Cloud Computing and Enterprise Services

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Technical Program Director
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Agenda

• “The Cloud”
• DISA’s Cloud Portfolio
  – Rapid Access Computing Environment (RACE)
  – GIG Content Delivery Service (GCDS)
  – SynApps
  – Sharepoint initiatives
  – Forge.mil
• Use Case: Apps for the Army (A4A)
• Path to Production
• Applications Development Guide
“The Cloud”

A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. (NIST)

**Characteristics**
- Rapid Elasticity
- On Demand Self-Service
- Broad Access
- Resource Pooling
- Measured Service

**What’s new?**
- Acquisition Model: Based on purchasing of services
- Technical Model: Scalable, elastic, dynamic, multi-tenant, & sharable
- Access Model: Over the network to ANY device
- Business Model: Based on pay for use

**Computing As A Service**
Develop & Deploy
Within The Decision Cycle

- Our strength is in our ability to make decisions better and faster than adversaries
- Web 2.0 technologies accelerate this cycle
- Software development has to keep up
- Governance & policy must keep up

Military Decision Making Cycle

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Procure</th>
<th>Code</th>
<th>Test</th>
<th>Certify</th>
<th>Total Time to Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Approach</td>
<td>6 Months</td>
<td>6-12 Months</td>
<td>6 Months</td>
<td>18-24 Months</td>
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<tr>
<td>Cloud Approach</td>
<td>24 Hours</td>
<td>2-6 Months</td>
<td>Days</td>
<td>3-6 Months</td>
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</table>
DISA Cloud Services Portfolio

- Data-as-a-Service
- Software-as-a-Service
- Platform/Infrastructure-as-a-Service

Forge.mil
Software Development

RACE
Compute/Store

GCDS
Content Delivery
Rapid Access Computing Environment (RACE)

- RACE supports agile development in a closed community cloud
  - Fast access to computing resources for application test and development (T&D)
  - More controlled than commercial
  - Easier to access than DoD production
  - Smooth path to production with security validation
  - Meets DoD standards for secure computing

- Production cloud ongoing efforts
  - Foundation is capacity services contracts
  - Tools in place to support Windows and Linux
  - Enterprise Portal will provide access to all services
  - Orchestration tools will support more mature cloud services
  - Location independent capabilities

Rapid, standard, self-service capabilities
Globally Distributed Enterprise Computing Infrastructure

Saving Millions in IT Expansion Costs for DoD
50 Regions in 25 cities/12 Countries Deployed Deep in SWA
DISA’s First Cloud Service

Accelerating Collaborative Applications to Warfighters
2X to 30X Performances Improvements
85.7% DISN Bandwidth Offload (June)

46 Multi Service Enterprise Applications LIVE
Service & Mission Support Portals, Geospatial & eLearning Applications, Large File Downloads (Anti-virus, MS Patches, CRL)

Adjusting Quickly to Changes in Network Conditions
Demonstrated availability in theater during Mideast cable cuts GCDS Applications Remained Operational at all times

Excellent Customer Feedback & Reputation

<table>
<thead>
<tr>
<th>DISN CLOUD</th>
<th>ARMY</th>
<th>NAVY</th>
<th>AIR FORCE</th>
<th>MARINES</th>
<th>DoD</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td>NIPRNET</td>
<td>2</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>11</td>
<td>27</td>
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<tr>
<td>SIPRNET</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>37</td>
<td>59</td>
</tr>
</tbody>
</table>

Extending Computing Power To The Edge
**GCDS Way Ahead**

**NetStorage Data Repository into GCDS (Available August 2010)**
NetStorage is a data repository service that will provide for the rapid retrieval of large amounts data within the GCDS platform from an edge location closer to the warfighter than the origin server, providing a global positioning of storage available to be delivered immediately to the warfighter from multiple global positions, ensuring storage is available even when the origin server is down.

**Global Traffic Management (GTM) Service into GCDS (Available August 2010)**
Coupled with the NetStorage deployment, the GTM enhances the reliability of content delivery data to the end users.

**Streaming Services (GCDS Media Delivery) (Available Soon)**
On-demand enterprise audio and video which is delivered at the edge, incorporating acceleration methods within the GCDS network. Providing the warfighter with audio and video capabilities far exceeding the capabilities today to deliver information with increased performance and availability.

**Implement GCDS to Support the Intelligence Community Networks**
Expansion of GCDS to intelligence networks such as JWICS to allow for greater performance and availability within those networks to support the warfighter, especially in forward bandwidth restricted areas.

**GCDS Trial and Pilot (In Development)**
Provides the customer the "As-Is" for the current network traffic and the "To-Be" with an Enhanced GCDS Extension of their enclave. The Pilot would allow a GCDS Test Drive for 30 days at minimal cost to the customer.

Bringing Enterprise Services and Cloud Computing to the EDGE
System Network Availability Performance Service (SyNAPS)

- Currently a component of GCDS
- Monitors both user and system initiated network traffic
- Collects network and server performance and availability between client machines and servers and between servers, collecting network and server performance and availability data in real time.
- Enables administrators to pinpoint the cause of delays and quantify the business impact of detected performance issues related to end users
- Optimizes the availability, performance and effectiveness of business services and applications

Quickly pinpoints performance shortfalls and potential cause of problems
SharePoint Initiatives

• **Service Features**
  - Online discussion areas, shared document and meeting workspaces, document libraries with version control and surveys
  - Out-of-the-box content management for documents, records and Web contents
  - External user access sites for customers to collaborate that is isolated from internal organizational sites
  - Ability to search SharePoint site across the entire organization
  - E-mail alerts when documents and information have been changed or added to a site
  - Internet accessible private and publish content publishing
  - Scalable to thousands of sites within an organization, so that managers can delegate site creation to others
  - Dedicated servers, networks and physical space with the DECCs

• **Optional Features**
  - Additional storage to accommodate growth
  - Granular content backup/restore capability for site and item level recovery
  - Enhanced enterprise SharePoint administration tools
  - Site-to-site COOP/DR capability
  - WAN acceleration and content delivery service to improve edge user experience and system response times
Forge.mil (Software Development)

Systems Development Life Cycle (SDLC)

- The logical process used to develop an information system
- Includes requirements validation, training, and user ownership
- Works like a library – Code checked out, worked on, & checked in

DoD SDLC

- First standardized approach to an enormous problem
- Proven development model
- Based on the open source community’s approach

Forge.mil “Bits & Pieces”

- Public: Freely available to all DoD users
- Shared: All DoD users can access the same code development environment for DoD open source and community source software
- Available: Today

- Common evaluation criteria and an agile certification process to accelerate the certification of reusable, net-centric solutions
- Available: TBD

- Private: Allows a closed development environment for DoD projects and programs
- Fee-for-service
- Availability: Today

DoD’s Software Development Life Cycle
Forge.mil and RACE: Accelerating the Path to Production

Implementing the platform and services to support evolving governance processes and standards
Use Case: Apps for the Army (A4A)

**Project Goal:** Apps for the Army is an innovative challenge that seeks to connect the untapped potential and creativity of the Army.mil community to develop applications that support the Warfighter and Army business user.

The six phase approach provides structure, with the ability to adjust and maintain alignment with the Army Software Transformation as it evolves.
Army, DoD & DISA Initiatives

Apps for the Army is a pilot closely aligned with elements of the Army Software Transformation, the DoD Storefront, and AKO Go Mobile.

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<thead>
<tr>
<th>Army Software Transformation (AAIC)</th>
<th>DoD Storefront Goals (OSD)</th>
<th>Apps for the Army Solution</th>
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<tbody>
<tr>
<td>Standardize User Environments and SDKs</td>
<td>Deploy in a Government Virtual Computing Environment (e.g. RACE, NASA Nebula)</td>
<td>Work with AONS and CERDEC to develop standard VM images for the DISA RACE environment</td>
</tr>
<tr>
<td>Establish Streamlined Enterprise Software Processes</td>
<td>▪ Open Source, GOTS Software</td>
<td>Leverage forge.mil, AKO, and milSuite to capture information and knowledge</td>
</tr>
<tr>
<td>▪ Partners: RACE, forge.mil</td>
<td>▪ Partners: RACE</td>
<td></td>
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<tr>
<td>Create an Army Application Marketplace</td>
<td>Marketplace: Galvanize third-party developers across the DoD Enterprise</td>
<td>Identify, judge, and rate innovative apps and deliver release packages for testing</td>
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</tbody>
</table>

Army Software Transformation Plan  
Storefront Operational Concept  
Apps for the Army Project Timeline

Department Software Developers In Alignment
The Path To Production offers RACE Customers a migration to production environments and an accelerated C&A process.

**Virtual Operating Environment Migration**
- The Path-to-Production allows users to migrate their Development (Zone B) environments to Limited User Testing (Zone A) environments.
- When Limited User Testing is completed, the customers are able to seamlessly transition to a DECC production environment.

**Accelerated C&A Process Execution**
- Inheritance of the RACE cloud and DECC facility is leveraged to implement IA controls in the VOEs.
- Virtual Operating Environments that are purchased from RACE are pre-hardened, and Developer Friendly.
- Tools that facilitate automation and workflow management of the C&A process such as eMASS are implemented.
Applications Development Guide

• Objective End State: To define current technologies, interfaces, and architectures that are critical to the development of applications and define implementations of emerging technologies and services

• Timeline: Draft by end CY10

• Community Input: Collaborative process so that CSD and developers better understand type of information that would improve their ability to efficiently develop and field applications in the DECC environment.

A Chance For Partnership
Enabling the Cloud Environment

- Infrastructure
  - Standardization
  - Consolidation
  - Capacity Services
  - Virtualization
  - Content Delivery
  - Rapid Provisioning

- Services
  - Software (SaaS)
  - Applications
  - Communications

- Processes
  - Metrics & benchmarking
  - ITIL
  - Service Level Management (SLM)
  - Security (Certification & Accreditation (C&A))

It’s A Journey