Headquarters Air Combat Command

ACC/C2ISR Delivering Desired Effects on the Battlefield

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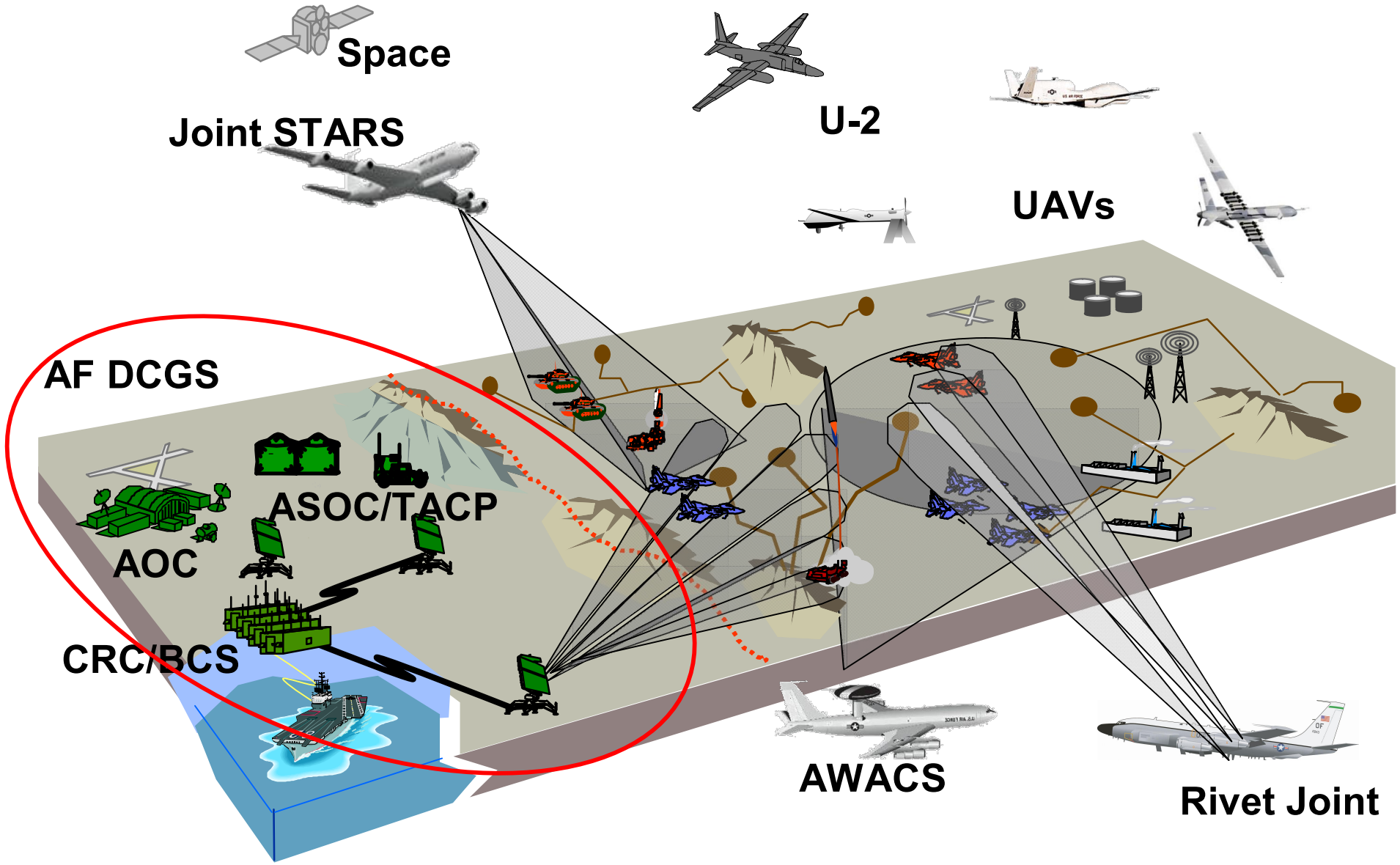
ACC/A8C
25 July 2006

This Briefing is:
UNCLASSIFIED

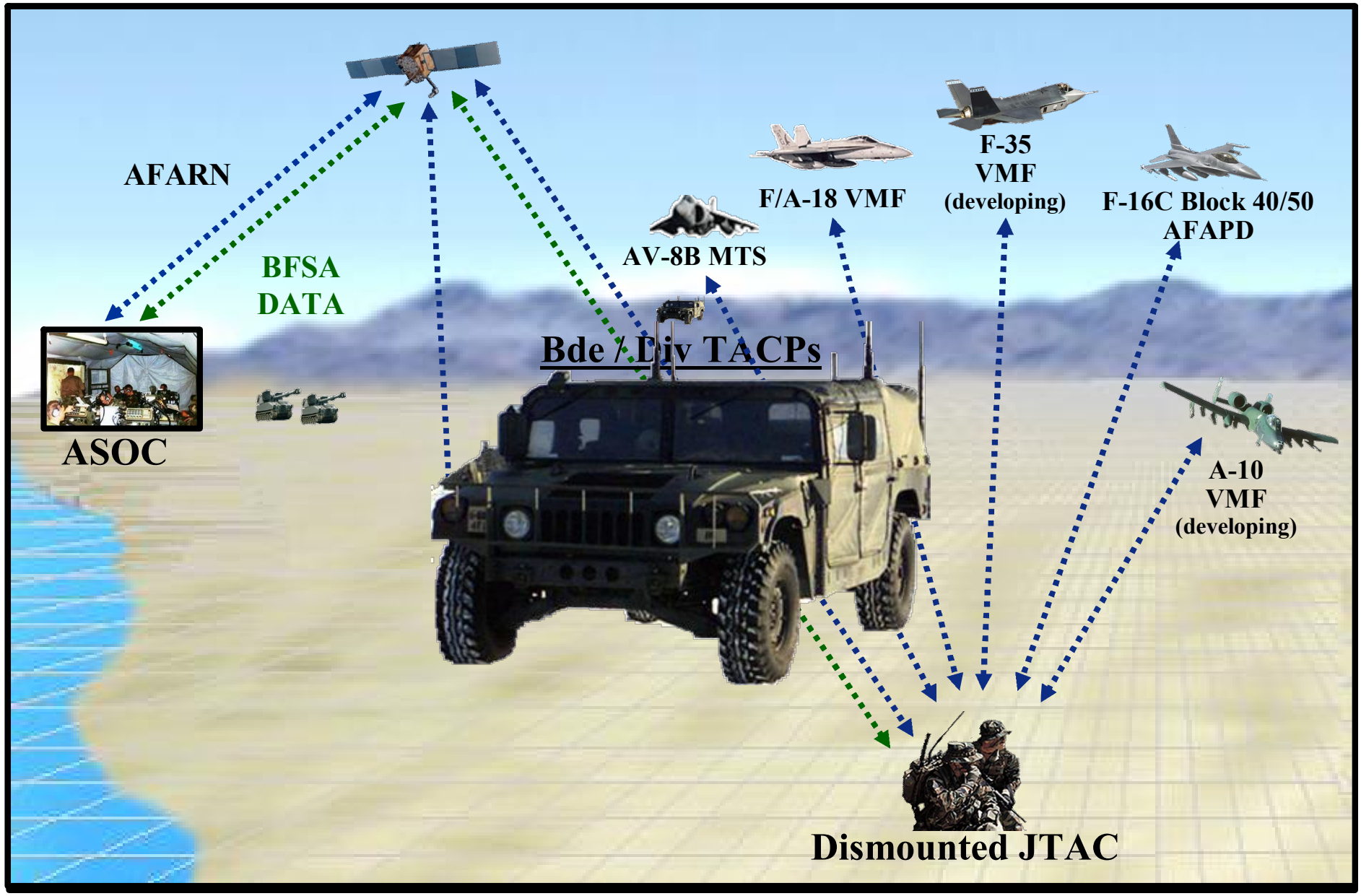
Overview

- Tactical Level Programs
  - TTNT, TACP, ICAN
- Operational Level Programs
  - NCCT, BACN, AMSTE
- C2ISR Integration
  - Future, HMI
- Force Structure Challenge

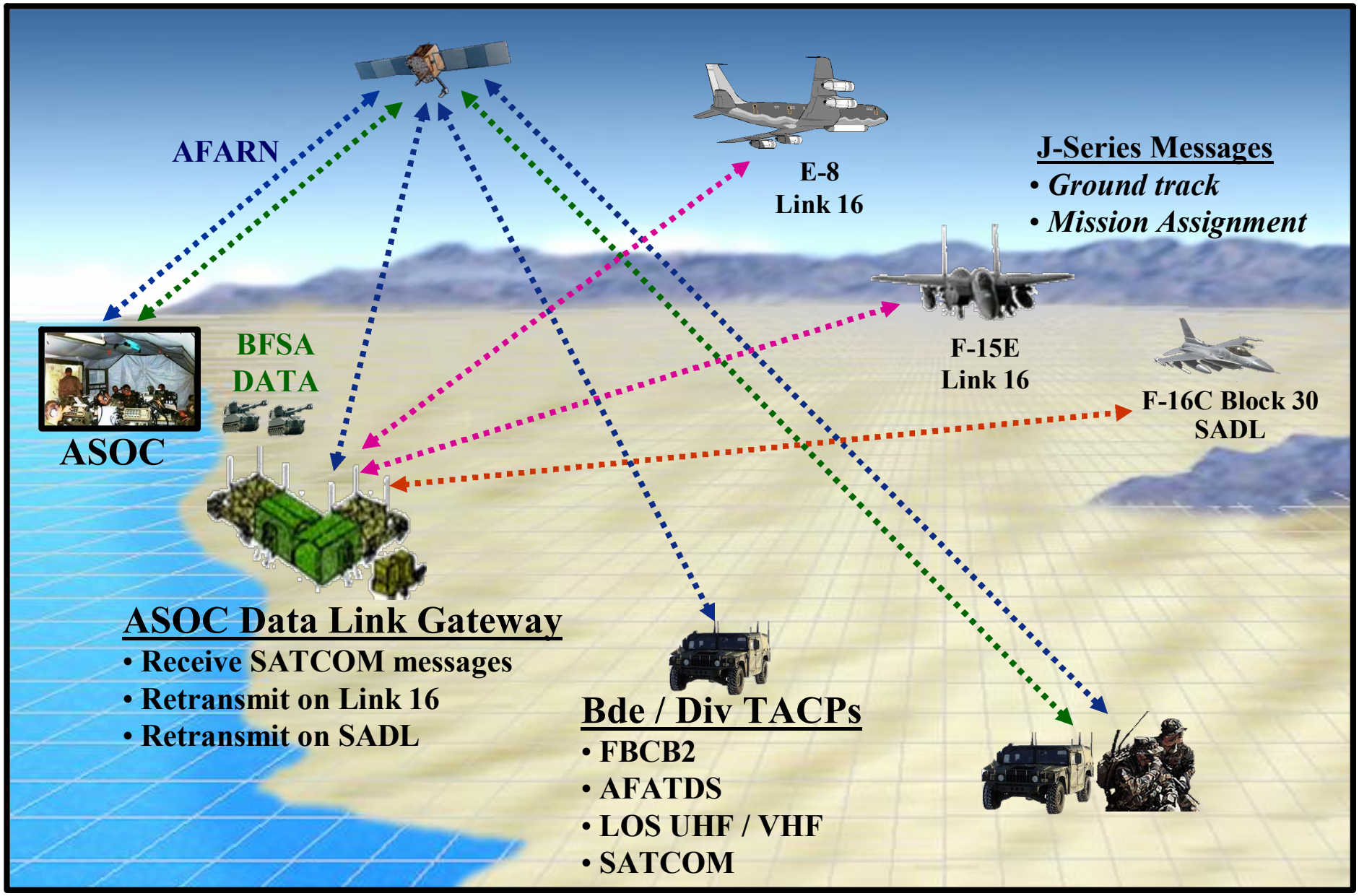
Tactical Level Programs



TACP-CASS S/W v1.2 – Fielded



TACP-CASS S/W v1.3.1 – Fall 06

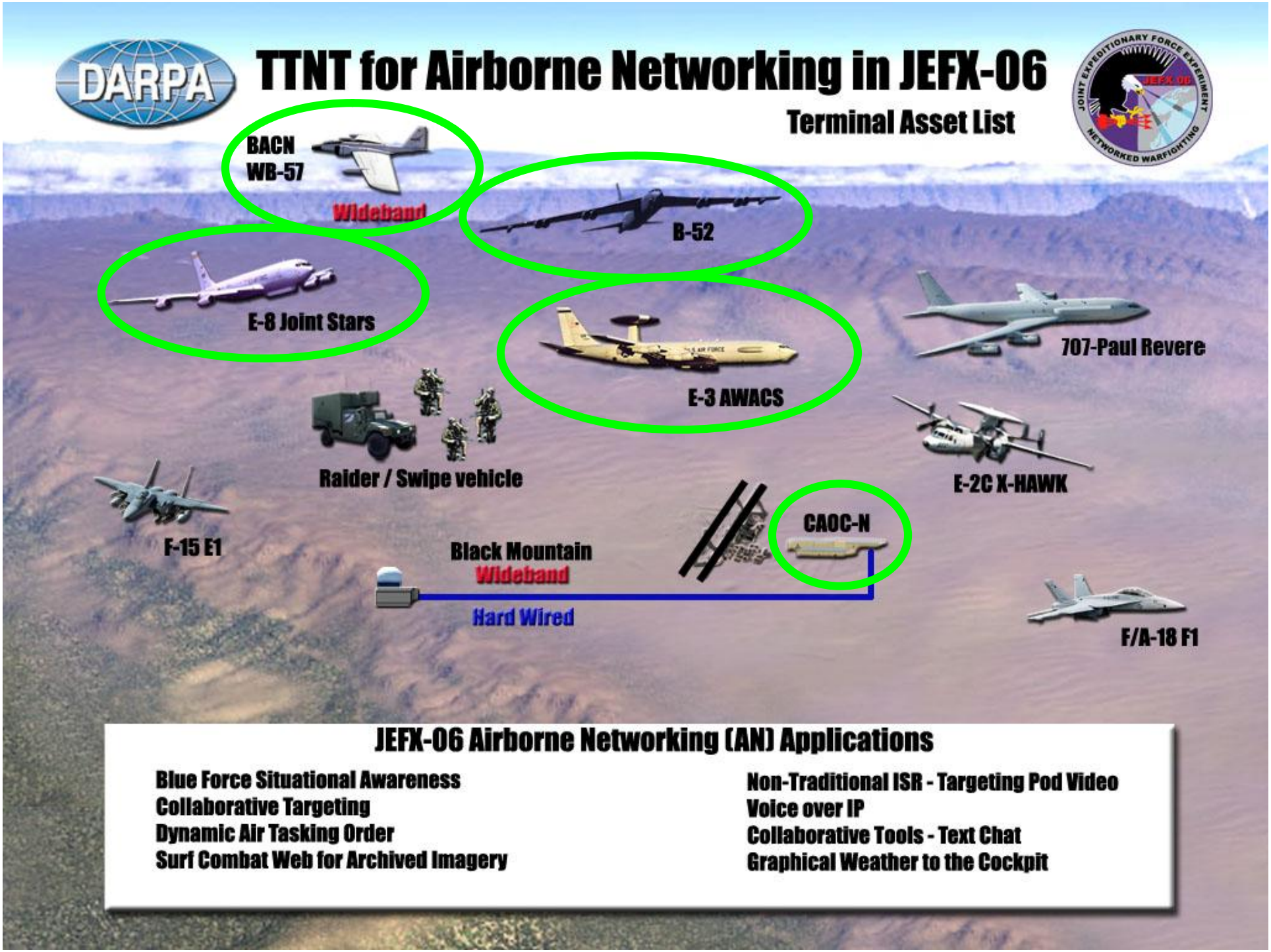


Tactical Targeting Network Technology

(TTNT)

TTNT for Airborne Networking in JEFX-06

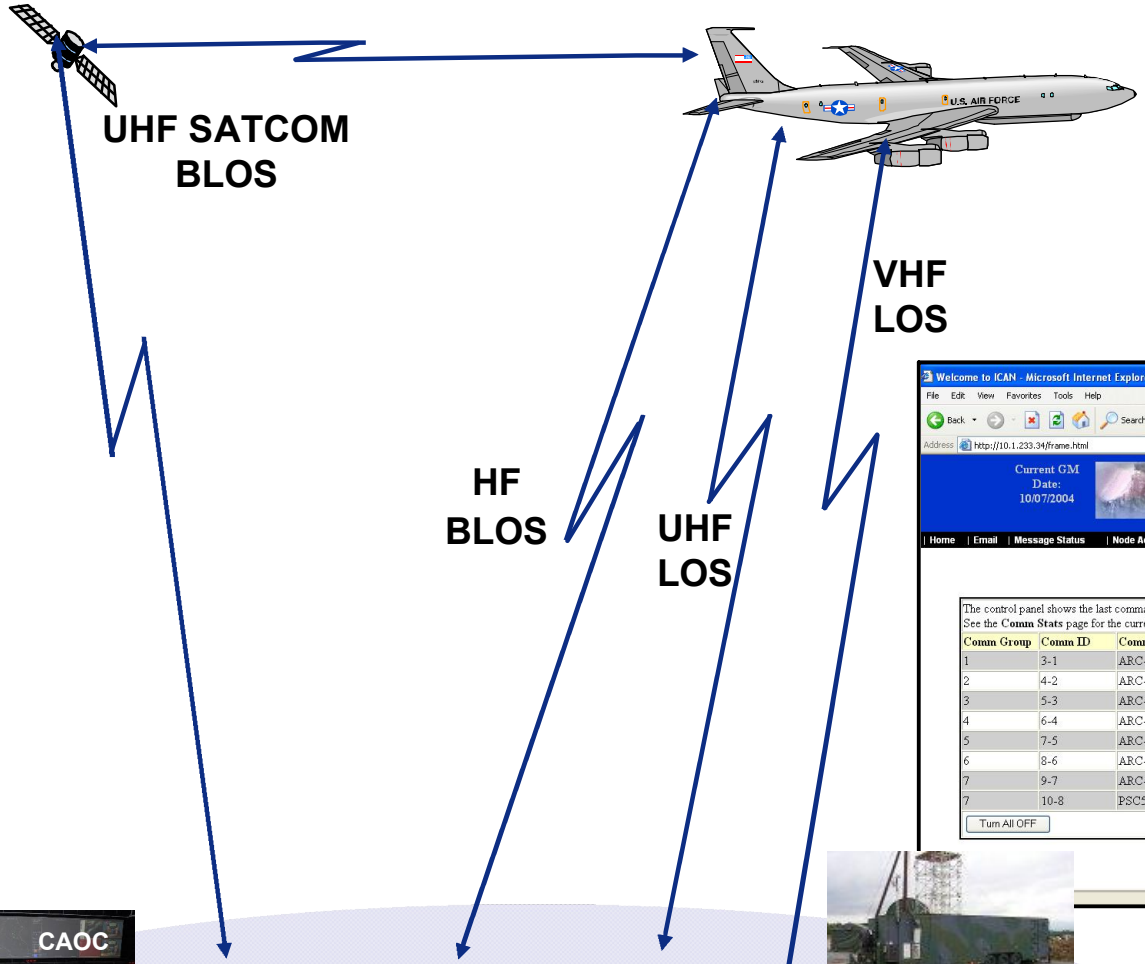
Terminal Asset List

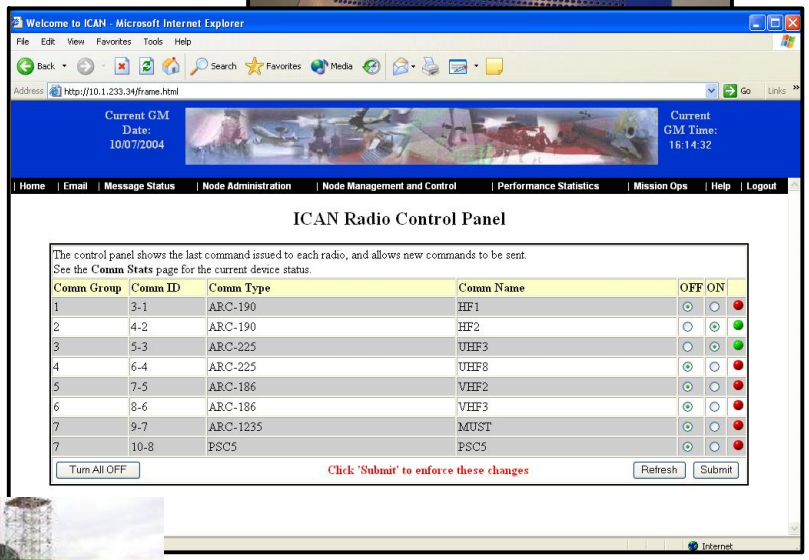


JEFX-06 Airborne Networking (AN) Applications

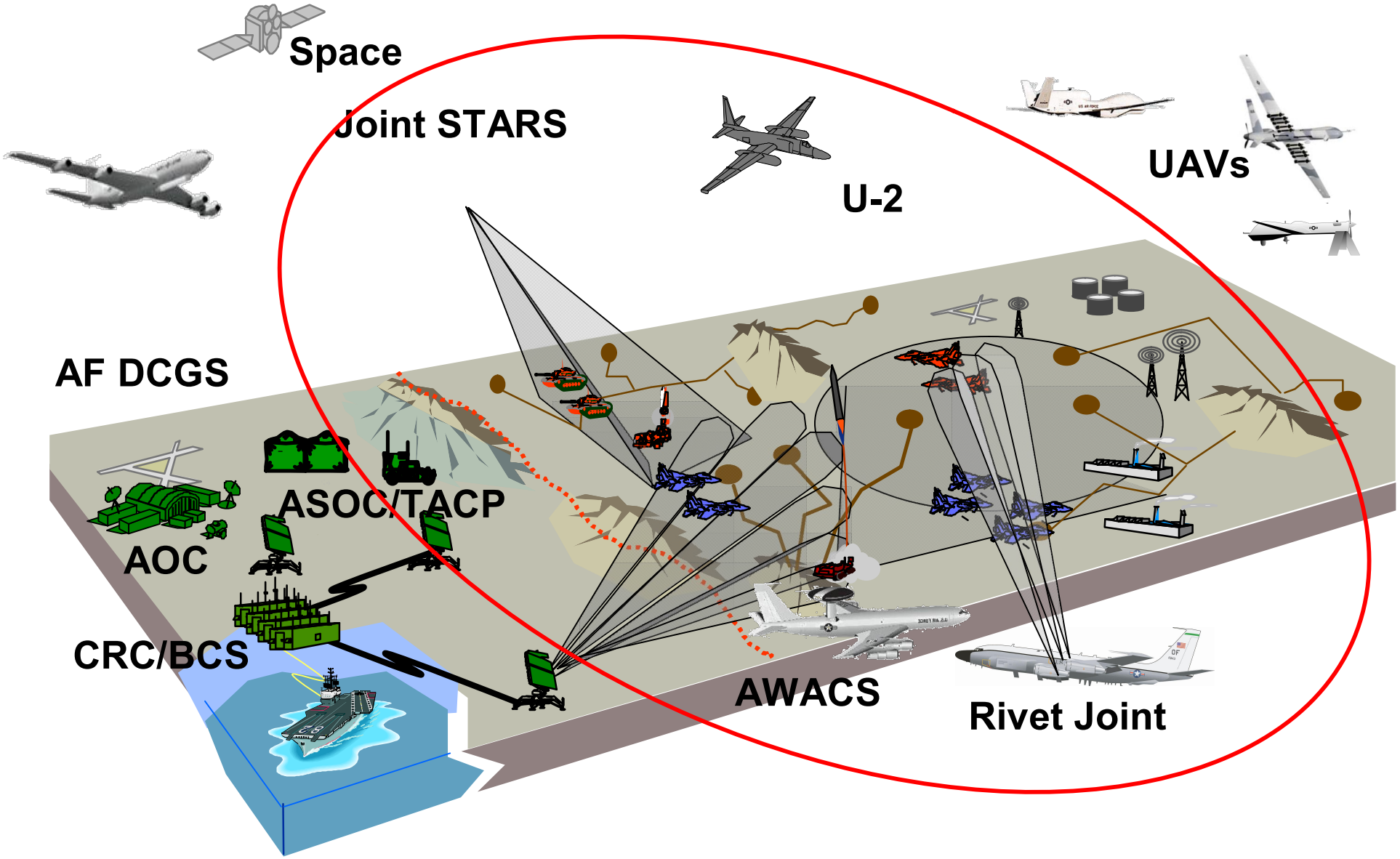
- Blue Force Situational Awareness
- Collaborative Targeting
- Dynamic Air Tasking Order
- Surf Combat Web for Archived Imagery
- Non-Traditional ISR - Targeting Pod Video
- Voice over IP
- Collaborative Tools - Text Chat
- Graphical Weather to the Cockpit

ICAN Deployment CONOPS

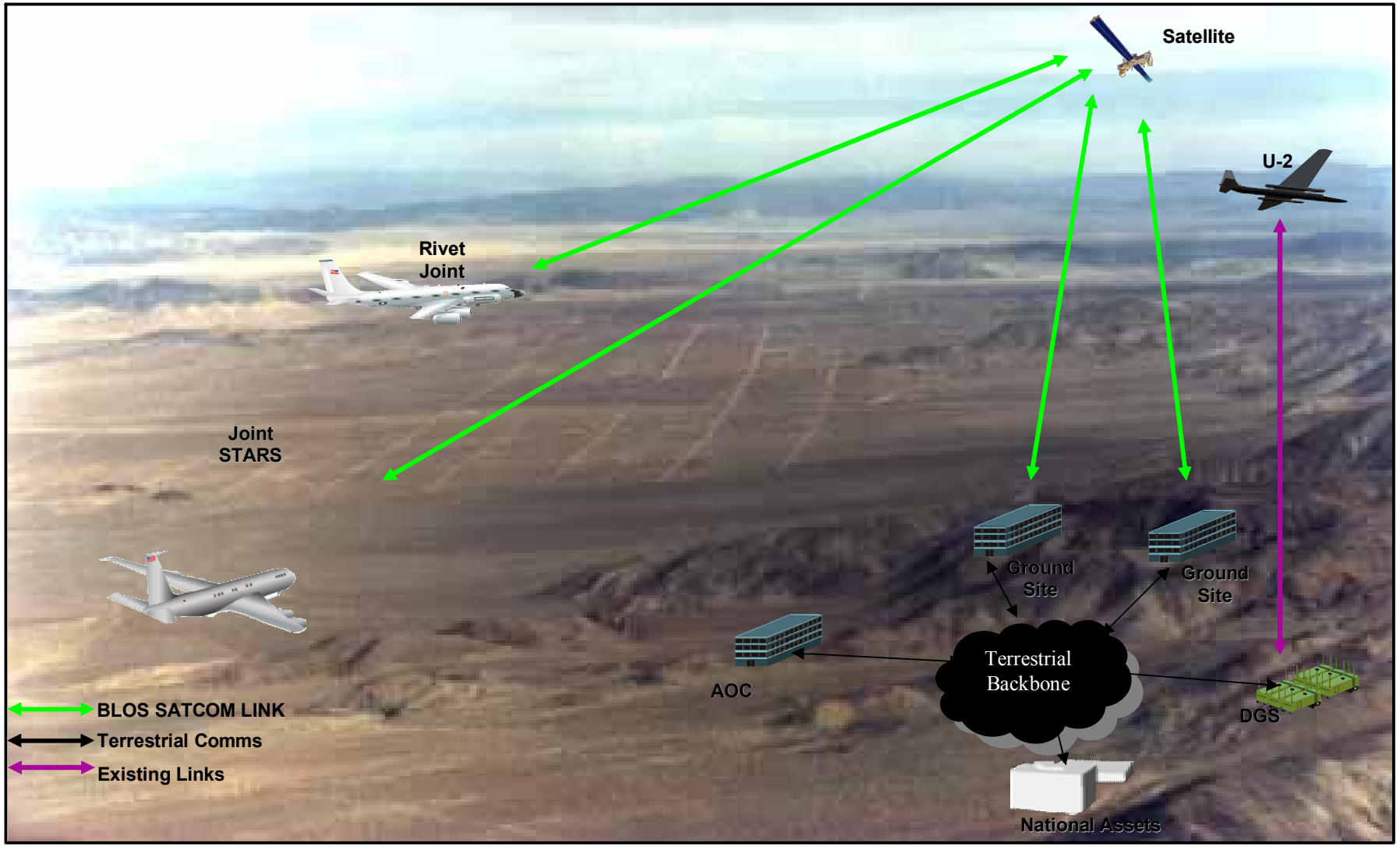




Operational Level Programs

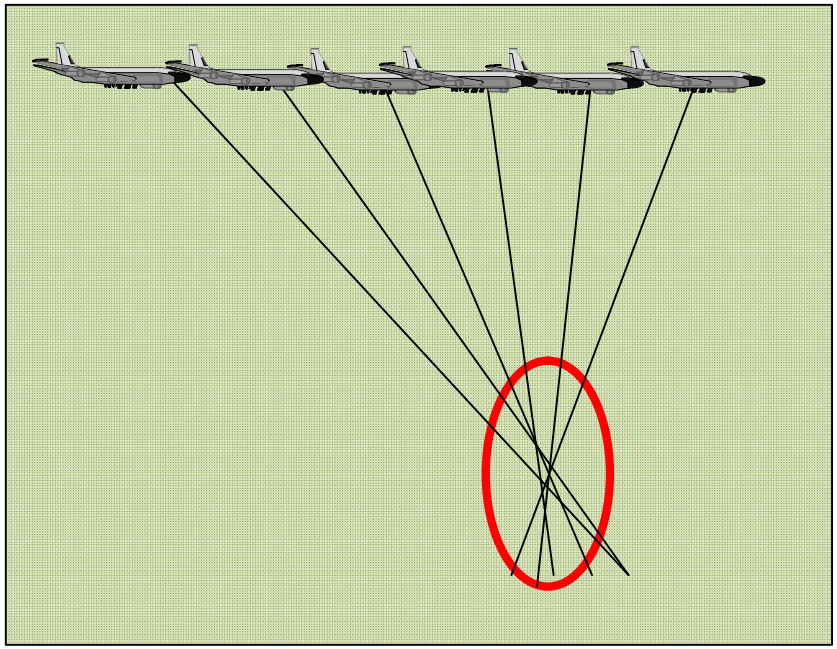


NCCT


Satellite
U-2
Rivet
Joint
Joint
STARS
Ground
Site
Ground
Site
AOC
Terrestrial
Backbone
DGS
National Assets
BLOS SATCOM LINK
Terrestrial Comms
Existing Links

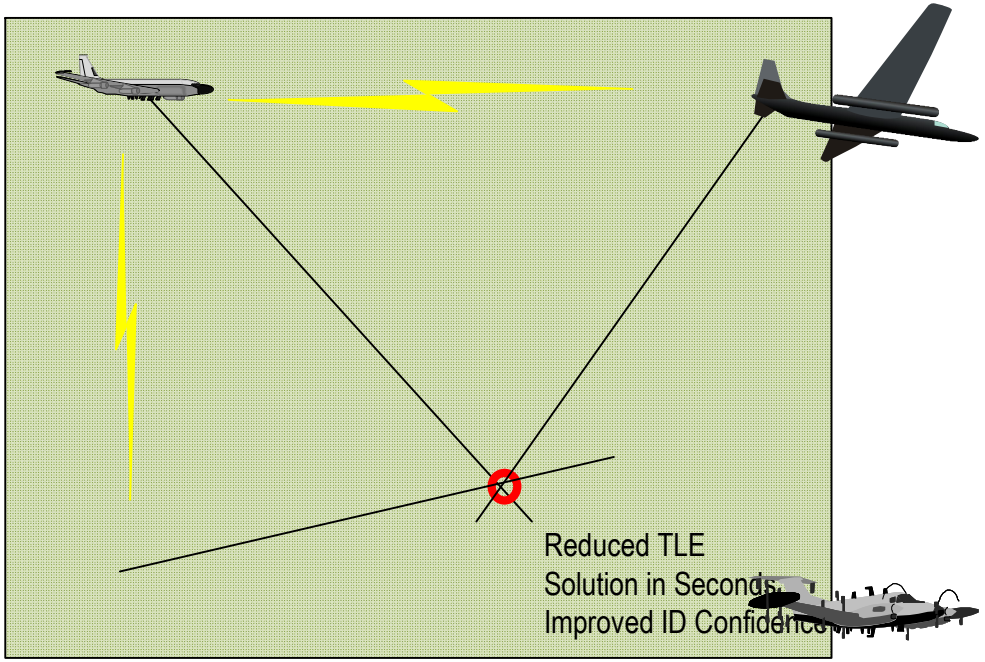
NCCT: The Payoff

Stand Alone Platform



- Stand alone platforms
- Single-Int
- Tens of minutes
- Coarse location, if target stays on the air

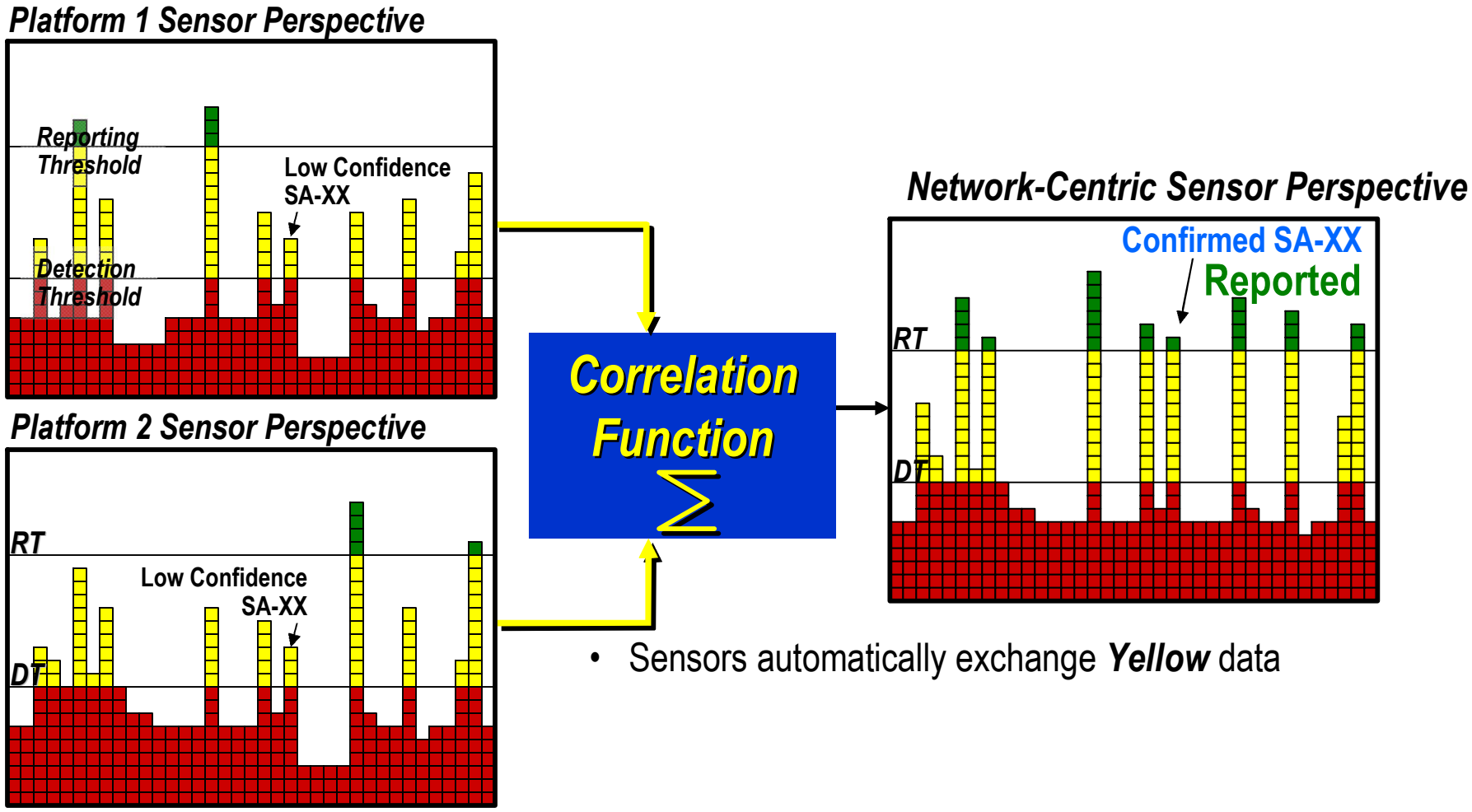
NCCT Networked Platforms



- Networked platforms
- Diverse Sensors / Multi-Int
- Seconds to a few minutes
- Accurate location, even if target is short up-time

NCCT Process Example

Network-Centric Sensing

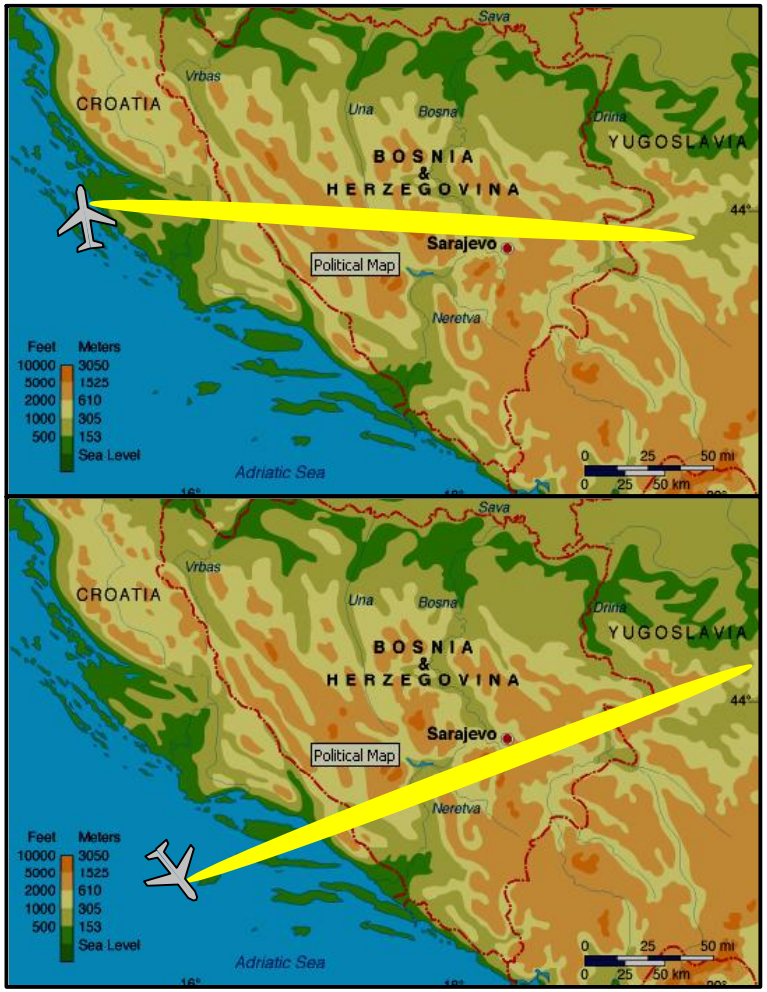


- Sensors automatically exchange ***Yellow*** data

NCCT Creates New Information via Machine-to-machine Ops

NCCT Process Example

Network-Centric Sensing



Both assets work in isolation and each have low confidence data

-Target Never Reported

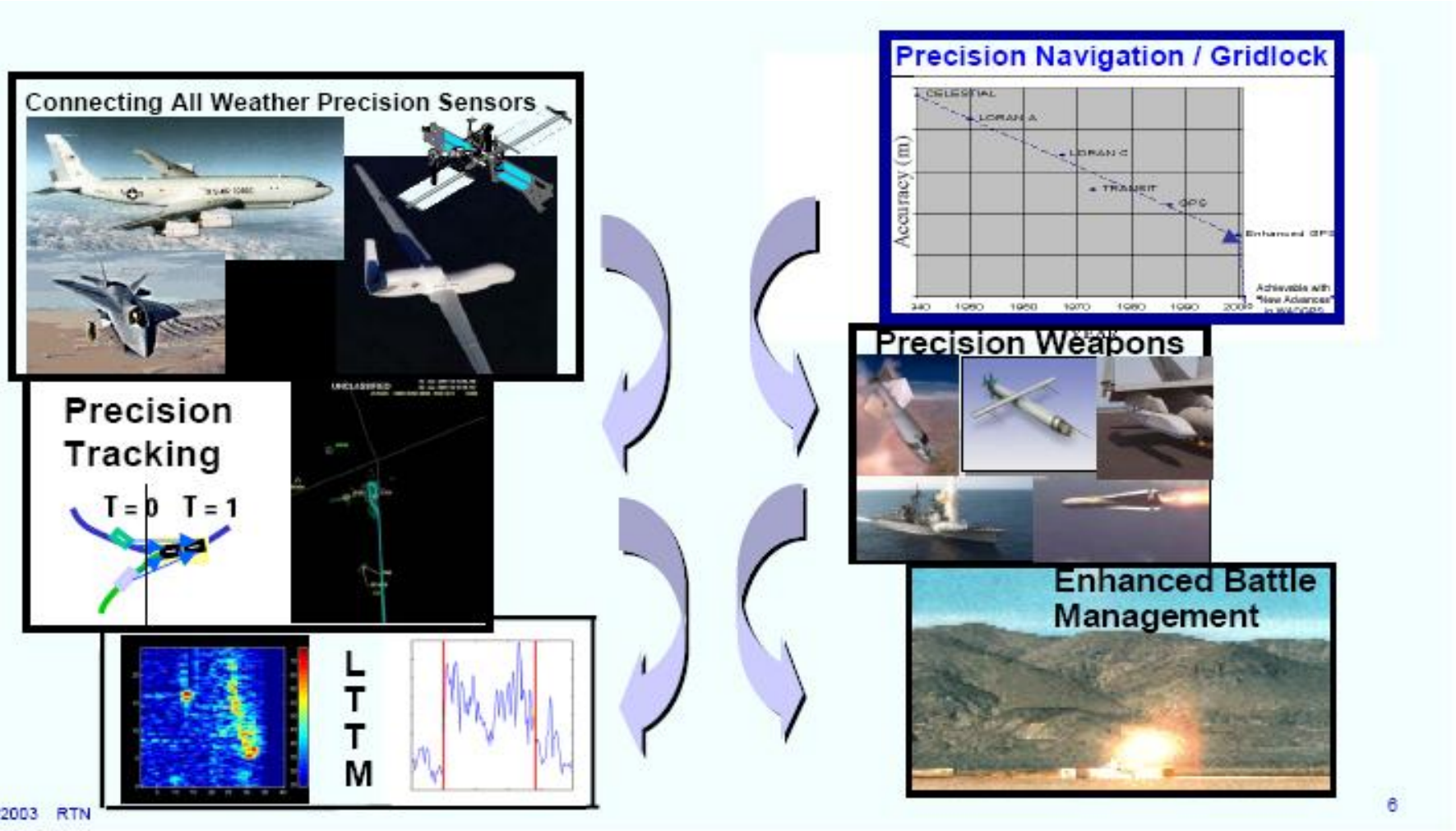
Assets networked jointly collecting

- Shared data focuses & cues collection efforts of all assets
- All new data is correlated
- Low threshold targets no longer slip through the cracks

-Targets are created and reported

AMSTE Program

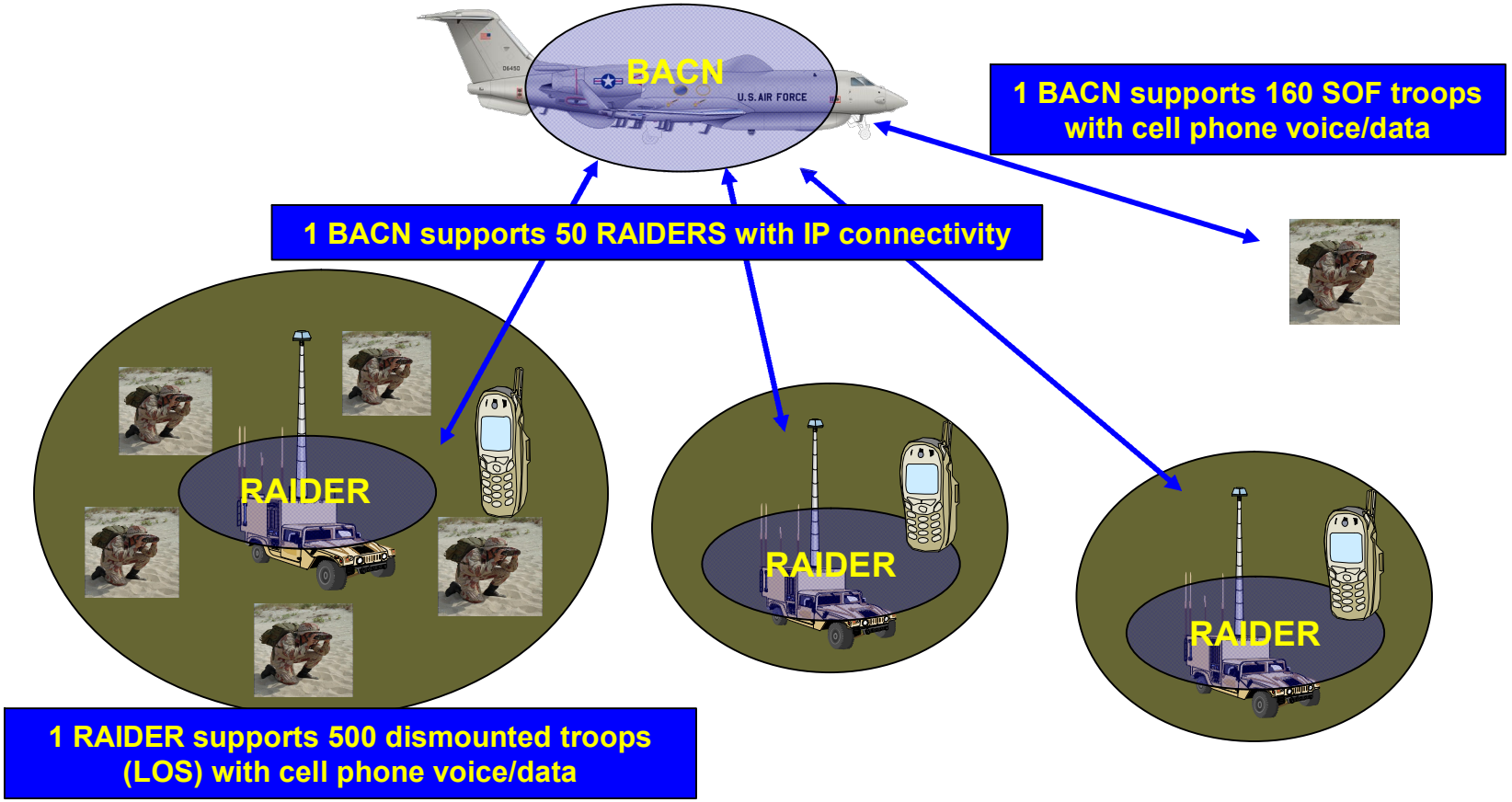
- **Key AMSTE Technology Advancement**



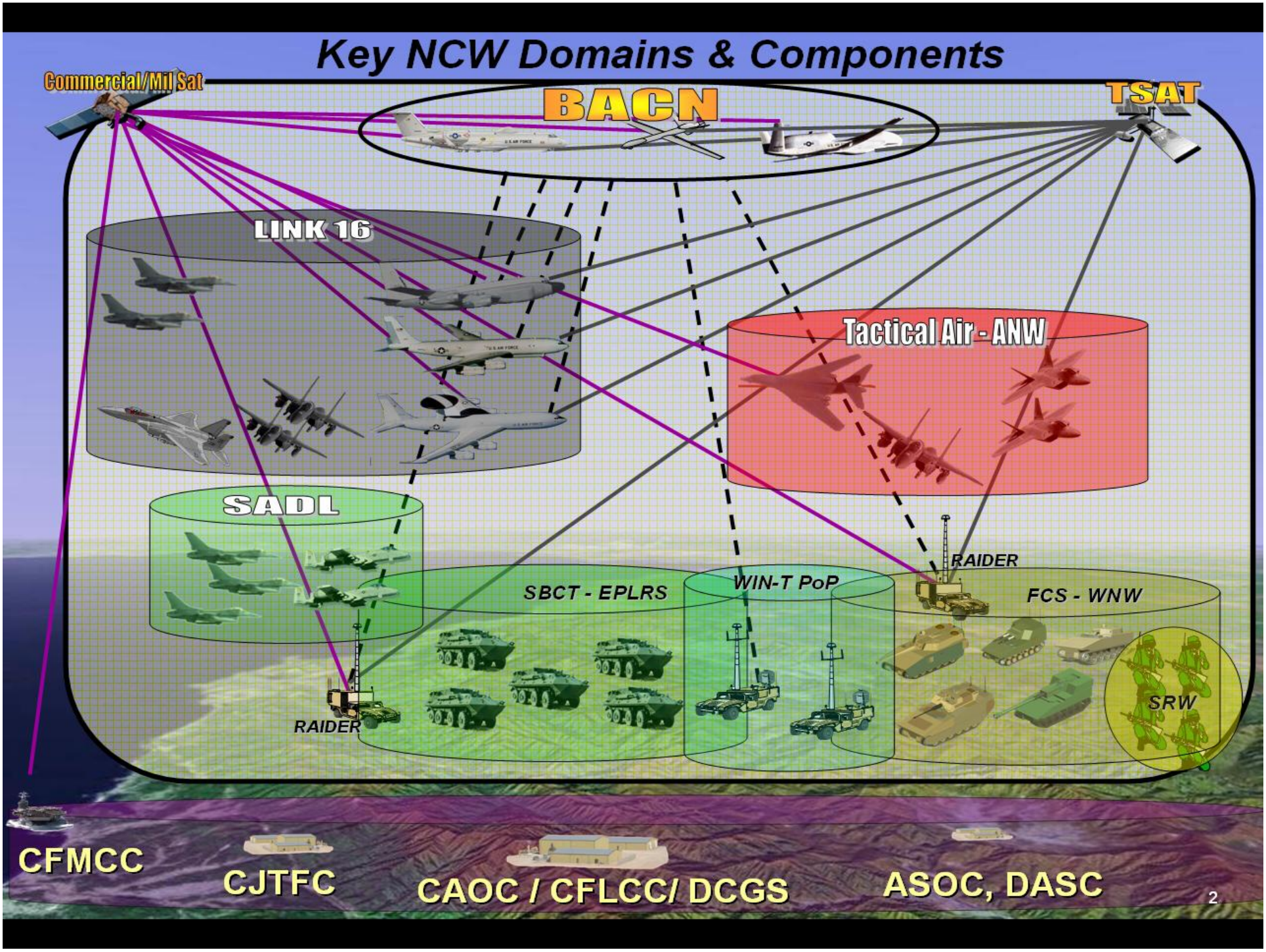
Resultant Fury

BACN & RAIDER…Communications

'Spine'
AF contribution to edge connectivity

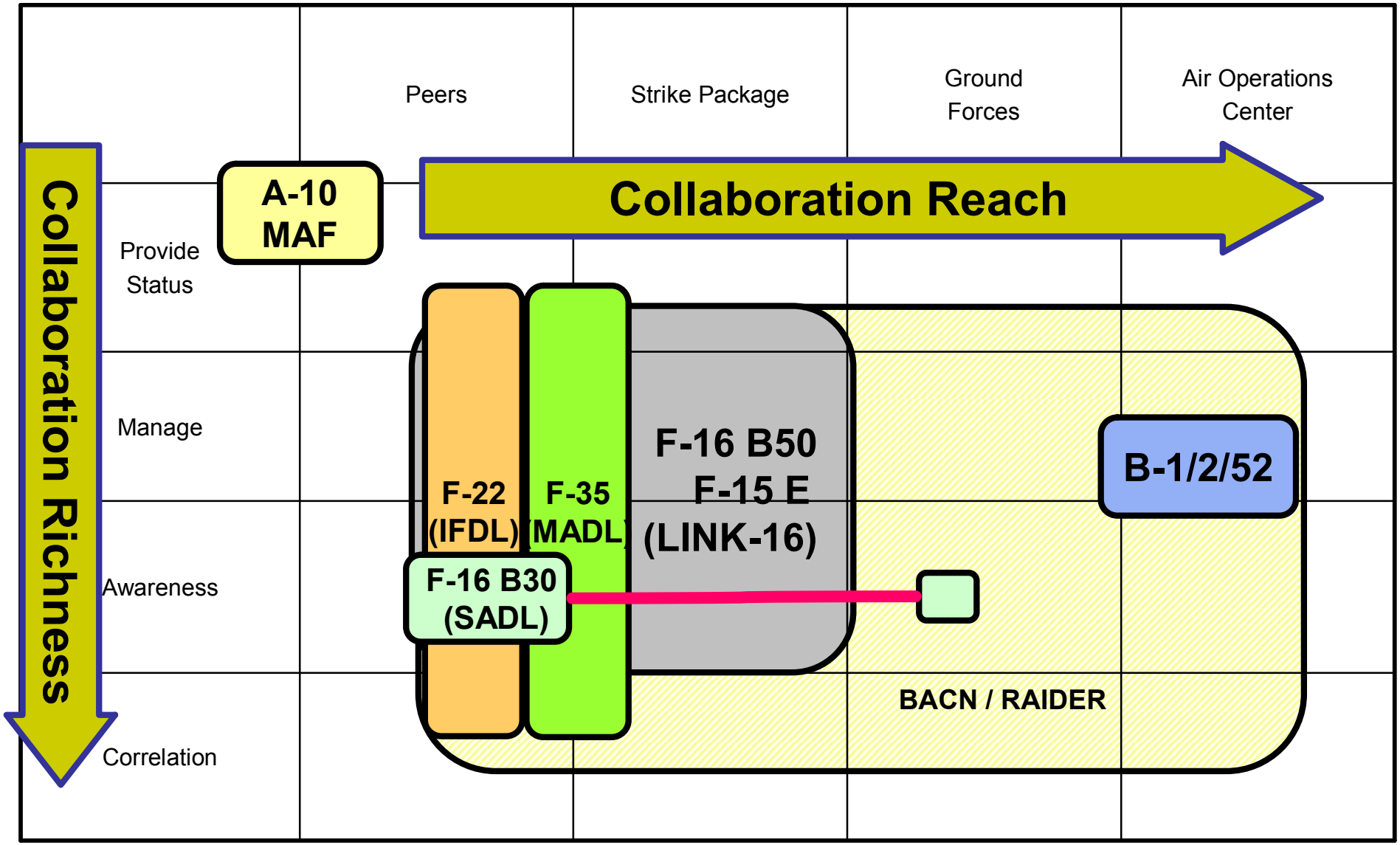


Connect Soldiers, Marines & Battlefield Airmen to GIG

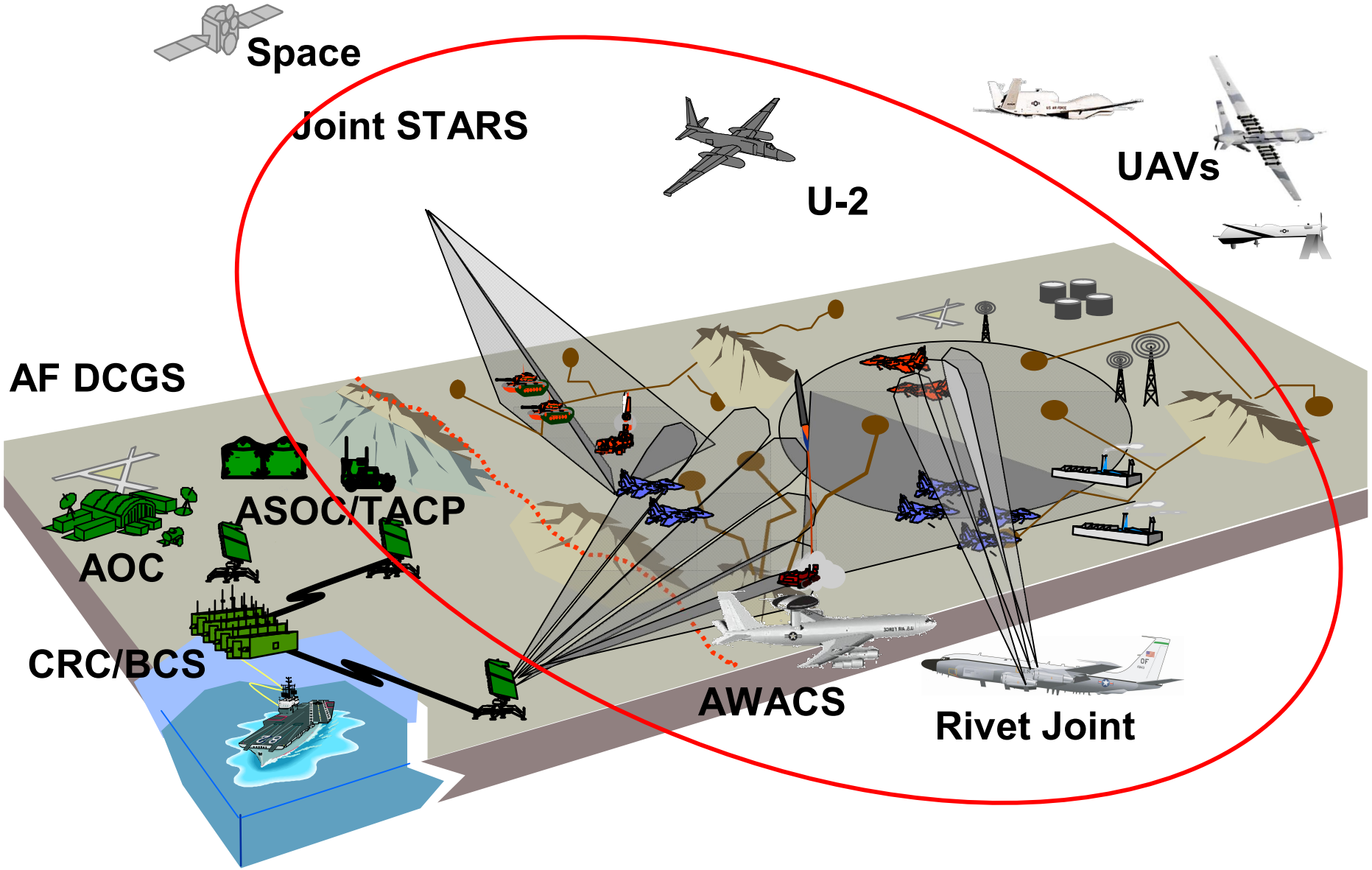

Key NCW Domains & Components
Commercial/Mil Sat
BACN
TSAT
LINK 16
Tactical Air - ANW
SADL
SBCT - EPLRS
WIN-T PoP
RAIDER
FCS - WNW
RAIDER
SRW
CFMCC
CJTFC
CAOC / CFLCC/ DCGS
ASOC, DASC

Current Collaboration Capability

Strike Platforms BACN & RAIDER Allow Better Platform Options



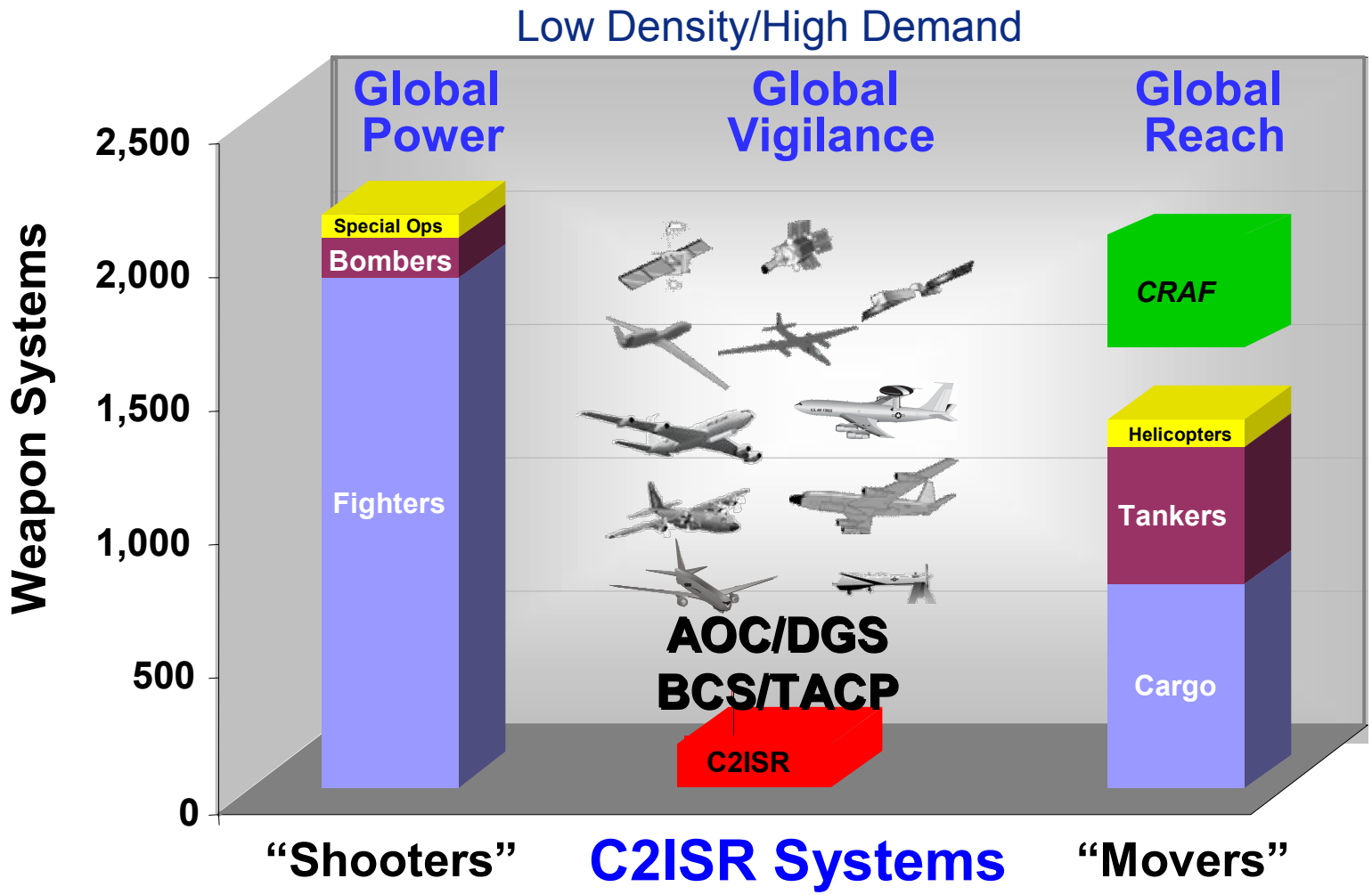
C2ISR Integration



Air Force C2ISR Common HMI

- Enables information sharing across battlespace
- Provides critical battle management functionality
- Enhances operator's situational awareness

C2ISR -- Integral Player for a Winning Team



Combatant Commanders Want More Persistent ISR Coverage

Video

Questions

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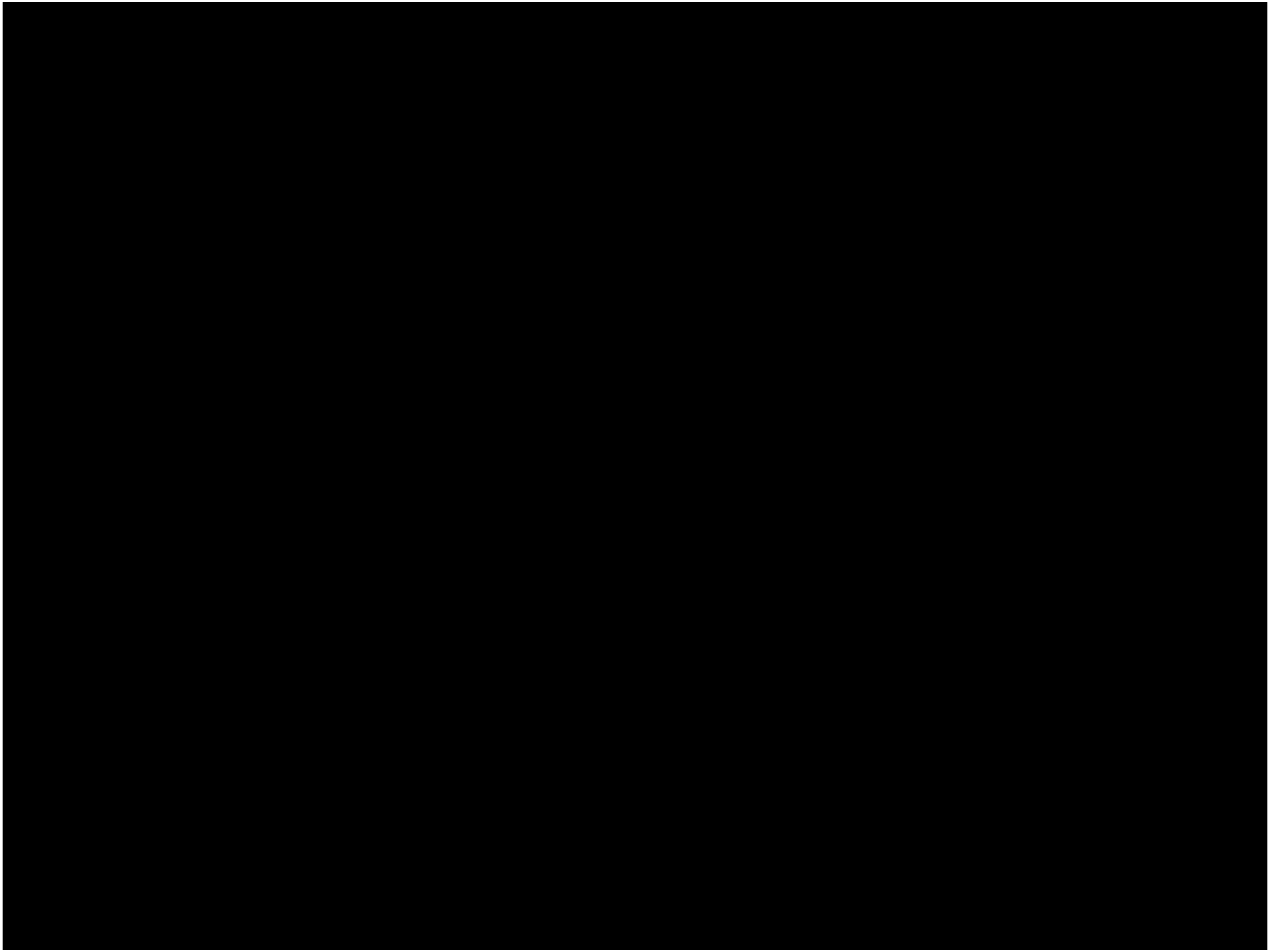
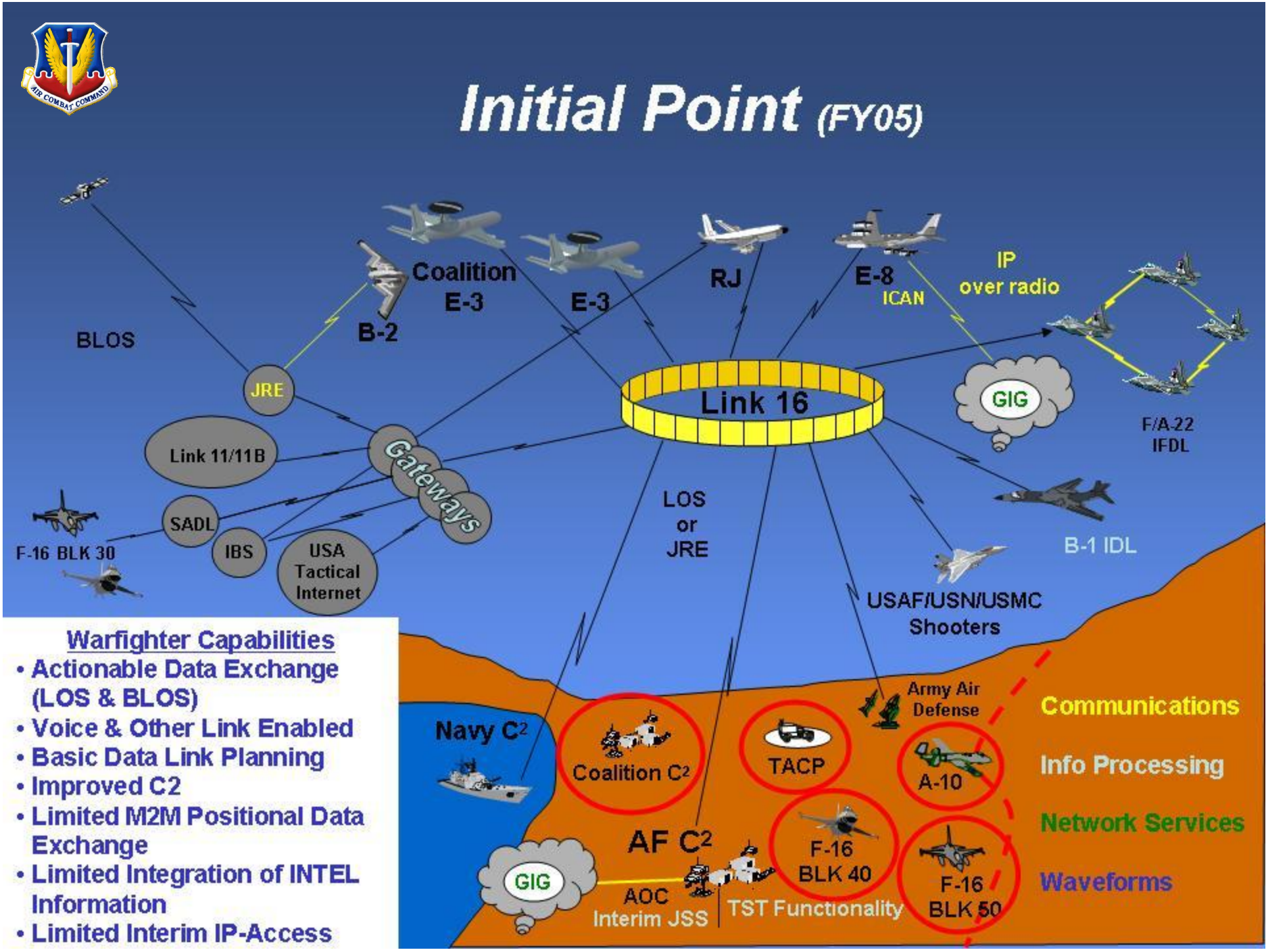
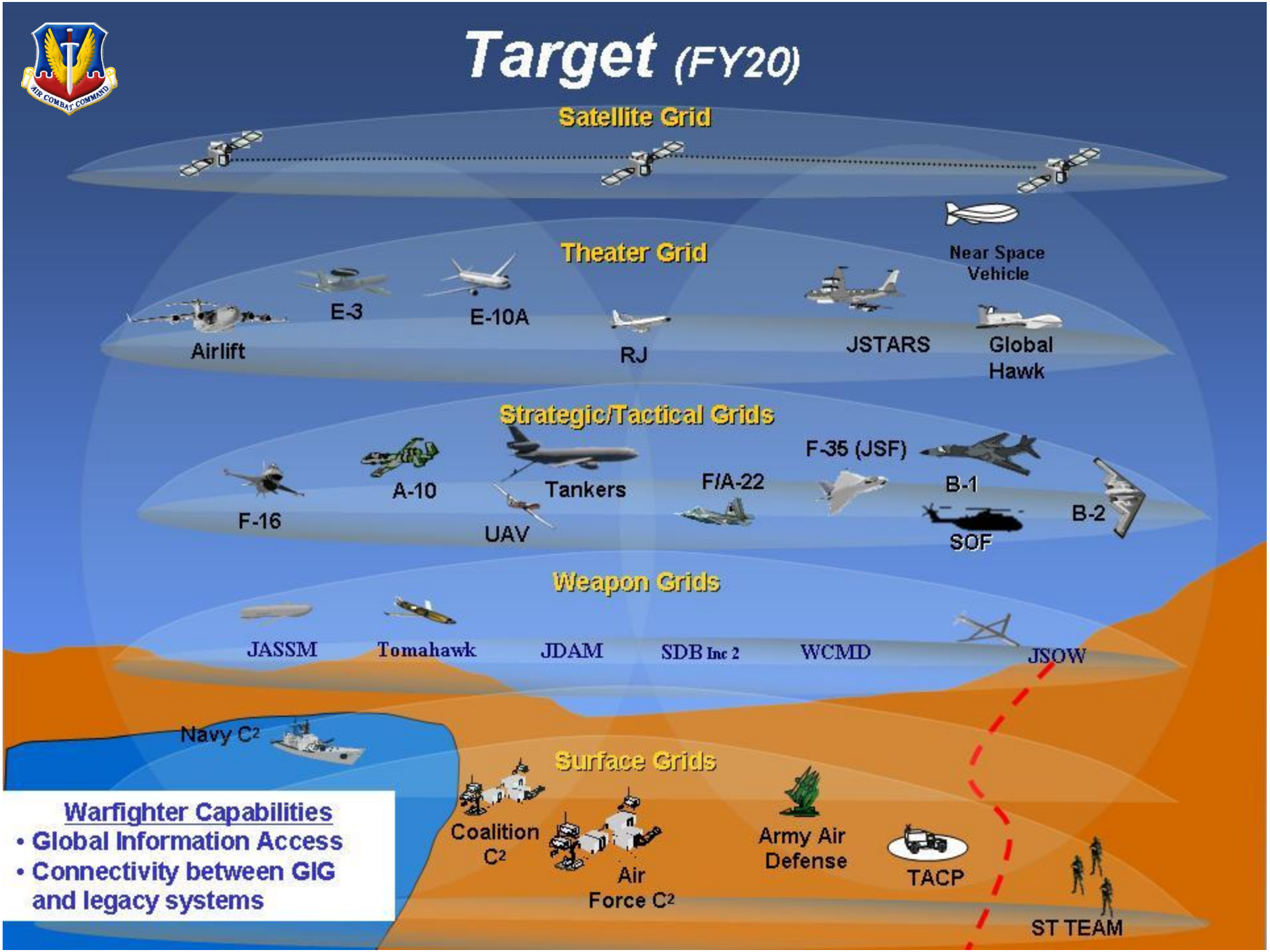


BACK UP SLIDES


Initial Point (FY05)
BLOS
Coalition E-3
B-2
E-3
RJ
E-8
ICAN
IP over radio
JRE
Link 16
GIG
F/A-22 IFDL
Link 11/11B
Gateways
SADL
IBS
USA Tactical Internet
F-16 BLK 30
LOS or JRE
B-1 IDL
USAF/USN/USMC Shooters
Warfighter Capabilities
• Actionable Data Exchange (LOS & BLOS)
• Voice & Other Link Enabled
• Basic Data Link Planning
• Improved C2
• Limited M2M Positional Data Exchange
• Limited Integration of INTEL Information
• Limited Interim IP-Access
Navy C2
Coalition C2
TACP
Army Air Defense
A-10
AF C2
F-16 BLK 40
F-16 BLK 50
GIG
AOC Interim JSS
TST Functionality
Communications
Info Processing
Network Services
Waveforms


Target (FY20)
Satellite Grid
Theater Grid
Near Space Vehicle
E-3
E-10A
Airlift
RJ
JSTARS
Global Hawk
Strategic/Tactical Grids
F-35 (JSF)
A-10
Tankers
F/A-22
B-1
F-16
UAV
SOF
B-2
Weapon Grids
JASSM
Tomahawk
JDAM
SDB Inc 2
WCMD
JSOW
Navy C2
Surface Grids
Coalition C2
Air Force C2
Army Air Defense
TACP
ST TEAM
Warfighter Capabilities
• Global Information Access
• Connectivity between GIG and legacy systems

NCCT Program Overview

- NCCT applies common software applications to change how sensors gather information
  - Software application provides machine-to-machine rules to operate as a collaborative sensor network
  - NCCT rapidly focuses several sensors on common targets simultaneously to get very accurate target information in near-real-time
- Initial Military Utility Assessment (MUA) Completed in JEFX04
- Final MUA Results from Trident Warrior 05 (TW05) Pending
- IOC in 2009 based on Joint STARS Funding in FY08 POM
  - IOC = 5 x RJ, Joint STARS, DCGS, AOC, AOIO
- Prime Integrator: L-3 ComCept, Rockwall, TX

What ICAN Provides

- Provides IP-based Network-Centric connectivity
  - mIRC chat
  - SIPRNET email
  - Joint STARS is the only aircraft with true Mobile IP connectivity in theater
- Seamless extension of Global Grid to weapons and ISR platforms, providing Net-centric capabilities. A standards-based capability that transforms legacy and commercial radio links into an IP network
- Prioritizes all Traffic and Smartly Manages Bandwidth through end-to-end Mission-based QoS

What ICAN Provides

- A Pathfinder for JTRS and Net-centric warfare. Risk Reduction to Strengthen JTRS Capability; will shorten path to integration, saving Engineering & Development costs
  - Move from Voice to a Data Environment
- ICAN is an Intelligent Information Manager, Super Smart Router and a Comm Manager.
- ICAN will only be as good as the comm it manages but it is surprising the number of "good" things that can be done even with "dial-up rate" links…

Phase 3 Test – Sep 05 (China Lake)

First TTNT Flight Tests Validated Extensive Analyses, Simulations and Laboratory Tests

No Interference W/ Link-16

Mobile Installation

Fixed Installation

Low Latency < 2msecs

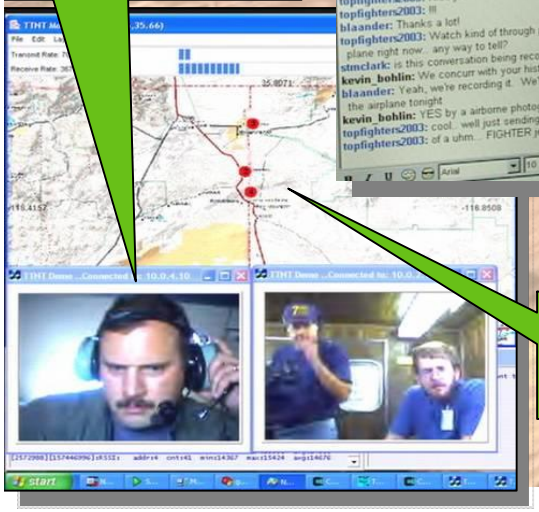
Net Form < 5 Secs.

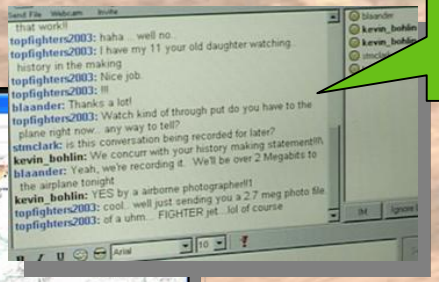
Missile Control Messages with SLAM-ER Lab Unit Via IP

2 Video-Over-IP Streams

IP YAHOO Chat T-39 Screen

2.25Mbps Data Rate





Network Awareness

T-39 Installation

Video