Inmarsat - Products and Strategy

Workshop on Satellite in IP and Multimedia

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an **inmarsat ventures** company

Overview of Inmarsat Today

- **Leading global mobile satellite communications service provider**
  - **Data and voice to maritime, land and aeronautical users**
  - **23 years of market, technical and regulatory experience**
    - **Established in 1979 as an international co-operative**
    - **Service on leased satellites beginning in 1982**
    - **Satellite operator since 1990**
    - **Privatised as a United Kingdom entity in April 1999**
  - **9 successful satellite launches (Inmarsat-2 and Inmarsat-3 fleets); all satellites still fully operational**
  - **More than 260,000 registered terminals**

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Current Portfolio of Services

Circuit switched:

- **Inmarsat-A:** tel, fax, 64 kbit/s data
- **Inmarsat-B (digital replacement to A)**
- **Inmarsat-M/mini-M**: tel., fax, 2.4 kbit/s data
  - Inmarsat Aero miniM
- **Inmarsat Aero I / H**: tel., fax, 2.4 / 4.8 kbit/s data
- **Inmarsat GAN ISDN**: tel, fax, ISDN (64 kb/s 1B+S)
- **Fleet 77/Swift 64** : tel, fax, ISDN

Messaging/ Packet based, data services:

- **Inmarsat-C: low bit rate S/F messaging**
  - **Inmarsat Aero C**
- **Inmarsat-D/D+: two way paging system**
- **Inmarsat Aero L / H: 0.6 / 10.5 kbit/s packet data (X.25)**
- **Inmarsat E: distress alert service for maritime**
- **Inmarsat GAN MPDS: 64kb/s packet data over shared bearer**
- **Fleet 77 (MPDS)**

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Regional BGAN

- **144 kbps data services**
- **Via leased capacity on Thuraya satellite**
- **Anchored at a SAS facility in Fucino (Italy)**
- **Air interface based on GSM adapted to satellite usage**
  - **Standardised as GMR-1 by ETSI and TIA enhancing future interoperability**
    - **Migration path to GPRS or UMTS PS service**
  - **Strong resemblance to GSM in upper protocol layers allows integration of standard GSM services (SMS)**

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Regional BGAN Coverage Map
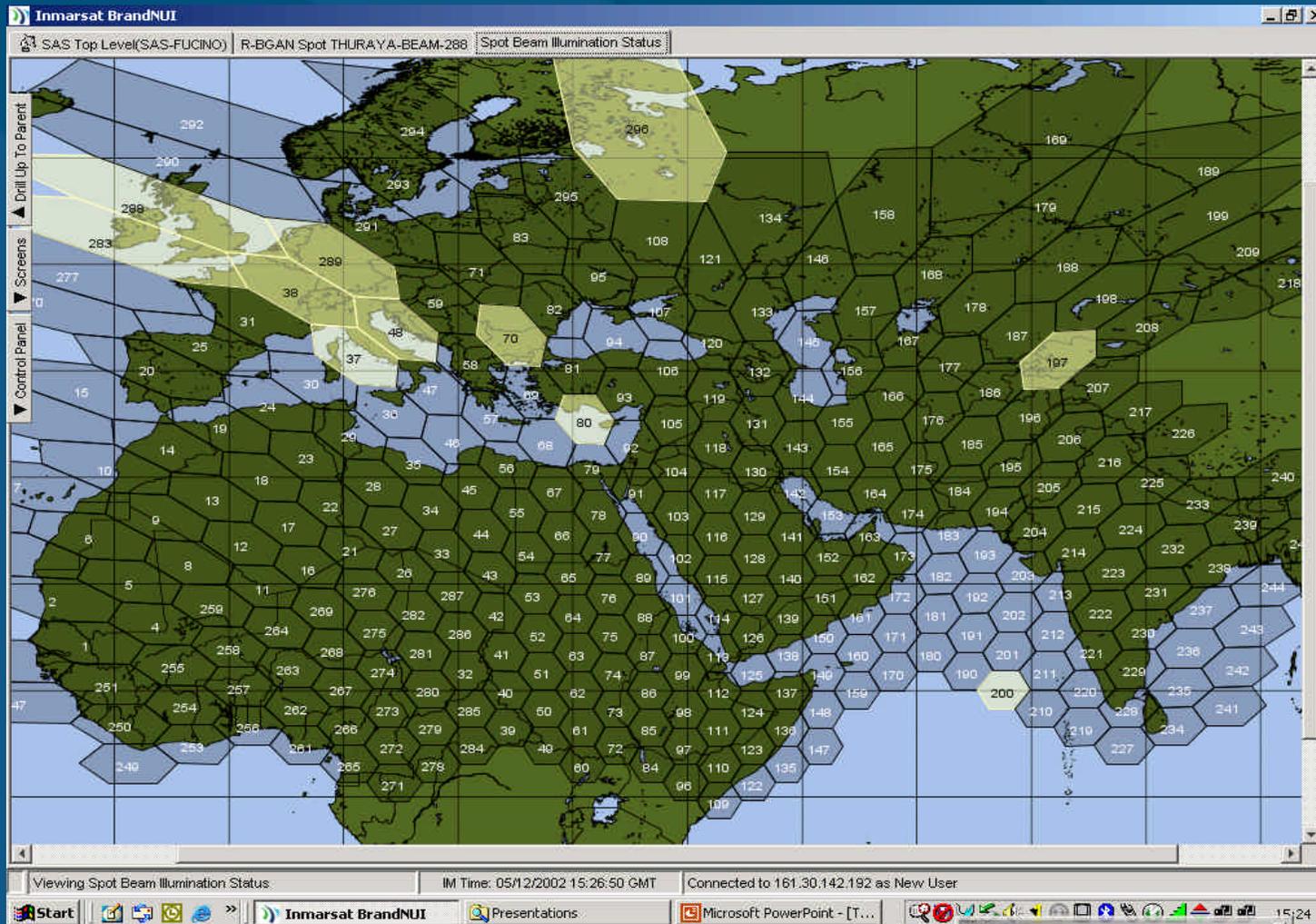
Regional BGAN Terminal

User terminal looks and feels like a laptop, costs about $1100, receives and transmits at 144 kbps with end-user airtime charge around $11/MByte

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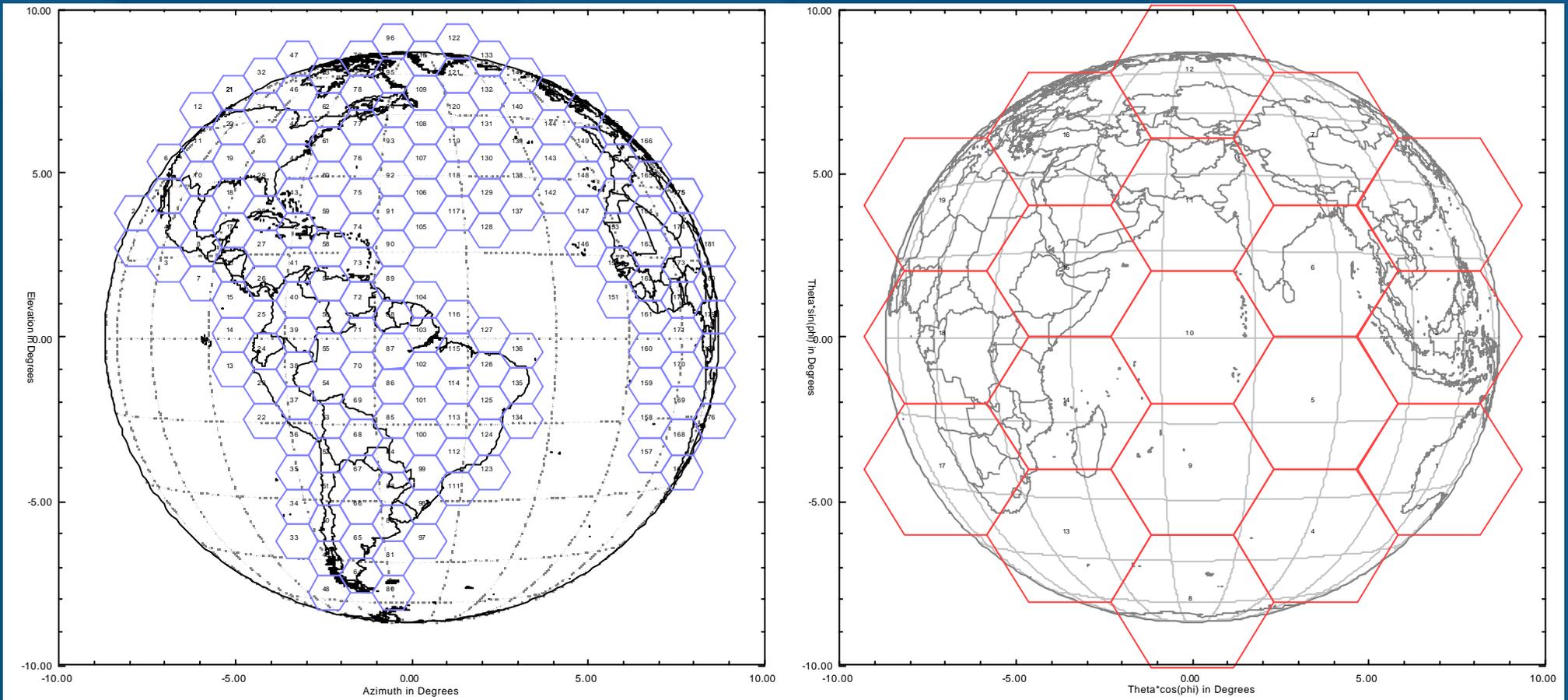
BGAN

- **Improves upon performance of Regional BGAN**
  - **Full ground segment diversity (Holland and Italian SASs)**
  - **Voice and data services supported**
  - **Higher data rates (up to 432 kbps)**
  - **Increased coverage (US, Europe, Far East)**
- **Two Inmarsat 4 satellites**
  - **53 °W and 64 °E**
  - **9 m L-band satellite antenna – generates 1° spot beams**
  - **Flexible DSP based payload, 630 dynamically assigned channels, digital beam forming**
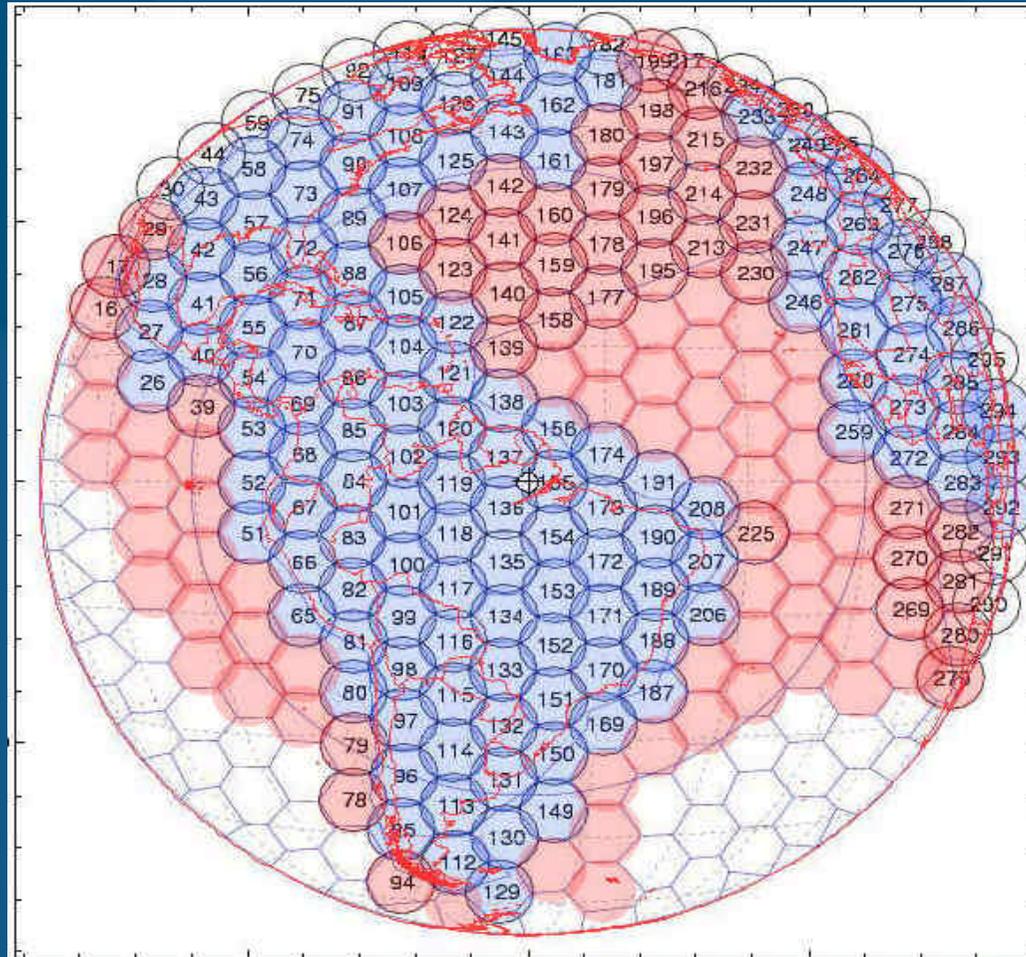 - **200 kHz channels**

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Inmarsat-4

- User Link : L Band
- Feeder Link : C Band
- Processed Band : 2 x 126 MHz
- Spacecraft Power : 12 kW
- Launch Mass : 6 Tons
- Solar Array Span : 48 m
- Prime Contractor : Astrium
- Major Subcontractors
  – TRW Astro, L Band Reflector
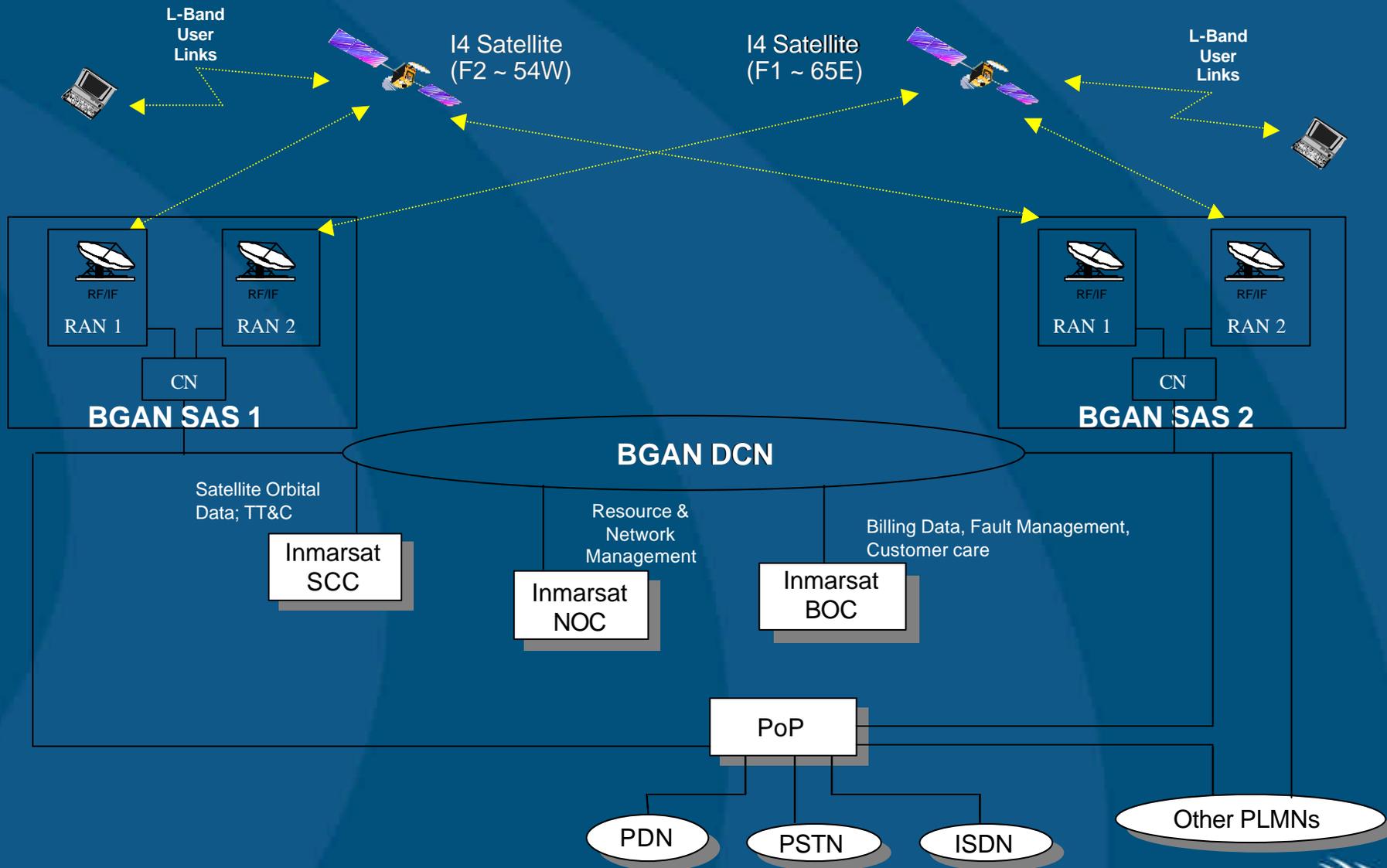 – EMS, L Band Feed
- Launchers
  – Atlas V
  – Ariane 5

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L-band Beam Patterns

53 W Expanded Coverage

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BGAN Ground Network Overview

L-Band User Links

I4 Satellite (F2 ~ 54W)

I4 Satellite (F1 ~ 65E)

L-Band User Links

RF/IF — RAN 1

RF/IF — RAN 2

RF/IF — RAN 1

RF/IF — RAN 2

CN

CN

BGAN SAS 1

BGAN SAS 2

BGAN DCN

Satellite Orbital Data; TT&C

Resource & Network Management

Billing Data, Fault Management, Customer care

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Inmarsat NOC

Inmarsat BOC

PoP

PDN

PSTN

ISDN

Other PLMNs

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BGAN Services

- **Basic Services – Inherently IP-based**
  - **Regular PSTN, ISDN and IP services**
  - **Internet access (including web browsing)**
  - **Intranet access (including virtual private networks)**
  - **Video Conferencing**
  - **Internet streaming (audio/video)**
  - **Data file transfer**
  - **E-mail and messaging (including GPRS/UMTS 2.5/3G SMS)**
  - **IP Facsimile**

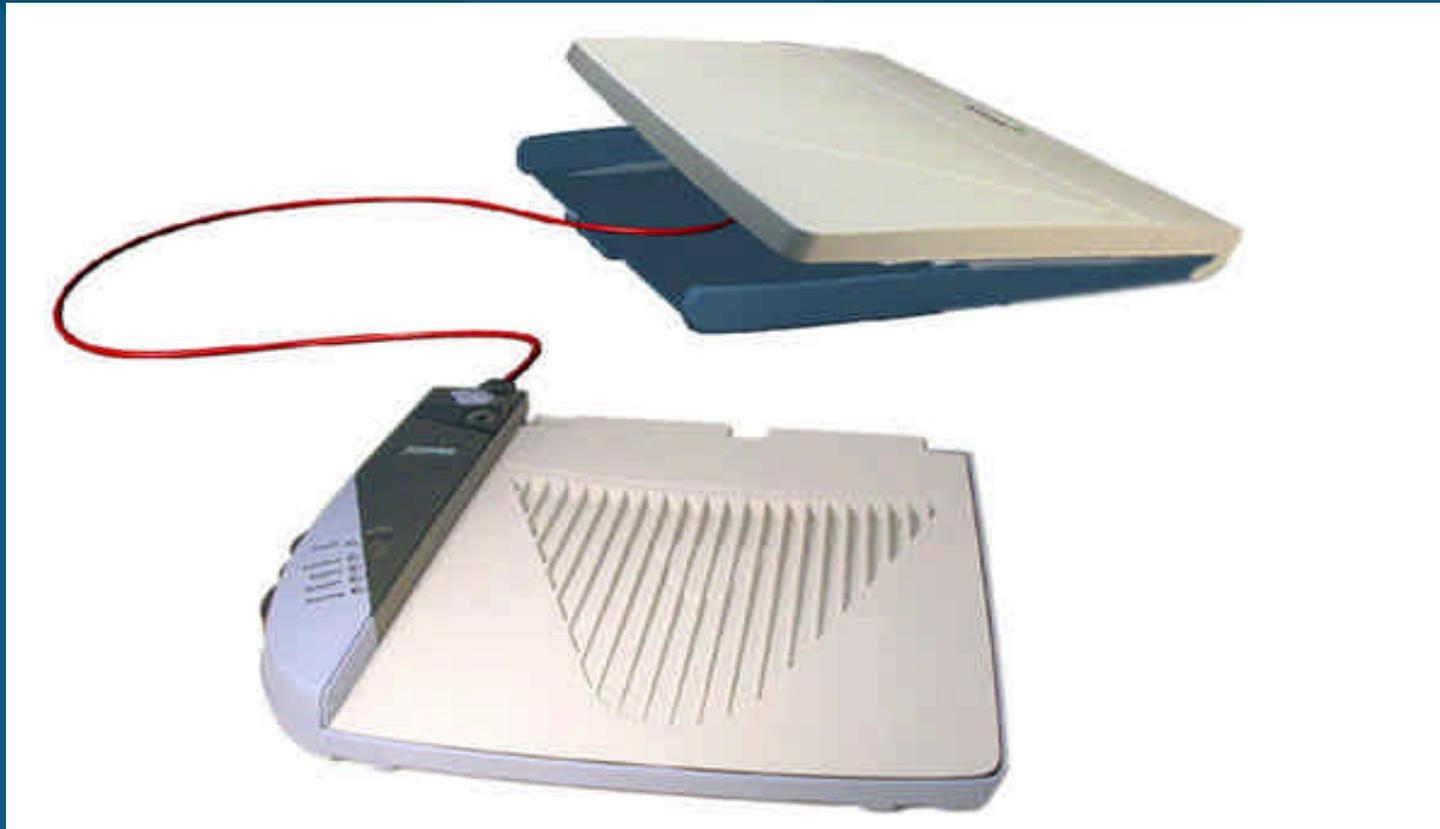inmarsat

BGAN Terminals

- A wide range of terminal types is under development:
    - Handheld   72 kbps/16 kbps
    - Pocket   216 kbps/72 kbps
    - Notebook   432 kbps/144 kbps
    - Briefcase   432 kbps/432 kbps
    - Transportable 1 Mbps/1 Mbps

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Pocket User Terminal
800 grams 22 x 14 x 3 cm

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Notebook User Terminal
with detachable Remote Antenna

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UT Product Matrix –Future Development

Product	Lite	Professional	Vehicular	Maritime	Aero
Briefcase		HNS			
Laptop	Thrane	HNS			
Pocket	Nera Addvalue				

Further UT developments

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