



IHO – WWNWS SUB-COMMITTEE MEETING
(WWNWS 8)
ALESUND, NORWAY
12-16 SEPTEMBER 2016



AGENDA

- IMO – IRIDIUM GMDSS RECOGNITION PROCESS
- REQUIREMENTS
- MILESTONES
- IRIDIUM SYSTEM
- BROADCASTING MSI
- SAMPLE GMDSS “RECEIVER”
- SAMPLE MSI PROVIDER INTERFACE (REVISED)
- NOTE ON COSTS
- DEMONSTRATION SET UP
- LIVE DEMONSTRATION

BACKGROUND – IMO PROVISION FOR NEW GMDSS PROVIDERS

- IMO policy to encourage additional GMDSS service providers
- IMO recognition of GMDSS satellite service providers governed by functional requirements of:
 - **Resolution A.1001(25)** *Criteria for the Provision of Mobile Satellite Communication Systems in the Global Maritime Distress and Safety System (GMDSS)*
 - **Circular 1414** *Guidance to Prospective GMDSS Satellite Service Providers*

IRIDIUM APPLICATION FOR IMO GMDSS RECOGNITION

- Formal IMO application process initiated in 2013
- IMSO Experts Group: assessment against Res.1001(25) functional requirements
- IMSO Experts Group completed 8-month assessment, finding:
 - Iridium system capable of meeting all functional requirements, **but . . .**
 - Remaining implementation and operational requirements to be demonstrated due to Res.1001(25) “chicken or egg” problem

IRIDIUM APPLICATION FOR IMO GMDSS RECOGNITION

- Current status
 - **NCSR 3 --** Recommended “Two Step Approach”
 - Developed “comprehensive list of conditions” remaining before recognition – Annex 1 of Comms WG
 - Recommended that MSC 96 “endorse the view” of NCSR 3
 - Suggested that IMSO report progress to future meetings of NCSR
 - **MSC 96**
 - Endorsed NCSR language and Annex: “Endorsed the view that Iridium could be incorporated into the GMDSS subject to compliance with outstanding issues, as set out in annex 1 to document NCSR 3/WP.5”, subcommittee to advise on progress

PRIMARY REQUIREMENTS

- Develop Standards for Equipment
- Fully implement MSI Broadcast Service
- Integrate with MSI providers and at least 1 RCC
- Provide “bells and whistles” at Iridium Gateway
- Demonstrate compliance with operational and functional requirements to IMSO for Report to NCSR

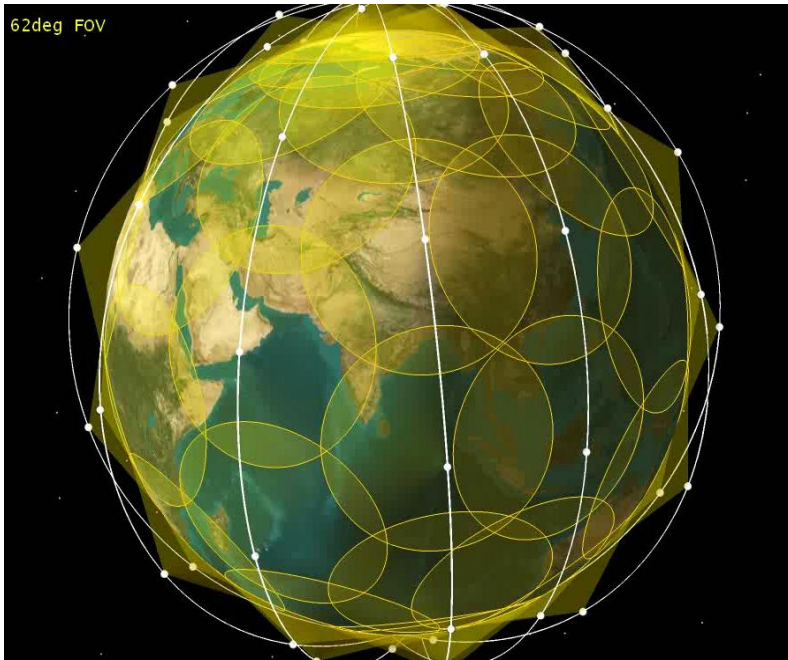
MILESTONES (BROAD OVERVIEW)

<u>MILESTONE</u>	<u>MEETING</u>	<u>DATE</u>
Performance Standard (Subject to agreement by MSC)	NCSR-4	March 2017
Work on Iridium MSI Manual For Drafting Group Consideration	WWNWS-DG	March 2017
Prototype Equipment Available		2Q 2017
Begin “Real World” no cost Testing (Ship & Shore) For ships – equipment installed pursuant to Waivers granted by various administrations		3Q 2017
Begin testing and integration with MSI Providers And RCC(s)		3Q 2017
Consider Iridium MSI Manual	NCSR-5	March, 2018

MILESTONES (BROAD OVERVIEW)

<u>MILESTONE</u>	<u>MEETING</u>	<u>DATE</u>
Recommend recognition of Iridium as GMDSS Provider	NCSR-5	March 2018
MSC Recognizes Iridium as GMDSS Provider	MSC 99	June 2018
Recognition and all approvals received from IMO, SOLAS Amendments adopted, commence providing GMDSS services		1Q 2020

UNIQUE IRIDIUM NETWORK



The Iridium mobile-satellite system has been in continuous operation for almost two decades and currently serves over 800,000 subscribers in aviation, marine, industrial, government - including first responders. The satellite constellation covers every inch of the earth's surface through its 66 satellites in low earth orbit (LEO) that intersect over the north and south poles. Each satellite in the system is connected to adjacent satellites through Iridium's unique cross-link architecture.

- 6 orbital planes (rings) of 11 cross-linked satellites each
- North bound on one side of earth and south bound on other
- 780 km altitude, 17,000 mph
- 100 minute orbital period
- About 8 min. across the horizon

IRIDIUM BROADCAST SERVICE DELIVERY AREAS (REVISED)

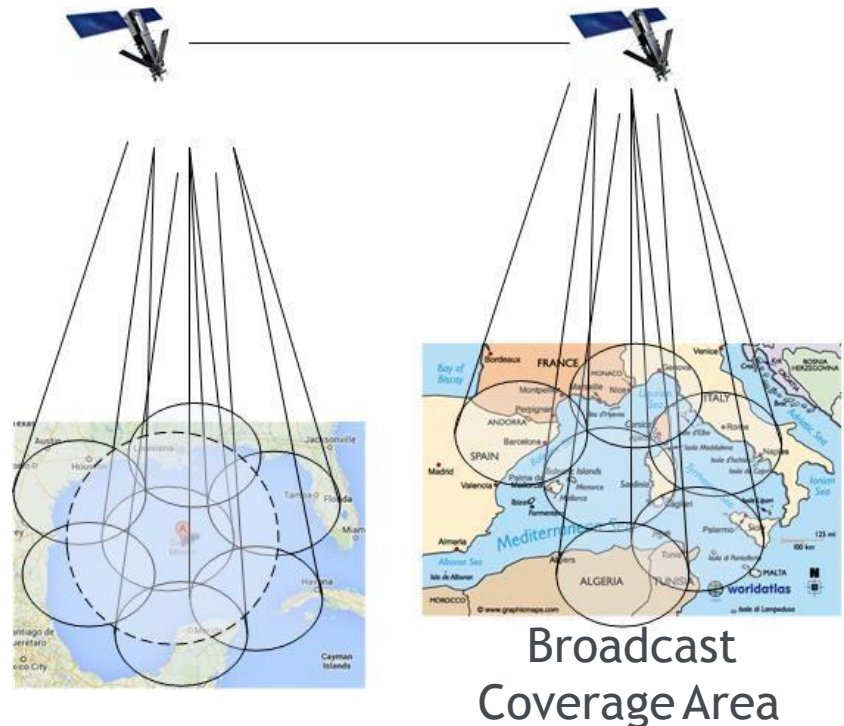
There are currently four methods of identifying the destination delivery area for an Iridium broadcast transmission:

- Point and Radius
 - Defined using latitude/longitude and radius

Rectangle

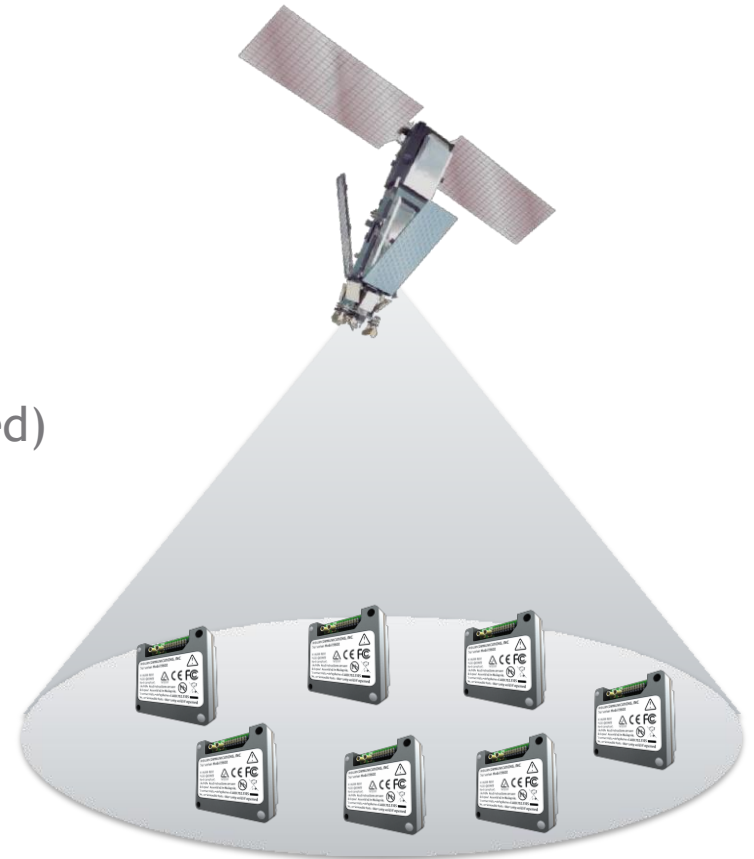
Defined by extending from SW corner

- Global Delivery Area (GDAs)
 - Hexagons
- Broadcast Coverage Areas (BCAs)
 - Defined by MSI Provider

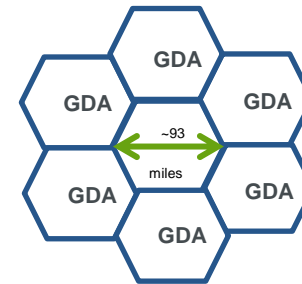
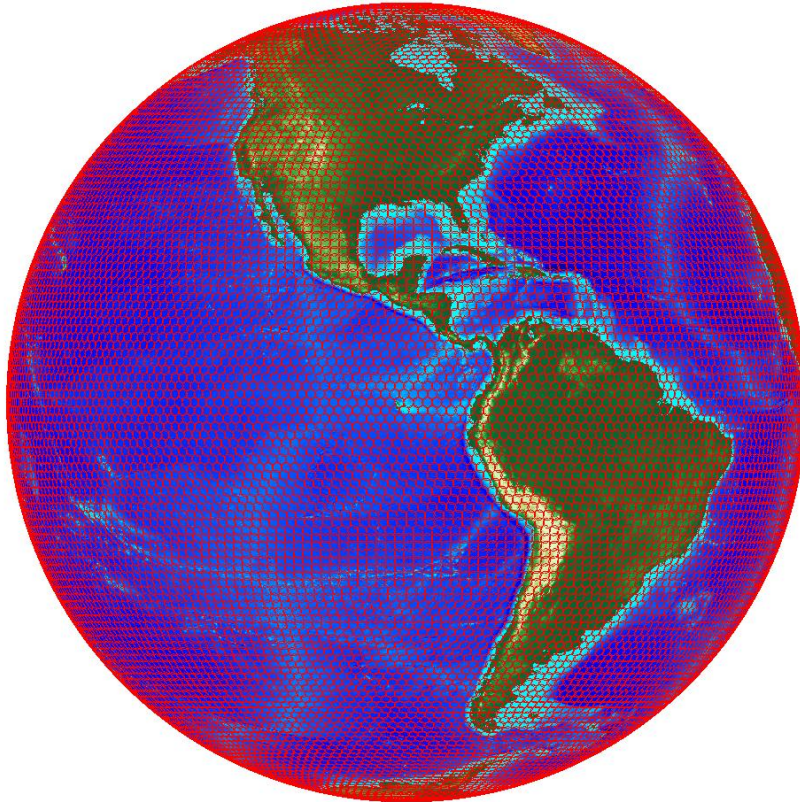


IRIDIUM BROADCAST MESSAGE PARAMETERS

- The Iridium broadcast service will support several input parameters to support MSI broadcasts
 - Delivery Area (Predefined or Dynamic)
 - User Group (Optional)
 - Message Priority (1 - 4)
 - Delivery Method (Immediate or Scheduled)
 - Echo (Up to 2)
 - Repeat (Number of Instances)
- Scheduled transmissions may be cancelled by notifying the system

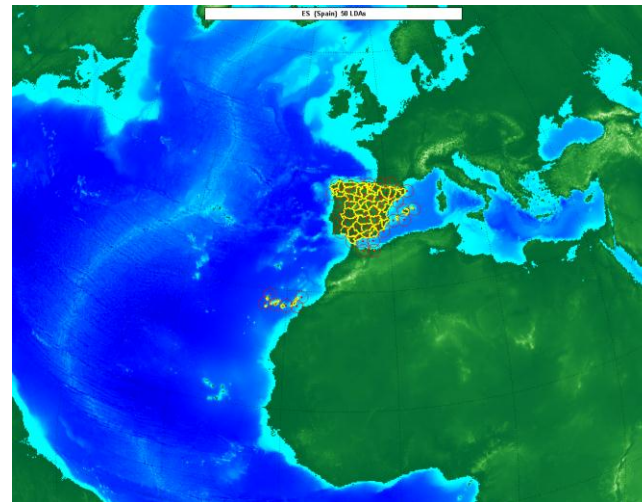
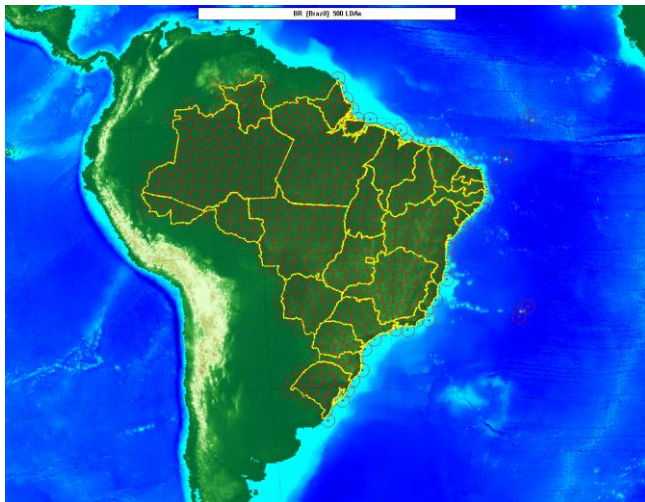


GDA IS THE BUILDING BLOCK FOR COVERAGE



A Global Delivery Area (GDA) is an approximately 150 km wide hexagon covering an area of 17,700 sq. km. 26,636 GDAs have been mapped to the earth to cover the entire globe. Delivery areas for Burst messages are defined using predefined coverage areas – called Broadcast Coverage Areas or BCAs which can contain any number of GDAs -- or by defining a point and radius for a circle of coverage. Both of these methods are then mapped to appropriate GDAs on the earth's surface and the system transmits to the designated GDAs.

SAMPLE BROADCAST COVERAGE AREAS: BRAZIL (500 GDAS) VS. SPAIN (50 GDAS)

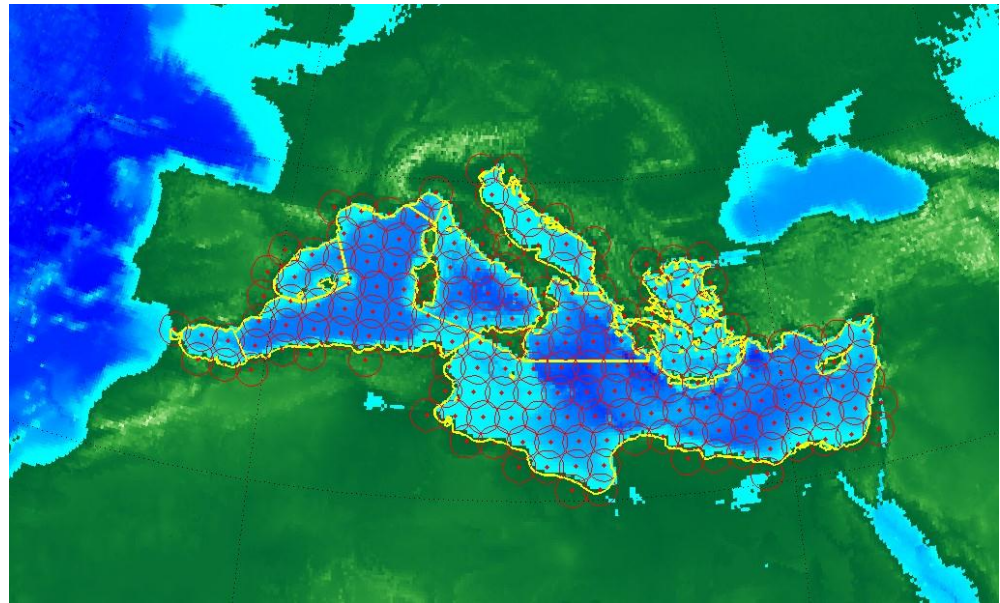
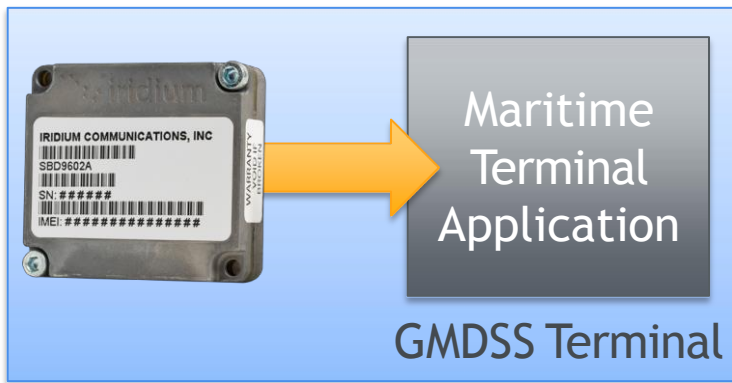


ESTABLISHING A BCA FOR NAVAREAS

- BCAs can be created by combining GDAs of a NAVAREA
- BCAs can also be established for frequently used “Sub-Areas”
- MSI Provider defines area
- Iridium creates BCA from GDAs within defined areas

RECEIVING AN IRIDIUM BROADCAST MESSAGE

- **Step 1:** Transmissions are received by all broadcast-enabled devices in the targeted geographic area.
- **Step 2:** Device interrogates the message and only those devices belonging to the specified recipient group process the message.
- **Step 3:** The maritime terminal receives the message and delivers it to shipboard equipment for display/print.



SCHEDULING DELIVERY OF AN IRIDIUM BROADCAST MESSAGE

In addition to defining the destination geography of a message, the message can be scheduled ahead of time for delivery; the date and time can be specified, up to one week into the future.



If retransmissions of the same message are desired, the number or recurrences and timeframe in between each recurrence can be specified.

SAMPLE GMDSS ANTENNA UNIT

- **Aurora Technical Specs**
- Dimensions: 7.28 in Diameter (185mm), 7.09 in high (180mm)
- Weight: 4 lbs
- Power: Power over Ethernet




REVISED MSI PROVIDER INTERFACE

Send a GMDSS BDR

https://10.146.1.21:4282/gmdss/web_services_gmdss_bdr/

Apps Google IMO Web Accounts outlook webmail Populus T&E Paychex Iridium Burst Web Ser Deg, Min, Secs to/fr D GPS - Asset Manag UTC Time Now IMO Virtual Publicatio Other bookmarks



[GMDSS Home](#) [GMDSS BDR](#) [GMDSS MSR](#) [GMDSS BCR](#)

Send BDR

Data Provider Credentials

Name:

Password:

Delivery Area

Delivery Area Type: ☒ Default ☐ BCA ☐ LL Circle ☐ LL Rectangle ☐ GDAs

(BCA) Broadcast Coverage Area

Select One

(LL Circle) Latitude, Longitude, & Radius

Latitude: ° ' " ☒ S ☐ N

Longitude: ° ' " ☒ W ☐ E

Radius: Nautical Miles

(LL Rectangle) Latitude, Longitude, & Extend

Southwest Corner:

Latitude: ° ' " ☒ S ☐ N

Longitude: ° ' " ☒ W ☐ E

Extend:

North: °

East: °

(GDAs) Global Delivery Area(s)

REVISED MSI PROVIDER INTERFACE

Send a GMDSS BDR

https://10.146.1.21:4282/gmdss/web_services_gmdss_bdr/

Apps Google IMO Web Accounts outlook webmail Populus T&E Paychex Iridium Burst Web Ser Deg, Min, Secs to/fr D GPS - Asset Managem UTC Time Now IMO Virtual Publicatio Other bookmarks

(LL Circle) Latitude, Longitude, & Radius

Latitude: ° ' " ☒ S ☐ N

Longitude: ° ' " ☒ W ☐ E

Radius: Nautical Miles

(LL Rectangle) Latitude, Longitude, & Extend

Southwest Corner:

Latitude: ° ' " ☒ S ☐ N

Longitude: ° ' " ☒ W ☐ E

Extend:

North: °

East: °

(GDAs) Global Delivery Area(s)

Message

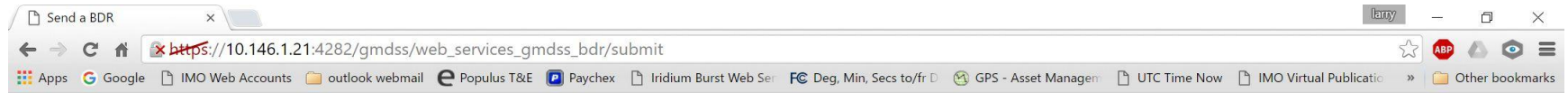
Characters Remaining: 5000

☐ Disposition Notification?

Reset Form Submit BDR

Windows Taskbar: 12:44 AM 9/15/2016

MSI PROVIDER MESSAGE CONFIRMATION



[GMDSS Home](#) [GMDSS BDR](#) [GMDSS MSR](#) [GMDSS BCR](#)

Send BDR

Data Provider: gmntest

Message ID: 20160915_045621840747@gmntest

Submitted @: 2016/09/15 04:56:21 UTC

Expires @: 2016/09/15 05:56:21 UTC

Area Type: LL Circle

Latitude: 62° 28' 11" N

Longitude: 6° 8' 48" E

Radius: 100 NM

Equivalent Circle Latitude: 62.46972°

Equivalent Circle Longitude: 6.14667°

Equivalent Circle Radius: 185 km

Payload Size: 90 characters

Payload: This is a test message from the WWNWS SC 8 Meeting in Alesund, Norway on 15 September 2016

Disposition?: True

Status: *BDR was submitted successfully*

Local Time: Thu Sep 15 2016 06:56:26 GMT+0200 (W. Europe Daylight Time)

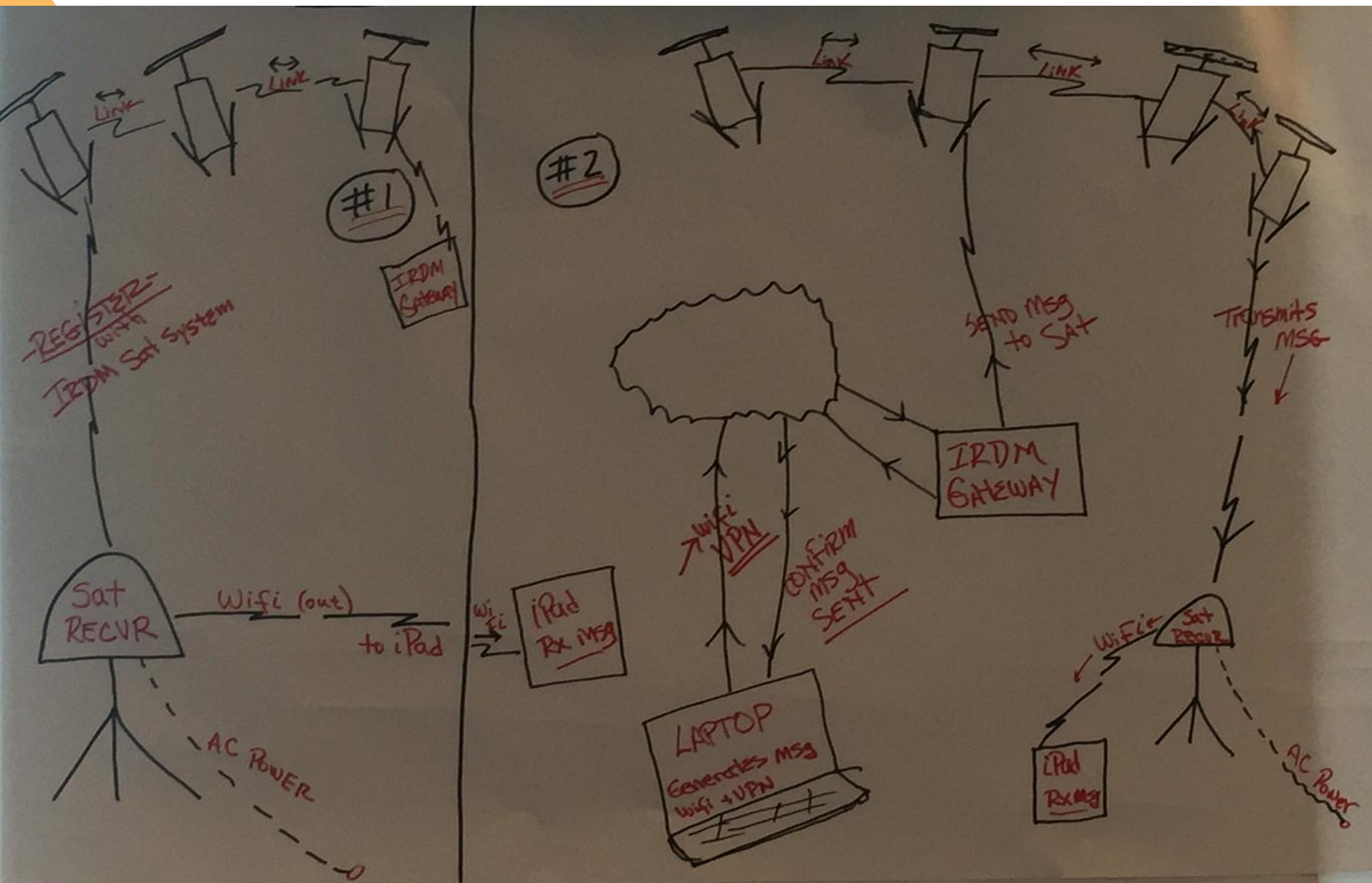




NOTE ON COSTS TO MSI PROVIDERS

- ***Iridium is committed to providing services at the lowest possible costs, and in the most efficient manner possible***
- Iridium is evaluating several different pricing models to try to minimize the financial impact on MSI providers for both:
 - Receivers for over-the-air monitoring
 - Transmission of MSI
- No costs for testing

IRIDIUM DEMONSTRATION SET UP



Thank You

QUESTIONS?

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