Leveraging Integration Solutions for Network Centric Environments
Networks Versus Networks

[Diagram of network connections with names and relationships]

- American Airlines Flight 77 (Pentagon)
- American Airlines Flight 11 (TWA)
- United Airlines Flight 175 (WTC)
- Other associates of hijackers
- Trained pilots on hijacked planes

[Legend: Strong link, Less strong but still substantial link, More tenuous link]
Why NCO?

Precision, made possible by information

Massing of effects

Small groups on a non-linear battlefield

The CNN factor

The economics of information

Transformation means Mission Capability Packages
NCO architecture

- Focus on operations
- Integrated picture of business, processes, organization, information and technology
- Pragmatic
Information Superiority is a Vital Component of Success for a Network Centric Environment

- **Greater Information Requirements**
  - Need the ability to seamlessly **connect** applications and systems in a secure, standards based, and real time environment
  - The right information, at the right time in order to make the right **decisions**
  - Require the ability to **share** information and effect decisions within and across multiple armed services, departments and partners.
- Reliability and Scalability
- Security
Tenants of Network Centric Warfare

- Robustly networked force improves information sharing
- Information sharing enhances the quality of information and shared situational awareness
- Shared situational awareness enables collaboration and self-synchronization, and enhances sustainability and speed of command
- Increase Mission Effectiveness
Adapting To Network Centric Operations
Characteristics of a Network Centric Environment

- Heterogeneous Network that facilitates force wide information sharing (seamless collaboration)
- Move from platform centric to network centric environment
- A common operation picture that is generated and fed by an integrated network of applications, sensors and data
- Information is now a service provided by the network and made available to all units at all levels
- A network that integrates information across all lines of a defense enterprise (logistics, payroll, intelligence, C2, etc.)
- Joint functionality and Cross Service/Agency Collaboration
- Moving a step beyond situational awareness (Network Based Decisions)
- Fundamental Change to the Warfighter’s Business
Leveraging Integration Solutions for Network Centric Environments for the Military

Back-end
- ERP Admin
- Logistics
- Provisioning, Transports
- Skills / training
- HR, Maintenance
- Intelligence, Logistics
- Procurement, Medical Records
- Crisis Management, Police, Reserves/National Guard

Command & Control
- Decision support
- Mission Setup
- Mission Admin

Sharp-end
- Sensor Network (Info Gathering)
- Automatic Weapon Systems
- Weapon Systems

End to end - secure, scalable, pervasive application and integration infrastructure
Real World Examples (Predator/Embassy)
CAPPS II (Homeland Security)
Stryker/MRLN (US Army)
USAMMA (US Army)
Australian MOD (Defense)
Netherlands MOD (Defense)
Intelligence Portal (Security Agency)
CAPWIN (Homeland Security)
US Customs (Homeland Security)
DCGS-A (US Army)
Boeing Tanker (US Air Force)
GCSS (US Air Force)
Collaboration At Sea

IBM Software Group
Collaboration at Sea in the Low Bandwidth Multinational Naval Task Group Environment - Using Collaboration to facilitate tactical and strategic decisions.
The “4 Cs”: Key to Security, but a Real Challenge

**Communication:** The basic capabilities of accessing and sharing accurate and timely information required to accomplish the customer’s safety and security mission.

**Coordination:** The capability for multiple individuals within an organization, and for multiple organizations, to take appropriate, synchronized actions to implement the decisions taken in a collaborative environment.

**Collaboration:** The ability for multiple individuals within an organization, and for multiple organizations, to work together to effectively process shared information and make appropriate, informed decisions.

**Control:** The capability to control
- access to the U.S. borders
- access to sensitive information
- access to secure physical locations
- access to secure physical devices
With CapWIN: Enhanced Mobile Communications & Information Access

- VCIN: Virginia State Database
  - Alexandria Switch
  - Alexandria Police
- NCIC Databases
  - Fire/EMS
  - Local Transportation
  - CHART
  - Medical Data
  - VDOT STC
- MILES: Maryland State Database
  - Montgomery Co. Switch
  - Montgomery Co. Police

WebSphere software
Local Transportation
Medical Data
Distributed Common Ground System – U.S. Army

IBM Software Group
DCGS Family of Systems

DCGS will provide the Intelligence Surveillance & Reconnaissance (ISR) Infosphere

KPP 1 - Info exchange with Army, Service, National, Allied, Coalition & Commercial systems. Provides interoperability with other intelligence and battlefield operating systems.
DCGS – A System Description

- Network Centric Environment – to achieve information exchange
- Distributed Shared Environment – query capability
- Modular & Scalable
Imagine that you could
- describe a process
- graphically model it
- simulate the network centric operations
- make iterative changes to optimize results...

then rapidly deploy the process by
- drawing relationships between data, servicemen, systems and partners
- identify and mark key business indicators
- customize the solution for specific deployments
- test your process and make sure that it runs as expected...

and, once in production,
- watch your network centric processes running in real time
- quickly respond to alerts
- make real-time decisions about process operations
- collect, analyze and compare operational performance against the simulation...

Common Framework
- Tooling
- Business Objects
- Adapter Framework
- Services oriented architecture
- Browser based GUIs
Enterprise Integration Architecture Requires:

An integration solution that delivers a full range of proven capabilities to attain a seamless collaborative IT environment for NCW

- **Model** and simulate the business processes.
- **Integrate** the islands of processing.
- **Connect** customers and business partners.
- **Monitor** the business processes end to end.
- **Manage** the business effectiveness and improve the processes.