



# Optimised HTS Services (for Turkey)

[Name]  
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# About Avanti

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Avanti Communications is a UK based satellite operator serving EMEA through our 4 HYLAS satellites.

Created in 2007, \$1.2bn invested

Avanti exclusively uses Ka-band HTS systems delivering lower cost and higher throughput. We are differentiated on quality and flexibility

Market-leading products and services for the broadband access, carrier, government and wholesale sectors



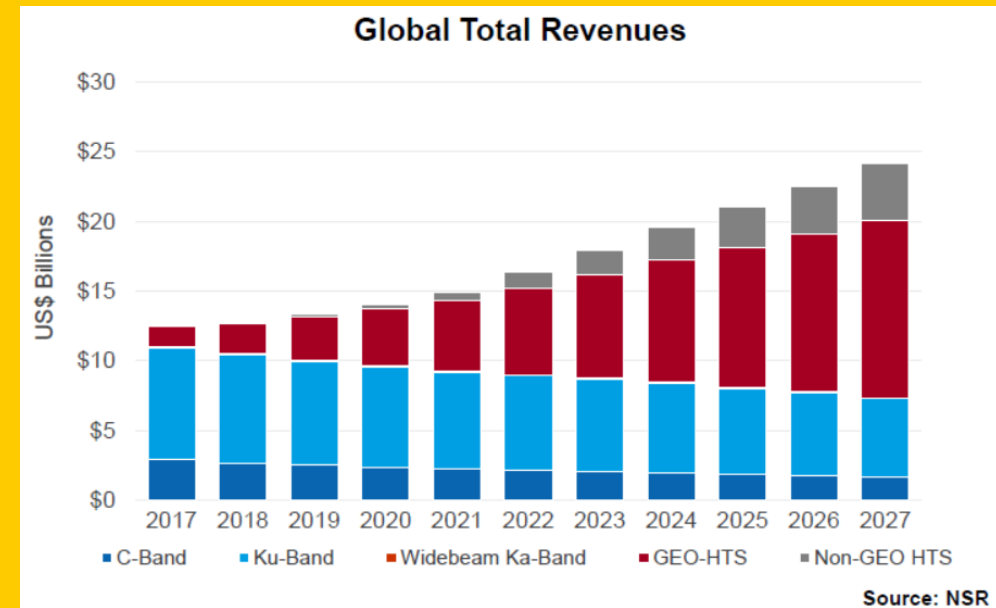
# The advantages of HTS are well established

Higher frequency bands, multiple spot beams, and frequency re-use mean that High Throughput Satellites deliver substantial advantages

- **Capacity:** >10x throughput per satellite
- **Speed:** vastly increased peak data rates
- **Cost:** dramatic reductions in cost-per-bit
- **CPE:** Small, easy-to-use VSAT terminals

Avanti was the European pioneer in HTS data services. Our choices were validated.

NSR predict that future growth will be dominated by HTS services, with data services replacing video broadcast.



*“HTS continues as the growth engine for the Satcom industry. Lower price points are activating elasticities and unlocking new markets”*

NSR, Global Capacity Supply & Demand 15<sup>th</sup> Ed (2018)

# ...but there are challenges for HTS networks

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**Focussed spot beams increase performance but...**

Each individual beam serves a smaller area meaning

- service coverage may be patchy within country
- capacity needs to be allocated in multiple beams for national services
- service management complexity can increase

**Frequency re-use frees spectrum for customers but...**

Requires dedicated gateway sites serving multiple beams meaning

- traffic is often landed outside country, breaching regulatory requirements
- expensive WAN connections to customers

**Ka-band frequencies offers increased bandwidth but...**

are more influenced by weather effect

- potentially reducing service availability

# Ensuring HTS Optimisation (for Turkey)

Avanti has worked hard to ensure HTS address these challenges for our customers



## Full Coverage

Our network is designed to offer 100% coverage of primary countries (eg Turkey) with overlapping beams



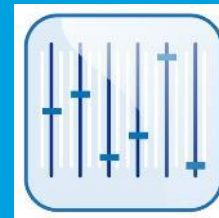
## Avanti Flex

Our network is designed to allow capacity sharing across smart-beam clusters in Turkey



## Site Diversity

Operating dual redundant gateways for our services (on-top of standard rain fade techniques) allows us to offer unmatched SLAs for HTS



## Avanti Cloud

Investing in a web based OSS provides our customers a simple service management interface abstracting network complexity



## In Country Gateway

All traffic is landed at our gateway in Konya to ensure national regulatory & security requirements can be met



# Preparing for the Future

Avanti believes converged satellite-terrestrial 5G services will open new opportunities. We are innovating to ensure that we are ready with services that...



...bridge the  
digital divide



...efficiently  
deliver UHD, AR  
& VR content



... deliver  
mission critical  
services



... support  
connected  
mobility

# Innovating for Satellite in 5G

**With MNOs – innovating around our carrier grade backhaul services**



*Building on our heritage delivering the first commercial 3G and 4G Ka-band backhaul in EMEA, and delivering 4G backhaul for mission critical networks for the UK emergency services.*

*Collaborating across the industry in R&D to build viable propositions for converged cellular-satellite 5G services.*



**Through Projects & Partnerships – R&D for technology & standards building blocks**



**Project Co-Ordinator**  
Sat5G is developing plug'n'play business, standards & technology building blocks for 5G backhaul



**Satellite Service Provider**  
for EC end-to-end 5G trials platform linking 5 European testbeds



**Active Contributor**  
to satellite standardisation study and work items in 3GPP, ETSI, CEPT and ITU



Thank You



# OUR FLEET

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## HYLAS 1

Our first satellite, launched in 2010, uses the latest Ka-band technology to deliver high speed, reliable and secure communications across the UK and Europe.

HYLAS 1 has a unique and flexible payload which enables us to change the bandwidth of its eight Ka-band beams whilst in orbit, maximising the satellite's efficiency.



## HYLAS 2

Launched in 2012, HYLAS 2 uses high throughput Ka-band technology to deliver ultra-fast communications across the UK, Europe, the Middle East, East and Southern Africa.

It has 24 fixed beams and one steerable beam. HYLAS 2 provides customers with the flexibility to address current and future markets across Europe, the Middle East, the Caucasus and Africa.



## HYLAS 2B

Provides additional Ka-band coverage of Germany and Poland, with extensive coverage of surrounding European countries and the Baltic Sea.



## HYLAS 4

The newest addition to the HYLAS fleet launched in April 2018 and doubles our capacity.

It has 64 fixed beams, extending our coverage to West and Central Africa, as well as additional capacity across existing regions in Africa and Europe.

The satellite also has four independent steerable beams able to address markets across Africa, Europe and Latin America.

# GATEWAYS

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We have dual-redundant Gateway Earth Stations (GES) across Europe, the Middle East and Africa to ensure no single points of failure and a 99.9% uptime service level.

- GOONHILLY (UK)
- BERLIN AND HAMELIN (GERMANY)
- KONYA (TURKEY)
- CYPRUS
- LAGOS (NIGERIA)
- JOHANNESBURG (SOUTH AFRICA)

We have planned future GES in Kenya and Tanzania to ensure we fulfil the requirements and needs of our customers.

We also operate Point of Presence (PoP) stations across EMEA.

- TELEHOUSE EAST LONDON (UK)
- GLOBAL SWITCH ONE LONDON (UK)
- INTERXION FRANKFURT (GERMANY)
- GLOBAL CROSSING AMSTERDAM (NETHERLANDS)
- ISTANBUL 1 (TURKEY)
- ISTANBUL 2 (TURKEY)
- LAGOS (NIGERIA)
- JOHANNESBURG (SOUTH AFRICA)





# OUR PRODUCTS

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We understand how important it is for our product offering to be aligned with the evolving demands and expectations of our customers.

Through our industry expertise and technical infrastructure, we have developed a range of satellite connectivity products that address the specific needs of internet service providers, mobile network operators, government services and other satellite operators.

Discover how we can help you thrive in your market: From simple market ready broadband packages through to end-to-end fully managed services, we have solutions to address multiple satellite connectivity needs.





## CONNECT

Market-ready broadband packages for customers to sell on to consumers and small businesses.



## ADAPT

Tailored connectivity solutions that enable customers to become virtual network operators.



## PURE

Raw bandwidth and hosting for customers who need to increase their coverage in the most time and cost-efficient manner.



## SERVE

End-to-end fully managed services for customers who want Avanti to manage the implementation and management of their connectivity solutions.