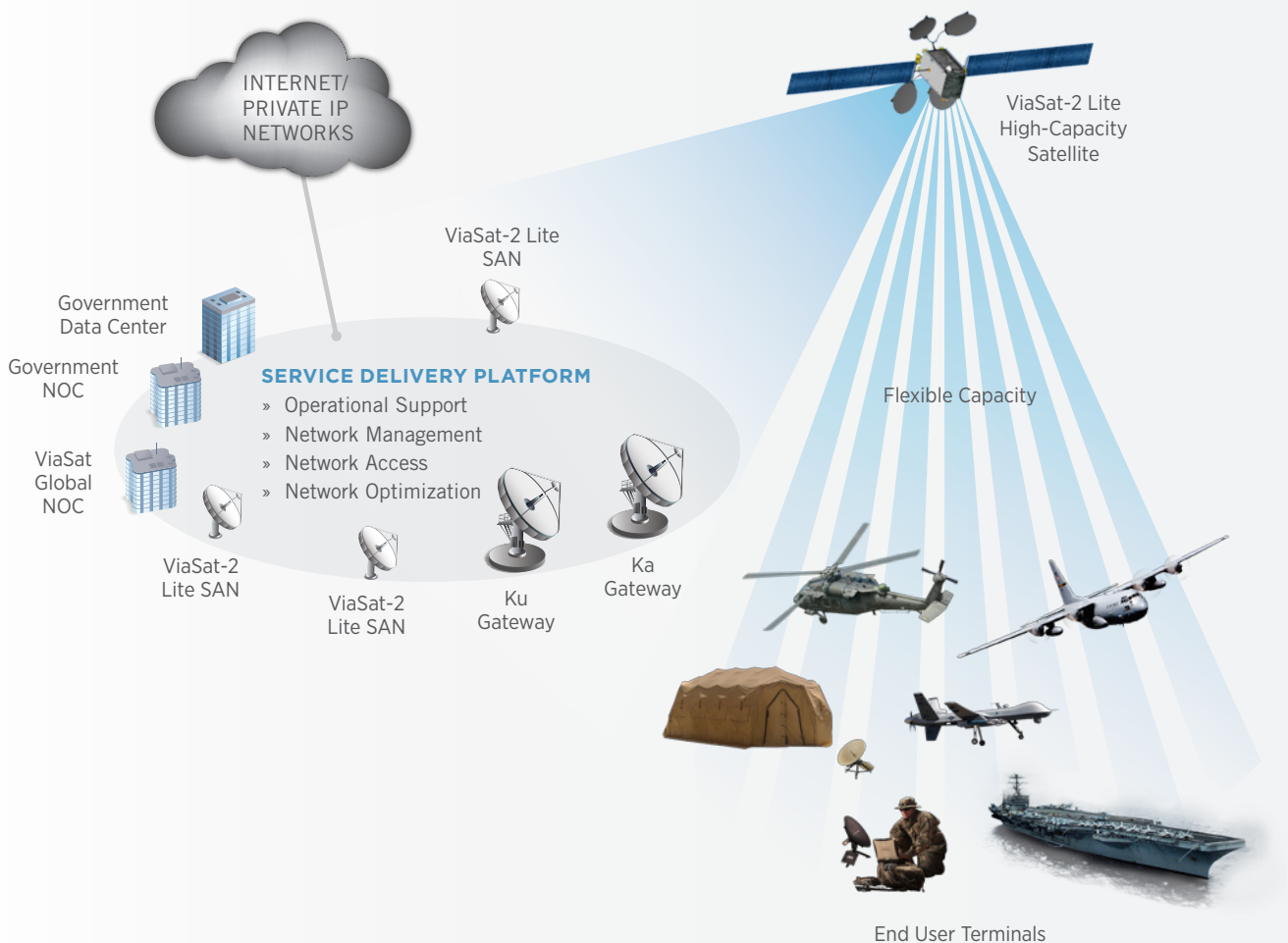
Lower initial investment, deploy faster, then expand to meet rising demand.



## GLOBAL NETWORK

Growing, global network with best-available network roaming.

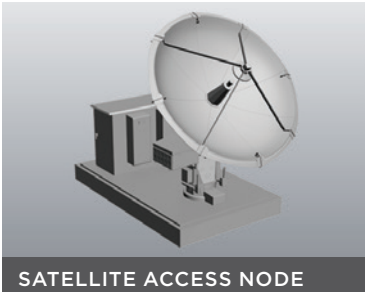
## FLEXIBLE BROADBAND SYSTEM DIAGRAM



## FLEXIBLE BROADBAND SYSTEM AT-A-GLANCE

### Features and Benefits

- » Affordable high-capacity satellite system
- » Broad geographic coverage with flexibility to match demand
- » Fully integrated ground network with efficient forward and return links
- » Scalable, modular, and compact Satellite Access Node (SAN) architecture
- » Multiple remote terminal types for fixed, portable, and mobile applications
- » Available terminal reference design with chipsets to build your own terminals
- » Scalable, cloud-based Service Delivery Platform
- » ViaSat Network Services supported through our Global Network Operations Center (NOC)
- » Roadmap to integrate existing Ku-band and Ka-band gateways into the Service Delivery Platform



## SYSTEM COMPONENTS

### ViaSat-2 Lite Satellite—In Geostationary Orbit

The ViaSat-2 satellite, our 3rd generation high-capacity satellite, introduced the concept of flexible capacity, breaking the paradigm that requires a tradeoff between broad coverage and high throughput. This technology is now available with the affordable ViaSat-2 Lite class of satellites, which together with the Flexible Broadband System, achieve large-satellite bandwidth economics with a smaller financial commitment. The combined system allows you to focus capacity where the demand is, even if that demand changes over time.

ViaSat's collaboration with Boeing Satellite Systems adapts the ViaSat-2 flexible payload to the all-electric Boeing 702SP platform, bringing the benefits of the ViaSat-2 class technology to a smaller, affordable package, available for rapid delivery.

Features of the ViaSat-2 Lite class include:

- » High-capacity, flexible Ka-band payload
- » Proven design and technology
- » Capital-efficiency—in space and on the ground
- » All electric propulsion reduces launch mass and cost
- » Compatible with a dual-launch on a SpaceX Falcon 9
- » 15 year Orbital Maneuvering Life

### Satellite Access Node—At Fiber Sites

Each Satellite Access Node (SAN) connects a collection of user terminals through the satellite to the Service Delivery Platform.

The SAN includes a compact Ka-band satellite antenna and all elements needed to transmit and receive signals to and from the satellite. Each SAN can process up to 4 GHz of satellite bandwidth. Powerful, yet small and compact, the SAN's footprint is about the same as a cellular tower (typically 60m<sup>2</sup>).

Designed for unattended operation and easy repair, the SAN features an integrated management system that can send timely and accurate maintenance requests directly to the technician's smartphone when incidents occur. Most equipment is serviceable from ground level; the remainder can be safely accessed using warehouse-style 2-meter rolling staircases.

The SAN is designed to operate across a range of climates including deserts, jungles, and extreme cold temperatures. Options, including de-icing systems, are available to meet local requirements.

### Satellite Broadband Terminals—Use Ours or Build Your Own

A family of ViaSat satellite broadband terminals is available for fixed, portable, and mobile applications across air, land, and sea. With embedded transparent acceleration technology and standard adaptable network interfaces, these terminals deliver the best user experience across a variety of services and are designed for quick and easy installation and efficient customer support.

Complementing our family of broadband terminals, ViaSat offers Satellite Terminal Reference Designs comprising a suite of chipsets, terminal modules and software licenses. Terminals can be designed and produced to meet specific user and mission requirements.

## Network Access and Optimization

Network Access and Optimization services provide real-time delivery of traffic to the SAN for last-mile satellite delivery, are designed to operate across multiple SANs, and support dynamic allocation of capacity within the satellite footprint. Network routing and security enforces traffic security and routes all management, control, and user data traffic to target network destinations.

The Network Access layer manages and controls traffic between end users and system routers and servers. It performs all power and frequency management for forward and return links, and manages satellite bandwidth resources. An Access Service Network (ASN) controller interacts with a network AAA for authenticating and authorizing user access and relaying quality of service (QoS) information.

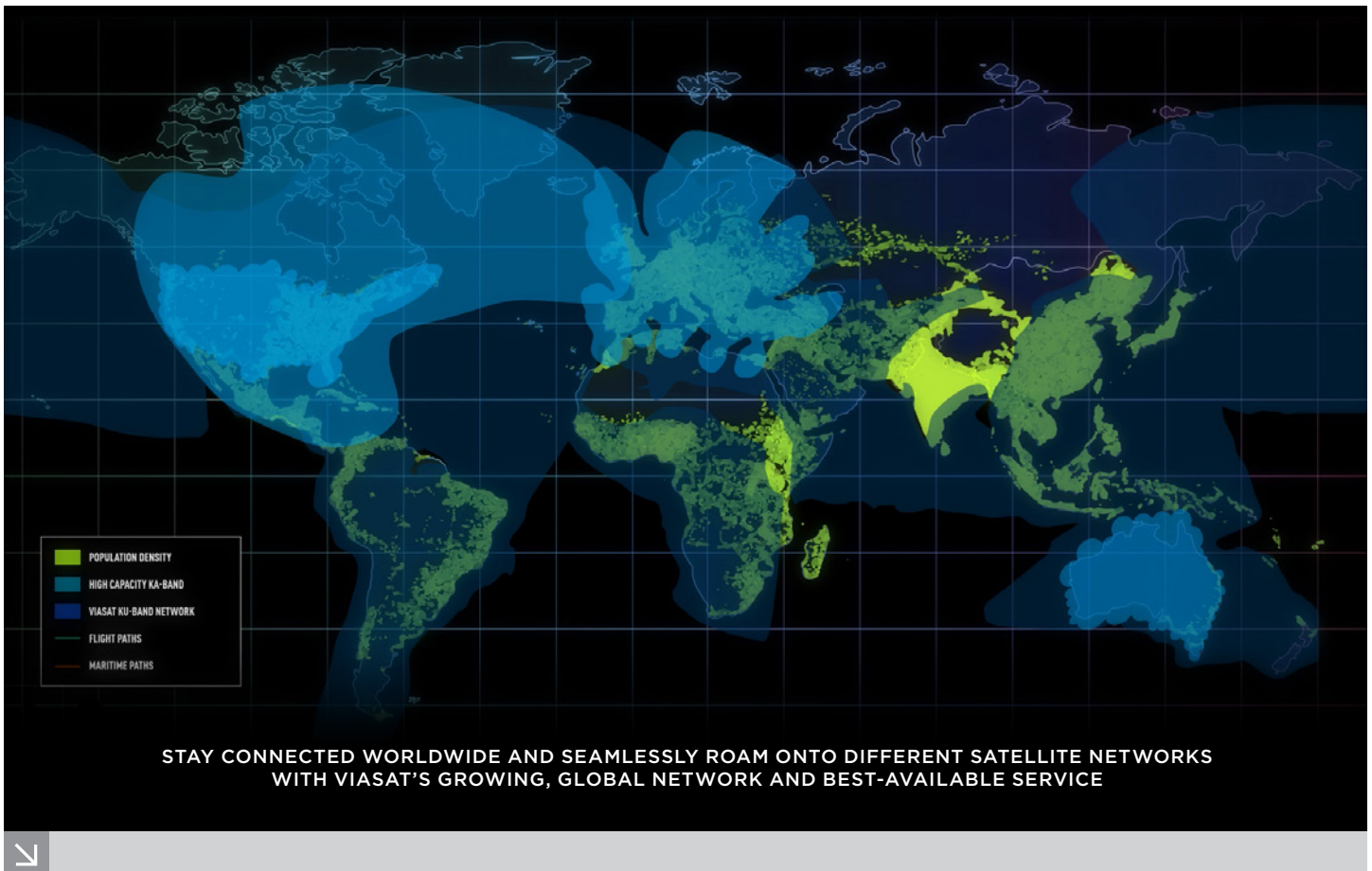
The Network Optimization layer significantly improves throughput and end-user performance for HTTP- and TCP-based applications. QoS policies ensure appropriate allocation of network resources between high-priority and lower-priority users and applications. Equitable allocation is ensured between entities with the same priority. This, together with other congestion mitigation techniques, reduces congestion risk and users benefit from a better experience.

## Network Management and Operations Support Systems

Network Management services provide a sophisticated suite of tools for effective service and network management. The services adapt to changes in network topologies, equipment, and software designed to support the Flexible Broadband System. Routine tasks are automated and provide instant visibility into status, performance, configuration, and security. The NMS supports network-wide configuration management, access security, fault management, and performance monitoring.

## Resilience and Security

The end-to-end integrated technology of the ViaSat Flexible Broadband System improves reliability, recovery, robustness, and security to keep warfighters connected and protected when faced with jamming, cyber threats, and other adversarial attempts.



## CONTACT

### SALES

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