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Industry Viewpoints on Weapon Systems Interoperability & Systems Integration

Brian M. McKeon
Vice President, Command & Control Systems
Network Centric Systems, Raytheon

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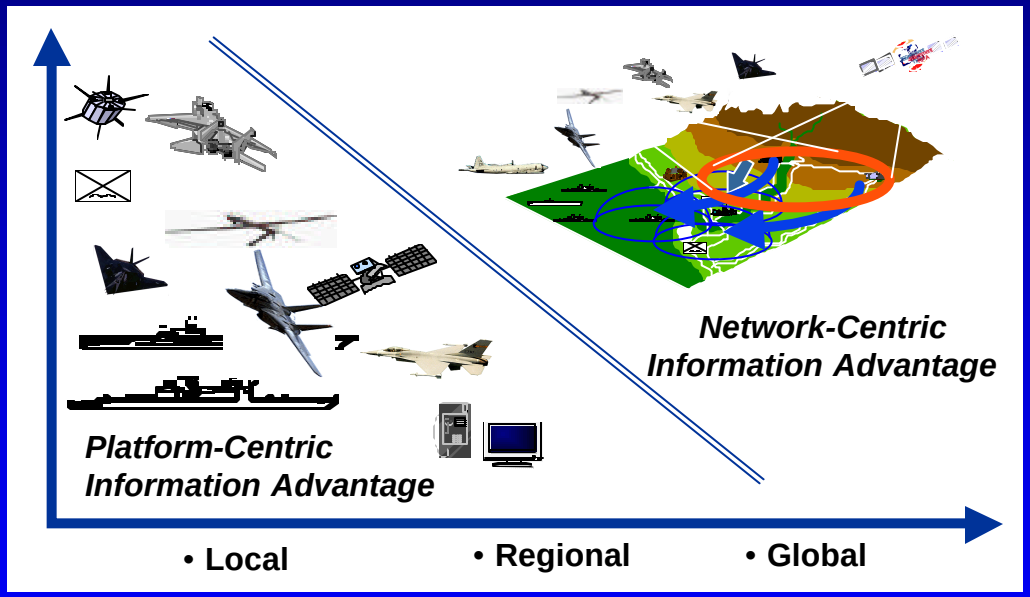
Net-Centric Warfare & Transformation

"The two truly transforming things, conceivably, might be in information technology and information operation and networking and connecting things in ways that they function totally differently than they had previously. And if that's possible, what I just said, that possibly the single-most transforming thing in our force will not be a weapon system, but a set of interconnections and a substantially enhanced capability because of that awareness."

Secretary of Defense Rumsfeld
Town Hall Meeting, 9 Aug 2001

Information Quality

- Content
- Accuracy
- Timeliness
- Relevance



Net-Centric Transformation

"If you are not interoperable, you are not on the net, not contributing, not benefiting and you are not part of the Information Age." *VADM Arthur K. Cebrowski*

Weapon Systems Interoperability Challenges in Net-Centric Environments

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- **Technical challenges**
  - Architecture definition
  - Defining interfaces
  - Predicting use
  - Data and information standardization
  - Information assurance
  - Coalition involvement
  - Bandwidth and “Last Mile”
- **Acquisition challenges**
  - More programs with parallel development/dependencies
  - Finding problems at earliest phase possible
  - Having insight into system’s performance
  - HW dependence and evolution
  - Scheduling assets
  - Standards evolution
  - Funding

Systems Integration Challenges in Net-Centric Environments

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- Defining and measuring performance
- Finding problems in the earliest phase possible
- Developing test environments that reflect real world complexity
- Reducing the cost of network centric testing
- Dealing with real world asset availability
- Integrating an exponentially expanding number of programs with parallel development and dependencies

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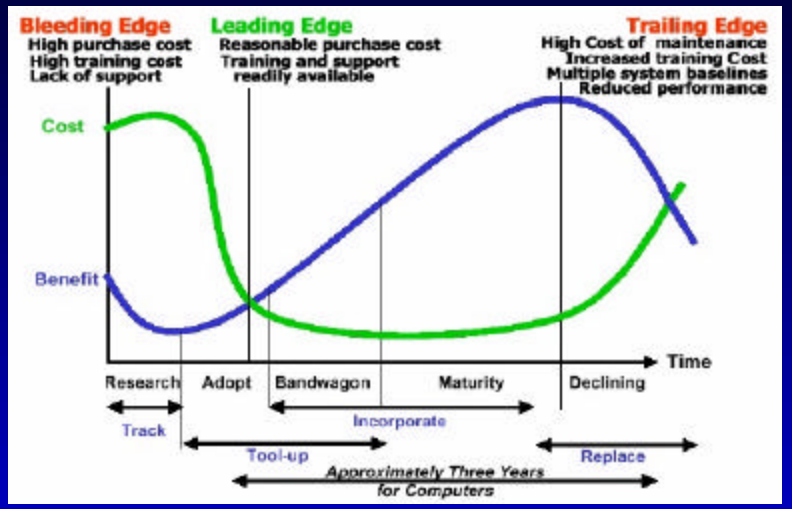
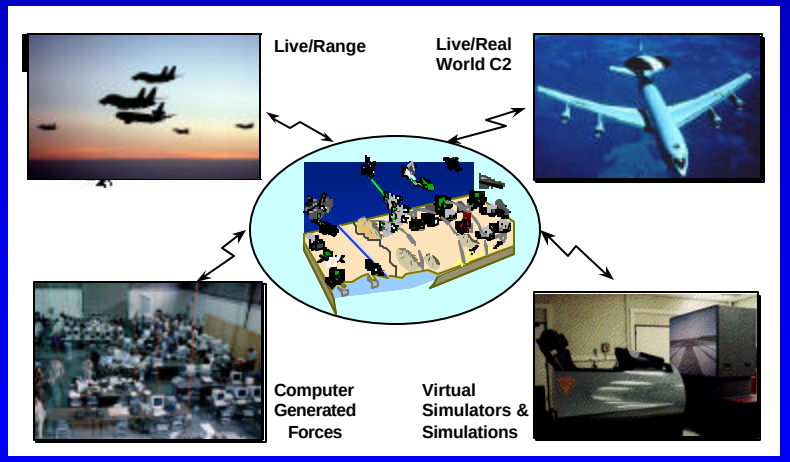
Responding to Interoperability Challenges

- **Technical**
  - DoD Architectures
  - Open Systems
  - Data Standards
  - Information Standards
  - Joint Distributed Engineering Plant (JDEP)
  - Joint Synthetic Battlespace (JSB)
  - Joint National Training Center (JNTC)
  - Global Information Grid
- **Acquisition**
  - Major transformation programs' architectures and funding help
  - Need incentives & metrics on interoperability planned for all future procurements
  - Use spiral development to understand and incorporate changes





Responding to Systems Integration Challenges

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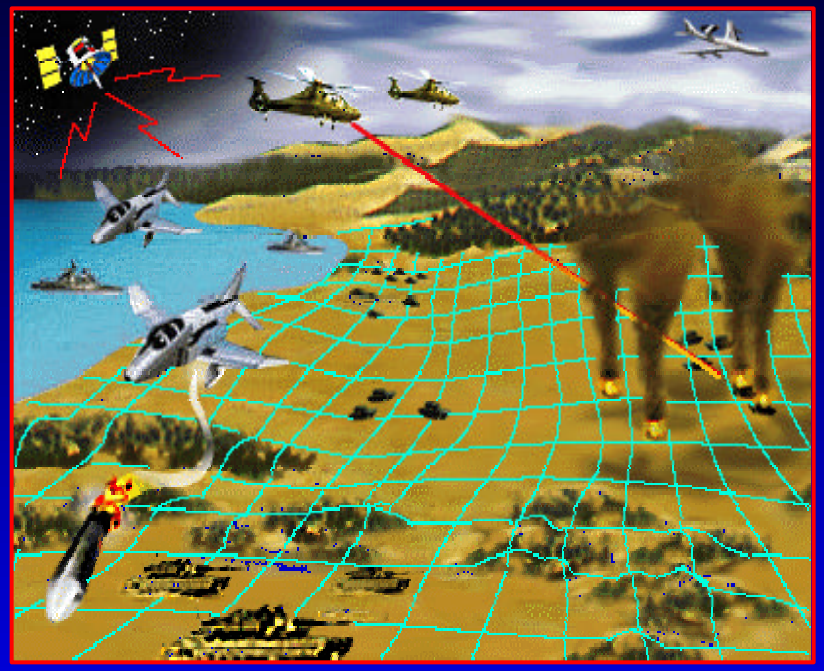
- DoD Architectures
- Open Systems
- Data Standards
- Information Standards
- Global Information Grid
- Spiral Development
- Modeling and Simulation
  (e.g., Joint Synthetic Battlespace [JSB])
- Joint Test Environments
  (e.g.. Joint Distributed Engineering Plant [JDEP])
- Experimentation and CONOPS refinement (e.g.Joint National Training Center [JNTC])
- More industry partnership and investment is occurring
  - National teams
  - LSI roles
  - Major industry investment and collaboration



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Summary

- **Significant Progress Toward Addressing Technical Challenges**
  - **Advances in Architectures**
  - **Communications**
  - **Data and Information Standardization**
- **Need to Continue Refining Acquisition Approaches**