

Advanced TCA/Micro TCA and the

**BAE Systems – A solutions provider willing to do things differently
“We Protect Those Who Protect Us”**

3 Perspectives on ATCA :

DoD Systems Integrator

Government Acquisition

End User

Exploitation Suite



Santa Clara, CA USA
October 2009

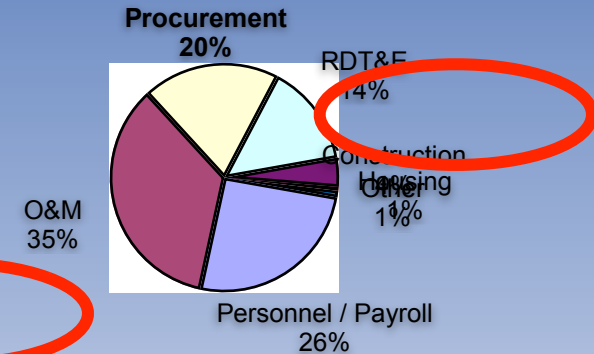
DoD H/W Spending To Grow in Short Term

**FY2010 base budget \$538 billion*,
with \$105 billion directly for
procurement**

Emphasis on C4ISR capabilities

- Increased Surveillance & Reconnaissance assets such as strategic UAVs
- Integration and interoperability engineering of current systems
- Improvement on bandwidth & transmission speeds

FY2010 DOD Budget Breakdown



**C4ISR budget >\$30B, shows an annual Growth Rate of over 3%,
vs. overall DOD budget growth of 1.5%**

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*Source: US DOD Fiscal Year 2010 Budget Request, Office of the Comptroller
October 2009

Issues: Current State of Navy C4ISR



- Average time to market: 2-3 years for new capabilities
- Average server age:
 - Network 3+ years (Windows NT EOL)
 - Apps 7+ years
- Average network age: 6.7 years
- Network Final Operational Timeline: 4-9 years (in some cases with no refresh)

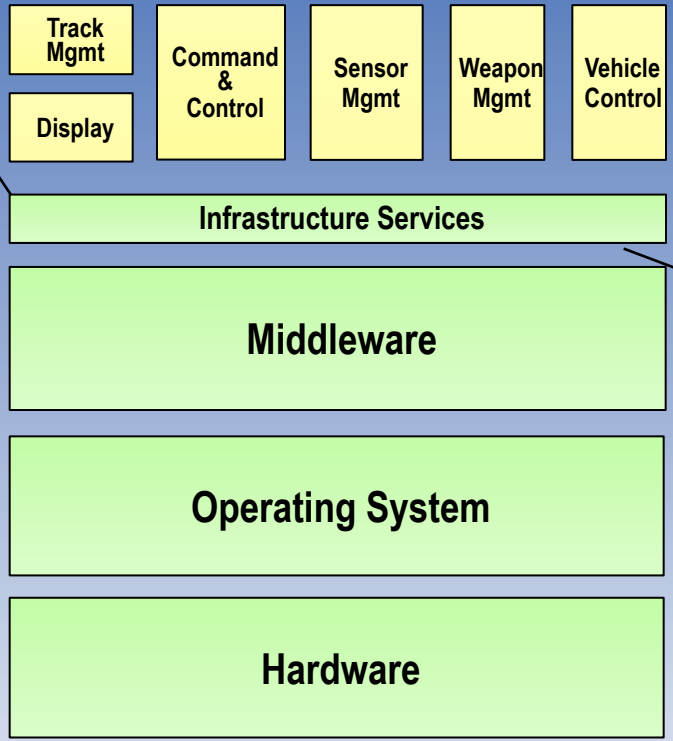
- Up to 74 separate networks on a Force level ship today -160,000 users
- Deployed bandwidth per sailor is less than that of a typical cell phone
- Over 800 different Tactical Applications-C4ISR, Combat Systems, etc

Multiple DoD efforts starting to consolidate tactical computing infrastructure to address these issues

DoD Moving to Modular Open System COTS Approach for IT Acquisition

Infrastructure:

- Common Services and APIs
- Support Forward-Fit and Back-Fit



Componentized Objective Architecture:

- Reusable, non-proprietary components
- Open, published interfaces
- Common Data Model

Common Computing Environment:

- Standards-based Interfaces to network
- Commercial Mainstream Products and Technologies

Decouple Hardware (H/W) from Software (S/W)

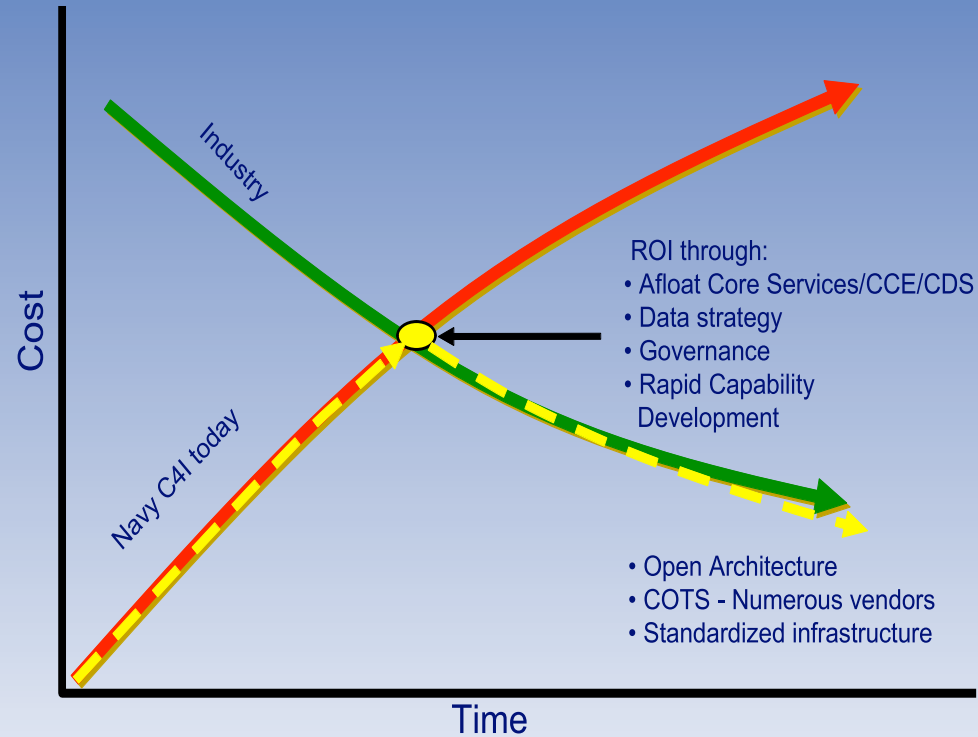
Computing infrastructure must be supportable and sustainable over the long term

CANES: Navy infrastructure focus in IT Acquisition

- Old acquisition strategy limited ability to control costs and rapidly respond to emerging requirements
- Shipboard network funding not aligned to meet Fleet requirements
 - Each program fully funded its computing infrastructure to

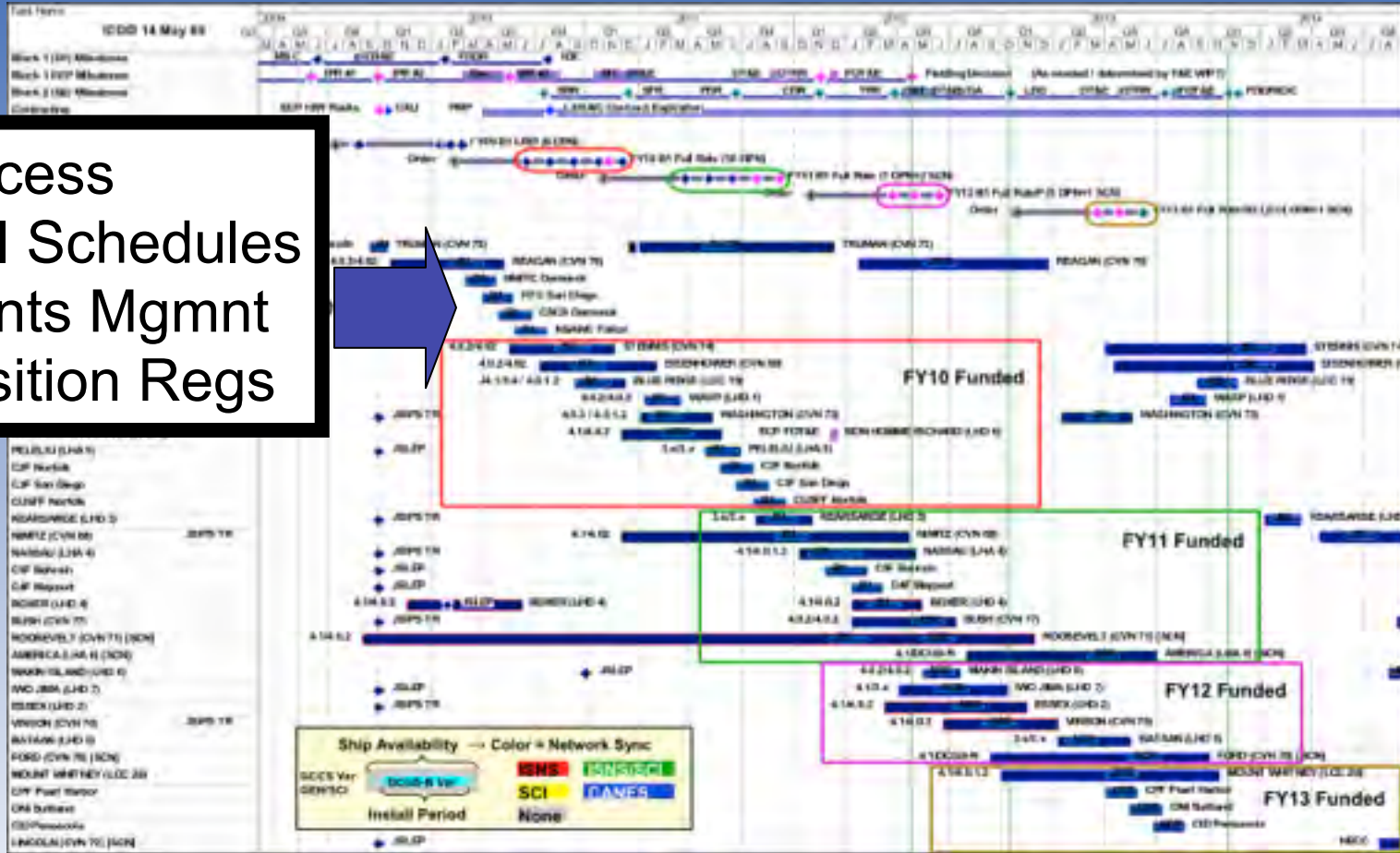
“On my watch... we will get a handle on IT spending”

ADM Roughead, CNO-Feb 2008



Navy Leadership reallocated \$2.3Billion to implement revised approach

Issues Aligning DoD Programs to Commercial IT Space



Budget process
 Operational Schedules
 Requirements Mgmt
 DoD Acquisition Regs

5+ Years to field DCGS-N to 36 Platforms
 71 Months average time to field MAIS Programs

Environmental Requirements Favor ATCA Standards

Unique Environmental Issues:
Shock/Vibration (Equip/System/Ship)
EMI Requirements
Space, Weight, and Power (SWAP)
Heat Loading
Harsh Operating Conditions



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Why is Modular COTS so important for the Military?

- Long hardware lifetime
- Multiple systems together in operational environment
- Difficulty of servicing and maintenance
- Difficult technology updates
- Long deployments, remote locations
- Limited tech training
- Security requirements
- Military supply systems



Need to incorporate servers into larger military networks and systems, often with 5-10 year design life and 20+ year service life

Obstacles to Specifying Modular COTS

- Cost issues, concerns about new technology,
- Ruggedness and Environmentals
 - TELCOM Standards align well for most environmental standards, but military EMI requirements normally more stringent
- Lack of ways to identify well-supported platforms
- Competing alternatives that are "COTS" but single-supplier
 - Blade servers or rackmount servers,
 - Older technologies such as VME still exist



Commercial vs.
Military PICMG
3.1 ATCA
Chassis



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Specific Recent Issues

- Security/Cyber/IA, Origin of Hardware
- Customization, Vendor Lock-in-when does COTS become “COTS”?
- Compliance Issues-MILSPEC 810F
- EOL – Component vs. System- what’s the appropriate ILS Strategy?

Conclusions/Recommendations

- Focus approach on lifecycle and sustainment issues-logistics and supportability is critical
- Total Cost of Ownership – 2/3 of system cost in DoD is after initial fielding
- System Management tools in ATCA example of key advantage
- ATCA “Ecosystem” vs. single supplier

Questions/Back-up

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