



Highly Adaptable Satellite (HYLAS): A Platform for Advanced Broadband Applications

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Background

Screenmedia Product – Core business

TV channels playing on large screens at the point of sale in shops, malls or bars

Enables retailers to:

- Entertain customers
- Promote brand and products
- Generate advertising

revenues



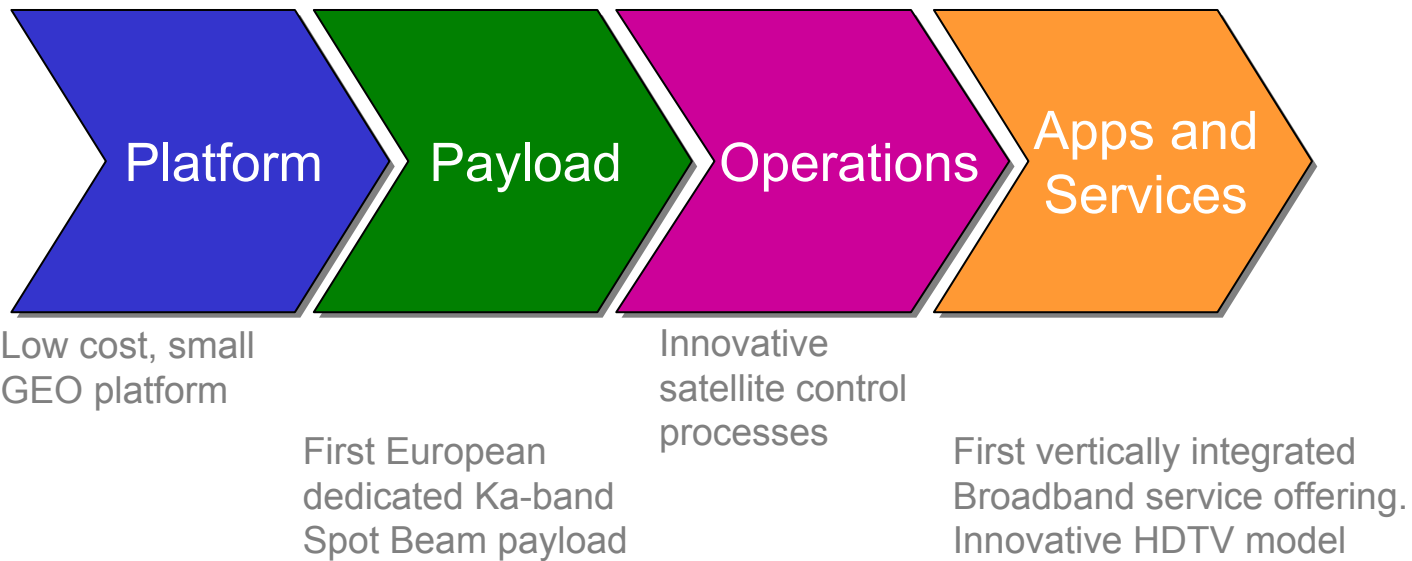
Research and Development Record

- Avanti has a strong relationship with both:
 - British National Space Centre (BNSC);
 - European Space Agency (ESA).
- Avanti has a strong reputation for utilising government R&D funding and producing commercial products and services.
 - Core “Screenmedia” product;
 - Satellite broadband for non-metropolitan regions.
- Continued success has enable us to now access significant governmental R&D support for a major satellite initiative – the Highly Adaptable Satellite (HYLAS).

Mission Overview

Mission Objectives

- HYLAS: the Highly Adaptable Satellite – a revolutionary new satellite delivering new broadband and broadcast services to Europe.
- HYLAS will deliver innovation across the value chain to drive down costs.



Multi- Mission Strategy

- HYLAS will deliver a flexible combination of:
 - Broadband access services;
 - Ka-Band Interactive TV return channel;
 - Ka and Ku band HDTV;
 - Ku band multicast overlay and/or SDTV broadcast.
- HYLAS is a multi-mission, multi-media satellite.



Mitigates Risk

Regulatory Standing

- Submitted expression of interest to utilise the UKDIGISAT filings at 33.5° West for broadcast and multimedia applications;
- Ofcom authorised Avanti to utilise the UKDIGISAT 1 & 2 filings on 1st September 2005.
 - Avanti’s application “provides the full evidence required about the ability of the operator to bring the spectrum into use within the required timeframe and to meet all of the other requirements set out in consultations and statements made by Ofcom and the previous regulator.”
- A supplemental Ka-band filing was submitted for this location to enable optimised broadband services to be offered.

Market Coverage



Satellite Platform

Satellite Platform

- ISRO I-2K Platform – 22 years of in-orbit heritage:
 - launch mass 2300 Kg
 - 2 KW Payload Power
 - 200 Kg payload
 - 15 year lifetime



Payload

Key Requirements

- Bring Ku-band BSS band into use
- Establish Ka-band spectrum rights
- Adjust in-orbit payload resources between bands and beams to optimise service delivery
- Support a multimedia service portfolio
 - Broadcast, Broadband and Interactive TV

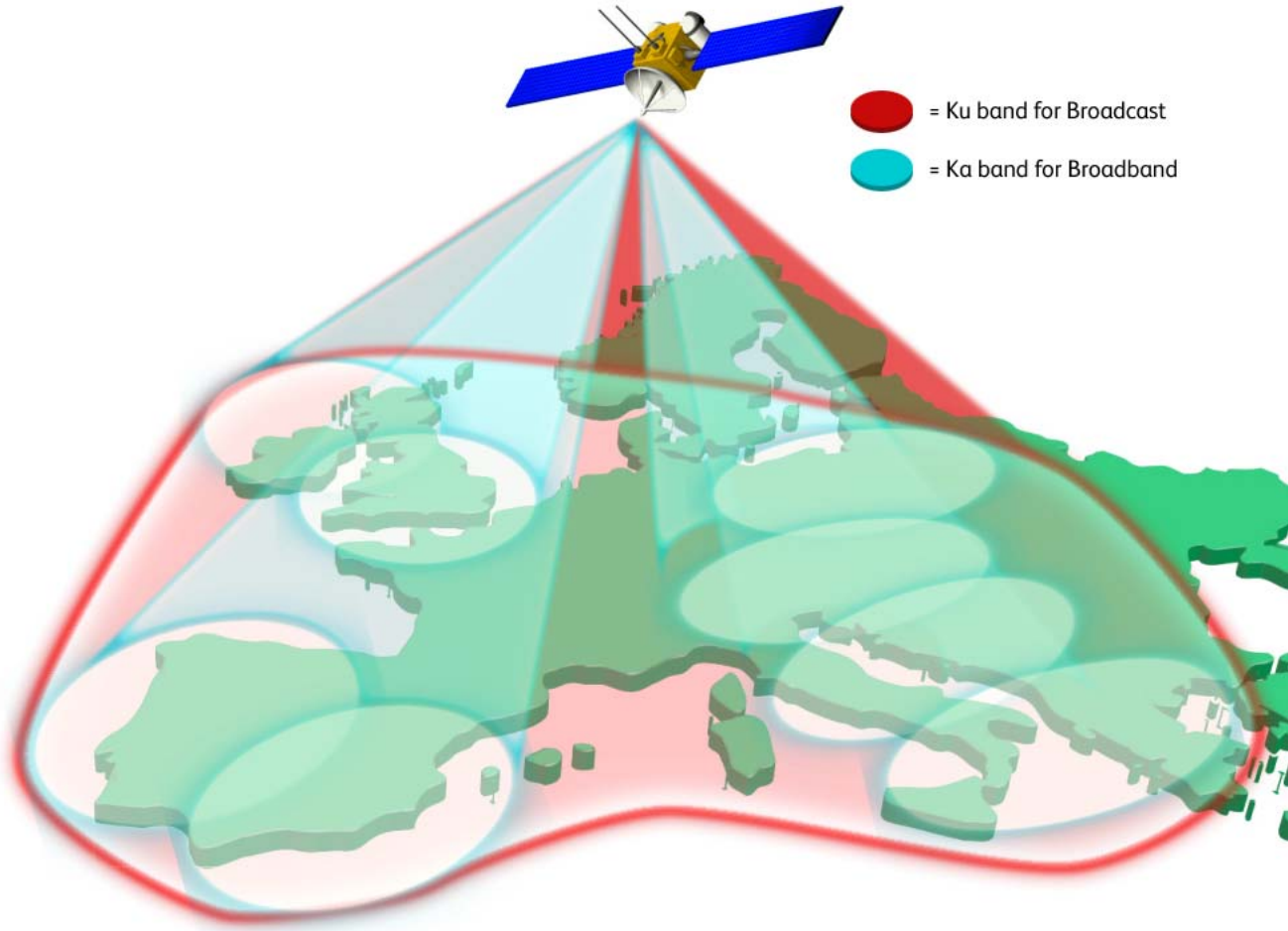


Need a low mass/power payload with flexibility to *assign frequencies, bandwidth and power*

Mission Characteristics

- Coverage
 - Ka band: 8 spot covering UK/Ireland (2), Eastern Europe (2), Spain/Portugal (2) and Italy/Greece (2)
 - Ku band: 1 European Beam
- Frequencies
 - Ka-band: Uplink 27.5-30.0GHz, downlink 17.7-20.2GHz
 - Ku-band: Uplink 17.3-18.1GHz, downlink 11.7–12.5GHz
- Polarisation: Ka Circular; Ku Linear
- 1 or 2 Gateways: Selectable locations
- Capacity
 - >1.25 Gb/s throughput at Ka-band
 - 2 to 4 Ku-band 33 MHz transponders

Composite Satellite Coverage



Ground Segment and Applications

Service Offering

Commercial Offering

1. Broadband Services

- basic xDSL (512, 1, 2 Mbps and Symmetrical)
- "Broadband Environment"

2. Broadcaster in a Box (BIB)

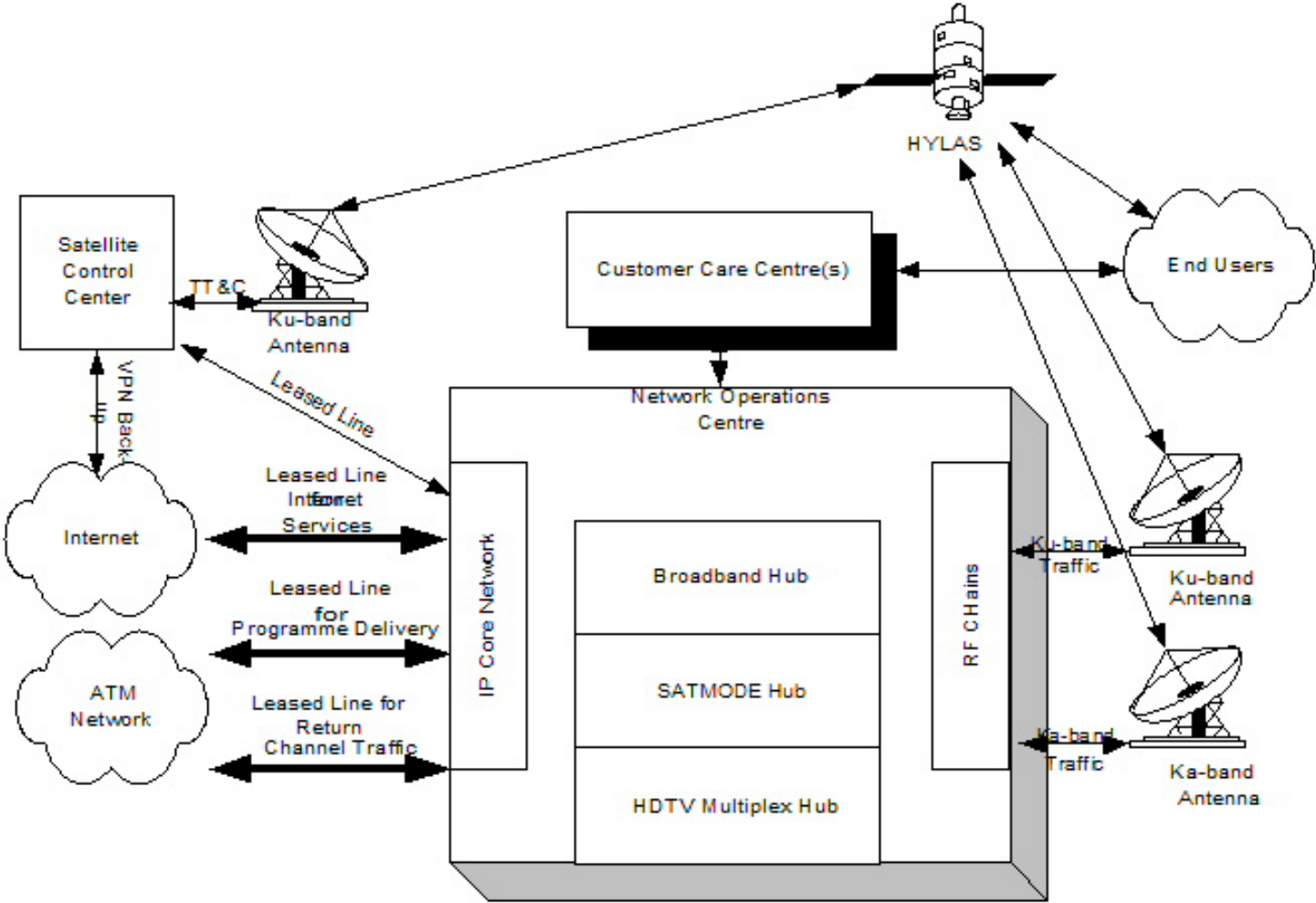
- HDTV
- DTH
- iTV
- multicast media distribution

3. Triple Play Offering

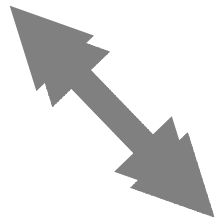
Demonstration Suite

- "Broadband Environment"
- Novel HDTV models
- SATMODE iHDTV
- multicast media distribution
- triple play

Ground Segment Architecture



Broadband Environment



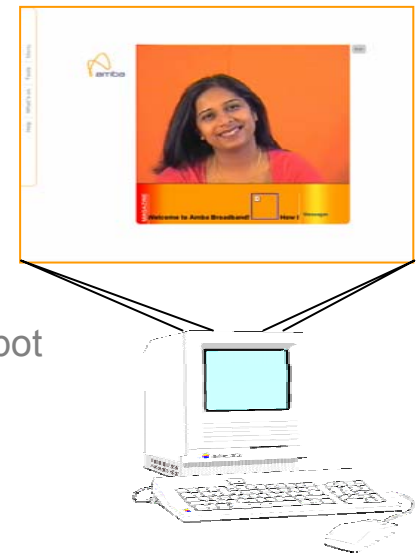
Variable, bursting forward and return
– up to 20 Mbps / 3 Mbps?



Cached content and local applications hosted at WiPOP

Services and applications accessed through video rich interface

Up to 54 Mbps in local hotspot



Demonstration Apps – Novel HDTV Models

- HDTV will become a major driver for satellite capacity:
 - Major content providers are committed to HDTV output;
 - Large screens are becoming prevalent;
 - In the US, Spaceway F1 and F2 and the DIRECTV 10 and 11 will deliver over 1600 HDTV channels at Ka-band.
- Current operators are simply planning to repeat existing broadcast models to maximise bandwidth use, e.g. Sky Box Office:
 - 40 movies per month on 60 channels
 - 80 hours of programming but 43,200 hours of broadcasting.
- HYLAS will demonstrate use of overnight Ka-band capacity to deliver HDTV content to PVR STBs.

Demonstration Apps – Niche Broadcasting

- EU is proposing a deadline of 2012 for DTT switchover.
- UK Status:
 - 25% of households currently receive poor or no DTT signal;
 - 400,000 households unable to access DTT after switchover.
- France Status:
 - 80% coverage planned
 - Analogue transmissions to continue for remaining 20%
- Spain Status:
 - Analogue switch off planned for 2008;
 - Euro 150M to cover 80%. Further Euro 350M to cover remaining 20%.
- Italy Status:
 - 70% of provincial capitals covered by 2005.
 - Areas such as Marche, Abruzzo and Sardegna
- Coverage of DTT is expensive due to large number of transmitters required.
- HYLAS opportunity to provide a satellite replication of DTT transmissions.

Current Status

- Avanti secured 34 MEuro funding from ESA in Dec 05;
- Avanti has raised £50M to fund the remaining satellite, launch and insurance costs.
- Platform and payload development underway.
- Launch planned for 2008.
- Plans underway to position an existing satellite at Avanti's orbital slot in Q1 2007.
- Broadcast and broadband services will commence on this initial satellite.