



Cryptologic and Cyber Systems Division



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Crypto and Cyber System Division AFLCMC/HNC

**Col Abel Carreiro, USAF
Senior Materiel Leader
Cryptologic and Cyber Systems Division**

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Mission Areas

Cryptologic Systems



**Air & Ground
COMSEC**



**Space
COMSEC**



*The right key,
to the right customer,
at the right time...
anywhere in the world.*

**Identity & Key
Management**



**Intel & Force
Protection**

Cyber Systems



**Unified
Platform**



**Joint Cyber
C2**



**Defensive
Cyber**



**Offensive
Cyber**

Product Support



Logistics



Maintenance

Functionals



Contracting



Engineering



**Financial
Management**



**Director of
Operations**



Intel Support

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AF Acquisition Track - Agenda



Industry Day		
1330 – 1500	Cryptographic Program Opportunities	
	Classified Data at Rest (CDAR)	Mr. Dennis Becker
	Mini Crypto	Ms. Heidi Beason
	Remote Control Units Modernization	Mr. Daryl Banks
	Crypto Modernization 2	Mr. Michael Fitzpatrick
1500-1515	Break	
1515 - 1645	Cyber Program Opportunities	
	Unified Platform	Ms. Audrey Onweller
	Joint Cyber Command and Control (JCC2)	Ms. Veronica Quinonez



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Classified Data At Rest (CDAR)

Dennis Becker
Cryptologic and Cyber Systems Division

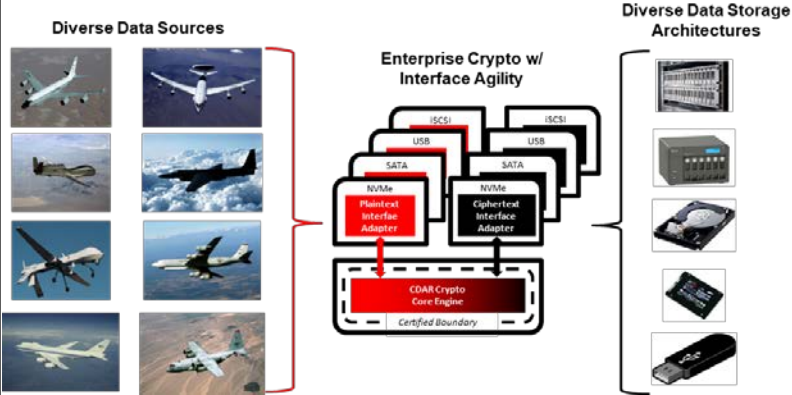
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Classified Data At Rest (CDAR)



Warfighter Benefits	
	
<ul style="list-style-type: none">• Renders classified data at rest unusable if compromised• NSA Type-1 certified• Common solution(s) – one size fits many• Adaptable interfaces support different data storage architectures	
Description/Background	Specifics
<ul style="list-style-type: none">• Classified Data at Rest (CDAR) must be protected with NSA approved encryption when physical protection is not adequate• AF users have been unable to implement CDAR solutions, indicating capability gap exists	<ul style="list-style-type: none">• <u>Requirements Basis:</u> Crypto Mod (CM) ICD Mar 11, ICD; CNSSD 502, DODI 8523.01; CJCSI 6510.02E, CNSSP 15• <u>Contractors:</u><ul style="list-style-type: none">• No contracts have been awarded to-date
System Capability	
<ul style="list-style-type: none">• Inline Media Encryptor (IME) with interface agility that provides war-fighter platforms an enterprise solution to protect at-rest data that is operationally exposed to hostile or uncontrolled environments	
Development Planning Phase	



Potential Industry Opportunity



- **Description:**
 - Crypto development:
 - In-Line Media Encryptor
 - High throughput over a single channel
 - Size, weight and power (SWaP) constrained
 - Interface Agility
- **Anticipated Schedule:**
 - Development FY19-FY21
 - Production/Fielding: TBD
- **Anticipated Contract:** FIA2T
- **Anticipated Procurement Approach:** TBD



Open Discussion/Questions



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Mini Crypto (MC) Program

Heidi Beason
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The Tactical Dilemma



- **Unmanned systems and sensors supporting tactical operations need secure communications**
 - **Command and Control (C2)**
 - **Data**
- **Traditional cryptographic devices require special support equipment and special handling**
 - **Increases system weight**
 - **Burdens tactical users with complex logistics**
 - **Strict NSA handling requirements - issues arise if lost or stolen**
- **Creates additional complications when tactical operations involve coalition forces**



The Solution – Mini Crypto

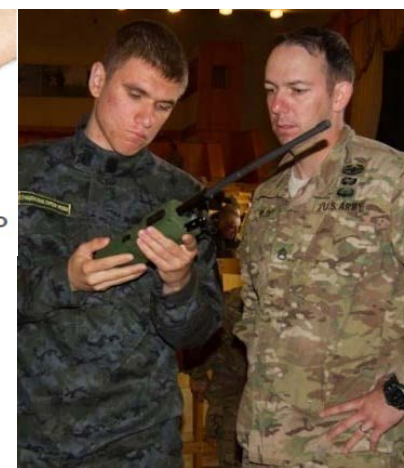
Revolutionary Embeddable Crypto Chip



- “Lose-able” Cryptographic High Value Product (CHVP)
 - Self-generated keys vs. NSA key material
 - NSA approved protection for SECRET and Below data
 - Utilizes unclassified PKI certificates
- Smaller Logistics Footprint
 - Less Key mgmt support equipment = less weight and more room for mission-related equipment
 - No pre-placed Key required
 - No maintenance requirement
- Simplified Operation
 - Supports “Coalition of the Day” - Ability to add/block members
 - Warfighters do not have to place themselves in harm’s way to retrieve or re-key Mini Cryptos



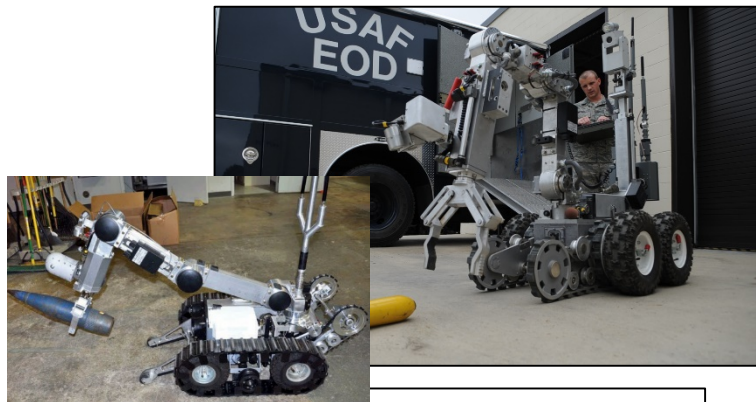
Mini Crypto Module relative to the size of a human hand



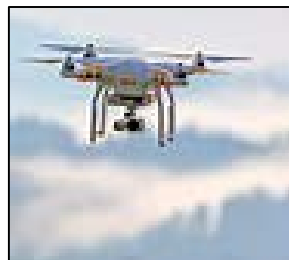


One Size Fits Many

Designed for Small Systems, Relevant to Larger Platforms

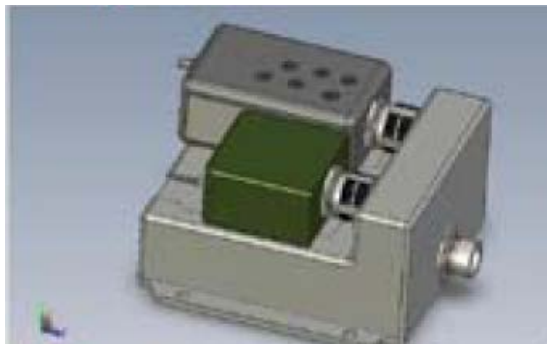


EOD Robots



Situational Awareness
Unmanned Vehicles

Smart Munitions



Chem/Bio and
Security Sensors

Radios



Precision Air Drop



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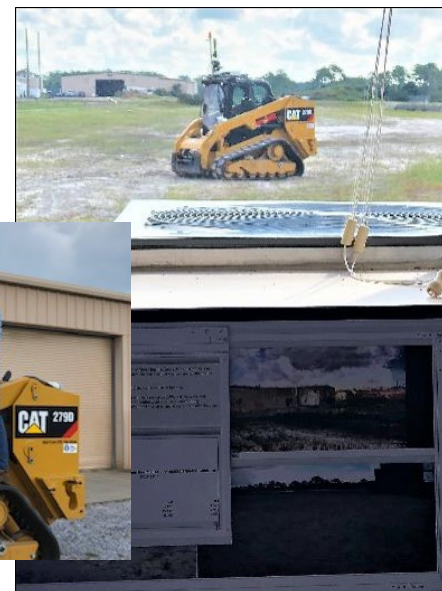


Program Status

Supporting the Warfighter, Revolutionizing Crypto



- MC EMD Contractor, ViaSat, **successfully passed** Qualification Testing and Security Verification Test
- Coordinating with multiple programs from multiple services
 - AF, Army, Navy embedment activities underway
- **Successful demonstration** of MC by Air Force Civil Engineering Center
- Currently in Low Rate Initial Production
- Central procurement by CCSD allows reduced per unit cost





Potential Industry Opportunity



- **Description:**
 - Mini Crypto can be embedded into a wide variety of unmanned systems, radios, and sensors
 - Mature documentation available for integration
 - Integrator support available – “art of the possible”
- Limited number of MC production units can be provided FREE to AF programs and Joint programs with AF participation
- Additional units available for other DoD and Government organizations

Looking to work with Industry on Embedment Ideas



Open Discussion/Questions



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Remote Control Units (RCUs) Modernization

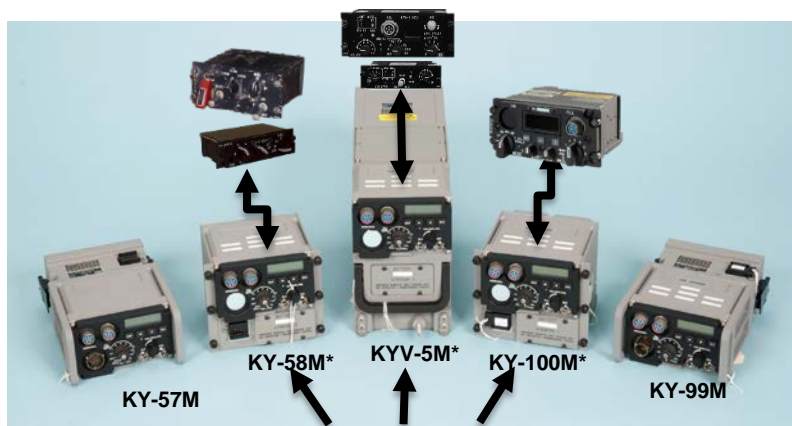
Daryl Banks
Cryptologic and Cyber Systems Division

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Remote Control Units (RCUs) Modernization



* RCUs for Airborne/Shipborne devices of interest

Warfighter Benefits

- Secures voice communications on aircraft, ships and ground fixed platforms
- Enables crew members to remotely control out of reach cryptographic units
- Improves sustainment of RCUs used by DoD and FMS
- Potentially reduce RCU types across DoD
- Addresses Obsolescence

Description

Permanent sustainment modification to deliver modernized VINSON/ANDVT remote control units (RCUs) to replace legacy devices

System Capability

- Provides remote control capability for VINSON/ANDVT end cryptographic units (ECU)
- Support secure voice/data transfer
- Provides form/fit replacement and backwards compatibility with legacy devices

Specifics

- Requirements Basis: Air Force Form 1067; Permanent Sustainment Modification
- Contractor: TBD



Potential Industry Opportunity



- **Description:**
 - Remote Control Units (RCU) Modernization of Legacy RCUs supporting VINSON/ANDVT End Cryptographic Units
 - Development and Production of multiple RCU variants supporting 80+ platforms across DoD and FMS customers
- **Anticipated Schedule:**
 - Development and Production efforts: FY19-24
- **Anticipated Contract:** Increment 1: FY19; Increment 2: FY22
- **Anticipated Procurement Approach:** Incremental, Single Step Acquisitions



Open Discussion/Questions



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Crypto Modernization 2 (CM2)

Michael Fitzpatrick
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Crypto Modernization 2 (CM2)



	
Warfighter Benefits	
<ul style="list-style-type: none">• Long-term, evolving protection of AF airborne platforms and most terrestrial networks• Enhanced security for the majority of AF voice, data, and video capabilities on the battlefield and throughout the DoD enterprise• Enable the integration of new capabilities to AF users through development of a new DoD Crypto Mod Initial Capabilities Document (ICD)	
Description / Background	
<ul style="list-style-type: none">• CM2 extends the original Crypto Mod activity to modernize or develop crypto equipment to address current and future threats	
Specifics	
<ul style="list-style-type: none">• <u>Requirements Basis</u>: CM ICD (25 Mar 11), Joint CM2 ICD (in-work)• <u>Major Customers</u>: All Combatant Commands, Services, AF MAJCOMs, UCCs, Intelligence Community Partners• <u>Contractors</u>: No contracts have been awarded to-date• <u>External AF Interest</u>: DoD CIO, NSA	
Key Activities	
<ul style="list-style-type: none">• Analysis of AF crypto devices affected by threats• Determine AF mitigation strategies, implementation tactics, monitor compliance, and track & report migration• Execute modifications to fielded equipment and develop cryptographic solutions to address threats	



Potential Industry Opportunity



- **Description:**
 - Studies and Analysis
 - Tech maturation and risk reduction – multiple prototyping efforts
- **Anticipated Schedule:**
 - Studies/analysis and Prototyping efforts: FY18/19
 - Development: FY20 and beyond
- **Anticipated Contract:** TBD
- **Anticipated Procurement Approach:** TBD

Programmatic and Acquisition Planning in Early Stages



Open Discussion/Questions



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Unified Platform (UP)

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Purpose/Agenda



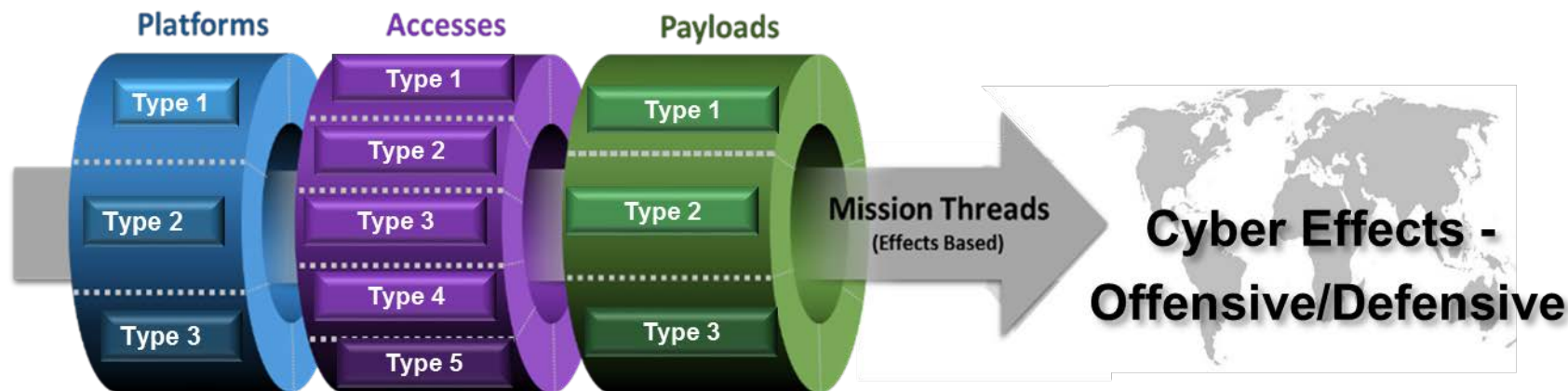
- **Provide an overview of the Unified Platform (UP) Initiative**
- **Provide insight into current UP industry opportunities**
- **Provide insight into future UP industry opportunities**



Cyber Mission Threads & Unified Platform



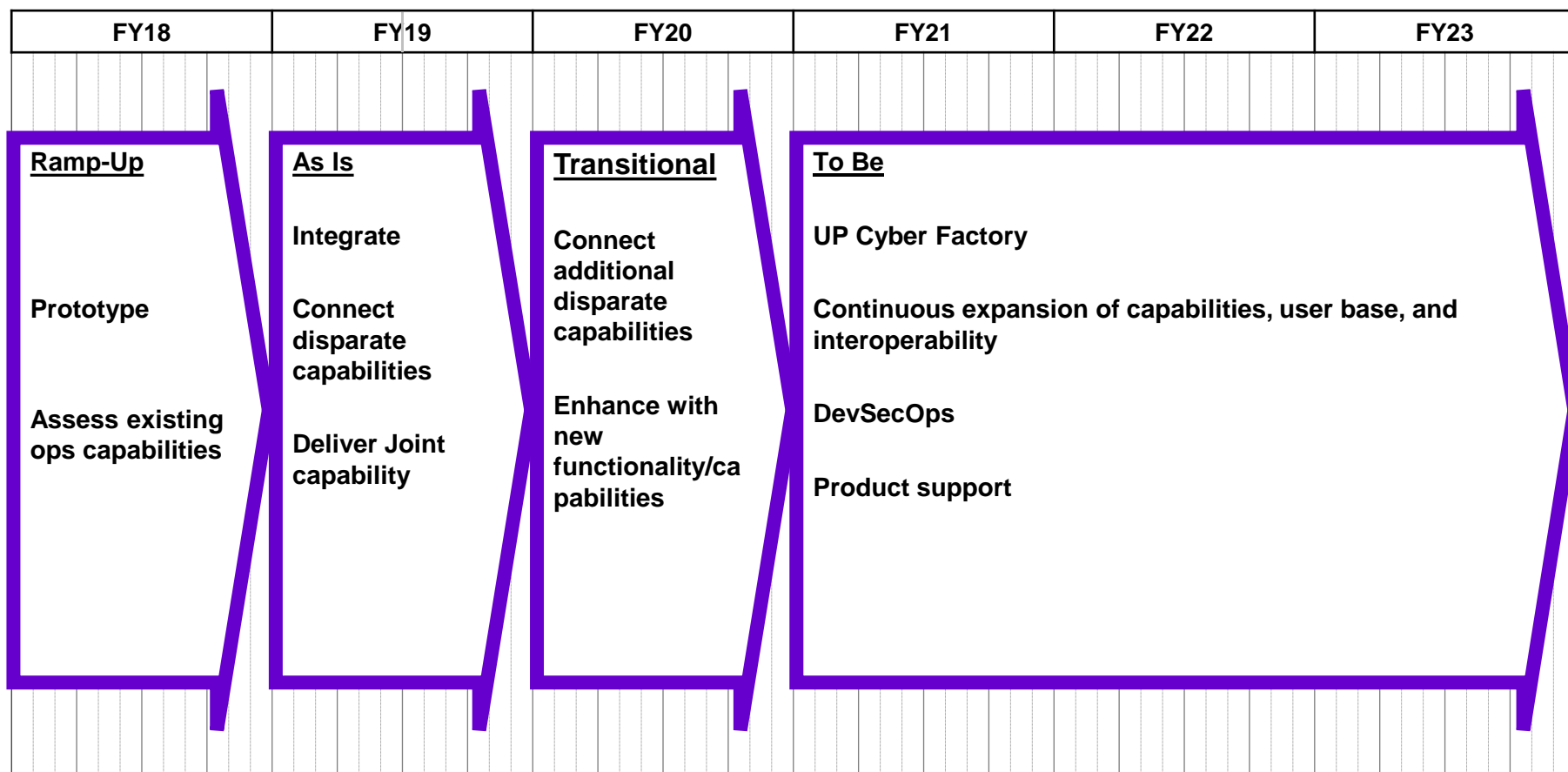
- Platform, access, & payload link to provide cyber effects
- Modularity allows for agile operations via tailored mission threads
- Framework provides standard interface and bridging for existing/future cyber weapon systems



Deliver incremental Unified Platform capabilities to the Joint warfighter



UP Capability Delivery Roadmap



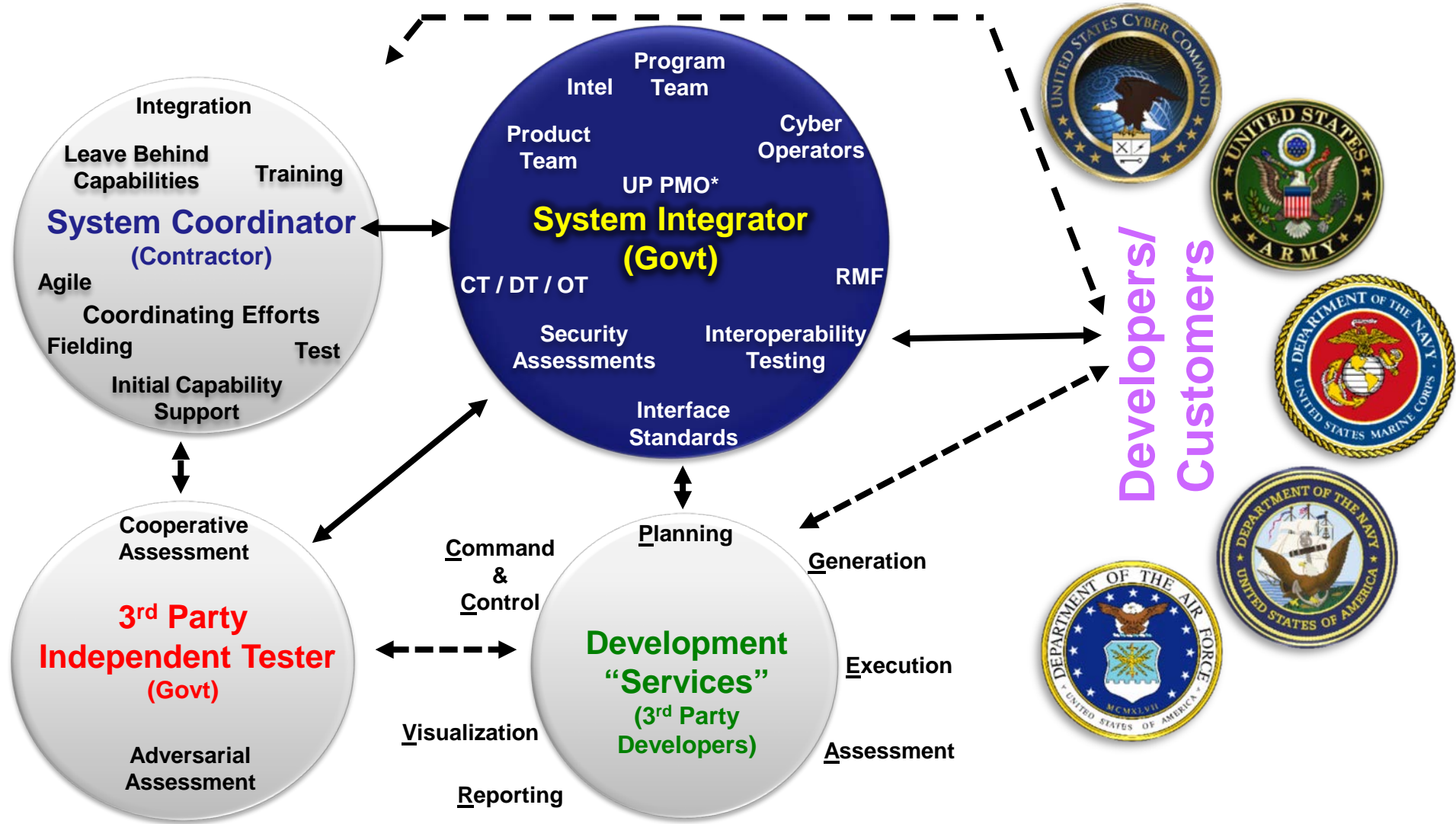
UP Cyber Factory – Capability delivered at the speed of need

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UP Program Strategy

Key Government and Industry Players



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Current Industry Opportunities



- **UP System Coordinator Task Order**
 - Award date: 26 Oct 2018
 - Period of Performance: 1 Base with 2 Option Years
 - Scope of work:
 - Facilitation and Synchronization
 - Scaled Agile Framework Implementation
 - Management of Development, Integration and Production Environments
 - Training
 - Testing
 - Deployment
 - Product Support
 - Limited Development



Current Industry Opportunities



- **Responsive Cyber IDIQ Contract**
 - **AFLCMC/HNC currently in the process of:**
 - Raising ceiling
 - Extending period of performance additional 7 years
 - On-boarding companies in addition to current incumbents
 - Anticipated Completion: Nov 2018
 - **Future UP requirements will be awarded under this IDIQ:**
 - Provide scalable development teams
 - Enterprise Services
 - Application Development
 - Anticipated Award: Jan 2019



On the Horizon



- **Future UP-related opportunities may include:**
 - **Responsive Cyber IDIQ**
 - **Other Transaction Authorities (OTAs)**
 - **Blanket Purchase Agreements (BPAs)**
 - **Small Business Opportunities**
 - **Other existing contracts**



Open Discussion / Questions



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Questions



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***Joint Cyber Command & Control
(JCC2)***

**Veronica Quinonez
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Joint Cyber Command & Control (JCC2)



Warfighter Benefits

- Provides situational awareness and battle management of Joint Services Cyber Mission Forces (CMF) at the operational (Cyber Joint Force HQs) and strategic (Combatant Command) levels of war
- Provides mission mapping, adversary awareness, and fusion and visualization across all network
- Supports CCDRs in rapid planning and Course of Action selection

Description

Joint Cyber C2 provides Situational Awareness and Battle Management (BM) for cyberspace operations missions and forces

System Capabilities

- Enhanced situational awareness (SA)
- Rapid planning and course of action selection
- Unified direction of cyber forces for synchronized ops with full spectrum joint, coalition, and interagency operations
- Actionable monitoring of forces

Specifics

- Requirements Basis:
 - Capability gaps, which inform requirements, are derived from Service and Combatant Command requirements documents
 - Cyber Situational Awareness – ICD (2012)
 - Evaluation of Alternatives (EoA) Phase I (2014)
 - EoA Phase IIB (Aug 2017)
 - JCC2 IS-ICD (In coordination)
- Contractors:
 - No contracts have been awarded to-date



Potential Industry Opportunity

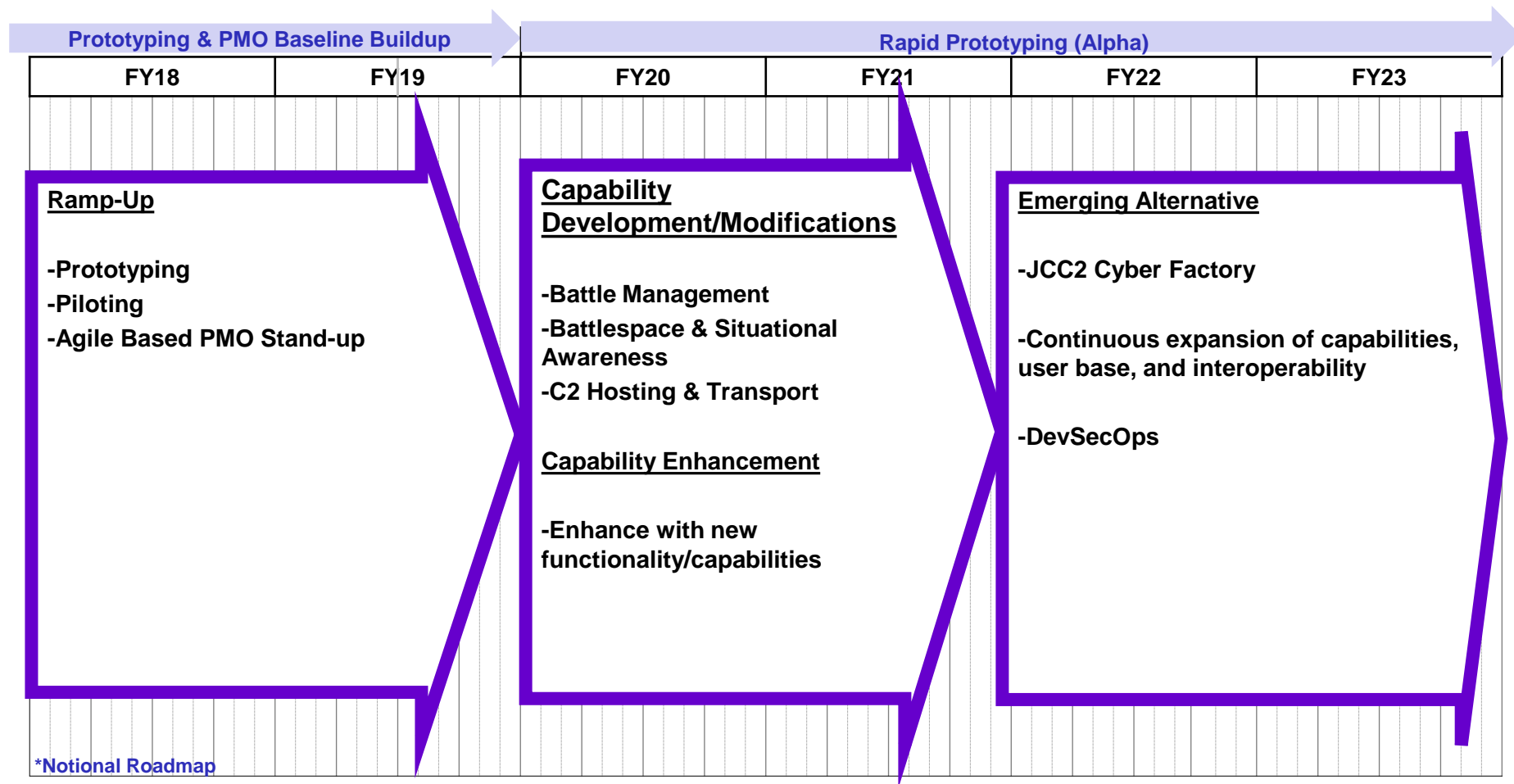


- **Description:**
 - JCC2 will focus on development of capabilities FY20+
 - Partnership with industry to leverage their R&D investments
 - Battle Management technologies
 - Cyber Battlespace & Situational Awareness for C2 Nodes
 - C2 Hosting & Transport
- **Anticipated Schedule:**
 - Prototyping efforts: FY 19-22
 - Development: Late FY19 and beyond
- **Anticipated Contract(s):**
 - FY19 OTA/BAA prototyping, ID/IQ, other TBD
- **Anticipated Procurement Approach: Seeking 804 designation**

Programmatic and Acquisition Planning in Early Stages



JCC2 Capability Delivery Roadmap



As of Oct 18

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Open Discussion / Questions



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