

INTEROPERABILITY



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Interoperability

- **Today – A Challenge**
- **Future – Great Possibilities**
- **How to get there – A Bigger Challenge**

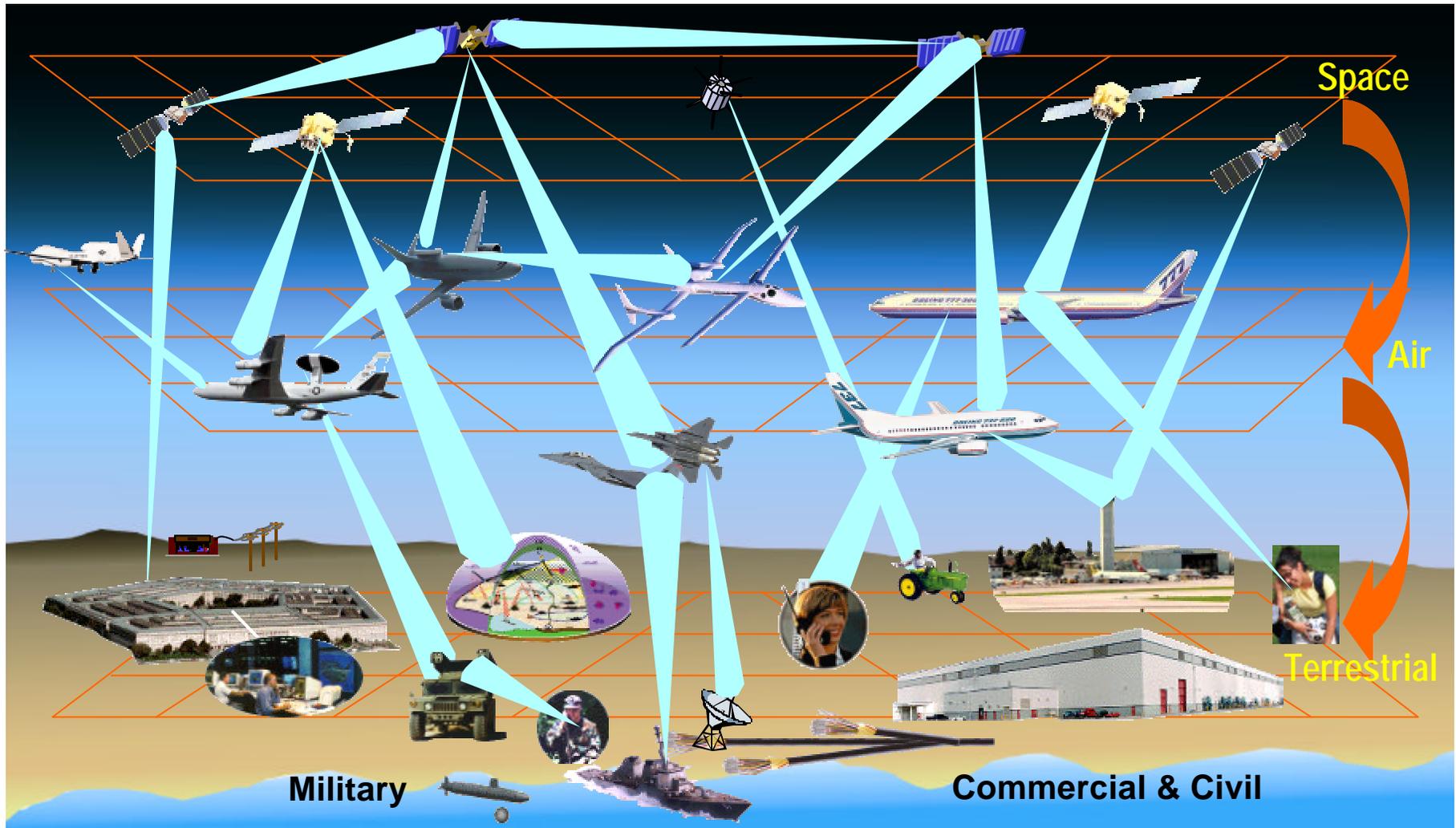
Military Challenge

- USAF
 - 7435 Aircraft
 - 227 Helicopters
 - 16+ UAV's
 - 836 Civil Reserve Fleet Aircraft
 - Marine Corps
 - 545 Aircraft
 - 737 Helicopters
 - 403 Main Battle Tanks
 - 734 Light Armored Vehicles
 - 1321 Assault Amphibious Vehicles
 - 1121 Predator
 - Navy
 - 903 Ships
 - 2741 Aircraft
 - 1386 Helicopters
 - Army
 - 65912 Ground mobile vehicles
 - 289 Aircraft
 - 4813 Helicopters
 - 124 Water-borne vehicles
 - Others
- USAF
 - 369700 Active Personnel
 - 247900 Reserves
 - Marine Corps
 - 173400 Active Personnel
 - 99900 Reserves
 - Navy
 - 385400 Active Personnel
 - 174100 Reserves
 - Army
 - 485500 Active Personnel
 - 714000 Reserves

Homeland Security Challenge

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- **11,200,000** trucks, **2,200,000** railcars enter US annually
 - **361** Seaports, **7,500** foreign flag ships call each year
 - **7,000,000** million containers annually
 - **19,000** airports, **546** with commercial service
 - **17,000** aircraft simultaneously flying in US airspace
(*10,000 are not under ATC control*)
 - **682,000,000** commercial air travelers
 - **102** nuclear power plants
 - **30,000** municipalities & political subdivisions
 - **19,900** miles of borders (land and seacoast)
 - **3,400,000** square miles of exclusive economic zone

Global Information Environment



Seamless access to information anytime, anywhere

We are being challenged to change

- **Battlespace entities (platforms, units, sensors, shooters) must be designed “net-ready.”**

Network Centric Warfare, DOD Report to Congress, 27 July 2001

- **The Defense Department should take pains to ensure that when it draws up budgets, it invests in systems and programs that are interoperable ...”**

VADM Arthur Cebrowski, Director Office of Force Transformation

- **“We must build forces that draw upon the revolutionary advances in the technology of war ... one that relies more heavily on ... information technologies.”**

George W. Bush, Commander in Chief

How to get from “Here” to “There”

Technical Considerations

- How Much Interoperability?
- What to Connect?
- Steps to Implement
 - Communications
 - Intelligence Surveillance Reconnaissance
 - Information Management
 - Command and Control
 - Network Management
- Legacy Issues
 - Hardware and software compatibility
 - “Humanware” compatibility

How to Get from “Here” to “There”

Organizational/\$ Considerations

- Organizational
 - Top-down leadership and guidance across the interoperable elements
 - Large-scale integration approach to tackle complexity and bring best of industry and government together
- \$
 - Leverage Government and Industry “Partnership”

Transformation across the way we do business together is required

“Interoperability” is too good to pass up, but...

- **“All the high-tech weapons in the world won’t transform our Armed Forces, unless we also transform the way we think, train, exercise and fight.”**

Donald Rumsfeld, Secretary of Defense, 31 January 2002

- **Transformation is equally important in requirements, design, development, testing & deployment of new capabilities**
- **Industry must transform itself along with its customers**