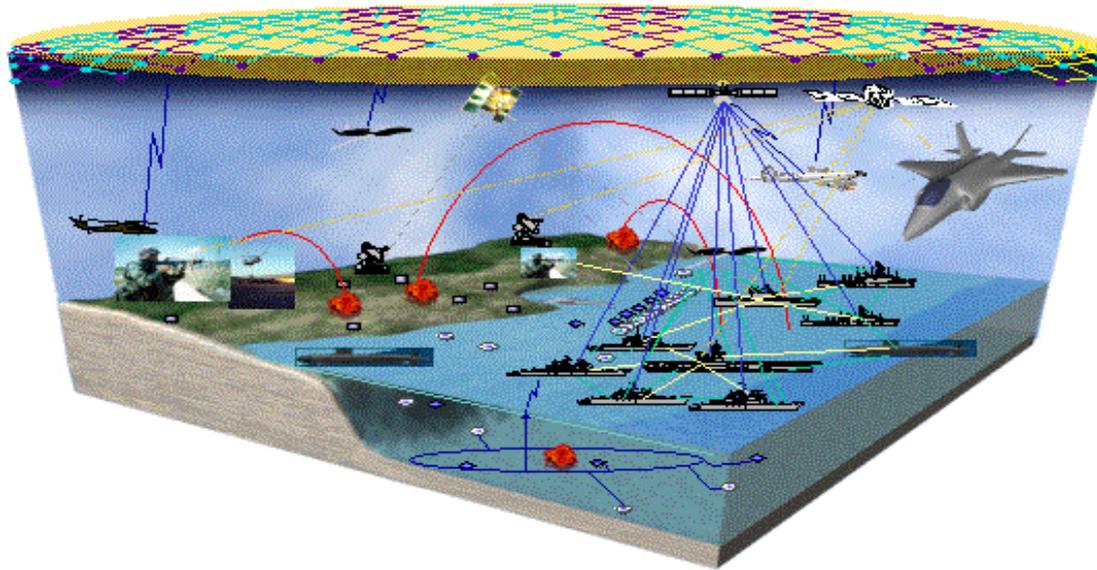




An Approach to JBMC2 as a Combat System



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Agenda

- Historical summary of naval surface combat systems
- Transition to joint perspective
- C2 problems
- C2 solutions
- The Way ahead

Command and Control - The KEY to Military Capability

- One thing about the Military Team...
 - Somebody is always ready to support your efforts with a pat on the back...



Good people & good intentions ...

Sometimes unintended consequences...

Combat/Weapon System

weapon(s) system:

(DOD, NATO) A combination of one or more weapons with all related equipment, materials, services, personnel, and means of delivery and deployment (if applicable) required for self-sufficiency



Four Generations of American Destroyers



Fletcher Class DD 445-517

Sumner Class DD 694-760

Brownson Class DD 518-693

Gearing Class DD 761-804



117 Square Bridge Destroyers



58 Round Bridge Destroyers



5" Twin Mounts on 67 Destroyers



43 Wider/Longer Twin Mount Destroyers



Combat System Spiral Development over the next 25 years



Aegis Combat System

The Aegis weapons system is a surface-to-air integrated weapons system. It is designed to **defend the fleet against any airborne threat.**

The heart of the Aegis system is the AN/SPY-1 Phased-array radar system coupled with the AN/UYK-1/7/43 high-speed computer system.

This combination is able to detect incoming missiles or aircraft, sort them by assigning a threat value, assign on-board Standard surface-to-air missiles, and guide the missiles to their targets.



Phased arrays switch rapidly and cover the entire azimuth around the ship in near real time (seconds)



Aegis Spiral Development

- VLS, Tomahawk Weapons System, ASW System Upgrades
- The AN/SPY-1B radar and AN/UYK-43/44 computers with supersets of computer programs
- Joint Tactical Information Distribution System (JTIDS) Command and Control Processor, Tactical Data Information Link 16, Combat Direction Finding, Tactical Data Information Exchange System, AN/SLQ-32(V)3 Active Electronic Counter Countermeasures, and AEGIS Extended Range (ER) Missile
- Tactical Ballistic Missile Defense (TBMD) and Cooperative Engagement Capability (CEC)
- Battle Force Tactical Trainer (BFTT), Advanced Display System, Evolved Sea Sparrow Missile (ESSM)
- ATWCS and the Joint Maritime Command Information System (JMCIS).





Cruiser Conversion Program

Baseline 7 Phase 1C computer program

Cooperative Engagement Capability (CEC)

Vertical Launch System (VLS) modifications

Evolved Sea Sparrow (ESSM)

Vertical launch antisubmarine rocket (VLA)

Mark 34 gun weapons system, including the Mark 160 Mod 11 gun computer system and the 5-inch/62-caliber gun with Extended Range Guided Munition (ERGM).

SPQ-9B radar.

(CIWS) Block 1B.

SQQ-89A(V)15 sonar suite

The Shipboard Advanced Radar Target ID System (SARTIS)

SM-2 ER

SM-3





Transition to Joint Thinking

Title 10 U.S.C. It's the law!

National Security Strategy

National Military Strategy

Unified Command Plan (every two years)

Forces For Combatant Commanders (every 2 years)

Transformation Planning Guidance (2004-2006)

Strategic Planning Guidance (2006-2011)

**Joint Capabilities Integration and Development
System (JCIDS) CJCSI 3170.1**

Standard for US Military power execution is the JTF



Joint Lessons Learned

Desert Storm

Bosnia-Herzegovina

Kosovo

OEF

OIF

Historic Problems

- Services and Defense Agencies were ***not structured to organize, train, and equip Joint Command and Control (C2) capabilities***
- ***No overarching Joint Operational Concepts and Integrated Architectures*** have existed to guide and capture JBMC2 mission area requirements and capability priorities
- ***Services and Defense Agencies control resource allocation***, so their requirements have been funded ahead of joint requirements
- ***Combatant Commanders insufficiently integrated*** into the requirements, acquisition, and PPBE process
- There has been ***no single authority*** to ensure Joint C2 capabilities are integrated to meet Combatant Commander warfighting requirements

Problem Set

Did not view C2 as an integrated weapon system

- **Interoperability shortfalls hamper C2, ISR, & Joint Fires**
- **Lack of standard operating procedures (SOPs)**
- **Lack of standard tactics, techniques, & procedures (TTPs)**
- **Ad Hoc JTF activation and augmentation**
- **No standards for JTF leadership or C2 personnel**
- **No standard deployable JTF C2 facilities**
- **Situation awareness shortfall across battlespace**
- **Missing decision support & info management tools**

Results of Problem Set

- **Lack of standard tactics, techniques, and procedures (TTPs)**
- **Ad Hoc JTF activation and augmentation**
- **Interoperability shortfalls**
- **No standards for JTF leadership or C2 personnel**
- **No standard deployable JTF C2 facilities**
- **Missing decision support & info management tools**

Requires improvements; a change in focus for C2...what we at JFCOM call Joint Battle Management Command and Control (JBMC2) – (What *IS* That...?)

Command and Control

Joint definition:

The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission.

C2 functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in the planning, directing, coordination, and controlling forces and operations in the accomplishment of the mission...that is the essence of JBMC2

Knowledge Management Concept!

Data Overload means *loss of Information*



World War I:

30 wpm

Field Phone



World War II:

60 wpm

Radio



Vietnam:

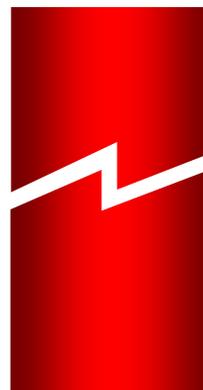
100 wpm

SATCOM



Gulf War:
192,000 bps

Networked
Computers



War in 2010:

1.5 trillion bps

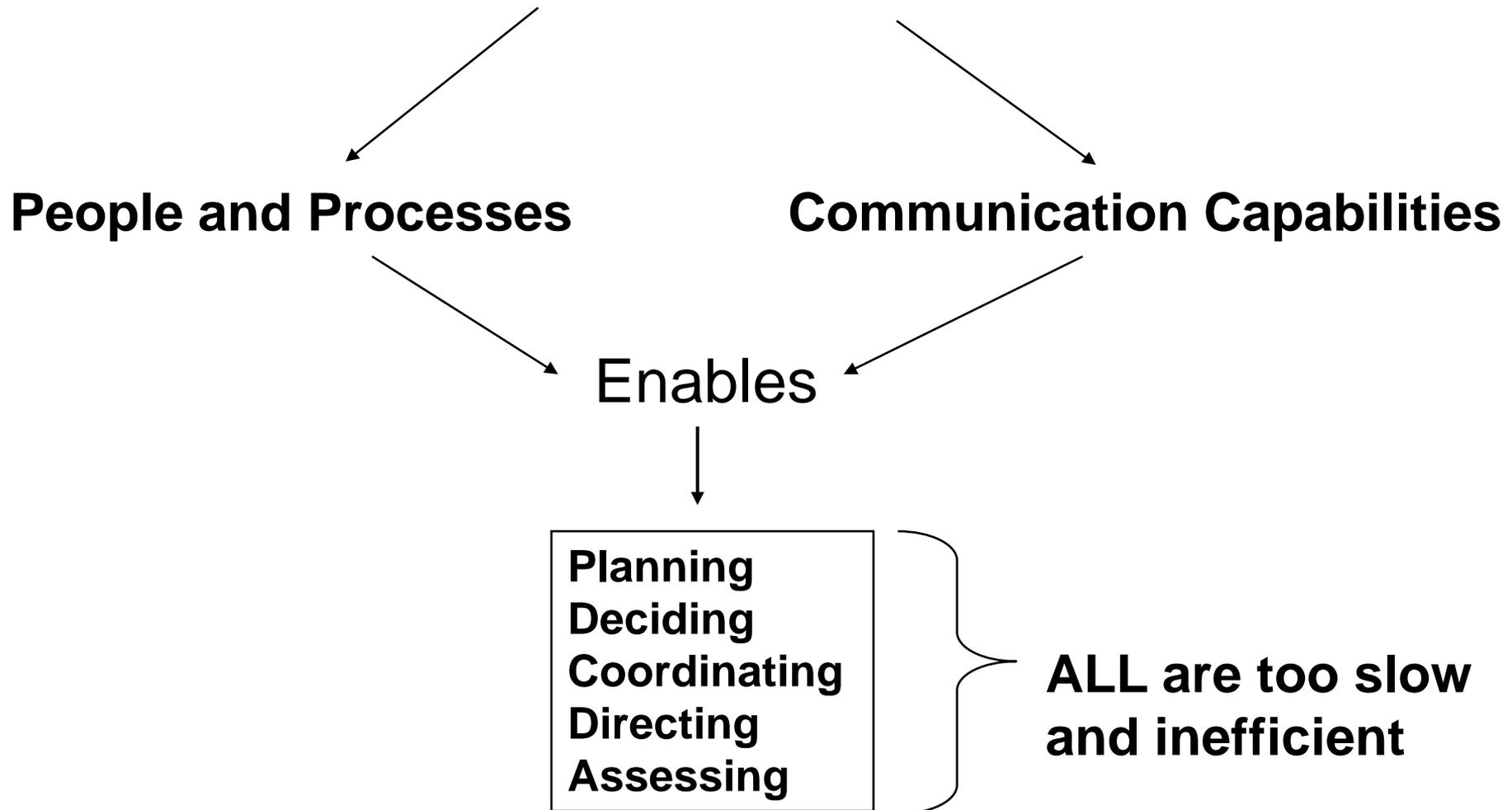
Wideband Datalinks



**We can
transmit
the entire**

**Library of
Congress
each
minute**

Command and Control



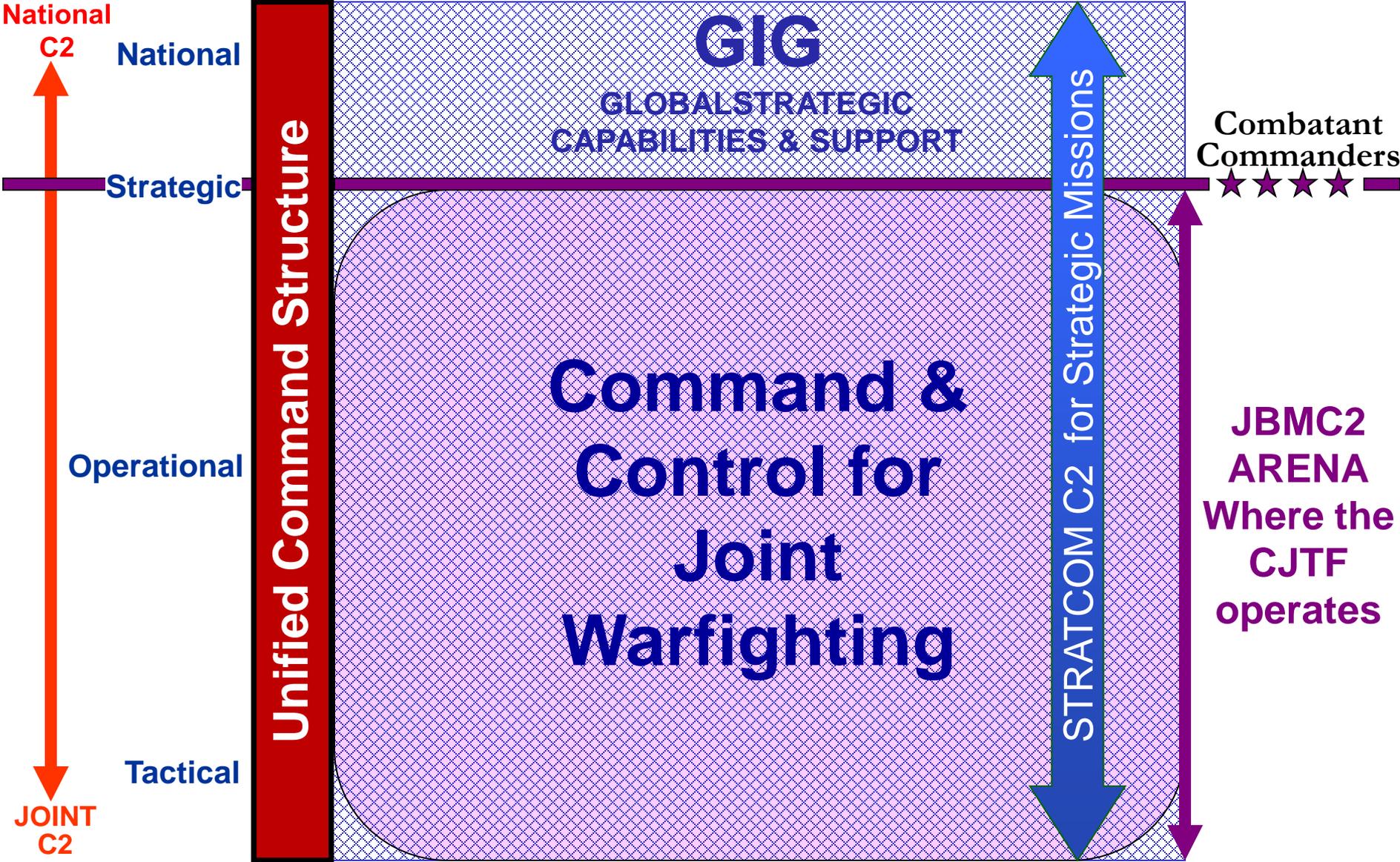
Service elements today can deploy, employ, create effects quicker than Joint Force Commander can “command and control” them!



Joint Command and Control Issues

- **The need for JTF Readiness**
 - **Combat Units Train the Way They will Fight**
 - *They are ready*
 - **JTF HQ's rarely train the Way They Will Fight**
 - **Service HQ's challenged to sustain readiness**
- **Technology is available now to enable more rapid, effective planning, decision-making and execution**
 - **Collaborative environment drives both C2 processes and organizational changes**
 - **Net-centric OPS require a new level of proficiency**
 - **Increases HQ personnel readiness requirement**
- **Capability shortfalls in decision-making, execution and assessment *throughout the battlespace***

Command and Control Landscape



Common Capability Requirements Drive JBMC2 Focus

- **For any crisis, all Combatant Commanders must:**
 - **Execute command and control functions**
 - **Plan and execute using provided forces**
 - **Coordinate with the national agencies**
 - **Rely on the ISR forces/sources/agencies**
 - **Receive guidance from national authorities**
 - **Perform crisis action planning**
 - **Perform assessment functions**
 - **Execute force deployment/redeployment**
 - **Employ national strategic capabilities**
 - **Execute Information Operations**
 - **Employ SOF forces / “special” capabilities**
 - **Coordinate with / employ multinational forces**
 - **Rely on supporting commands**
 - **Be ready to execute Joint C2**

Where Should We Focus?

- **Culture Change- adaptability, flexibility**
- **Net-Centric Operational Concepts**
- **Operational Architectures – Integrated**
- **Integrated Capabilities**
- **Standards & Interoperability**
 - **Data**
 - **Interfaces (Software and Hardware)**
 - **Processors - Platforms**
- **Global Comm Infrastructure**
 - **GiG**
 - **Architectures & Services**
- **Operational Networks**
- **DOTMLPF requirements**

Implications of Net-Centric Warfare

- **New level of Interdependence & Mutual Dependence**
- **Speed of Command – but only if we adapt**
 - **Organize, Train & Equip – vert & horiz**
- **Quality and Speed of decisions – the importance of:**
 - **Shared Awareness**
 - **Large scale vert & horiz collaboration**
 - **Linking sensors to decision makers & shooters**
- **Tactics, Techniques & Procedures - important as ever**
- **NCW = Both a Capability and an Operational Concept**
 - **Means to an end – e.g. Effects Based Operations**
- **Knowledge Management will be key**

Challenges

- **Exploiting new ways of operating**
 - **We tend to adapt new technologies to old ways of doing business – inability to see new possibilities**
- **The science of decision-making – across battlespace**
 - **Peaking decision-making via “info superiority”**
- **Linking activities in a Global Information Environment**
 - **Expansion of operating realm to Virtual Arena**
- **Coherent roadmaps for transforming the force**
 - **Migration & integration of legacy & net-centric**
 - **Ensuring capability as we transform**
- **Training – Training – Training**
 - **Still the key to dominance in an IT “equalized” world**

Transformation Leaders in JBMC2

- **Standing Joint Force Headquarters**
- **Collaborative Information Environments**
- **Deployable Joint Command and Control**
- **Netted Joint Forces**
- **Integrated Joint Fires**
- **Joint National Training Capability (JNTC)**
- **Advanced Concepts**
 - Effects Based Operations (EBO),
 - Operational Net Assessment (ONA)

C4ISR – an obsolete term?

JBMC2- the new paradigm?

Command and Control

Two fundamental components of C2:

- **Basic processes**

- **observing, observing, planning, deciding, executing**

- **Collaboration (It's a people thing!)**

- **processes people do among themselves in sharing information, planning, and analyzing to make better decisions**

Collaboration

Definition: (v.) To work together, especially in a joint effort.

A step beyond communication:

- **deliberate association of people**
- **common goal**
- **share/enrich information**
- **executing processes more efficiently/effectively**
- **decision enhancement**
- **enabled by ability to communicate**

TEAMWORK..... duh!

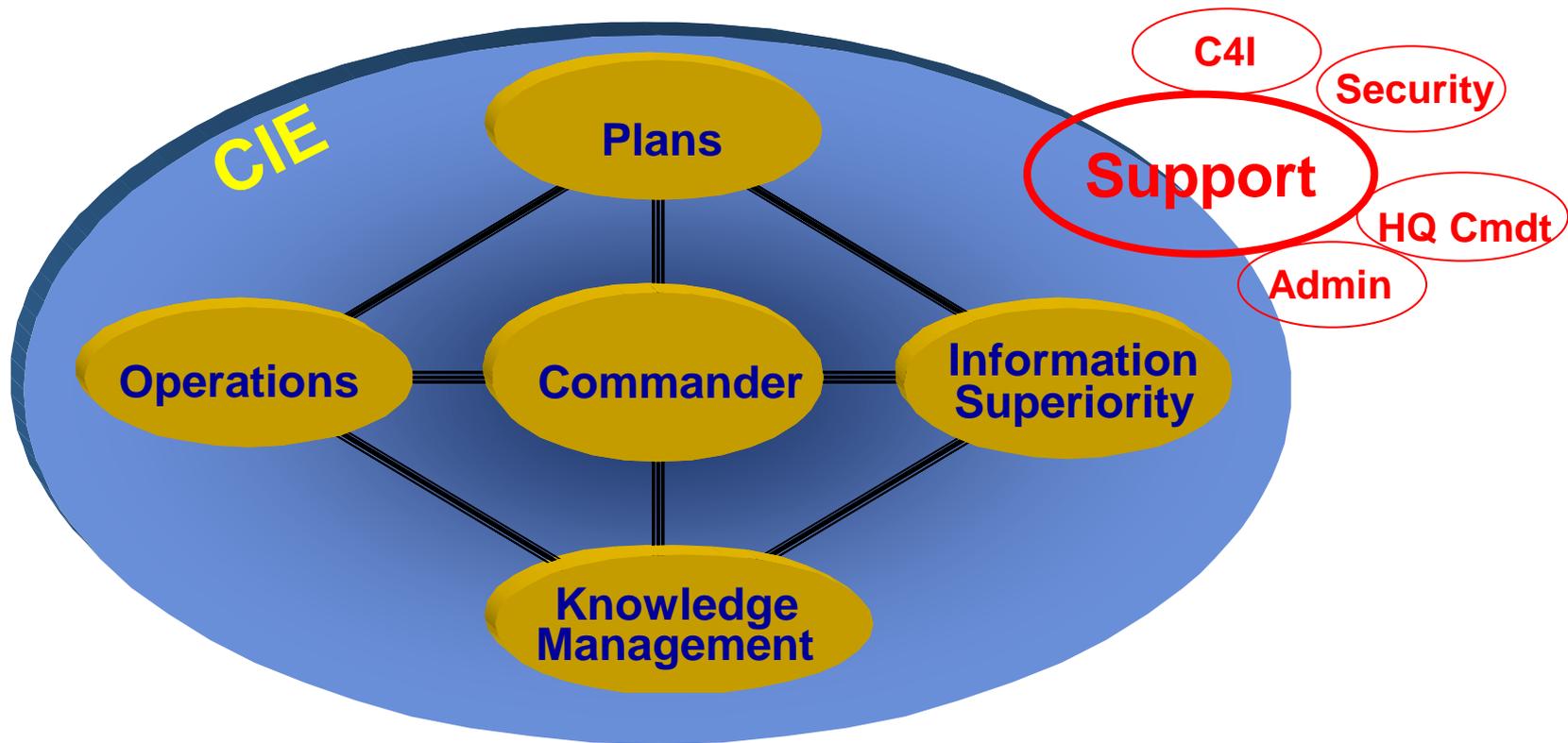
Recommendations

- Remove the outmoded term C4ISR from military vernacular
- Return to the terms “C2” and “ISR” as specific enabling functions for functional capabilities across warfare
- Adopt JBMC2 as the new overarching concept of integrated C2 within all the functional capabilities of warfare
- Assign responsibility for JBMC2 to a Unified Combatant Commander in UCP

SJFHQ Organization

- *An in-place capability for seamless planning and execution*
- *Able to operate across the spectrum of conflict*

Which ... focuses on Cdr's intent



Thinking outside the box!!!

The Goal



- A standing joint team capable of executing transformational command and control functions from pre-crisis to crisis termination – through the exploitation of information age communications, equipment, organization and procedures.
- This team is skilled in the employment of advanced warfighting concepts in the direction, coordination, and control of joint force operations.

Deliverable Capabilities



• An in-place, coherently joint team, experienced in:

- Joint operations & doctrine
- Deliberate and Crisis Action Planning
- Joint Force command and control functions and processes to employ advanced warfighting concepts in joint fires, joint ISR, etc.
- Building and exploiting an Operational Net Assessment (ONA)
- Planning and executing Effects Based Operations (EBO)
- Functional SOPs, TTPs for execution within collaborative environment
- Ability to exploit collaborative tools/processes in the joint planning and decision-making process
- Service Doctrine & TTPs

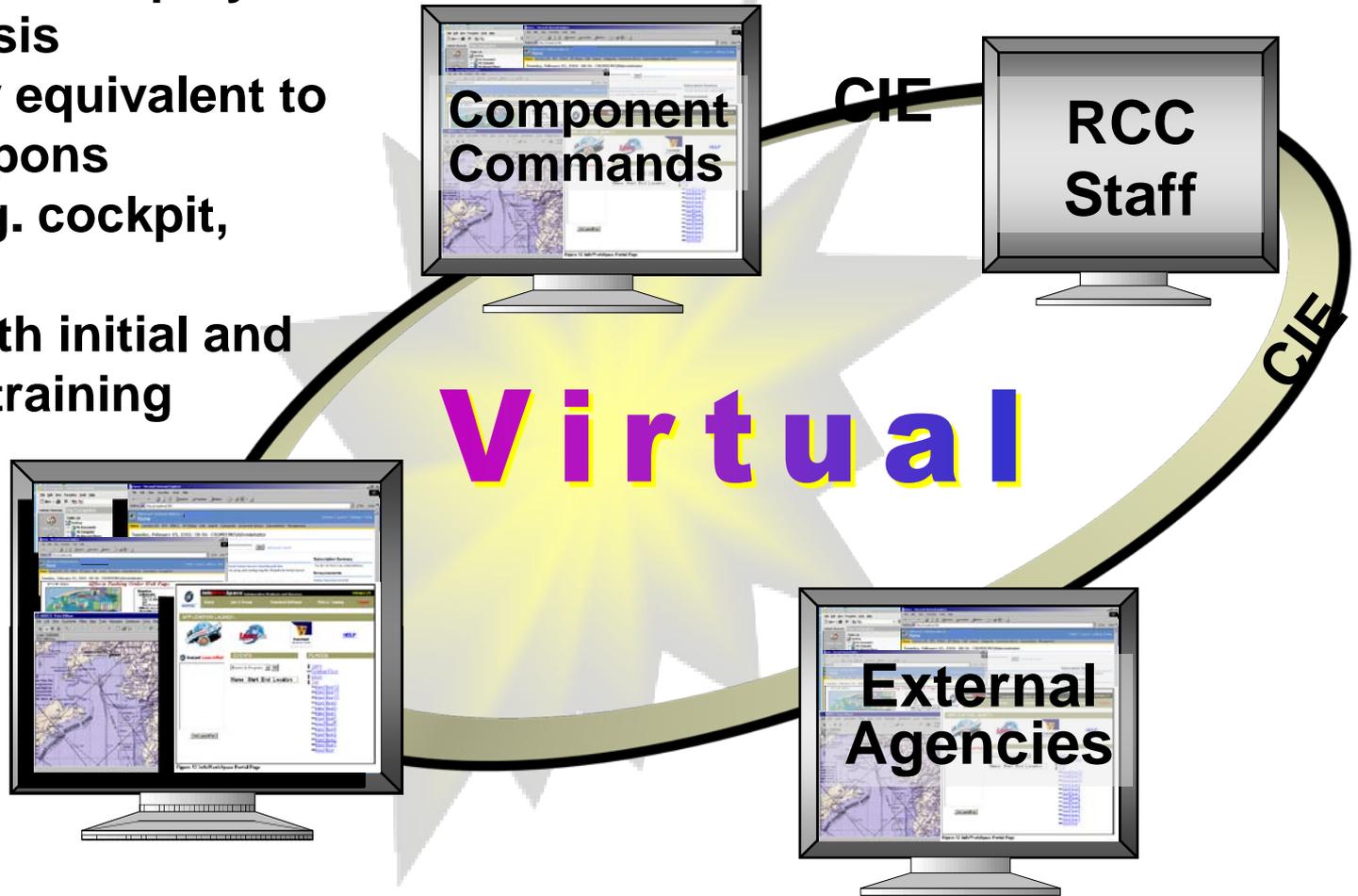
• With:

- In-place systems architecture with collaborative tools and reachback
- Inherent understanding of RCC/strategic-level policy & perspective
- Knowledge and understanding of the area of operations, key issues and “players”
- In-place continuity for seamless planning and execution
 - Pre-crisis through termination

Maintains high state of readiness

Proficiency Impacts Effectiveness

- Modern HQ workstation is too complex to employ on a walk-in basis
- Switchology equivalent to several weapons systems; e.g. cockpit, CIC, etc.
- Requires both initial and proficiency training



Future Joint Force Command and Control

People and Processes

Not ad hoc

Standing, trained, ready team

SOPs/TTPs for info age C2

Skilled in latest joint planning,
decision tools/processes

Skilled in joint operations & doctrine

Service Doctrine & TTPs

Skilled in employment of advanced
joint warfighting concepts

Skills to rapidly gain situational
awareness and understanding

Rapid establishment of JTF/HQs

Faster planning and execution

Horiz & vert integration

Communication Capabilities

Collaborative Info Environment

Common collaborative tools

Business rules to enable processes

Common operational picture

Access to databases

Interoperable C4I systems and
common C4I architectures

Information not stovepiped

Database visibility

Horiz & vert integration

Planning
Deciding
Coordinating
Directing
Assessing

Information age
unity of command
and unity of effort

Able to “Command and Control” joint forces
employing advanced warfighting concepts

What SJFHQ brings to the “Fight”

- **Knowledge centric, cross functionally organized, standing *Joint Team* ...**
- **Designed to develop, practice and *integrate* joint, interagency, multinational operations**
- **With a *systems-of systems understanding* of the battlespace -- pre crisis and continually updated during execution**
- **Enabled by a *pre – established, distributed, collaborative network* to increase a Commander’s range of options to respond to crisis situations**

Collaborative Information Environment

(An Inevitable C2 Requirement)

- **Most significant info age impact on Joint C2**
 - **Key driver in transforming Joint C2**
 - **Critical for both planning and execution**
 - **Drives both C2 processes & organizational changes**
 - **Requires skill, thorough training & proficiency**
 - **Technology is available to move out now**
- ***But must have interoperable tools & procedures***
 - **Separate, ad hoc approaches risk effectiveness**
 - **Incompatible standards and procedures are the result**
- **SJFHQ will foster global stds. & procedures in CIE and employment of CIE capabilities**

Summary

- Train JTF staffs with a standard set of communication, information management and collaboration equipment/tools (DJC2 and then JC2)
- Standardize equipment TTPs, equipment, personnel, processes for all JTF staffs, regardless of AOR (SJFHQ).

If we do all the above , we have effectively made C2 a weapon system by the DOD/NATO definition.

- Each Component staff in the RCC should be enabled
.....the joint question????