

QUESTIONS & ANSWERS

Inmarsat Global Area Network (GAN)

Mobile ISDN and Mobile Packet
Data Service (MPDS)



Super smooth inf



Uniquely, the Inmarsat Global Area Network (GAN) gives access both to the high quality and speed of a full 64kbit/s Mobile ISDN service and the world's first global Mobile Packet Data Service. For enterprises, this package delivers cost-effective, virtually global communications, providing immediate access to business critical information whenever it is needed. This means anything from high quality voice or wireless ISDN video conferencing, to high-speed e-mail and Internet connectivity. It's the natural global extension of an enterprise's intranet.

Information flow anywhere



Proven reliability

Inmarsat has been delivering effective communication solutions for more than 20 years. Via Inmarsat, customers have access to proven technology and outstanding service reliability.

High speed

A truly mobile office extension, the Inmarsat Global Area Network delivers fast e-mail, Internet access, image transfer and video communications.

Compact and convenient

The Inmarsat GAN offers the convenience of a global Mobile ISDN and Mobile Packet Data Service in one portable laptop-sized unit.

where

Compatibility

The Mobile ISDN and Mobile Packet Data Service integrate seamlessly with the corporate intranet, allowing users to run their existing applications through standard interfaces and protocols.

Cost-effective

Inmarsat customers can choose the most cost-effective service for their needs, be it Mobile ISDN or Mobile Packet Data – allowing 'always on' working.

Global coverage

Inmarsat's GAN provides mobile communication services to 98% of the world's landmass.

Global Area Network in Action

Virtual Private Networks

Security of your private data on public networks, typically the Internet, can be ensured through a Virtual Private Network (VPN). Privacy can be maintained by combining data encryption with sophisticated security procedures.

E-mail

Via the Inmarsat Global Area Network users receive reliable, quick and easy access to e-mail whenever and wherever it is needed. This provides continuity of normal working life beyond the reach of terrestrial communications.

Access to the Internet and Intranet

Reliable and fast access to the Worldwide Web or corporate intranet has become an everyday information and communication need. The Inmarsat GAN seamlessly integrates with corporate IT networks allowing users to access their intranet or the Internet at any time they choose, from virtually any location.

Video communication

The world demands 'live' footage of news as it breaks and the business world expects video conferencing as part of everyday life. The ability to send high quality digital video via Inmarsat's GAN has opened up new possibilities for broadcasters and enterprises including:

- Store and forward video (MPEG)
- Videoconferencing
- Video streaming
- Remote surveillance
- Telemedicine

E-commerce

The Inmarsat Global Area Network offers fast, flexible and secure access to 24-hour trading for individuals and organisations throughout the world. E-commerce transcends the traditional limits of time and distance as buyers and sellers receive 'business as usual' from any location at any time.

General GAN

1 What are the Unique Selling Points of GAN?

GAN uniquely offers global, mobile, high speed, data and voice communications. One GAN mobile satellite terminal supports two complementary services: a Mobile ISDN and Mobile Packet Data Service (MPDS). Providing these services allows users to balance the guaranteed speed of ISDN with the 'always on' connectivity of MPDS thereby optimising their communications and maximising cost-effectiveness.

2 How do MPDS and ISDN complement each other?

GAN's two services are complementary as they offer the user a choice of transmission technologies to suit their communication needs. When high bandwidth is required e.g. for videoconferencing and videostreaming, or when transmitting large files where speed is of the utmost importance Mobile ISDN is recommended. Other applications e.g. e-mail, accessing the corporate intranet and thin client activities which operate by sending and receiving packets of data punctuated by periods of inactivity are more efficiently dealt with by MPDS.

3 How will I know when to use one service rather than the other?

Knowing how the applications you are using work informs the decision as to which service to use. As a general rule, if the communication is interactive, involving a query/response activity, then MPDS is suitable. An example of this type of communication is online purchasing where a database of products is queried, the results viewed, a selection made and an order sent. Whilst you read and decide on the product, no data is being sent. This activity is well suited to MPDS as it is charged by the amount of data sent, not the length of time connected. Inmarsat and Klas Ltd. have developed an application called IP Consultant which runs in the background of an ISDN session, logging the flow of communication. This can be used to build an understanding of the usage pattern enabling an informed choice as to which service best fits individual applications. IP Consultant can be downloaded from www.klasonline.com

MPDS

4 What is MPDS?

MPDS is a packet-based network that supports IP-based applications now used within the majority of office systems today. MPDS carries user data across a shared 64kbit/s channel offering the end-user a service billed on volume as opposed to time.

5 How will MPDS help in my business?

MPDS extends the effectiveness of operatives in the field and the support they receive by enabling an 'always on' connection. Secure

and efficient integration with the company intranet enables personnel to work much as they would when in the office. Volume related billing means that information and reports can be received when they are sent, without incurring the costs otherwise associated with a continuous connection. MPDS benefits from the compatibility and robustness of packet data and the proven reliability of Inmarsat's ISDN satellite channel.

6 What is an example of a real life scenario?

A geophysics survey team is equipped with a GAN terminal connected to a PC used for data analysis and communication. The terminal keeps an 'open' MPDS connection that automatically sends system reports and continually monitors the company's internal e-mail over its secure intranet. An e-mail is received from the project manager asking for an urgent re-run of a particular seismic test. The team leader responds by making a voice call to clarify the test parameters. The results from the test are in the form of a 1MB data file which is uploaded using File Transfer Protocol (FTP) directly onto the company's knowledge management system over a secured ISDN link.

7 What are the right and wrong applications/conditions to use MPDS?

Most computer applications work in a 'half duplex' manner which means they either send or receive information and are inactive in-between. The periods of inactivity are typically down to the user and the system at the other end processing and responding to the request. This type of communication is suited to MPDS with examples being: small, frequent e-mails, IP/LAN connection, database access, thin client applications and web access. Supervisory Control and Data Acquisition (SCADA) applications such as unmanned automated monitoring systems are similarly suited to MPDS. Large file transfers, store and forward video, videoconferencing and broadcast quality audio links are better suited to full Mobile ISDN making effective use of the full bandwidth available.

8 What typical size of files should be sent over MPDS?

As with most software, different applications and file combinations will produce different results in terms of transfer times and efficiencies. In broad terms, MPDS is recommended for e-mails of less than 500 kilobytes and FTP file transfers of under 250 kilobytes.

9 Can applications be optimised for MPDS?

Inmarsat has produced detailed guides for optimising user's systems and applications for use with MPDS connections. These range from simple steps for the layman, up to complex registry settings for IT professional. See the Inmarsat's guide 'Optimising Operating Systems and Applications For Use Over MPDS'. Additionally a range of tailor-made solutions are available from application developers and system integrators that work with Inmarsat. For details please see Inmarsat's 'Directory of GAN Solutions Providers': www.inmarsat.com/support.cfm

10 Can all GAN terminals use MPDS?

In principle yes, all manufacturers of GAN terminals have, or plan to have, MPDS capable models in their range. However it is advisable to check with equipment dealers to ensure both the function of terminals and the support offered for MPDS.

11 Does my ISP offer MPDS?

Currently the ISPs which offer GAN services are likely to support MPDS. It is always advisable to check that the services offered by an ISP meet both current and future requirements.

12 What do I need to do with my PC to use MPDS?

Physically connecting the computer to a terminal requires either a serial port or USB cable depending on the model. Once installed, a new connection needs to be configured sometimes requiring a username and password. Both Inmarsat and equipment manufacturers produce a range of resources that support users in this process.

13 Can I be connected all the time to MPDS?

Yes it is possible to maintain an 'open connection' with MPDS (check with your ISP).

14 If I am connected all the time to MPDS, will I be charged?

Inmarsat Service Providers only charge for the data that the user sends and receives, allowing the user to remain connected without incurring charges for idle time. Some applications however generate small, periodic 'keep-alive' messages which are considered as user data and therefore do incur charges. This is most common in remote intranets where the network hardware periodically sends out signals to ascertain the network's status. It is possible to configure network hardware to reduce this load.

15 Are there any accelerators that can help improve MPDS use?

Internet accelerators change the settings of a computer's operating system, optimising them for the type of connection used and are appropriate for both ISDN and MPDS. Browsing accelerators are to be avoided with MPDS as they work by loading additional, unrequested Web pages during pauses in the network traffic thereby increasing costs. Alternatively, there are a number of compression products available from Service Providers that can significantly improve data throughput by reducing file size. Internet accelerators: Winbooster (winbooster.bizland.com), RealSpeed (www.semsoftware.com).

16 What connectivity can GAN offer to the corporate user

GAN can provide users with secure access to their corporate intranet at speeds that facilitate seamless integration into many IT systems so you can be out of the office but not out of touch. With its range of services, synchronising your e-mail or downloading the latest critical report can be done in a cost effective and timely manner.

17 Is MPDS secure?

For most users, MPDS is reliant on the internet for part of their connection path either taking them to a website or to the corporate intranet. This use of the Internet, whether via MPDS or simple landline, creates a range of security concerns which are overcome by standard software and hardware solutions used everyday in normal business. MPDS allows for the use of a whole range of security products including VPN technology to achieve the highest security levels when sensitive information is being transmitted.

18 What is a VPN?

Virtual Private Networks (VPN) connect remote users to corporate information resources, typically their intranets. Uniquely this connection takes place via the Internet implying a secure connection over unsecured, public resources. Users are recommended to use a security technology to provide a secure VPN service. VPNs are attractive in terms of cost, scalability and their support for connections.

19 What are the types of VPN that MPDS support?

MPDS supports the majority of the VPN protocols that work to L2TP (Layer Two Tunneling Protocol), IPSEC (IP Security Protocol) and PPTP (Point-to-Point Tunneling Protocol). Inmarsat has verified the use of popular VPN technologies including Windows 2000 VPN, Checkpoint and Cisco.

20 When using MPDS, do we lose incoming voice calls?

Currently yes, connection to MPDS blocks incoming calls, however in future both voicemail and call waiting facilities are planned as part of the service.

21 Can I use fax, on-line chat, streaming audio and video over MPDS?

All of these can be used over MPDS, however, streaming audio and video are better suited to Mobile ISDN.

22 Can a single MPDS terminal support a network of computers?

GAN usually supports a single IP address but by using a router it is possible for a number of computers to share the same connection.

23 Is it possible to have multiple sessions to different IP addresses?

Yes, in a similar way to a home or office internet service, once a session has been established to the Internet, it is possible to multiplex a number of IP sessions via the PPP link. This makes it possible for example to check your e-mails while running a file download in the background.

24 Will connection speed vary?

The bandwidth available to each MPDS user is reduced when additional users connect to the service. With bandwidth fixed at 64kbits/s per channel, increased network traffic results in decreased connection speeds. In response to this, Inmarsat systems continually monitor the connection speed available to each mobile user and can

add a number of further channels to service the demand. The effect of this action is to increase the available bandwidth, thereby maintaining connection speeds.

25 Does MPDS rely upon the same carrier technology as Mobile ISDN?

Both MPDS and Mobile ISDN are carried over the same satellite circuits which provide 64kbits/s of bandwidth. The difference is that ISDN is circuit-switched: one circuit per user, whereas MPDS is packet-switched with multiple circuits shared between multiple users.

ISDN

26 What is Mobile ISDN?

Inmarsat Mobile ISDN is a single 64kbit/s ISDN-B channel offering full duplex data at 64kbit/s. It does not provide the same bandwidth as terrestrial ISDN, since it has one 64kbit/s bearer ('B') channel rather than two. However a full 128kbits/s connection speed is attainable by linking two satellite terminals

27 What are the benefits of Mobile ISDN?

Mobile ISDN offers the user a dedicated high speed connection with a guaranteed service level making it suitable for transfer of larger files and more demanding applications. It supports the use of standard off-the-shelf equipment and many features of terrestrial ISDN including multiple subscriber numbering (MSN).

28 What real-life situations/applications is ISDN suited to?

ISDN is suitable for carrying broadcast quality audio, store and forward video, videoconferencing and telemedicine and any other application effectively using the full bandwidth of the link. It is also the choice for transferring large files using FTP, e-mail and generally when there is a need for the fastest, uninterrupted connection available.

29 How can I reduce my operating costs?

Several specialist manufacturers have produced file transfer and file batching applications designed to achieve fast data throughput over an Inmarsat GAN satellite link. Further economies can be achieved through the selective use of MPDS and ISDN and the implementation of compression technologies.

30 How does compression help?

Reducing the size of the files transferred reduces the time required and therefore the cost. There are software applications available which compress files into standard file formats such as MPG, JPG and ZIP.

31 How do I ensure end to end security over mobile ISDN?

Mobile ISDN supports the standard security measures implemented on your terrestrial network. There are two main ways to ensure

additional security, either via software or hardware encryption. This can extend to the use of governmental security devices such as STU-IIB and STU-III.

32 What are the different ISDN services?

Mobile ISDN offers a dedicated channel which provides the following services:

- high quality voice over 64kbit/s
- 3.1kHz audio channel that corresponds to PSTN voice, fax (up to 1.4kbit/s) and modem services
- 64kbit/s unrestricted digital information (UDI)
- 56kbit/s data (for the North American market)

33 Can analogue devices such as Group 3 fax machines be used over Mobile ISDN?

The 3.1kHz audio service enables high quality analogue connections. Group 3 fax machines for example can be plugged in via the analogue (RJ-11) port on the GAN terminal or an external ISDN terminal adapter (TA) and used to send and receive faxes at the full Group 3 rate (up to 14.4 kbit/s). Similarly computers running fax software are also compatible with 3.1 khz audio. A number of analogue devices can be connected to a single terminal each with its own unique telephone number. For more information see Inmarsat's 'Guide To Use Of Fax Machines Over Mobile ISDN' at www.inmarsat.com/support.cfm

34 Can I use G4 fax?

Yes, Group 4 fax can be used over Mobile ISDN. Group 4 fax supports transmission at 64kbit/s to another compatible Group 4 machine.

35 How do I get the highest transfer rate 128?

128 kbit/s connection speeds can be achieved through 'bonding' two Mobile ISDN bearer channels. Usually two GAN terminals are required, however Glocom (www.glocom-us.com) produce a dual channel terminal that enables two simultaneous Mobile ISDN circuits for 128kbit/s applications. A number of devices are available to establish the 128kbit/s bonding, these include products from Klas (www.klasonline.com), 7E (www.7e.com) and Livewire (www.livewire.co.uk).

36 Are there options to use ISDN for multiple voice/data operations as closed user groups?

Yes third party products are available which, under certain circumstances, enable a single ISDN channel to be used for multiple voice and data calls.

37 How does ISDN price performance compare with packet data?

Comparative cost depends on such factors as: file size, utilisation of bandwidth, means of transfer (FTP, e-mail) and specific protocols used. A general rule is that small, short, frequent exchanges of data are better suited to MPDS; whereas transmission of large files in conjunction with technologies that use the available bandwidth are cost-effective over ISDN.

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