



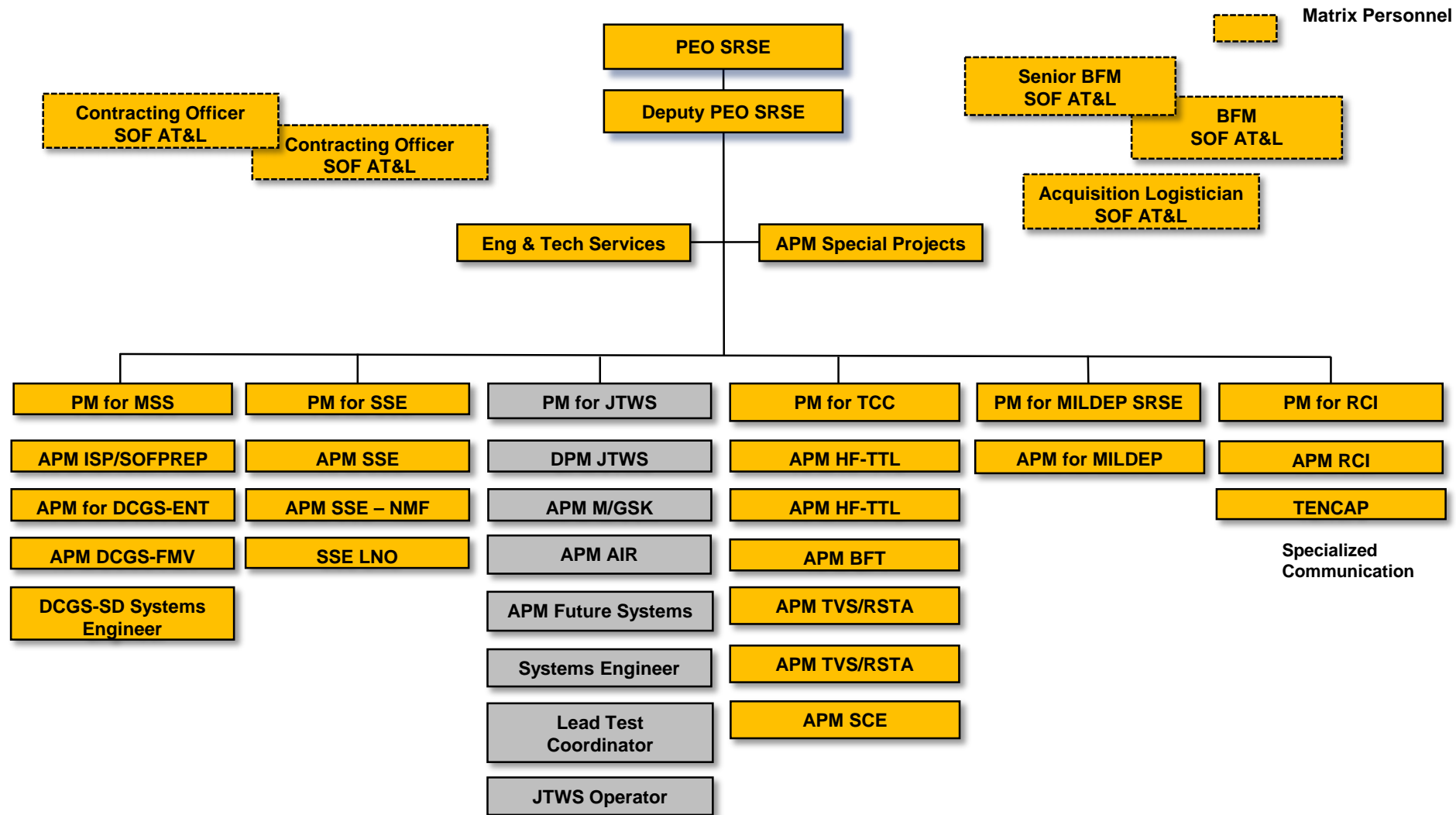
SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

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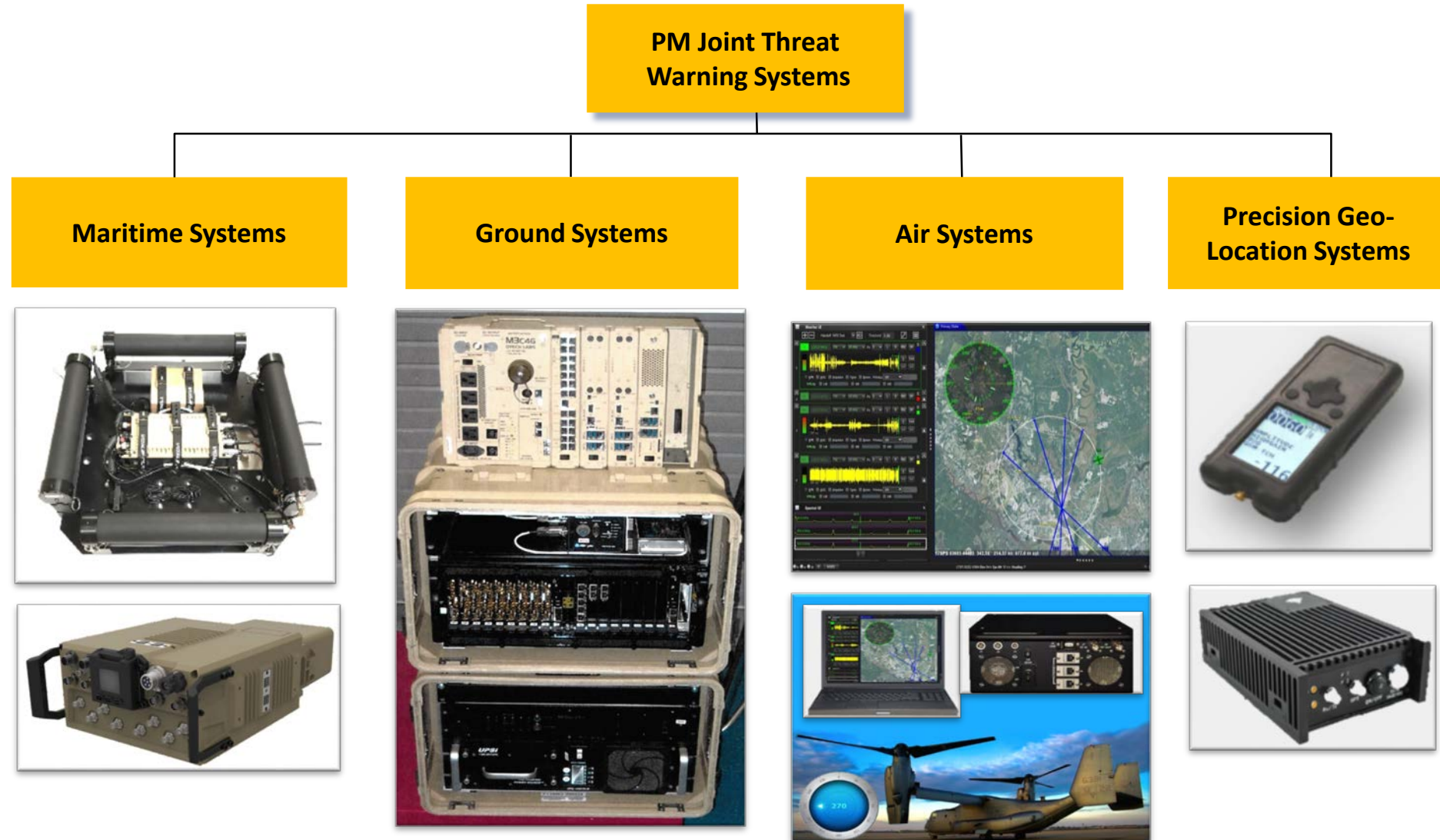
Mr. Michael Ellis *Program Manager*
JOINT THREAT WARNING SYSTEM (JTWS)



Program Executive Office Special Reconnaissance, Surveillance, and Exploitation



Program Manager Joint Threat Warning Systems



Program Manager

Joint Threat Warning System

Mission:

Synchronize acquisition of signals intelligence across the ground, air and maritime domains. Develop and field interoperable, networked sensors based upon open hardware and software architectures to enable the common operating picture and feed data into all-source analysis tools.

JTWS Sub-programs:

- Air
- Ground
- Maritime
- Precision Geo-Location (PGL)

Priorities:

- Be Positioned to Rapidly Respond to Dynamic Mission Requirements and Threat Picture
- Technical Insertion Of Emerging / Maturing Technologies
- Modular and Scalable Cross-Domain Solutions

ACQUISITION STRATEGY

- Incremental Procurement of COTS/GOTS/NDI with Technical Insertions and Planned Program Improvements

PERIOD OF PERFORMANCE

- Annually Fields Initial Variants, Capital Equipment Replacement, and Technology Insertions in Support of SOCOM Components

MILESTONES

- Fielding: Annually
- User Testing: Prior to Fielding
- New Equipment Trng: Continuous
- Fielding/Deployment: Continuous

POINT OF CONTACT

- Technology & Industry Liaison Office
- TILO@SOCOM.mil
- 813-826-9482

FUNDING

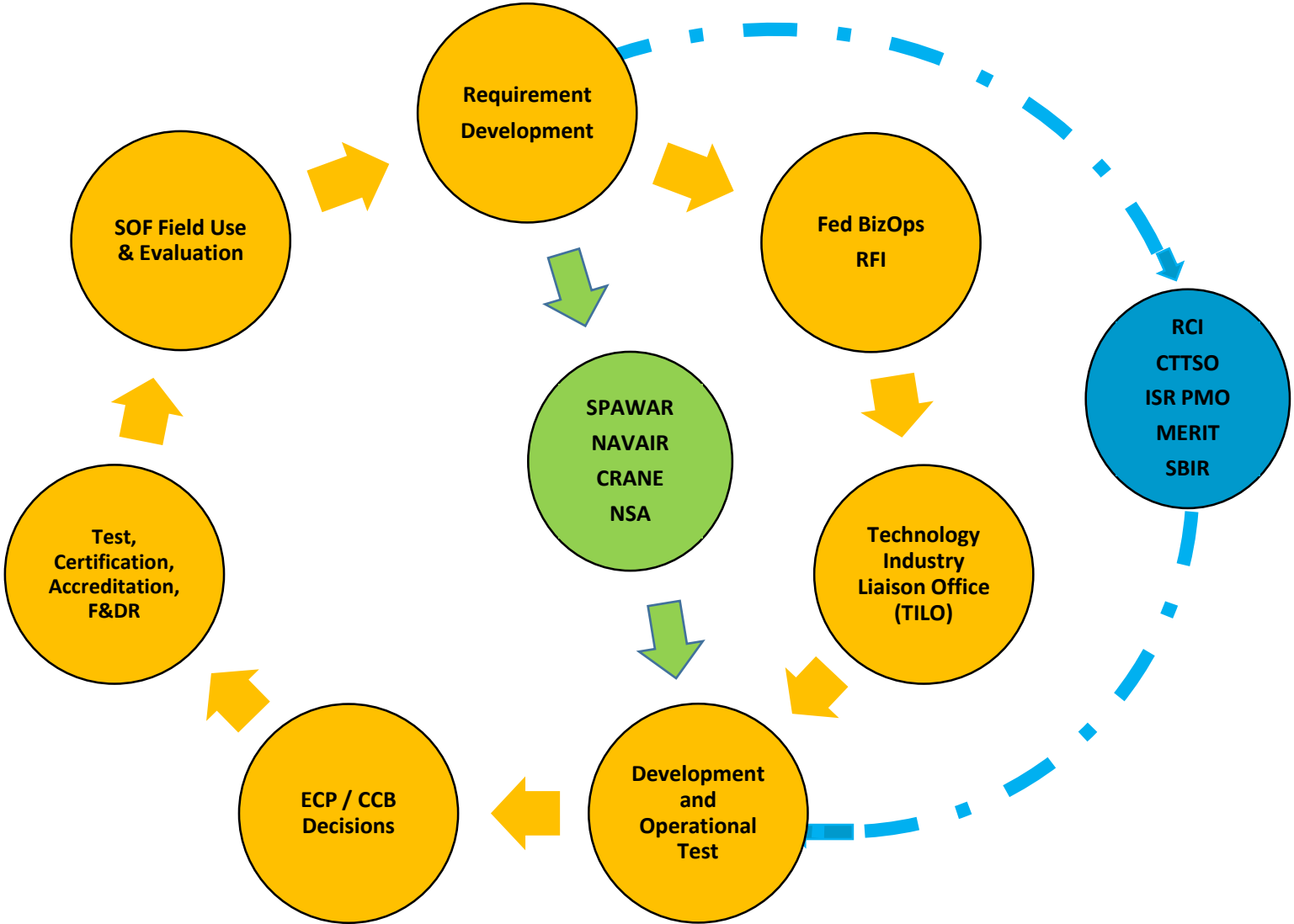
<u>APPROP</u>	<u>FY18</u>	<u>FY19</u>
• O&M	\$22.2M	\$25.3M
• PROC	\$45.6M	\$39.9M
• RDT&E	\$ 5.3M	\$ 4.5M

CURRENT CONTRACT/OEM

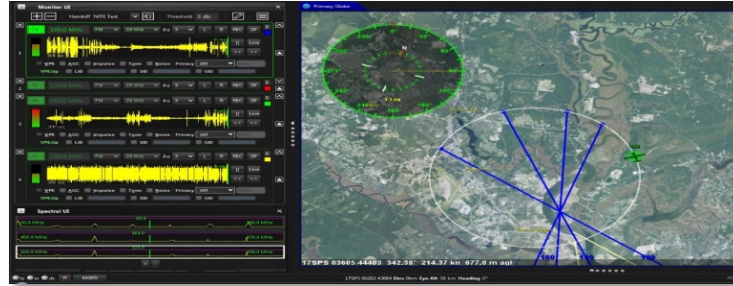
- Multiple

PEO SRSE Capability Evolution

Capability Insertion or Replacement Cycle



JTWS Air 2 Heavy Variant



Broadcast
Receiver, Radio
and Audio Box

Main Processing
Unit

Direction Finding
Unit

KG / Router Unit

Main Receive
Unit



Description:

- JTWS-Air 2 is the Second Increment of the Fielded Air Sub-program
- Enhanced Situational Awareness & Tactical SIGINT Collection Capability

Operational Relevance:

- Detect & Collect Simple and Complex Signals of Interest (SOI)
- Incorporates new threat SOI, Tactical / Enterprise Net-Centric Operations, Reach Back & Increased DF Accuracy
- Provides Intelligence Broadcast Data & Collaborative Tactical Networking Tools

Milestones and Opportunities:

- Acquisition: \$8.7M in PROC over FY18 & FY19
- Operational Testing:
 - AC-130J DT & OT 3Q FY18
 - EC-130J DT & OT 3Q FY18
- New Product Tech Insertion Opportunities:
 - New Signals of Interest
 - Researching a more Modular and Scalable future

JTWS Air-2 Medium / Lite Variant



Broadcast
Receiver, Radio
and Audio Box

Main Processing
Unit

Direction
Finding Unit

KG / Router Unit

Main Receive
Unit

Description:

- Scalable Situational Awareness & Threat Warning for Space Limited Aircraft
- Platform Agnostic
 - Carry-on/Carry-off
 - Power Flexible
 - Modular Design
 - Expandable: Ethernet, RF, and Power Pass-thru for additional Components/Sub-systems

Operational Relevance:

- Detect and Collect Narrow-band SOI
- Accommodates Companion Sub-systems for Complex Signals of Interest and DF
- Map Display & Mature Software Interface
- Small Footprint / Low SWaP

Milestones and Opportunities:

- Acquisition: \$8.7M in PROC over FY18 & FY19
- Milestones:
 - F&DR (C-146): APR2018
 - RFI for new antenna technology open 07MAR2018 – 1JUN2018
 - OT on CV-22 3Q FY18
- New Product Tech Insertion Opportunities:
 - New Directional, Direction Finding, and Omni Antenna \ technology

JTWS Air UAS



Modular Payload
Bay

SIGINT Kit
Payload



Description:

- **SIGINT Situational Awareness & Threat Warning** for small UAS platform
- **Swappable SIGINT payloads** for PUMA I & II

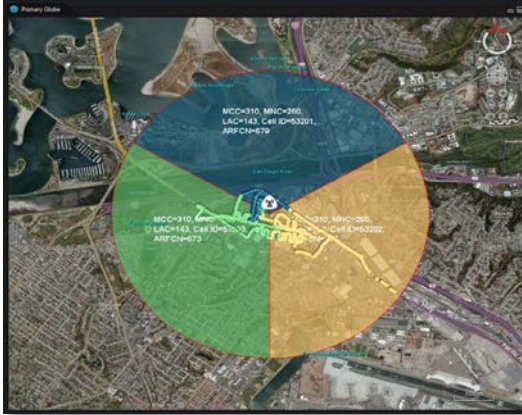
Operational Relevance:

- **Force Protection and Situational Awareness**
- **Tactical SIGINT with real-time Direction Finding and Geo-location**
- **Tactical, single, non-networked small UAS**

Milestones and Opportunities:

- **Flight Testing:**
 - PUMA II - Silent Echo 10.6 Test DEC2017 at Avon Park
 - PUMA II - Silent Echo 10.6 Testing APR2018 at Camp Gruber
- **Future payload development** as users provide feedback on other Signals of Interest
- **Input via TILO** for non-solicited proposals

JTWS Ground SIGINT Kit Body Worn System



Description:

- The current Body Worn solution is the Cutlass
- Characteristics:
VHF/UHF Direction Finding Rugged, man-packable
requires 1 SIGINT operator per sensor

Operational Mission:

- Threat Warning, Force Protection, and Situational Awareness toolbox consisting of SIGINT capabilities that are man-packable

Milestones and Opportunities:

- Annual Assessment of Alternatives (AoA) to inform RDT&E and Procurement decisions
- Evolutionary Technical Insertions (ETI) of SOI improvements
- Use BAAs as vehicles to submit technology and capability enhancements
- Input via TILO for non-solicited proposals

JTWS Ground SIGINT Kit Mobile System



(Current)



(Development/Test)

Description:

- HF/VHF/UHF DF Receiver & Multi-protocol COMINT (some in development/test)
- Software Defined Radio
- Relatively small SWaP

Operational Mission:

- Simple/Complex Signal Survey & Other Missions
- Provides Threat Warning, Force Protection, and Situational Awareness
- Mounts in vehicles

Milestones and Opportunities:

- Evaluating replacement for DRT 1301C as it approaches end of life
- Use BAAs as vehicles to submit software capability enhancements
- Input via TILO for non-solicited proposals

JTWS Ground SIGINT Kit Static System



STATIC



STATIC-2



Description:

- **STATIC-2**
- **Next Generation Multi-Protocol Collection System with capability of Static at reduced SWaP**
- **Silent Dagger Compatible**
- **2 cases @ 150lbs each**

Operational Mission:

- **Simple/Complex Signal Survey & Other Missions**
- **Tactical Storage / Wideband Record / Playback**

Milestones and Opportunities:

- **Evolutionary Technical Insertions (ETI) of SOI improvements**
- **Tech Insertion for Modular**
- **PM BAAs for opportunity to submit technology and capability enhancements**
- **Input via TILO for non-solicited proposals**

JTWS Maritime System



Description:

- HF/VHF/UHF DF Receiver & Multi-protocol COMINT (some in development/test)
- Carry-on/Carry-Off SIGINT Capabilities for Standard and Non-standard Platforms
- Configurable, ruggedized, low-profile capabilities that minimize SWaP

Operational Mission:

- Configurable, Ruggedized, Low-profile Capabilities Performing Simultaneous Survey, Detection, DF, Processing of Intelligence Information, and Other Missions
- Support Find, Fix, and Finish Operations

Milestones and Opportunities:

- Milestone-C Production Decision Complete for (Kraken and Corsair) non-standard Maritime
- Annual Assessment of Alternatives (AoA) to inform RDT&E and Procurement
- Use BAAs as vehicles to submit technology and capability enhancements
- Input via TILO for non-solicited proposals

JTWS Precision Geo-Location System



Description:

- Primary Sensors and Handheld Devices Capable of Processing Frequency Measurements
- Self-Configurable and Supports Numerous Protocols
- Stand-Alone Mode for Collecting Signal Measurements & Geographical Coordinates

Operational Mission:

- Geo-Locate Signals of Interest (SOI) for Air, Ground and Maritime
- Survey, Location Identification, Direction Finding, and other missions

Milestones and Opportunities:

- Executing \$35.4M in PROC for CERP investments in FY18-FY19
- Hold Industry Day 4QFY18 in pursuit of developing a technical spec for PGL focused on reprogrammable sensors capable of multiple SOIs
- 29 different sensors currently approved for use by the program
- BAA/RFI process as new requirements emerge; Demo Event/industry Day with Users
- Input via TILO for non-solicited proposals

JTWS Futures FY18 Efforts

- **Air Hardware/Antenna RFI & Hackathon Phase I**
 - Purpose – Identify innovative Industry Direction Finding (DF)/Omni Directional antennas
 - H92222-RFI-18-JTWS-Air Industry-Day released 7 Mar, closes 1 Jun
 - Industry Day for Selected Vendors at Hurlburt Field; 28 Jun 18
 - **Air Hardware/Antenna RFI & Hackathon Phase II**
 - Purpose – Prototype, Integration & Demo of selected DF/Omni Directional antenna that meet JTWS requirements
 - Venue at Hurlburt Field or North Carolina site utilizing non-standard aircraft; Aug/Sep 18
- These events will inform JTWS investment decisions for 2QFY19*
- **Air Software (SW) Hackathon**
 - Purpose – Improve DRT 4411 Software Defined Radio's (SDR) HF signal locating capabilities
 - Pre-recorded data will be posted via a Hackathon Prize Challenge on an online venue such as Topcoder or SOFWERX; timeframe Jul 18

This event will inform JTWS investment decision in the 2QFY19

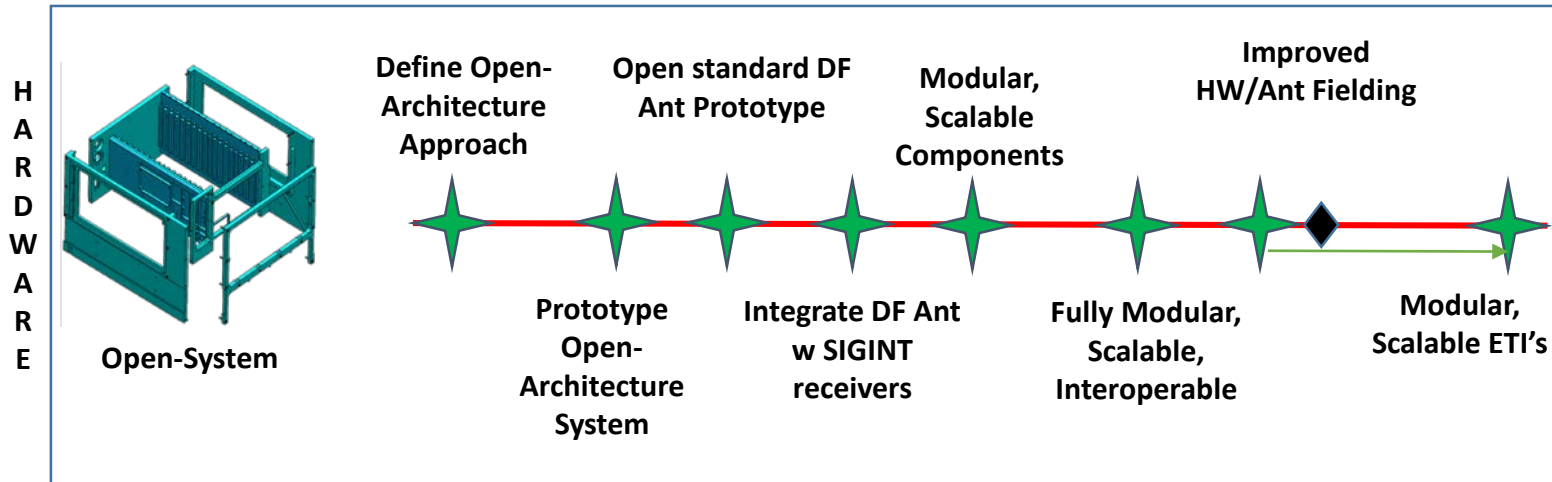
JTWS Futures FY18-22 Efforts

- **Open Architecture**

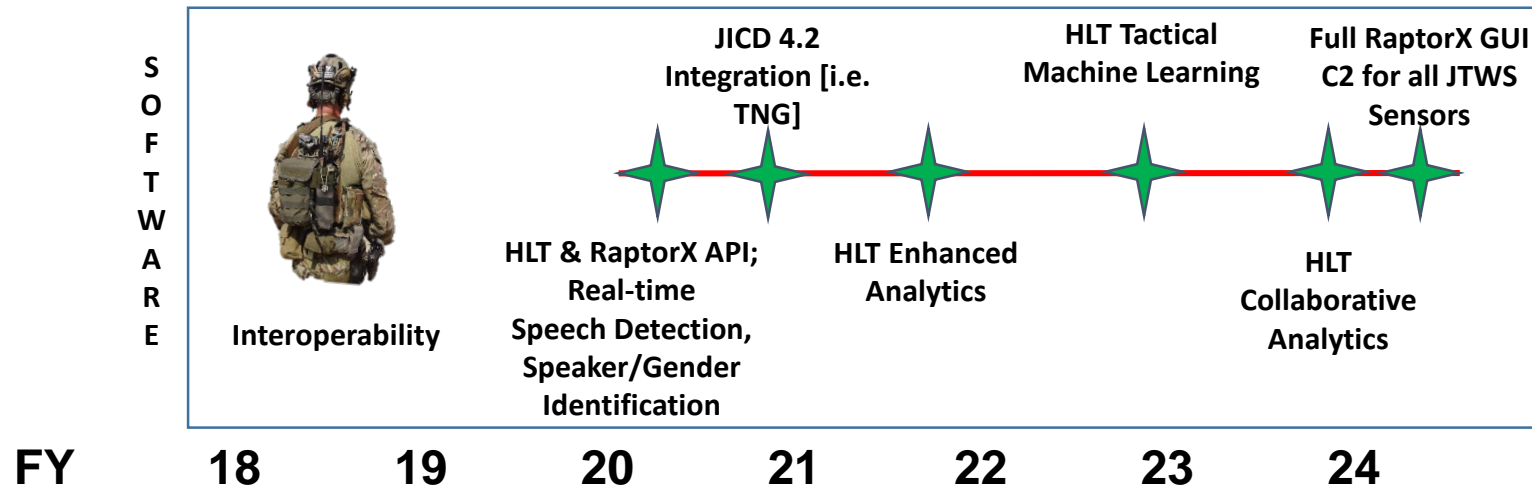
- Purpose – Pursuit of modular, scalable, open architecture for JTWS SIGINT Hardware and Software
- Charter Cross Functional IPT (June 18) composed of SOF AT&L, Users, NSA, IA, Service Reps, and Industry Stakeholders
- Broad Agency Announcement(s) (BAA) to generate Industry innovative solution proposals, and host 'Hackathons' at a venue such as SOFWERX to evaluate proposals; late Summer CY18
- Award multi prototype development efforts as a result of the BAA
- Stand up System Integration Lab (SIL) and Reference Integration Lab (RIL) for testing prototypes & concepts
- Development Phase; October 2018 – May 2022
 - Solutions will be procured and fielded throughout the Development Cycle

End State Goal – a set of open architecture hardware and software interface standards and capabilities which can be applied across all JTWS platforms and domains, re-configurable for varying Signals Of Interest (SOI), mission requirements and operating environment

JTWS Tech Insertion Roadmap



Open/Modular Components can be fielded at any point when ready



Fully Modular, Scalable, Interoperable, Cross-Domain SIGINT Solution, across All Sub-Programs, w/ C2 Commonality

JTWS Notional Internal Architecture Diagram

