Critical Joint Issues for Precision Engagement

Mr. Doug "Butch" Cassidy
Joint Fires Division J85
U.S. Joint Forces Command

"We are extremely effective at hitting what we're aiming at. . ."

Target Destroyed: June 7, 2006

Abu Musab al-Zaqawi

"Are we aiming at the right thing?"

News

Joy at direct hit turns to horror

Horror ... Matty, left, died in an armoured vehicle hit by US tankbuster like the ones pictured, right. Centre pictures show killer pilot's view as he attacked Brit convoy twice, despite markings showing they were friendly troops
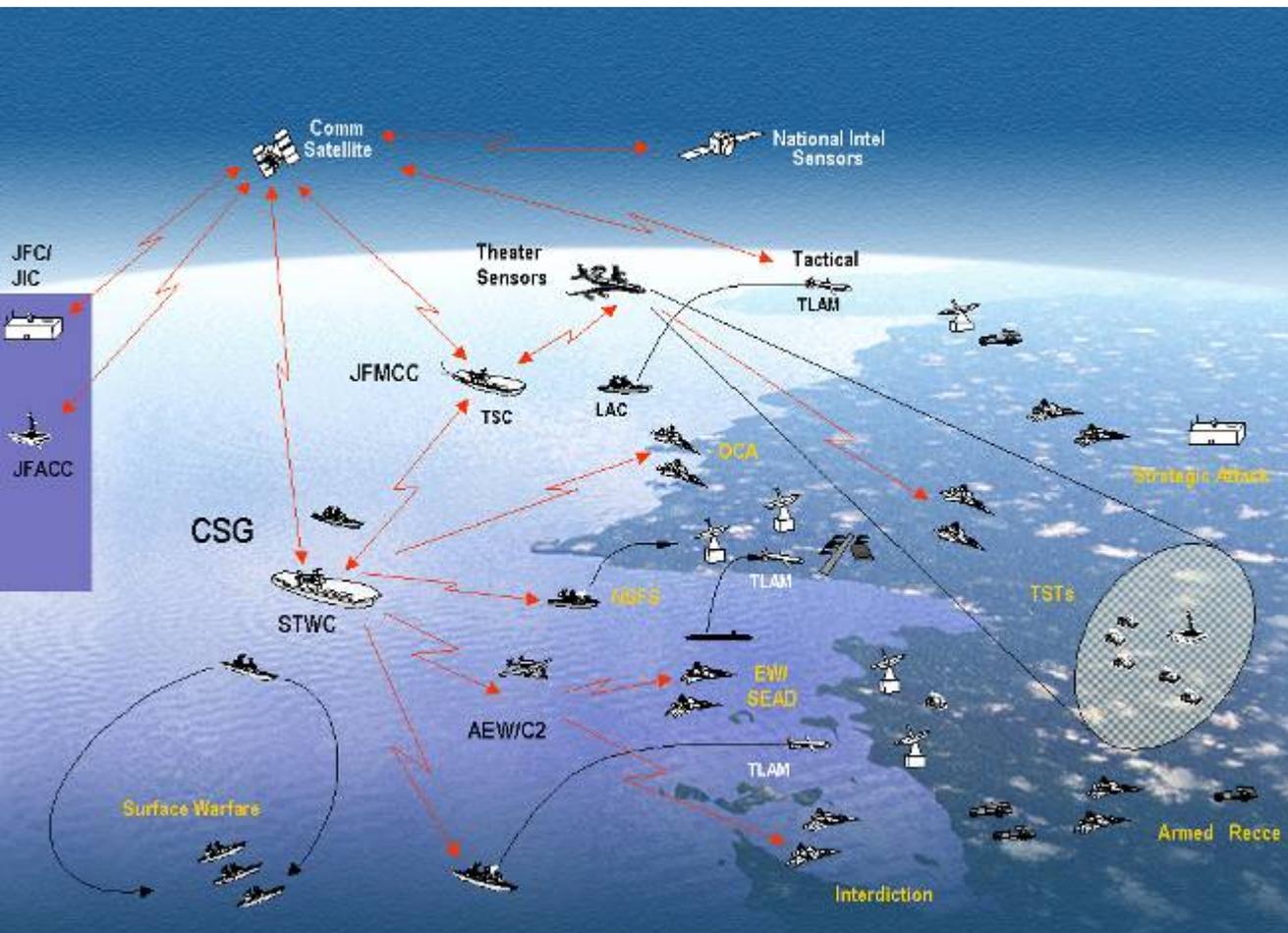
Right picture: REUTERS

"Minimizing ambiguity (CID) & building situational awareness is the heart of Precision Engagement"

Overview

- Net-Enabled C2, Precision Engagement Environment

- Combat Identification

- Joint Capability Developer

21st Century Warfighting

Full Spectrum Dominance

- **Fully Integrated Joint Decisive Operations**
- **Effects-Based Approach**
- **Network-Centric Operations**
- **Decision Superiority**
- **Global Battlespace Perspective**
- **Adaptive Force Application**

Enabled By Network Centric Environment
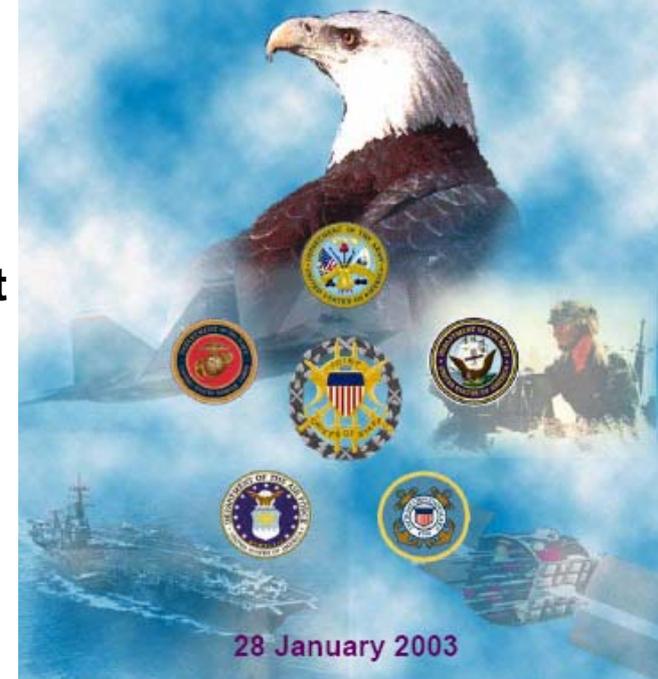
Warfighter Requirements

Global Strike Joint Integrating Concept

"Must be able to engage the full range of fixed, mobile, time sensitive, and specialized targets (including C2 nodes, leadership, WMD/WME), in all weather conditions."

- **OEF/OIF Lessons Learned**
- **Quadrennial Defense Review**
- **Strategic Planning Guidance**
- **Joint Staff**
  - **C2 Joint Integrating Concept**
  - **Net-Centric Joint Functional Concept**
  - **Force Application Joint Functional Concept**
- **MTTP**
  - **Joint FIRES**
  - **Time-Sensitive Targeting**
  - **Theater Air-Ground System**
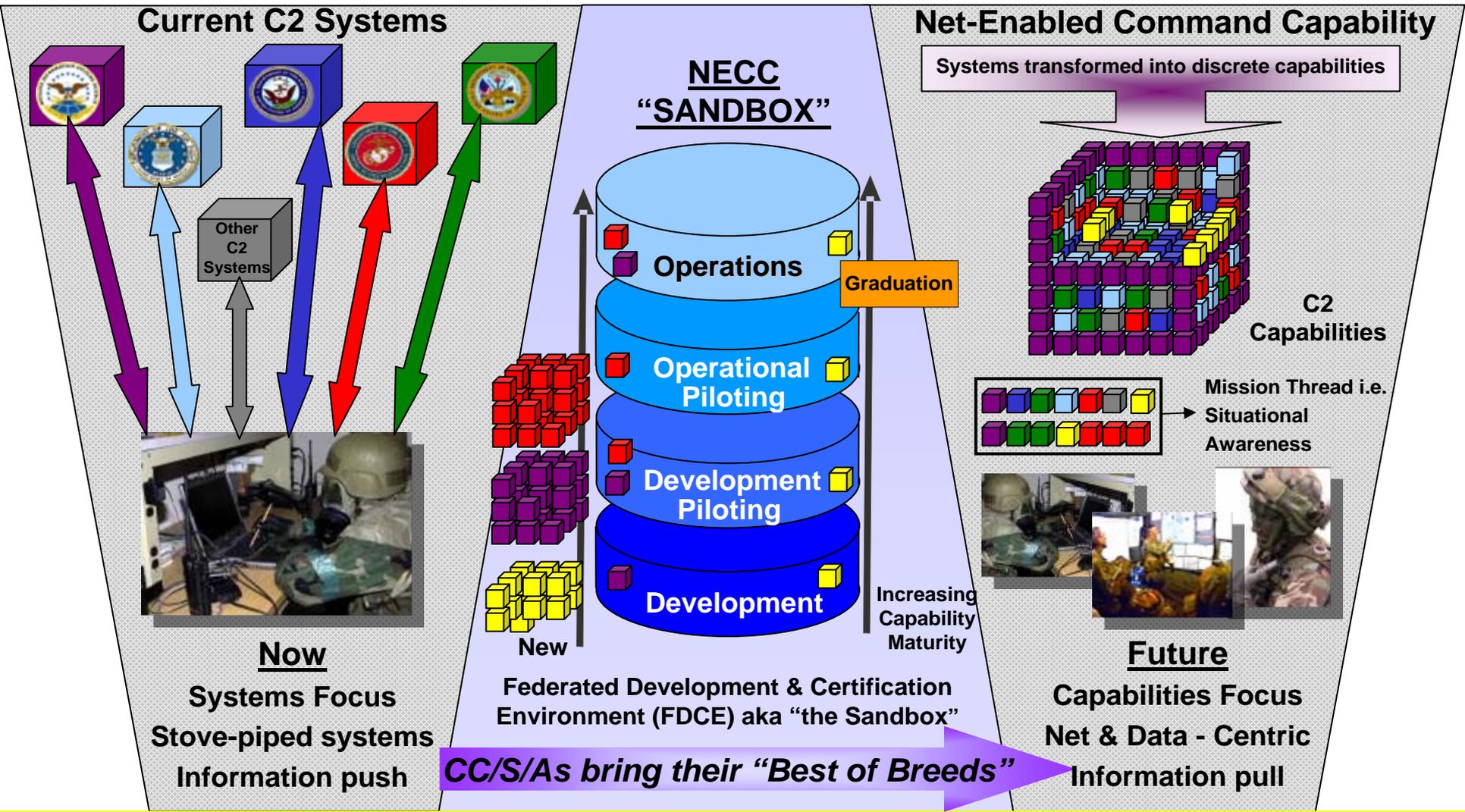- **USN/USA/USAF Transformation Roadmaps**

An Evolving Joint Perspective:
US Joint Warfare and Crisis Resolution
In the 21st Century

28 January 2003

Evolving the Shared Knowledge Environment

Current Systems

Global Combat Support System (GCSS)

GCSS

Global Command & Control System – Joint (GCCS-J)

GCCS-J

DOD's only Joint C2 System that provides interoperable, secure information to the decision maker at the Unified Commands

Platform Centric Characteristics

- Systems oriented
- Man – Machine interface
- Entry point closer to Milestone A-Focus: System Development
- Specific design requirements process (dream and develop)
- Years spent developing entire system
- Tightly integrated functionality
- Test against perfection
- System-level security
- Rigid boundaries
- Prime contractor

Evolving Environment

ABILITY TO:

Establish appropriate organizational relationships

Collaborate

Synchronize actions

Share situational awareness

Share situational understanding

Conduct collaborative decision making / planning

Achieve constructive interdependence

SOURCE: NCE JFC, 7 Apr 05

Future Capabilities

NECC

(JC2)

GIG

NCES

Net Centric Characteristics

- Services oriented
- Machine – Machine interface
- Entry point closer to Milestone C- Focus: Capabilities Piloting
- Functionality-based, close enough (see and use)
- Dynamic functionality through composability
- Loosely coupled functionality
- Balanced operational risk
- Security to be built in
- Living and adaptable environment
- Lead Technical Integrator

Net-Enabled Command Capability (NECC)

Current C2 Systems

NECC "SANDBOX"

Net-Enabled Command Capability

Systems transformed into discrete capabilities

Operations

Graduation

Operational Piloting

Development Piloting

Development

Increasing Capability Maturity

C2 Capabilities

Mission Thread i.e. Situational Awareness

Other C2 Systems

New

Now

Systems Focus

Stove-piped systems

Information push

Federated Development & Certification Environment (FDCE) aka "the Sandbox"

CC/S/As bring their "Best of Breeds"

Future

Capabilities Focus

Net & Data - Centric

Information pull

NECC – Transforming C2 for the Warfighter

Joint Fires Integration Challenge

75% of the target set is mobile or relocatable

5%							20%				10%			65%				

| Fixed Ultra-Hard | Fixed Hard Point | Fixed Hard Area | Fixed Med Point | Fixed Med Area | Fixed Soft Point | Fixed Area Soft | Relo-catable Soft Area | Relocat-able Med Area | Relo-catable Hard Area | Mobile Soft Point | Mobile Soft Area | Mobile Med Area | Mobile Hard Point | Mobile Med Point |

- Command Bunker
- Bridges, Aircraft Bunkers
- RIC Manu. Buildings, Runways
- Masonry & Steel Buildings
- Manuf Fac, Port Fac, RR yards
- Refinery, Intel Buildings
- POL Tanks, Fixed SAMs
- AC in the Open, SAMs
- MLRS Site
- Arty & AAA Batteries
- Mobile SSM, Patrol Boats
- Personnel
- Truck Convoy
- Tank/APC Platoon
- Ships

Probability of Occurrence

- ⇐ Surveillance
- ⇐ Natural Disaster
- ⇐ Terrorism
- ⇐ Show of Force

Use of Force

- ⇐ Strikes & Raids
- ⇐ Insurgency
- ⇐ Revolution
- ⇐ Civil War
- ⇐ Limited War
- ⇐ Theater War
- ⇐ General War

Peacetime & Crisis | **Low Intensity Conflict** | **Mid-Intensity** | **High-Intensity**

Level of Conflict

- **Missions and tasking span targets across the full spectrum of conflict**
- *Precision engagement is increasingly focused on mobile, "danger-close", Hi-Value, and TST in urban environments*
- **Warfare places high demands on rapid decision-making and responses.**
 - **Shared situational awareness and latency are significant factors in current centralized C2 processes.**

Urban Environment: Engage the Enemy / Resolve Neutral / Protect Friendly

Mosque Fighting Pos.

Slaughter Houses

Weapons Caches

Sniper Locations

IED Factories

Warfighters lack means to <u>accurately characterize and consistently sort</u> enemy, friend, or neutral ground entities <u>in sufficient time</u> to effectively and safely employ weapons and execute military options.

CID-BFT / JBFSA Executive Steering Committee (ESC)

JROC

Operations Deputies

OSD

AMCB

**Co-chairs:
USJFCOM
2 Star &
BA FCB Chair**
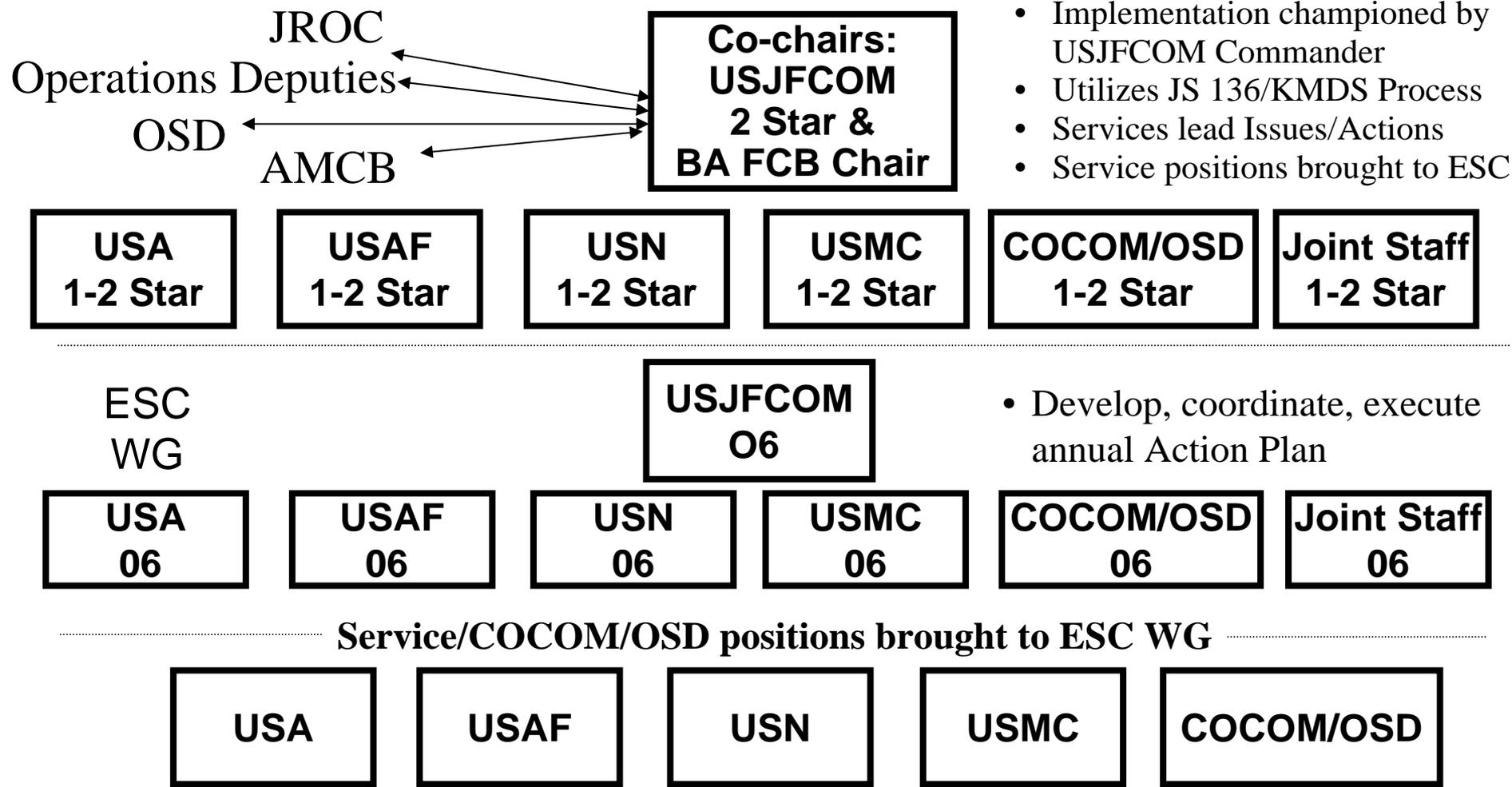
- Implementation championed by USJFCOM Commander
- Utilizes JS 136/KMDS Process
- Services lead Issues/Actions
- Service positions brought to ESC

USA 1-2 Star	**USAF 1-2 Star**	**USN 1-2 Star**	**USMC 1-2 Star**	**COCOM/OSD 1-2 Star**	**Joint Staff 1-2 Star**

ESC WG

USJFCOM O6

- Develop, coordinate, execute annual Action Plan

USA 06	**USAF 06**	**USN 06**	**USMC 06**	**COCOM/OSD 06**	**Joint Staff 06**

Service/COCOM/OSD positions brought to ESC WG

USA	**USAF**	**USN**	**USMC**	**COCOM/OSD**

Combat Identification

- **"<u>Combat Identification</u> ...** includes cooperative and non-cooperative … an "all-entity" perspective.

  - **The process of attaining an accurate characterization of detected objects in the joint battlespace**

  - **To the extent that high confidence, timely application of military options and weapons resources can occur.**

- **Select Combat ID Focus Areas**

  - Cooperative (identification (ID) of **Friend**) technologies for use in Ground-Ground and Air-Ground

  - Non-cooperative (ID of **Enemy**, **Neutral** and **Friend**) machine-to-machine, <u>**net-enabled technologies on C2, ISR**</u> and fixed wing ground attack aircraft

Blue Force Tracking / Joint Blue Force Situational Awareness

- **Blue Force Tracking (BFT):** capability provided by a family of systems.
  - Techniques to actively/passively identify & track US, Allied, or Coalition Forces Position Location Information.
  - Provides enhanced battlespace situational awareness; reduces fratricide.
  - **Blue Force Trackers:** generate, report and / or display blue tracks and related data.
    - Force XXI Battle Command Brigade and Below (FBCB2); Movement Tracking System (MTS)
    - Grenadier BRAT; Movement Tracker (MTX)
    - NATO Friendly Force Tracker (NFFT); Coalition Force Tracker (CFT); Afghanistan Force Tracking System (AFTS)
- **Joint Blue Force Situational Awareness (JBFSA):** BFT enhanced by two-way decision quality data sharing.
  - Tracking devices and transmission media employed to obtain, report, and share Blue force identification, location, *status and intent* information.

CID-BFT/JBFSA ESC POM 08-13 Investment Recommendations to JROC

- **Mode V IFF Synchronization**

- **Battlefield Target Identification (BTID)**

- **Radio Based Combat Identification (RBCI)**

- **2nd Generation FLIR**

- **Advanced Targeting Pod**

- **Visual ID Training capability**

- **Joint Sensor Signatures Database**

- **Mission Management Center**

- **Joint Tactical COP Workstation**

- **Patriot PID capability**

CCID ACTD "Urgent Quest"

"If we're ever going to operate together, you have to figure out how to build your systems so that they're interoperable, preferably from the outset … I can't tell you how much money we've spent in Iraq and Afghanistan trying to make systems talk to one another that should have been able to talk to one another in the very beginning"

General Lance Smith USAF
CDRJFCOM and SACT
15 Feb 2006
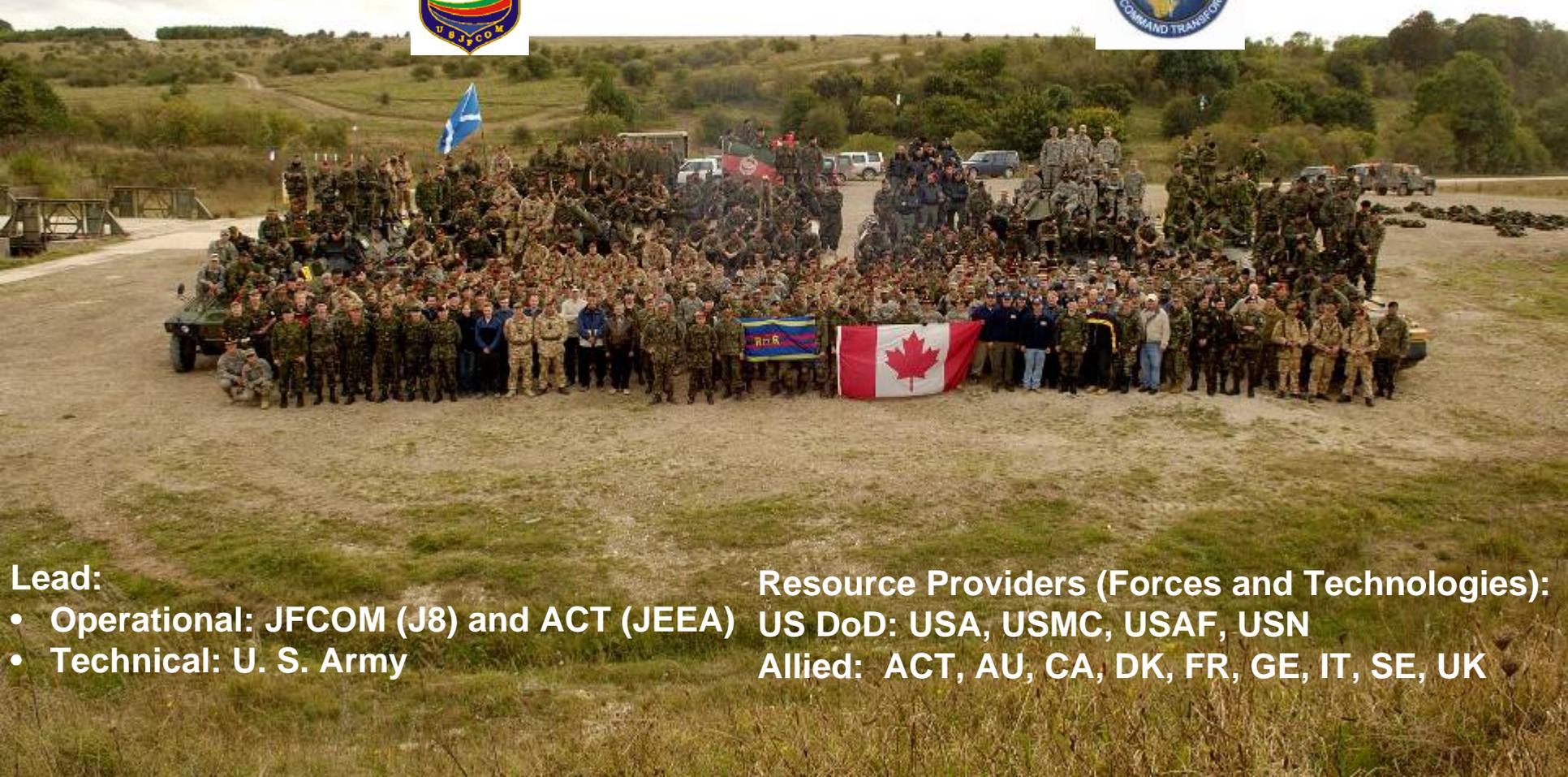
Lead:
- **Operational: JFCOM (J8) and ACT (JEEA)**
- **Technical: U. S. Army**

Resource Providers (Forces and Technologies):
US DoD: USA, USMC, USAF, USN
Allied: ACT, AU, CA, DK, FR, GE, IT, SE, UK

BOLD QUEST Coalition Combat Identification (CCID) ACTD

GOALS

- Assess the military utility of Non-cooperative Target Identification (NCTI) technologies for Air-Ground Combat ID in coalition operations. Feed USAF POM10-15 Build.
- Inform coalition investment in the mix (family of systems) of Target Identification and Blue Force Situational Awareness.

FO/JTAC

RBCI

Friend!
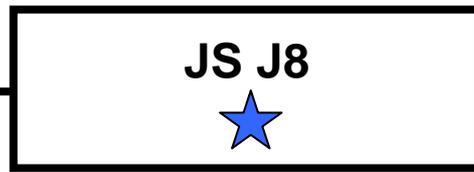
Friend!

RBCI

BDE and BN TOCs

RBCI

BTID **Friend!**

BTID **Friend!**

BTID

RBSA
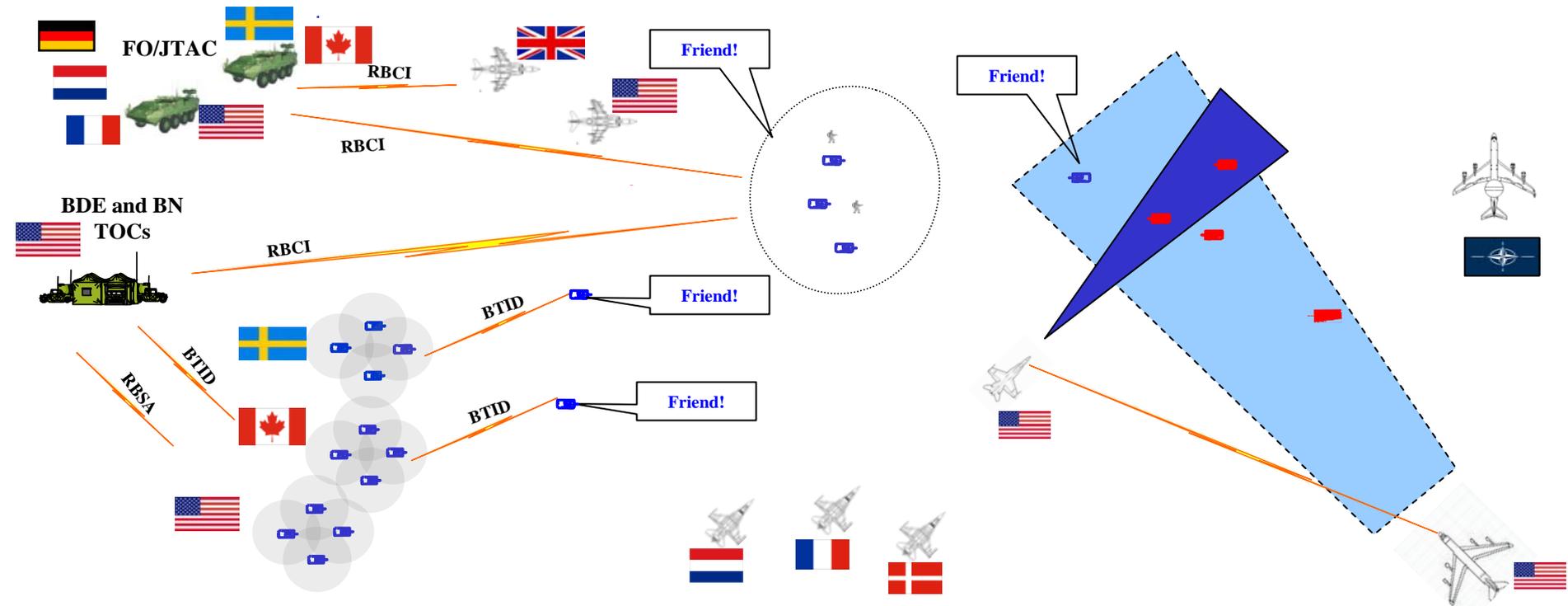
Joint/Coalition Capabilities

- Non-cooperative target identification from airborne C2ISR and strike platforms
- Cooperative target identification (query/response) from ground combat vehicles and fixed/rotary wing aircraft
- Blue force tracking and situational awareness

ACTD Systems/Hardware (Target ID)

Non-cooperative: Laser Target Imaging (LTI); Synthetic Aperture Radar/Aided Target Recognition (SAR/ATR)

Cooperative: Query-Response (RBCI, BTID)

JCAS ESC

Chairman

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          USJFCOM J8
             ★★
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USA ★

USAF ★

USN ★★

USMC ★

SOCOM (AFSOC) ★

JS J8 ★

JCAS ESC
Working Group
(06-Level)
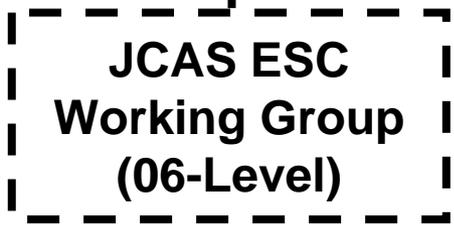
**Proposed Additions
for JROC Consideration
(via 22 Mar 07 JCAS ESC)**

**Additional
Voting Members:**
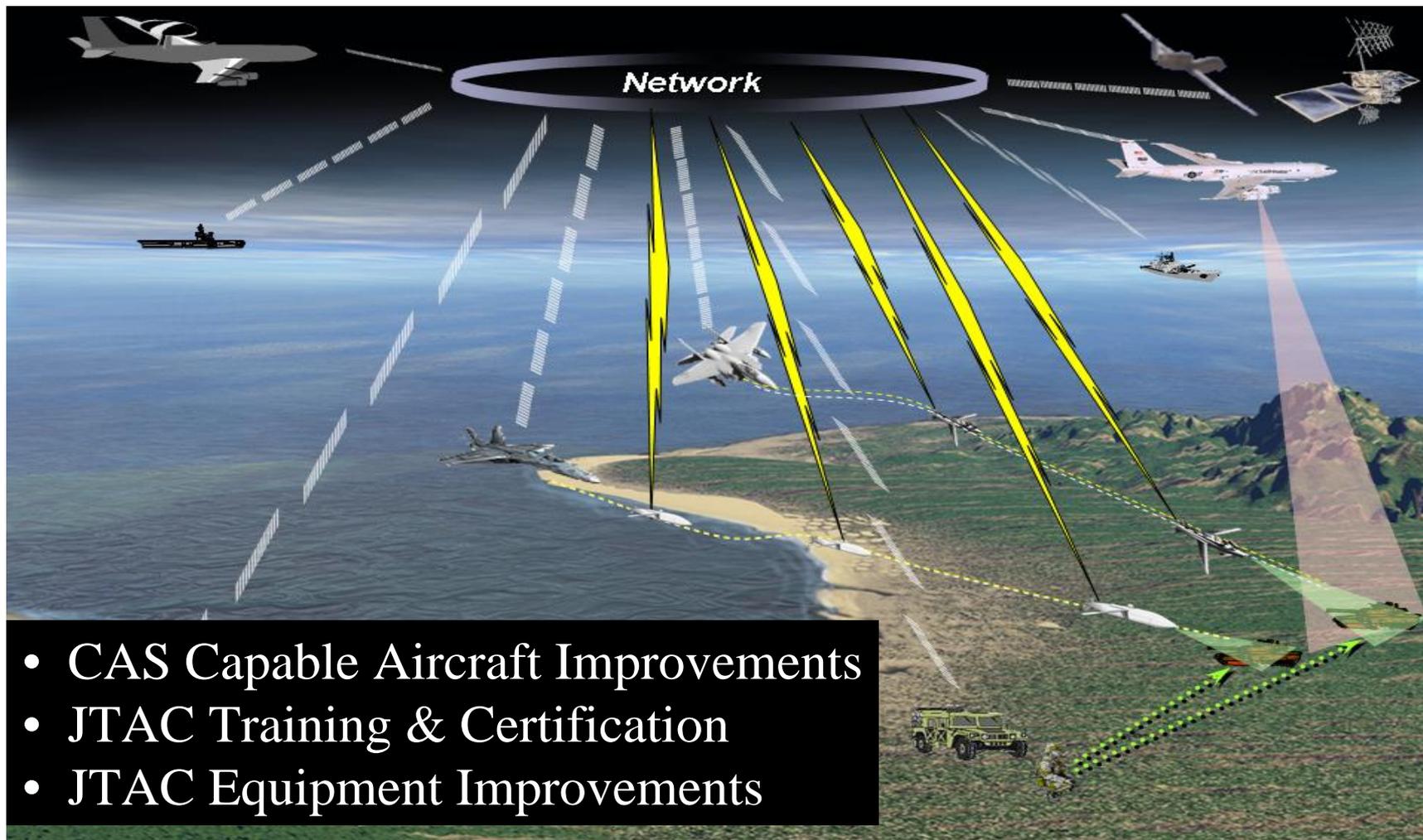- OSD(NII)
- USD(AT&L)
- COCOMs
- JT FCB
- FA FCB

**Additional
Non-Voting Members:**
Participating Coalition countries
(UK, Australia, Canada…)

Digital Information to the Cockpit

Air-to-Ground Tactical Network

- CAS Capable Aircraft Improvements
- JTAC Training & Certification
- JTAC Equipment Improvements

CAS Capable Aircraft Improvements

- Add VMF capability to the AV-8B with form/fit replacement of ATHS-II with StrikeLink (A) enabled hardware consisting of a processor, a modem and a 1553 interface
  - Potential low cost solution
  - Interoperability
  - Leverage StrikeLink software
  - Initial fielding of capability without OFP update requirement
- Working with PMA-209 for development of StrikeLink (A) as a common avionics WRA
- Ongoing:
  - ☑ H-1 joining effort to implement for capability demonstration and potential MEU deployment
  - ☑ Feb 07 briefing in Rota , Spain to JPO Harrier partners (Spain, Italy, UK)
  - ☐ V22 discussion in work
  - ☐ MAWTS-1 digital CAS discussion on-going
  - ☐ JFCOM engaged with USAF for possible application

JTAC Standards Improvements

- Training and certification standards
  - JTAC MOA created JTACs and established standards recognized across DoD
  - Coalition JTAC training / standardization next
    - **Australian JTAC Course accredited Mar 06**
    - **UK, Canada, Denmark and Netherlands in coordination**

JTAC Equipment Improvements

- **Equipment interoperability**
  - **Service/SOCOM Tactical Air Control Party (TACP) equipment suite program managers and technicians exchanging ideas for improving digital interoperability near-term**
  - **Joint Effects Targeting System (JETS) is common solution for long-term**
    - **Light-weight, handheld Target Location Designation System (TLDS)**
    - **Light-weight, handheld Targeting Effects Coordination System (TECS) = computer + software**

Reliable Target Characterization = Enhanced Engagement

"It is not the object of war to annihilate those who have given provocation for it, but to cause them to mend their ways."
-Polybius, Greek Historian (2nd Century B.C.)

Questions?

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