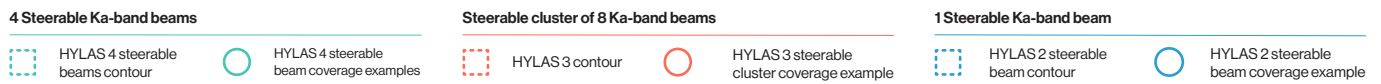
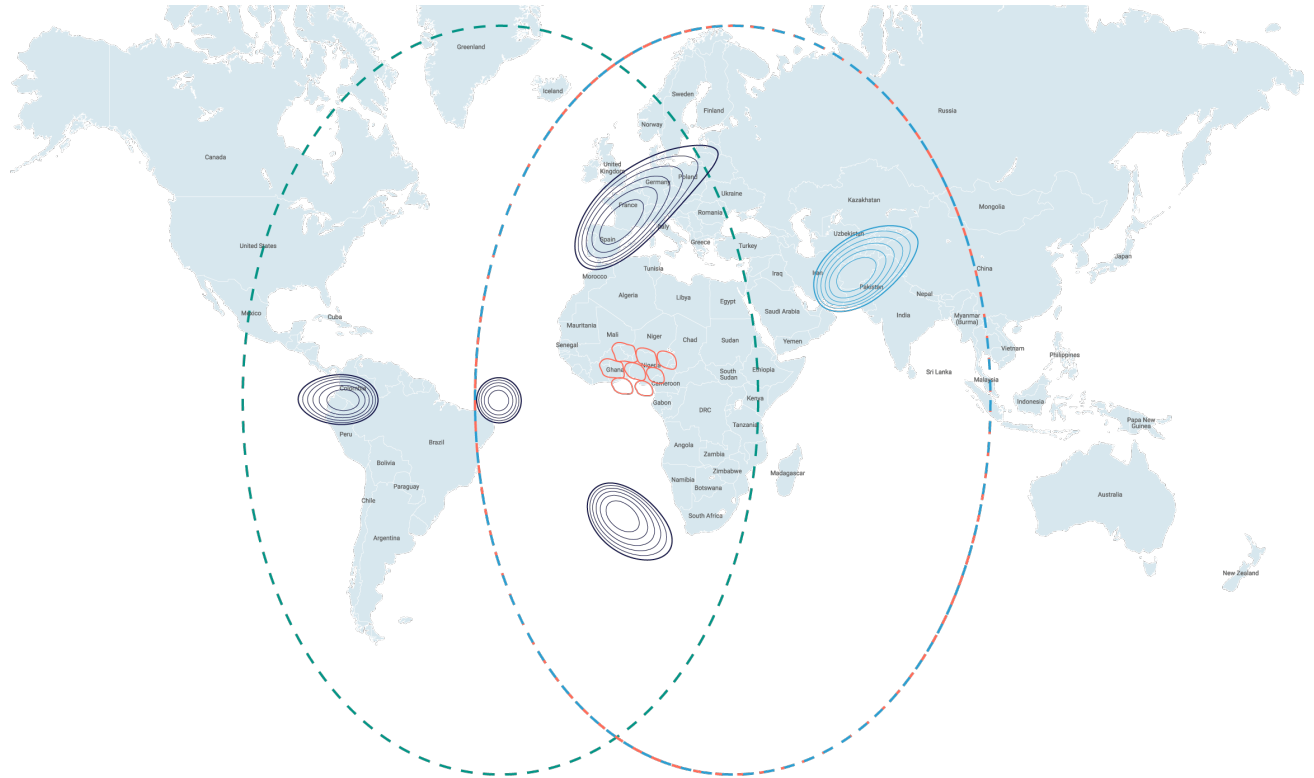




Steerable Capability Specifications

Steerable Capability Specifications

With 5 steerable beams and a steerable cluster of 8 beams, Avanti provides guaranteed and immediate high-throughput capacity and real-time tracking.



Avanti Steerable beams brings unparalleled flexibility and security

Guaranteed capacity anywhere & full control

- Anywhere within the satellite visible earth disk.
Full steering rights on Mil band User control via secure API
- Rapid manual steerable control, as a service
 - 2 minute SLA tracking at greater than MACH 1 speeds via API
 - 20 minute SLA for cross continental moves via API

Higher capacity

5-10 times more capacity than competing steerable on like-for-like terminals

Real-time tracking

- MACH 1 speeds
- 10 minute SLA for cross continental moves

Flexibility

- Option of gateway locations in the US and Europe
- Frequency switchable between civil and military Ka-band

Assurance

- Highly secure and resilient communication networks.
- Sovereignty of data (landing directly into a Government GES in the USA) Obfuscated positioning
- MOD compliant

Contingency

Primary bearers can be switched in extremis for contingent backhaul to provide operational resilience

Low SWaP Terminals

High strength, high efficiency beams generating the greatest capacity to the smallest terminals

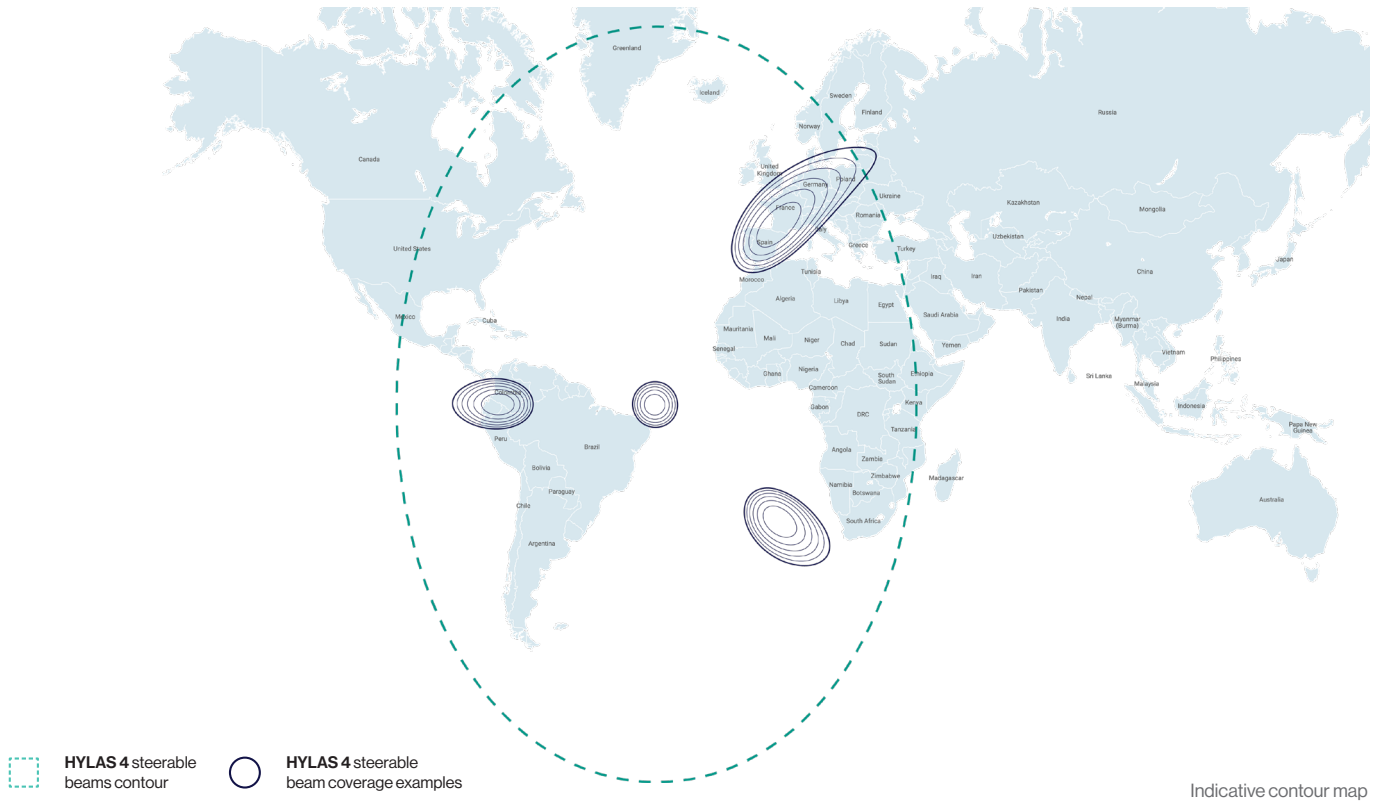
Lower cost

Competitively priced military capability – Efficiency due to focused spot beams which concentrate power and re-use spectrum



HYLAS 4 – Steerable Capabilities

HYLAS 4 has 4 steerable Ka-band beams that can be pointed independently anywhere on the Earth's surface, visible from 33.5° W, providing real-time tracking and full steering control. In addition, HYLAS 4 has BSS service capabilities.



HYLAS 4 Real-time Steering

Real-time tracking

- Maritime and airborne tracking with fully automated steering capability driven by the customer via API with 2min SLAs (up to the speed of Mach 1)
- Beams can be moved rapidly with a full horizontal and vertical traverse taking only 10 minutes for (inter-continental).

Full communication and control

- Airborne data link for strategic command & control with assured high-data rate with the USA
- On-route mission & command control for mission update
- C4ISR datalink
- Sovereignty of data - capability to have data landing directly in the USA

HYLAS 4 Steerable Beams Mission

Steerable Beam Performance

EIRP (at edge of coverage)	> 54.0 dBW
G/T (at edge of coverage)	> 7.0 dB/K

Steerable Beam Functionality

Mode of Operation	Gateway to User or Loopback
Steering Function	Steering to track objection in motion to Mack 1
Steering Commanding	Secure Customer Ticket or Secure API

HYLAS 3 – Steerable Capabilities

Launched on July 2019, HYLAS 3 is the world's first Ka-band steerable cluster of 8 high throughput spot beams, providing a large steerable footprint of capacity that can be pointed anywhere on the Earth's surface, visible from 31° E.



 HYLAS 3 contour  HYLAS 3 steerable cluster coverage example

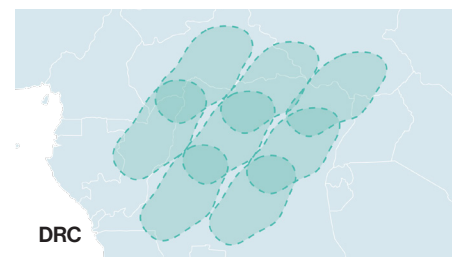
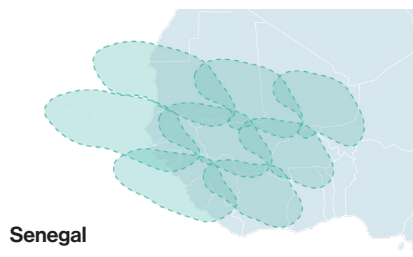
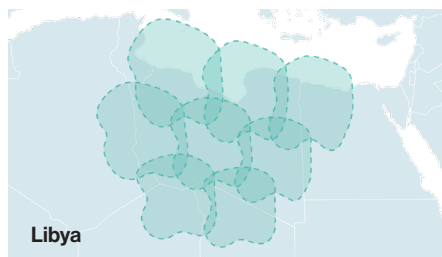
Indicative contour map

Unique Capabilities

HYLAS 3 provides over 4GHz of high throughput ka-band spectrum split across 12 channels on 8 beams. These beams operate as a cluster, providing a very large footprint, anywhere from the eastern tip of Brazil to the Eastern edge of Vietnam. Of the 12 channels, 4 are dedicated to government and military communications. The remaining 8 are for civilian communications.

HYLAS 3 has a unique independently steerable gateway beam, meaning that end-users have the option to determine where gateway traffic can land.

Cluster footprint examples:



HYLAS 3 Steerable cluster Mission

Beam Performance

EIRP (at edge of coverage)	> 58.0 dBW
G/T (at edge of coverage)	> 11.0 dB/K

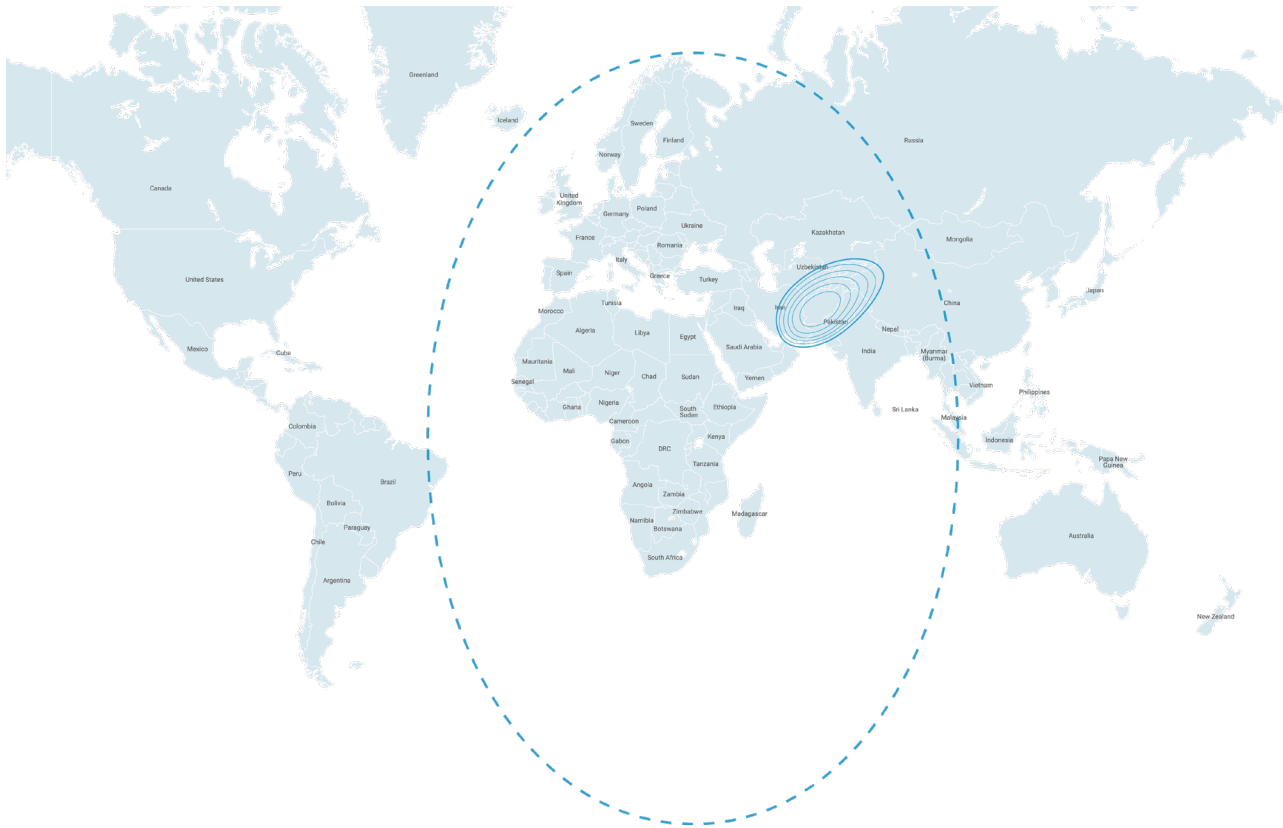
Steerable Beam Functionality

Mode of Operation	Gateway to User
Steering Function	Occasional Steering
Steering Commanding	Secure Customer Ticket

*Four defined User Beams support Civil/Govt communications simultaneously or individually

HYLAS 2 – Steerable Capabilities

HYLAS 2 has 1 steerable Ka-band beam that can be pointed independently anywhere on the Earth's surface, visible from 31° E.



HYLAS 2 steerable beams contour
 HYLAS 2 steerable beam coverage example

Indicative contour map

HYLAS 2 Steerable Beam Mission

Beam Performance

EIRP (at edge of coverage)	> 54.0 dBW
G/T (at edge of coverage)	> 7.0 dB/K

Steerable Beam Functionality

Mode of Operation	Gateway to User or Loopback
Steering Function	Frequent Steering
Steering Commanding	Secure Customer Ticket or Secure API



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