Satellite Communication for Disaster Management, Recent Trends

Ashok Bharti
Country Head, India

www.inmarsat.com
ashok_bharti@inmarsat.com

Contents

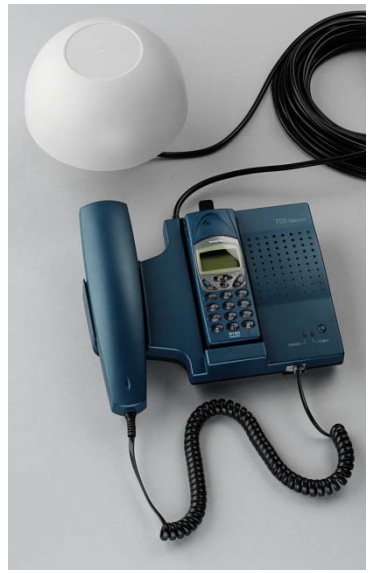
- Why mobile satellite communications
- The technology
- Disaster anticipation
- Disaster recovery – the case of TSF
- Summary

Why mobile satellite communications

- *Terrestrial infrastructure is 1st casualty – landlines out of service, mobile reduced, base stations flooded, lack of power/fuel, lack of redundant pathways, interoperability issues, etc.*
- *VSAT – Cumbersome, difficulty to reach hard hit areas, coverage limitations*
- MSS – Anywhere, anytime
- Full range of solutions – voice, high-speed data, video
- Full range of portable and mobile devices

The technology

I-4s, BGAN, SPS, mini-M

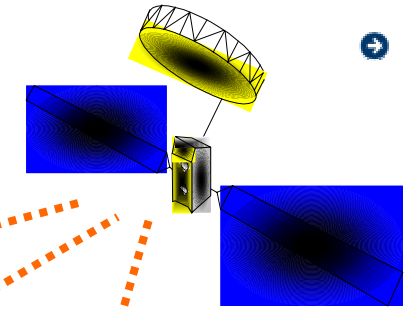


Key benefits

Global	• Network coverage wherever you go • Use the same device worldwide
Simultaneous voice & broadband data	• Accessible through one device • Up to half a megabit data rates (for send or receive) • Plus guaranteed data rates on-demand • Replicate your broadband office environment on the move
Portable	• Service accessible via small, lightweight (1-2 Kg incl. bat & ant) devices
Flexible	• Supports IP and circuit-switched applications • Solutions to suit single users or small teams
Reliable	• Dependable, peace-of-mind communications • Robust satellite terminals • 24/7 customer service
Easy to use	• Same user interface across all terminals • No technical expertise required
Secure	• Secure access to VPNs • Supports all major encryption standards.
Competitively priced	• Competitive with other MSS operators • Significantly cheaper than international cellular roaming

The technology

GSM Pico-Cell

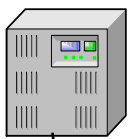


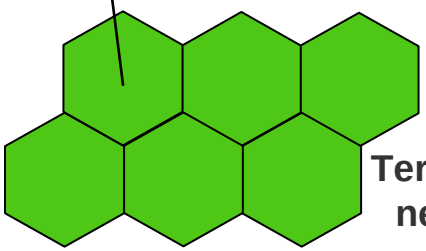
- Provides a cell of between 1-10km diameter depending on terrain and antenna configuration
- Supports up to 28 concurrent GSM calls

Terrestrial GSM switch

Mobile pico cell with COTM reachback

Pico cell and static BGAN reachback





Terrestrial network

BGAN Hotspot

inmarsat

Disaster anticipation

Tsunami Warning Centers

- Tsunami Warning Center detects tsunami activity and issues alert
- Alert is broadcast, free of charge, and instantly to all Tsunami Watch Centers and ships around the region. Broadcast takes place via Inmarsat-C or mini-C satellite terminals
- Tsunami Watch Centers take necessary measures for evacuations
- Example: Pacific Tsunami Warning Center
  - http://www.prh.noaa.gov/ptwc/
  - http://www.bom.gov.au/tsunami/
  - http://www.communitytsunamiwarning.com/

Disaster anticipation

UK – Cabinet Office, Resilient Telecommunications Strategy and Program – Wave 2

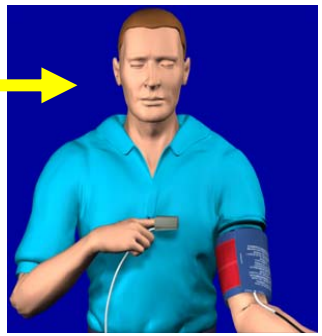
- 97% of 670 Local Authorities in England & Wales chose BGAN terminals for disaster/emergency response
- Replacement for ageing and defunct terrestrial ‘Emergency Communications Network’ (ECN), and in addition to HF, VHF, TETRA, GSM and PSTN
- Primarily for voice, but will be used for data (maps, photos, email, etc)
- Roll-out expected to be complete by Q2 2008
- Significant commitment to training by the ISP – users committed to regular testing and use to maintain competency

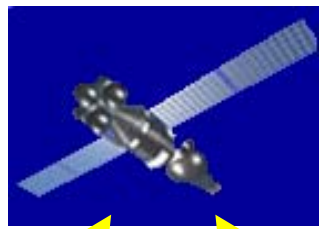
Disaster recovery – Applications

- Situational awareness
- Damage and needs assessment
- Disaster inventory
- Communications with mobile field teams (hub & spoke)
- Coordination of response
- Public phone booths for family reuniting
- Restoration of operability
- Provision of comms among non-interoperable groups
- Restoration of lifeline service
- Continuity of gov't
- Evacuation and mass care management

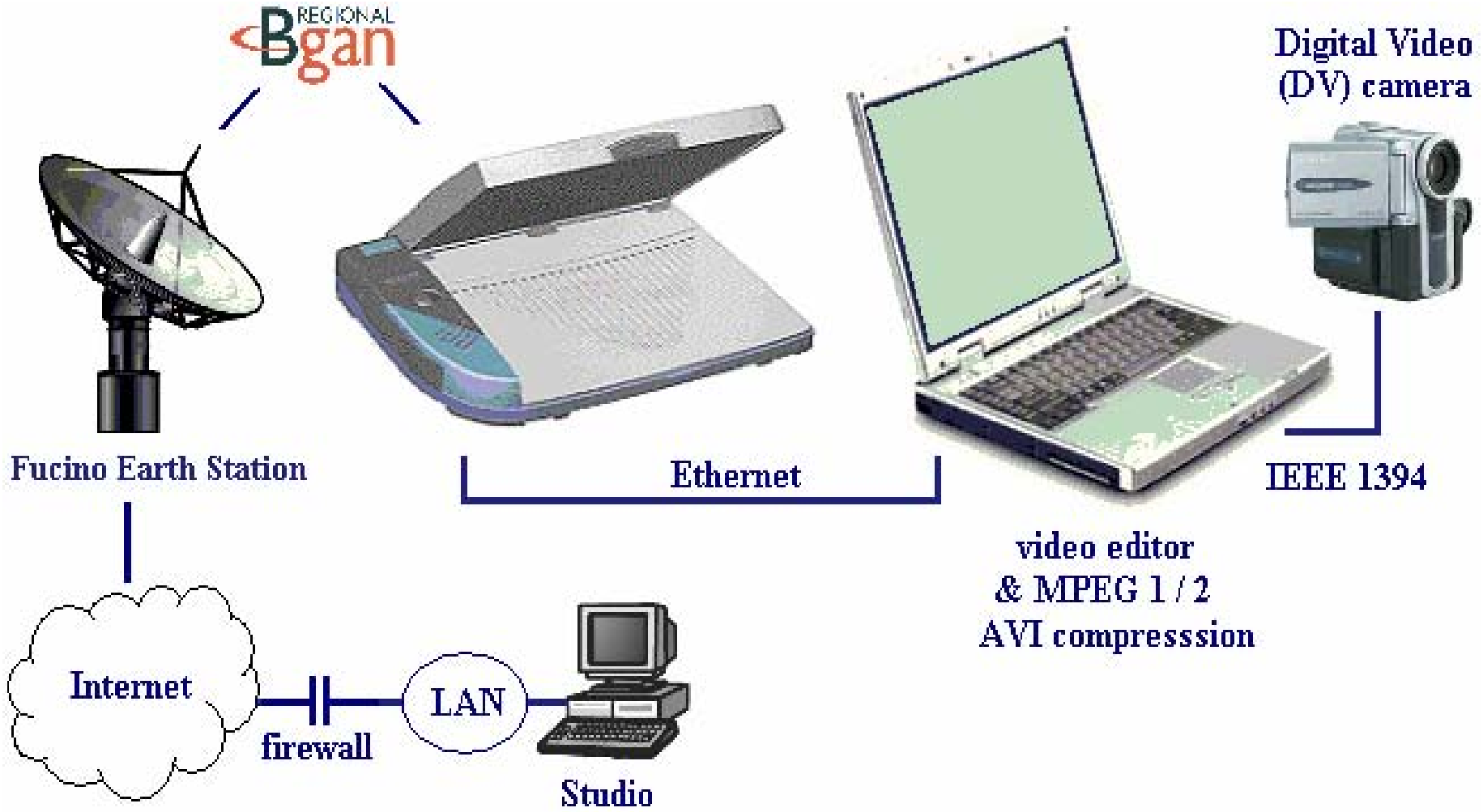
Telemedicine

Allows transmission of medical data, including ECG and video





Typical Layout



inmarsat

Disaster recovery – The case of TSF

- Télécoms Sans Frontières provides rapidly and anywhere in the world flexible, reliable and highly mobile technology
- Enabling cooperation and coordination between rescue organizations
- Reuniting displaced families
- Inmarsat sponsors TSF technologically and financially
- Over 210 NGOs benefit from TSF services

Disaster recovery – The case of TSF

Recent events covered

- USA (hurricane Katrina, Aug 05)
- South Asia & Pakistan (earthquakes, Oct 05)
- Bolivia (floods, Feb 06)
- Philippines (mudslides, Feb 06)
- Niger (humanitarian phoning operations, Mar 06)
- Surinam (floods, May 06)

Visit TSF's web site at www.tsfi.org

inmarsat

Disaster recovery – The case of TSF

Recent events covered

- Java, Indonesia (earthquake, May 06)
- Lebanon (conflict, Aug 06)
- DRC (return of refugees, Aug 06)
- Mozambique (floods, hurricane Favio, Feb 07)
- Salomon Islands (tsunami, Apr 07)
- Uruguay (floods, May 2007)
- Peru (earthquake, Aug 07)

Disaster recovery – The case of TSF

Recent events covered

- Darfur (Sep 07)
- Ghana (Floods, Sep 07)
- Nicaragua (Hurricane Felix, Sep 07)
- Bangladesh (Cyclone Sidr, Nov 07)
- Mayanmar (Cyclone Nargis, May 08)
- China (Earthquake, May 08)

Conclusion

- Absolute need for MSS during natural or man-made disasters
- More disaster anticipation systems being deployed
- Disaster recovery – voice, data, and video required
- MSS very well positioned to address disaster recovery needs
- Inmarsat is proud sponsor of TSF

Thank you