Viasat

Aero Services
For **Government**

REAL BROADBAND... IN THE SKIES

Viasat's Aero solutions for government share a common theme – maximising operational capability and providing the same connectivity in the air that you have grown to expect on the ground. Aircraft are expensive assets to maintain and the inclusion of a fit-for-purpose satcom solution will often lead to greater results being achieved out of every mission.

By enabling important information to be shared with crews, whether from the ground, another aircraft or simply with one another, a single Viasat installation supports a wide range of uses in the cockpit and cabin. From safety communications and weather and flight-plan updates, to VIP connectivity for email, internet access, VoIP telephones, GSM and SMS messaging. ISR missions share operational insight via the real time transfer of situational activity, whilst mission and control have an eye in the sky assisting in the appraising and advising of any event.

A **SEAMLESS** SERVICE... WHEREVER YOU **FLY**

Viasat **current L-band coverage**

Viasat in-flight communications have evolved to meet the demands of just about every airframe, operational requirement and budget.

We own and manage our global satellite constellations, with two fully redundant networks (the I-3 and I-4s) and a third (I-5 series) which entered global service in 2015. Instead of a patchwork coverage stitched together from different operators, our network is wholly-owned and completely integrated. We offer a continuous, uninterrupted service, traffic is handed seamlessly from one beam to another as aircraft fly across time zones, delivering the best possible experience for crew.

Within the aeronautical sphere, there is no such thing as a one-size-fits-all. That's why we work with a network of trusted technology partners to deliver scalable solutions for government aircraft requirements. And whilst our services have evolved, so too have the products developed by our technology partners. There is now a terminal and antenna to meet the demands of just about every air frame.

Our equipment partners are constantly delivering innovations to reduce the cost, weight and size of equipment, with technologies that can be line- or retrofitted.

Working with these trusted partners, we can create competitive, flexible solutions, reflecting the individual needs of government users. And because we own and operate the satellites and ground networks, we can increase capacity to meet surges in demand for additional bandwidth.

Our services can meet customers' requirements as detailed below.

L-BAND NETWORK

SwiftBroadband operates over Viasat's I-4 satellite constellation, covering all major aviation routes. Our L-band network can be relied upon by governments, with the redundancy and resilience to guarantee 99.9% network availability.

Each I-4 satellite combines 228 spot beams with 19 wide beams; capable of providing up to four channels of 432Kbps to a High Gain Antenna. The three I-4 satellites are now complemented by Alphasat, which provides additional capacity over 33% of the I-4 coverage area. Further L-Band payloads are in build.

SWIFTBROADBAND SERVICE OPTIONS

SwiftBroadband (HGA)
Our top level aviation communications service. Four channels (delivering up to 432kbps per channel) per aircraft supply voice and data communications, enhanced 'always-on' data, HDR data rates on demand – up to 650kbps (combined 192kbps max) – and full-channel streaming.

SwiftBroadband (IGA) – Class 7
High-quality voice communications and background data connections are available as standard. Four channels (up to 500kbps each with IGA) per aircraft deliver simultaneous data and voice communications. Increase data speeds by using compression and multiple channels.

SwiftBroadband 200 – Class 15
This single channel system of up to 200kbps delivers high-quality voice communications and 'always-on' data. Additional voice channels are accessed via inbuilt VoIP functionality in the terminal.

SB-UAV

This very light and compact single channel system delivers high quality 'always-on' data services of up to 200kbps. Designed specifically for Low Altitude Long Endurance UAV platforms, the sub 1.5kg integrated antenna and electronics unit provides its own ground plane, allowing easy installation with minimal wiring.

A **RANGE** OF ANTENNA **SOLUTIONS**

SwiftBroadband offers three primary antenna options to suit differing aircraft and bandwidth requirements:

HIGH GAIN ANTENNA - 432KBPS

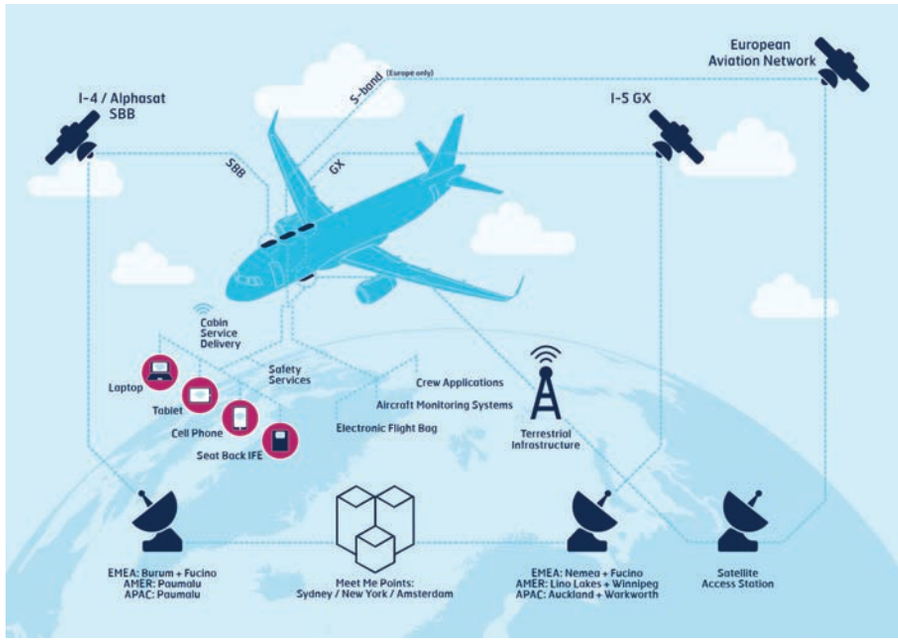
SwiftBroadband HGA delivers up to four channels per aircraft for simultaneous voice and data communications. Always-on data up to 432kbps per channel, HDR data rates up to 700kbps on demand, and full-channel streaming with SwiftBroadband X-Stream. A range of terminal equipment is available from Cobham, Honeywell, Rockwell-Collins and Thales.

INTERMEDIATE GAIN ANTENNA - 332KBPS

SwiftBroadband IGA combines high-quality voice communications with a symmetric, background data connection of up to 332Kbps per channel. Up to four channels per aircraft for concurrent voice and data links, with the ability to add four more VoIP connections. A range of guaranteed data rates can be also selected up to 128kbps, and up to 500 kbps with HDR. A range of terminal equipment is available from Cobham, Honeywell, Rockwell-Collins and Thales.

LOW GAIN ANTENNA -200KBPS

A single channel system supporting high-quality voice, plus always-on data at up to 200Kbps per channel and guaranteed rates of eight, 16 and 32Kpbs, via a low gain antenna. Terminals available from Cobham and Honeywell.



L-TAC

UHF AND VHF RADIO **COMMUNICATIONS**

Customer Challenge

To find a solution that allows users to maintain command and control over widely dispersed elements operating over land, sea and air, in harsh and hostile environments. Deployment must suit high tempo operations and not be delayed waiting for terrestrial communications to be established.

Requirement

UHF TACSAT channel availability is limited to a small number of high priority users and is expensive. An alternative is needed that increases the number of channels using commercial SATCOM as a complementary service. It must provide users voice and data capability over tactical, theatre and strategic distances, utilising existing tactical radios. This will enable command and control and mission planning to be exercised from the air, in addition to maintaining communications with all forces during airborne deployment.

Solution

SlingShot® - Spectra's small, lightweight, and cost effective appliqué allows military and commercial radios to operate over commercial satellite L-band.

It provides low-latency voice and data connectivity to tactical radio networks and, optionally, a strategic headquarters. The aviation capability extends the SlingShot solution to multiple aircraft platforms, with the walk-on fit providing a simple and flexible installation option.

L-TAC™ - Viasat's I-4 communications network provides L-band to L-band, Beyond Line of Sight, communications from a global constellation of geostationary satellites.

L-TAC features

- Designed for the I-4 constellation
- Omni-directional Antenna
- Radio agnostic
- Utilises Narrow Beams, Regional Beams, Customised Beams
- Exceptional Size, Weight & Power characteristics
- UHF & VHF military and commercial frequencies
- HPW and Viasat proven up to 56kbps

L-TAC benefits

- Access for land, maritime and aviation platforms
- Proven worldwide connectivity
- Communications on The Move at speeds up to 220kph
- Keep existing technology and security
- Maximum flexibility in high tempo operations
- Excellent for sustained Communications On The Move
- Interoperability between agencies using different systems
- Reliable Data and Image Transfer

GLOBAL XPRESS

FOR GOVERNMENT AIRBORNE OPERATIONS

Applications enabled by Global Xpress

- Manned/unmanned Airborne
- Intelligence, Surveillance and Reconnaissance (AISR)
- Live full-motion video
- Operational theatre backhaul
- Tactical communications
- Video teleconferencing
- Command and control (C2)
- Situational awareness
- Battlefield information systems
- IP multicast
- Disaster recovery
- Emergency response

Global Xpress benefits

- Worldwide wideband coverage
- Seamless mobile roaming
- Interoperable with government military Ka-band systems
- Steerable beams for flexible network capacity
- Redundant terrestrial infrastructure
- Smaller, easy-to-use terminals
- Customized solutions

Purposely designed for mobility, Global Xpress delivers a secure, worldwide Ka-band network created for highly flexible government airborne operations.

Governments the world over rely on Viasat for mission-critical communications in some of the most volatile regions of the world. Built from the ground up with highly mobile government users in mind, Viasat's Global Xpress brings reliable offerings and capabilities for both manned and unmanned airborne operations.

USER REQUIREMENTS

Whether pursuing tactical objectives in theatre, connecting in-flight government officials to ground-based resources or conducting other airborne operations, users depend upon communication services which function just as well in the air as they do in the office.

Similarly, Intelligence, Surveillance, and Reconnaissance (ISR) unmanned aerial vehicles (UAVs) and other aircraft consume large quantities of bandwidth in order to transmit video and other images from sky to land. There is a significant push within the ISR community to deploy as many sensors as possible to maximize the effectiveness of intelligence gathering.

AUGMENTS EXISTING SYSTEMS

Global Xpress complements the Wideband Global SATCOM (WGS) system and providing uniform Ka-band coverage delivered as 'Satcom as a Service' via Military-Ka lease. It allows government customers to quickly and cost-effectively augment the WGS system whenever – and wherever – needed.

Ka-band is especially well-suited for optimal coverage and consistent performance along heavily travelled air routes. Viasat's Global Xpress Ka-band service is backed-up by our SwiftBroadband L-band over the I-4 satellite constellation. Thus further guaranteeing global portability and consistent performance with high throughput and industry-leading all weather availability.

REDUNDANCY AND SECURITY

The redundancy introduced into Viasat's ground infrastructure ensures robust terrestrial links to support government communications. Government users can trust that our secure network infrastructure provides reliable assured access that is built to meet cyber security best-practices and is supported by a dedicated cyber security team. Global Xpress commercial services and infrastructure are built to meet U.S. DoD 8500 Mission Assurance Category (MAC) level III/ National Institute of Standards and Technology (NIST) 800-53 Low Assurance standards. The Global Xpress secure enclave and network can be built to meet higher security standards requirements.

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