Massachusetts Military Asset & Security Strategic Task Force
Air Force/Army Business Industry Day

Major General Dwyer Dennis
AFPEO C3I&N
PEO C3I&N Mission
Supporting Core AF Missions

C3I&N Programs
- 231 Workload Master List
- 19 Acquisition Master List
  - 1 ACAT I
  - 10 ACAT III
- 64 Investment Master List
- $6.9 Billion (FY17-22)

** As of 30 Nov 16

Connecting Warfighters With Affordable, Secure & War-Winning Cyber, C3I & Network Systems

Integrity - Service - Excellence
**C3I and Networks**

FY 13 FY 14 FY 15 FY 16 FY 17 FY18

<table>
<thead>
<tr>
<th></th>
<th>FY 13</th>
<th>FY 14</th>
<th>FY 15</th>
<th>FY 16</th>
<th>FY 17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3I&amp;N SB Goal (%)</td>
<td>6.27</td>
<td>11.03</td>
<td>14.12</td>
<td>20.13</td>
<td>21.41</td>
<td>24.48</td>
</tr>
<tr>
<td>C3I&amp;N SB Actual (%)</td>
<td>10.99</td>
<td>16.72</td>
<td>22.01</td>
<td>28.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Line</td>
<td>6.27</td>
<td>11.03</td>
<td>14.12</td>
<td>20.13</td>
<td>21.41</td>
<td>24.48</td>
</tr>
</tbody>
</table>

*Please note that FY 17/18 goals are DRAFT ONLY*

FY 15 National Veteran Small Business Coalition Award
Priorities/Big Rocks

- HNI – Terrestrial Domain
  - Common Computing Environment
  - Collaboration Pathfinder
  - Base IT Infrastructure (BITI)

- HNC – Cyber/Crypto
  - Cyber Weapons Systems
  - Unified Platform
  - Cyber Proving Ground
  - Cryptographic Modernization

- HNA – Aerial Networks
  - Datalinks
  - Agile Communications
Common Computing Environment

**Description**

The Common Computing Environment (CCE) provides standardized platforms and enterprise application support services. It also establishes engagement processes and tools for acquiring and operating cloud environments.

**System Capability**

Initial CCE activities support the stand-up of platforms and enterprise application support services for the ITGEB approved pathfinder applications. Supporting migration to multiple cloud environments (DISA, Commercial Cloud, and IPN).

**Warfighter Benefits**

- Provide secure/standardized platform for 2,700+ AF mission apps required to migrate to FDCCI compliant environments
- Cost avoidance of functional stove-pipe hosting solutions
- Provides standardization of IT infrastructure capabilities leading to efficient and agile delivery of IT capabilities
- Allows for ease of transportability of mission capabilities across cloud hosting platforms

**Requirements Basis:** Aligning to support FDCCI mandates for app migration and AF Policy

**Major Customers:** SAF/CIO, HAF Functionals, AFSPC, mission application owners

**Contractor:** Currently using combination of ETASS, PASS, and Lockheed-Martin leveraging existing contract vehicles while the CCE Acq Strategy is being developed

**External AF Interest:** Aligning to the DoD Joint Information Environment requirements
Select the right hosting environment for the right mission (like aircraft)

LOE 1

“Micro” Applications

Common Enterprise Application Services

Authentication / Authorization

Messaging / Digital Signature

Self Service / Automation

Computing Platforms

Commercial Cloud

Commercial / Mil Cloud

LOE 2

GCSS-AF Applications

LOE 3

Enterprise Resource Planning (ERP) Applications

DECC

Disciplined and collaborative process to select the right hosting Environment to support mission needs... do no harm

Framework to Future CCE Infrastructure
Cyber Capabilities Delivered at the Speed of Need

24 AF Triage Process

RTOI 24 AF

- Real-Time Operations and Innovation (RTOI) – less than 180 days conducted by organic 24 AF resources
  - Tactics/Capabilities against Operational Threats
  - Various need sources
  - Usually temporary; can transition to permanent/foundational

Rapid Cyber Acquisition AFLCMC/CSC

- Rapid – less than 18 mos conducted by AFLCMC
  - Streamlined acquisition process
    (Can be temporary or permanent)

Foundational
HQ AFSPC A2/3/6, A4/7, A5/8, AFLCMC HNI and HNC

- Foundational – over 18 mos conducted by AFLCMC
  - Alteration of in-service asset or new capability development
  - Capability Based Planning/Assessment (i.e., JCIDS)
  - Permanent Modification
Foulois Cyber Proving Ground OV-1

**AFLCMC... Providing the Warfighter's Edge**

**DIUx**

- Academia
- Government
- FFRDCs

**Emerging Technologies & Concepts**

(across S&T, R&D, STEM Communities)

**Steering Group**

(Oversight & Priorities)

**Leadership Element**

(Operations)

**The ORACLE**

- Awareness of rqmts/Intel
- Awareness of emerging tech/concepts
- Focused research support

**Genius Teams**

**Collaboration / Team Participation**

**“Foundry Floor”**

Cyber Proving Environment (CPE)

V12 – 18 Mar 16

- Other cyber environments as needed

**Transition Team**

**Commissary**

- AFCYBER MAJCOMs NAFs
- Urgent Requirements
  (CNFs, 1067s, Other)

- DIUx

  - POCs:
    - Veronica.Quinonez.1@us.af.mil, AFLCMC/HNCY, (210) 925-1054
    - Irma.Studivant@us.af.mil, AFLCMC/HNCK, (210) 925-1088

**Collaboration/Team Participation**

**Implementation**

**Evil Genius Teams**

**Commercial**

**Government**

**Emerging Technologies & Concepts**

(across S&T, R&D, STEM Communities)

**Maintain Awareness**

**Actively Engage**

**Refine Rqmts**
FY17 AFAN Roadmap Trajectory

- FYDP
- 2 FYDPs
- 3 FYDPs

Capabilities:
- Air Superiority 2030 Family of Capabilities
- Multi-Domain Fusion
- Improved BMC2 Connectivity
- Navy / AF Tactical Edge Integration

Supporting Capabilities:
- Information Transport
- Cybersecurity
- Network Management
- Tactically-Distributed Computing

S&T Insertion / Data to Decision / Experimentation / Prototyping
FY17 AFAN Roadmap Trajectory

- **Air Superiority 2030 Family of Capabilities**
  - Agile Communications
  - Next Generation Tactical Data Link

- **Multi-Domain Fusion**
  - LOS and BLOS Secure/Resilient Voice & Data
  - JALN High Altitude Gateway & High Capacity Backbone
  - Common Data Link
  - Protected Tactical SATCOM

- **Improved BMC2 Connectivity**
  - Data Link Interoperability
  - Common Tactical Picture
  - Share advanced, multi-domain sensor information across Tactical Edge and C2 nodes

- **Navy / AF Tactical Edge Integration**
  - Link 16 Modernization
  - Joint Tactical Networking
  - TDL Planning, Analysis, & Monitoring Tools

- **Information Transport**
  - Cybersecurity
  - Network Management
  - Tactically-Distributed Computing

- **S&T Insertion / Data to Decision / Experimentation / Prototyping**

- **COMBAT CLOUD VISION**
Small Business Entry Points

- Full Open Competition
- Existing IDIQ Contracts like NETCENTS
- GSA Schedule
- Small Business and Innovation Research (SBIR)
- Rapid Improvement Fund (RIF)
- Other Transaction Authority (OTA)/DIUX
C3I Infrastructure Division
HNI
(Terrestrial Domain)
### CSCS Weapon System

**Program**

- **Description**
  - Provides AFIN management and cyberspace defense to the warfighter for the Air Force-provisioned portion of the DoDIN
  - Conducts AFIN ops and fault resolution activities to maintain cyberspace operational capabilities
  - Coordinates activities of the base-level Network Control Centers for cyberspace security actions
  - Monitors AFIN services and manages boundary protection devices and the AFIN infrastructure
  - Provides cyberspace situational awareness
  - Units:
    - Active: 83 NOS, 561 NOS, 690 COS, 691 COS, 690 NSS
    - Guard: 299 NOSS
    - Reserve: 960 NOS, 860 NOS

**Recent Successes**

- Successfully deployed Automated Remediation and Asset Discovery (ARAD) to ~384K AFNet end points
- Moved 4 enterprise apps to MilCloud to test for migration
- Web Proxy contract awarded for 180 bases
- System Center Configuration Manager (SCCM) mgt tier installs complete at Wright-Patt and Scott APCs
- ACAS v5.3 released by DISA; preparing to deploy to the AFNet in 2QFY17

**Specifics**

- Requirements Basis: CPD, 10 Oct 14
- Major Customers: HQ AFSPC, 24 AF
- External AF Interest: DoD CIO
**Scope:** Consolidate, modernize and sustain CSCS data centers and other infrastructure while migrating to the Joint Information Environment (JIE)

<table>
<thead>
<tr>
<th>Anticipated Contract Schedule</th>
<th>Installation Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Area Processing Center (APC) Consolidation: 3QFY17</td>
<td>• Wright-Patterson and Scott APCs</td>
</tr>
<tr>
<td>• Active Directory &amp; Exchange (ADX) Tech Refresh: 3QFY17</td>
<td>• ~46 bases</td>
</tr>
<tr>
<td>• VMWare Upgrade: 2QFY17</td>
<td>• All AF bases (~180)</td>
</tr>
<tr>
<td>• Virtual Privacy Network (VPN) Upgrade: 4QFY17</td>
<td>• All AF Bases (~180)</td>
</tr>
<tr>
<td>• Installation Service Node (SIPRNet): 3QFY17</td>
<td>• ~20 AF Bases</td>
</tr>
</tbody>
</table>

- **Anticipated Vehicles:** NETCENTS2 Products, NETCENTS2 NETOPS & Infrastructure Solutions
- **Anticipated Procurement Approach:** Firm Fixed Price
- **Customers:** AFSPC, USAFE, PACAF, ANG, AFRC, AMC, ACC
- **POC:** Lt Col Bradley Panton, AFLCMC/HNIB, 781-225-2695, bradley.panton@us.af.mil
### Theater Deployable Communications (TDC)

**Description**
- TDC is the communications infrastructure designed to transmit and receive voice, data, and video securely from wired, wireless, and satellite sources (intra and inter-theater).

**System Capability**
- TDC is the USAF’s deployable Comm capability, providing full spectrum infrastructure operations support from bare base, scalable to a 3,000 person Air Expeditionary Wing (AEW).

**Warfighter Benefits**
- Provides Extend the Net (ETN) mission (e.g., bare-base build-up) to include HUMRO missions/Natural Disasters, Quick Response for Aircraft Incidents, and Defense Support to Civil Authorities.
- Enables base-level data, voice, video, imagery requirements.
- Provides life cycle management support.

**Specifics**
- **Major Customers:** AFSPC, USAFE, PACAF, ANG, AFRC, AMC, ACC
- **Contracts:** NETCENTS2 Products, NETCENTS2 NETOPS & Infrastructure Solutions
Scope: To provide an Information Transport Infrastructure

<table>
<thead>
<tr>
<th>Anticipated Contract Schedule</th>
<th>Installation Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>• TDC annual software support: 2QFY17</td>
<td>• All TDC equipment suites</td>
</tr>
<tr>
<td>• Comm Fly Away Kit: 3QFY17</td>
<td>• 80 kits</td>
</tr>
<tr>
<td>• NCC-D V4 UPS EOL Replacement: 3QFY17</td>
<td>• 64 UPS kits</td>
</tr>
<tr>
<td>• Configuration Laptop EOL replacement: 3QFY17</td>
<td>• 300 laptops</td>
</tr>
</tbody>
</table>

• **Anticipated Vehicles:** NETCENTS2 Products, NETCENTS2 NETOPS & Infrastructure Solutions

• **Anticipated Procurement Approach:** Lowest Price Technically Acceptable, Firm Fixed Price

• **Customers:** AFSPC, USAFE, PACAF, ANG, AFRC, AMC, ACC

• **POC:** Lt Col Bradley Panton, AFLCMC/HNIB, 781-225-2695, bradley.panton@us.af.mil
### Description

Base Information Transport Infrastructure (BITI) delivers the Air Force wired and wireless cyber network backbone infrastructure and Enterprise solutions at each Air Force, Air Force Reserve, and Air National Guard base.

### System Capability

Upgrades base cyber infrastructure (i.e. fiber optics and network equipment), providing redundant, high-speed and reliable wired and wireless cyber network capabilities.

### Warfighter Benefits

- Provides a Security Technical Implementation Guide (STIG) capable network
- Enables base-level data, voice, video, imagery, sensor, and telemetry requirements
- Ensure Air Force Networks are capable of conducting, supporting, and advancing Coalition, Joint, AF, and Interagency Operations
- Provides life cycle management support

### Specifics

- **Major Customers**: AFNetOps, MAJCOMs, all fixed bases
- **Contracts**: NETCENTS2 Products, NETCENTS2 NETOPS & Infrastructure Solutions
**Scope:** To provide an Information Transport Infrastructure

<table>
<thead>
<tr>
<th>Anticipated Contract Schedule</th>
<th>Installation Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Network Management System: 3QFY17</td>
<td>• All 175 BITI Locations</td>
</tr>
<tr>
<td>• FY17 Base Recapitalizations 4QFY17</td>
<td>• 2 Active Duty &amp; 30 ANG Locations</td>
</tr>
<tr>
<td>• FY18 Base Recapitalizations 1QFY18</td>
<td>• Number of bases TBD</td>
</tr>
</tbody>
</table>

- **Anticipated Vehicles:** NETCENTS2 Products, NETCENTS2 NETOPS & Infrastructure Solutions
- **Anticipated Procurement Approach:** Trade-Off, Firm Fixed Price
- **Customers:** AFNetOps, MAJCOMs, all Fixed Bases
- **POC:** Lt Col Bradley Panton, AFLCMC/HNIB, 781-225-2695, bradley.panton@us.af.mil
  Sara Corsetti (PCO), AFLCMC/HNIK, 781-225-4081, sara.corsetti@us.af.mil
Space, Aerial, and Nuclear Division
HNA
What is a SBIR?
Small Business Innovation Research

**Warfighter Benefits**
- SBIR topics fit technology gaps supporting war fighter objectives
  - Vetted through AFLCMC and AFRL and peer reviews
  - Built on identified Gaps or Core Function Master Plan (CFMP) priorities
- Strong support from Congress and Services for R&D
  - ~$2.3B annually across DoD
  - Funding for SBIR remains strong
  - Excellent value for price paid (~TRL 5+)
  - More awareness to stakeholder community required

**What is Required?**
- FY16/17 Funding: Pre-allocated as part of RDT&E Budgets $2B annual / ~$1.3B for DoD / ~$300M USAF
- Contract Vehicle: SBIR w/ 5 year Data Rights
- Contract Award: AFRL handles all contractual issues

**What is Delivered?**
- PoP: Phase I first 9 months (w/ 1-3 month break):
  - Prototype Demonstration (~TRL-4)
  - Concept(s) refined and proven
  - Analysis of technology and recommendations for integration into various programs
  - Final Report
- Phase II next 24-months with demonstrable capability
  - TRL-5+ engineering prototypes and testing

**Description** - We usually have 8-12/15 ongoing SBIRs

<table>
<thead>
<tr>
<th>Topic Series</th>
<th>Status</th>
<th>Topics / Proposals</th>
<th>Awards</th>
<th>Value (est.)</th>
<th>Next Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF171</td>
<td>Pre-Release</td>
<td>8</td>
<td>16</td>
<td>$2.4M</td>
<td>Solicitation 10Jan-14Feb</td>
</tr>
<tr>
<td>AF161</td>
<td>Phase I</td>
<td>6 / ~45</td>
<td>12</td>
<td>$1.8M</td>
<td>Mid-Phase Reviews</td>
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<tr>
<td>AF151</td>
<td>Phase II</td>
<td>3 / 3</td>
<td>3</td>
<td>$2.25M</td>
<td>Mid-Phase Reviews</td>
</tr>
<tr>
<td>AF141</td>
<td>Phase II</td>
<td>3 / 3</td>
<td>4</td>
<td>$1.2M</td>
<td>Phase II Demos</td>
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<tr>
<td>AF131</td>
<td>Transition</td>
<td>2</td>
<td>2</td>
<td>$1.5M</td>
<td>Phase II Flit Test / Demo</td>
</tr>
<tr>
<td>AF121</td>
<td>Phase II+ / III / CRP</td>
<td>2</td>
<td>2</td>
<td>$2.175M</td>
<td>TTP / Transition</td>
</tr>
<tr>
<td>AF111</td>
<td>In transition or VoD</td>
<td>3</td>
<td>3</td>
<td>$3M</td>
<td>TTP / Transition</td>
</tr>
</tbody>
</table>

**Approach (Schedule & Value)**
- Source selection evaluations performed by government and military at AFRL/RIT and AFLCMC/HNAA/HNAG/XZC
  - Expect 3 AF161 Ph I awards per topic in June 2017
  - Kickoff briefings in July/August 2017
  - $150K per award ($900K in FY16)
  - 9-month efforts
- 24-month Phase II award (down-select to single vendor)
  - 1 award per topic with kickoff in ~July 2017
  - $750K per award ($2.25M or ~$1.25/annum for FY16 topics
- SPOC finds stakeholders, guides potential integration or technology transition to acquisition and commercialization path Potential qualification for RIF selection (to achieve TRL-8)

POC: Clif Banner, HNAA
Potential Industry Opportunity
Aerial Networking (AN) & Comms

• Small Business Innovation Research (SBIR) Pre-Release for FY2017 (first series, AF171):
  – AF171-036  Energy Efficient Technologies for Tactical Communications and Networking (E2-COMS)
  – AF171-037  Mission Assured Authentication (MAA)
  – AF171-038  High-Throughput High-Frequency Battle Management Command-Control (HTHF-BMC2)
  – AF171-039  Data Protection and Sharing Technologies In Critical Key Networks - Cyber Defense of Weapons (DPSTICK)
  – AF171-040  Aerial Cloud Analytics for Strategic and Tactical Warfighting (ACAST)
  – AF171-041  Aerial Cloud Computing Technologies (ACCT)
  – AF171-042  Big Data Cyber Analytics (BDCA)
  – AF171-043  Mobile User Objective System (MUOS) for Moderate Data Rate Communications (MMDR)

• Anticipated Schedule:  Pre-Release 11-Dec-16 thru 9-Jan-17; Solicitation 10 Jan – ~14 Feb 17; Selection/Award ~Mar 17; Kickoff June-July 17

• Anticipated Contract:  AFRL/RIK SBIR in USAF FY2017.1 (AF171) topic series

• Anticipated procurement approach:  SBIR Phase I ($150K, 9-months, multiple awards) and Phase II ($750K - $1M, 24-months, single award)
  • Potential Post-SBIR activity (called “Phase III”) if transition plans meet stakeholder(s) needs

• Potential Direct-to-Phase II (D2P2):  New competitive topics in AF172 and beyond

• POC:  AFLCMC/HNAA, Mr. Clif Banner, 781-225-4229, clifden.banner.ctr@us.af.mil,
**AF171-036 E2-COMS**

**Energy Efficient Technologies for Tactical Communications and Networking**

**AFLCMC... Providing the Warfighter’s Edge**

<table>
<thead>
<tr>
<th>PWR Remaining</th>
<th>Planned Use</th>
<th>Replenishment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batteries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Warfighter Benefits**

- Provides reliable energy profiling for critical communications
- Allows power control and management of multiple power sources; shares power among multiple devices
- Increases energy-efficient routing; enhances sleep/awake dynamics

<table>
<thead>
<tr>
<th>Description</th>
<th>Specifics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AF171-036 E2-COMS</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Description**

Develop highly-efficient power and power conservation technologies for extended ground-to-ground and ground-to-air/air-to-ground battlespace communications; provide experimental evaluation

**System Capability**

Energy-efficient protocols at PHY, MAC/Link, and higher layers; analyze, modify, utilize enhanced sleep-awake cycles; develop energy refill technologies;

**Major Customers**: AF and multiple Services utilizing handheld or battery-operated tactical communications devices; fixed base operations

**Contracts**: AF SBIR Phase I and Phase II

Selections: 18 May; on Contract: 18 June; kickoff briefing: Jul 2017

TPOC: Greg Hadynski, AFRL/RIT, 315-330-4094, gregory.hadynski@us.af.mil
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil

**Integrity - Service - Excellence**
**AF171-037 MAA**  
Mission Assured Authentication  
AFLCMC… Providing the Warfighter’s Edge

**Warfighter Benefits**
- Ensures that human or machine communicators are known and verified throughout life of conversation
- Provides each party (includes machines/robots) may be identified at any time
- Prevents compromise of battle plans and critical data when encrypted or non-encrypted communications device is uncontrolled

**Description**
Provide war fighter with the ability to confirm distant communicator (person/device) is the intended person/device with whom the warfighter is communicating. If not, render the node inoperative and/or disconnected from the tactical networks

**System Capability**
Minimize user steps to effect communications; provide feedback to all communicating parties (including non-human/robots; remove communicator or device from tactical networks; allow restoration

**Specifics**
- **Major Customers:** AF and multiple Services utilizing tactical communications devices; aerial, mobile, and fixed base operations (e.g., CAOC)
- **Contracts:** AF SBIR Phase I and Phase II  
  Selections 18 May; on Contract 18 June; kickoff briefing Jul 2017

TPOC: Nathaniel Rowe, AFRL/RIT, 315-330-7047, nathaniel.rowe.1@us.af.mil  
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
Warfighter Benefits

- 100-4000+ nm communications without SATCOM
- Enables BMC2 situation awareness, limited imagery and video, file transfer throughout the GIG
- Enhanced transmission of critical command-control and emergency action messages

Description

Utilize High-Throughput High-Frequency (HF) or "next generation" HF advanced communications, provide innovative nuclear command-control-communications (NC3) and global strike C2 and situation awareness (SA); enhance oceanic flight following and tracking (ATC).

System Capability

Enhance current 3 kHz HF channels (~9600 baud) to >6 kHz channels (up to 24 or 48 kHz for 100-240 kbps) for enhanced digital interaction with AF Combat Cloud, utilizing IP or “IP-ish” capabilities

Specifics

- **Major Customers**: AF long-range overwater operations; nuclear command-control emergency action messages (EAM); digital contribution of HF spectrum to the AF Combat Cloud and Joint Aerial Layer Network (JALN)
- **Contracts**: AF SBIR Phase I and Phase II
- **Selections**: 18 May; on Contract 18 June; kickoff briefing Jul 2017

TPOC: Elizabeth Bentley, AFRL/RIT, 315-330-2371, elizabeth.bentley.3@us.af.mil
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
**AF171-039 DPSTICK**

*Data Protection and Sharing Technologies in Critical Key Networks - Weapons*

**AFLCMC… Providing the Warfighter’s Edge**

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**Warfighter Benefits**

- Protect dynamic aerial networks, to include control, monitoring, and security of network-enabled weapons and weapons data links
- Addresses both dynamic aerial network and smart weapons cybersecurity

**Description**

Leverage advances in high assurance of software, vulnerability analysis, provable security, or other techniques to develop weapon-centric defensive cyber solutions

**System Capability**

Increases reliable data and information sharing among highly-dynamic network nodes in hostile environments;

---

**Specifics**

- **Major Customers**: Combines goals in both space, aerial & nuclear networks programs (AFLCMC/HNA) and advanced weapons programs (AFLCMC/EBE)
- **Contracts**: AF SBIR Phase I and Phase II
  - Selections: 18 May; on Contract: 18 June; kickoff briefing Jul 2017

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TPOC: Amjad Soomro, AFRL/RIT, 315-330-4694, amjad.soomro@us.af.mil
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
<table>
<thead>
<tr>
<th><strong>AF171-040 ACAST</strong></th>
<th><strong>Aerial Cloud Analytics for Strategic and Tactical Warfighting</strong></th>
</tr>
</thead>
</table>

**Warfighter Benefits**

- Access to AF Combat Cloud data analytics within the battlespace; GIG access when connectivity exists
- Weapon System specific delivery of customized information derived from continuously-updated dynamic data stores, multiple decision makers, and ubiquitous sensors

**Description**

Provide analytic and responsive information to conventional and strategic warriors at the tactical edge, and to the planners and decision makers governing the conduct of critical air and surface warfare operations. Develop data analytics tools and techniques

**System Capability**

Provides big data analytics for dynamic combat cloud operations; information delivery specific to user (human or machine) needs

**Specifics**

- **Major Customers**: Air Force Combat Cloud (AFCC), Airborne Cloud for Tactical Edge Users (ABC), Joint Aerial Layer Network (JALN)
- **Contracts**: AF SBIR Phase I and Phase II
- **Selections**: 18 May; on Contract 18 June; kickoff briefing Jul 2017

TPOC: Richard Butler, AFRL/RIT, 315-330-4372, richard.butler.10@us.af.mil
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil

**In-network Analytics in user-specific format**

AF171-040 ACAST

**AF Cloud User Nodes and Sensors**

**JALN – AF Cloud**

**AF Cloud User Nodes and Sensors**
**AF171-041 ACCT**

**Aerial Cloud Computing Technologies**

**AF171-041 ACCT**

**Description**

Develop technologies to enable aerial tactical cloud capable of in-mission processing and storage of large data using computing resources distributed across multiple aerial platforms and surface platforms (e.g., ships and ground vehicles).

**System Capability**

Elastic computing clusters—highly-dynamic—collecting, processing, and disseminating information across the battlespace.

---

**Warfighter Benefits**

- Battlespace data processed and information shared across multiple platforms
- Multiple domain sharing
- Exists in dynamic node environment

**Specifics**

- **Major Customers**: Air Force Combat Cloud (AFCC), Airborne Cloud for Tactical Edge Users (ABC), Joint Aerial Layer Network (JALN)
- **Contracts**: AF SBIR Phase I and Phase II
- **Selections**: 18 May; on Contract 18 June; kickoff briefing Jul 2017

---

**TPOC**: Scott Pudlewski, AFRL/RIT, 315-330-4405, scott.pudlewski.1@us.af.mil

**SPOC**: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil

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**Integrity - Service - Excellence**
**AF171-042 BDCA**

**Big Data Cyber Analytics**

**Warfighter Benefits**

- Cybersecurity beyond Firewalls and Intrusion Prevention Services (IPS)
- Anomalous behaviors detected from huge volume of network transactions
- Maintains up-time of network availability across all security domains

**Description**

Develop log-based Big Data cyber analytics that reveal anomalous behaviors in networks

**System Capability**

Detect low-and-slow attack behaviors through massive network sensor log analyses of data exfiltration, lateral movement, exploitation, attacker command and control, credential compromise, DDOS, and infrastructure performance changes. Adapt for non-military use, also.

**Specifics**

- **Major Customers**: Air Force Networks (AFNet), DISA Joint Big Data Platform (BDP) – common platform for joint network services
- **Contracts**: AF SBIR Phase I and Phase II
- **Selections**: 18 May; on Contract 18 June; kickoff briefing Jul 2017

TPOC: Robert Vaeth, AFRL/RIT, 315-330-2182, robert.vaeth@us.af.mil
SPOC: AFLCMC/HNI “Big Data Team” (with HNAA, Clif Banner, 781-225-4229, clifden.banner.ctr@us.af.mil)
**AFLCMC... Providing the Warfighter’s Edge**

**AF171-043 MMDR**

**Mobile User Objective System (MUOS) for Moderate Data Rate Comms**

**Warfighter Benefits**
- Broadens options and lowers cost for MUOS on multiple weapons platforms; increases availability to mobile warrior
- Expands communications in normally-austere communications environments
- Faster throughput for tactical edge with greater high-latitude coverage

**Description**
Provide means to port MUOS waveform for receive only and transmit-receive in multiple aerial platforms; develop/modify BMC2 and SA applications to support employment by strategic and tactical users.

**System Capability**
Fully utilize MUOS waveform at all levels of readiness and greater operating area; port MUOS to software-defined radios (SDR)

**Specifics**
- **Major Customers**: All airborne, maritime, and land combat platforms and forward operating area ground and mobile forces.
- **Contracts**: AF SBIR Phase I and Phase II
**Selections**: 18 May; on Contract 18 June; kickoff briefing Jul 2017

TPOC: Kurt Turck, AFRL/RIT, 315-330-4379, kurt.turck@us.af.mil
SPOC: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
What is Rapid Innovation Fund (RIF)?

- **RIF Program is Congressionally mandated** – Established in the FY2011 NDAA, and currently authorized through CY 2023
- RIFs stimulate innovative technology that resolve operational challenges and address critical national security needs
  - High Technology Readiness Level (TRL) at 24-months
  - Goal is to transition into defense acquisition programs
- Small Business award is favored when equally-competitive proposals exist
  - Each project NTE $3M and completed within 24 months
  - Highly-competitive program
    - Annually, approximately 100 USAF topics yield 400-600 responses

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Start Date</th>
<th>End Date</th>
<th>Appropriation / Service</th>
<th>AF Needs</th>
<th>AF Awards</th>
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<tbody>
<tr>
<td>FY 2011</td>
<td>Oct ‘11-Sep ‘12</td>
<td>Sep ‘12-Sep ‘13</td>
<td>$105M / service</td>
<td>5 AF needs</td>
<td>46 AF awards</td>
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<td>FY 2012</td>
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<td>Aug ‘13-Jul ‘14</td>
<td>$50M / service</td>
<td>4 NDAA areas</td>
<td>43 AF needs</td>
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<td>FY 2013</td>
<td>Aug ‘13-Jul ‘14</td>
<td>Jun ‘14-Jul ‘15</td>
<td>$53M / service</td>
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<td>79 AF needs</td>
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<td>FY 2014</td>
<td>Jun ‘14-Jul ‘15</td>
<td>Apr ‘15-Jul ‘16</td>
<td>$40M / service</td>
<td>3 NDAA areas</td>
<td>86 AF needs</td>
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<td>FY 2015</td>
<td>Apr ‘15-Jul ‘16</td>
<td>Mar ‘16-May ‘17</td>
<td>$50M / service</td>
<td>104 AF needs</td>
<td>~20 Awards 2017</td>
</tr>
</tbody>
</table>
Free Space Optical (FSO) – Employment Concept

Description
Near-term, very-high throughput free-space optical (FSO) technology for aerial layer network comms among multiple air and mobile/fixed surface subscribers or gateways.

System Capability
1-10+ Gbs throughput of bi-directional Internet Protocol (IP) network-capable traffic (e.g., VoIP, FMV, streaming content, large imagery/other-type file transfers, web services, text chat) among air and surface (fixed and mobile) nodes.

Warfighter Benefits
- Extremely-high throughput data transfer at long ranges with low probability of intercept and detection
- Supports robust aerial layer and combat cloud, delivering critical information throughout the battlespace

Specifics
- **Major Customers**: Joint Aerial Layer Network (JALN), AF Combat Cloud (AFCC), Sensor-to-Cloud and Interplane data subscribers
- **Contract**: AF RIF 2016
- On Contract May 2017; kickoff briefing June 2017 (Information Only)

TPOC: Dr. Bahareh Haji-Saeed, AFLCMC/HNAA, bahareh.haji-saeed.1@us.af.mil 781.225-6782. Questions to: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
FY2015 Rapid Innovation Fund (RIF)
Mobile and Cloud-enabled Hotspot for Expeditionary Tactical Environments
AFLCMC… Providing the Warfighter’s Edge

### Warfighter Benefits
- Warfighter needs only single communications device and end-user device (EUD)
- Seamless movement among communications modes without user interaction
- Capture of cloud collaborative information by any member of team provides visibility to entire team

### Description
Seamless multi-modal radio-frequency (RF) collaborative system providing cloud services to small teams in the combat area.

### Specifics
- **Major Customers:** Special Operations Force Special Teams (ST), Amphibious Assault teams, Contingency Response Groups for austere airfield setup, Tactical Air Control Party (TACP) Combat Controllers
- **Contract:** AF RIF 2015
- On Contract June 2016; Completed Preliminary Design Review (PDR) (Information Only)

### System Capability
Three communications modes: WiFi, LTE, and tactical radios; WiFi and LTE modes protected using National Information Assurance Partnership (NIAP) NSA-approved Commercial Solutions for Classified (CSfC) Programs type-2 software encryption

TPOC: Lt Cameron Burchak, AFLCMC/HNAA, cameron.burchak.1@us.af.mil 781.225-4338. Questions to: Clif Banner, AFLCMC/HNAA, 781-225-4229, clifden.banner.ctr@us.af.mil
Crypto and Cyber System Division

HNC
### Flexible Information Assurance Acquisition Tool (FIA2T)

**Indefinite Delivery/Indefinite Quantity (ID/IQ)**

**ACLCMC… Providing the Warfighter’s Edge**

<table>
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<tr>
<th>Description</th>
<th>Specifics</th>
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</table>
| • FIA2T: Multiple Award ID/IQ contracts that support the full range of requirements to develop and sustain cryptographic and Information Assurance (IA) products | Acquisition Approach:  
• Full and Open Competition for UNRESTRICTED pool with partial SB set-aside for the MSA phase |
| • FIA2T’s scope is divided into five lifecycle phases:  
  1. Materiel Solution Analysis (MSA), (partial Small Business (SB) set-aside)  
  2. Technology Maturation and Risk Reduction  
  3. Engineering and Manufacturing Development  
  4. Production  
  5. Product Support | Contract Ceilings:  
• FIA2T- UNRESTRICTED pool $875M  
• FIA2T- Partial SB set-aside pool $50M |
| Warfighter Benefits | Period of Performance:  
• FIA2T: 5-yr basic/5-yr option for ordering (11yr Period of Performance) |
| • Creates an efficient contract vehicle that supports all phases of the crypto acquisition lifecycle  
  • No fee  
  • HNC-tailored terms and conditions  
• Streamlined source selection process  
• Establishes the only IDIQ contract capable of supporting full-rate production for crypto end-items  
• Enhances competition and small business participation |
Flexible Information Assurance Acquisition Tool (FIA2T) Indefinite Delivery/Indefinite Quantity (ID/IQ) Contract

AFLCMC… Providing the Warfighter’s Edge

• **Scope:**
  – FIA2T focuses on the full range of AFLCMC/HNC crypto requirements
  – Develop and support cryptographic and IA products
  – FIA2T's flexible Delivery/Task Order process reduces time to meet customer requirements
  – Improves operations efficiency and reduces reliance on external contracts
  – Delivery/Task Orders available: FFP, FPIF, CPFF, CPIF, CR

• **Anticipated Award Date:** 2QFY17

• **Anticipated Contracts:**
  – 10-15 small and large businesses
  – Contracts have on-ramp procedures to add additional contractors in FY19

• **Anticipated Procurement Approach:** IDIQ contracts: FAR Part 15 / Orders: FAR Part 16

• **Customers:** AFLCMC/HNC & other AF units with crypto needs

• **POCs:**
  – michel.mullen@us.af.mil, AFLCMC/HNC-DAG, (210) 925-1590
  – ralph.urias@us.af.mil, AFLCMC/HNCK, (210) 925-1072
## Follow-Up

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HNA | 781-225-4088
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HNI | 781-225-6216
Col Gary Salmans  
Gary.salmans@us.af.mil | Crypto and Cyber System Division Chief  
HNC | 210-977-2253
Questions?
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<td>Common Data Link (CDL)</td>
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<td>F-15 Link 16 Cryptographic</td>
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<td>F-16 Link 16 Cryptographic</td>
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<td>B-2 Link 16 Cryptographic</td>
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<td>MILSATCOM Space/Secure Mobile Anti-Jam Reliable Terminal (SMART)</td>
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<td>Theatre Deployable Communications (TDC)</td>
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<td>Global Combat Support System - Air Force (GCSS - AF)</td>
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<td>Global Combat Support System - Air Force (GCSS - AF) Data Services (DS)</td>
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<td><strong>FAB-T Division (HNS):</strong></td>
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<td>Family of Advanced Beyond Line-of-Sight Terminals Increment 1 (FAB-T Inc 1)</td>
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<tr>
<td>Presidential and National Voice Conferencing (PNVC) Integrator</td>
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### Crypto & Cyber Systems Division (HNC):

- KG-3X Cryptographic Modernization
- Aerospace Vehicle Equipment (AVE) Increment 1
- KIV-XX Mini Cryptographic
- KG-XX Space Modular Common Cryptographic (SMCC)
- AF Key Management Infrastructure Last Mile (AF KMI LM)
- Air & Ground (A&G) Communications Security (COMSEC)
- Air & Ground (A&G) FMS - All
  - Tactical Terminal Systems (TTS) Lifecycle Support (LS)
  - ARC-234 Baseband Input/Output (BBIO)
  - Cryptographic Modification (CM)
- Cyber Command and Control (C3MS)
- Cyber Defense Analysis (CDA)
- Cyber Vulnerability Assessment - Hunter (CVA-H)
- Cyber Technical Projects
- Electronic Key Management System (EKMS)
  - Lifecycle Support
  - Commodities
- Intel and Force Protect (IFP) Product Lifecycle Support
- Algorithm (IA) Transition, Compliance and Support
- Identification Friend or Foe (IFF)
- HNCY Cyber Situational Awareness (SA)
- KL-90 Missile Electronic Encryption Device (MEED) Modification
- AF Key Management Infrastructure (KMI)
  - Commodities
  - AF Key Management Infrastructure (KMI) Lifecycle Support (LS)
  - AF Key Management Infrastructure (KMI) Transition
- Network Attack System (NAS) WSS
- National Defense and Education Program (NDEP)
- Offensive Cyber Ops (OSO) non-WSS
- Public Key Infrastructure (PKI)
  - Public Key Infrastructure (PKI) Lifecycle Support
- Rapid Cyber Acquisition (RCA)
- Remote ReKey (RRK)
- Remote ReKey (RRK) Lifecycle Support
- Technical Development (TD) Commodities
- Technical Development (TD) Knowledge Management
- Space Communications Security (COMSEC)
  - Space Communications Security (COMSEC) Lifecycle Support (LS)
  - VINSON/Advanced Narrowband Digital Voice Terminal (VACM)
  - Classified Data At Rest (CDAR)
  - Bounty Hunter (BH)

### EW & Avionics Division (WNY):

- Minimum Essential Emergency Communications Network (MEECN)
- Joint Tactical Information Distribution System (JTIDS)
- Roll-On Beyond Line-of-Sight Enhancement (ROBE)
- Situation Awareness Data Link (SADL)
- Pocket-J
- Joint Air Defense System Integrator (JADSI)
- Joint Range Extension/JRE TMPG Equipment Package (JRE/JTEP)
- Common Link Integration Processor (CLIP)
- Link 16 Alaska (LAK)
- Joint Tactical Information Distribution System (JTIDS) FMS
- Multifunctional Information Distribution System (MIDS)
- Multifunctional Information Distribution System (MIDS) FMS
- Miniature Receiver Terminal (MRT)
- Modified Miniature Receiver Terminal (MMRT)
- Defense Injection Reception Emergency Action Message Command and Control Terminal (DIRECT)

### C3&N programs transferred to NC3 Directorate:

- Global - Aircrew Strategic Network Terminal (G-ASNT) Increment 1
- Global - Aircrew Strategic Network Terminal (G-ASNT) Increment 2
- Minuteman Minimum Essential Emergency Communications Network (MEECN) Program (MMP) Upgrade
- Minuteman Minimum Essential Emergency Communications Network (MEECN)
- Common VLF Receiver - Increment 2 (CVR-Inc 2)
- Electromagnetic Pulse Hardened Dispersal Communications (EHDC)
- Defense Injection Reception Emergency Action Message Command and Control Terminal / Alternate Injection Terminal (DIRECT/AIT)
- Miniature Receive Terminal / Modified Miniature Receive Terminal (MRT/MMRT)