Global Xpress

Changing what is possible in maritime communications

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Revision 2
Inmarsat Global Xpress Maritime

The new standard in maritime satellite communications

Reliable
- 5th Generation constellation
- Fully Funded
- Designed for global mobility
- Inmarsat quality standards, end-to-end

End-to-End Service
- Cost effective
  - Terminals
  - Airtime
- High performance
  - Includes FleetBroadband

Managed Solution
- For business & Crew
- Voice, video, data
- Application & Content
- Prepaid & Postpaid billing
Global Xpress Coverage
The Global Xpress Solution

Empowering Maritime Community Solutions
The Global Xpress Solution

- Designed and built by Boeing
  - 802HP Platform
- Owned and operated by Inmarsat
- Well tested, reliable platform
- 3 satellites provide global coverage

Empowering Maritime Community Solutions
The Global Xpress Solution

Shipboard Terminals

- Top quality, high throughput performance
- 60cm and 1m models available
- Inmarsat Type Approval ensures quality
- Upgradable Ku-Band terminals

Empowering Maritime Community Solutions
The Global Xpress Solution

Satellite Communications

- Designed by iDirect specifically for GX
- Close coordination with Cisco
- Enables advanced services to work between Cisco and iDirect platforms
  - Traffic prioritisation
  - Bandwidth management
  - Multicast

Empowering Maritime Community Solutions
The Global Xpress Solution

The Network Service Device

- Cisco 2911 Router platform
- On-board LAN, WAN, Telephone interfaces
  - Connect ship users to satellite terminals
  - Routing control of GX vs. FB
- Mass storage device for content hosting
- Cisco Cloud Application Hosting platform

Empowering Maritime Community Solutions
Global Xpress End-User Services

➢ **Browsing**
  • A high performance, fast browsing experience
  • Optimal performance through compression & acceleration
  • Ship owner controls: Whitelist and blacklist by site or categories

➢ **Multi-line Voice Service**
  • Cost effective voice services for the business and crew
  • Smart phone apps will enhance service
  • National number support

➢ **Video Chat**
  • Satellite optimized video calling service designed for GX
GX network design advantages

▷ **Redundant**
  - Dual Teleport design
  - Weather, maintenance, local outages

▷ **Expandable**
  - Additional Ka-band satellites can be added as needed

▷ **Hybrid L-band network**
  - Handles any Ka-Band interruption
  - Blockage, coverage, atmospheric, regulatory, equipment
  - Maintains IP and VoIP services
  - No additional costs

▷ **Futureproof**
  - Terminals capable of throughput over 10x current VSAT plans
  - Scalable Ka-Band network capacity – fourth satellite already on order
GX Application Development Platform
– Because the solution needs to be more than just fast
Empowering Applications and Content

New ways to Distribute Applications
- Third Party companies can list their applications on the GX portals
- Presented directly to the Ship Operators and Crew

New ways to buy services
- Shipping companies can subscribe to services
- Crew can purchase applications and services directly
- Facilitated through GX billing platform

New ways to use airtime
- Applications can dynamically allocate bandwidth
- Content Pre-Positioning services
Designed as an Open Architecture

Customers  Crew Members  VARs & SPs  Application Developers  Content Providers

Portal Web User Interface

Web Service (API)

Security & Access Control

Billing  Provisioning  Network Operations  Prepaid Platform  Application Hosting

Service Settings & Config  Customer Service (Ticketing)  Monitoring and service assurance  Content Hosting  Content Delivery

Global Xpress Core System Functionality

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Categories of APIs

**Global Xpress Network**
- GX System Status
- History / Logging information
- Configuration & settings
- Location Services
- In-app purchases
- Prepaid purchases
- Balance inquires / credit validation
- Dynamic Bandwidth Provisioning
- Traffic prioritization
- Ship and Shore data access
- Submit content for Pre-Positioning
- Access content distribution status
- Retrieve content from the NSD

**Shipboard Apps**
- System APIs
- Billing APIs
- Bandwidth APIs
- Content APIs

**Shoreside Apps**
- System APIs
- Billing APIs
- Bandwidth APIs
- Content APIs

**Access Control & Security**
- GX Software Developer Kit

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Optional Services Available with GX

- Real Time Traffic
- Content Pre-Positioning
Flexible Real-Time Bandwidth Control

Customer Bandwidth
(i.e. 1Mbps MIR / 256 CIR)

- VoIP
- Corporate Email & Data
- Browsing
- Traditional Application Data
Flexible Real-Time Bandwidth Control

Customer Bandwidth
(i.e. 1Mbps MIR / 256 CIR)

GX Dynamic Bandwidth Allocation

> Certain Apps may require additional bandwidth
  - Short term, high volume data needs
  - Customer does not want business traffic negatively impacted
  - Prepaid Applications, when the crew is paying for airtime directly
Flexible Real-Time Bandwidth Control

Entire GX Bandwidth Capacity
(i.e. 50Mbps total capacity to 60cm ant.)

Customer Bandwidth
(i.e. 1Mbps MIR / 256 CIR)
- VoIP
- Corporate Email & Data
- Browsing
- Traditional Application Data

Temporary Bandwidth

Application control of Bandwidth
- Uses API to open additional bandwidth
- Data traffic is passed over the satellite
- Application closes bandwidth

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Content Pre-Positioning Service

- Allows Data Files to be Pre-Positioned to the NSD
  - Content is uploaded to the Inmarsat core network
  - Peak and Off-Peak Delivery options
  - CAP is charged for successful deliveries only
  - Time to deliver files is dependent on file size

- Downloaded files are not ‘browseable’ to the shipboard users
  - Application is responsible to access files from the NSD
  - APIs to access Pre-Positioned files provided as part of the Inmarsat SDK
  - DRM (Data Rights Management) / encryption is the responsibility of the CAP
MultiCast Capabilities

GX Multicast introduces a step change in capabilities

- Highly flexible delivery options
  - To all ships in a fleet
  - To groups of ships
  - To ships in a geographic area
  - To all ships subscribing to specific services
- Broadcast data is stored within shipboard NSD for fast retrieval
- Minimal impact on network
Content Pre-Positioning Service

**Content is stored on the NSD**
- Held in local storage on the NSD
- Security ensures content is protected
- Data accessed via GX Application only

**Content is uploaded to GX**
- Content is upload to secure GX network
- Recipient list and priority is set
- Broadcast delivery begins

**GX Delivers the Content**
- Protected delivery over the GX Network
- Delivery achieved within specified timeframe
- CAP informed of non-deliveries
A revolution in maritime communications:

**Telemedicine**
- Telemedicine application get airtime when needed
- High quality without impact on business traffic
- Reduces cost for the shipping company

**Ship security**
- Dynamically open airtime during security event
- Immediate, no delays waiting for more bandwidth
- Secure, separated from normal Internet traffic.

**Crew services**
- Crew can buy a host of products and services directly
- No impact on business traffic
- Great end-user experience, reduces satellite usage
The Global Xpress Solution

- Innovative Airtime Services
- Rich Application Ecosystem
- World Class Development Partners
- Unparalleled Network Reliability
- Maritime Oriented Distributors

Global Xpress

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Providing five abilities to consider

- Viability of Supplier
- Stability of Service
- Reliability of Network end to end
- Scalability of Capacity
- Upgrade-ability to next generation

Inmarsat GX
Global Xpress Maritime

The high capacity, reliable, future-proof solution for maritime communications