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

# Hanscom Air Force Base Innovation and Collaboration Board Meeting



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**28 Feb 2013**

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# Hanscom AFB I&C Board



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## Welcome/Introductions

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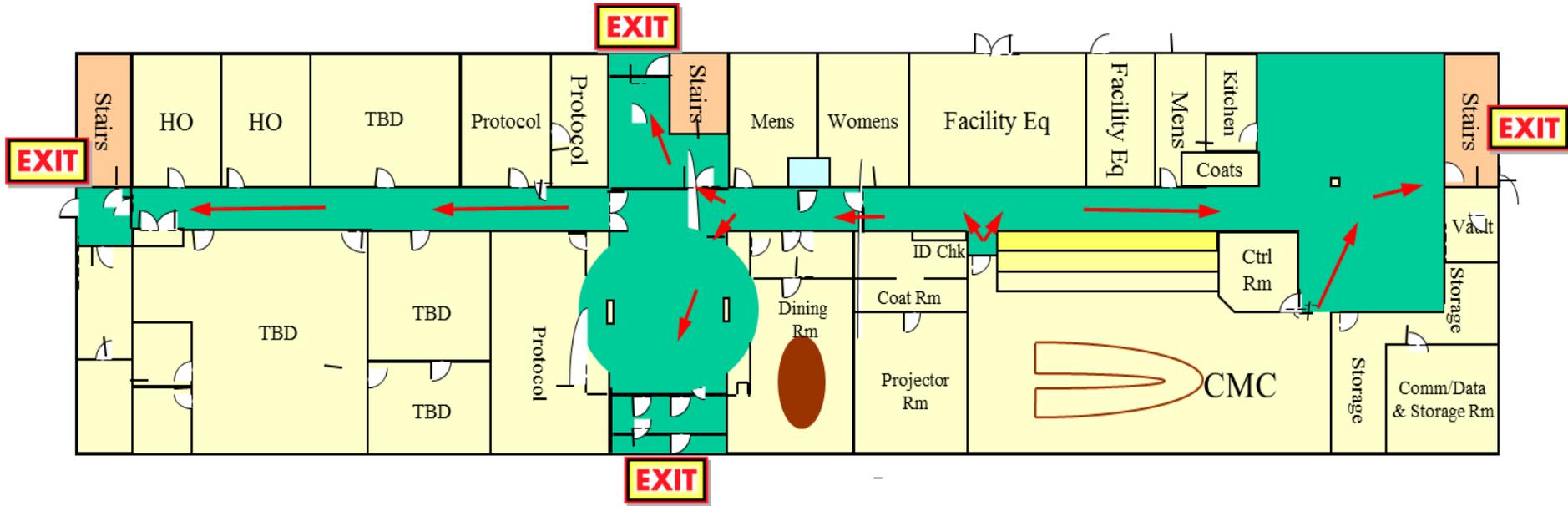


# Emergency Exits – First Floor



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# Agenda



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- **Welcome/Introductions**
- **Opening Remarks**
- **Hanscom Spotlight Capability**
- **Commonwealth Commitment to Hanscom Investments**
- **Building an Elite Cyber Defense**
- **Closing Remarks**

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# Opening Remarks

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**Dr. Tim Rudolph**  
***Chief Technology Officer***  
***PEO, C3I&N***

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# Hanscom Spotlight Capability



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**Mr. Tom Powis**  
***Organization Senior Functional***  
***Program Management***  
***PEO, C3I&N***

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# **C3I & Networks Briefing for Hanscom Innovation and Collaboration Board Meeting**

**Mr. Tom Powis  
Organization Senior Functional  
for Program Management  
28 Feb 2013**

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# Outline



- **PEO Snapshot & Mission**
- **Organizational Structure**
- **What we do**
  - Quick Video
  - Connecting It All – That's What Makes It Difficult
- **Three Challenging Areas**
- **Wrap Up**



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# PEO Snapshot



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AF CYBERSPACE

## **MISSION: CONNECTING WARFIGHTERS WITH AFFORDABLE, SECURE & WAR-WINNING CYBER, C3I & NETWORK SYSTEMS**



BATTLEFIELD AIRBORNE COMMUNICATIONS NODE (BACN)



KG-333

KGV-361



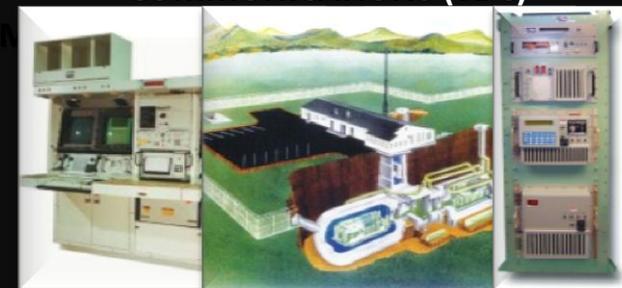
CRYPTO MODERNIZATION



- 86 C3I&N Programs
  - 8 ACAT I
  - 2 ACAT II
  - 20 ACAT III
  - 3 QRC/JUONs
  - 12 Sustainment
  - 4 Joint Support
  - 33 Dev Plan/Experiment
  - 4 Cyber/Architect Support
- 15 FMS Programs
- \$10.95B (FY11-17)
- \$141.9M (Active LOA's)
- ~2,245 Personnel



THEATER DEPLOYABLE COMMUNICATIONS (TDC)



MINUTEMAN MEECN PROGRAM UPGRADE (MMPU)

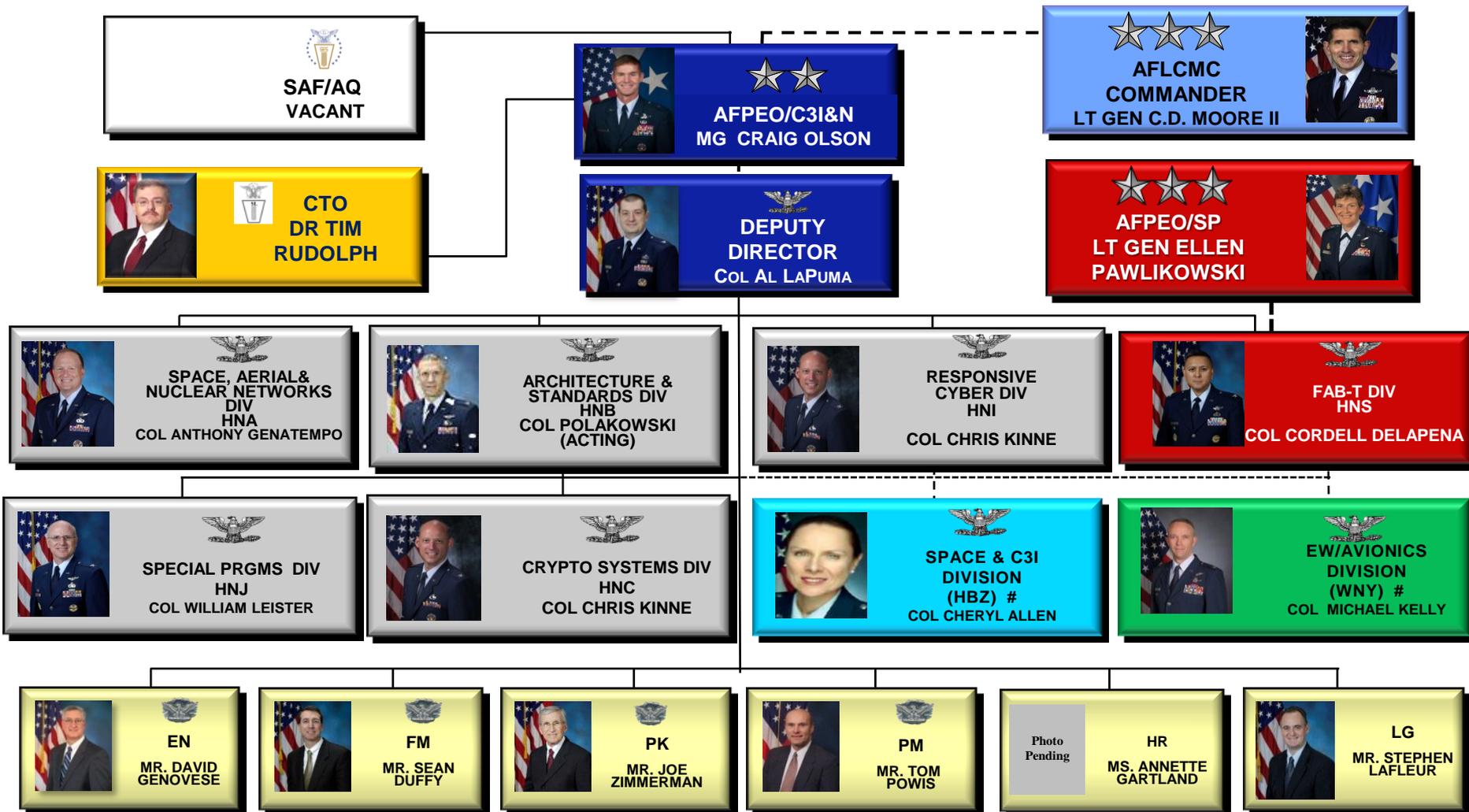


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# AFPEO C3I&N

## Leadership Structure

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# Note: Program Execution Only;  
Organizationally aligned under PEO BM & ACS

Distribution A: Unlimited Distribution  
Case Number 66ABG-2013-0081

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# Quick Video



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# Fully Engaged in Networking Environments



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## STRATEGIC APPS



DCAPES



ISPAN



CCIC2S



SEWS

## OPS APPS



DCGS



AOC



AFWSS



TBMCS



MPS



TDC



GBS



624<sup>th</sup> OC



AF-IPPS



DEAMS



ECSS

## TACTICAL APPS



CNS/ATM



BCS-F



CRC & 3DELRR



AWACS



JSTARS



TACP



IBDSS

## BUSINESS SYSTEMS

## NETWORK CORE



AFNET



GCCS-AF



GCCS-AF



CRYPTO



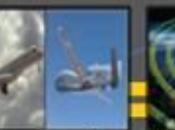
TDL



JTRS



CSEL



BACN



FAB-T





# Our Mission



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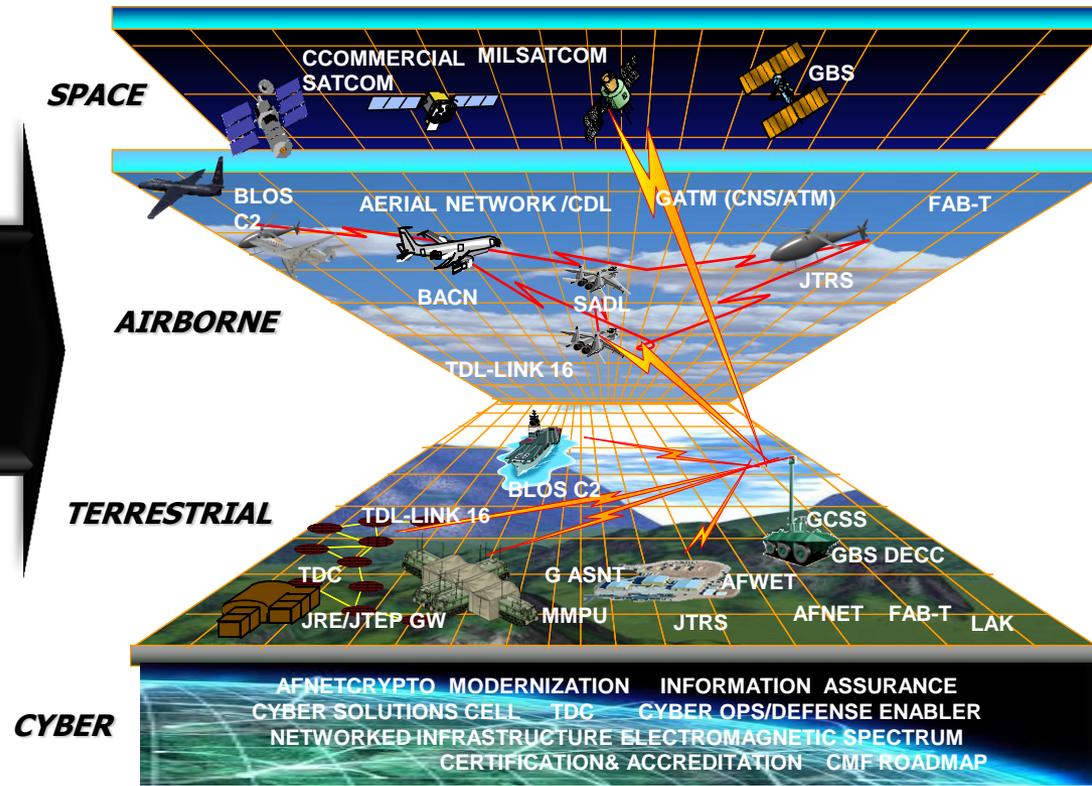
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**INFRASTRUCTURE & STANDARDS**

**SPACE, AERIAL & NUCLEAR NETWORK SYSTEMS**

**RESPONSIVE CYBER SYSTEMS**

**CRYPTOLOGIC SYSTEMS**



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

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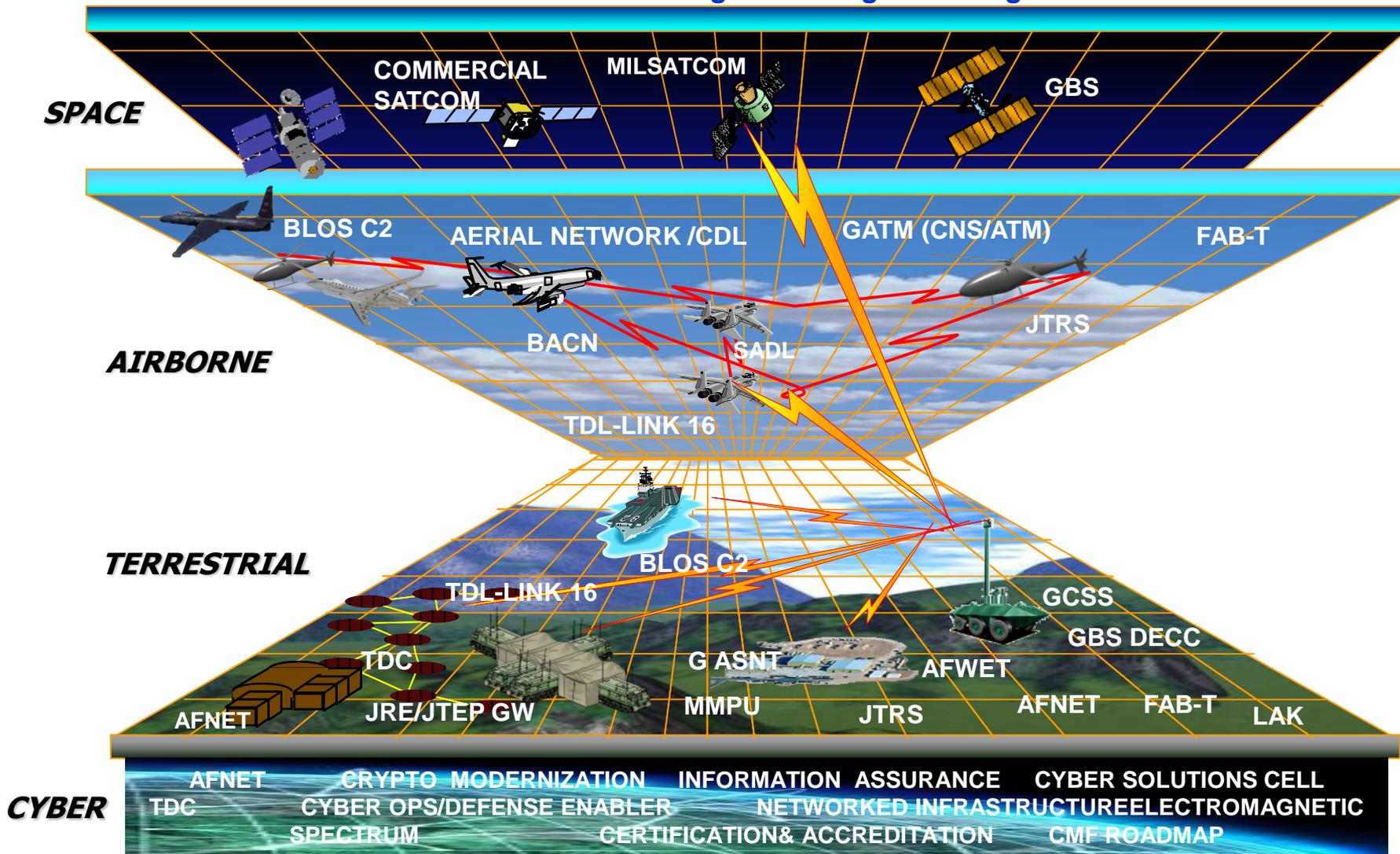


# Effective & Affordable Connectivity Throughout Domains



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# Effective & Affordable Connectivity Throughout Domains



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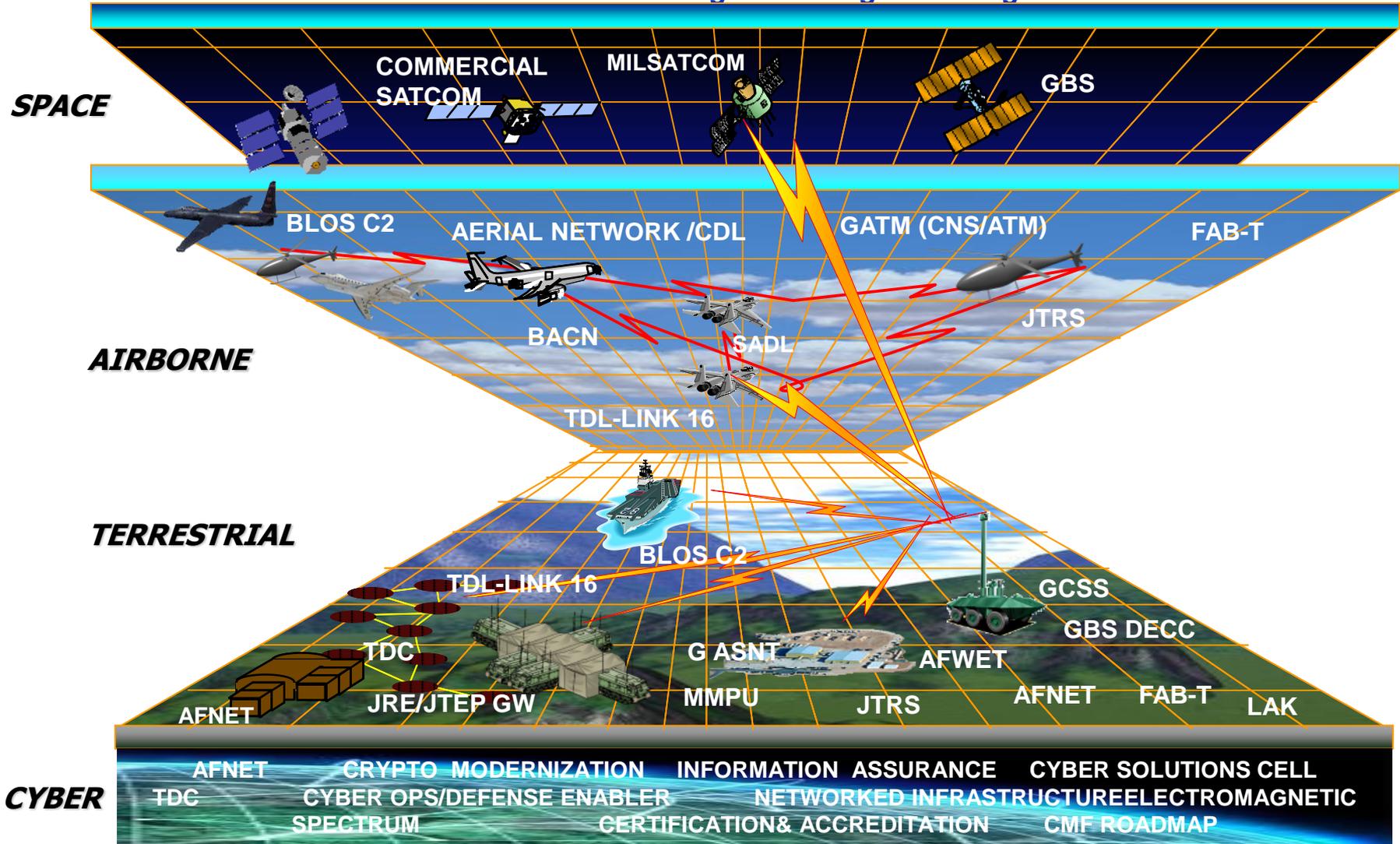


# Effective & Affordable Connectivity Throughout Domains



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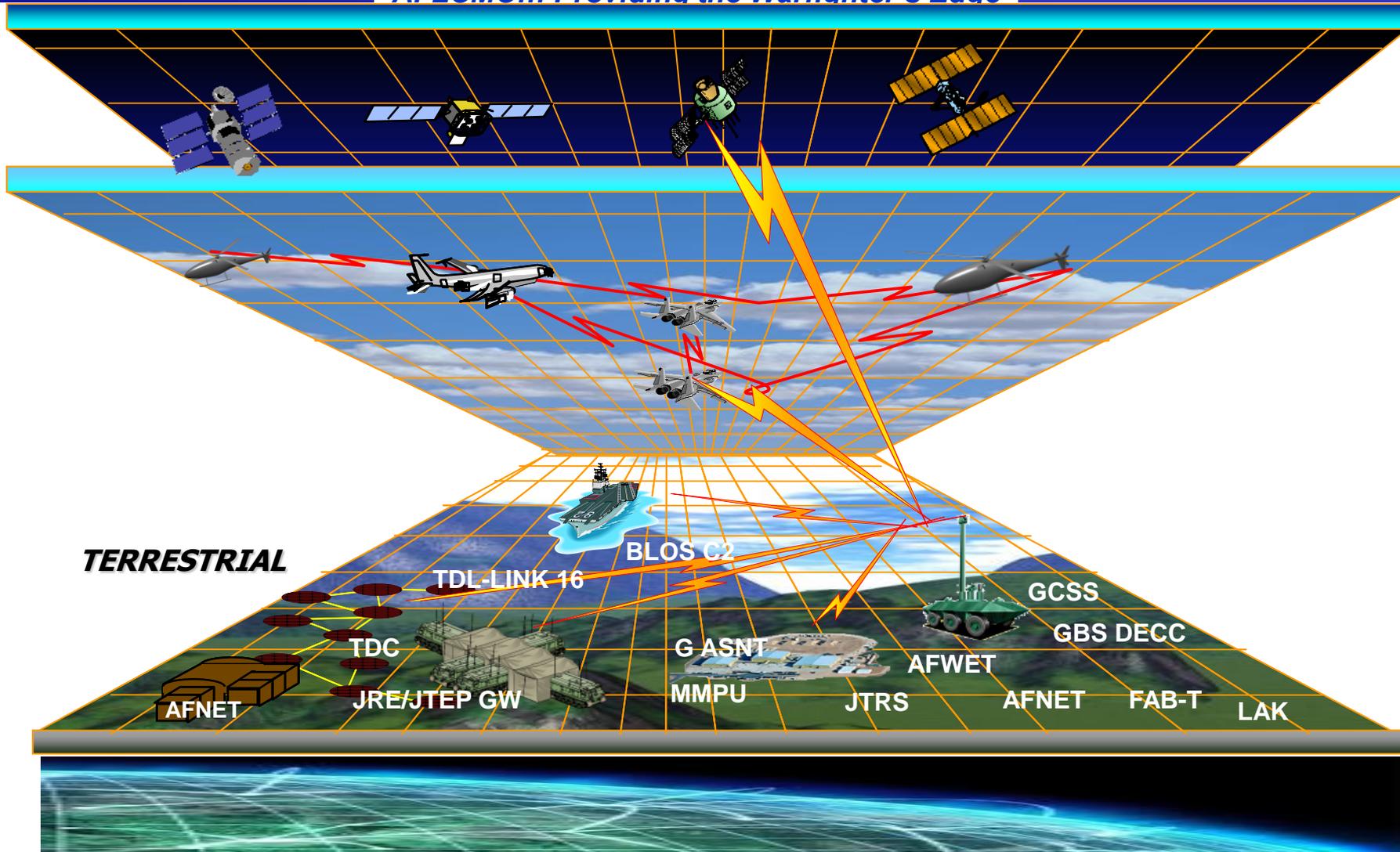


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# Components of Commoditized Infrastructure



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Business Apps  
(PEO BES)

C2 Apps  
Management  
(PEO BM)

Other Mission  
Capabilities

COTS  
ERPs

Implementation Baseline (IB) PaaS

AFNET  
DCO/C2 Tools

Cyber Ops  
Tools

Common  
Computing  
Environment  
(e.g., GCSS, and  
Future)

Implementation Baseline (IB) IaaS

APCs, DECCs  
(Hosting – DISA or Commercial)

Common & Enterprise  
Services

AFNET (transmission, gateways, routers, hubs, firewalls)

PEO C3I&N – Dev, Test, Production Infrastructure

**Consolidated Enterprise Management of “Stack” to Increase Effectiveness & Efficiency for Current, Migrating & New Apps**



# Implementation Baseline (IB)



- **Technical Baseline (TB):**
  - The Target Baseline specifies the standards, protocols, guidelines and implementation constraints for the future state of the AF IT infrastructure.
- **Implementation Baseline (IB):**
  - The Implementation Baseline is the associated baseline of acquisition selected products and their target baseline informed/allowed configurations that implement the architecture, standards and protocols and guidelines specified in the TB.
- **Operational Baseline (OB):**
  - The Operational Baseline is the set of components of the IB appropriately configured and deployed across the topology of the AF IT infrastructure that implements the architecture, standards and protocols and guidelines specified in the TB and provide the required warfighter capabilities and performance. It specifies the exact laydown and configurations of hardware and software within all facilities in the AF infrastructure topology.

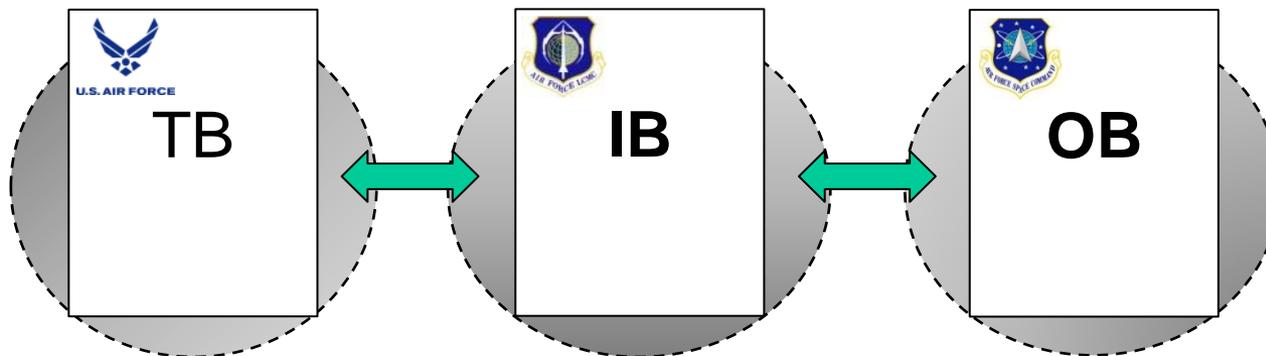


# TB – IB – OB Relationship



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- **PEO C3I&N has responsibility to develop and maintain the IB, in collaboration with Target Baseline (TB) and Operational Baseline (OB) leads**
- **All baselines inter-relate**
  - Target Baseline (TB) identifies strategic infrastructure and services vision
  - Implementation Baseline (IB) lays out approach to meet TB
  - Operational Baseline (OB) documents production configuration for the live infrastructure

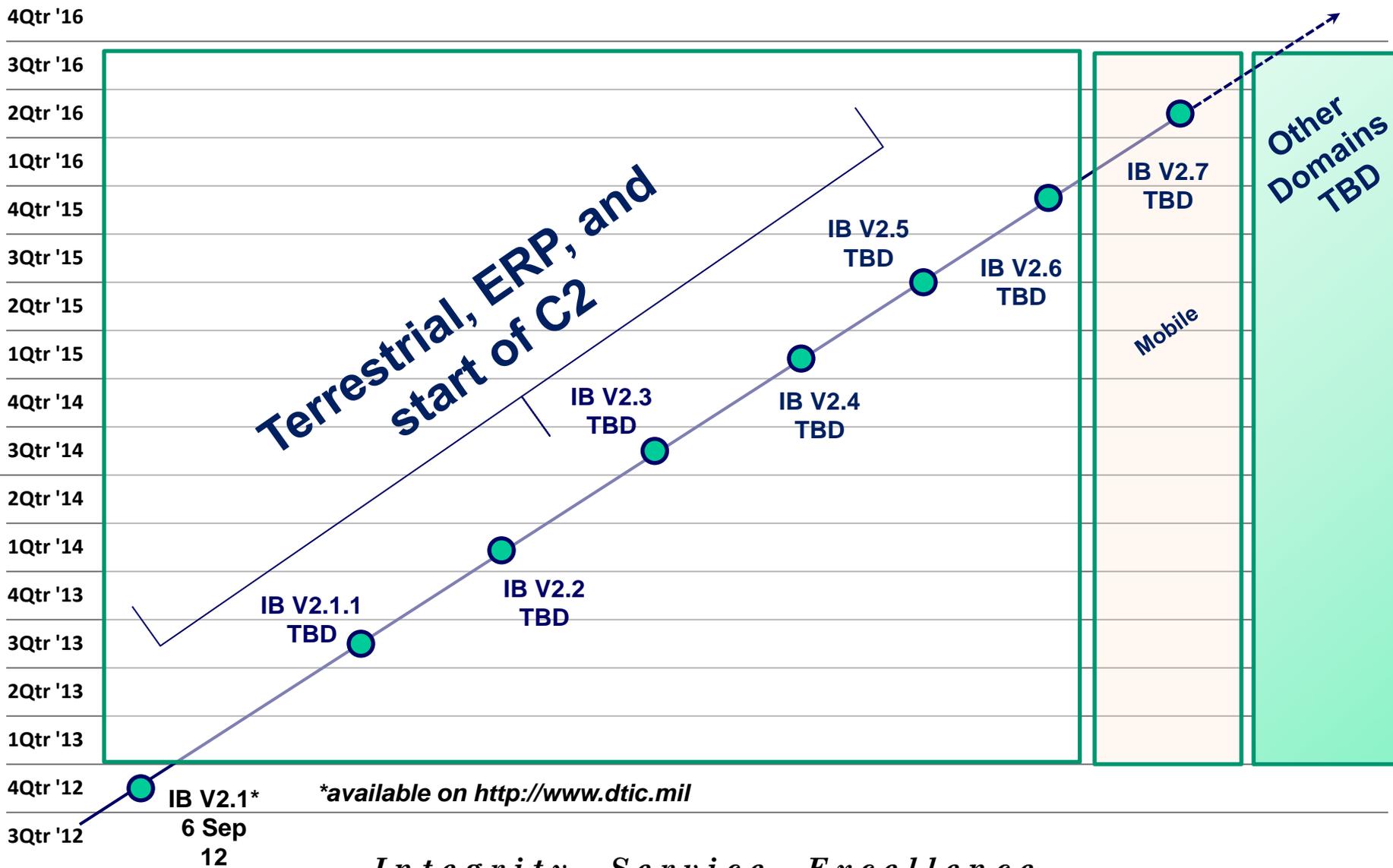
**Baselines mature in unison**

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# Applicability of Implementation Baseline

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# Implementation Baseline



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- **IB on DTIC:**
  - Implementation Baseline Version 2.1 can be found on DTIC (<http://www.dtic.mil>)
    - **Step 1:** Click “Register Now” to create a DTIC account
    - **Step 2:** Click “DTIC Online Access Controlled (DOAC)” and “Register” for Access Controlled account
    - **Step 3:** Search “Implementation Baseline”
- **Help Needed / Welcome Feedback:**
  - On IB v2.1
  - On Business Model for Migration
  - Submit comments or requests for copies of the IB to:
    - Maryanne Folger, AFLCMC/HNB  
[maryanne.folger@hanscom.af.mil](mailto:maryanne.folger@hanscom.af.mil)



# AF CIO - Strengthening Governance



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- **IT Governance Executive Board (ITGEB) provides authoritative direction to improve IT capability delivery**
  - **Senior leadership team of Air Force CIO, AFSPC/CV, SAF/AQ, PEO C3I&N, the Assistant DCS for Plans and Operations (AF A3/5), AF DCMO**
- **ITGEB current activities include:**
  - **Serving as the Air Force "Corporate Board" for Air Force participation in the Joint Information Environment**
  - **Refining the Mandatory Use policies of the Implementation Baseline & use of NETCENTS-2 as additional parts become awarded**
  - **Delegation of accountability to PEO C3I&N for IT Lifecycle Capability processes**

***Maturing Enterprise Relationships & Governance  
Enabling Improved Infrastructure & Capabilities through Lifecycle***

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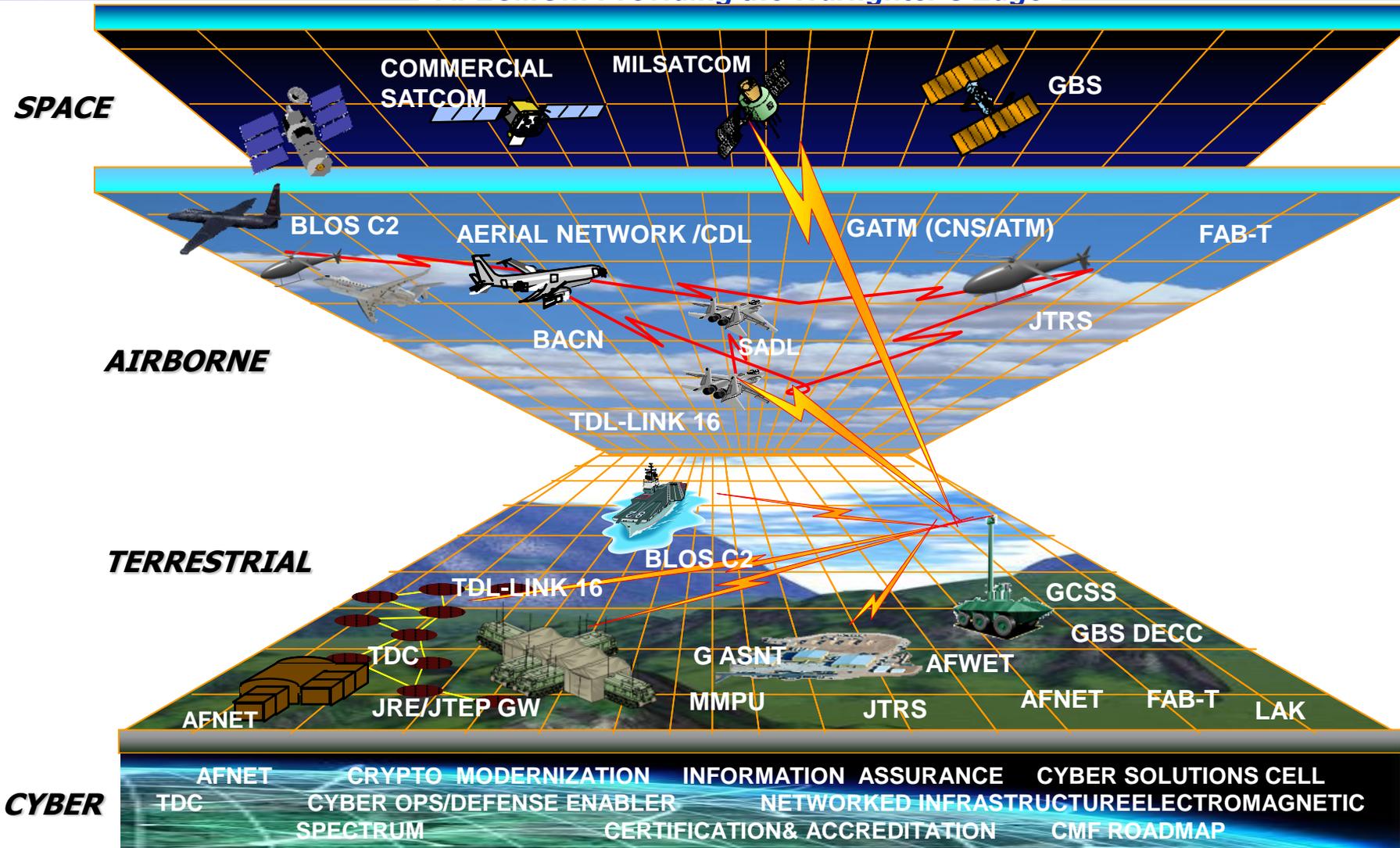


# Effective & Affordable Connectivity Throughout Domains



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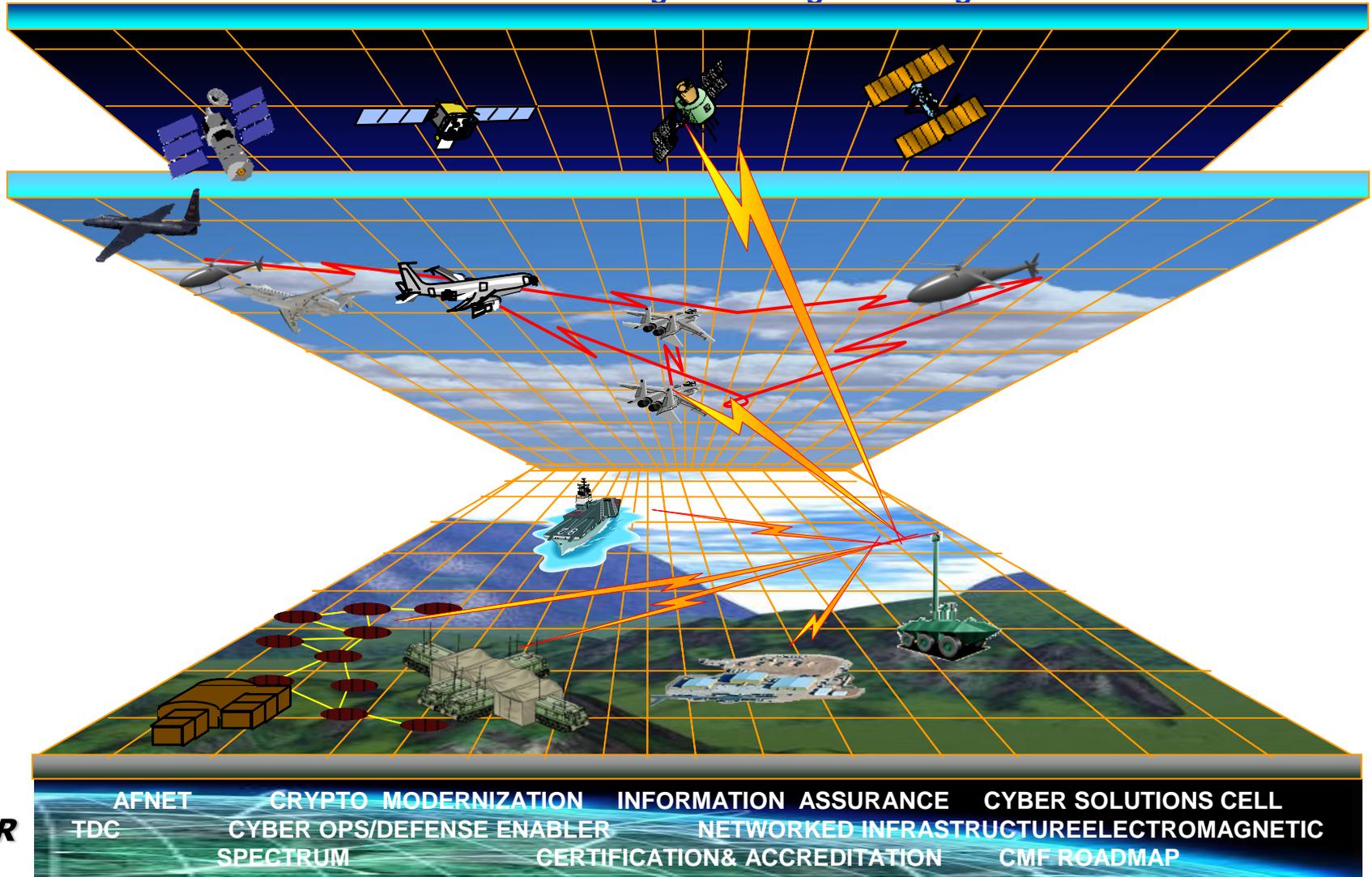


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**CYBER**

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# Cyber Solutions Cell (CSC)

## Industry Exchange

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- **Existing and Emerging AF Cyber Needs – 24 AF Top Mission Areas**
- **Offensive Cyber Operations (OCO)**
  - Connectivity
  - Platform
  - Effects Production
  - Mission Support
- **Defensive Cyber Operations (DCO)**
  - Base-Level NetD
  - Gateway NetID
  - Host-based NetD
  - Hunter/Interceptor
  - Deployed DCO
  - External Network/System NetD
  - Malware Analysis & Forensics
- **Command/Control Situational Awareness (C2SA)**
  - SA Data Analysis
  - SA Data Collection
  - Intelligence Support
  - Command & Control
- **DoD GIG Operations (DGO)**
  - Offline AFNET Data Manipulation
  - Mission Modeling, Simulation & Training
  - AFNET QoS Support
  - AFNET Compliance & CM
  - External Network/System Support

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# CSC Industry Exchange



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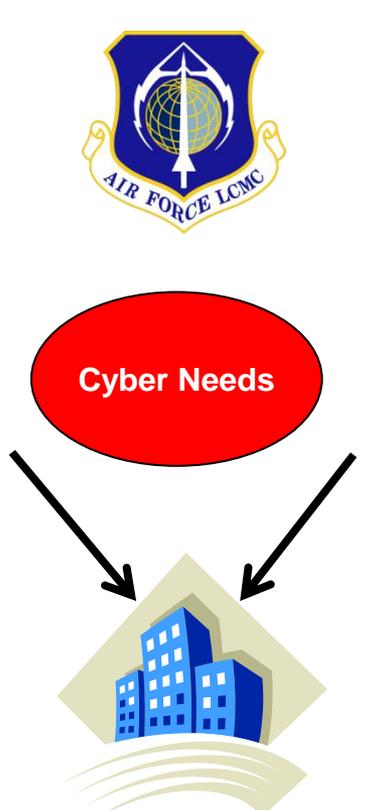
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## 1. Announce



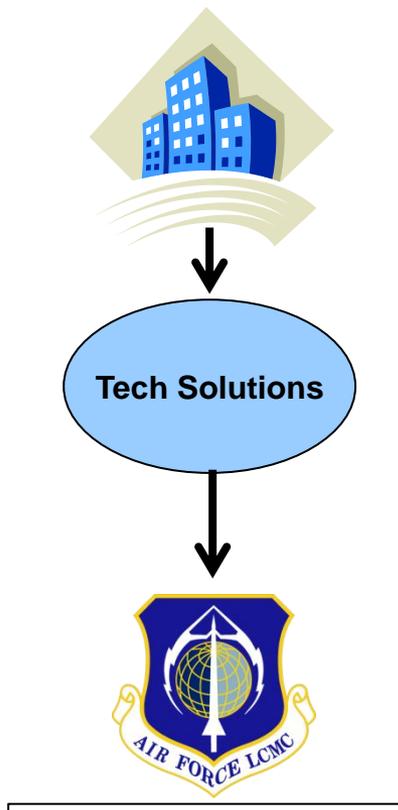
FBO announcement directing industry to contact CSC to receive cyber needs

## 2. Provide



LCMC provides cyber needs via classified to industry

## 3. Receive

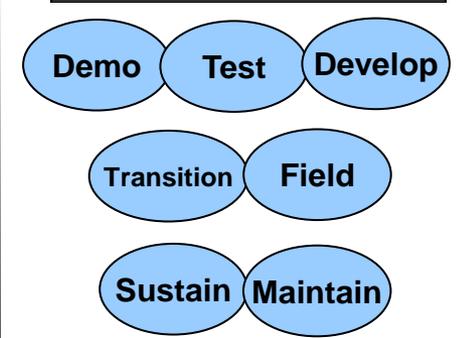


Industry responds with products/services that match needs

## 4. Review



## 5. Acquire



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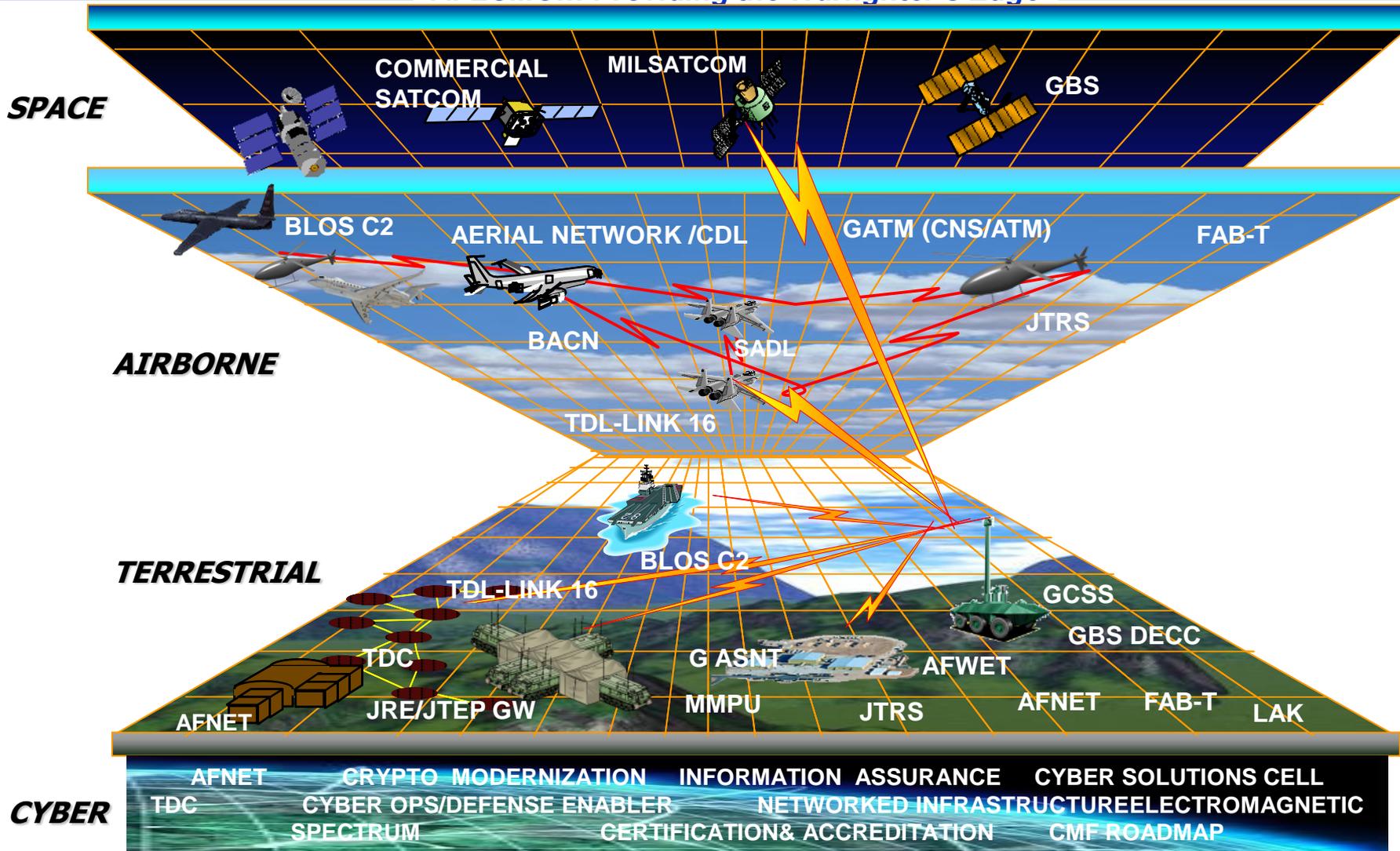


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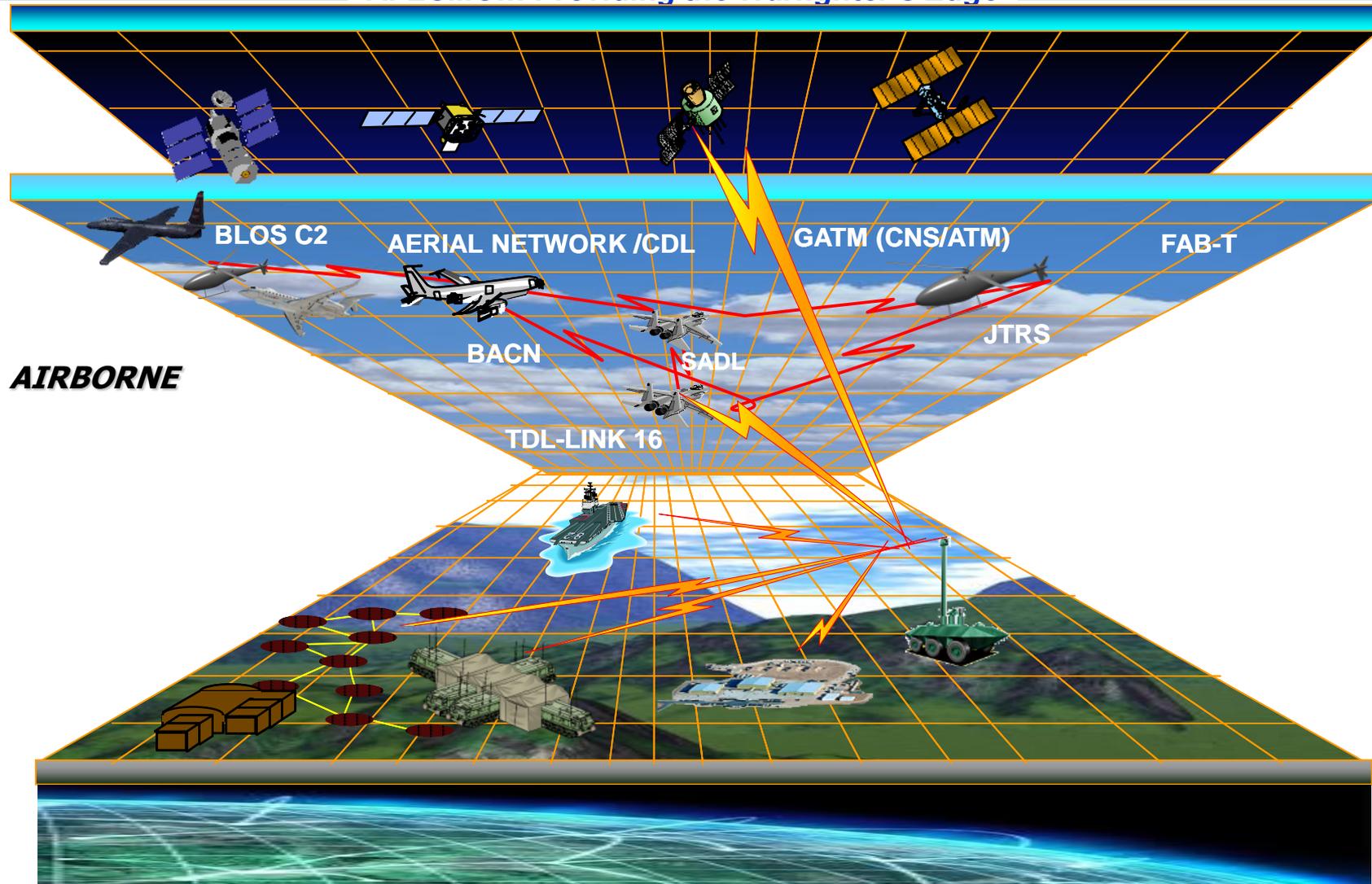


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# Joint Aerial Layer Network (JALN) Vision



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## STRATEGIC LEVEL

- JALN Initial Capabilities Document (ICD), Oct 2009, purpose:
  - Integrate with space and surface layers
  - Increase communications access for the joint force at all levels
  - Support strike, mobility, special operations, C2, and ISR missions

## OPERATIONAL LEVEL

- JALN Core Functions:
  - Distribution/Access/Range Extension (DARE) capability
  - Transition capabilities
  - Provide High Capacity Backbone

## TACTICAL LEVEL

- Capability Development Documents (CDDs) for Aerial Layer Network Components:
  - First up, 5<sup>th</sup> to 4<sup>th</sup> Generation Communications Capability

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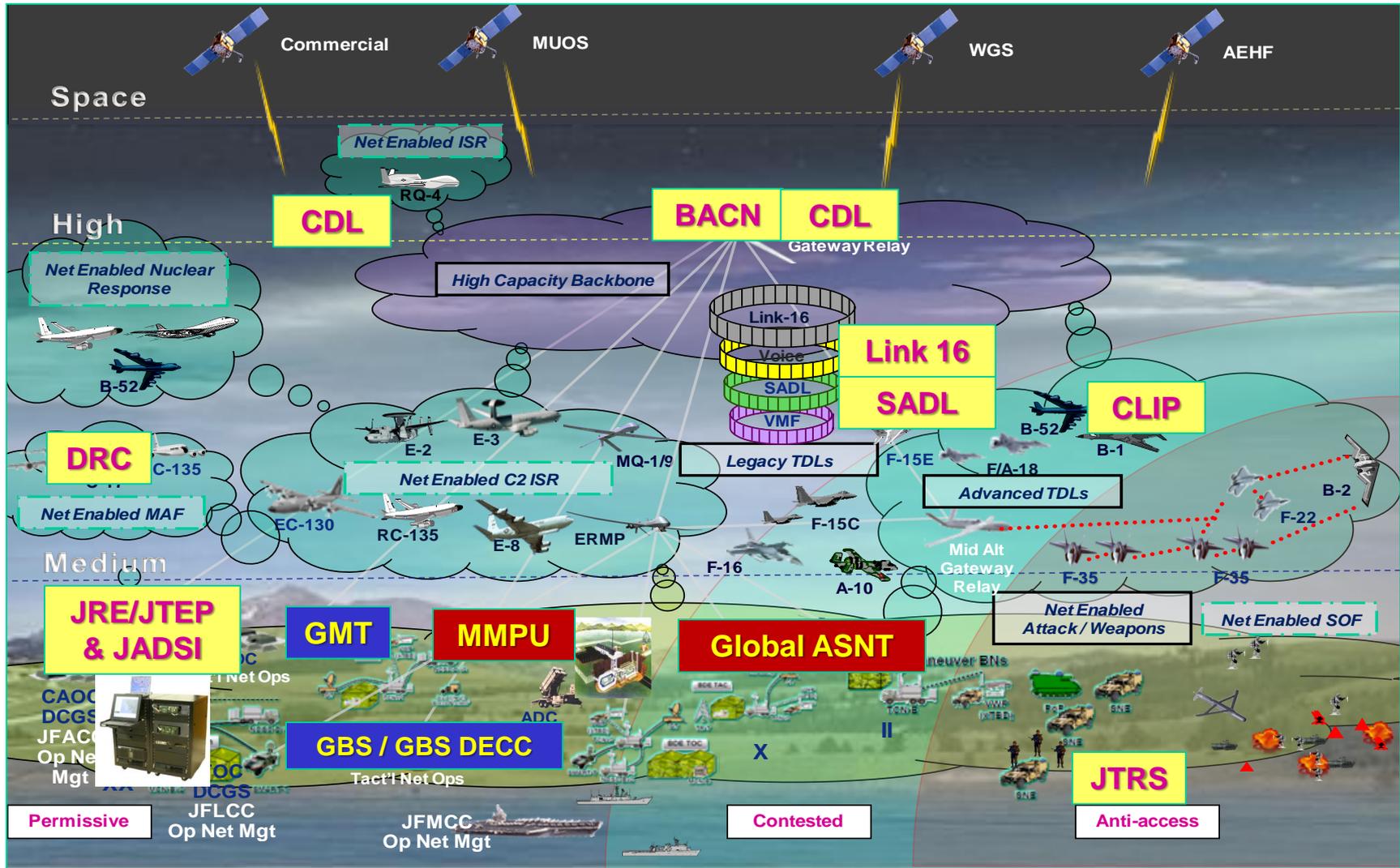


# Aerial Layer Network 2012



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**Legacy**      **SATCOM Programs**      **Nuclear C2 Programs**      *elligence*



# Building High Capacity Backbone



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## Requirement:

- JALN ICD - a high capacity backbone to “provide long haul capacity with the capability to access the Global Information Grid through Ground Entry Points”
- JALN AoA recommendation - High Altitude Gateway (HAG) and Medium Altitude Gateway (MAG) orbits using the Bandwidth Efficient (BE) CDL waveform for connectivity

## PEO C3I&N Efforts:

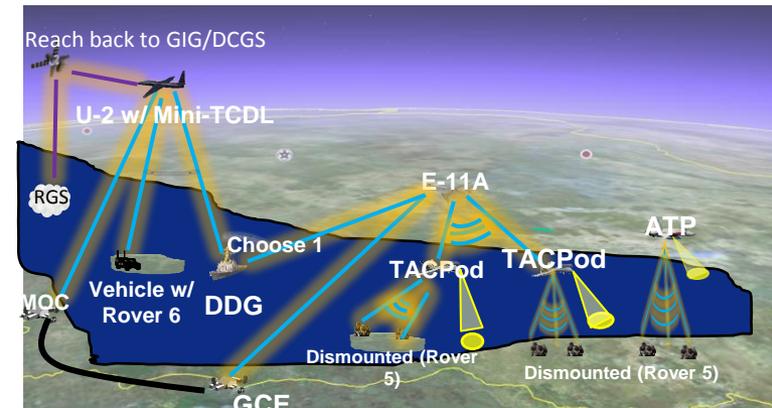
- **HAG – ACC**
  - Make BACN a Program of Record
  - Add MR-TCDL capability to current BACN E-11A’s platforms
- **MAG – AF/A2**
  - Continue AF/A2 BLOS C2 and TACPod effort
- **Future 5<sup>th</sup> (F-22/F-35) to 4<sup>th</sup> (F-15) Generation Communications Capability**



E-11A [modified BD-700]



EQ-4B Global Hawk





# Acquisition Principles to Support Building the JALN



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- **Use of Government Owned Standards**
  - Migrating from single vendor solutions to Gov't control of standards/specification development
- **Gov't Owned Reference Architecture / Reference Implementation**
  - Promote Open Architectures
  - Enforce Waveform Portability and Reuse
- **Use of Standard Interfaces**
  - Supports interoperable and modular development as budget limitations allow

**PROMOTE COMPETITION**

**INCREASE COLLABORATION w/ INDUSTRY**

**REDUCE RISK & COST**



# Take Aways



- **New PEO, New Mission, New Opportunities**
- **Transitioning to standards-based commoditized IT infrastructure to support multiple application programs**
- **Normalizing cyber acquisition through Cyber Solutions Cell**
- **Looking towards standards-based architecture for airborne layer**

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



**QUESTIONS?**



# Commonwealth Commitment to Hanscom Investments



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**Ms. Marty Jones**  
**Ms. Anne Marie Dowd**

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# Building an Elite Cyber Defense



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## Dr. Tim Rudolph

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# Concept



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**Mr. Rich Byrne**

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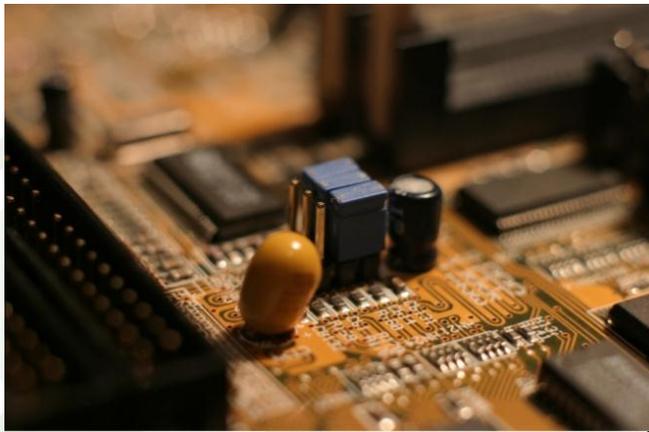
# ACSC Education Work Group



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**Dr. David Luzzi**  
**Mr. John McKenna**

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# ACSC

Advanced Cyber Security Center

**Industry-University-Government Education Work Group**

Chairman Dr. David E. Luzzi, Ph.D., M.B.A.

Executive Director, Strategic Security Initiative, Northeastern University



Launched and supported by:

**Mass Insight**

GLOBAL PARTNERSHIPS

# Agenda

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- I. ACSC Overview and Mission
- II. Strategic Review Process
- III. Proposed Education Initiatives
- IV. Appendix

# The New England Goal

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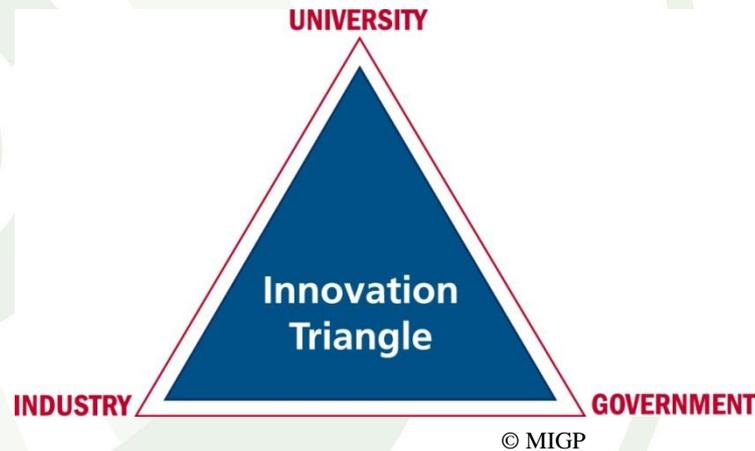
“The **New England region** is committed to be **a global leader** in confronting current and future cyber security challenges and to reinvigorate Route 128 to be the **‘national cyber security beltway.’**”

*From the White Paper Executive Summary  
produced on behalf of the ACSC  
and the five university members of the  
Massachusetts Green High Performance Computing Center  
(Boston University, Harvard, MIT, Northeastern, UMass)*

# Mission

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To facilitate collaboration between cross-sector, multi-disciplinary resources to establish New England as the national leader for cyber security R&D, education, information exchange, thought leadership, policy influence and job creation.



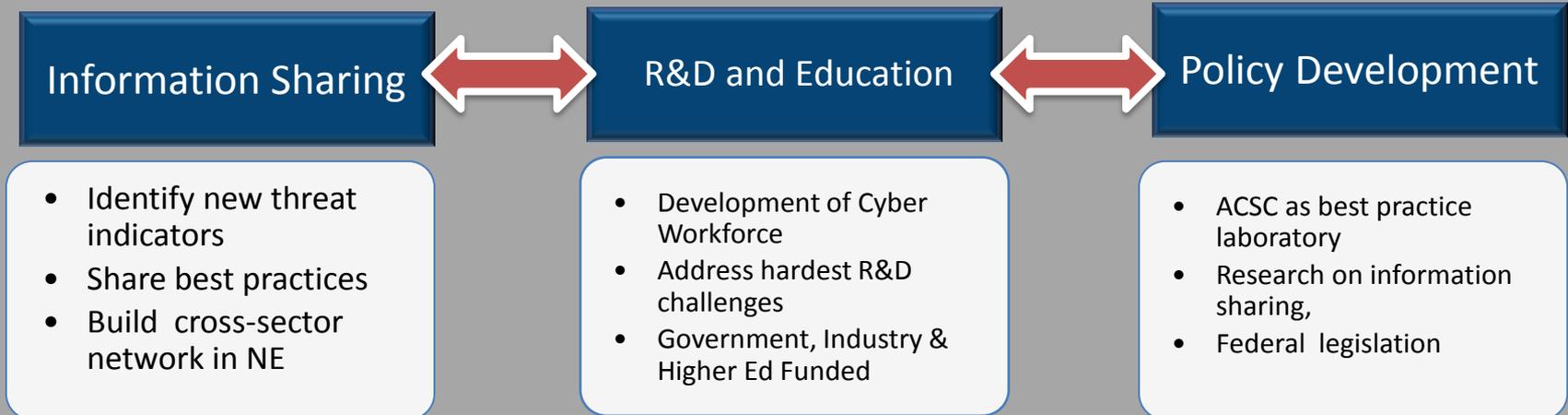
# The Advanced Cyber Security Center

The Advanced Cyber Security Center is a **cross-sector collaboration** organized to help protect the region's organizations from the rapidly evolving advanced and persistent cyber threats...



.....and to **support New England's role as a center for cyber security R+D, education, talent and jobs.**

## Three Key Initiatives:



# ACSC Charter Members

(as of February 26, 2013)

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## **Biotech/Pharmaceuticals**

Boston Scientific Corporation  
Pfizer, Inc.  
Biogen Idec

## **Defense**

Draper Laboratory  
MIT Lincoln Laboratory  
The MITRE Corporation

## **Government**

Commonwealth of Massachusetts

## **Legal**

Foley Hoag

## **Technology**

Akamai  
Bit9  
RSA/EMC Corporation  
Veracode  
Courion

## **Financial Services**

Fidelity Investments  
John Hancock Financial Services  
Liberty Mutual Group  
State Street Corporation  
Federal Reserve Bank of Boston  
Eastern Bank

## **Health Care**

Blue Cross Blue Shield of Massachusetts  
Harvard Pilgrim Health Care  
Partners HealthCare System Inc.

## **University Consortium**

Boston University  
Harvard University  
MIT  
Northeastern University  
University of Massachusetts  
Worcester Polytechnic Institute

# Strategic Review Process

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1. 35+ interviews conducted to begin prioritization of education and research initiatives from members and the conference (which resulted in 9 Grand Challenges)
2. Survey of Cyber Tuesday participants
3. Feb 13 University/Industry Brainstorming Session
4. Further refinement of education and research initiatives
  - WilmerHale defense spending assessment
  - 4-6 group reviews targeted for March
5. Further refinement of threat evaluation initiatives
6. ED job description developed and search started

# Continue Current Initiatives

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## 2012/2013 Continuing Initiatives

- Expansion of student /co-op information sessions across all member universities
  - Internship/Co-op Subcommittee organized initial student information sessions at UMass Lowell, UMass Amherst, BU and Harvard
- Cybersecurity curriculum sharing focused on a “2 semester arc”/cyber modules program
  - Initiative led by Greg Morrisett, Harvard and Nikolai Zeldovich, MIT
- Poster competition and conference session
  - First annual competition held at 2012 ACSC Annual Conference

# Review of Proposed Education Initiatives

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## Criteria:

- Critical mass of interviewee support
- Resources to complete
- “Bang for the buck”
- Brand building impact

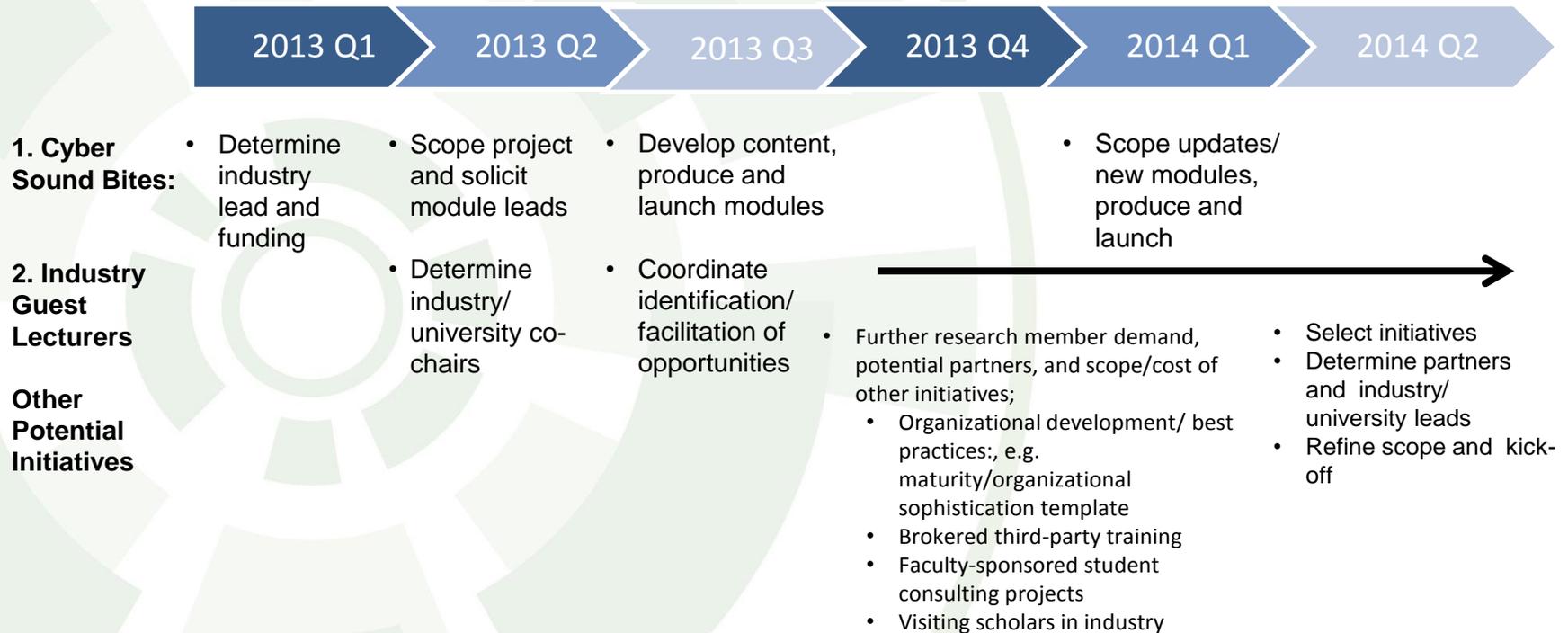
# Proposed Education Initiatives

The following initiatives received the most support.

Initiative	Critical Mass	Effort to Complete	Bang for the Buck	Brand Building	Propose for 2013	
Promote Industry Guest Lecturers	✓	Low	✓	✓	✓	} University/ Industry
Faculty Sponsored Student Consulting	✓	Medium	✓	✓		
Cross registration	✓	High	✓	✓		} University
Cyber "Sound bites": Online Modules	✓++	Low-Medium	✓+	✓+	✓	} Industry – <i>How can we involve universities?</i>
Brokered Third-Party Training	✓	Low	✓		✓	
Csuite/ Board Briefings	✓	Medium-High		✓		
Maturity Template	✓	Medium-High		✓		
Company Cyber Certification (a la AMA)	✓	High	✓	✓++		

# Proposed 18 Month Education Plan

We propose focusing on 2 new initiatives for 2013, and conducting further research to prioritize new initiatives for 2014.



# Potential Partners

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- **Universities** – Could develop industry training and/or certification? Would probably not apply to all universities
- **OMG** – have developed standards for sectors within different industries; very connected, e.g. grew CSCC to several hundred members in just over one year
- **SANS** – provide training to State Street; ACSC could broker; benefits could include reduced costs and cross-industry/company participation



# ACSC

Advanced Cyber Security Center

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For questions or additional information please view  
our website <http://www.acscenter.org/>



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# Targeted Hanscom Work Force Development

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**Ms. Catherine Kendrick**

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# System Management and Security Certificate Pilot Program

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**Dr. Sue Arnold**  
**Dr. Jed Wang**

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# Closing Remarks



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## Dr. Tim Rudolph

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# Contact Information



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**Mr. Joel Rodriguez**  
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joel.rodriguez2@hanscom.af.mil  
781-225-4155

**Admin: Ms. Pamela Hollabaugh**  
pamela.hollabaugh.ctr@hanscom.af.mil  
781-225-0386

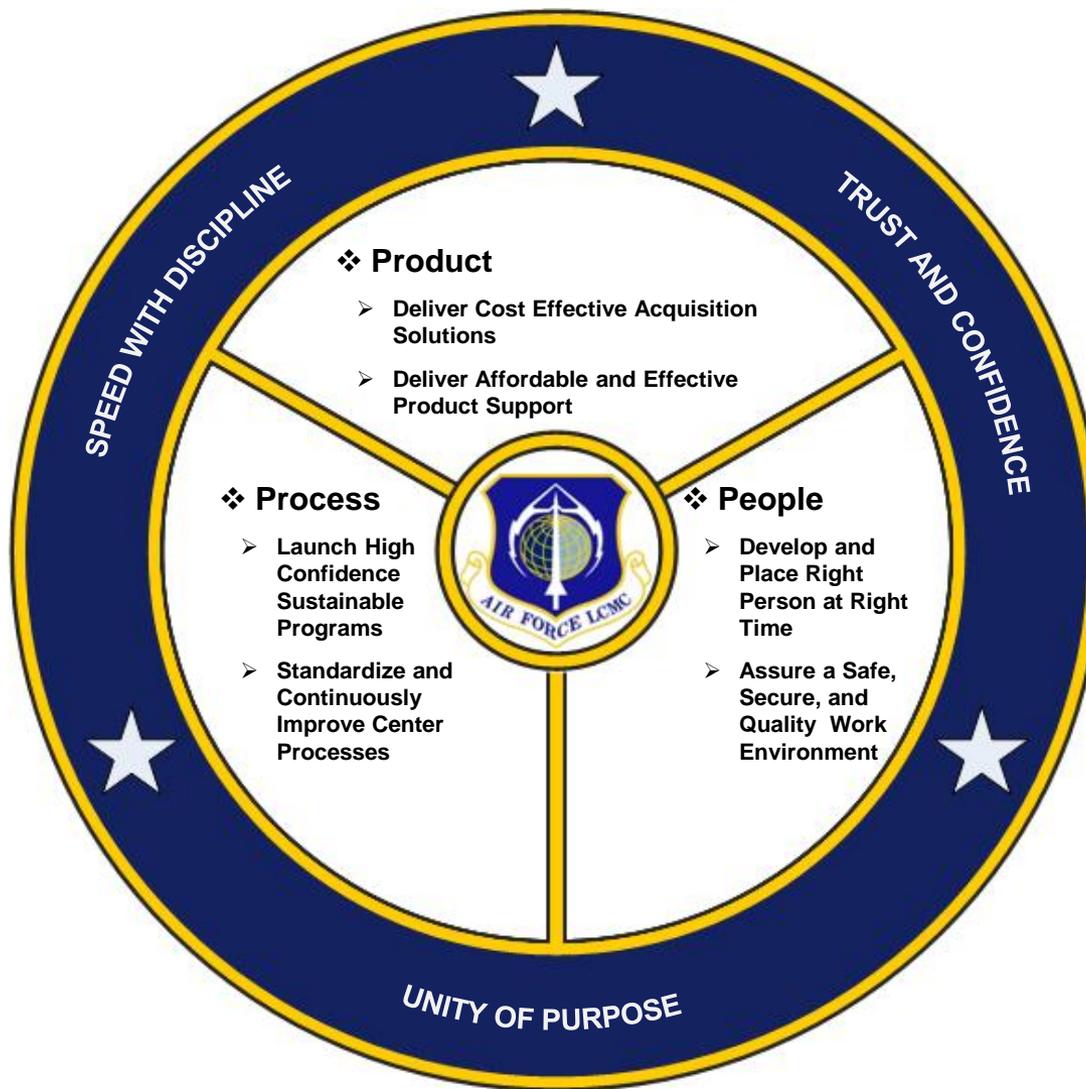


# Hanscom AFB I&C Board



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**DELIVER TO COMMITMENTS**