Inmarsat Safety Services GMDSS

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Inmarsat Maritime

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Global Maritime Distress & Safety System

Communications are essential in order to provide effective means for distress alerting and SAR communications anywhere in the world
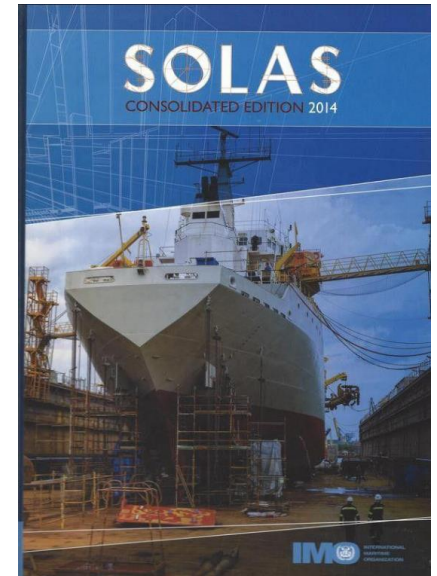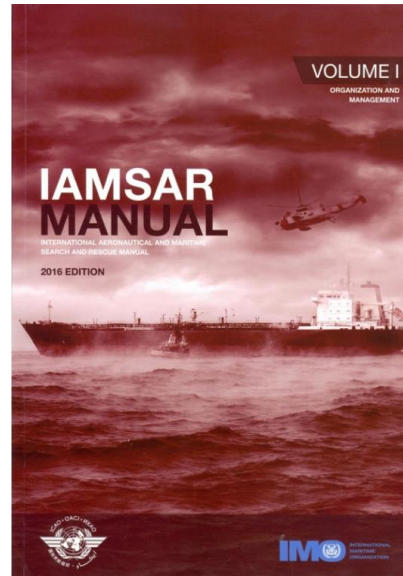
> SOLAS

Safety Of Life At Sea 1974 outlines the convention

- Construction
- Radio communications
- Carriage of cargoes

> IAMSAR

International Aeronautical and Maritime Search and Rescue

The Global Maritime Distress & Safety System

Mandated by the IMO in 1988 in an amendment to the 1974 SOLAS Convention. Fully implemented 1st February 1999.

Ships on International Voyage

Passenger Ship (12 passengers)

Fishing vessels

Cargo ships of less than 500 GT

Ships of War and troopships

Wooden ships of primitive build

Pleasure yachts not engaged in trade

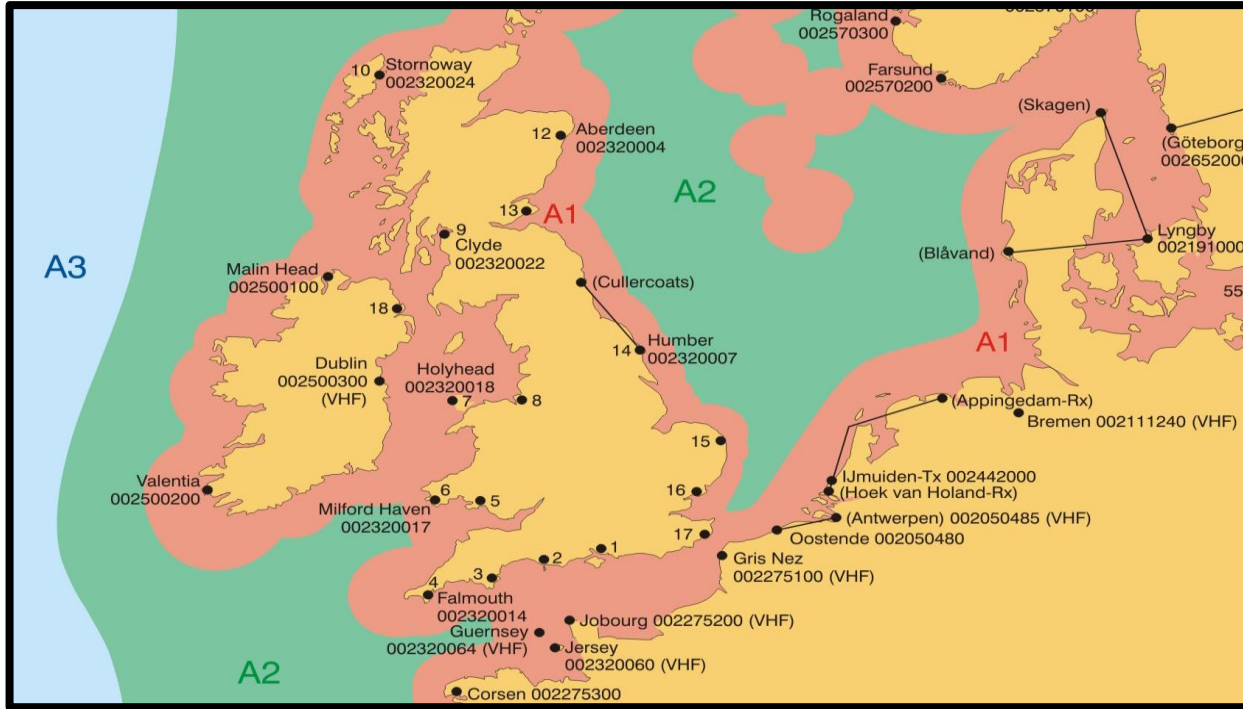Ships not propelled by mechanical means

The 9 Functions of the GMDSS and Inmarsat

GMDSS functions	Inmarsat C	Inmarsat F77	FleetBroadband (non GMDSS)
Distress Alert Ship to Shore	Yes	Yes	Yes
Distress Alert Shore to Ship	Yes	Yes	Yes
Distress Alert Ship to Ship	No	No	No
SAR Communications	Yes	Yes	Yes
On-Scene Communications	Yes	Yes	Yes
Tx / Rx Maritime Safety Information	Yes	Yes (Tx)	Yes
Locating Signals	No	No	No
General Communications	Yes	Yes	Yes
Bridge-to-Bridge Communications	Yes	Yes	Yes

Sea Areas

Area 1	Area 2	Area 3	Area 4
Coastal area within coverage of at least one VHF coast station with DSC	Area within coverage of at least one MF coastal radio station	Area within coverage of Inmarsat geostationary satellites	Area outside sea area A1, A2 and A3
20-30 NM	150-200 NM	150-200 NM	>76 degrees North and South

Example of GMDSS sea are coverage with DSC

Inmarsat's role in GMDSS

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Inmarsats role within the GMDSS

Inmarsat provides the space segment necessary for instant and reliable Distress and Safety satellite communications for the maritime community

Inmarsat offers three satellite communications systems designed to provide most of the GMDSS medium and long range functions:

➢ Inmarsat Fleet 77

➢ Inmarsat C

➢ Fleet Safety (2019)

➢ RescueNET

➢ SafetyNET (II)

FleetBroadband is capable of all Inmarsat C and Fleet 77 GMDSS functions and currently under IMO approval for GMDSS

Inmarsat GMDSS services

Complete safety services

Distress Alert	Priority alert to the RCC via data services
Voice Distress	Priority voice call connection to RCC
MSI	Navigational, meteorological and SAR Safety Information
Short Access Codes	32- Medical Advice 38-Medical Assistance 39-Maritime Assistance 41-Meteorological Report
Distress Alert Relay	Priority alert broadcast from shore to ship via EGC
2-Stage Dial	Shore to Ship Distress Priority voice call
General Communications	

1.5m

Seafarers **rely** on Inmarsat Safety Services **globally and daily**

>30,000

EGC SafetyNET messages

Broadcast over Inmarsat's network **every month**

6 distress alerts / calls

each day on Inmarsat services

17hrs

of Voice Distress Calls on **FleetBroadband** in 2016

78 Inmarsat Fleet 77 LES globally, providing shore side **redundancy** and **resilience**

Inmarsat C LES globally, providing shore side redundancy and resilience **32**

4 Satellite contingency exercises carried out **annually** to prepare for the worst case scenario
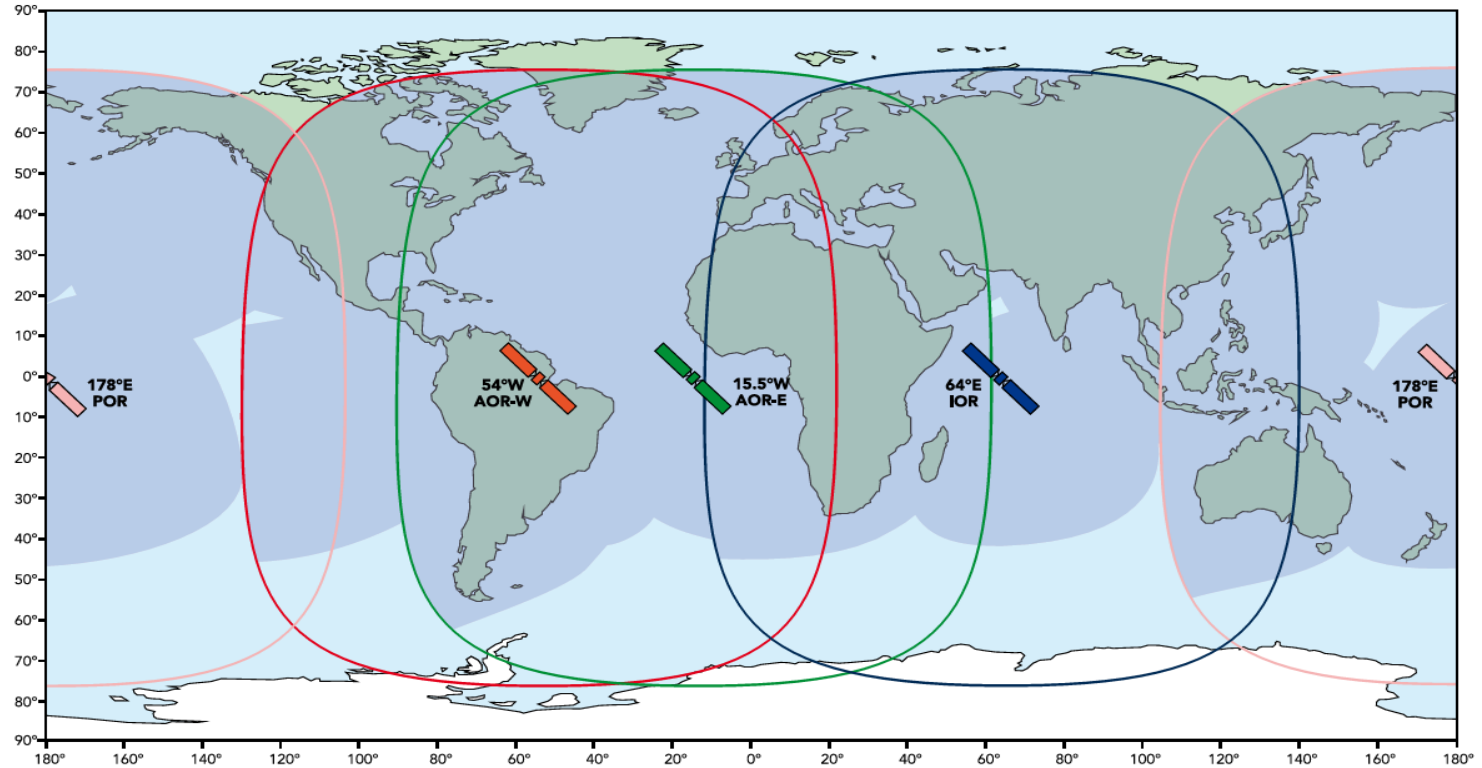
1hr Restoration of satellite services

99.95%
availability on I3 & I4 satellite constellations year on year

Inmarsat primary satellite constellation

Global beam coverage
- ▬ Pacific Ocean Region
- ▬ Atlantic Ocean Region–West
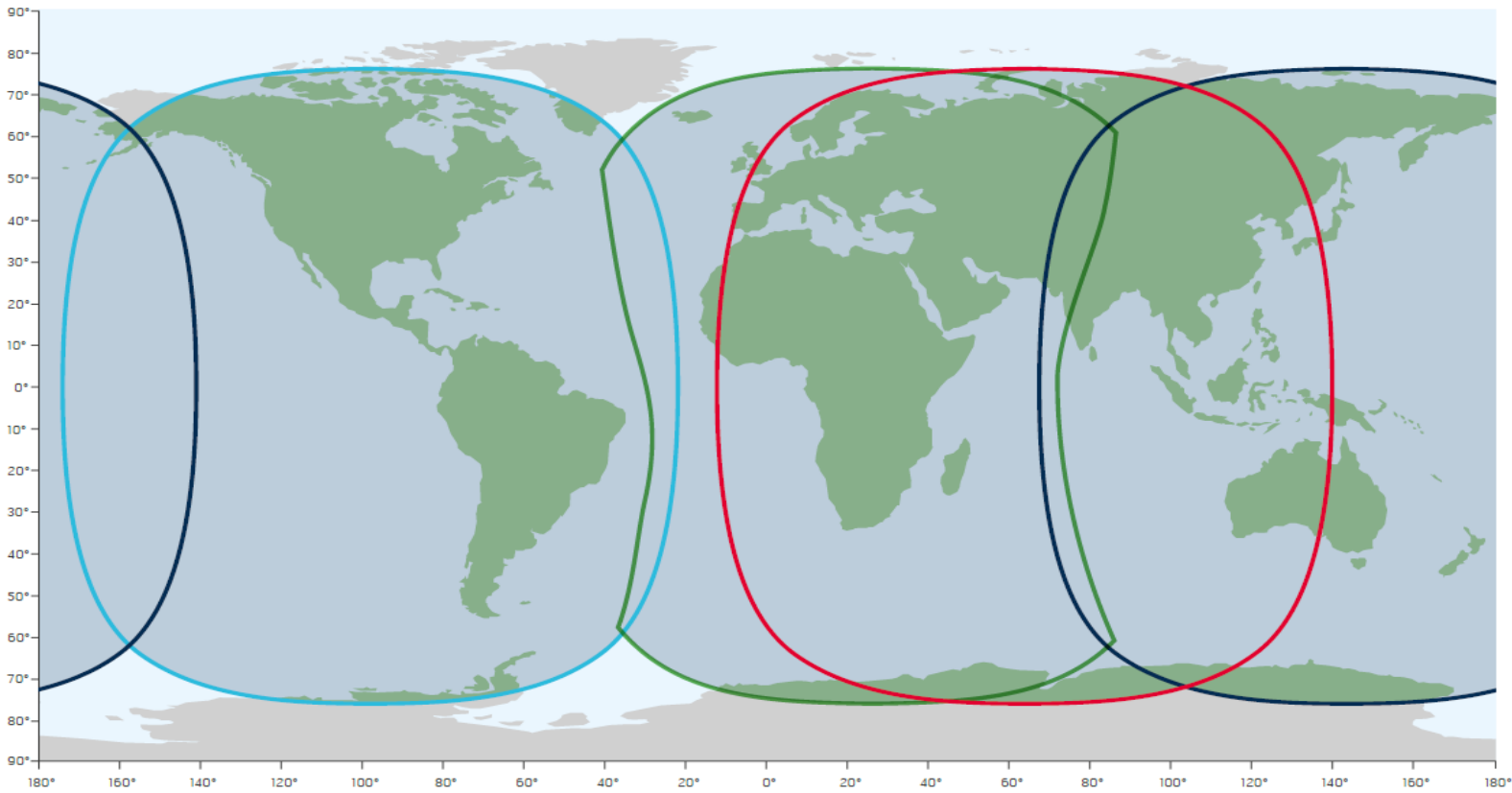- ▬ Atlantic Ocean Region–East
- ▬ Indian Ocean Region

Global beam services
Fleet 77 voice, fax, MPDS, 64kbps
ISDN
Fleet 55, 33, voice
IsatM2M
Inmarsat B (all services)
Inmarsat M (all services)
Inmarsat C (all services)
Inmarsat D+ (all services)

Spot beam services
Fleet 77 128kbps ISDN
Fleet 55 fax, ISDN, MPDS, 3.1Khz audio
Fleet 33 fax, 9.6kbps data, MPDS
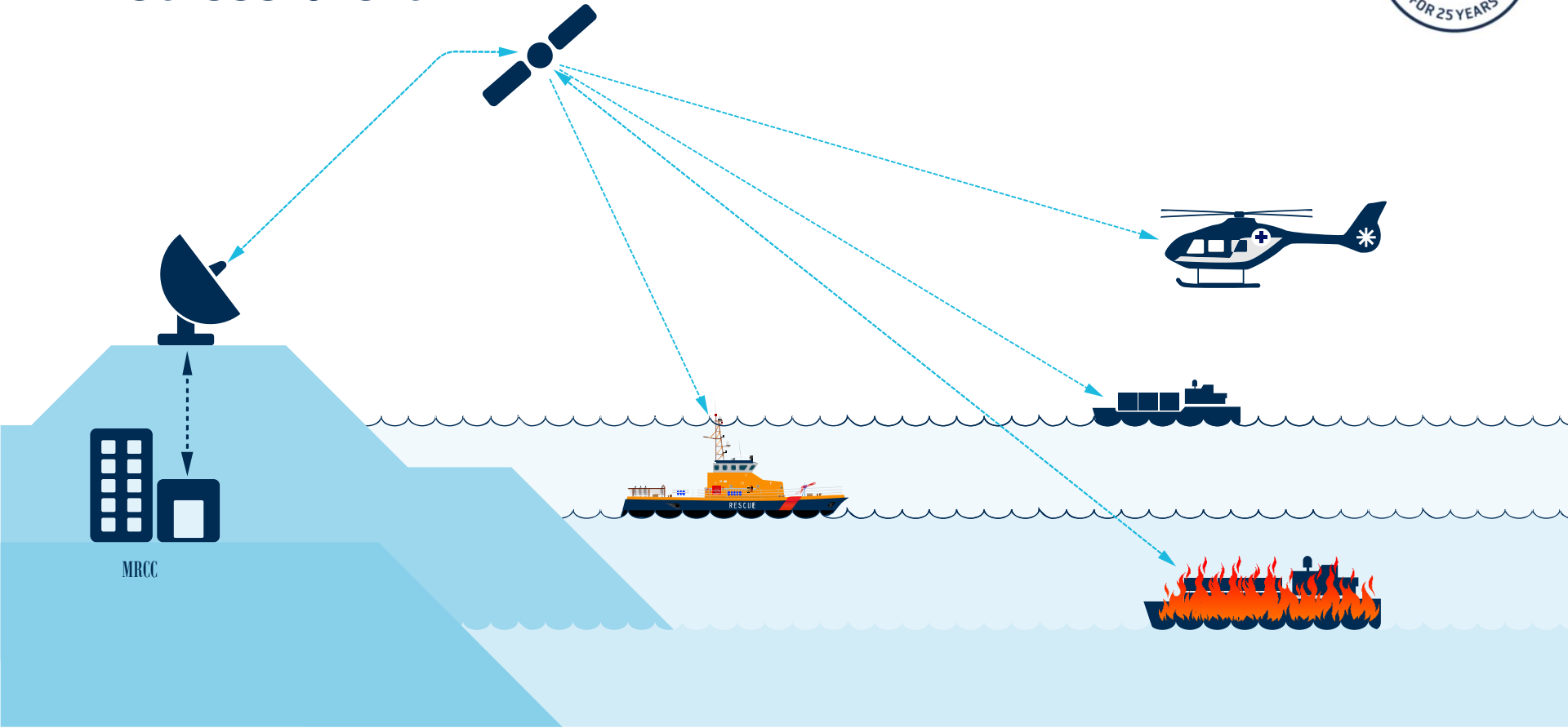Mini M (all services)

Inmarsat I4 satellite constellation

Combined I-4 and Alphasat coverage	I-4 Americas	Alphasat	I-4 MEAS	I-4 Asia-Pacific	

This map depicts Inmarsat's expectations of coverage following the commercial introduction of Inmarsat's fourth L-band region, scheduled for the end of 2015. It does not represent a guarantee of service. The availability of service at the edge of coverage areas fluctuates depending on various conditions. SwiftBroadband coverage December 2015.

Inmarsat C safety

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Distress alert

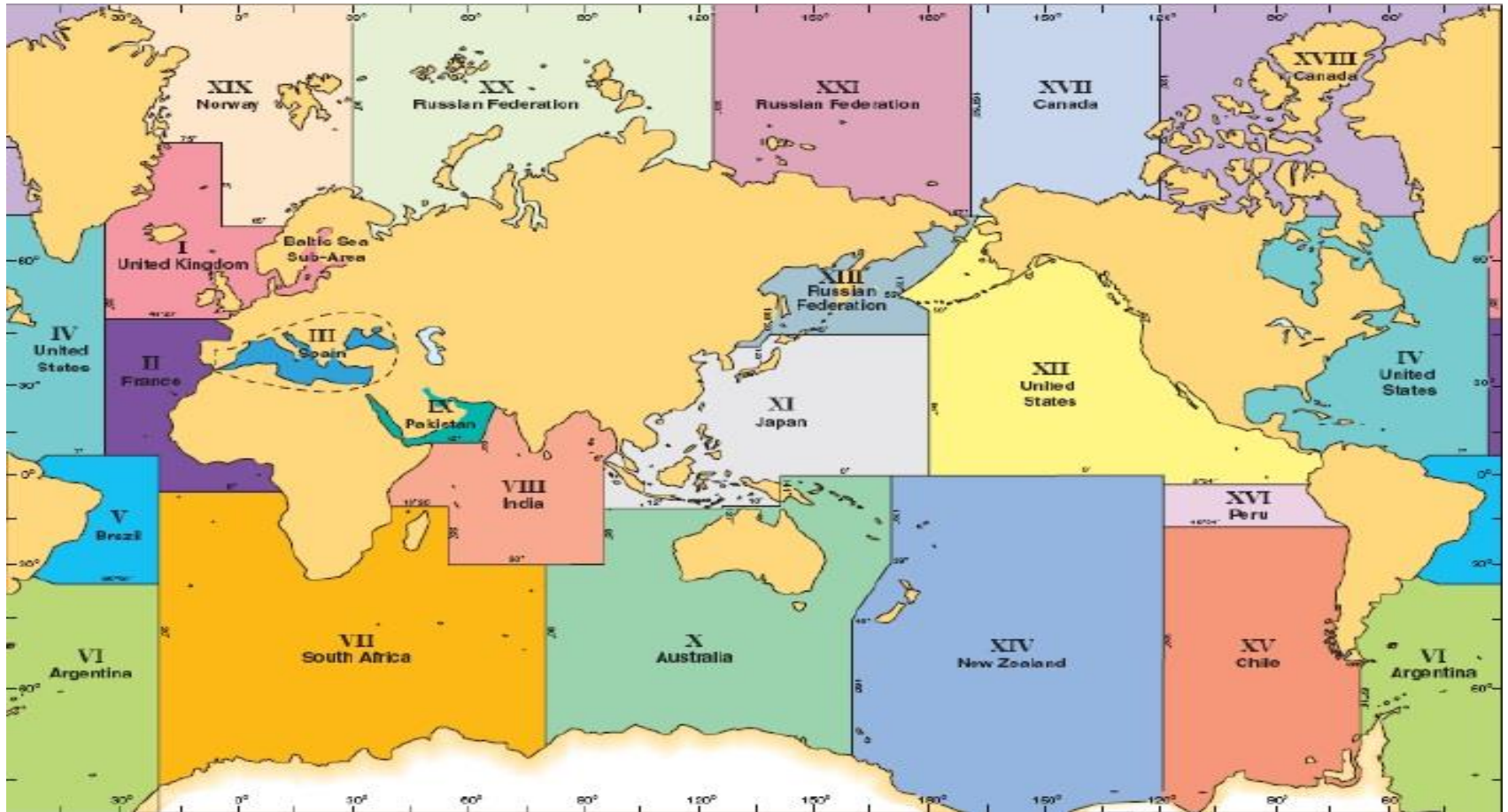INMARSAT C
SAVING LIVES
FOR 25 YEARS

MRCC

Maritime Safety Information (EGC) services

The international system for broadcasting and automatic reception of Maritime Safety Information and Search & Rescue communications
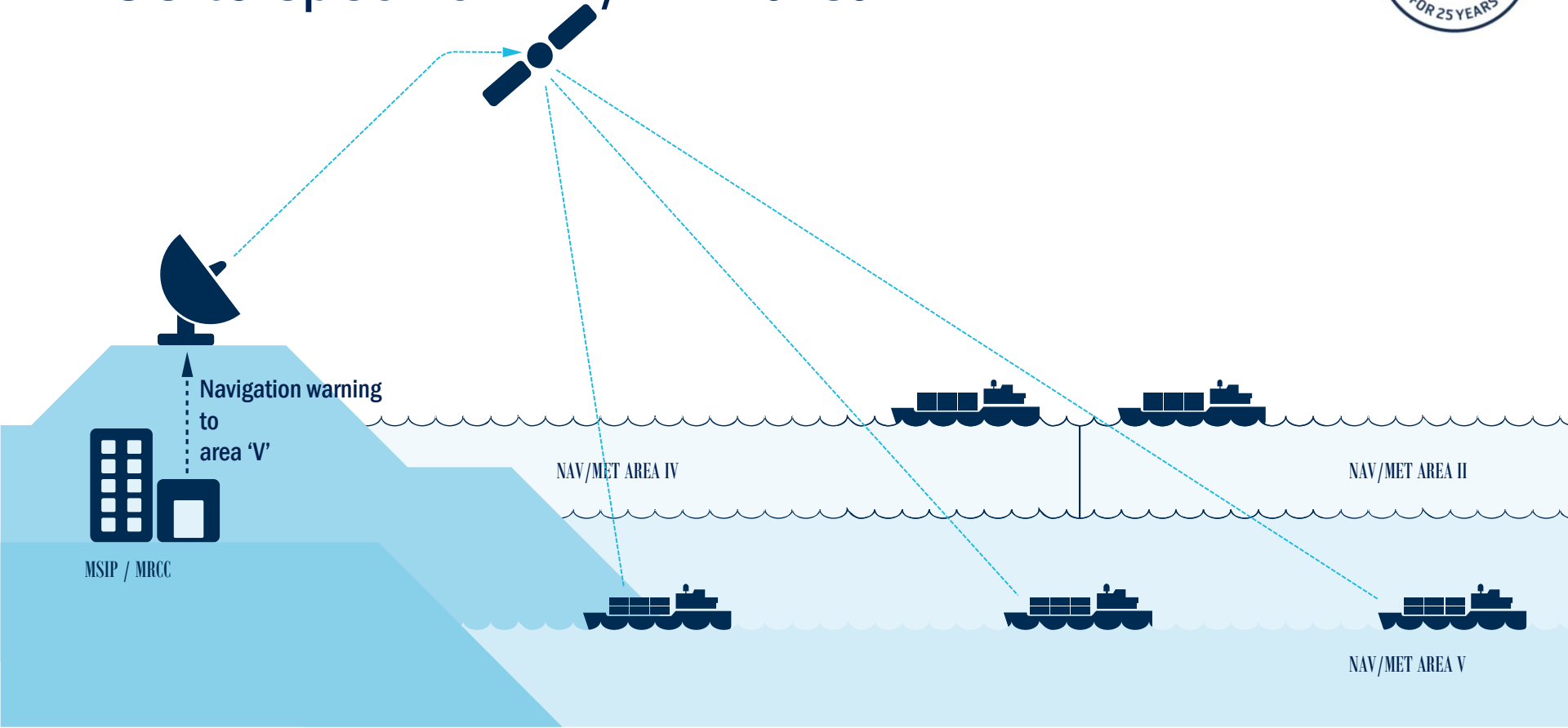
EGC SafetyNET (II)

> Navigational Warnings

> Meteorological Warnings and Forecasts

> Tsunami Warnings

> Coastal Warnings

> Piracy and armed robbery

> Distress Alert Relay (Shore-to-Ship)

> Search & Rescue communications

NAVAREAS / METAREAS

EGC to specific NAV/MET area

Navigation warning to area 'V'

MSIP / MRCC

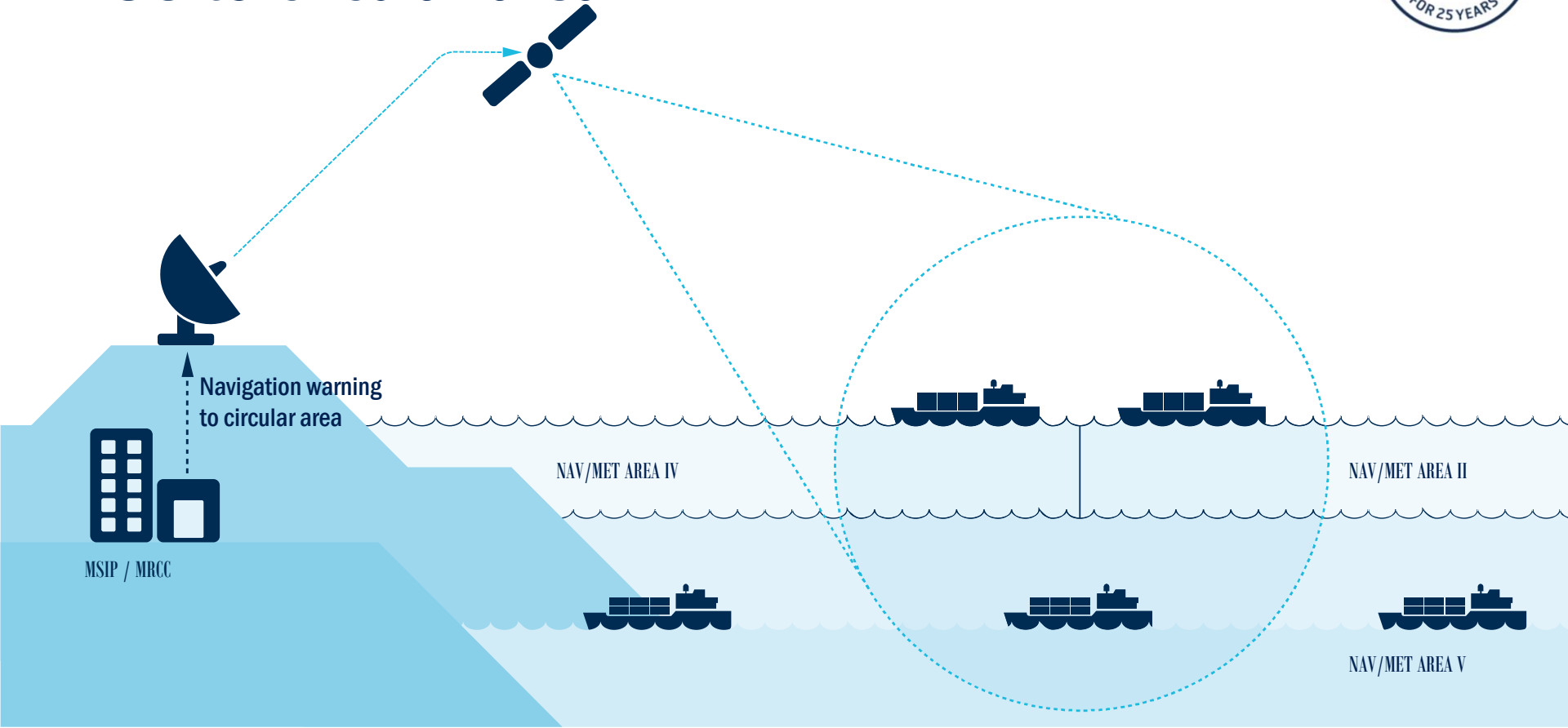NAV/MET AREA IV

NAV/MET AREA II

NAV/MET AREA V

SAVING LIVES FOR 25 YEARS

INMARSAT C

EGC to circular area

INMARSAT C
SAVING LIVES
FOR 25 YEARS

Navigation warning
to circular area

MSIP / MRCC

NAV/MET AREA IV

NAV/MET AREA II

NAV/MET AREA V

EGC to rectangular area

INMARSAT C
SAVING LIVES
FOR 25 YEARS

Navigation warning to rectangular area
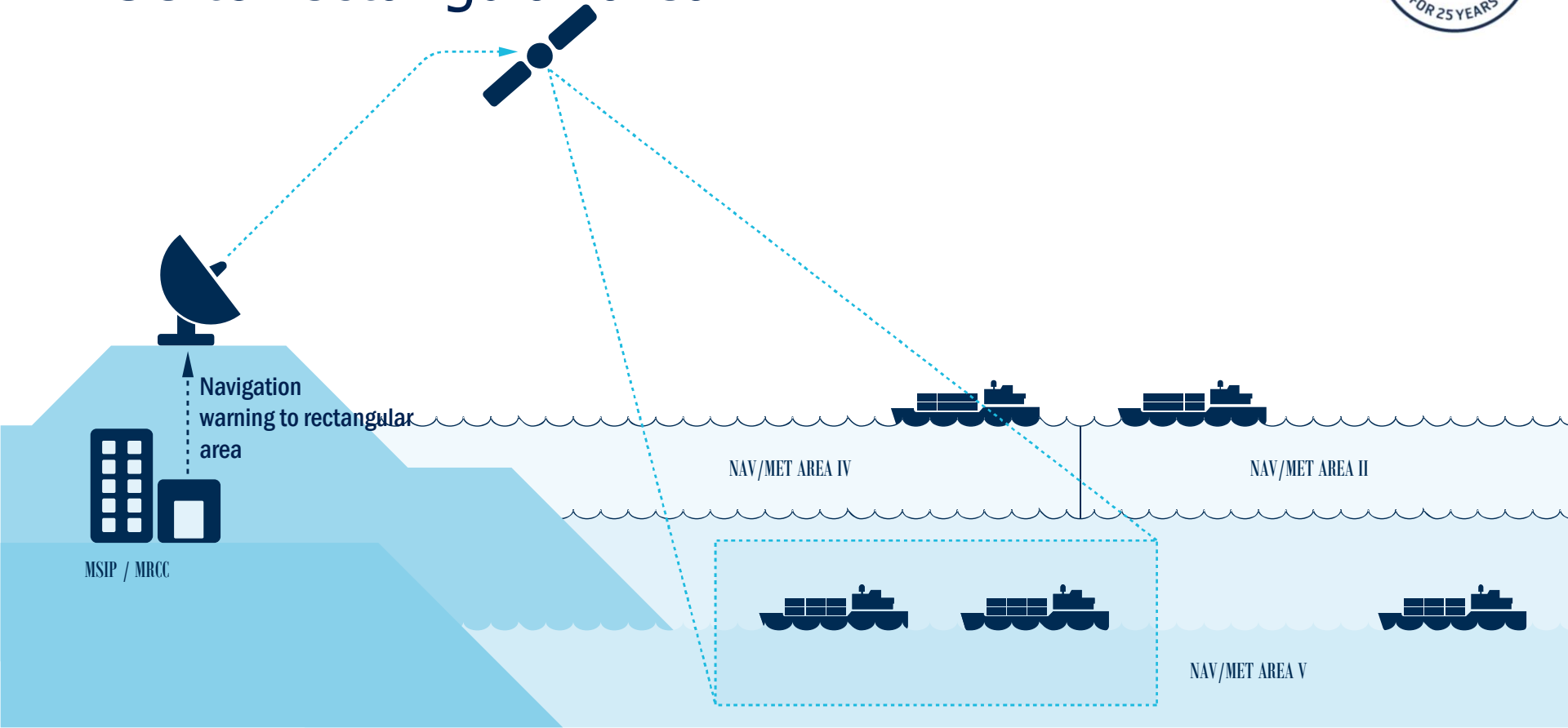
MSIP / MRCC

NAV/MET AREA IV

NAV/MET AREA II

NAV/MET AREA V

Inmarsat C / Mini C functions

GMDSS carriage requirement store and forward device

- Distress Alert

- Safety / Urgency / Distress Messaging

- Maritime Safety Information

- LRIT (Long Range Identification and Tracking)

- SSAS (Ship Security Alert System)

- VMS (Vessel Monitoring System)

- Commercial services

Inmarsat Fleet 77

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Fleet 77

Fleet 77 Voice Distress

- Voice Distress

- Short Access Code dialling
    - 32-Medical Advice
    - 38-Medical Assistance
    - 39-Maritime Assistance
    - 41-Meteorological Report
- 75-90 cm Antenna
- Global voice, data and fax
- Mobile Packet Data Service (MPDS)
- 64 and 128 Kbps ISDN circuit switched options

The only IMO approved global Voice Distress System

Priority and Pre-emption

Resolution A.888(21) introduced after the fire and sinking of the Achille Lauro in 1994

➢ Priority

        Distress

        Urgency

        Safety

        Routine

➢ Pre-emption

All Inmarsat GMDSS Safety Services, Ship-to-Shore and Shore-to-Ship, have IMO approved priority and pre-emption

Inmarsat FleetBroadband Safety

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What is FleetBroadband?

Trusted (L-band) service keeps vessels connected globally

Always-connected	99.9% network availability	Designed for mobility	Additional non-SOLAS safety services

FleetBroadband Safety Services

Continued investment in Safety Services on L-band

> 505 emergency calling (non-GMDSS)

> Voice distress – Pending GMDSS approval
>> Meets all IMO requirements
>> Resolution for priority and pre-emption

> Fleet Safety– Pending GMDSS approval. IMO assessment against Resolution A.1001(25) passed 100%
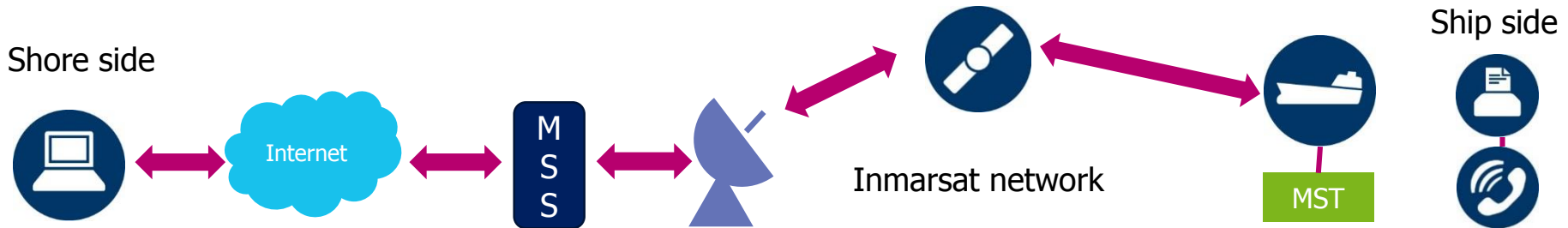
Looking to the future with FleetBroadband

Global satellite data and voice service

> Proven and trusted by over 40,000 vessels

> Continued investment for the next 20 years and beyond

> Trusted back-up for our latest high-speed connectivity service Fleet Xpress

Maritime Safety Data Service (MSDS)

Enhanced safety over Inmarsat FleetBroadband

Shore side

Internet

M S S

Inmarsat network

Ship side

MST

99.9% network availability over our secure satellite and ground network	Inmarsat C data and Fleet 77 voice services	Distress chat functionality	RCC / MSIP enhanced functions

FleetBroadband - Maritime Safety Data Service (MSDS)

Distress Alert

Data message to RCC containing vital vessel information: Position, MMSI, Phone number

RCC look up

Vessel can chose preferred RCC as well as default

505

NON SOLAS / no priority and pre-emption. All terminals

Distress Chat

Real time group communications to facilitate rescue coordination

Priority message

2 way priority ship to shore / shore to ship messaging

MSI

Reception of SafetyNET and SafetyNET II safety broadcasts

Voice Distress

IMO compliant, type approved for JRC and Cobham. Awaiting IMO approval

Thank you