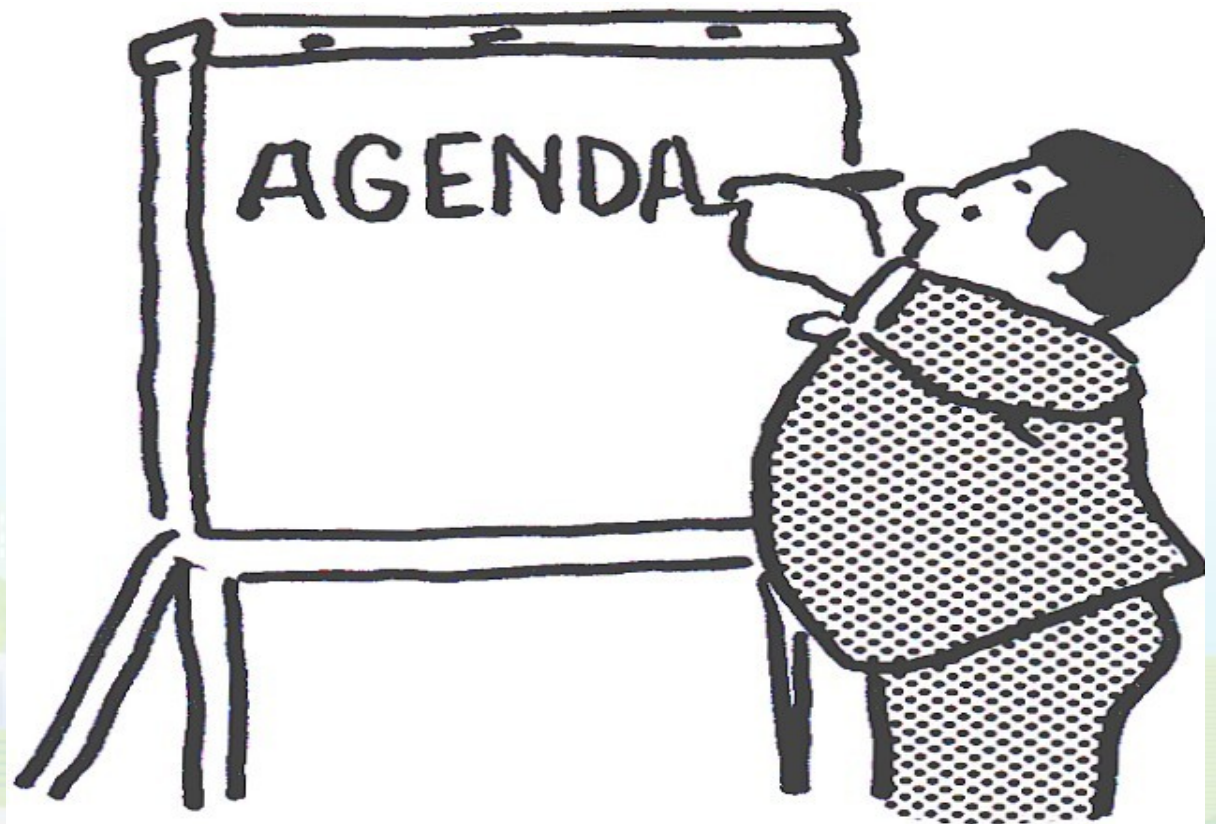




Agenda

- **Deploy Satellite Technology to Manage Disaster**
- **bgan**
- **IsatPhone Pro**



When Satellite Technology is Deployed



Why Satellite?

- Coverage Area
- Unaffected by calamities
- Interconnected to the PSTN and IP Networks
- Capable of voice, e-mail and high speed Data Access
- Variety of handsets and terminals



Four Satellite Earth Stations



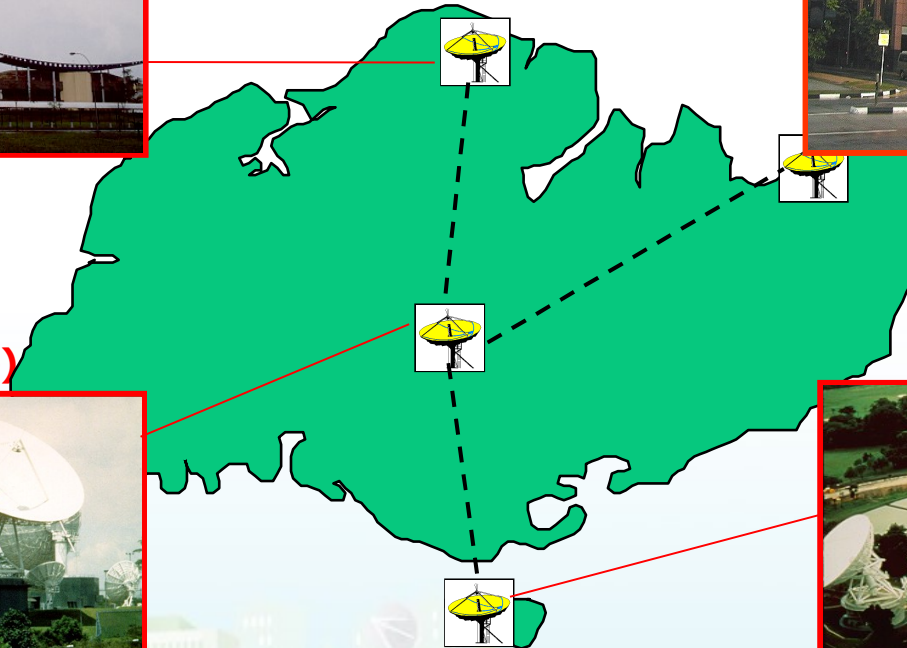
Seletar
(ST-1 TT&C)

Bukit Timah
(Broadcast Hub)

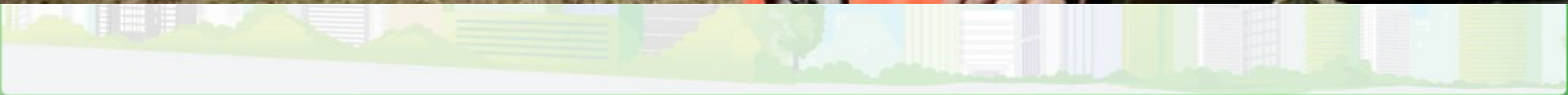


Telepark
(Network Hub)

Sentosa
(Inmarsat Hub)



rgan and Disaster Management



Prepare for Contingencies

When disaster strikes

- Regular means of communication are among the first to go
- Telephone and cell networks are often knocked offline or totally destroyed
- Functioning networks remaining end up heavily congested
- Isolation of the area of disaster

NO COMMUNICATION NETWORK!!



Use of bgan

IMPORTANCE OF CONTINGENCY KIT IN DISASTER MANAGEMENT

STAGE 0 Pre-staging	STAGE 1 Immediate	STAGE 2 24-48 hours	STAGE 3 After 48 hours
<p>Be prepared without preparation – easy-to-use equipment ready-to-work</p> <p>Plan ahead – secure your infrastructure in case of disaster</p> <p>Easy to store – make sure communications equipment is always ready</p>	<p>Rapidly Deployable & Highly Portable – small, light-weight equipment</p> <p>Ease of Use – non-technical users</p> <p>Voice & Data – contact HQ, transmit initial photos</p> <p>Internet & VPN – initial access to emergency management software</p>	<p>Netted Comms – interoperability</p> <p>Voice & Data – on-going coordination</p> <p>Internet & VPN – increased activity via emergency management software</p>	<p>Longer Term Installations – including technical operators</p> <p>Voice & Data – on-going coordination</p> <p>Internet & VPN – heavy activity via emergency management software</p>

Preparedness

STAGE 0 Pre-staging

Be prepared without preparation
– easy-to-use equipment
ready-to-work

Plan ahead
– secure your infrastructure in case of disaster

Easy to store
– make sure communications equipment is always ready

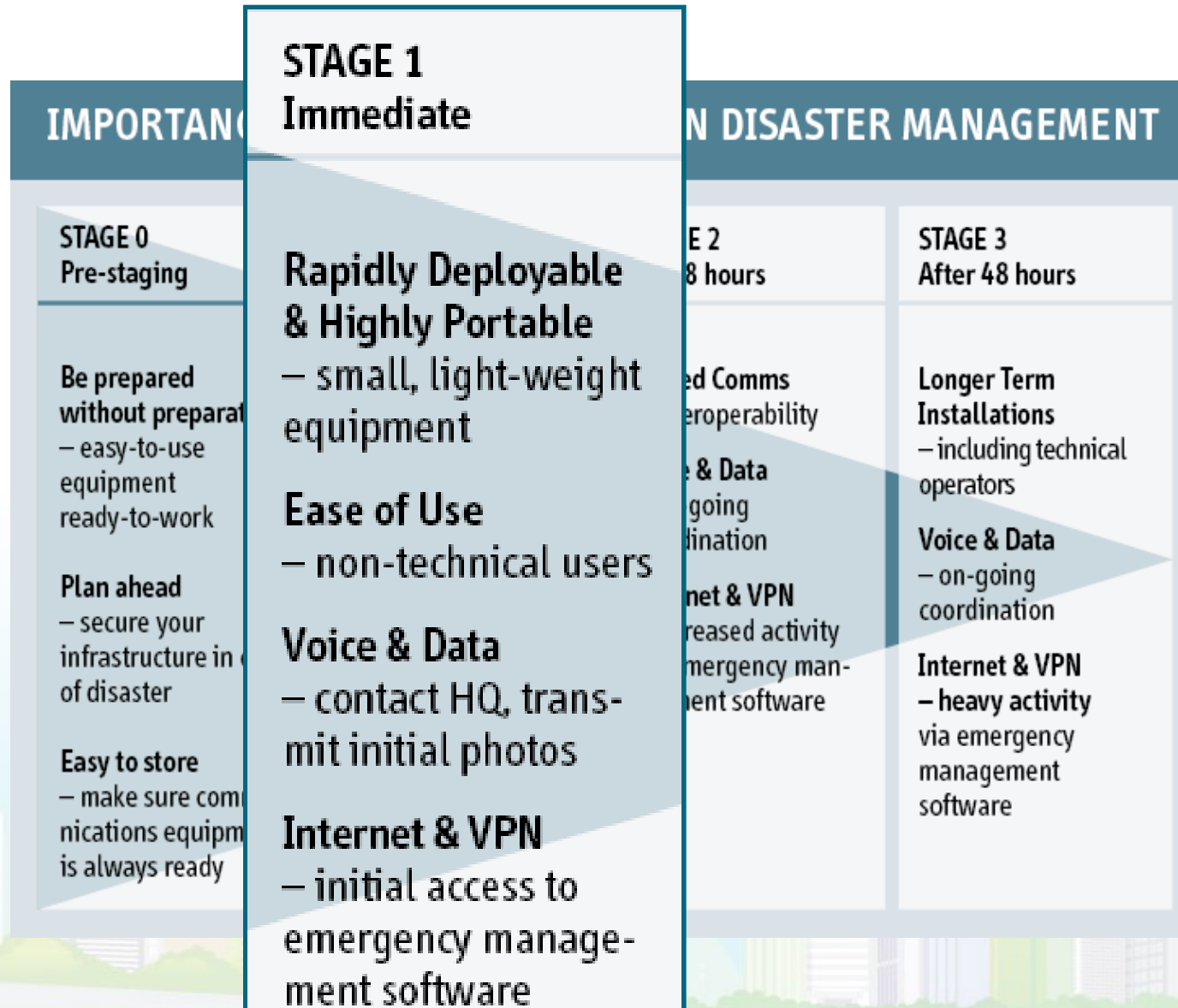
CONTINGENCY KIT IN DISASTER MANAGEMENT

STAGE 1 Immediate	STAGE 2 24-48 hours	STAGE 3 After 48 hours
<p>Rapidly Deployable Highly Portable small, light-weight equipment</p> <p>Use of Use non-technical users</p> <p>Voice & Data contact HQ, transmit initial photos</p> <p>Internet & VPN initial access to emergency management software</p>	<p>Netted Comms – interoperability</p> <p>Voice & Data – on-going coordination</p> <p>Internet & VPN – increased activity via emergency management software</p>	<p>Longer Term Installations – including technical operators</p> <p>Voice & Data – on-going coordination</p> <p>Internet & VPN – heavy activity via emergency management software</p>

EXPLORER in the Preparing Stage

- **bgan terminals are easy to store**
- **Easy to deploy when disaster strikes**
- **Ready to use**
- **Training in using the terminal is fairly easy done**
- **Provides instant ability to communicate from the first critical moments when disaster strikes and chaos rules**
 - **No need for long setup manuals**
 - **Use the simple 4-step guide on set that comes with the package**

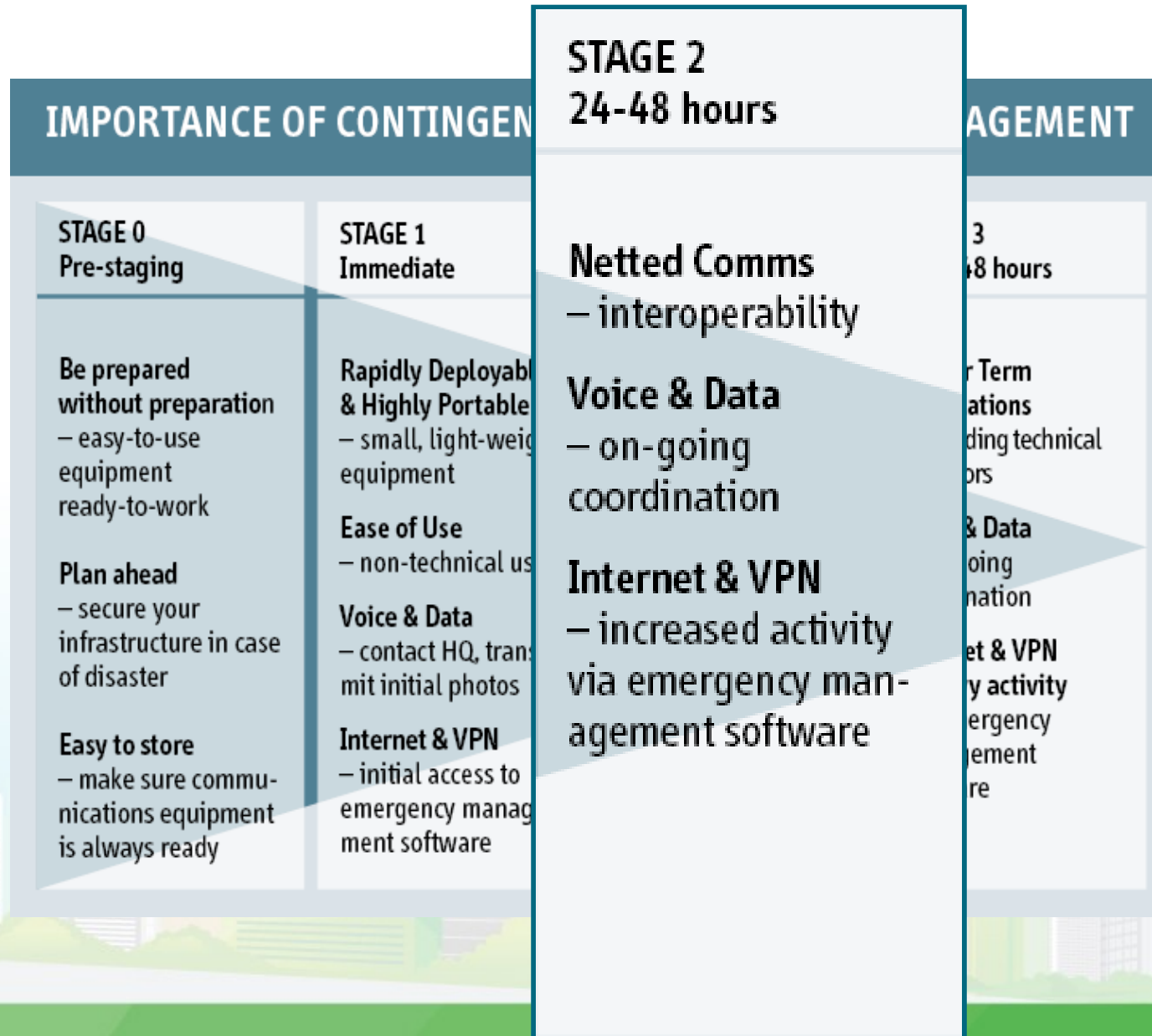
Mitigate



bgan in the Mitigating Stage

- **Easy to deploy and use**
- **Extremely portable and mobile**
 - **Important when moving around in the disaster area to get a status on the damage**
- **Able to transmit data, not just making voice calls to Control Centre**
 - **Send pictures and video to document the calamities**
 - **Access Emergency Management Software**
 - **Using the Internet and VPN**

Response



bgan in the Response Stage

- **The need for trafficking more data increases in general**
 - **More aid agencies and personnel enters the area**
- **bgan terminals still relevant to secure the communication flow**
- **Need for mobility still significant**
 - **First Responders are moving around in the area**
 - **Need for easy-to-set-up-and-take-down computing, communication and power solutions**

Recovery

IMPORTANCE OF CONTINGENCY KIT IN DISAST

STAGE 0 Pre-staging	STAGE 1 Immediate	STAGE 2 24-48 hours
<p>Be prepared without preparation – easy-to-use equipment ready-to-work</p> <p>Plan ahead – secure your infrastructure in case of disaster</p> <p>Easy to store – make sure communications equipment is always ready</p>	<p>Rapidly Deployable & Highly Portable – small, light-weight equipment</p> <p>Ease of Use – non-technical users</p> <p>Voice & Data – contact HQ, transmit initial photos</p> <p>Internet & VPN – initial access to emergency management software</p>	<p>Netted Comms – interoperability</p> <p>Voice & Data – on-going coordination</p> <p>Internet & VPN – increased activity via emergency management software</p>

STAGE 3 After 48 hours

Longer Term Installations
– including technical operators

Voice & Data
– on-going coordination

Internet & VPN
– heavy activity via emergency management software

bgan in the Recovery Stage

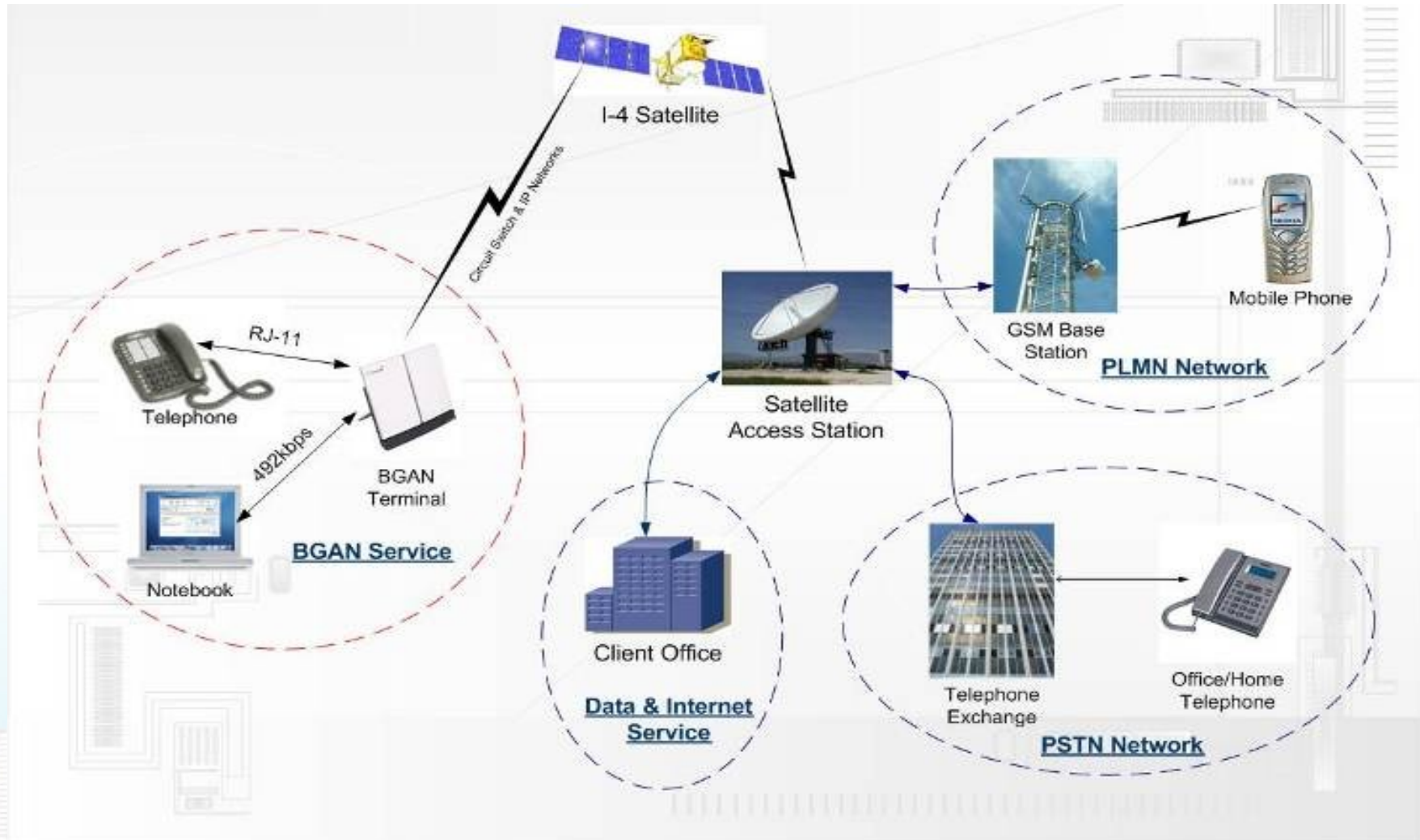
- **Management of relief materials deployment between and across aid agencies**
 - **provides the ability to keep the communication up and running**
 - **Continuous monitoring of disaster**
 - **Assessment of victims' needs**
- **IP Connectivity needs can be covered by bgan**
 - **Application and reporting of donated funds**
 - **Uploading of case studies, pictures and relief reports**
- **bgan as back up communication**
 - **When other more stationary communication hubs has arrived at the scene and has been installed**

bgan

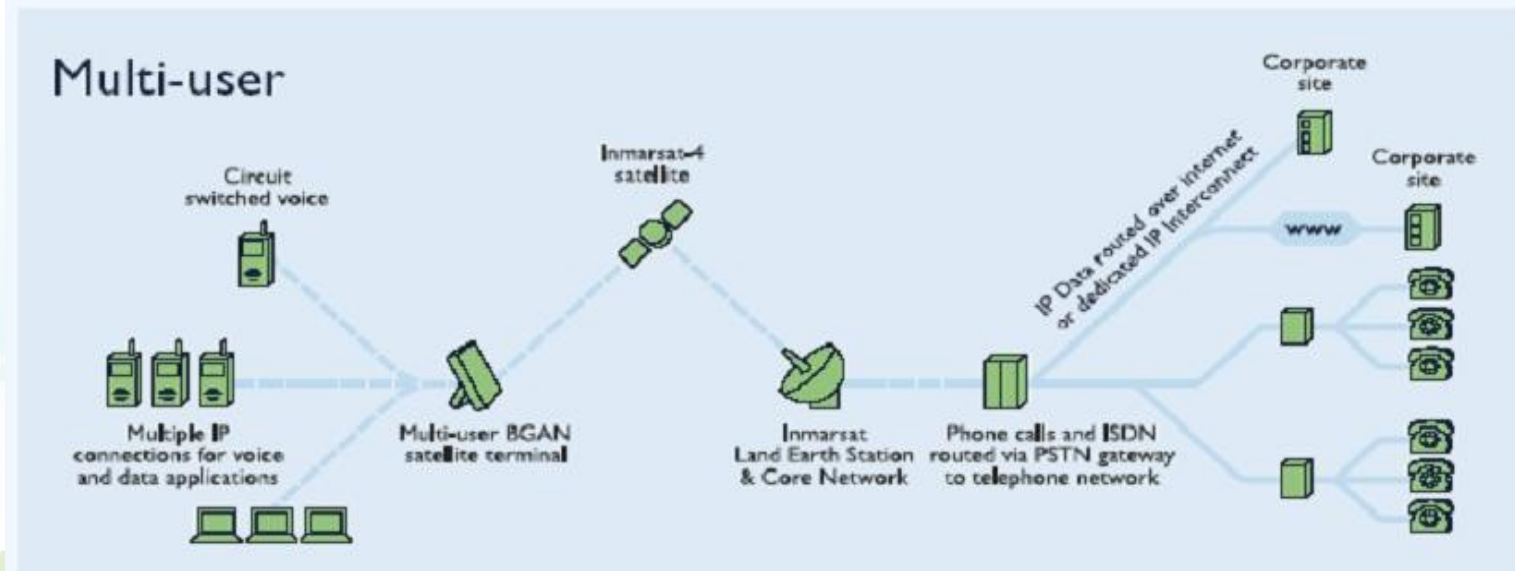
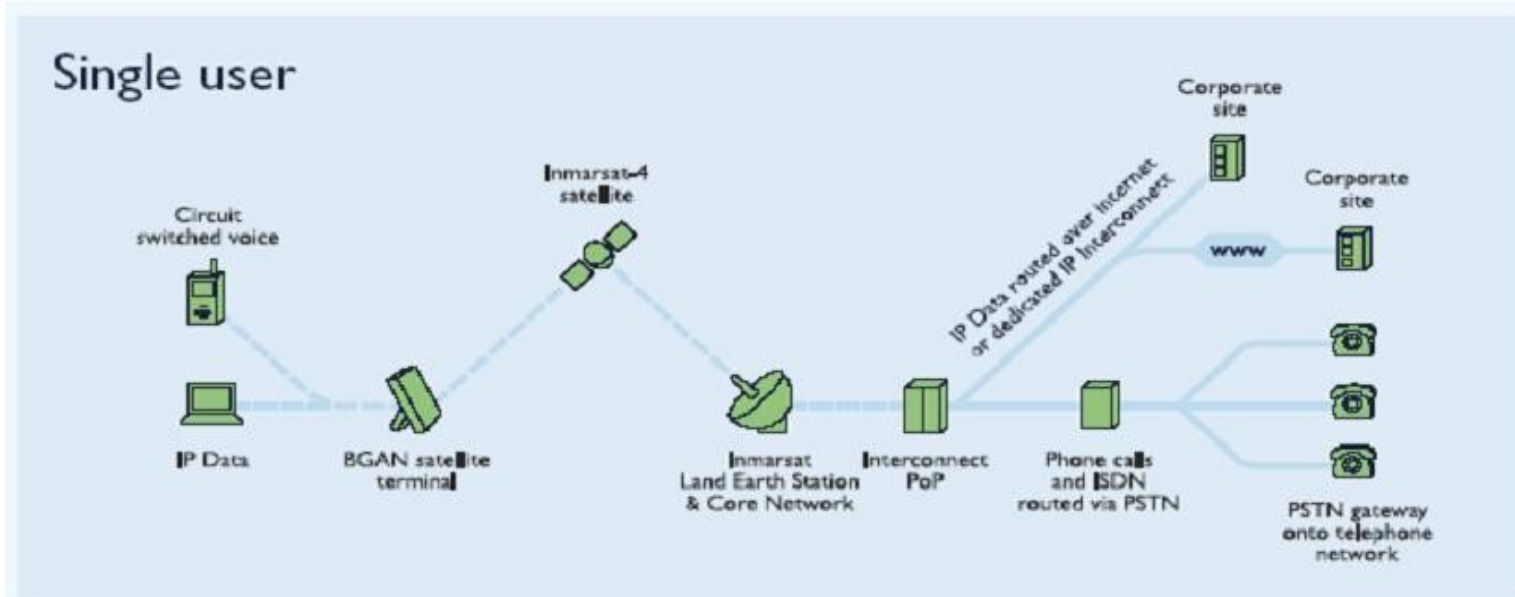
Broadband Global Area Network







Broadband Global Area Network



Broadband Global Area Network



Broadband Global Area Network

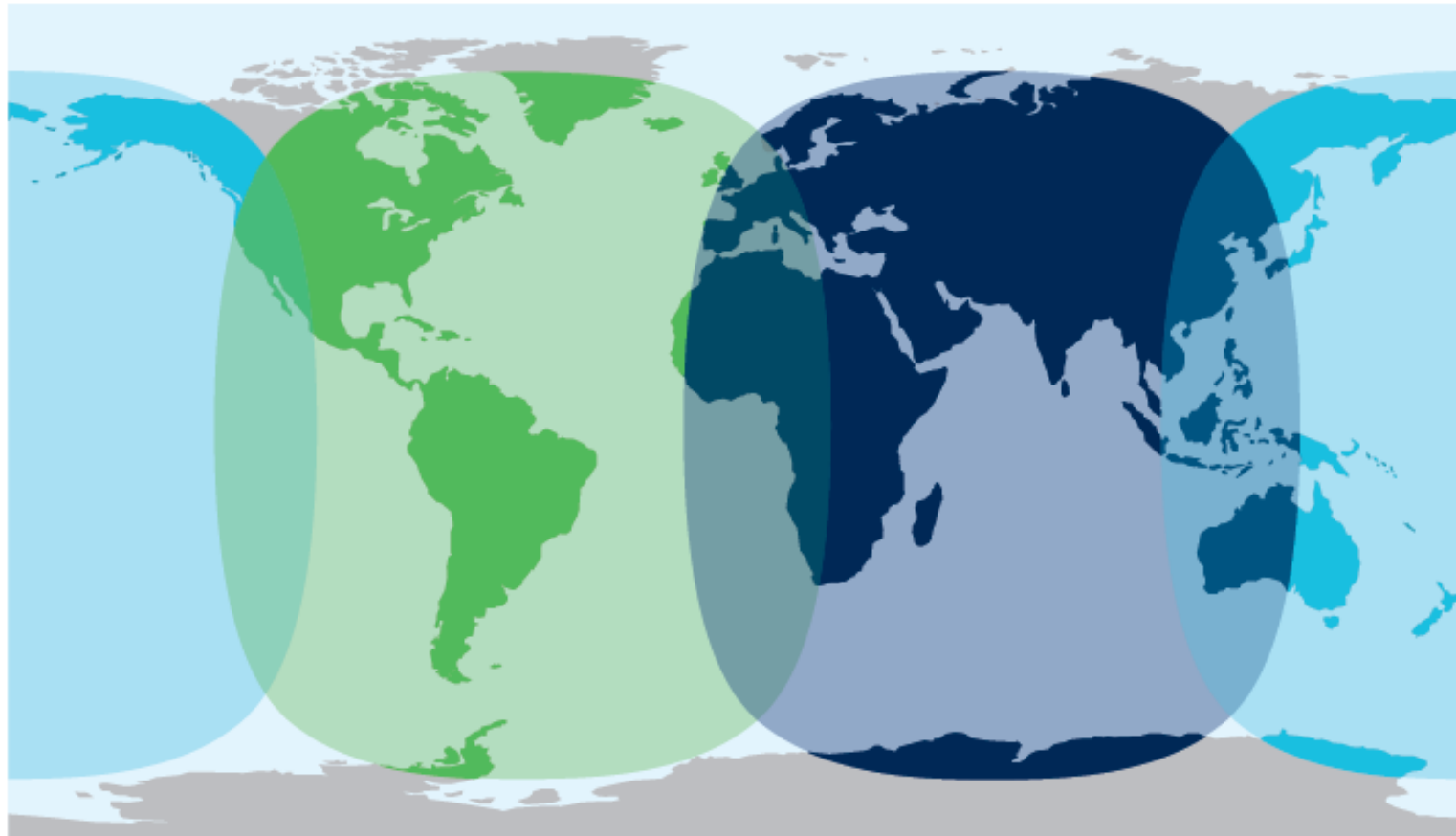
	Data	Standard IP Variable bit rate service Up to 492kbps (send & receive)
	Streaming	<u>Guaranteed</u> bit rate service Available on demand 32, 64, 128, 256, 384 kbps (send & receive) Also supports ISDN
	Voice	4kbps circuit-switched service Voicemail Broadcast quality voice
	Text	Send and receive text messages via your laptop



Broadband Global Area Network

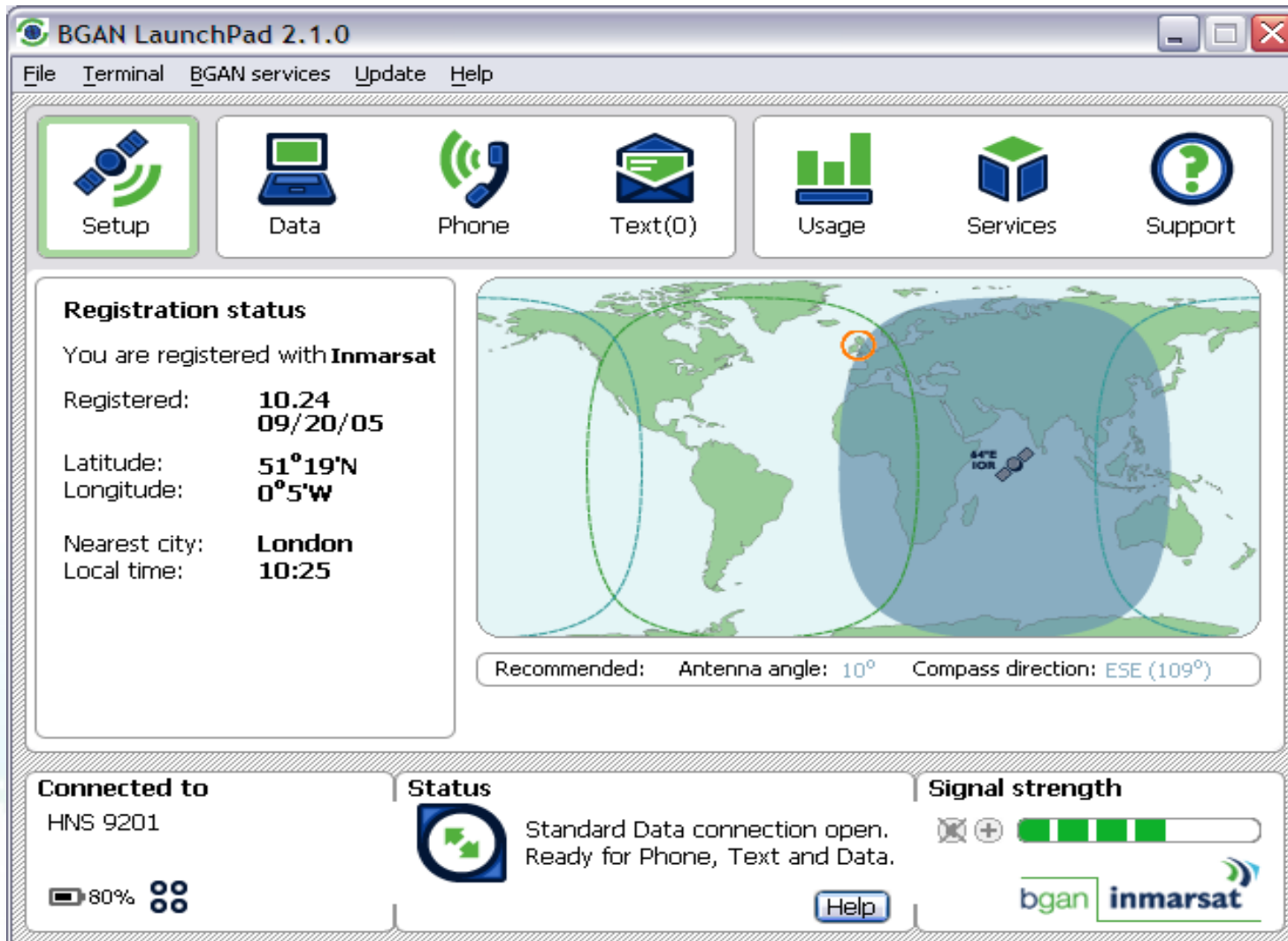
Coverage

BGAN is accessible in Europe, Africa, the Middle East, Asia, North and South America.



 I-4 satellite F1  I-4 satellite F2  I-4 satellite F3
(launch date to be finalised)

- Universal software for all models of BGAN terminals.



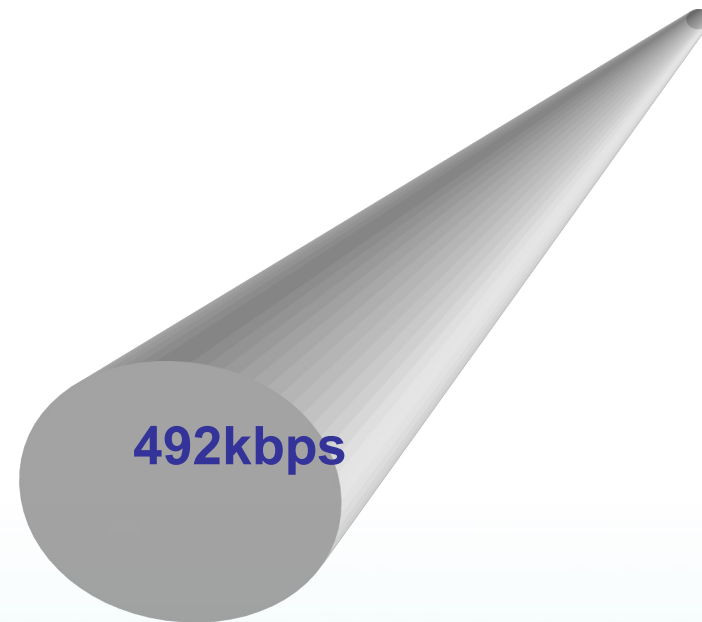
The screenshot shows the BGAN LaunchPad 2.1.0 software interface. The window title is "BGAN LaunchPad 2.1.0" and it has a menu bar with "File", "Terminal", "BGAN services", "Update", and "Help".

The interface is divided into several sections:

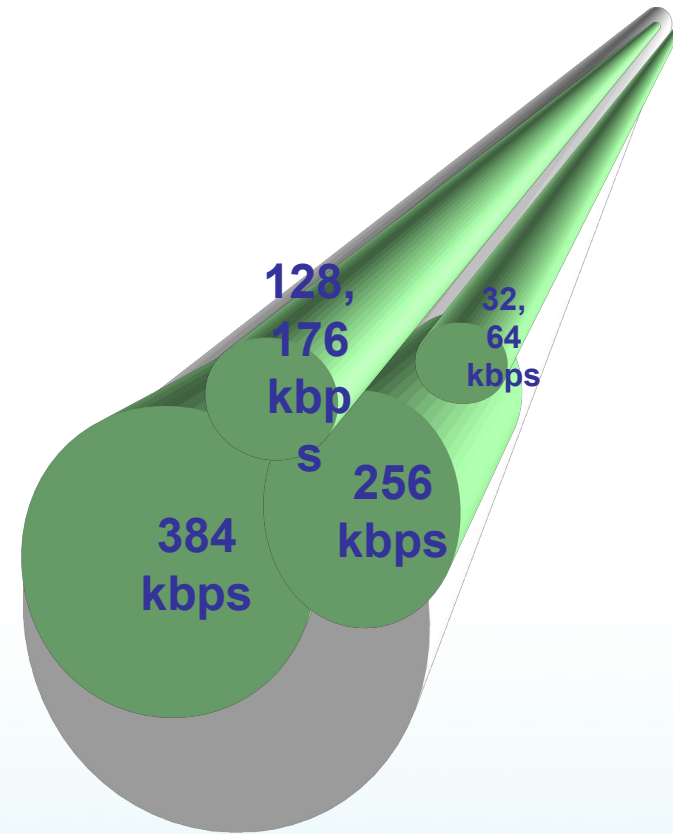
- Top Navigation:** A row of icons for "Setup", "Data", "Phone", "Text(0)", "Usage", "Services", and "Support".
- Registration status:** A panel on the left containing the following information:
 - You are registered with **Inmarsat**
 - Registered: **10.24 09/20/05**
 - Latitude: **51°19'N**
 - Longitude: **0°5'W**
 - Nearest city: **London**
 - Local time: **10:25**
- Map:** A world map showing satellite coverage areas. A satellite icon is labeled "442 10R".
- Recommended:** A bar at the bottom of the map area showing "Antenna angle: 10°" and "Compass direction: ESE (109°)".
- Connected to:** A panel at the bottom left showing "HNS 9201" and a battery icon at "80%".
- Status:** A panel at the bottom center showing a green arrow icon and the text "Standard Data connection open. Ready for Phone, Text and Data." with a "Help" button.
- Signal strength:** A panel at the bottom right showing a signal strength indicator (a bar with four segments) and the "bgan inmarsat" logo.

Standard IP Service: Background Class

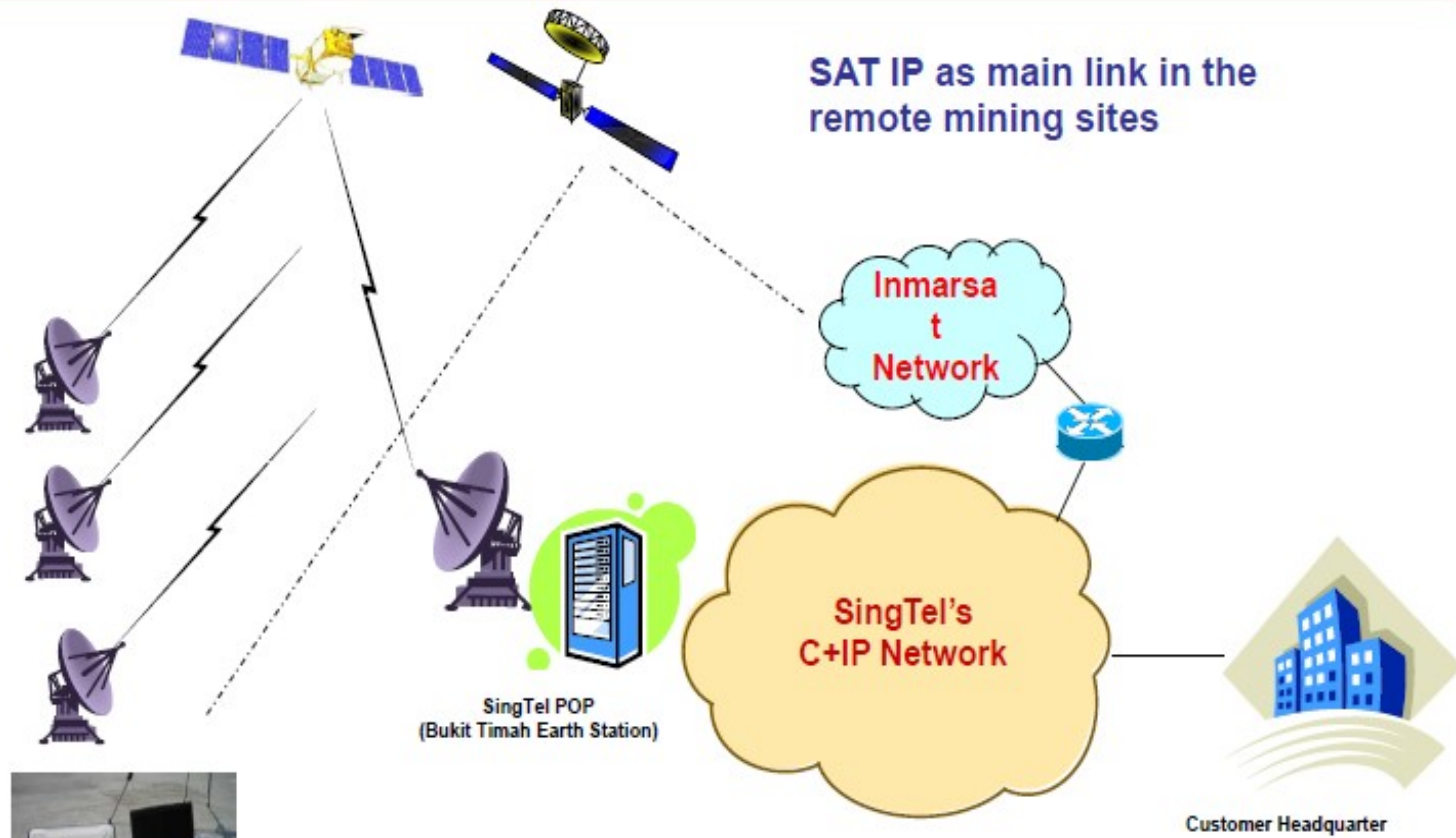
- Up to 492 Kbps via shared channel
- Dynamically assigned by the network on demand
- User pays for amount of data sent and received (**per MB**)
- Suitable for email, file transfer, internet/intranet access



- **Guaranteed data rates of 32, 64, 128, 256, 384 Kbps (symmetrical)**
- **New X-stream, 384 kbps & 176kps**
- **Selected by user as and when required – Available “on demand”**
- **User pays for duration of connection (per minute)**
- **Ideal for time critical data – Video, Audio, VoIP or data heavy applications**



Case Study



SAT IP as main link in the remote mining sites

Inmarsat Network

SingTel's C+IP Network

SingTel POP (Bukit Timah Earth Station)

Customer Headquarter



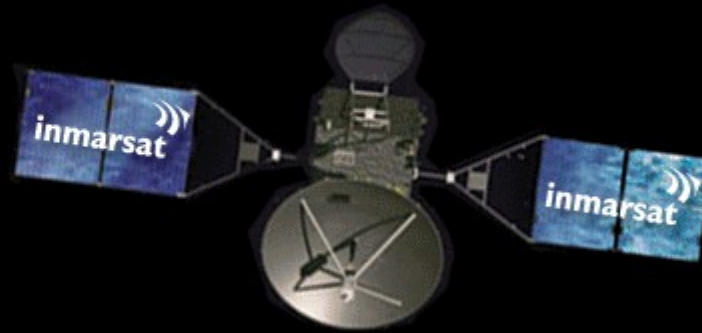
BGAN as a communication terminal for field personnel and network backups

Broadband Mobile Device



Manufacturer	Addvalue	Nera	Thrane & Thrane	Hughes
Size	210 x 140 mm	200 x 150 mm	300 x 200 mm	365 x 275 mm
Weight	1.25 Kg	<1 Kg	1.3 Kg	2.2 Kg
Standard IP: up to	384/240kbps	384/240kbps	464/448kbps	492/492kbps
Streaming IP	32, 64kbps	32, 64kbps	32, 64, 128kbps	32, 64, 128, 256 kbps
ISDN	n/a	n/a	n/a	1 x 64kbps
Voice	RJ11 or Bluetooth handset/headset	RJ45 or Bluetooth handset	RJ11 or Bluetooth handset; 3.1kHz audio	ISDN handset
Data interfaces	USB, Bluetooth, Ethernet	USB, Bluetooth	USB, Bluetooth, Ethernet	USB, Ethernet, 802.11b WiFi
Environmental Tolerance	IP 44	IP 44	IP 54	IP 55

IsatPhone Pro





Ideal Emergency Communication





Product introduction



- The first Inmarsat global handheld
- Developed by Sasken Communications Technologies
- Manufactured by Elcoteq (Plant in Tallinn, Estonia) - world's 3rd largest manufacturer of mobile phone (Nokia, Sony Ericsson, etc.)
- Purpose-built for the Inmarsat network
- Optimised to give the best performance on Inmarsat satellites
- Designed for professional users



Product features



- Satellite telephony
- Voicemail
- Text and email messaging
 - Text-to-text
 - Text-to-email
 - Web message-to-IsatPhone
- GPS location data – view position and text
- Bluetooth for hands-free use



Your Benefits

- Global coverage
- Robust handset
- Clear voice quality
- Reliable network connection
- Long battery life
- Easy to use



Robust handset



- The most robust on the market
- Dust, splash and shock resistant
 - IP54
- Tolerates the widest range of conditions
 - Operational range: -20°C to +55°C
 - Storage range: -20°C to +70°C
- Humidity tolerance: 0 to 95%



Long battery life



- The longest in the market
- Talk time: up to 8 hours
- Standby time: up to 100 hours
- Power optimisation options
 - Deactivate screen and keypad lights
 - Deactivate Bluetooth

IsatPhone Pro – The First Inmarsat Global Handheld



Reliable network connection



- Delivered over the world's most reliable satellite network
- Operates on geostationary satellites
- Significantly less possibility of call dropping

Internet Thailand Public Company Limited (INET)

Thank you

