

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

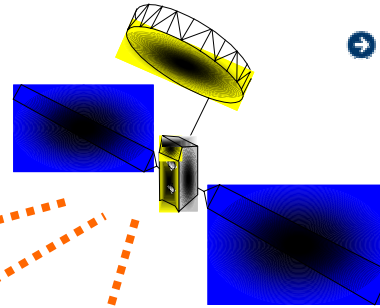
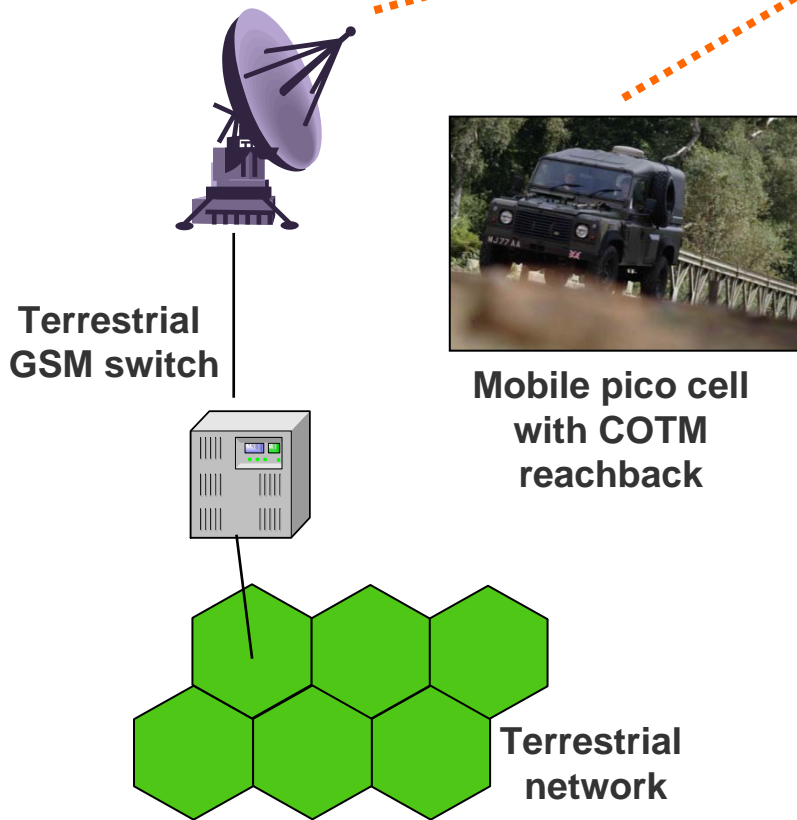
- ➔ Secure access to VPNs
- ➔ Supports all major encryption standards.

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



Pico cell and static BGAN reachback

BGAN Hotspot



IDRC International Conference August, 2008 Davos - Switzerland

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

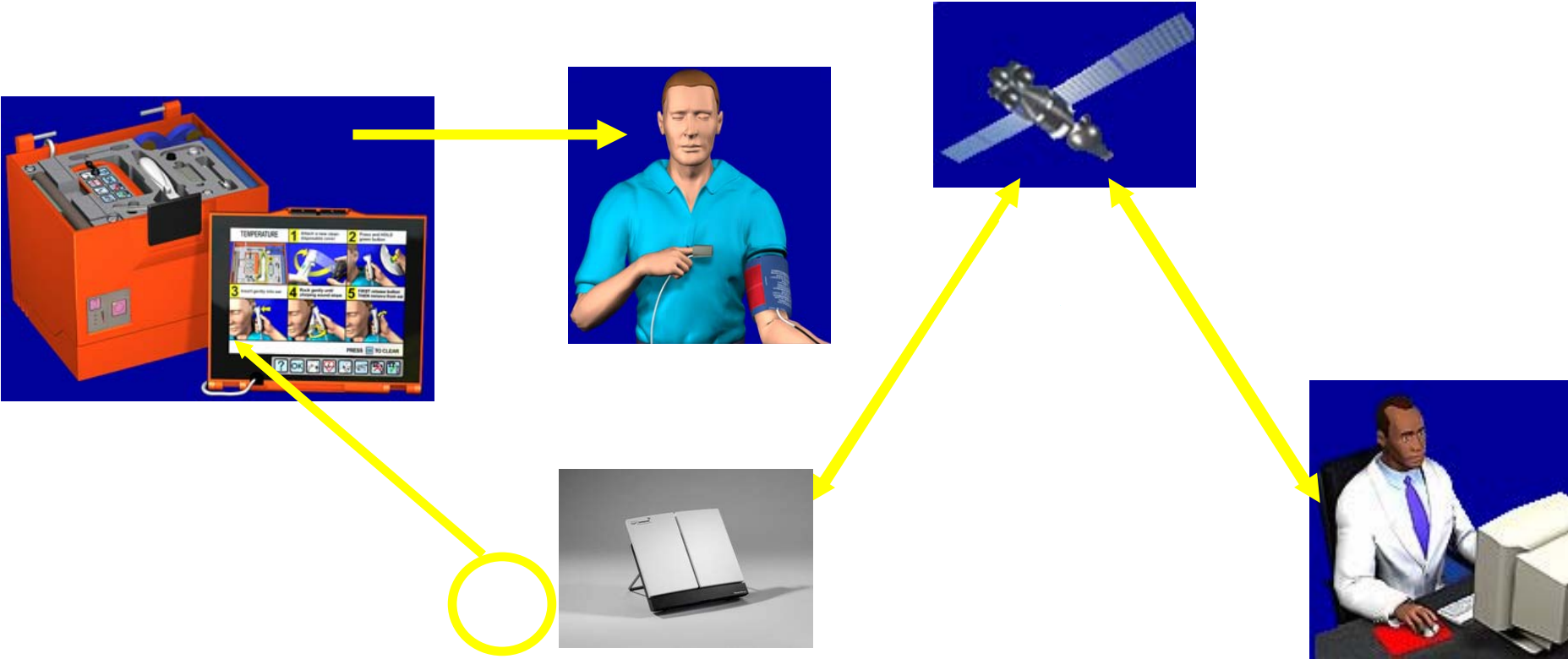
- ➔ 97% of 670 Local Authorities in England & Wales chose BGAN terminals for disaster/emergency response
- ➔ Replacement for ageing and defunct terrestrial 'Emergency Communications Network' (ECN), and in addition to HF, VHF, TETRA, GSM and PSTN
- ➔ Primarily for voice, but will be used for data (maps, 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

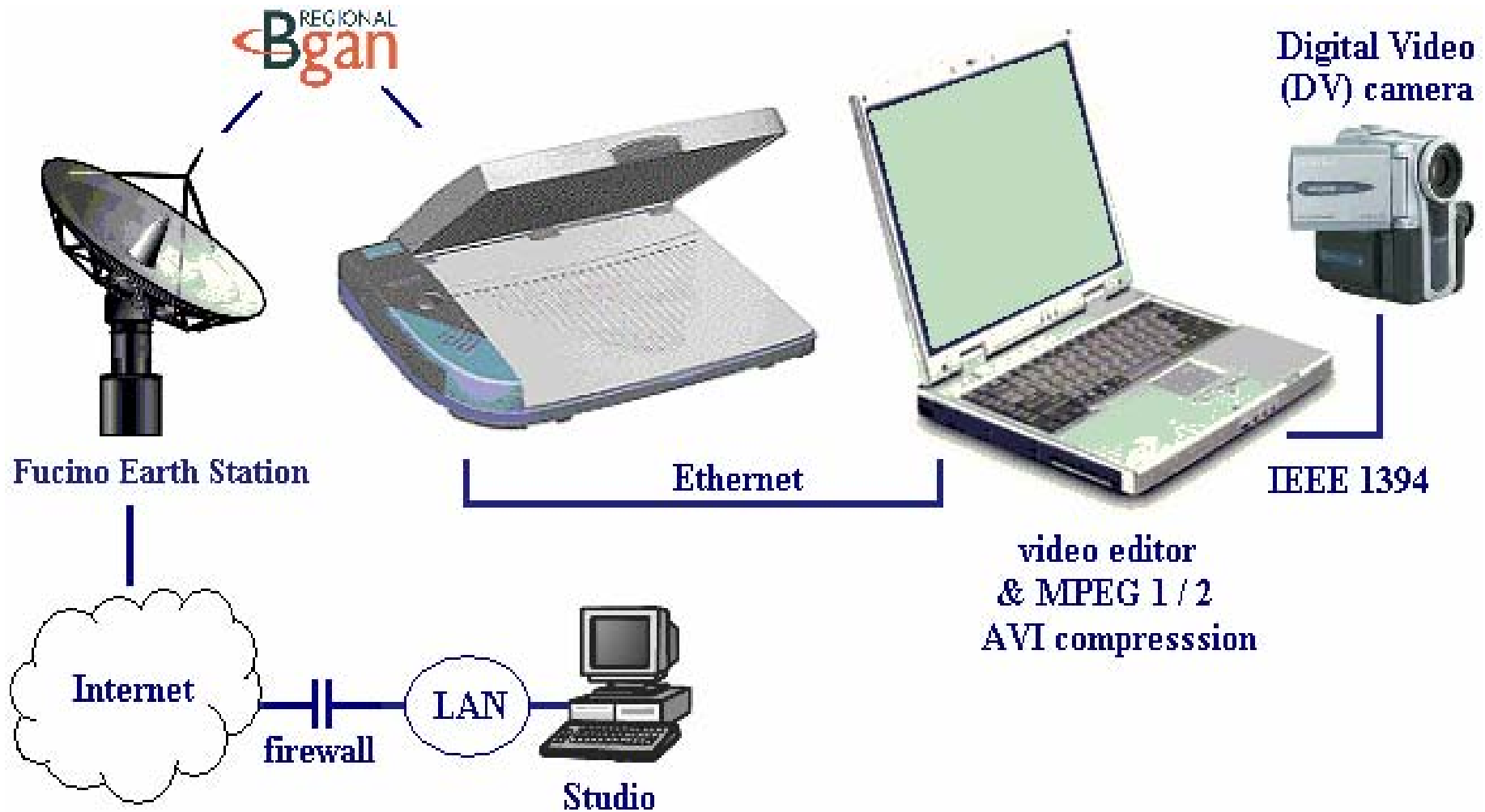
- ➔ Situational awareness
- ➔ Damage and needs assessment
- ➔ Disaster inventory
- ➔ Communications with mobile field teams (hub & spoke)
- ➔ Coordination of response
- ➔ Public phone booths for family reuniting
- ➔ Restoration of operability
- ➔ Provision of comms among non-interoperable groups
- ➔ 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



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)

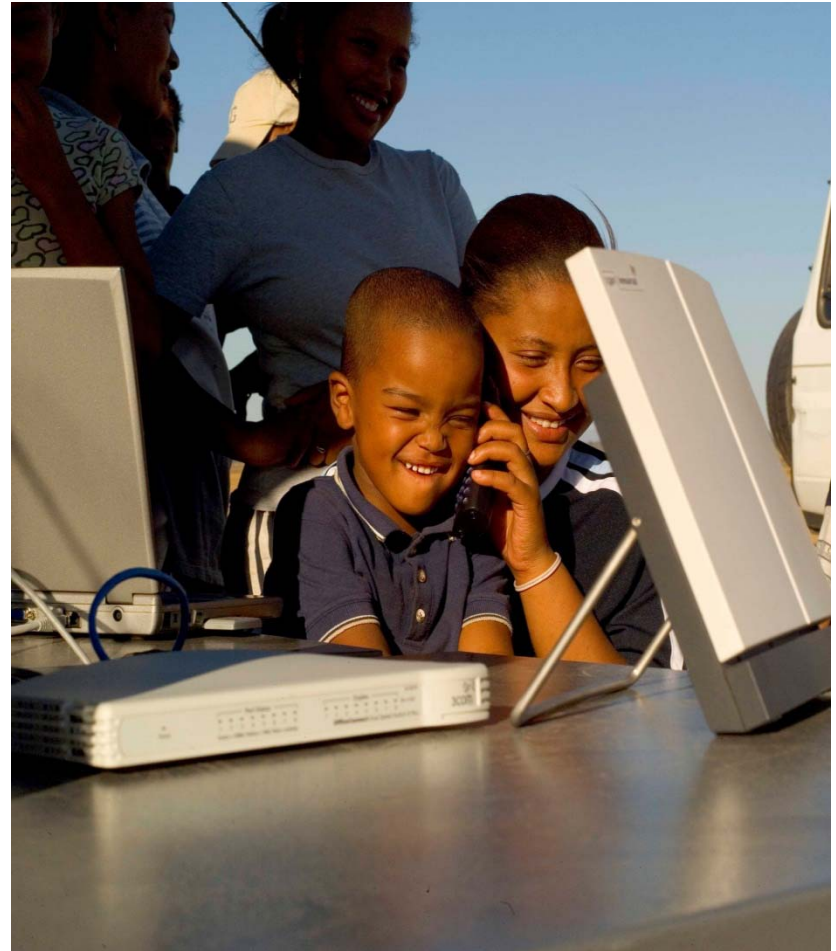


Visit TSF's web site at www.tsfi.org

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)
- ➔ Myanmar (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

