Mission Critical Maritime LTE Communications Deployment:

U.S. Coast Guard Sector Key West

Mike Thorlin
General Dynamics Mission Systems
February 28, 2017

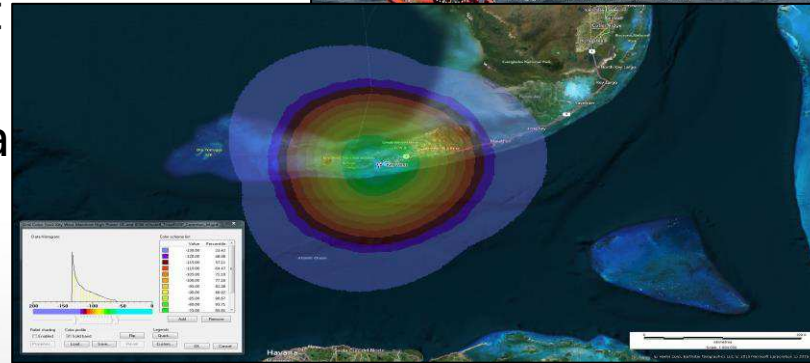# Mission Critical Maritime LTE Communications

Introduction

- Industry Team
- U.S. Coast Guard Research and Development Center
- U.S. Coast Guard Sector Key West

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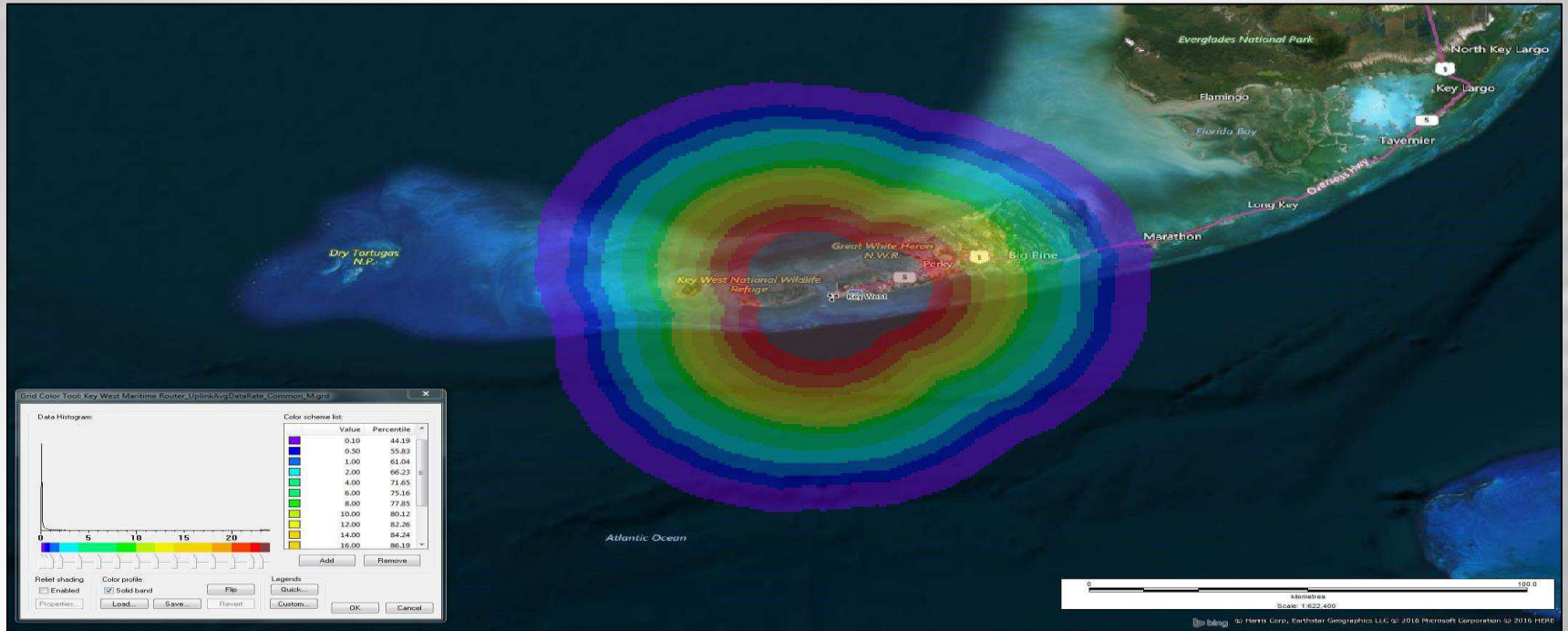Mission Systems

Mission Critical Maritime LTE Communications

Coast Guard LTE CRADA

- Investigate use of broadband digital communications in Coast Guard operations

- Evaluate LTE as a mission critical communications link for Coast Guard and multi-agency public safety and law enforcement operations
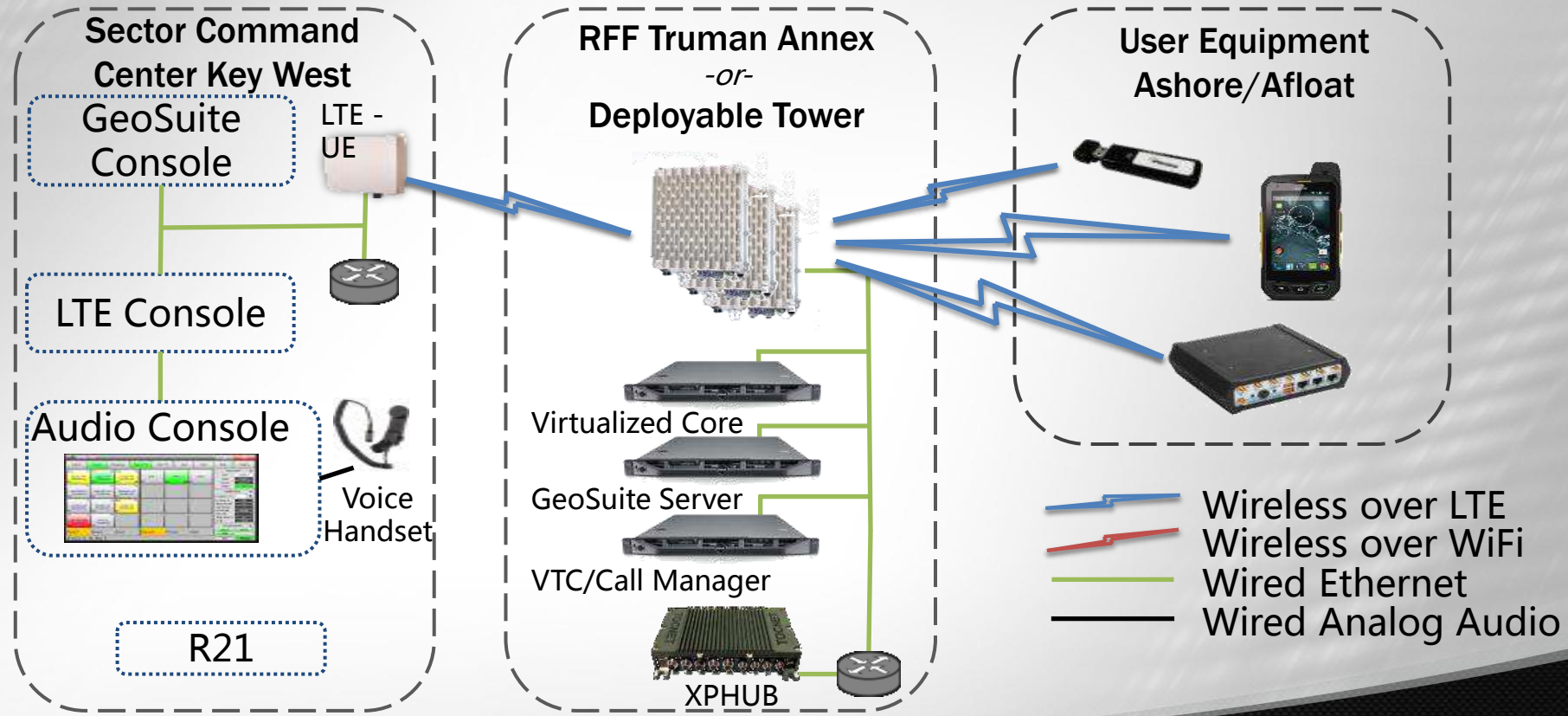
- Provide inputs to Coast Gua[rd] outreach to FirstNet

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Mission Critical Maritime LTE Communications
Projected Coverage Area

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Sector Key West LTE Implementation

Sector Command Center Key West

GeoSuite Console

LTE - UE

LTE Console

Audio Console

Voice Handset

R21

RFF Truman Annex
-or-
Deployable Tower

Virtualized Core

GeoSuite Server

VTC/Call Manager

XPHUB

User Equipment Ashore/Afloat

Wireless over LTE
Wireless over WiFi
Wired Ethernet
Wired Analog Audio

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Surface Vessel LTE Implementation
US Coast Guard Fast Response Cutter (FRC)

RFF
Truman
Annex LTE

Omni Antennas
2xTX/RX

B14 ODU

GPS

GeoSuite
Voice Client
VTC

IP
Camera/FLIR

Crew Space WiFi
(Galley)

Switch/Router

Sonim B14 / BYOD
Smartphones

Bridge WiFi

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Surface Vessel LTE Implementation
US Coast Guard Medium Endurance Cutter (MEC)

RFF Truman Annex LTE

Omni Antennas
2xTX/RX

B14 ODU

GPS

GeoSuite
Voice Client
VTC

Switch/Router

IP Camera/FLIR
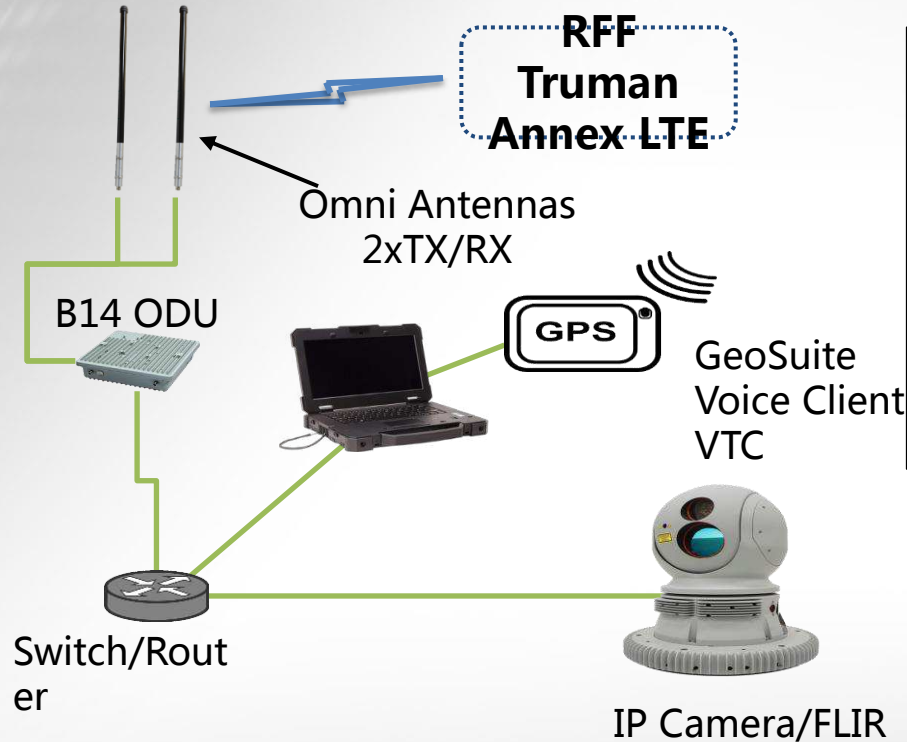
Due to the LTE equipment being run into CIC (a secure area), WiFi is not feasible.

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Surface Vessel LTE Implementation
US Coast Guard Response Boat Medium (RBM)

RFF Truman Annex LTE

Omni Antennas
2xTX/RX

B14 Router

Sonim B14 / BYOD Smartphone

Rugged Tablet

Rugged Laptop

GeoSuite
Voice Client
VTC

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Surface Vessel LTE Implementation
US Coast Guard Small Response Boat (SRB)

RFF Truman Annex LTE

Omni Antennas
2xTX/RX

B14 Router

Sonim B14 / BYOD Smartphone

Rugged Tablet

Rugged Laptop

GeoSuite Voice Client VTC

GENERAL DYNAMICS
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Surface Vessel LTE Implementation
US Coast Guard Cutter Boat

RFF Truman Annex LTE

Omni Antennas
2xTX/RX

B14 Router

Sonim B14 / BYOD
Smartphone

Rugged Tablet

Rugged Laptop

GeoSuite
Voice Client VTC

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Surface Vessel LTE Implementation
Customs and Border Protection (CBP) Mike Boat

RFF Truman
Annex LTE

Omni Antennas
2xTX/RX

B14 Router

Sonim B14 / BYOD
Smartphone

Rugged Tablet

Rugged Laptop

GeoSuite
Voice Client VTC

Surface Vessel LTE Implementation
Florida Wildlife Commission (FWC) Impact Boat

RFF Truman
Annex LTE

Omni Antennas
2xTX/RX

B14 Router

Sonim B14 / BYOD
Smartphone

Rugged Tablet

Rugged Laptop

GeoSuite
Voice Client VTC

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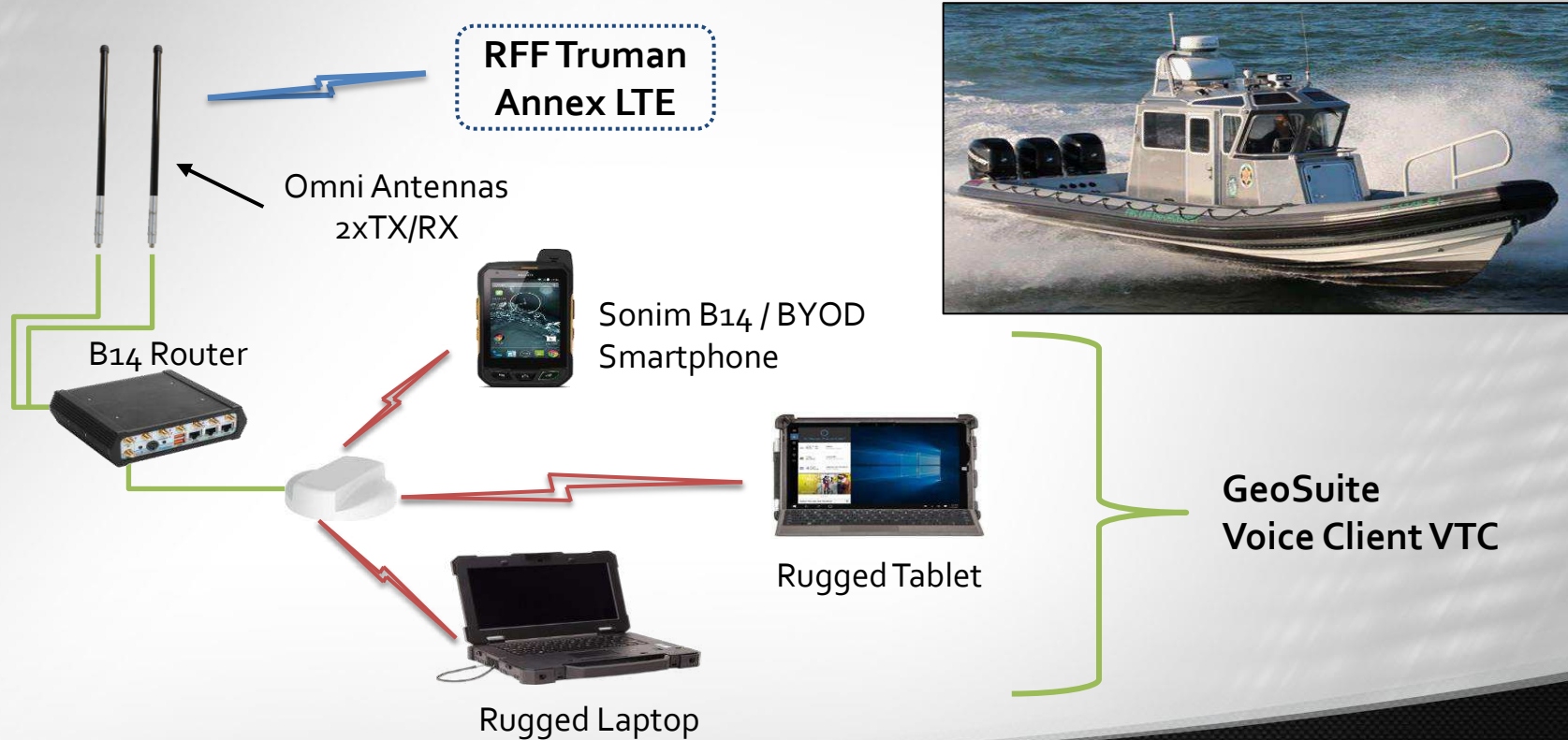
Surface Vessel LTE Implementation

US Coast Guard Fast Response Cutter (FRC) – LTE Hot-Spot
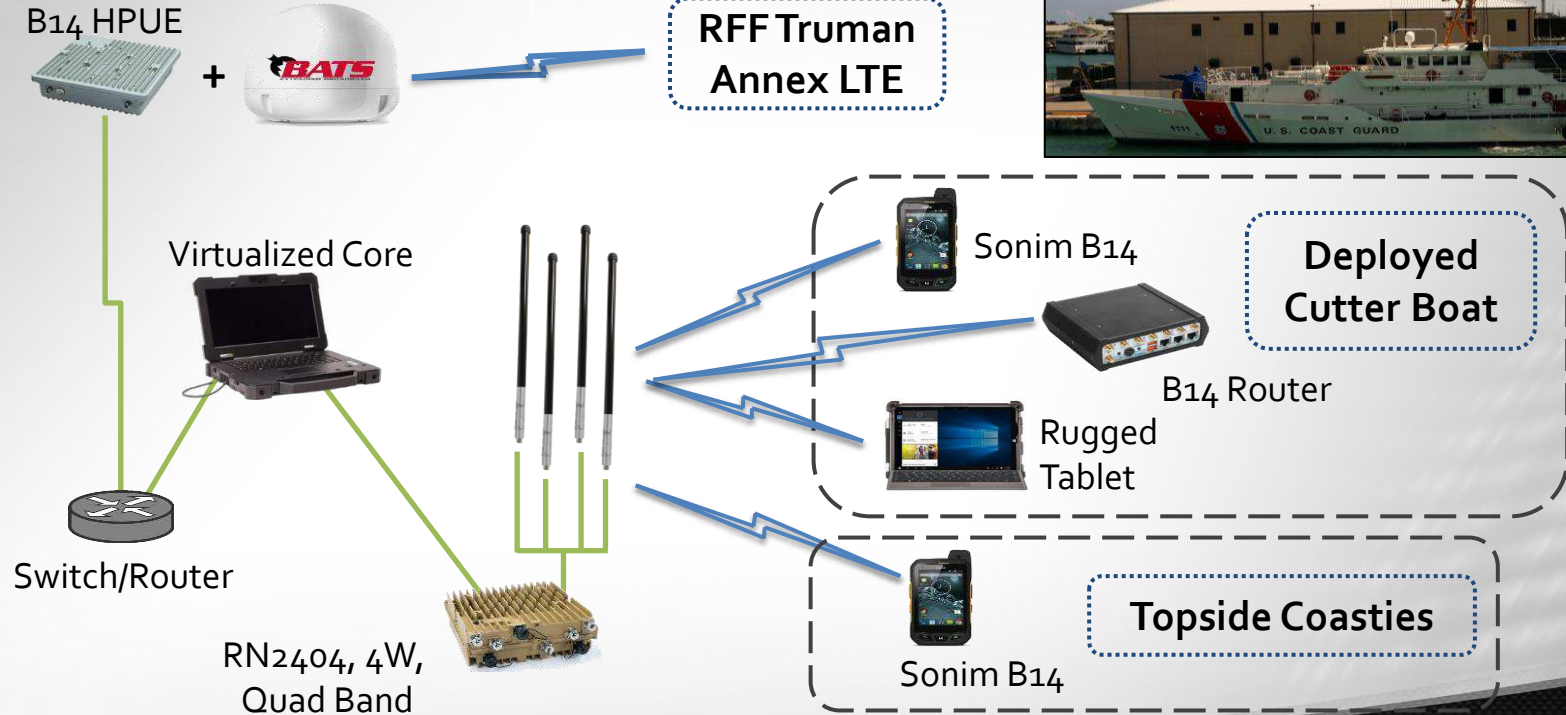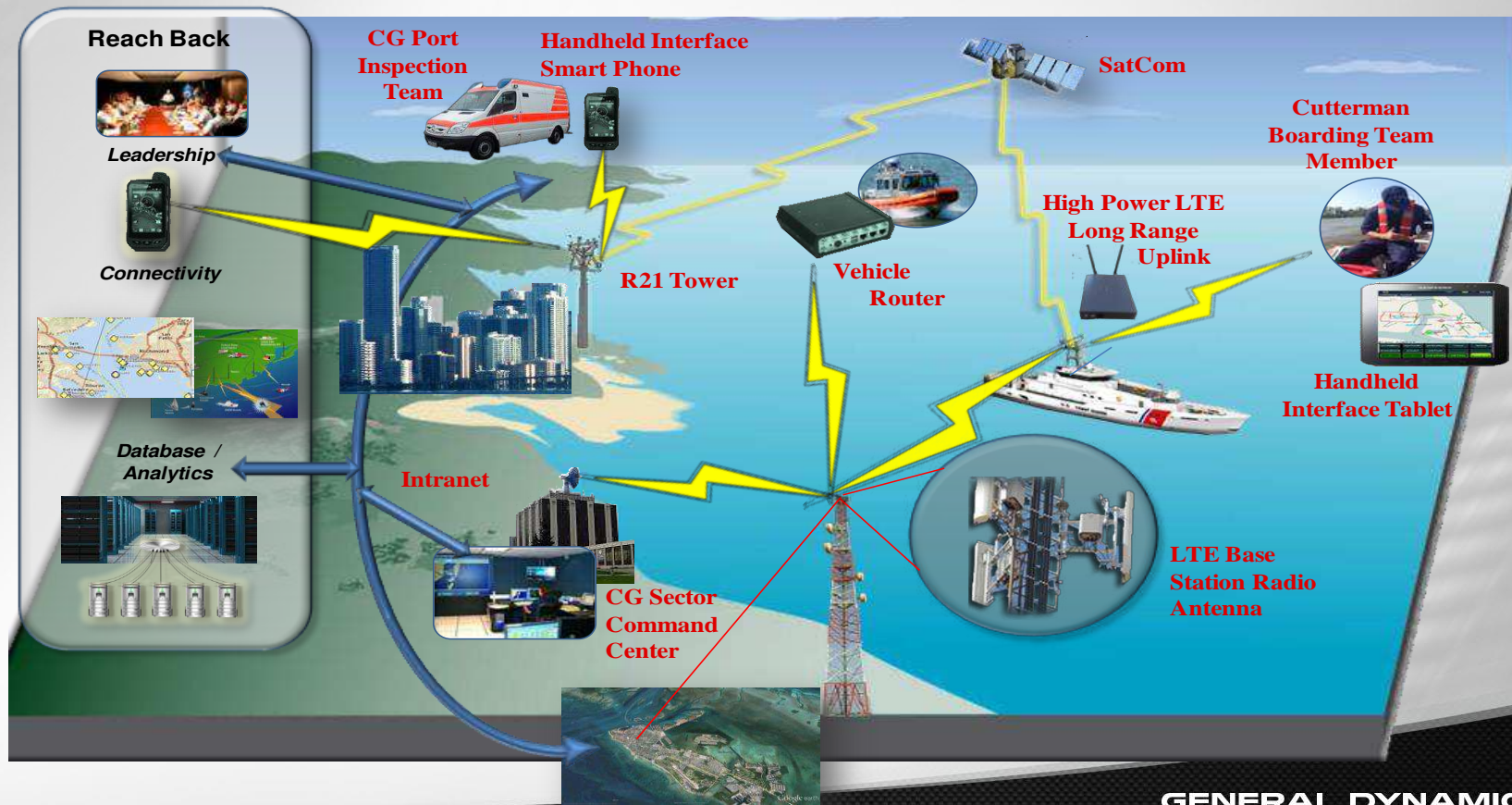
B14 HPUE

+ BATS

RFF Truman Annex LTE

Virtualized Core

Switch/Router

RN2404, 4W, Quad Band

Sonim B14

B14 Router

Rugged Tablet

Deployed Cutter Boat

Sonim B14

Topside Coasties

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Mission Critical Maritime LTE Communications

OV-1

Reach Back

Leadership

Connectivity

Database / Analytics

CG Port Inspection Team

Handheld Interface Smart Phone

SatCom

Cutterman Boarding Team Member

High Power LTE Long Range Uplink

R21 Tower

Vehicle Router

Handheld Interface Tablet

Intranet

CG Sector Command Center

LTE Base Station Radio Antenna

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Mission Critical Maritime LTE Communications

Use Cases As Applied to Sector Key West Mission Scenarios

- **Ship to Shore**
  - Sharing Common Operating Picture data
    - Position Location Information
    - Photographs
    - Reports
  - Transmitting High Resolution live video from on-scene to Sector Command Center
  - Transmitting Bio-Metric Data from scene to adjudication authority
  - Transmitting ships manifest documents

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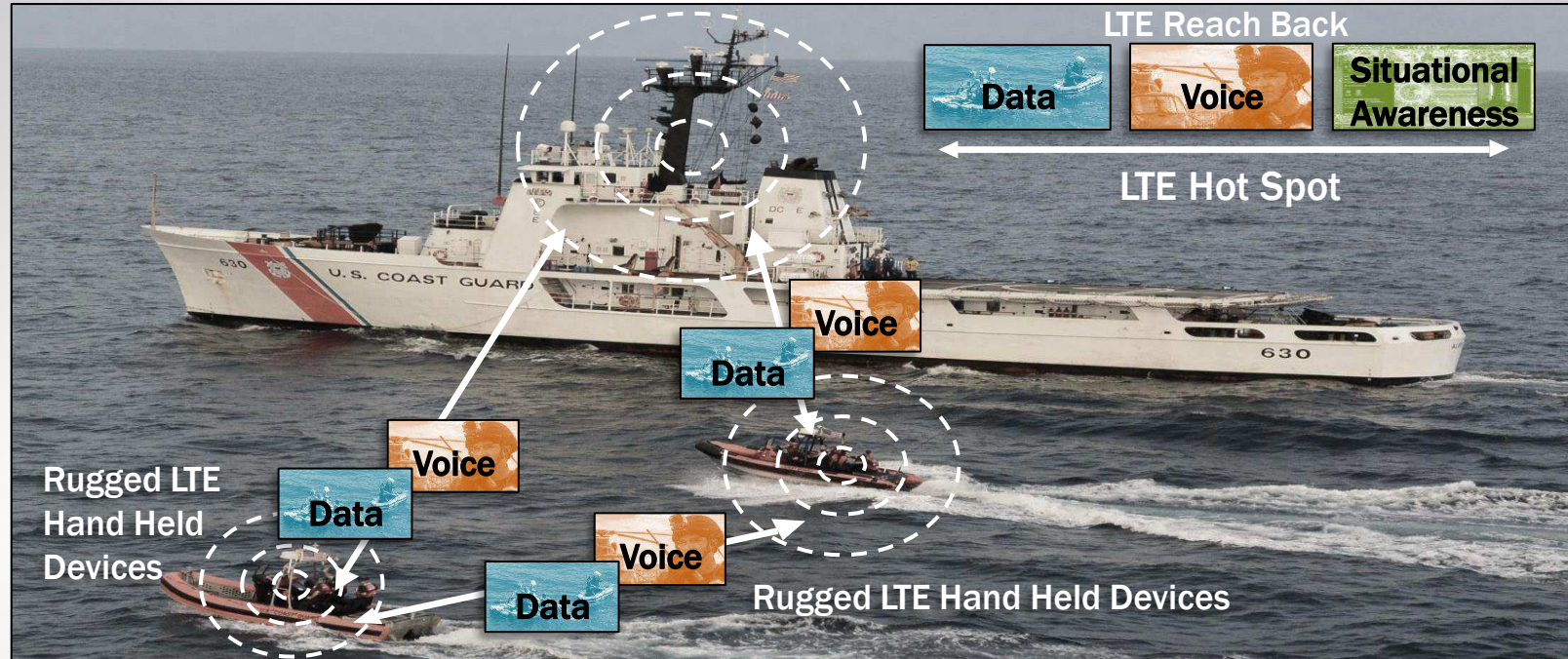Mission Systems

Mission Critical Maritime LTE Communications

Use Cases As Applied to Sector Key West Mission Scenarios

- **Ship to Ship**
  - Transmitting voice and video between Cutters and boarding parties in support

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Questions?

Mike Thorlin - *LTE Technology and Strategy*

General Dynamics Mission Systems

Mike.Thorlin@gd-ms.com

480-298-7314

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