Computing Services and Assured Computing

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Chief of Operations
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Overview

- Computing Services
  - Background
  - Computing environment
  - Chain of Command

- Assured computing
  - Defined
  - Data and Software
  - Facilities
  - Communications
  - Processes

- Net-Centricity
- Summary
Mission Statement

Computing Services

“To deliver computing information products and services that enable and enhance the war-fighters’ ability to execute the mission.”
We run IT Systems that:

- provide command and control
- provision ships
- provide medical care
- manage transportation
- pay the warfighters
- manage maintenance
- manage parts and replenish supplies
Our Battlefield

- 3.2 million+ registered users
- 1,400 applications
- 18 facilities
- 180 software vendors
- 18,000+ copies of executive software products
- Virtually every type of mainframe and server
  - 45 mainframes and 4,600+ servers
- Every type of storage device
- Supporting dozens of development activities
- $700 million annual budget
Geographic Locations

Systems Management Center (SMC) – mainframes and servers
Infrastructure Services Center
Processing Element
OCONUS Defense Enterprise Computing Center (DECC)

Headquarters
Puget Sound
Ogden
Denver
San Diego
Hawaii
San Antonio
Oklahoma City
Rock Island
Columbus
Dayton
St Louis
Huntsville
Montgomery
Norfolk
Pensacola
Jacksonville
Warner Robins
Mechanicsburg
Chambersburg
NCR
Europe

Pacific
Rock Island
Ogden
San Diego
Hawaii
San Antonio
Oklahoma City
Rock Island
Columbus
Dayton
St Louis
Huntsville
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Europe

Pacific
Workloads by Customer

- Air Force 26%
- Army 6%
- DLA 14%
- DISA 12%
- DFAS 17%
- Health Affairs 9%
- Navy 9%
- Marines 1%
- Other 6%
Pre-Transformation Reporting Chain

Inherited DIVERSITY of 194 SITES
Post-Transformation Reporting Chain

Computing Services Center Director

Operations

Business
Finance

Engineering
Personnel

Communications

Central Comm Ctrs

Communication

Processing Elements

Director

Processing Elements

Technical

Operational Support Teams
SECDEF designated DISA Director as Commander, JTF-Global Network Operations

One Team, One Fight
Assured Computing
Importance and Combat

• The last two decades --
  – Increasing day-to-day reliance on IT by warfighter
  – Information has become fundamental to prosecution of the nation’s will
    • Inextricably threaded into warfighter processes
    • Enables joint task force deployment, employment, sustainment

• Warfighter IT support today
  – A single system of data processing
  – Systems known as “combat support” now essential to successful combat operations
Decreasing Tolerance for Down Time

“We need to prevent disruptions, and when they occur, we need to make sure they are infrequent, short, and manageable.”

*Thomas Ridge, Director of Home Security Act*
Non-disruptive service to the end user, achieved through reliable, secure, and virtualized processing and networking environments.
Assured Computing

System Availability

The Pillars
- Processes
- Communications
- Data Availability
- Software
- Facility

The Foundations
- Capacity on Demand
- Smart Sourcing
- Enterprise Acquisition
- High Bandwidth Communications
Assured Computing

System Availability

Processes
Communications
Data
Software
Facility

Capacity on Demand
Smart Sourcing
Enterprise Acquisition
High Bandwidth Communications
• **Unisys mainframes**
  – Application and data replication between DECCs operational since Dec 2001
    • 24 TB < 2 min data loss

• **IBM mainframes**
  – Application and data replication between DECCs operational since Sep 2005
    • 83 TB < 1 sec data loss
    • Also includes backup CPUs, capacity for production and testing, silo capacity, and peripheral support

• **Servers – case by case**
Mainframe Example
Unisys

DECC Ogden

Unisys Dorados

Production

EMC Frames

Storage

Comm equipment

Remote site’s data
Production data

SRDF over IP
(1 DS3)

Wide Area Network

DECC Oklahoma City

Unisys Dorados

Production

EMC Frames

Storage

Comm equipment

Remote site’s data
Production data

Unisys Dorados

Fail-over Production processors

All Applications and Data
Server - Example 1

Air Force Depot Maintenance

DECC
Oklahoma City
Primary

Web and Application Servers
Mirrored Disk Array
External Interfaces

Dataguard

DECC
Warner Robins Failover

Web and Application Servers
Mirrored Disk Array
External Interfaces

Users

Users
Assured Computing

System Availability

Processes
Communications
Data Availability
Software
Facility

Capacity on Demand
Smart Sourcing
Enterprise Acquisition
High Bandwidth Communications
Typical DECC Facility

DECC Oklahoma City

98,000 square feet; 68,500 of raised floor
DECC Oklahoma City (as a typical DECC)

- Sub Station A 12,470 Volt Feed
- Automatic Transfer Switch
- Sub Station B 12,470 Volt Feed
- 1200 Batteries/5000 kVA UPS
- UPS Control Panel
- Main Switch-Gear
- Four 1750 kW Diesel Generators
- 22k Gallon Fuel Reserve
DECC Oklahoma City (as a typical DECC)

• Engineered fault tolerant, high availability
  – Four, 350-ton chillers and cooling towers provide 100 percent redundancy
  – 40 air units distribute conditioned air throughout facility
  – Power distributed to 25 power distribution modules
  – Dual, independent electrical feeds to each platform, - each platform with dual power supplies

• “Smart” automated facility management system
  – Moisture, under floor water, temperature sensors and alarms
Facility Security

- **Physical Security**
  - 24 x 7 Security Guards
  - Controlled/Alarmed Access
  - Security Cameras

- **Information Assurance**
  - Security Professionals
  - DoD/NSA Compliant Policies and Tools
  - Security Readiness Reviews
  - Network Monitoring / Intrusion Detection
Assured Computing

System Availability

Processes
Comms
Data
Software
Facility

Capacity on Demand
Smart Sourcing
Enterprise Acquisition
High Bandwidth Communications
Wide Area Network

DECC Oklahoma City (as a typical DECC)

- Vendor Diversity (COX + SBC)
- Path Redundancy
- Self-healing fiber architecture
- High bandwidth (OC192)
Internal DECC Network

- Local Infrastructure
  - Redundant DISN hubs
  - Redundant NIPRNet core routers
  - Fault-tolerant internal routers and switches
  - Gigabit switching
  - Multiple Virtual Private Network implementations
  - Redundant SIPRNet connections
  - Separate management VPN
Assured Computing

System Availability

Processes Communications Data Software Facility

Capacity on Demand Smart Sourcing
Enterprise Acquisition High Bandwidth Communications
“Process” Tenants

• Virtualized management: technical capability
  – From any location (secure)
  – Of all platforms/comms at any location (secure)

• Virtualized systems management: staff
  – Application, operating system, database, & communications expertise hot “failover”
  – Help desk hot “failover”

• COOP/BCP
  – Systems, sites, headquarters
  – Tested until SOP
Within Computing Services:
- Geographic location has become irrelevant
- Management from anywhere is SOP

because we are
Supporting Net-Centric Warfare
Who We Are
What We Do
Why We’re Here

Which Is

Who We Are
What We Do
Why We’re Here
Summary

• Assured Computing provides:
  – Net-centric computing and operations
  – Customer service and support
  – Information mart
    • Data availability
    • Data integrity
    • Data accessibility
    • Data recovery
  – Content to the ‘Edge’, around the globe

• Always “there” exactly when needed!