Satellite Broadband & Other Applications… a New Way

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Agenda

- Introduction to Avanti Communications
- What’s new?
- Avanti technology Impact on Pricing
- Where satellite works - applications
- Case study: Scotland
- Integration with terrestrial networks
- Consultancy and current projects
- Questions
Avanti is an innovative UK satellite operator using latest satellite technology to meet a growing market

- 12 years experience in satellite industry and listed on the London Stock Exchange (Enterprise value £100m+; June 2008)
- Launching first European satellite, HylasOne, in 2009 – 3 more to cover EMEA & Asia by 2012
- Heritage of commercial delivery to BNSC, ESA and EC R&D projects
- Operating services for customers with satellite broadband, in-store TV and digital signage into Europe
**SPECIFICATION**

- Very high power (62dBW) Ka & Ku band satellite = 2-3 times more powerful than any other satellite over Europe
- Up to 3GHz capacity
- 15 year lifetime

**BENEFITS**

- Higher power = reduced customer premises equipment (CPE) requirements = lower costs
  - 66cm two-way antenna / 45cm receive only (broadcast)
- Higher power = higher data rates
  - 2W amplifier = >2Mbps (66cm)
- Frequency re-use = greater bandwidth resource = lower bandwidth costs

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Almost all value chain cost items are reduced to provide a more competitive offering to end users.

More attractive pricing increases demand thus reducing average costs per customer.

Satellite antenna and modem cost reducing to approx. EUR 200-300 by Summer 2009.
Applications - VNO

- VNO (Virtual Network Operator)
  - Key success factor – simple operating system & processes
  - Ubiquitous network with full network control and visibility
  - Use standard OSS software that can be used on any platform

Installation

Network overview
Applications: Business Internet Continuity

- Patents filed by Avanti on this service
- Instant cutover on terrestrial circuit failure
- No change in IP addresses need be communicated to web servers
- Affordable for customers
- One “install” at ISP enables all customers
Applications

- Business continuity
- Corporate data networks
- Content delivery networks – mobile TV
- GSM / mobile network backhaul
- GSM / Telco network back-up
- DTT broadcast network back-up
- WiFi / WiMax overlay network
- Triple play DTH service

Not just a rural solution
How can an ISP / Telco get started?

- Buy a VNO service for smaller network / number of users; or
- Buy an Internet trunk route in the sky on HylasOne with capability of packaging for direct access to end users
  - Capacity can be shared across all users in footprint
  - Satellite OPEX costs of about €6/user/month
Case Study: Scotland

- Working with the Scottish regional government
  - Objective: Maximise broadband coverage in Scotland
  - All exchanges now enabled with DSL but still thousands of people without broadband access
  - Funding made available for reaching ‘not-spots’
  - Avanti to roll-out services in conjunction with Scottish government
  - Broadband for €25 per month (hardware and installation funded by Scottish government)
- And now Northern Ireland...
Terrestrial & Satellite together

- Rapid roll-out across wide areas such as Europe
- Audience potential of 800 million across Europe in a single beam
- Cover areas that are not cost-effective to be connected via fibre or other terrestrial means – research suggests about 11% (24m) of European (EU-27) homes and SMEs will not be connected by 2009
- Why spend €100millions on terrestrial infrastructure to meet these geographically diverse and remote sites when satellite provides an immediate solution at a fraction of the cost
Terrestrial & Satellite together

- Complete diversity for mission / financially critical applications
- Satellite can provide business continuity for interruptions to terrestrial networks
- Avanti has launched a business continuity product (only 3 packets dropped during successful tests with major global ISP)
- Satellite can offer fast start-up and redeployment
- Ideal for terrestrial operators who need to connect a customer quickly (e.g. within 48 hours) when a local loop could take up to 60 days – the satellite terminal can then be easily removed and sent to another location
- Now we are exploring network attacks e.g. Denial of service
Terrestrial & Satellite together

- Overlay network to avoid primary network congestion
- Avoid congesting networks with streaming, broadcast and large file deliveries to allow terrestrial networks to keep primary networks for mainstay business that earns the most money
- Broadcast delivery via satellite
  - Let satellite do the ‘heavy lifting’
- Satellite delivers to multi-million audiences by using the same bandwidth once
Benefits of new satellite services

- Very small, low cost (and continuing to reduce further) antenna operations
  - Only 66cm VSAT terminals required
  - Only 45cm DTH antenna

- Rapid deployment / redeployment
  - Potential to have site operational within 1 day of order
  - Equipment can be easily dismantled and redeployed at another location
  - Auto-deploying antenna (vehicle mounted or stand-alone) can have communications running within minutes of arriving at a scene
    - Ideal for disaster recovery situations

- Universal equipment and cost
  - open standard & same cost wherever in the footprint

- Bandwidth flexibility to kbps level and asymmetric
  - Use exactly the bandwidth you need (e.g. 420kbps by 150kbps) – not restricted to Telco bandwidth (e.g. 64kbps, E1, etc.)
Benefits of new satellite services

- Share bandwidth over all sites
  - bandwidth in the sky can be shared among all sites on a network and traffic priorities set for individual sites
- Already broadcast (multicast) capable by design
- Complete diversity to terrestrial networks
- Not reliant on third party networks, which can be subject to congestion and multiple SLA’s with varying performance measures and technologies
  - Satellite networks always follow the same route – up and down!
Avanti’s Consultancy Group performs externally funded consultancy and research projects which:

- encourage the development of new applications that will utilise Avanti’s communications network(s)
- create opportunities for the roll-out of rural broadband networks
- enhance the technical capabilities of Avanti’s networks
- give Avanti a better understanding of potential markets, applications and services
- lead to the development of new applications and services

Satellite communications experts, but technology agnostic...
Avanti Consultancy Projects

Location Based Services / Transportation
- SISTER (DG Enterprise)
- VEER (Technology Strategy Board)

Disaster / Crisis Management
- TANGO (DG Enterprise)
- CHORIST (DG INFSO)
- Satellite Based Alarm System (ESA)

Satellite Broadband
- Rural Wings (DG Enterprise)
- Broadband on Trains (ESA)
- Third World Capacity Building (ESA)
Any Questions?

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