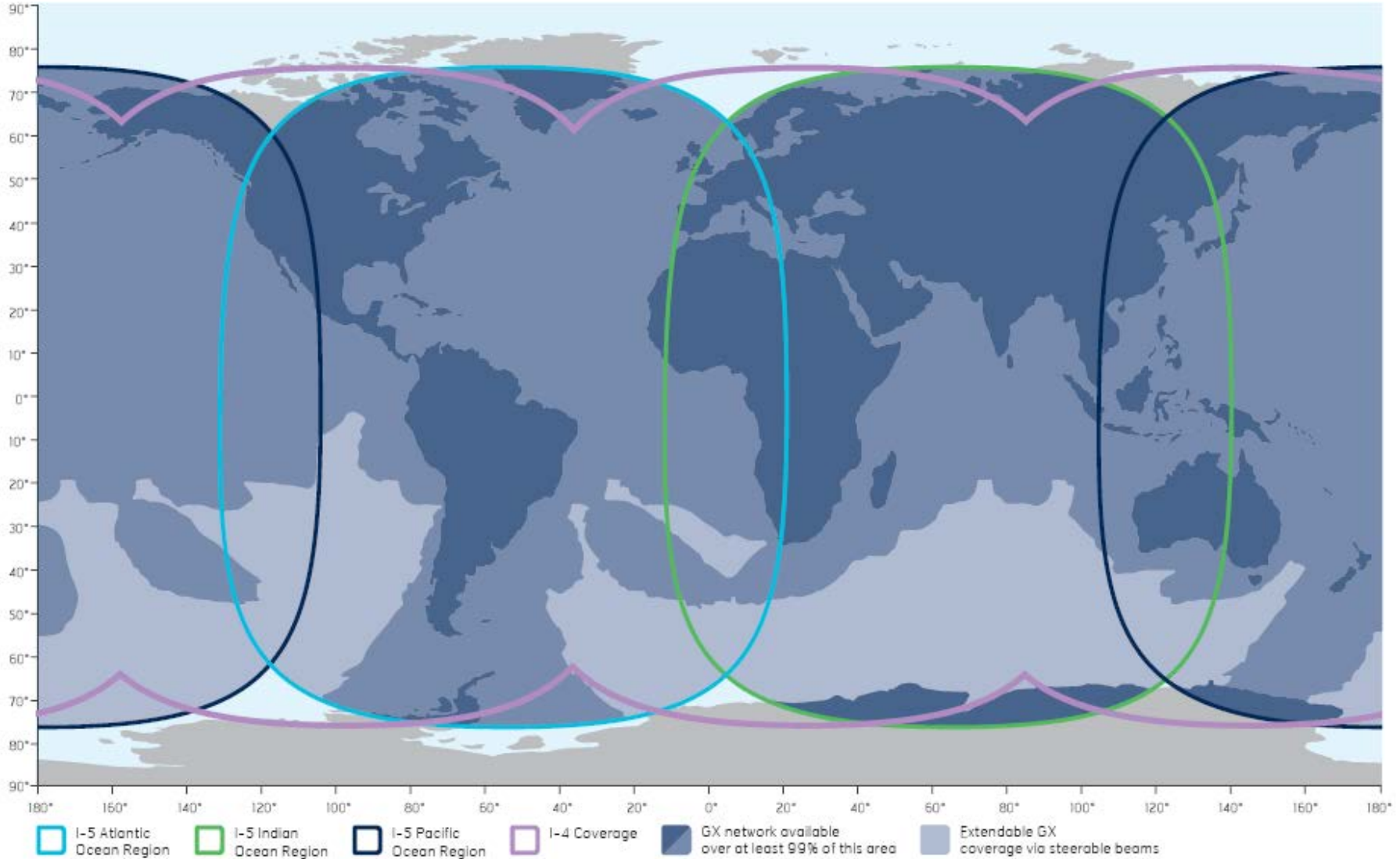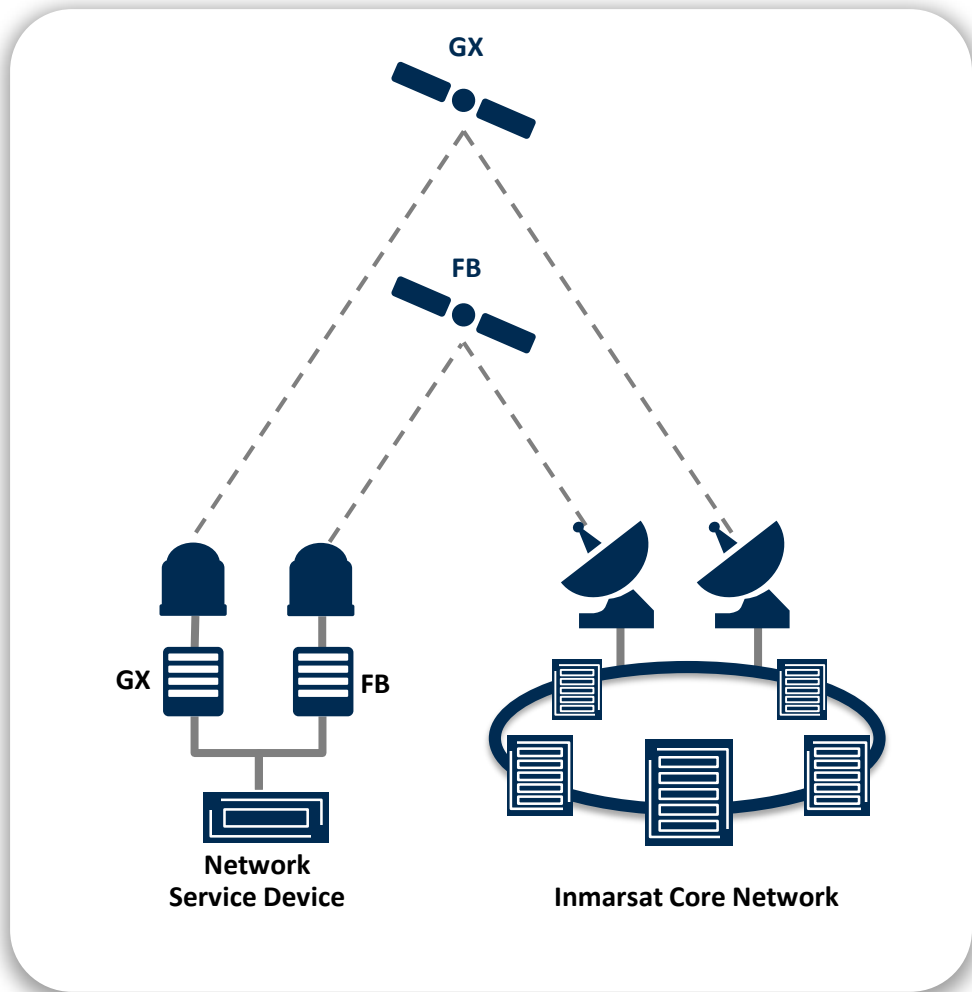# Global Xpress Overview

November 17, 2014
RVTECH Conference
Oregon State University
Corvallis, OR

Andrea Cortese
Director, Inmarsat Maritime

Global Xpress Coverage

Legend:
- ☐ I-5 Atlantic Ocean Region
- ☐ I-5 Indian Ocean Region
- ☐ I-5 Pacific Ocean Region
- ☐ I-4 Coverage
- ■ GX network available over at least 99% of this area
- ■ Extendable GX coverage via steerable beams

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Empowering Maritime Community Solutions

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The Global Xpress Solution
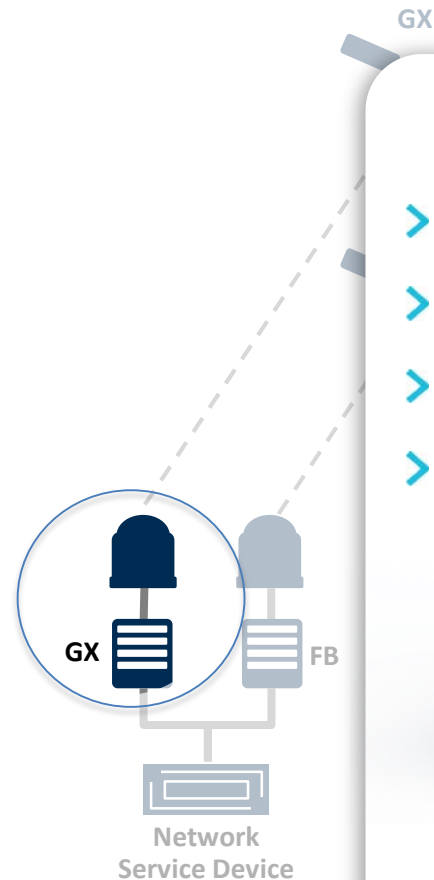
GX

BOEING

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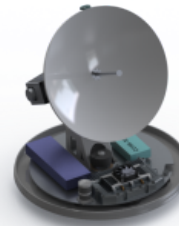> Well tested, reliable platform
>
> 3 satellites provide global coverage

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The Global Xpress Solution

GX

Shipboard Terminals

> Top quality, high throughput performance

> 60cm and 1m models available

> Inmarsat Type Approval ensures quality

> Upgradable Ku-Band terminals

Sea Tel COBHAM

Intellian®

JRC

GX

FB

Network Service Device

Empowering Maritime Community Solutions
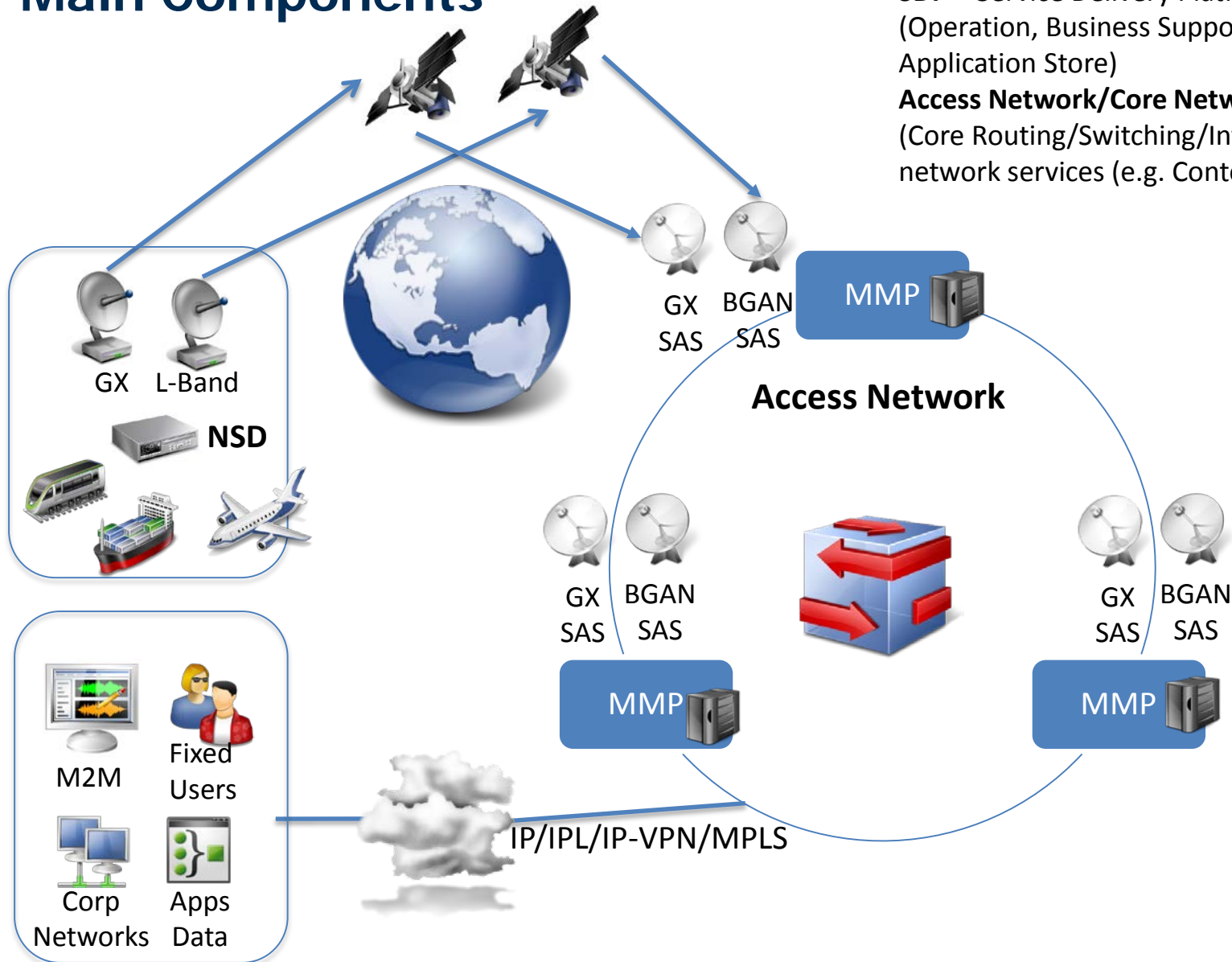
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The Global Xpress Solution

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

nmarsat Core Network

Empowering Maritime Community Solutions

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Inmarsat Gateway: Main Components

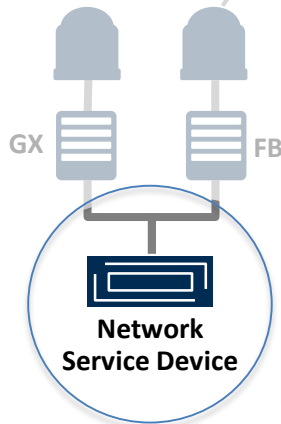**NSD** – Network Service Device (Edge Appliance/Server)
SDP – Service Delivery Platform (Operation, Business Support Systems & Application Store)
Access Network/Core Network (Core Routing/Switching/Interconnection & core network services (e.g. Content Delivery))

GX SAS   BGAN SAS

MMP

GX   L-Band

NSD

Access Network

GX SAS   BGAN SAS

GX SAS   BGAN SAS

MMP

MMP

M2M   Fixed Users

Corp Networks   Apps Data

IP/IPL/IP-VPN/MPLS

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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

GX   FB

Network Service Device

CISCO ™

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"Satellite Technology" does not matter

Ka-Band as a technology is not important, although…

- Ka-Band offers higher performance than Ku

- Spot beams ensure full power right to beam edge

- Smaller, more cost effective terminals

Shipping needs a solution that is…

- Reliable

- Available

- Operationally Effective

- Cost Effective

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

Empowering Applications and Content

New ways to Distribute Applications

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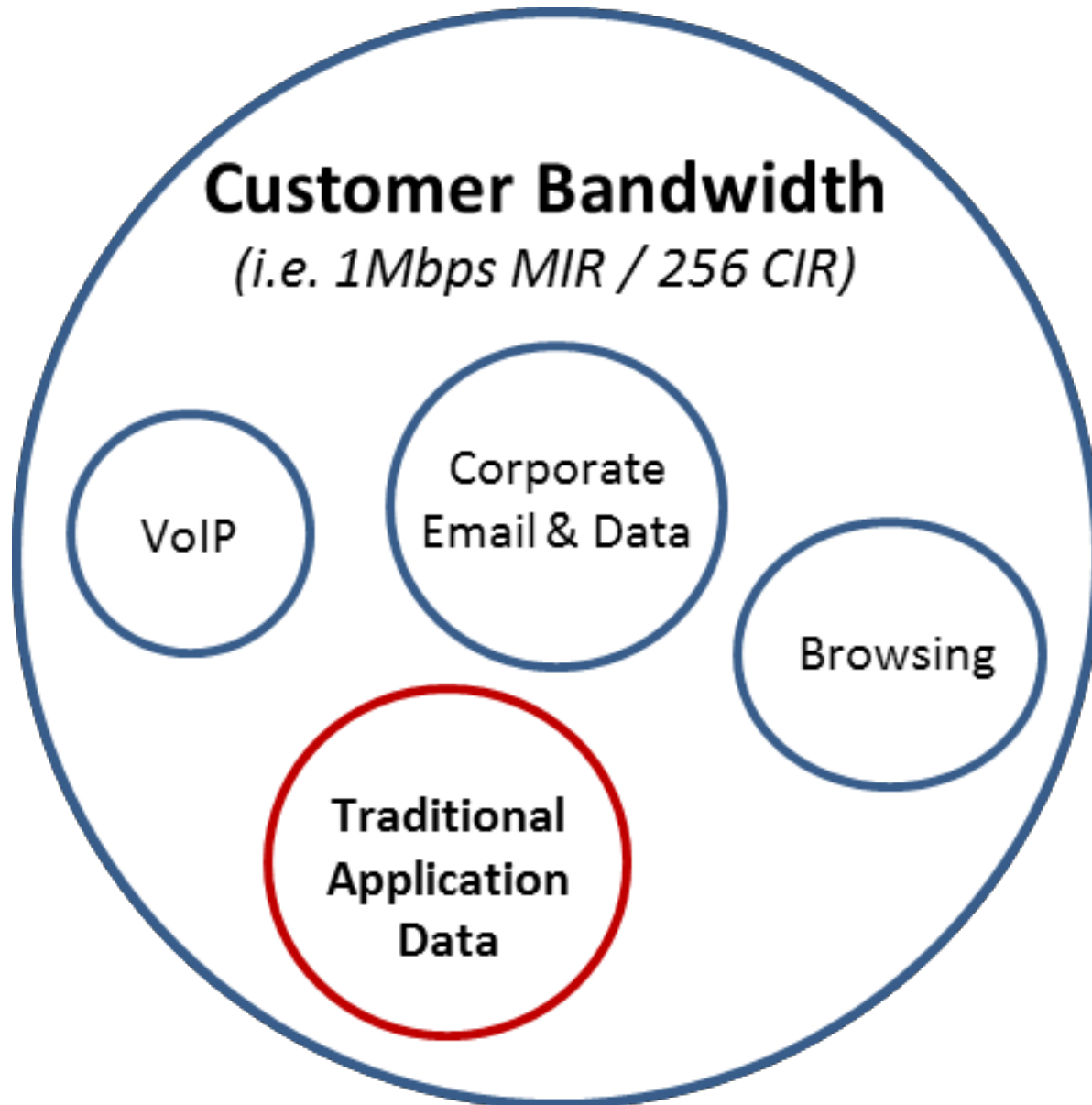- Presented directly to the Ship Operators and Crew

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

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Flexible Real-Time Bandwidth Control

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

VoIP

Corporate Email & Data

Browsing

Traditional Application Data

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Flexible Real-Time Bandwidth Control

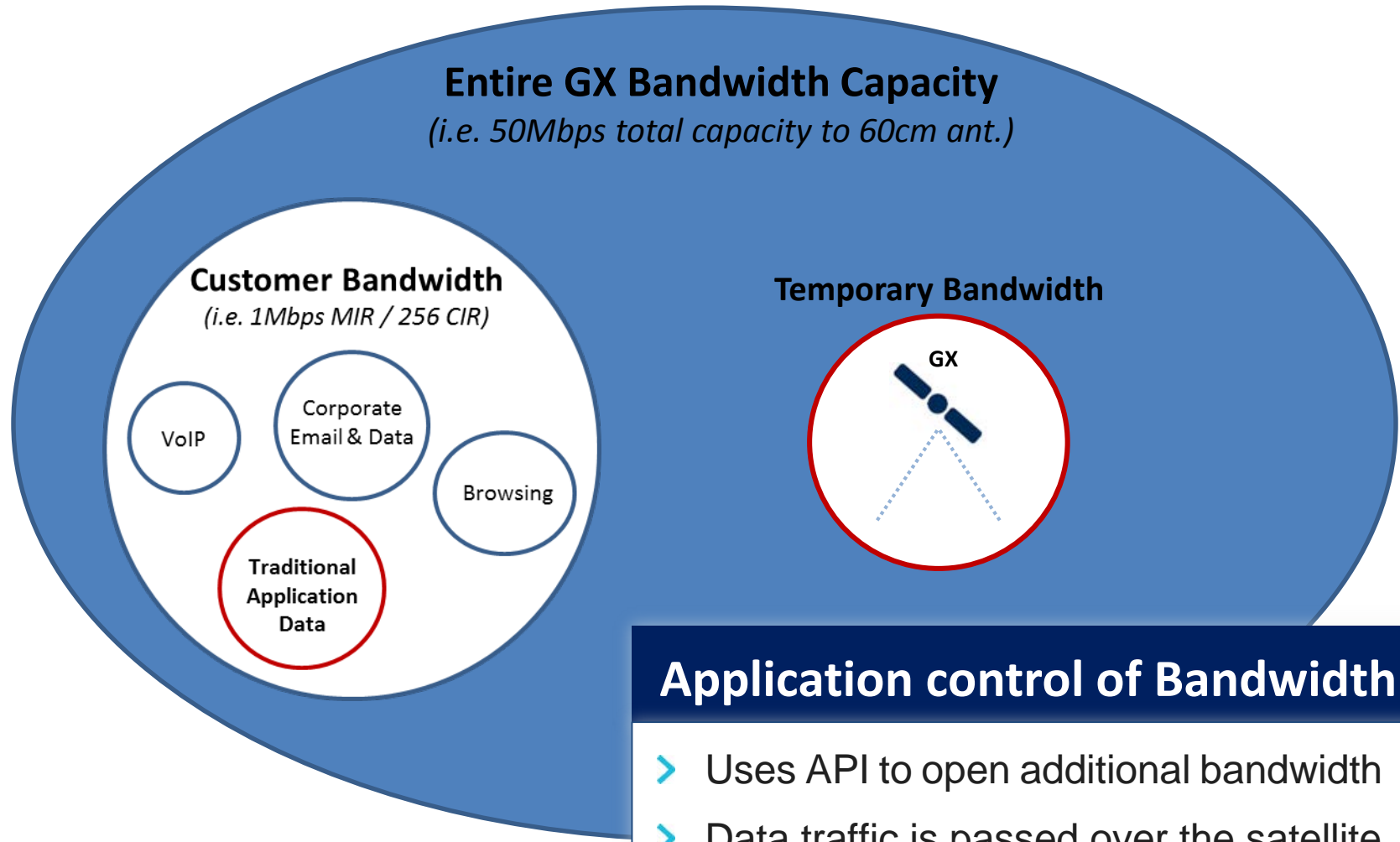**Customer Bandwidth**
(i.e. 1Mbps MIR / 256 CIR)

VoIP

Trad
Appl
Data

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

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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

GX

Application control of Bandwidth

> Uses API to open additional bandwidth

> Data traffic is passed over the satellite

> Application closes bandwidth

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

- 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

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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

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When will GX become available

> **Satellite Build Schedule**

- All three satellites for initial global service are complete and ready for launch
- Fourth satellite is already under construction

> **Satellite Launch Schedule**

- Inmarsat 5 - F1 – Launched December 2013
- Inmarsat 5 - F2 / F3 – Planning for Q1/Q2 2015
- Inmarsat 5 - F4 – to be determined

> **Current Status**

- F1 – In position, completed Alpha and Beta testing successfully
- Maritime terminals have passed network testing on F1
- Commercial Service begun for US Government customer on F1

> **Full Global Commercial Service**

- Planned for early in second half of 2015

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Thank You

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