

Power to the Edge

# An Information Age DoD: Turning Vision into Reality

Assistant Secretary of Defense  
(Networks and Information Integration)



# Agenda

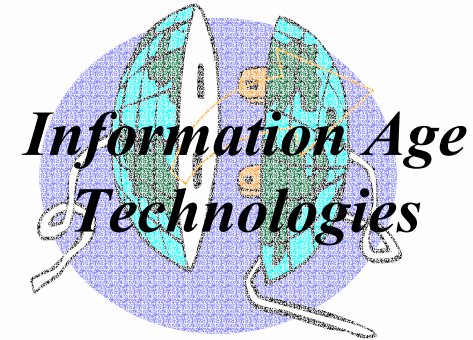
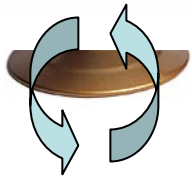
- The Drivers of Transformation
- Vision of an Information Age DoD
- Yesterday, Today, and Tomorrow
- A Fully Capable Network Centric Force
- NII Priorities
- Take Aways

# Information Age Transformation

*A Key Element of Defense Strategy*



*Who & Why We Fight  
Asymmetric Adversaries  
Non-linear Battlefield*



*Information-Enabled  
Network-Centric Operations*

*Warfighting / Military Operations*

**Transformation**

*Business Side of DoD*

# Information Age Transformation

## *A Key Element of Defense Strategy*

*Warfighting / Military Operations*

New  
Mission Challenges

Opportunities

**Transformation**

*Business Side of DoD*

**How we fight...New Concepts and Capabilities**

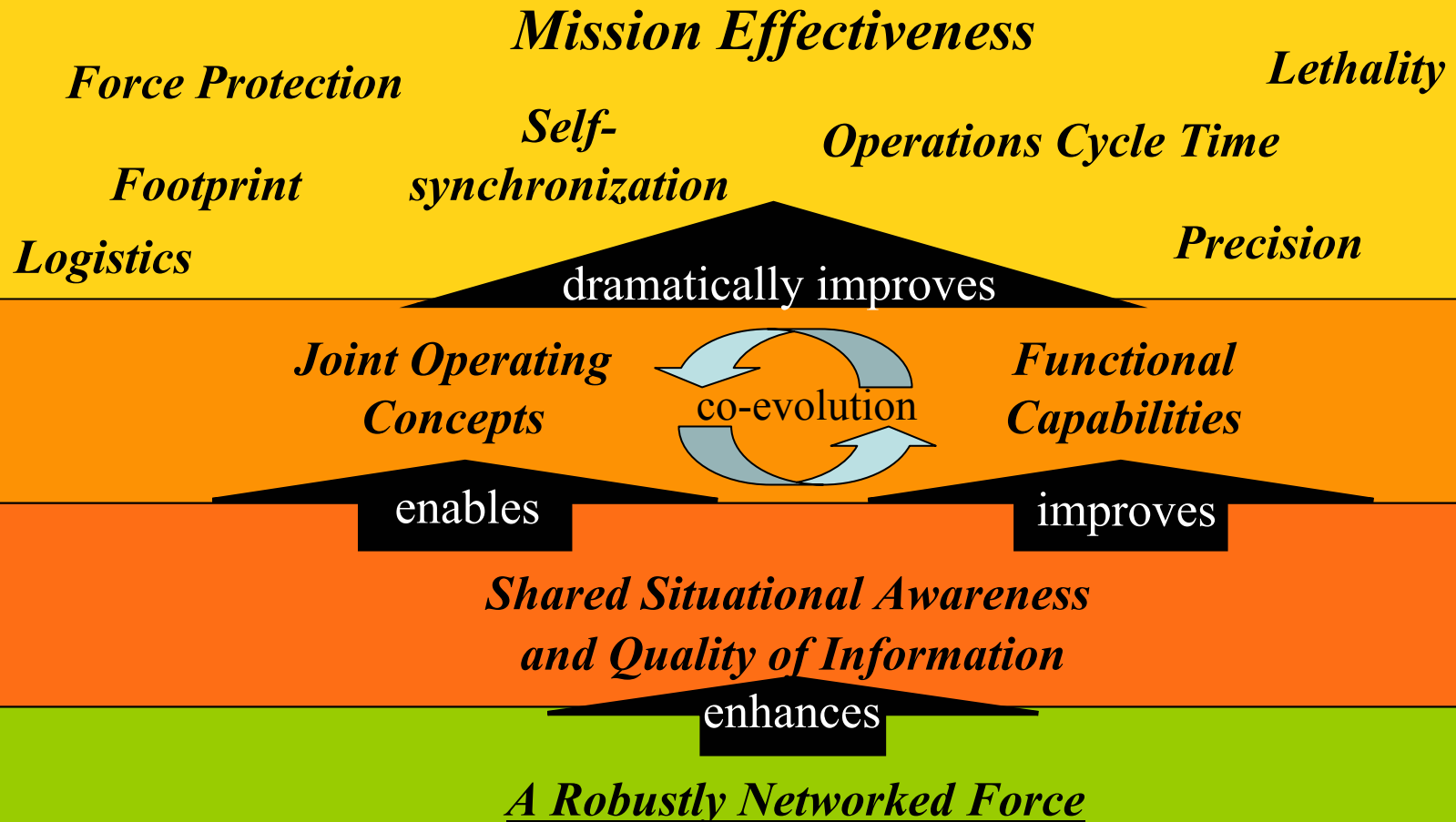
- Battle Space Awareness
- Command and Control
- Force Application
- Force Protection
- Logistics

**How we do business...New Processes and Systems**

- Accounting & Finance
- Acquisition
- Human Resource Management
- Strategic Planning and Budgeting
- Logistics
- Installations & Environment

***The Information Age requires we re-think everything!***

# The Vision: Capability to Conduct Network Centric Operations



*Totally Interoperable, Shares Information Real Time and Collaborates*

**The Key Enabler: A communications and information infrastructure that is global, secure, reliable, real time, internet based & user driven**

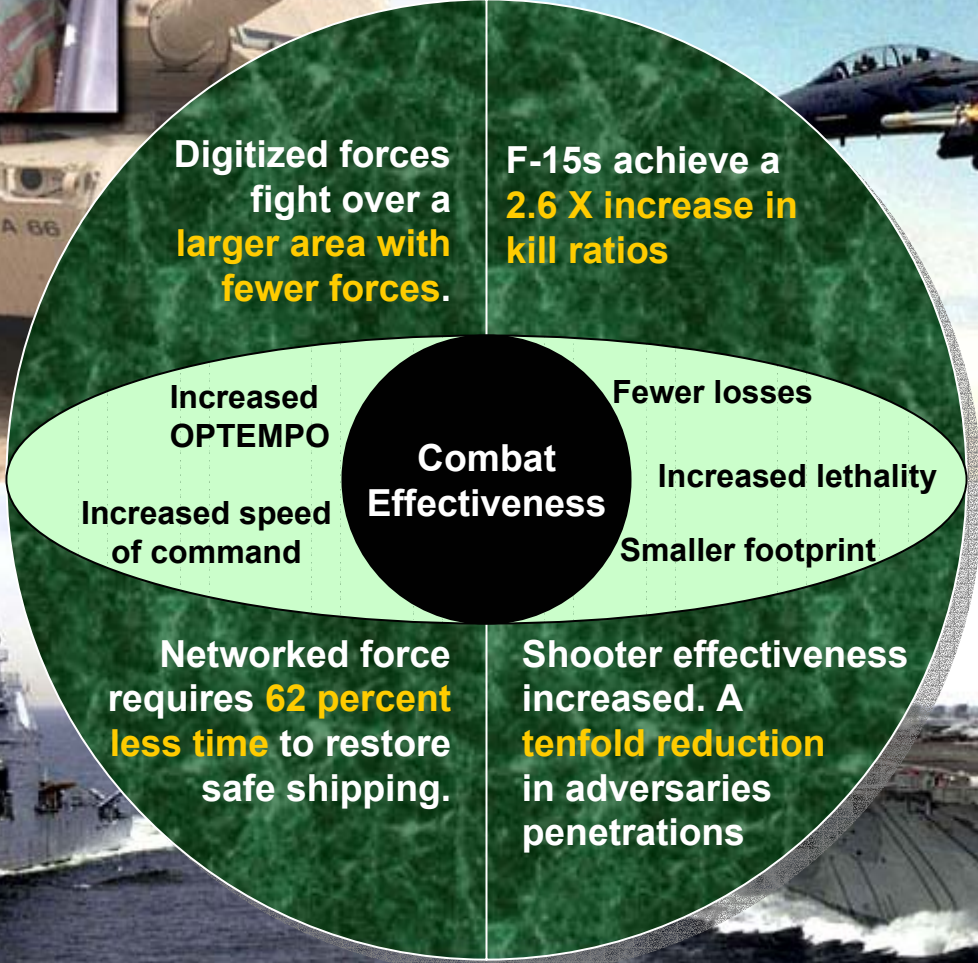
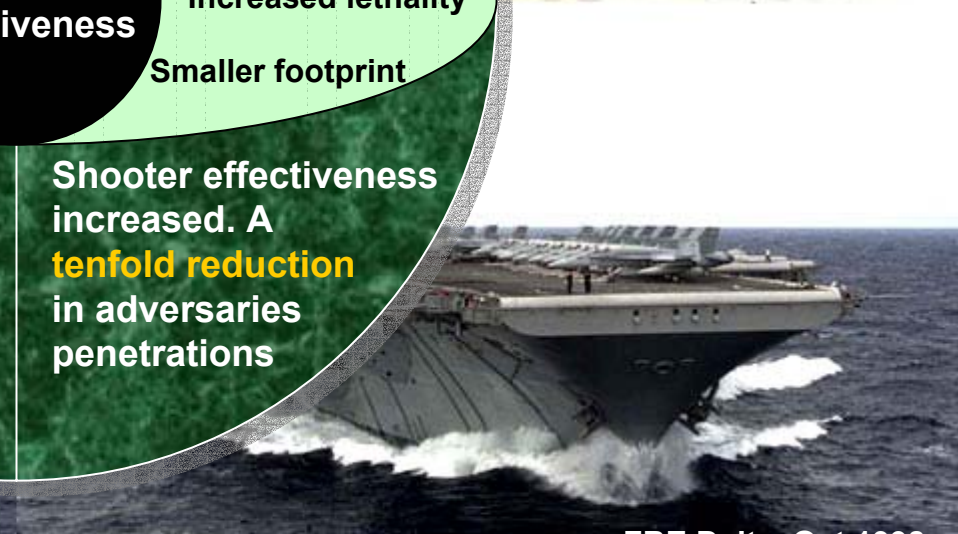
*The future or 'to be' GIG*

# Growing Body of Evidence



USA Division  
Capstone Exercise  
Phase I, Apr 2001

JTIDS Operational  
Special Project  
Mid 1990s



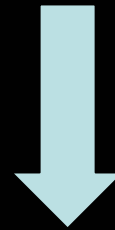
FBE Foxtrot, Dec 1999

FBE Delta, Oct 1998  
(USS Kitty Hawk)

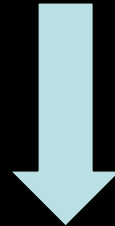
# Yesterday, Today, and Tomorrow

- Recent Past
  - As-Is Communication and Information Systems Infrastructure
  - Program-centric oversight and acquisition
  - Interoperability is but one of several priorities
- Present
  - GIG Integrated Architecture firmly established
  - Key Programs defined and initiated
  - Significant GIG-related FYDP funding
  - Applying Net Centric Criteria to New and Legacy Systems
  - Strategic Partnerships established
- Future
  - Developing capability gaps based on OIF lessons learned
  - Building the 'to be' GIG
  - Systematically migrating from the 'as is' to the 'to be'
  - Filling the capability gaps by evolving a Network-Centric capability

*Platform-Centric  
Operations*



*The Beginning of  
Network-Centric  
Operations*



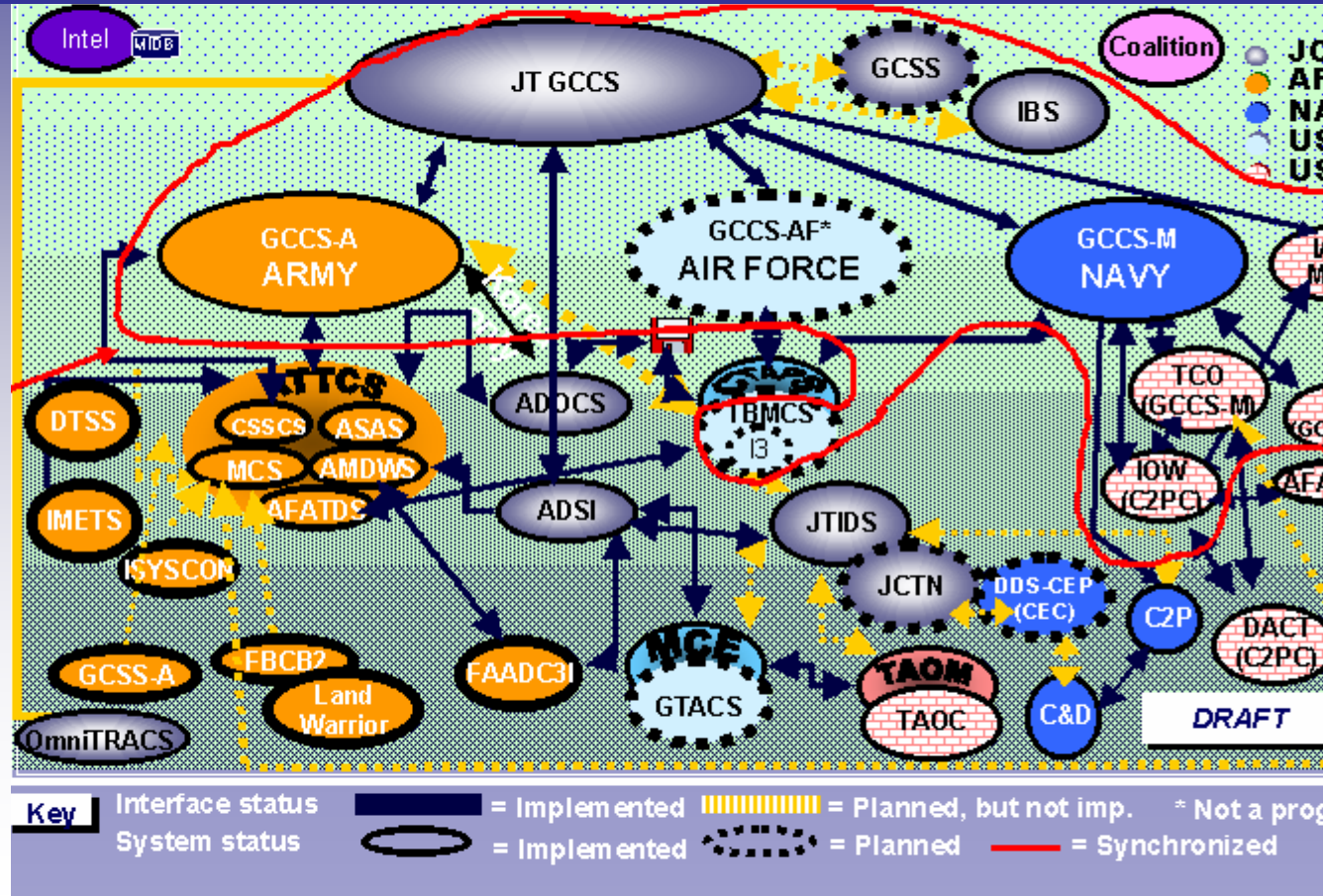
*Network-Centric  
Operations*

# As-Is

Strategic

Operational

Tactical



## *No coherent view of the Battlespace*

- Multiple systems conceived and developed independently
  - stove-piped sources of information
  - coalition partners vary mission by mission



# As-Is Communications and Information Systems Infrastructure

- Patchwork of disparate networks and information-related services
  - Mix of point-to-point communications and IP-based networks
  - Less than universal connectivity and addressability
  - Significant bottlenecks that restrict information flows
  - Lack of access to available information
  - Persistent lack of interoperability across Services, Domains
  - Lack of end-to-end information assurance
- Limited ability to support Network Centric Operations
  - Limits participation
  - Limits information sharing
  - Limits collaboration
  - Limited sensemaking related tools

# GIG Integrated Architecture

- The DoD's Enterprise-wide Architecture
  - Three views—systems, operational, technical
    - GIG IA v2 and JTA v6 recently released
  - Net Centric perspective via Version 2 use cases
    - Force Allocation, Homeland Defense, Major Combat Operations
  - Framework for the Services' and Business Enterprise Architectures
- Used in the major DoD Enterprise Processes
  - Capabilities Generation
    - Basis for IT requirements
    - Authoritative view of Interoperability and Information Assurance
  - Programming ,Planning and Budgeting
    - Framework for program evaluation and resource decisions
    - Support for achieving future desired capabilities
  - Acquisition
    - Underpinning of all mission and capability architectures
  - IT Portfolio Management Processes
    - Guidance for all IT investments

# Key Infrastructure Programs

- Transport
  - Terrestrial Super Highway (GIG-BE)
  - Mobile IP-Based Radios (JTRS)
  - IP in Space (TCA )

.....*Increases connectivity and eliminates bandwidth as a constraint*.....

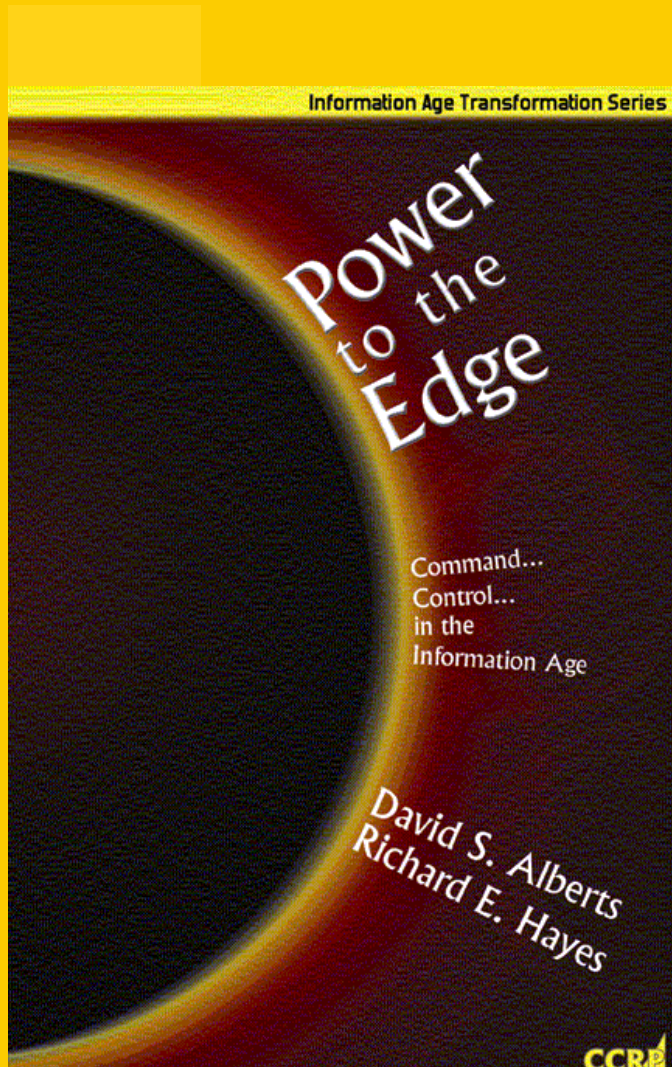
- Protection
  - Reliable and Secure Networks and Data (GIAP)

.....*Creates an information environment that users can rely upon and trust*.....

- Information Services
  - Discovery, Access, Processing, and Collaboration (NCES)

.....*Enables information sharing and collaboration*.....

# Network Centric Attributes



- Internet Protocol...packet switched not circuit switched network
- Secure Communications...end to end encryption, hardened against denial of service
- Only Handle Information Once...data posted by authoritative sources
- Post in Parallel...producers make their data available as soon as it is created
- Smart Pull...users can pull data directly form the Network
- Data-Centric....data separate for applications, which to talk to each other by posting data
- Application Diversity...users can operate multiple applications using the same data
- Assured Sharing...trusted accessibility to network resources
- Quality of Service...Data timeliness, completeness and integrity

# Network Centric Governance Framework

- Integrated Architectural Documents
  - DoD Architecture Framework
  - NCOW Reference Model (NCOW-RM)
  - Core Architecture Data Model (CADM)
  - GIG Architecture v2.0 (GIGA)
  - Joint Tactical Architecture v6.0
  - IA Architecture extension to the GIG
- DoD Data Strategy
  - DoD Metadata Registry and Catalogs
- Net-Centric Checklist
- Net-Centric Attributes
- Net-Ready Key Performance Parameter (NR-KPP)

# NII Strategic Partnerships

- NII is working closely with JFCOM, STRATCOM, the Joint Staff and PA&E
  - Net Centric Program Reviews
  - Enhanced Planning Process
  - Net Centric Functional Capabilities Board
- Other partners
  - SOCOM - Global War on Terrorism
  - Services - Incorporation of GIG Architecture and Network Centric Principles
  - Allies and Coalition Partners

# Migrating to the "To Be" GIG



**U.S. AIR FORCE**  
CROSS INTO THE BLUE  
**Command and Control (C2)  
Constellation**



**NAVY**  
accelerate your life.

**THE UNITED STATES ARMY**

# A Fully Capable Network Centric Force

## Network Centric Force

- Robustly networked
- Totally Interoperable
- Shares information
- Collaborates

## Network Centric Operations and Warfare (NCOW)

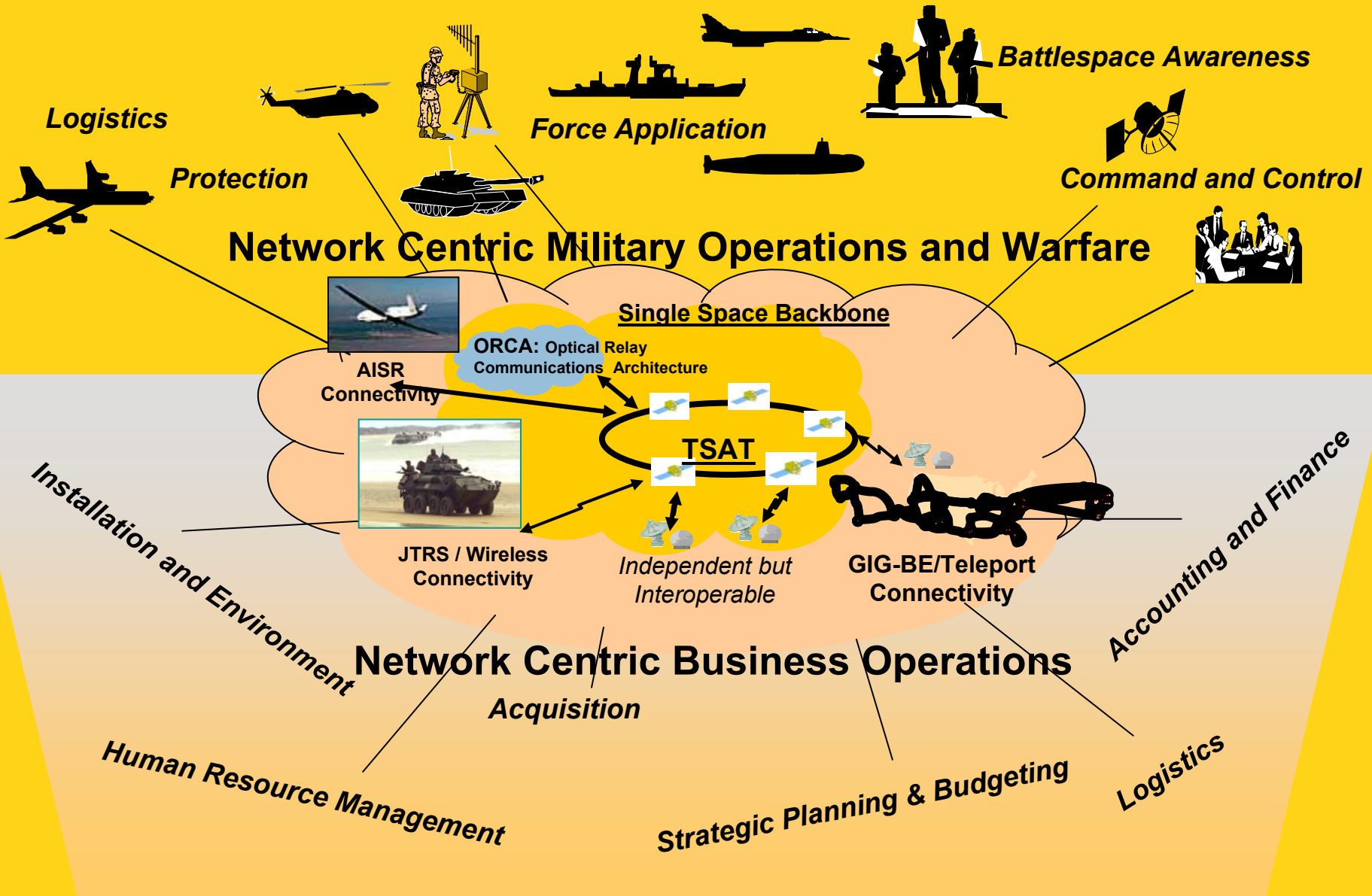
- Improved and Shared Awareness
- Reduced Cycle Times
- Self-Synchronized

• *JV2020 Information Superiority, a Reality*  
• *Defense Transformation Objectives Achieved*

## Enhanced Military Effectiveness & Agility



# "To-Be" GIG




# NII Priorities

- **Execute and Innovate**
  - Focus on delivery of capabilities associated with key GIG-related communications and information programs
  - Meet all key cost, schedule, and technical objectives
- **Synchronize and Integrate**
  - Develop a family of systems integration plan
  - Establish an ‘End to End” test program
- **Migrate**
  - Develop Transformational Roadmaps
  - Specifies programs to be eliminated, sustained, or integrated based on consistency with Network-Centric principles
- **Implement**
  - Business Management Modernization Program
- **Accelerate**
  - Information Age Transformation by identifying near term opportunities

# Take Aways

- The Fundamentals are in place
  - The Vision has been well articulated
  - DoD Leadership is on-board
  - GIG Architecture and Core Programs are in place
- Much work has been done, but much more remains to be done
- It is all about being Network-Centric now! -- and more so in future
- The Way Ahead...**Execute, Integrate, Migrate, Improve, Accelerate and Innovate**



*"We must build forces that draw upon the revolutionary advances in the technology of war...one that relies more heavily on stealth, precision weaponry, and information technologies."*

***George W. Bush, Commander in Chief***

*DoD's Transformation Planning Guidance "...depicts the outcome we must achieve: fundamentally joint, network-centric, distributed forces..."*

***Donald Rumsfeld, Secretary of Defense***

*"The power of information has been key throughout this operation, and it is truly having the effect of saving lives"*

***General Tommy Franks, on Operation Iraqi Freedom***