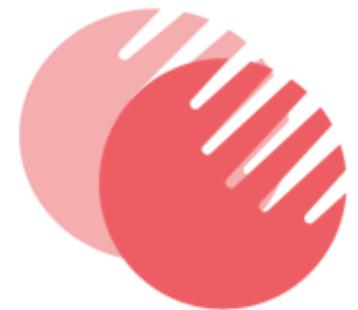# Satellites: What they can do

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21

Satellite and the Telehealth Connection
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🔴 Privately owned, fully independent advisers since 1983 on all aspects of satellite communications and observation

🔴 Hundreds of government agencies, investors, satellite service providers, operators and manufacturers advised on market trends, business plans and technical feasibility

🔴 30 consultants in Paris, Toulouse, Montreal, Washington, Singapore, Hong Kong and Tokyo

🔴 Comprehensive research publications and databases

🔴 More at www.euroconsult-ec.com

... and see you in Paris (and online) on November 9-12 for our 24th

WORLD SATELLITE BUSINESS WEEK

Telemedicine and satellites

- Potentially very high payoff

  - Access to care in rural areas can mean multiple days on the road, at substantial cost and risk
  - Once in town, care is still far from a sure thing
  - As a result situations are left to deteriorate until too late
  - Telemedicine can help but depends on Internet access
  - Satellites can bring Internet access everywhere. So?

- Far less developed than could be expected

  - India leads the field with ~4,000 sites and dozens of trucks and buses
  - Scattered charity projects, NGO networks and kiosks and containers
  - Rudimentary implementations even on ships and airplanes

- Why?

  - The stigma of being a high-end solution for the rich doesn't help
  - Widespread perception that bandwidth is not available and too expensive
  - Government money seems to flow much faster to schools than hospitals
  - Too many solutions
  - Training and maintenance needs are still not trivial
  - These problems have been resolved in other sectors

Euroconsult

Quick introduction to the satellite industry

- Born 1965; reborn several times

- ~$35 billion of annual revenue from capacity and telecom services

- ~60 satellite operators, over 300 equipment manufacturers, ~1,000 service providers

- Quick-response, 24/7 organizations, many with global operations

- Highly competitive and used to fight for business

- Best in remote, rugged, uncomfortable places; rarely misses a war or a disaster

- Good at system integration and partnerships; strongly invested in portable solutions, mobility, video compression

- High level access to governments worldwide; supplies critical services on most ships, planes and oil rigs
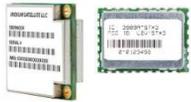
The toolkit

small ➝ big

IoT devices	phones	"broadband" terminals	flyaways	on-the-move	VSATs	earth stations
• bytes to kilobytes • $10's to $100's • $5-100/ month • plug into any sensor you like and send the data • many specialized solutions	• kbps • $100's • ~$1/minute • phones for where phones don't work • 4 operators	• kbps to Mbps • $1000's • ~$5/MB • not really broadband, but highly portable • 3 main operators	• Mbps • $1000's to 10,000's • airtime resold from capacity at ~$500/Mbps/ month • compact, quick-deploy, often fit in the overhead bin	• Mbps • $1000's to 100,000's • $10's to $10,000's per month • vehicle-mounted; vast efforts being made on size, weight and efficiency	• Mbps to 10's of Mbps • $100's to 1,000's • $30/month consumer plans to $1,000's • fixed equipment; can relocate, but not easily • can be shared!	• 10's to 100's of Mbps • $100,000's to millions • nodes for major networks which the end-user normally doesn't have to think about

Some of the trends

Constellations
- Some already exist
- New systems promise fast, ubiquitous, cheap broadband
- Could be very nice but still a way to go; life goes on; check back in a year

Community WiFi
- Match satellite capacity at $2/GB, cheap VSATs, $30 smartphones and $50 hotspots
- Fast growing in Latin America; Africa seen as the logical next stop
- Needs an ecosystem and government support, but both are starting to happen

Cloud solutions
- Real effort by service providers to host services in the cloud and adopt APIs
- Easier said than done, but generally no choice
- Can only help in making sure services are tailored to customer needs

Cyber
- Satellite networks are still most secure than most
- Much greater awareness that they're not invulnerable either
- Backdoors are being closed and partnerships made, but not everyone is a pro yet