AGENDA

1. The HYLAS 1 System
2. Products
3. Application Areas of Interest
THE HYLAS 1 SYSTEM
The HYLAS 1 System Architecture
A single Ku European beam suitable for DTH TV, HDTV and Multicast services.

- **Uplink frequency bands**: 17.3-18.1GHz
- **Downlink frequency bands**: 11.7-12.5GHz
- **Service areas**: Western Europe

Up to eight Ka spot beams capable of serving broadband, interactive TV services as well as HDTV.

- **Uplink within**: 27.5 - 30.0 GHz
- **Downlink within**: 18.1 - 20.2 GHz
- **Service areas**: Western Europe
• Avanti underpins its partner brand - the partner’s brand goes to market, Avanti’s products make that happen technically and profitably.

• Avanti reduces a partner’s financial and operational risk - through our infrastructure investment, Avanti provides a capital free entry into the satellite market.

• Avanti enables its partners to fully manage their services - through our proprietary management software tools.

• Avanti provides ongoing account and marketing support to its partners - their success is our success.
OUR PRODUCT ARE BASED ON BEST IN CLASS VENDORS

- Customers
- Channel and Service Partners
  - Best in class vendor for consumer and business broadband and data services
  - Hosting Facilities for other Hub vendors
- People
- Processes
- Systems
- Market and Product R&D (Avanti Consulting)
AVANTI’S SATELLITE BROADBAND PRODUCTS

• Pure Bandwidth
  - Ku or Ka-band MHz space segment capacity
  - BSS Ku uplink from anywhere within Ku footprint (17.3-18.1GHz uplink)
  - Ku-Band nominally 33MHz bandwidth, multiple transponders
  - Ka uplink from anywhere within beam 2 (Southern UK)
  - Ka up to 250MHz forward channels and 120MHz return per beam

• Hosted Network Operator (HNO)
  - Ka-band MHz space segment capacity, including the use of Avanti uplink facilities
  - Partners free to choose their own equipment, including hubs.
  - Avanti ground station facility at Goonhilly, Cornwall, UK with 9.2M antenna; second diverse antenna at Lands End.
  - Colocation of equipment at Goonhilly data centre, diverse fibre ring to Telehouse East and LINX in London for Internet transit, interconnect & peering.
  - Available from 9 MHz to 54 MHz per beam.
• Shared Bandwidth Virtual Network Operator (SVNO)
  • An end-to-end wholesale broadband service using two-way broadband satellite technology across a shared network.
  • Includes customer premises equipment, space segment, internet connectivity at Telehouse East and management tools.
  • Available across Europe on HYLAS 1.
  • Available from 500kbps/128kbps to 10Mbps/2.5Mbps

• Guaranteed Bandwidth Virtual Network Operator (GVNO)
  • Guaranteed, un-contended bandwidth from multiple terminal sites to the internet.
  • Provides a completely flexible two-way IP data solution.
  • Includes customer premises equipment, space segment bandwidth, internet connectivity at Telehouse East and management tools.
  • Available from 2.5Mbps to over 45Mbps
• Applications
  • Consumer and small business broadband (internet access).
  • Corporate IP network extension (remote offices).

• Benefits
  • Service packages are set and managed by Avanti, while still providing the partner with monitoring and training tools.
  • End-user pricing is set by the partner.
  • Small commitment with a wide range of service available for consumers and professional broadband users.
• Applications
  • Mixed network traffic (including BIC).
  • Occasional use applications.
  • Corporate multi-site data networks.
  • IP backhaul.
  • Remote monitoring (SCADA).

• Benefits
  • Avanti’s most flexible professional product, allowing the partner to simultaneously support a wide range of applications including IP networks, consumer and SME broadband applications, occasional use and BIC.
  • Partners set and manage their own pricing and SLAs, supported by Avanti’s management tools.
Avanti’s business internet continuity (BIC) products provide a 100% diverse back-up route for critical data services in the event of the failure of fixed line services. The product range includes:

- **Internet Continuity** - A fully diverse two-way data connection to the internet through HYLAS 1 and Avanti’s ISP.

- **Office Continuity** - A globally patented solution which automatically takes over when a primary fixed line connection fails, Office Continuity restores connectivity and repropagates IP addresses instantly.

- **Enterprise Continuity** - A low cost two-way satellite back up for private networks.
• **Avanti responsibilities**
  – Satellite control
  – Frequency planning and payload resource management
  – Interference monitoring
  – Network management
  – Terminal commissioning support (for VNOs)
  – Terminal monitoring
  – Alerting
  – Second line support

• **Partner responsibilities**
  – Customer acquisition
  – Terminal installation to agreed accuracy
  – Specification and implementation of service levels
  – First line support
  – Billing
Avanti has particular interest in:

- Techniques/services for enhancing domestic broadband services;
- High data rate Ka-band terminals including wide band front ends;
- Security applications (static and mobile);
- Applications requiring high return channel utilisation (e.g. SCADA);
- High volume Business to Business applications (e.g. media distribution) at Ku or Ka bands.
- Business Continuity and other applications that make satellite broadband applicable to every business, not just rural ones!

Of course, proposals do not need to be limited to these areas!!

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OTHER IDEAS

• **Space for Mobile Networks**
  • Satellite overlays for multicast of data and/or video for mobile users
  • Automatic tools for selection of satellite vs. mobile networks for data transport

• **Space for Transport**
  • Coastal and inland waterway applications
  • Broadband Internet for passengers (e.g. trains, long distance coaches)
  • Traffic monitoring/management (e.g. highways, railways, airports)

• **Space for Safety and Security**
  • CCTV and remote monitoring (e.g. industrial plants, isolated airfields)
  • Border monitoring
  • Environmental monitoring and alarm via sensor networks (e.g. earthquakes, landslides, fires)
  • Utility network management (e.g. power grid, oil and gas pipelines)
  • Smart sensors/connected home
  • UAVs (e.g. patrolling over remote areas)

• **Space for Consumer Media**
  • Highly portable Satellite News Gathering
  • Hybrid broadband/TV services for rural areas
  • Digital cinemas (2D and 3D live events such as concerts, theatre and sport)

• **Space for Government**
  • Professional eTraining for Public Administrations (e.g. electoral cycle)
  • Information channel delivered in cached mode via satellite (e.g. in post offices)
  • Internet kiosks with WiFi access point for isolated locations

• **Space for Health**
  • Telemedicine for passengers (e.g. ships, civil aviation, trains, coaches)
  • Telemedicine for humanitarian relief and peace-keeping
  • eHealth for remote communities (e.g. first medical opinion, primary and secondary prevention)

• **Space for Education**
  • ICT support for schools in developing and/or isolated areas
  • eLearning and eTraining (teaching of teachers)
  • Collaboration networks among remote schools

• **Validation platforms for novel technologies**
  • Automatic beam switching techniques for terminals moving between beams
  • Accurate satellite tracking
  • IP Acceleration techniques
  • Self install kits for self installation of consumer terminals
  • New protocols over Ka-band
  • Specific areas of interest / research priorities

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For those organisations interested in participating further:

- Establish an NDA for more detailed information of relevance to a proposal;
  - pricing for VNO, raw MHz, etc;
  - Service level specifications;
  - details and pricing for terminals;
  - detailed coverage info, cost of terminals, service levels;
  - Typical commercial terms and conditions.
THANK YOU

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