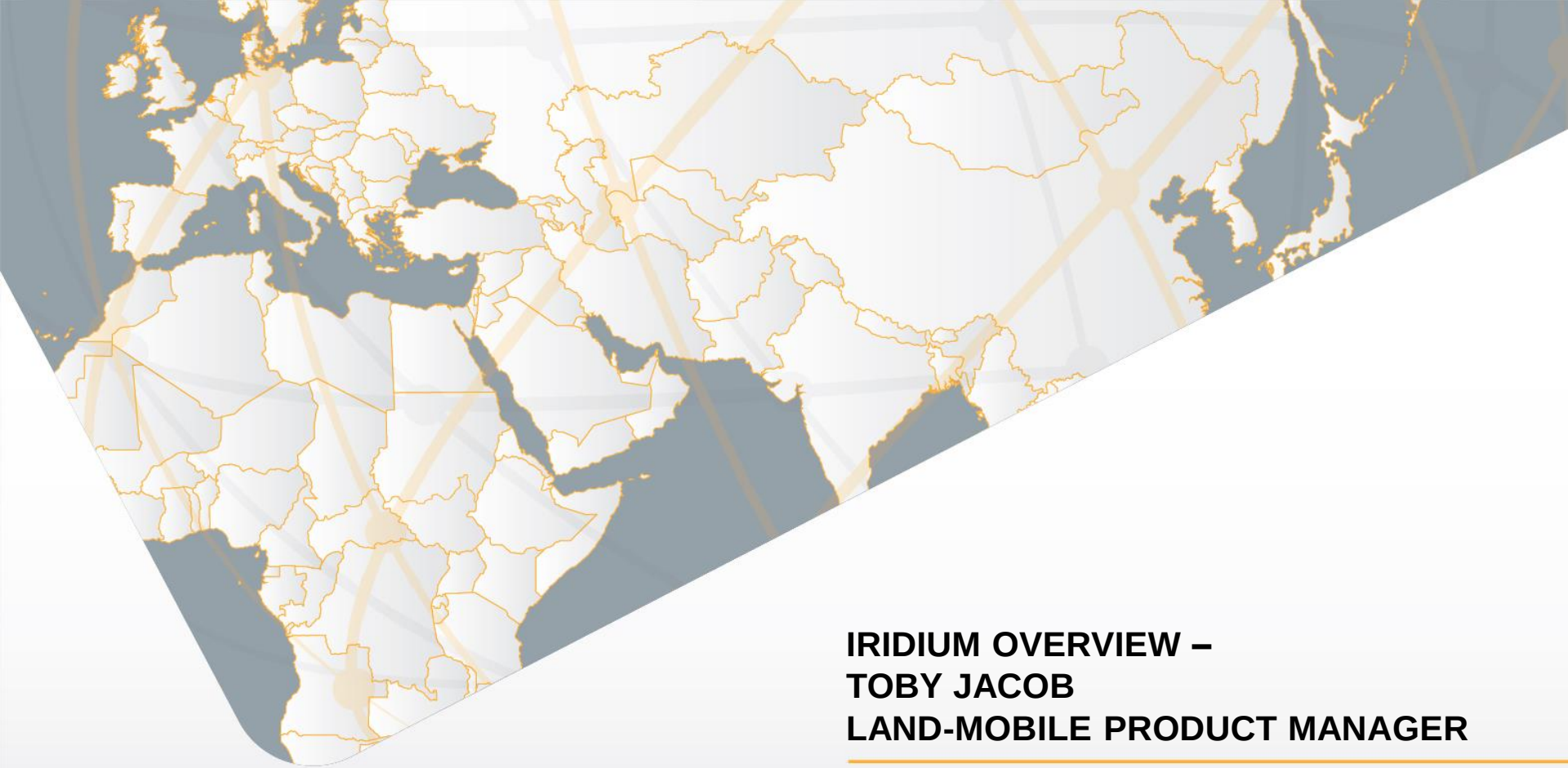
IRIDIUM COMMUNICATIONS

DRIVING INNOVATION AND RELIABLE COMMUNICATIONS THROUGHOUT ALASKA

iridium®

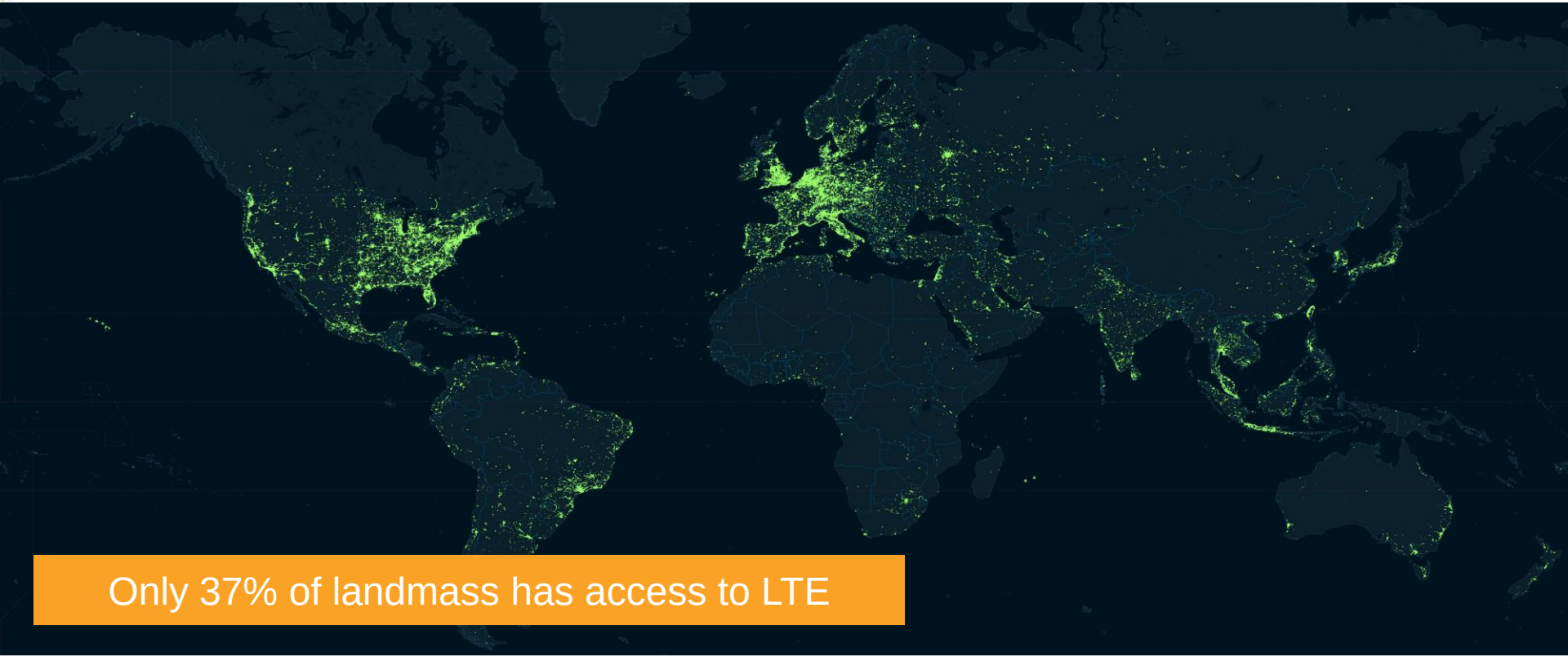
OPENING REMARKS – MEAD TREADWELL



IRIDIUM OVERVIEW –
TOBY JACOB
LAND-MOBILE PRODUCT MANAGER

COMMUNICATION GAPS NEED TO BE BRIDGED

MOBILE USERS EXPECT TO CONNECT..

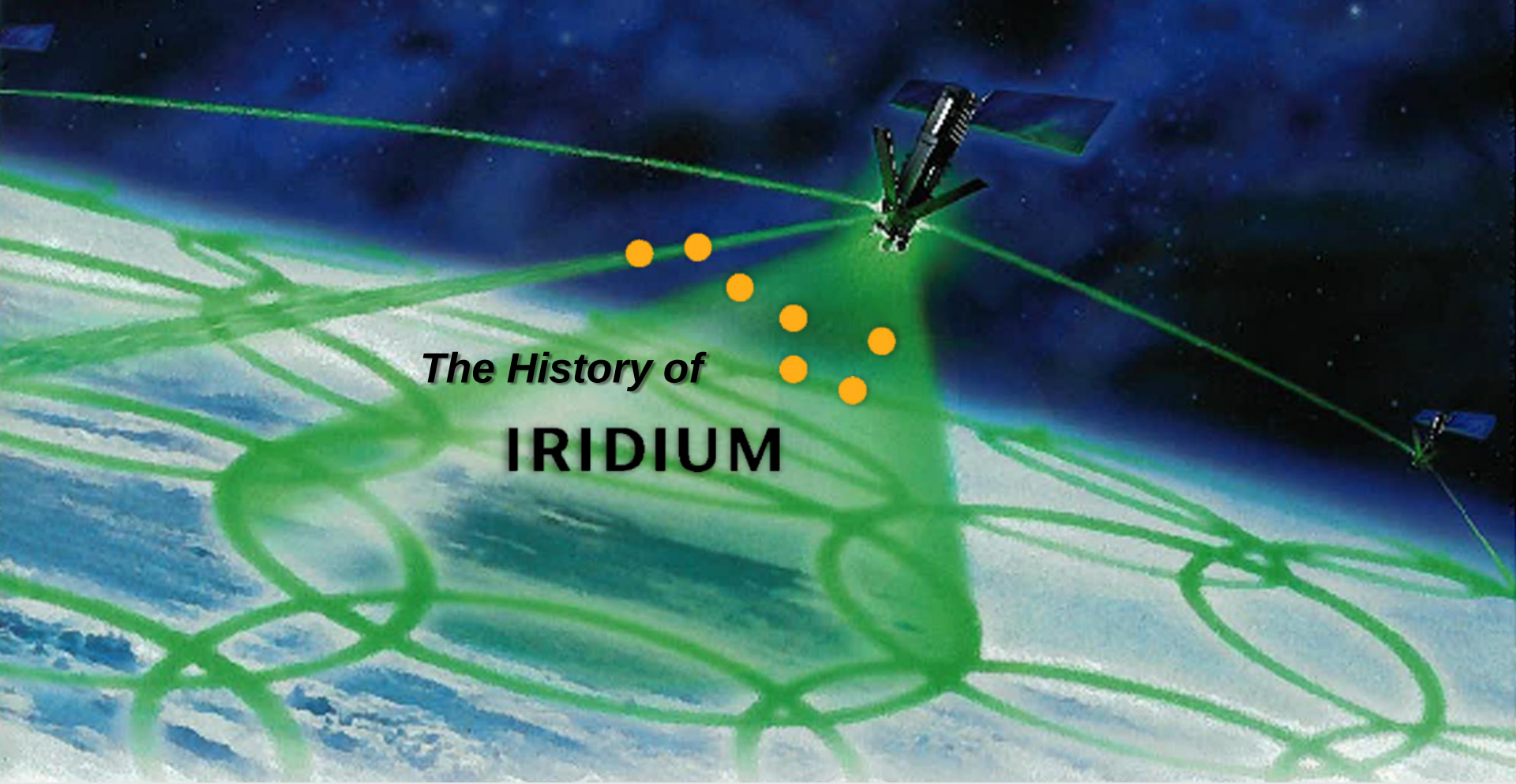


THAT'S WHY WE ARE HERE…

THE MOBILITY GAPS ARE EXPANSIVE

These are areas that are not cost-effective to built ground networks

https://celltracktech.com/why-ctt/the-network/


The History of
IRIDIUM

IRIDIUM 1987 – 1998: AN AMAZING DECADE

- Over $6 billion spent
- Created global partnerships
  - More than 20 countries were involved
- More than 90 satellites were built
  - This was a first in the satellite industry!
- IPO on NYSE with a $10B market cap
  - Before service even launched
- Record 22 launches
  - Took place in the U.S., Russia, and China
  - 95 satellites launched in total between 1997 and 2002
- Generated excitement with the audacity of the vision

SERVICES AT LAUNCH (1998)

Global Commercial Services

Iridium® Phone

$3,295 +

$3 / minute

Iridium Pager

$695

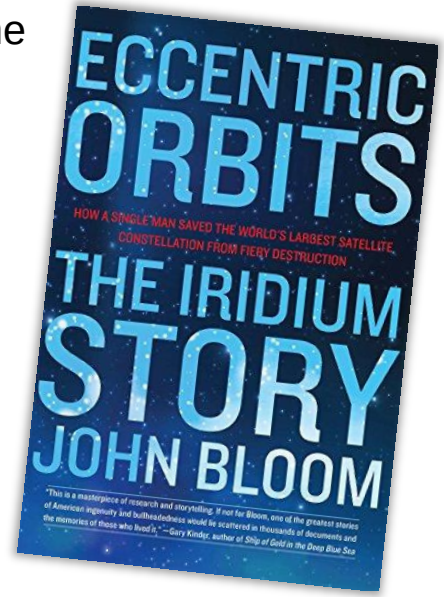
IRIDIUM

Private U.S. Government Gateway for Secure Communications

iridium

IRIDIUM® “2.0”

- Originally bought in 2000 by a group of investors, led by a former airline executive, for about $25M
  - Signs initial service contract with U.S. Government
  - Institutes new, wholesale business model
  - Contracts with Boeing to run and maintain the network
- 2003 - Turns cash flow positive
- 2006 - Matt Desch joins as CEO
- 2009 - Goes public on NASDAQ (IRDM)
- 2010 - Completes financing and development begins on the Iridium NEXT launch program
- 2017 – First Iridium NEXT launch



The Historic Iridium NEXT Launch Campaign

Overview

- Faster Data Speeds
- Increased Capacity
- Enables Iridium Certus®

By the Numbers

- **$3B** Satellite Refresh Program
- **81** New Satellites (66 in-orbit)
- **8** Launches on SpaceX Falcon 9
- **12.5** Year Design Life

New Revenue Streams

- Iridium Certus® Services
- Aireon℠ Aircraft Tracking Hosted Payload

Final Launch Completed: January 11, 2019

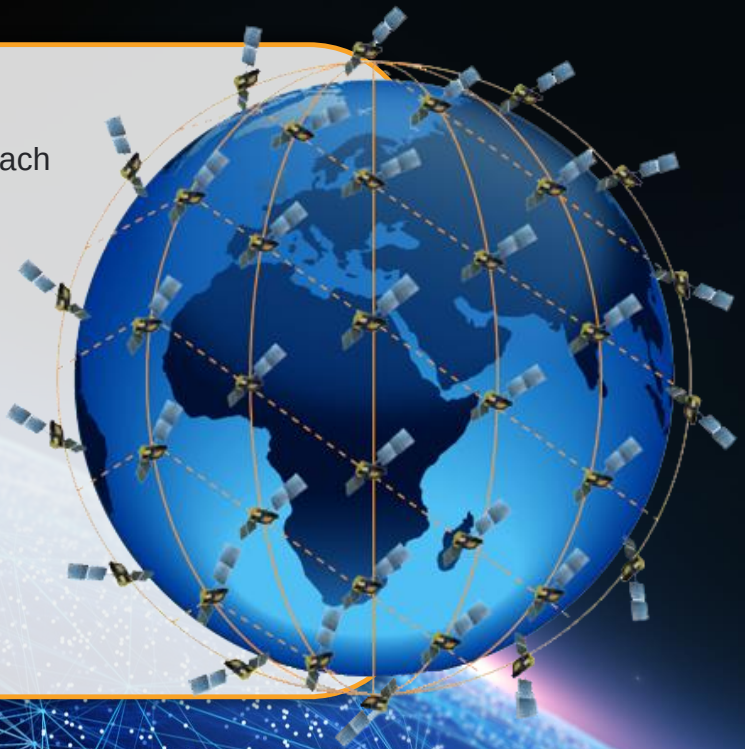
THE HISTORIC **IRIDIUM NEXT** LAUNCH CAMPAIGN

January 2017 | **June 2017** | **October 2017** | **December 2017** | **March 2018** | **May 2018** | **July 2018** | **January 2019**

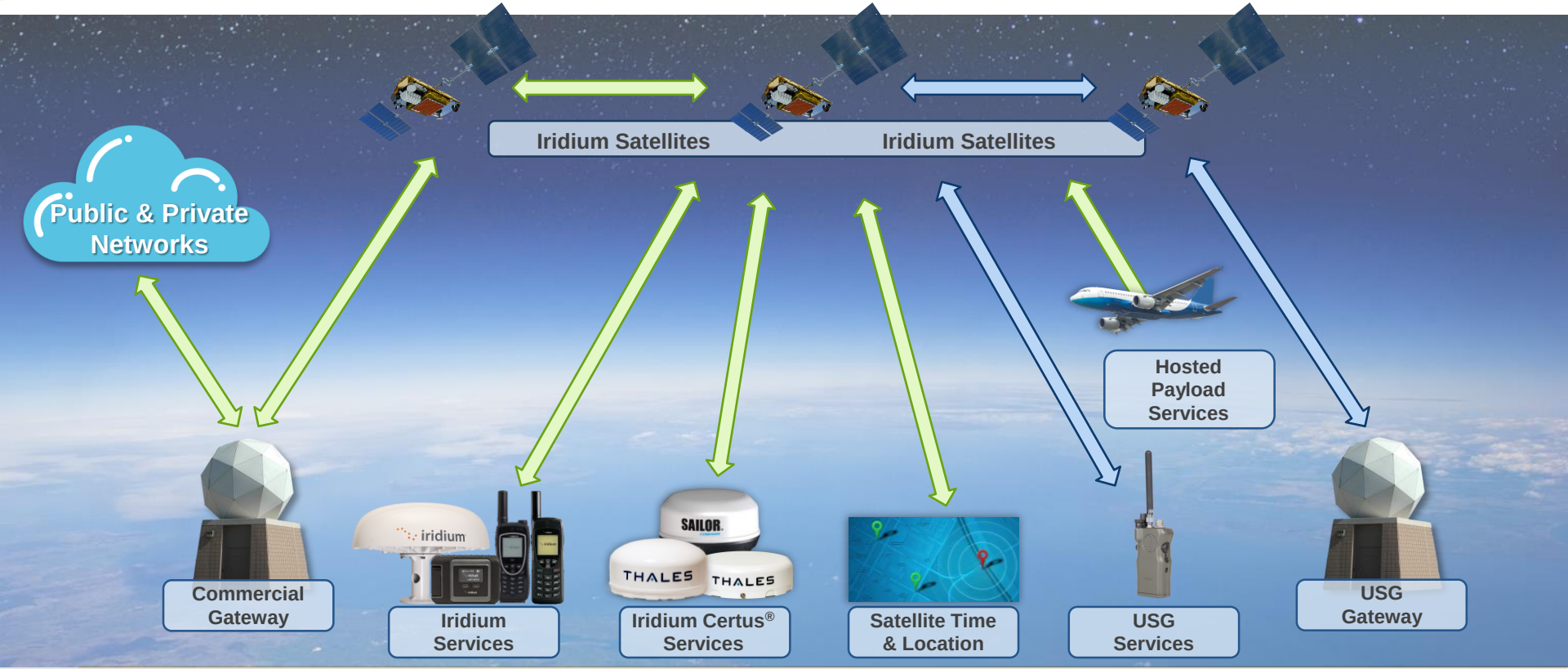
75 satellites launched in just two years!

THE IRIDIUM® NETWORK: RELIABILITY ABOVE ALL℠

- **66 Active Satellites**
  - 6 orbital planes with 11 satellites each
  - Plus 9 in-orbit spares
  - Plus 6 ground spares
- **Low-Earth Orbit (LEO)**
  - Enables reliable communications anywhere in the world
- **L-Band System**
  - Allows for transmissions even in adverse weather conditions
- **Satellite Crosslinks**
  - Creates low-latency, resilient, high-quality connections



HOW THE IRIDIUM® NETWORK WORKS

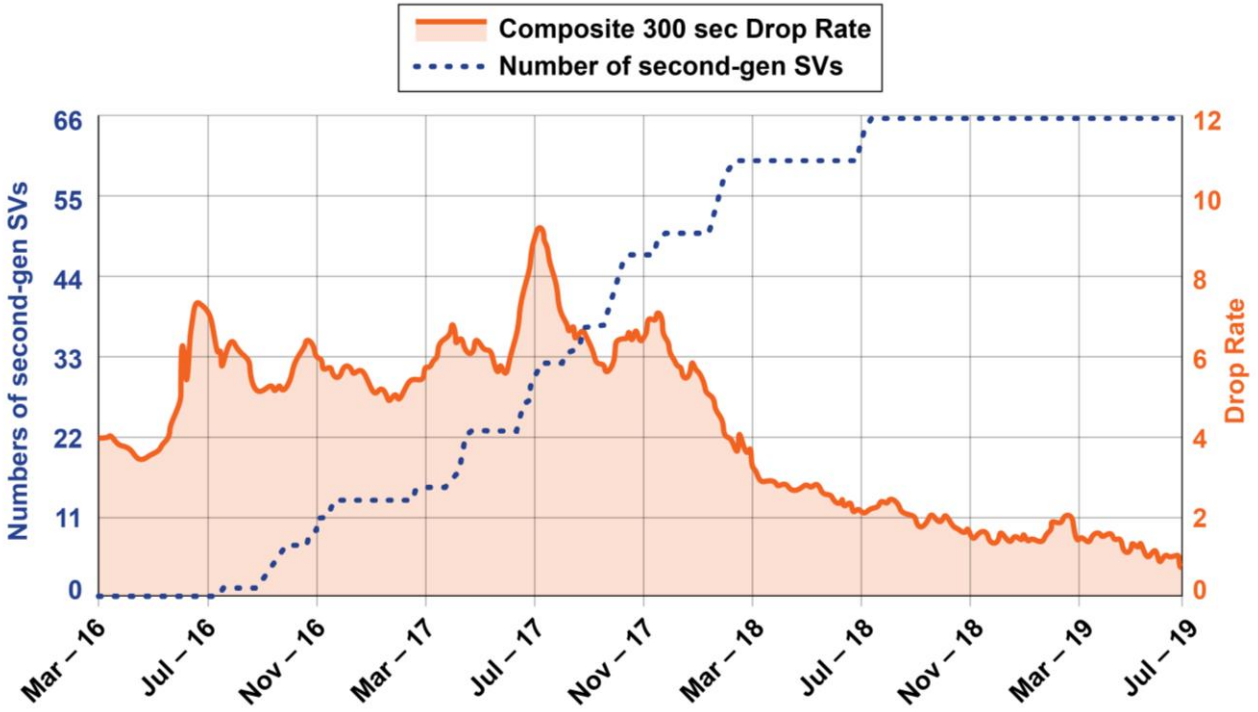


IRIDIUM® NETWORK EVOLUTION

Upgraded satellites will provide a significant improvement in voice quality and data speeds

First-Generation Constellation	Upgraded Network Capabilities
Voice: 2.4 Kbps	Voice: 2.4Kbps (SQ) and 4.8Kbps (HQ)
Short Burst Data® (SBD®)	Short Burst Data® (SBD®)
LBT Data: Circuit Switched 2.4 Kbps Up/Down	Upgraded Network LBT Data: Circuit Switched 2.4 Kbps < 22 < 88 Kbps
Broadband: Iridium OpenPort® up to 134 Kbps IP data	Broadband: < 88 Kbps IP data < 176 Kbps IP data < 352 Kbps IP data < 704 Kbps IP data < 1408 Kbps IP data
Supports First Generation Terminals Only	Supports First Generation and New Terminals

NETWORK IMPROVEMENTS FOLLOWING IRIDIUM NEXT



Now with 66 Second-Generation Satellites

5 Minute Call-Drop Rates are < 1%

(Source: Iridium Autodialer Testing)

Source: Iridium Autodialer Testing

IRIDIUM® HOSTED PAYLOADS

Aireon

Gives air navigation service providers the capability to track aircraft anywhere in the world in real time, including the over oceanic, polar and remote regions, via space-qualified Automatic Dependent Surveillance-Broadcast (ADS-B) receivers built into the Iridium satellites.

exactView RT powered by HARRIS

As a result of an ever-growing demand for immediate maritime domain awareness, exactEarth have partnered with Harris Corporation to deliver a real-time advanced ship tracking solution via hosted payloads on the Iridium satellites.

AMPERE

Johns Hopkins Applied Physics Lab

Active Magnetosphere and Planetary Electrodynamics Response Experiment (AMPERE) sensors monitor space weather data in real time, enabling high-quality forecasting of space-based solar storms that can disrupt aviation and terrestrial telecom and satellite systems. The project began with payloads on our first-generation satellites, but with the transition to our second-generation constellation, we will be able to support AMPERE with even better input data.

iridium

THIS HAS RESULTED IN…

Iridium® is a satellite communications company that offers **voice and data connectivity** anywhere in the world.

1.2M
Global Customers

400+
Technology Partners

$537.5M
In Total Revenue*

**TTM through 3/31/19*

450+
Employees & Contractors Worldwide

As of the latest reporting date (4/23/19) for the quarter ended 3/31/19

SUPPORTED BY FOUR KEY VERTICALS

Iridium® is organized into four primary lines of business, in addition to supporting our government customers' unique requirements.

LAND MOBILE

Voice
Data
Emergency

AVIATION

Business
Commercial
Rotorcraft

MARITIME

Merchant
Fishing
Leisure

IoT

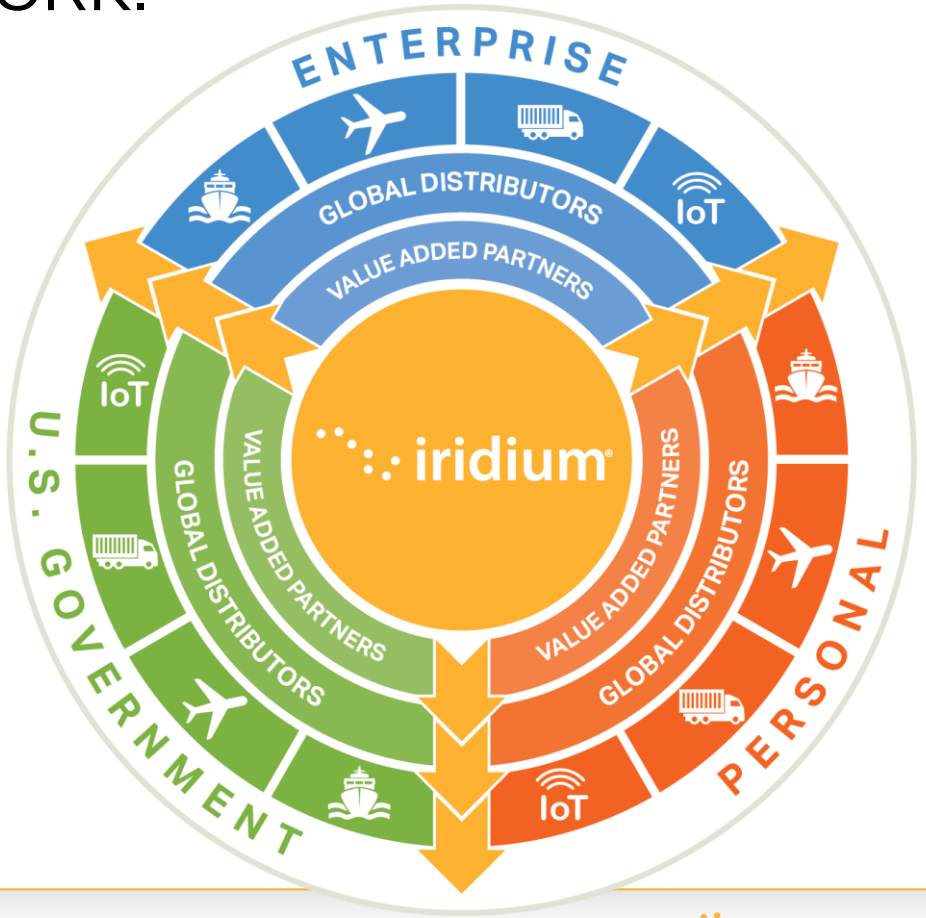
Remote Sensing
Asset Tracking
Telematics

OUR HISTORY OF PRODUCT INNOVATION

YOUR WORLD. OUR NETWORK.SM

Iridium® Partner Ecosystem

Through our expansive **partner network** of over 400 companies, Iridium is advancing the way enterprises, governments, and individuals communicate every day.



INTERNET OF THINGS (IoT)

Through our satellite IoT products and services, Iridium gives businesses the power to track and manage time-critical inventories, enterprise fleets, power grids, remote personnel and infrastructure, and more – even in the most remote areas of the globe.

Expected later this year, new IoT applications taking advantage of new Iridium Certus® services will provide reliable, high-speed data communications to maximize efficiencies and enable accessibility anywhere on the planet.

INTERNET OF THINGS (IoT)

MARKETS SERVED

- **Fleet**
- **Oil & Gas**
- **Heavy Equipment**
- **Buoys**
- **Personal Tracking & Safety**
- **General**
- **Maritime**
- **Aviation**
- **Government**

WHAT DOES THE IoT MARKET WANT?

- Low Cost Hardware
- Low Latency Services
- Range of Speeds
  SBD® to Iridium Certus® IP
- Range of Service Quality
  Real Time to Store and Forward
- Small form Factor Transceivers & Antennas
- Ease of Integration
  Both at Physical and Network Layers
- Highly Reliable
  Mission Critical Applications, Safety & Security
- Scalable Pricing
  To Serve Low Use to High Use
- Secure
  Service Features to Ensure IoT Device & Service Security

PARTNERING TO EXPAND IoT PORTFOLIO

Investment

IoT Expertise

Market-Specific Engineering

Vertical Market Knowledge

Close Alignment with Vision

Long-Term Relationships

metocean telematics

geoforce

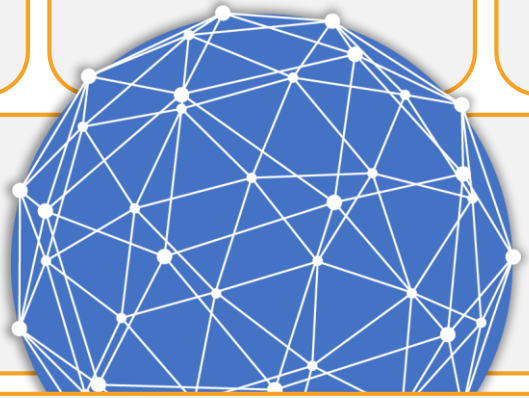
IoT SOLUTIONS ARE COMPLEX & MULTIDIMENSIONAL

IRIDIUM REMAINS THE LEADING CHOICE FOR IoT

Over 400
Iridium products certified worldwide

Iridium operates on **6 of the top 10** heavy equipment fleets in the world

Over 200
IoT integrators & distributors



Iridium tracks fleets on **every continent and in over 90 countries**

Iridium rated best for handheld global messaging products – top 3 of 4 rated by WIRED

Strong financially

IoT – fastest growing MSS segment

IoT > 60% customer base

>50 new IOT solutions in last 24 months

AVIATION

The Iridium® network enables aviation solutions that help improve aircraft safety, streamline operations, and allow for reliable, efficient communication between onboard crew members, air traffic control and ground crews.

Iridium Certus® will deliver high-performance services from cockpit to cabin. Through small-form-factor, low-profile antennas, Iridium Certus® is ideal for aircraft operators looking to keep crew and passengers connected – supporting email, internet, voice and data communications, everywhere on the planet.

AVIATION

MARKETS SERVED

Commercial Aviation
Aircraft primarily involved in the transport of passengers, cargo or mail

Business Aviation
Aircraft primarily used for business purposes with capacity up to 30 passengers.

General Aviation
Civilian, fixed-wing aircraft not included in commercial or corporate aviation.

Rotorcraft
All commercial and government owned and operated rotary wing aircraft.

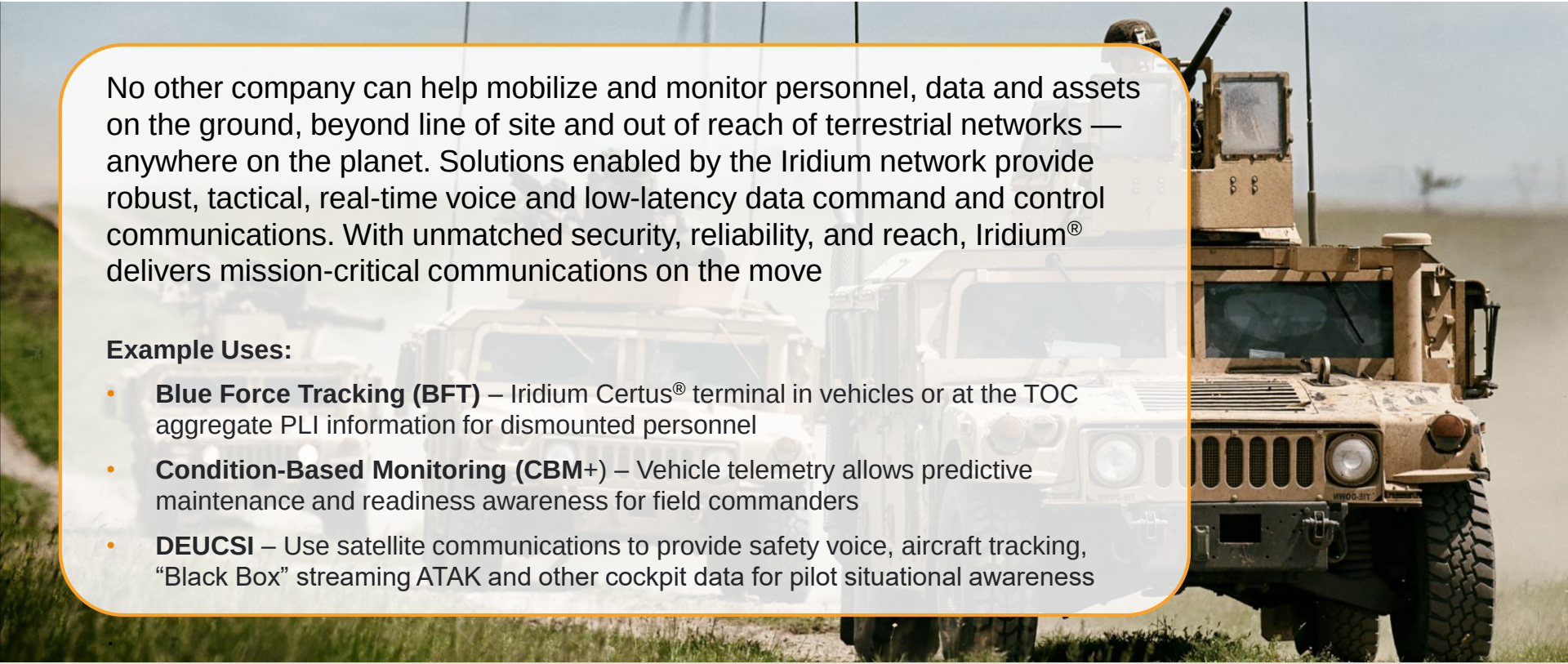
Government
Rotary and fixed-wing aircraft (non-military) in support of government operations

UAV
Unmanned aircraft used in support of commercial or government applications.

WHAT DOES THE **AVIATION** MARKET WANT?

- Global Long-Range Communication
- High Availability
- Low Latency
- Functions on All Aircraft (including Rotorcraft)
- Consistent Pricing
- Variety of Product Selection
- Cockpit Safety Services
- Cabin / Personal Services

U.S. GOVERNMENT



No other company can help mobilize and monitor personnel, data and assets on the ground, beyond line of site and out of reach of terrestrial networks — anywhere on the planet. Solutions enabled by the Iridium network provide robust, tactical, real-time voice and low-latency data command and control communications. With unmatched security, reliability, and reach, Iridium® delivers mission-critical communications on the move

Example Uses:

- **Blue Force Tracking (BFT)** – Iridium Certus® terminal in vehicles or at the TOC aggregate PLI information for dismounted personnel
- **Condition-Based Monitoring (CBM+)** – Vehicle telemetry allows predictive maintenance and readiness awareness for field commanders
- **DEUCSI** – Use satellite communications to provide safety voice, aircraft tracking, “Black Box” streaming ATAK and other cockpit data for pilot situational awareness

U.S. GOVERNMENT

MARKETS SERVED

Military / DoD Communications

Tactical radios, mission modules, global on-the-move communications, beyond line-of-sight (BLOS), emergency communications, Blue Force Tracking (BFT) – mounted and dismounted, ground and air

Remote Distributed Sensors

Remote Security Munitions storage, hydro station, fuel storage, borders SCADA networks, Operational efficiencies, engine telemetry, driver behavior, logistics and asset tracking cameras, access control, biometrics, virtual fencing

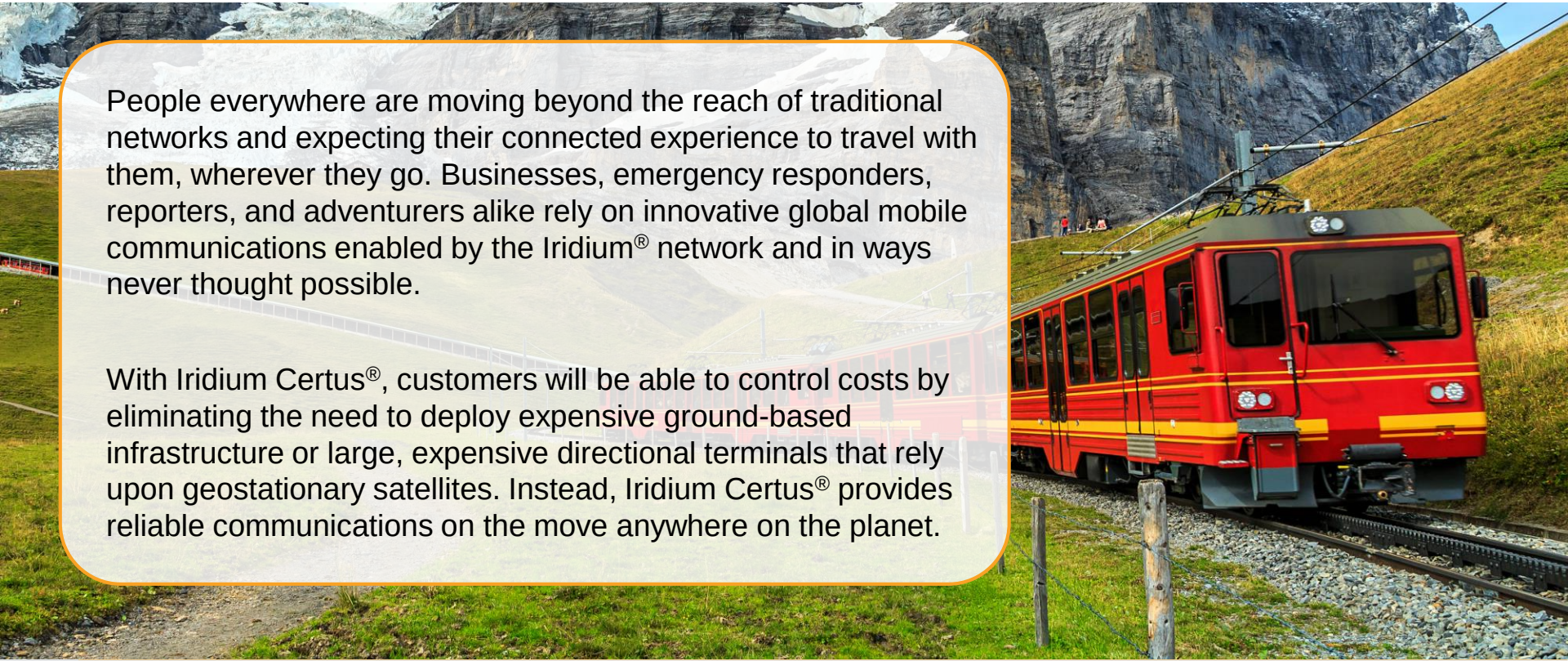
Autonomous Systems

Telemetry, ISR (Imagery and other sensor data); Robotics and unattended vehicles; Remote command and control (C2) even at the Poles; Ground, Surface, Air, and Critical infrastructure

WHAT DOES THE **U.S. GOVERNMENT** MARKET WANT?

- Redundancy
- Reliability
- Resiliency
- Diversity

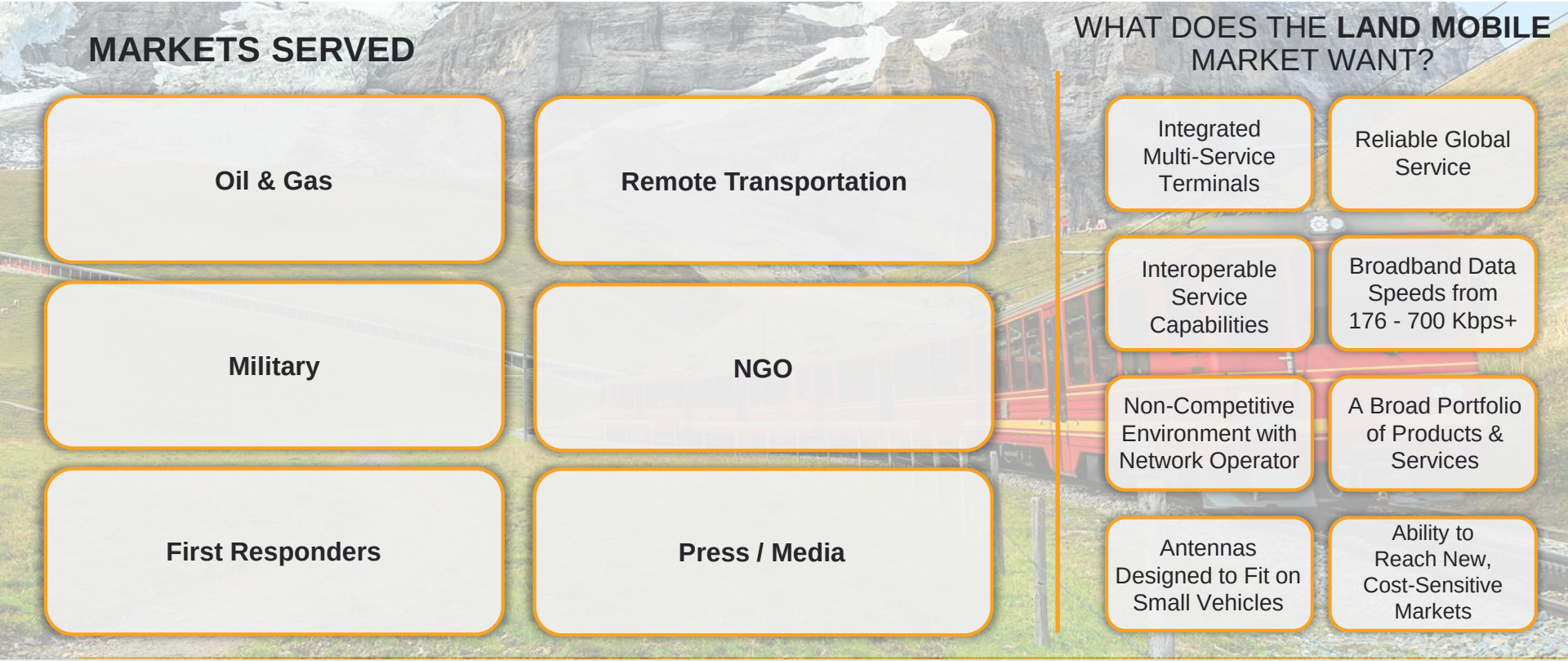
LAND MOBILE



People everywhere are moving beyond the reach of traditional networks and expecting their connected experience to travel with them, wherever they go. Businesses, emergency responders, reporters, and adventurers alike rely on innovative global mobile communications enabled by the Iridium® network and in ways never thought possible.

With Iridium Certus®, customers will be able to control costs by eliminating the need to deploy expensive ground-based infrastructure or large, expensive directional terminals that rely upon geostationary satellites. Instead, Iridium Certus® provides reliable communications on the move anywhere on the planet.

LAND MOBILE



MARKETS SERVED

- **Oil & Gas**
- **Remote Transportation**
- **Military**
- **NGO**
- **First Responders**
- **Press / Media**

WHAT DOES THE **LAND MOBILE** MARKET WANT?

- Integrated Multi-Service Terminals
- Reliable Global Service
- Interoperable Service Capabilities
- Broadband Data Speeds from 176 - 700 Kbps+
- Non-Competitive Environment with Network Operator
- A Broad Portfolio of Products & Services
- Antennas Designed to Fit on Small Vehicles
- Ability to Reach New, Cost-Sensitive Markets

IRIDIUM HANDHELDS

- Most versatile portfolio of handheld targeting range of customer applications.
- Competitive advantages:

Iridium GO!®
Turns Your Smartphone into a Satellite Phone

- Smartphone Integration
- Low Hardware Cost
- Installation & Use Flexibility
- Unlimited Data Plan
- GEOS SOS Response Included
- Range of Compatible Apps
- Network Reliability / Global Coverage

Iridium 9555
Our Most Affordable Satellite Phone
+ GSA Version (Made in USA)

- Mobility / Ease of Use
- Unlimited Iridium-to-Iridium Plan
- Included Antenna Kit and Accessories
- Available Third-Party Accessories
- Network Reliability / Global Coverage

Iridium Extreme®
Our Most Rugged Satellite Phone
+ GSA Version (Made in USA)

- Ruggedized Design (IP65/MilSpec)
- SOS (GEOS Included) and LBS Integration
- Mobility / Ease-of-Use
- Unlimited Iridium-to-Iridium Plan
- Included Antenna Kit and Accessories
- Available Third-Party Accessories
- Network Reliability / Global Coverage

IRIDIUM CERTUS® LAND TERMINALS

- Delivering the fastest L-Band data speeds with up to 700 Kbps upgrade and enhanced interoperability with companion networks for hybrid use.
- Competitive advantages:

Thales MissionLINK

- 700 Kbps Ready w/3 HQ Voice Lines
- Simplified Vehicle/Fixed Site Installation
- Hybrid Network Management (External WAN)
- Radio Gateway
- Network Reliability / Global Coverage

Ground Control MCD-MissionLINK

- 700 Kbps Ready w/3 HQ Voice Lines
- Portable, All-In-One Design
- Auto-Orientation with Network
- Hybrid Network Management (External WAN)
- Radio Gateway
- Network Reliability / Global Coverage

PTT HANDHELDS

- Providing the only satellite-based PTT for handheld use with LMR-level performance and accessories to enable vehicular and in-building use.
- The introduction of ICOM and Qinetiq handsets amplifies our offering:

Iridium Extreme® PTT

- Combined Phone and PTT
- Talker ID and Direction
- Suite of Third-Party Accessories for Vehicular and Building Installations
- PTT Command Center compatible
- Network Reliability / Global Coverage

ICOM IC-SAT100

- Land Mobile Radio Style Handset
- Compatible with ICOM accessories
- Compatible with VE-PG4 Interoperability Gateway
- PTT Command Center compatible
- Network Reliability / Global Coverage

Qinetiq Bracer

- Military Tactical Radio Style Handset
- Enhanced security key management
- Compatible with Military Audio Accessories
- PTT Command Center compatible
- Network Reliability / Global Coverage

ICOM IC-SAT100

- Combines Land Mobile Radio style design with Iridium satellite PTT
- Key features:
  - Powerful audio
  - Radio controls (knobs)
  - Durable antenna
  - Waterproof design (IP67)
  - Ease-to-use interface
  - Attractive price point
  - Radio accessories
- Now available through select partners and ICOM distribution

QINETIQ BRACER

- Combines Military tactical design with Iridium satellite PTT
- Key features:
  - Enhanced security keys
  - Extended battery (3 days)
  - Use of Military audio accessories
  - Situational awareness (PLI)
  - Waterproof (IP67)
  - Rugged antenna
- Now available through select partners and Qinetiq distribution

Bracer™ secure BLOS PTT radio

System overview

- Bracer™ satellite radio communications device and service provides end-to-end encrypted (AES 256 FIPS 140-2 level 3), beyond line of sight (BLOS) voice in one-to-many push-to-talk radio mode, Position Location Information, and SOS emergency alerting.
- Responsive, reliable, simple and secure, Bracer™ increases reactiveness, enhances situational awareness and passage of information within the operational domain, improving the ability to prosecute effective command and control and increase the speed of the decision-making cycle.

Requirement areas

- The system has a range of use areas that include supporting early entry expeditionary and dislocated forces, wide area communications, crisis response, liaison tasks, enduring operations across the spectrum of military commitments, and training exercises.
- Example market areas where Bracer™ would be applicable include: defence, government agencies, coast guard, border forces, aid organisations, and emergency services.

Situational awareness

- Bracer™ enables end-to-end encrypted Position Location Information to be transmitted from each device, which can be visualised through a tethered data device in the tactical, operational or strategic domains.
- At 500ms latency it is equivalent to the fastest terrestrial based tracking systems and includes an emergency alert function.

Iridium satellite network

- As a system Bracer™ is powered by the Iridium satellite constellation using the push-to-talk service to enable rapidly deployable situational awareness and secure command and control in one system.
- As a satellite service it negates the requirement for expensive range extension equipment, reducing the manpower, training, planning, physical security and logistics associated with deploying such equipment.

Truly global coverage

- The satellite constellation enables communications from anywhere to everywhere in the world.
- Coverage areas are controlled by the user, not the service provider, allowing for movement of Talkgroup coverage within seconds in line with the users operational demand, increasing responsiveness as real-time situations emerge or change.

Mobile platform communications

- The Iridium network tolerates platform movement up to Mach 2.0 and can operate through rotor blades and is ideal for BLOS communications on aircraft, maritime vessels, vehicles and personnel.
- Bracer™ can be simply carried onto a platform (land, maritime, air*), reducing cost and timelines associated with a full integration process. This allows for rapid use from platforms of opportunity.

Environmental

- Bracer™ is adapted to operate in extreme environments with a level of robustness that is designed for the most demanding scenarios.
- Tested to IP66 (high power jet washable) and IP67 (submersible to 1m for 30mins).
- It is also ideally suited for challenging communication environments such as, at sea, mountainous regions, deep canyons and built up areas.

Low SWaP

- The handheld device is low size, weight (400g) and power (7 Watts).
- The battery is integrated into the device and can be recharged via, mains, 12V DC and USB.
- The internal rugged antenna is small (approx. 3cm in height), with remoting options for body-worn, in-building and vehicle connectivity.

Simplicity

- Bracer™ has been built with simplicity in mind. Easy to train and simple to use by non-vocational communicators, reducing overheads normally associated with extensive training and subsequent skill fade experienced with other tactical radio systems.

Bracer™ key features

1. Ruggedised casing
- Tough polycarbonate fully sealed casing for maximum impact protection with rubber over-mould for handheld comfort

2. LED indicator
- Multi-colour LED status indicator

3. Internal antenna
- Ruggedised internal high gain Iridium antenna, safe for body worn use

4. SOS
- Emergency SOS button
- Protective cap for accidental activation
- Sends SOS and PLI message to all active radios on PTT Talkgroup (secure TGs only)

5. Headset volume
- Volume up/down buttons

6. Soft keys
- Status sensitive quick selection keys

7. Navigation keypad
- Enter button (centre)
- Menu navigation keys (up, down, left, right)

8. Multi-function button 2
- Send tone 2
- Send instantaneous PLI
- Zeroise (multi-press)

9. SIM card slot
- Sealed removable SIM panel
- Requires Iridium SIM card to enable telephony services**

10. LCD display
- Variable LED backlight
- Battery life/charging
- Iridium signal strength
- Talkgroup status
- Talker ID and PLI
- Talkgroup select
- Secure mode indication
- Settings menu

11. On/off
- Multi-function power button
- Selectable power states:
  - Disabled
  - Off
  - Standby
  - On

12. Integral GPS/GNSS antenna
- Integral GPS/GNSS antenna for PLI

13. Integral PTT button
- Activate transmit audio into talkgroup

14. Intergral battery
- 6000mA hour capacity
- Lithium ion
- 3 days, mission life (8:1:1 duty cycle)
- USB , DC or AC charge (with adapter)

15. Multi-function button 1
- Send tone 1
- Zeroise (multi-press)

16. Power/config connector
- Charging , USB configuration (PC), USB token, PLI tether

17. Audio PTT connector
- Headset PTT audio connection
- Multi-headset compatibility via adapter cables

18. External antenna connector
- SMA connection for external Iridium antenna

19. Lanyard tether point
- Integrated slot for lanyard (included)

Footnotes:
* subject to airworthiness assessments
** subject to future firmware upgrades

IRIDIUM GO!

Satellite Communications Made Easy

Turn your smartphone or tablet into a satellite phone with the simplicity of Iridium GO!'s Wi-Fi connection and compatible apps.

Covered - Everywhere!

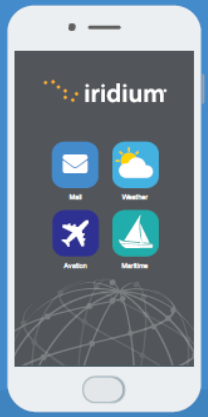
Iridium GO!® works everywhere on Earth, and the Iridium GO! Wi-Fi connection allows natural movement and even extends the use of Iridium indoors.

More Features, More Fun!

Access the contacts on your smartphone for simple calling, texting, and emailing through **Iridium GO!®** compatible apps.

To purchase an Iridium GO!®, visit www.iridiumGO.com and select *Where to Buy*.

Explore More Apps



Access the Iridium Mail & Web app for email, photos sharing, and more!

Visit www.iridiumgo.com/apps for more compatible apps.

Standard applications that require high-speed internet are not supported for use with Iridium GO!.

WHAT IS IRIDIUM CERTUS®?

Iridium Certus is a multi-service platform enabling products and services on the new Iridium satellite constellation.

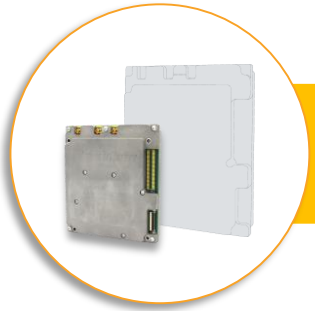
- Enterprise-grade L-Band services across maritime, land mobile, aviation, and IoT
- Multi-service platform
  - High-Quality Voice
  - Highest L-Band Data throughput
  - SBD, Streaming, and PTT
  - Safety Services
- Smaller, faster, lighter, and easier to install than the competition

IRIDIUM CERTUS® ADVANTAGES

Highest speed L-Band	**Adverse-weather connectivity**	**Truly global**
No degradation in high-latitudes	**Low-cost, solid-state antennas optimized for mobile**	**Fast acquisition and registration time**
Low latency and jitter for IP data and voice	**Optimized to streamline bandwidth use**	**Recognized GMDSS and AMS(R)S provider**

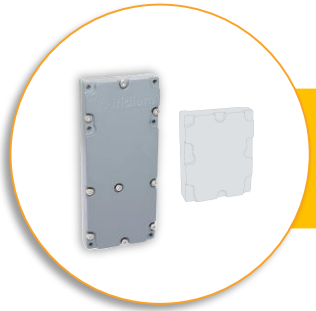
GMDSS service availability expected in 2020.

IRIDIUM CERTUS®: A FLEXIBLE PLATFORM FOR GROWTH



Iridium Certus
Broadband
176 Kbps – 1.4 Mbps

Optimized for Speed



Iridium Certus
Narrowband
2.4 Kbps – 88 Kbps

Optimized for
Size, Cost, Power

IRIDIUM CERTUS® SOLUTIONS

MULTI-SERVICE TERMINALS

- Iridium Certus® 350
- Iridium Certus® 700

+

SERVICES

- Broadcast
- HQ Voice
- PTT (Over the Top)
- IP Data
- Streaming
- Short Burst Data®

=

CUSTOMER SOLUTIONS

- Landline Phone Calling
- Iridium-to-Iridium Calling
- Situational Awareness Imagery & Messaging
- Information Access & Transmission
- Location Tracking
- Secure Group PTT Communications (Over the Top)
- Information Broadcast

Iridium Certus® provides a common platform of solutions through multi-service terminals that deliver cost-effective and integrated solutions.

EASY TO INSTALL = SIMPLE UPGRADE

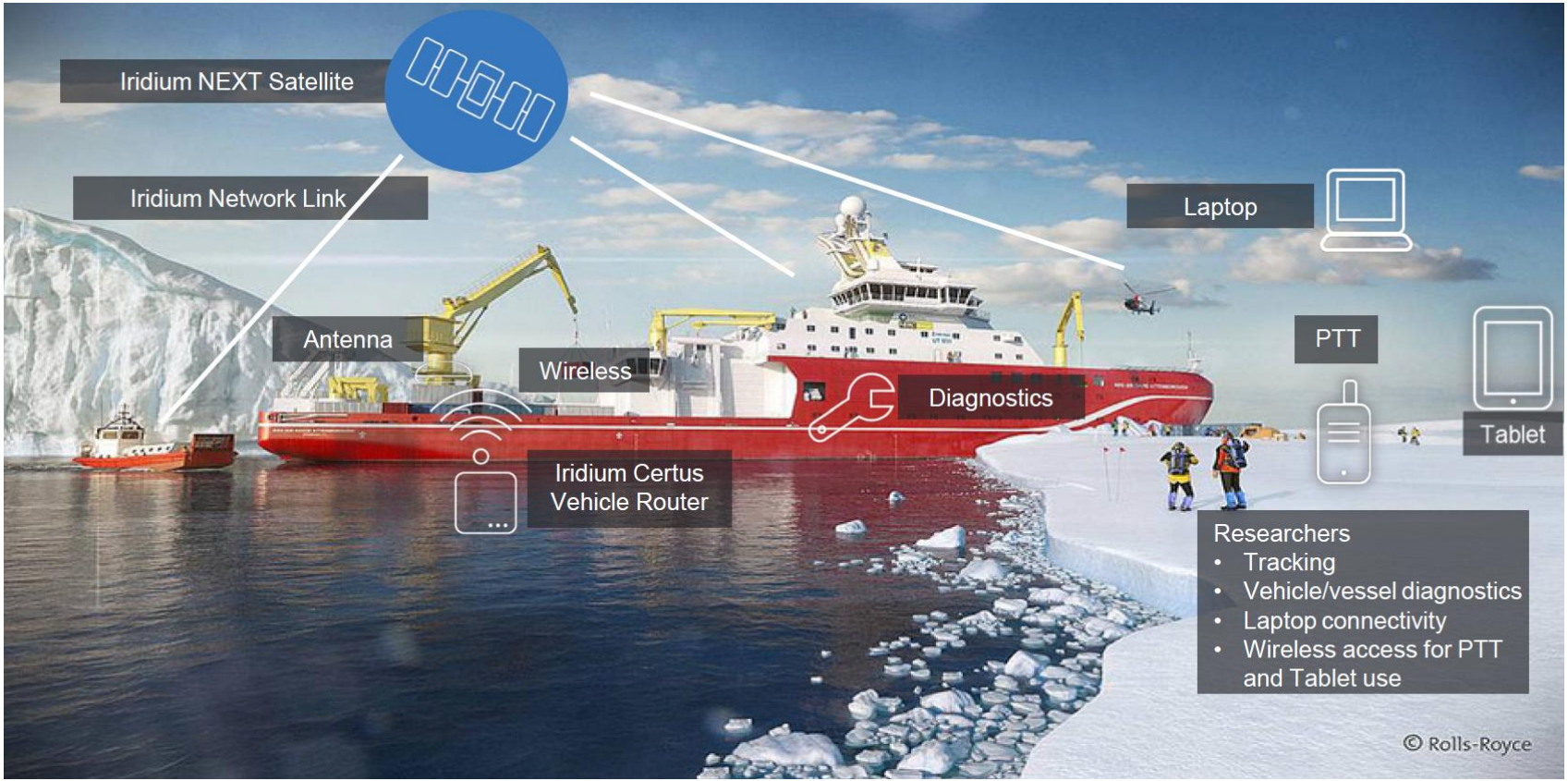
IRIDIUM CERTUS® FOR **PRIMARY** L-BAND COMMUNICATIONS

Iridium Certus is ideal for high-speed requirements on vessels, delivering:

- Optimal benefits of L-Band and Low-Earth Orbit in a high speed solution
- Standardized packaging and speeds
- Clear and upfront pricing, no small print

Iridium Certus is a straightforward turnkey solution in an increasingly confusing market

SUPPORTING SCIENTIFIC EXPEDITIONS



EVERYTHING WITHIN REACH.SM

Iridium Use Cases






COFFEE BREAK (15 MIN)

THALES

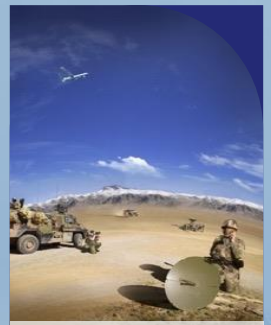
Anchorage, AK

October 2019

AEROSPACE

SPACE

GROUND TRANSPORTATION



DEFENCE

SECURITY

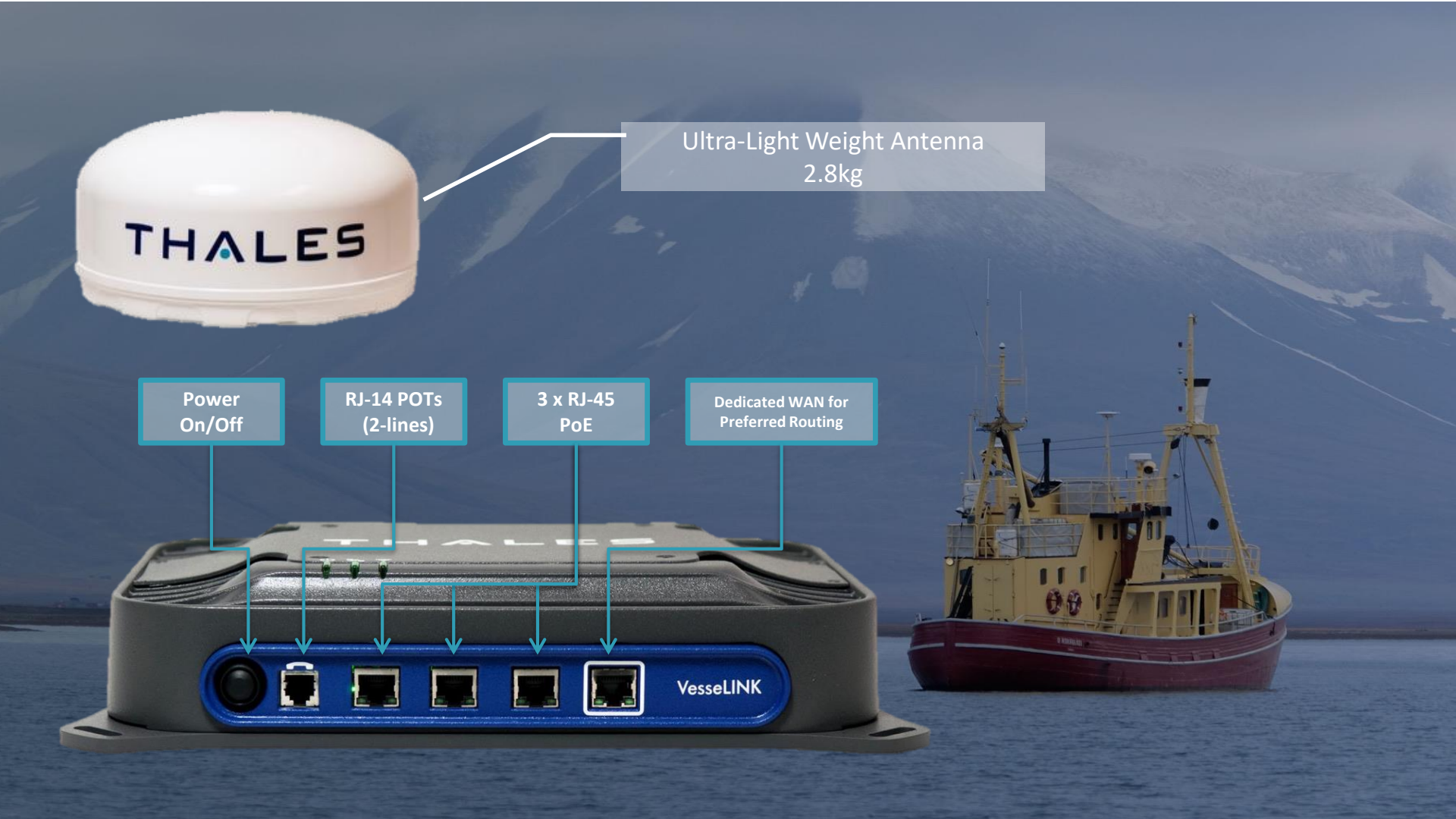
TRUSTED PARTNER FOR A SAFER WORLD

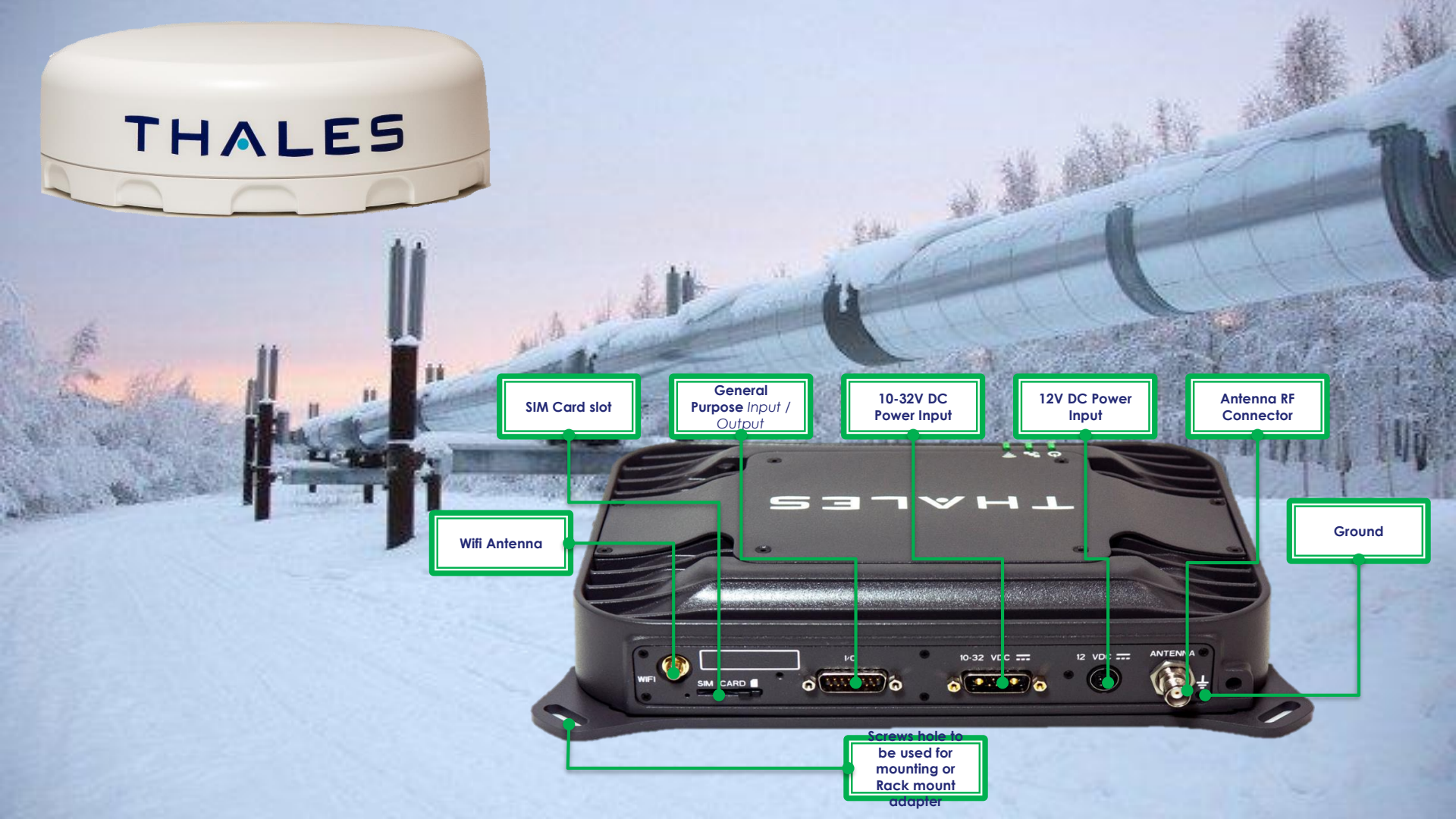
- **Communications is a core activity for Thales**
- **Thales is a worldwide leader in aviation, military and security communications: A core and founding business for Thales**
- **Thales is ambitious to grow its commercial market activities and this is key to our overall corporate Digitalization Strategy**

THALES

ThalesLINK – the best L-Band solution on Iridium Certus

- L-Band terminals for high reliable communications Standalone or VSAT companion
- Location Services delivered to your servers on your schedule
- Pole-to-pole coverage and low latency through LEO satellites
- 3-Managed High Quality Voice Lines for your business and crew
- Radio Gateway for Land Mobile Radio connectivity to the World
- All protected by administrator controlled settings
- Best Iridium based L-band upload speeds at 352 kbps


THALES
Ultra-Light Weight Antenna
2.8kg
Power
On/Off
RJ-14 POTs
(2-lines)
3 x RJ-45
PoE
Dedicated WAN for
Preferred Routing
VesseLINK


THALES
SIM Card slot
General Purpose Input / Output
10-32V DC Power Input
12V DC Power Input
Antenna RF Connector
Wifi Antenna
Ground
Screws hole to be used for mounting or Rack mount adapter
THALES
WIFI
SIM CARD
I/O
10-32 VDC
12 VDC
ANTENNA

Tomorrow's Solution Today: ThalesLINK

Best effort IP data up to 352kbps at launch moving to 704kbps 256kbps streaming

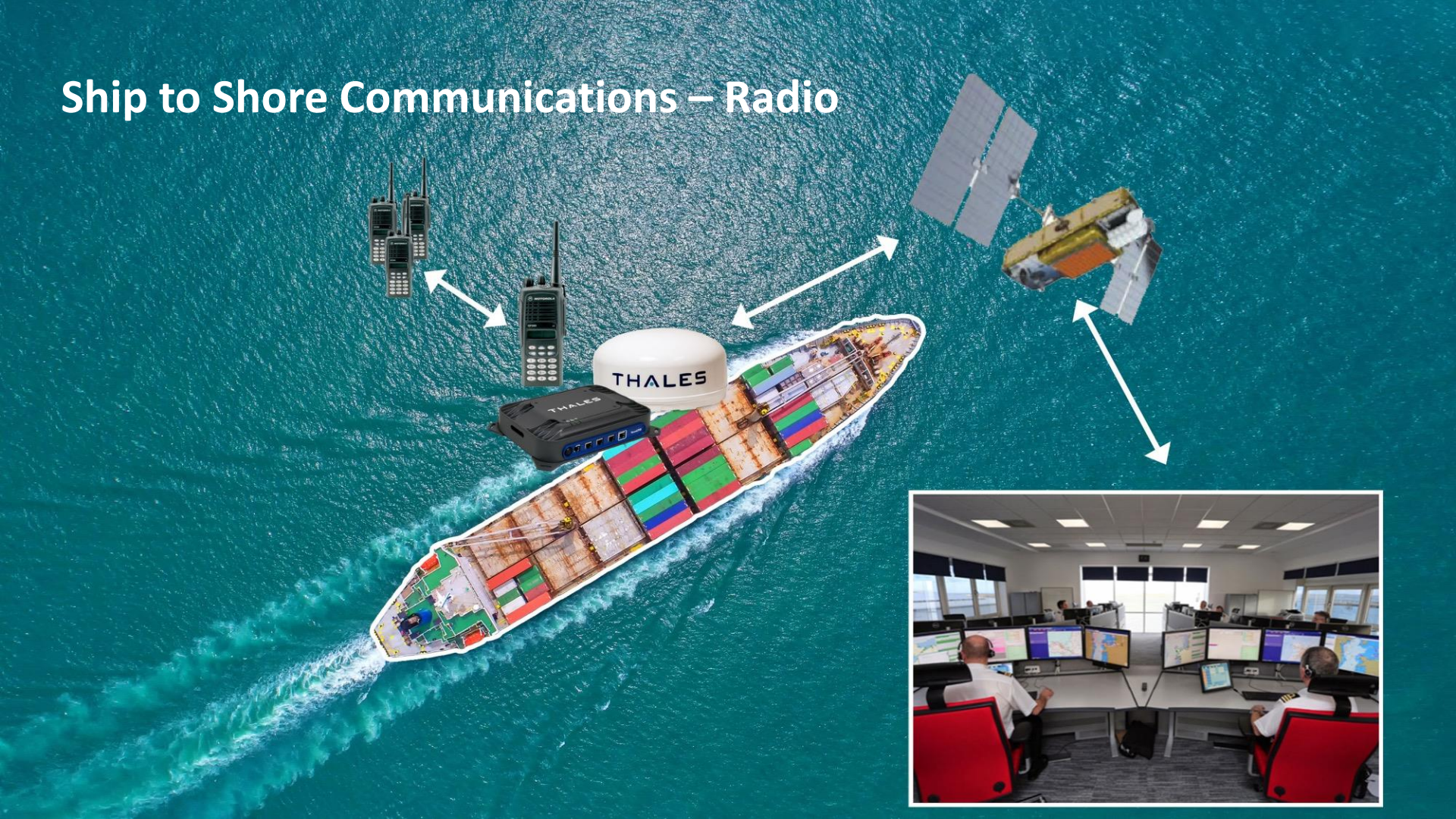
Built-in management portal for configuration and monitoring

API and command set for secure remote management by partners

Preferred routing & dynamic switching (VSAT or 4G/LTE)

THALES

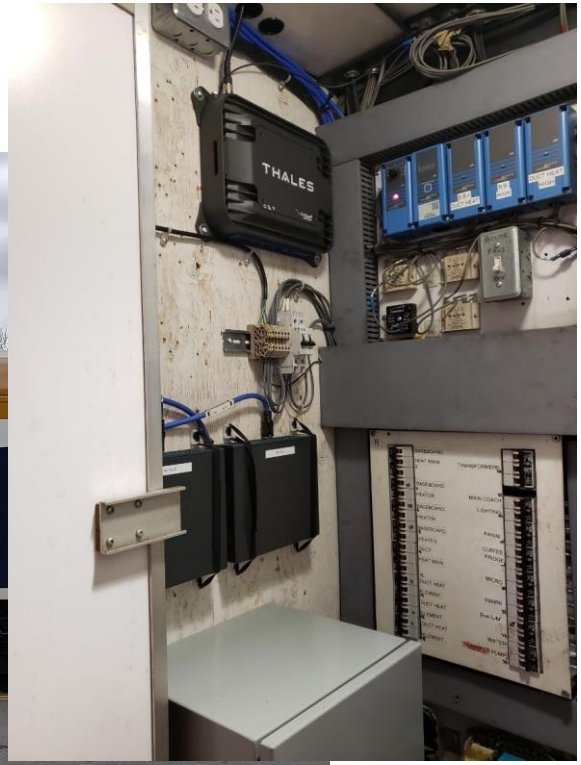
Ship to Shore Communications – Radio



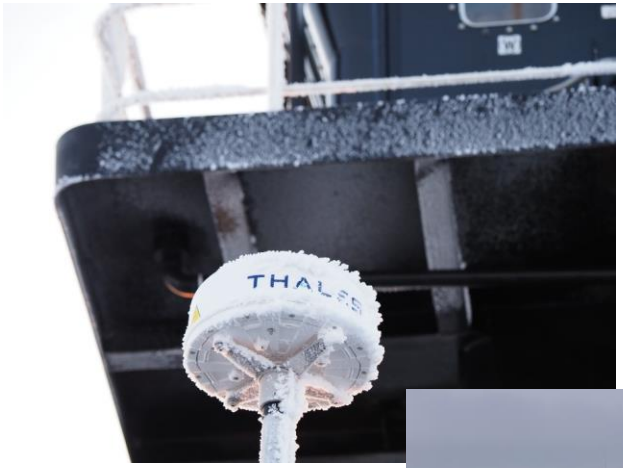
Radio Gateway

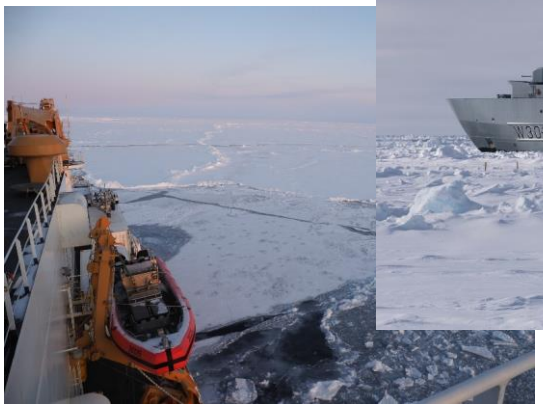

VSAT
Perfect VSAT Companion
Certus
THALES
THALES
THALES

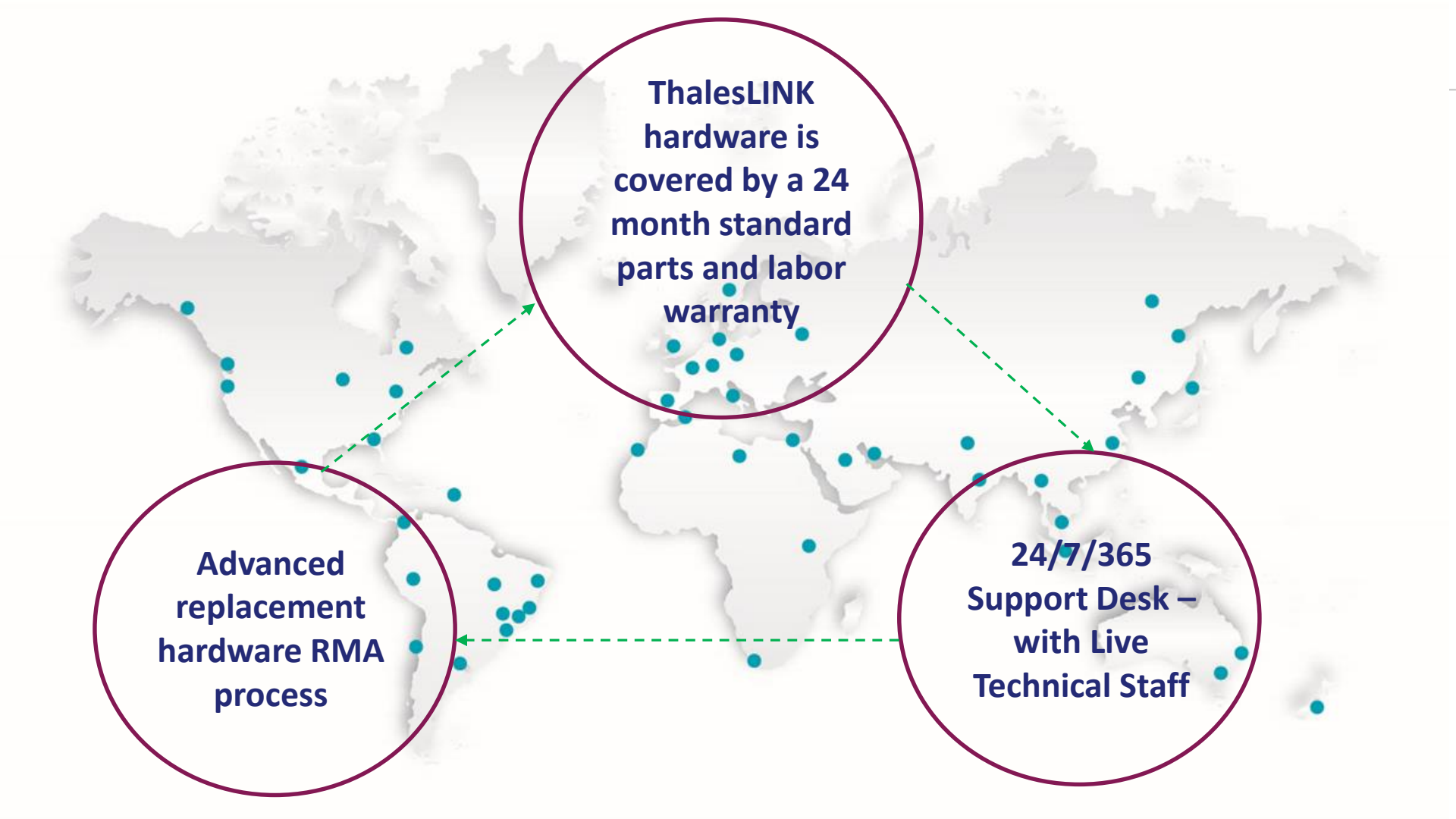
Success Story Showcase – Rocky Mountaineer (Network Innovations)



Success Story Showcase – Arctic






ThalesLINK hardware is covered by a 24 month standard parts and labor warranty
Advanced replacement hardware RMA process
24/7/365 Support Desk – with Live Technical Staff

What are we hearing in the market about Certus?

ThalesLINK

- Lightweight Antenna’s
- Easy Installation
- Feature Rich
- User Friendly
- Flexible
- Easy to Integrate with other systems
- API allowing us to add value

Iridium

- Speeds as advertised
- Lower latency opening new doors
- GMDSS Approval
- Amazing voice quality
- Best overall customer value
- Truly next generation L-band

How does it sound?

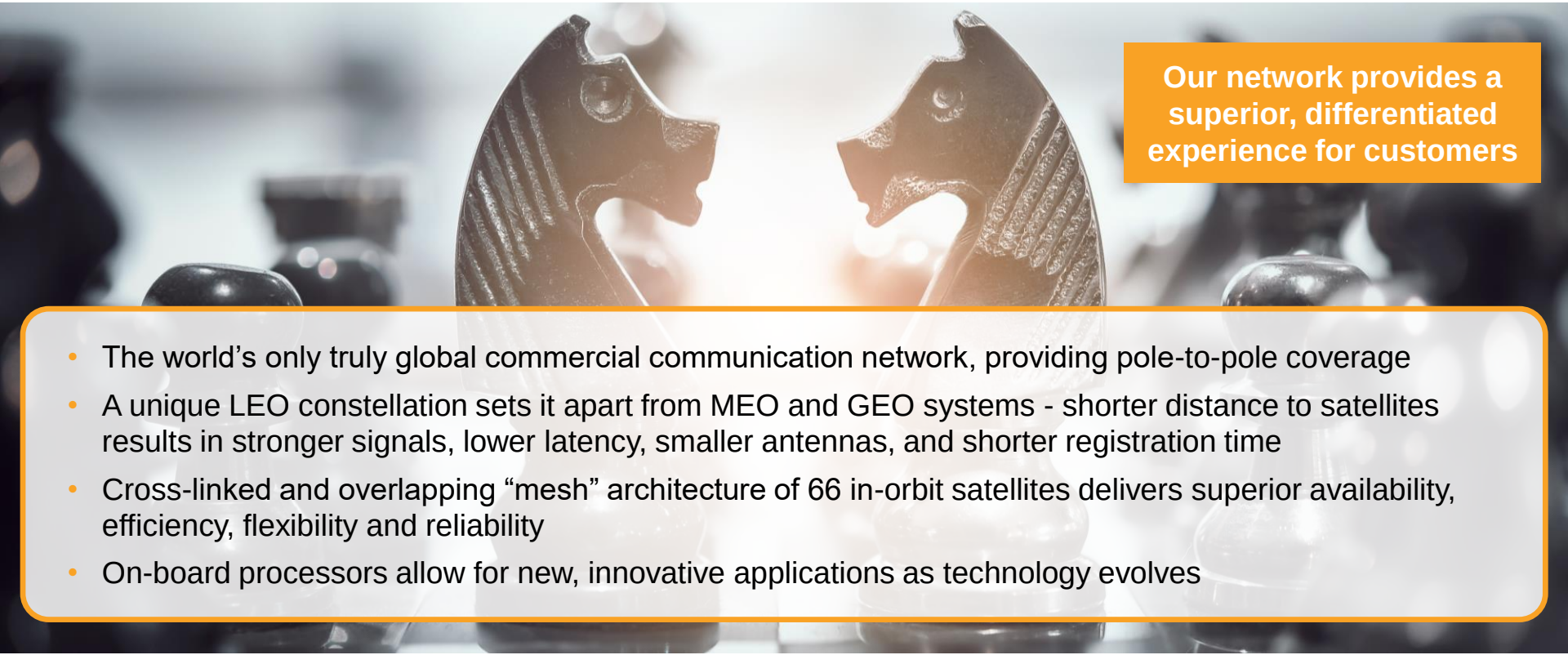
Thank You!

Mike Kreiner

Mike.Kreiner@ThalesDSI.com

CLOSING THOUGHTS

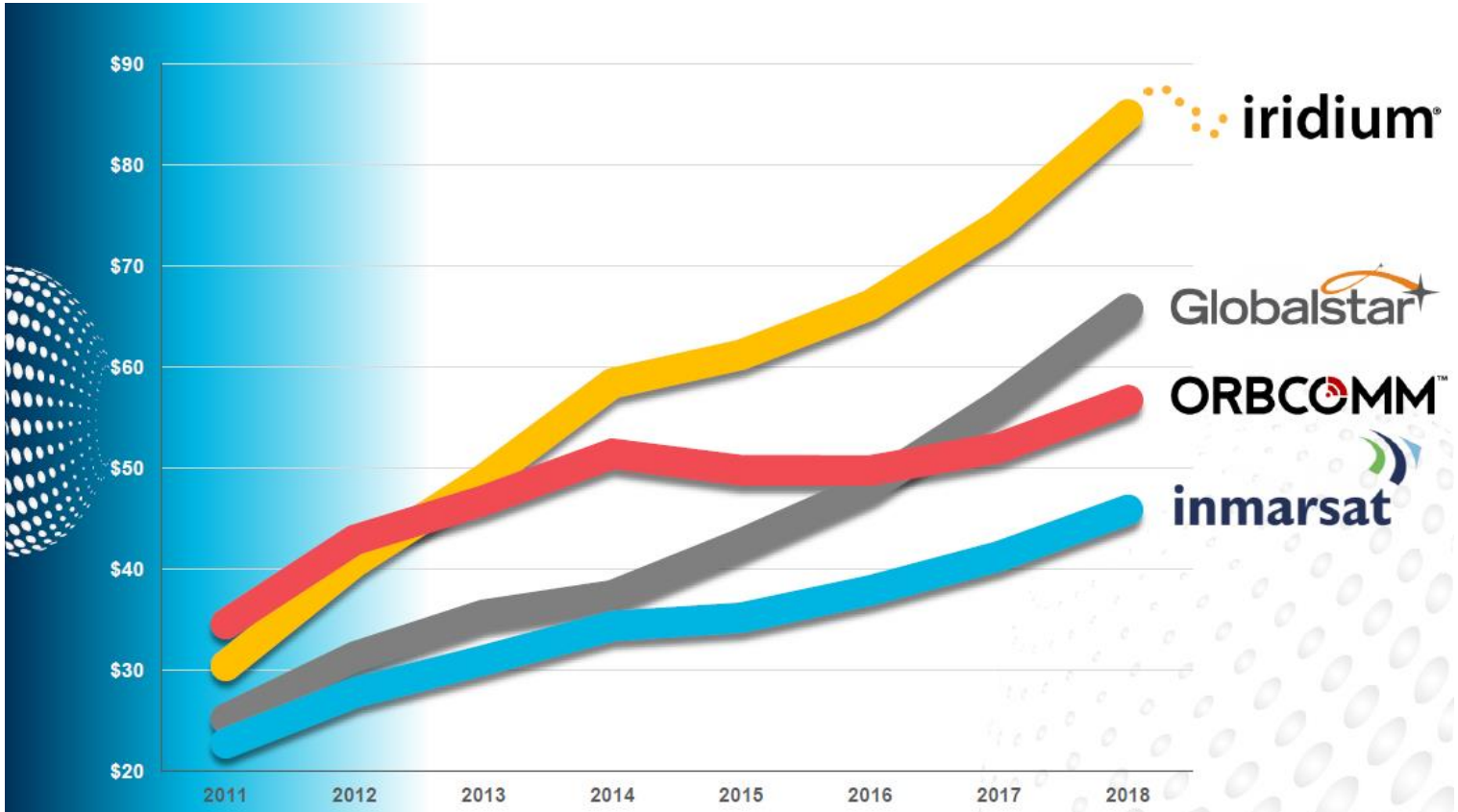
OUR LONG-TERM COMPETITIVE ADVANTAGE



Our network provides a superior, differentiated experience for customers

- The world's only truly global commercial communication network, providing pole-to-pole coverage
- A unique LEO constellation sets it apart from MEO and GEO systems - shorter distance to satellites results in stronger signals, lower latency, smaller antennas, and shorter registration time
- Cross-linked and overlapping "mesh" architecture of 66 in-orbit satellites delivers superior availability, efficiency, flexibility and reliability
- On-board processors allow for new, innovative applications as technology evolves

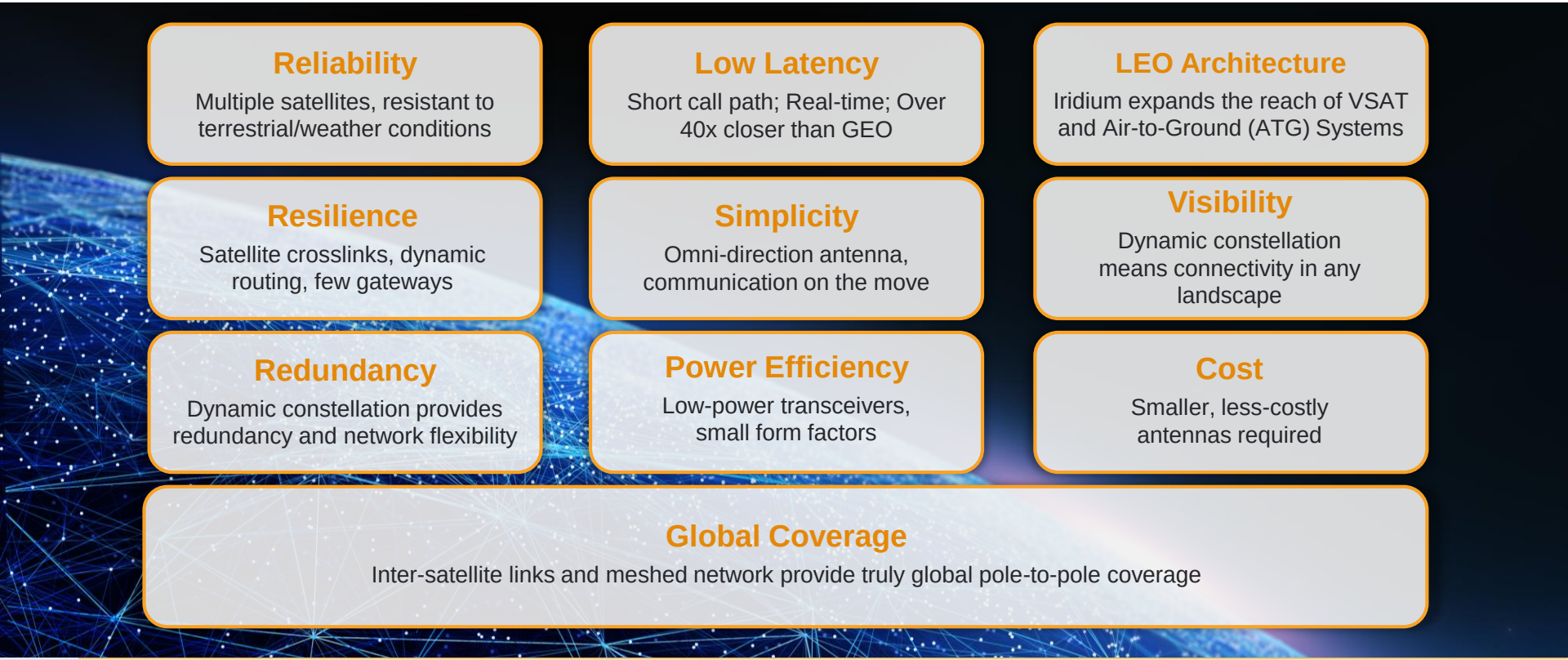
OUTPERFORMING THE COMPETITION



Note: Globalstar revenues derived from SPOT and Simplex services. Inmarsat revenues reflect sales by ORBCOMM.

Source: Quilty Analytics

THE IRIDIUM® ADVANTAGE



Reliability
Multiple satellites, resistant to terrestrial/weather conditions

Low Latency
Short call path; Real-time; Over 40x closer than GEO

LEO Architecture
Iridium expands the reach of VSAT and Air-to-Ground (ATG) Systems

Resilience
Satellite crosslinks, dynamic routing, few gateways

Simplicity
Omni-direction antenna, communication on the move

Visibility
Dynamic constellation means connectivity in any landscape

Redundancy
Dynamic constellation provides redundancy and network flexibility

Power Efficiency
Low-power transceivers, small form factors

Cost
Smaller, less-costly antennas required

Global Coverage
Inter-satellite links and meshed network provide truly global pole-to-pole coverage


QUESTIONS?