



Satellite Communications: An integral part of any modern Emergency Services Networks

Eutelsat Government
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Why is Satellite important?

- ✓ **When disaster occurs on earth, satellite communications continue to operate**
- ✓ Where the topology of the terrain restricts terrestrial communications satellite can often be the only means
- ✓ When the economics do not justify the build of terrestrial infrastructure satellite can provide a cost effective back haul
- ✓ When there is a requirement for high bandwidth on the move or pause satellite can provide Gb/s
- ✓ When privacy and information security are a priority satellite can provide a dedicated point to point link
- ✓ When there is a requirement to deliver common information to multiple sites in real time, satellites are best for point to multipoint

Disaster Response & Recovery

- ✓ **Tsunami Indian Ocean (2004)**
- ✓ **Hurricane – Katrina (2005)**
- ✓ **Earthquake – Haiti (2010)**
- ✓ **Tsunami – Fukushima Nuclear Power Plant (2011)**
- ✓ **Flooding – Italy (2014)**
- ✓ **Earthquake – Turkey (2014)**
- ✓ *Satellite provided rapid network restoration*



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Terrain Topology

- ✓ Gaps in terrestrial coverage (Tetra, LTE)
- ✓ Mountain Regions
- ✓ Beyond Line Of Sight (BLOS)
 - Broadband extension to $\mu\Lambda$ networks



✓ *Satellite extends the network not only for voice but for*

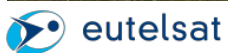


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Costly Terrestrial Networks

- ✓ **Too costly to install terrestrial fibre or cable for network interconnect**
- ✓ **Back haul between sites**
- ✓ *HTS satellite can provide connection of 100Mb/s multiples*



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Communications on the move



- When high bandwidth is required in nomadic or in temporary situations
- UAVs for border control
 - HD video surveillance
- Ad-Hoc or special events
 - Eg London Olympics 2012
- Evolving technology permits portable high capacity terminals*

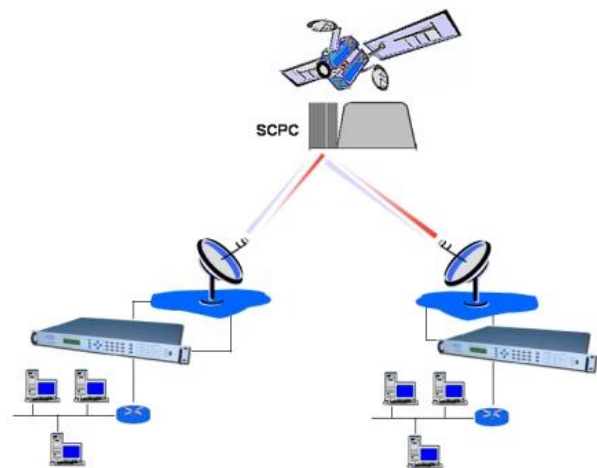


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Privacy & security

- Point to point encryption isolates information from the network



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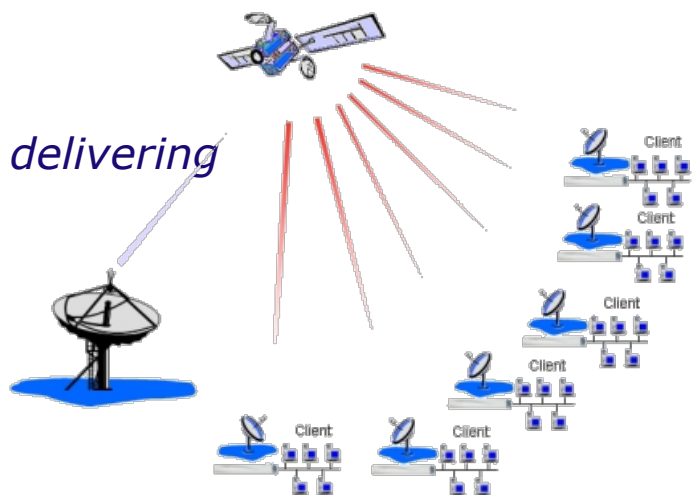
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Multicast

- When there is a requirement to distribute the same information to multiple sites for training or group communications on a multi regional or multinational basis.

- Video broadcast

- Nothing beats satellite at delivering information to the masses*



Issues

- ✓ **Availability**
- ✓ Interoperability
- ✓ Economics

Availability

- ✓ A common complaint is “...**when I need satellite capacity, it is overbooked!**...”
- ✓ Demand is high in times of crisis
- ✓ PPDR sector need:
 - Assurity of availability
 - Assurity of the ‘right’ capacity
 - Assurity of interoperability
- ✓ A cooperative approach is required
 - One idea.....
 - Each national member contributes its share of the annual lease charge
 - Usage charges throughout each year are redistributed to all members
 - Dedicated capacity at best price

Issues

- Availability
- Interoperability**
- Economics

Interoperability

- ✓ **“ ..it is not just the satellite capacity but the terminal equipment too...”**
- ✓ Different PPDR operators have different satellite access equipment – should be standardised
- ✓ Network interfaces and protocols should be agreed upon to ensure seamless integration into terrestrial network infrastructure – LTE, Tetra, Tetrapol
- ✓ Terminal equipment and antenna are smaller and lightweight

Issues

- Availability
- Interoperability
- Economics**

Economics

- There is a common misconception that “...**satellite is too expensive..**”
- The cost per bit has been falling year on year in real terms
- Ka-band offers Mb/s prices similar to terrestrial
- The cost of terminal equipment has fallen sharply
- There are a number of ways of obtaining best value if satellite is considered as an integral element for the long term

Conclusion

- ✓ **Satellites are an essential element of your network design**
- ✓ **There are a number of models that could be used to ensure assured availability at that right price**
- ✓ **Technology continues to develop to enable smooth interoperability**
- ✓ **The PSCE could take a leading role in creating a cooperative resource management centre**



Thank You



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