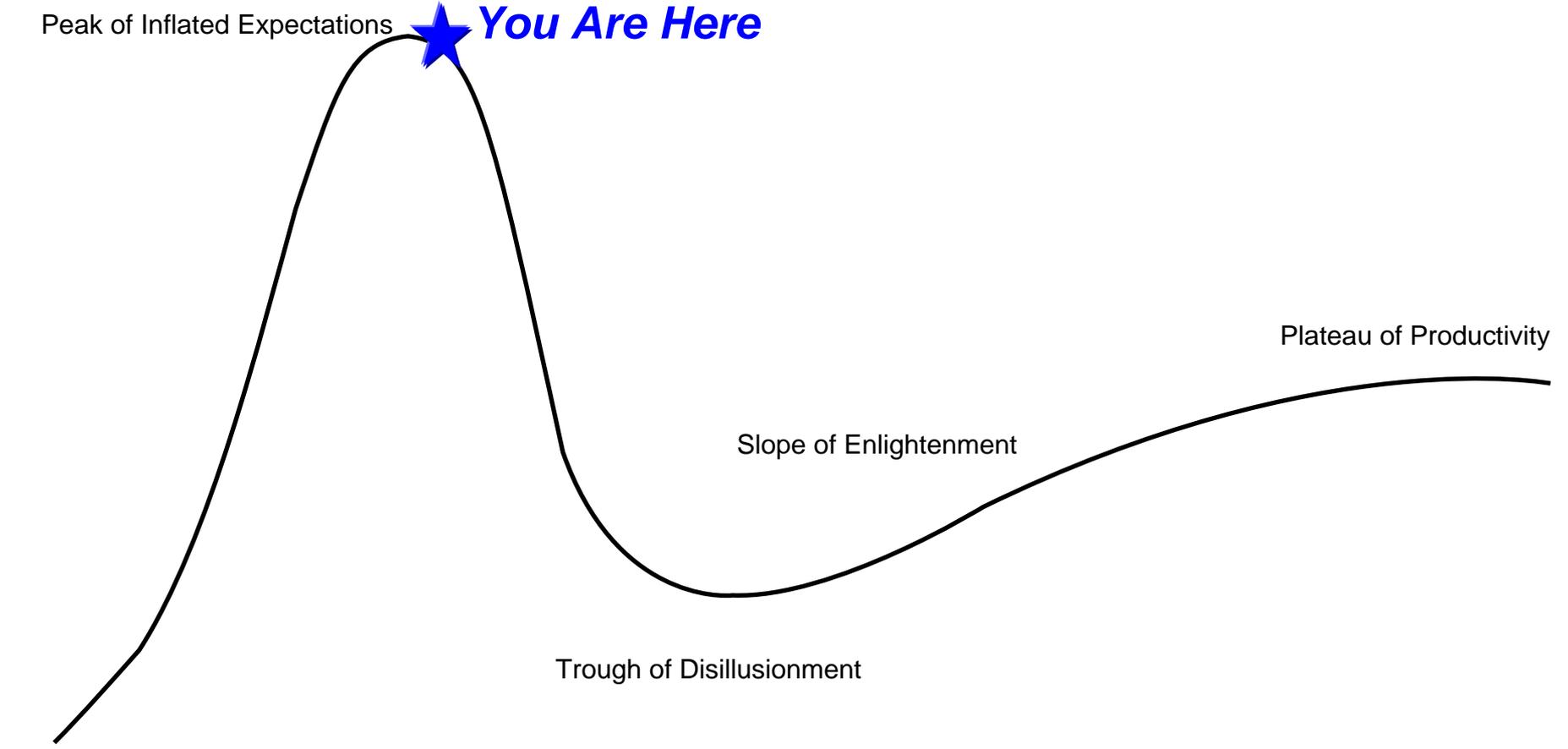**DISA**

Defense Information Systems Agency

A Combat Support Agency

Cloud Computing and Enterprise Services

Alfred Rivera
Technical Program Director
29 July 2010

Gartner Hype Cycle diagram

DISA — A Combat Support Agency

Peak of Inflated Expectations

You Are Here

Plateau of Productivity

Slope of Enlightenment

Trough of Disillusionment

Technology Trigger

2

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?

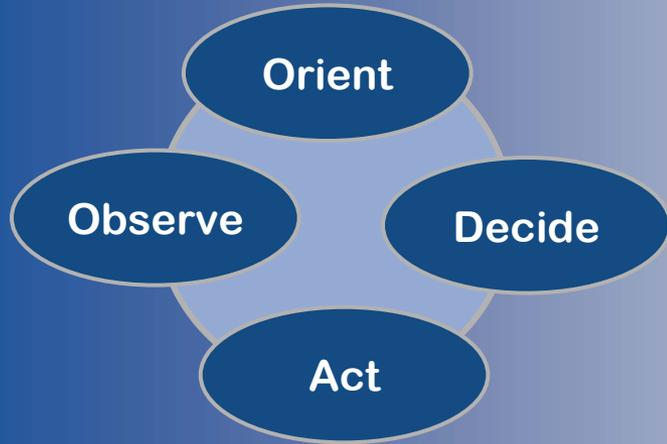- Acquisition Model: Based on purchasing of services
- Technical Model: Scalable, elastic, dynamic, multi-tenant, & sharable
- Access Model: Over the network to ANY device
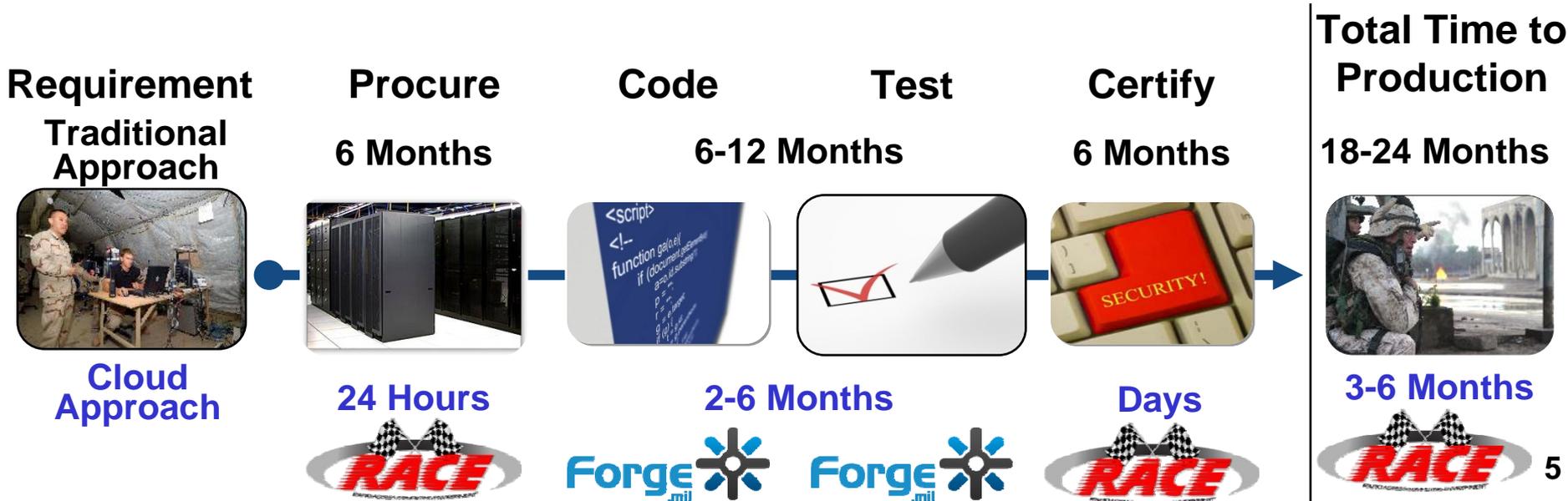- Business Model: Based on pay for use

Computing As A Service

Develop & Deploy Within The Decision Cycle

Military Decision Making Cycle
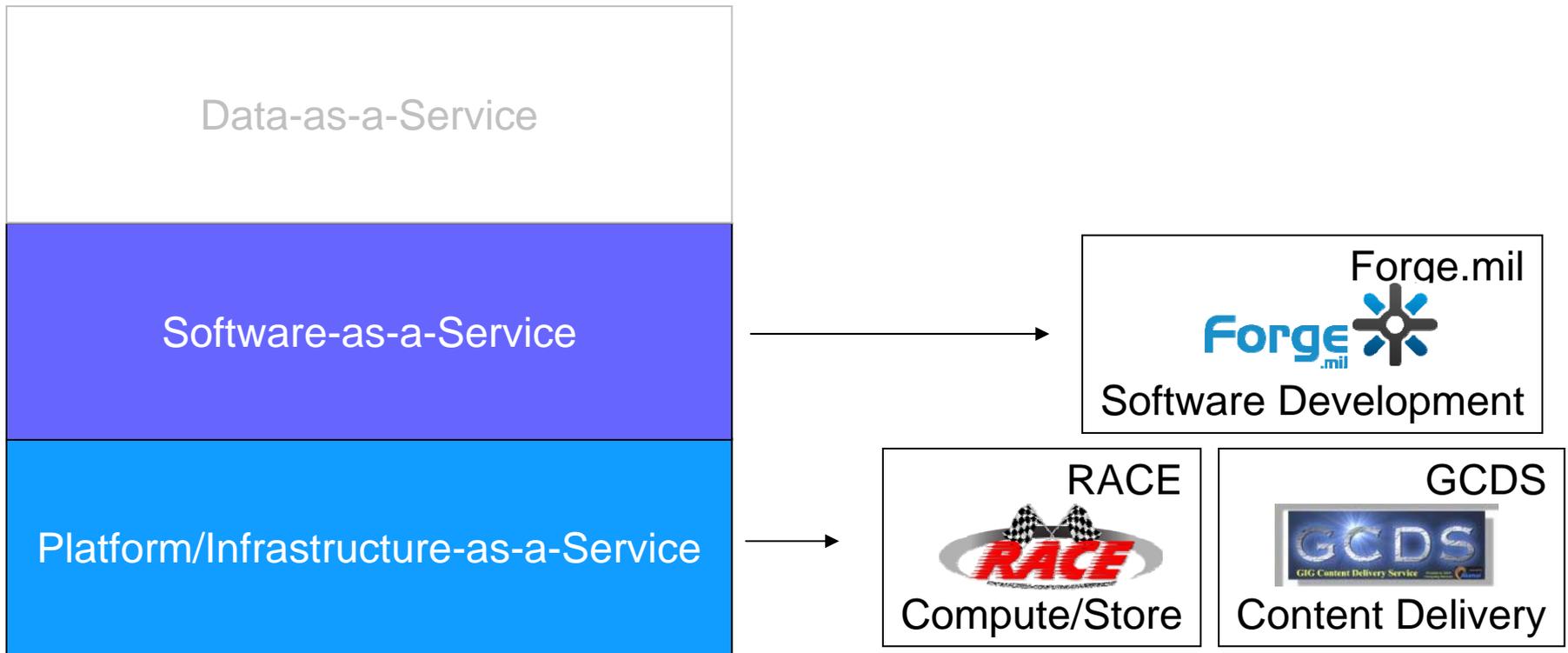
- Orient
- Observe
- Decide
- Act

- 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**

	Requirement	Procure	Code	Test	Certify	Total Time to Production
Traditional Approach		6 Months	6-12 Months		6 Months	18-24 Months
Cloud Approach		24 Hours	2-6 Months		Days	3-6 Months

RACE · Forge.mil · Forge.mil · RACE · RACE

DISA Cloud Services Portfolio

Rapid Access Computing Environment (RACE)
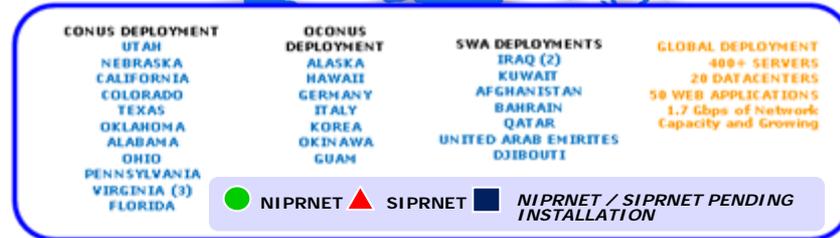
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- **RACE supports agile development in a closed community cloud**
  - **Fast access to computing resources for application test and development (T&D)**
  - **More controlled than commercial**
  - **Easier to access than DoD production**
  - **Smooth 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**
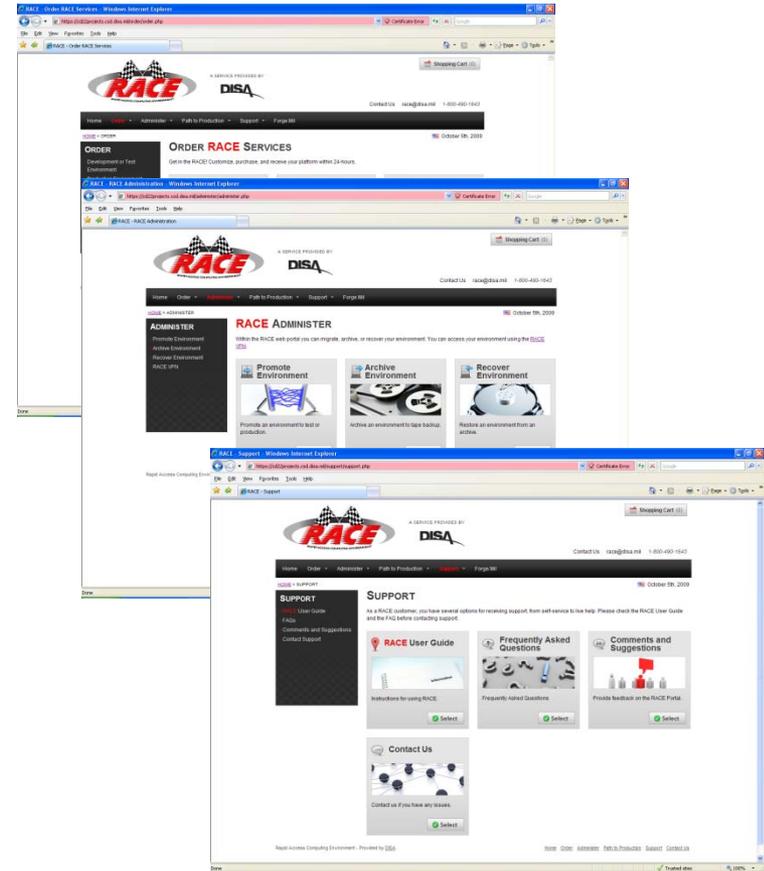
Rapid, standard, self-service capabilities

DISA Global Content Delivery (GCDS)

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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

DISN CLOUD	ARMY	NAVY	AIR FORCE	MARINES	DoD	TOTAL
NIPRNET	2	10	4	0	11	27
SIPRNET	3	0	1	2	26	32
TOTAL	5	10	5	2	37	59

CONUS DEPLOYMENT
UTAH
NEBRASKA
CALIFORNIA
COLORADO
TEXAS
OKLAHOMA
ALABAMA
OHIO
PENNSYLVANIA
VIRGINIA (3)
FLORIDA

OCONUS DEPLOYMENT
ALASKA
HAWAII
GERMANY
ITALY
KOREA
OKINAWA
GUAM

SWA DEPLOYMENTS
IRAQ (2)
KUWAIT
AFGHANISTAN
BAHRAIN
QATAR
UNITED ARAB EMIRITES
DJIBOUTI

GLOBAL DEPLOYMENT
400+ SERVERS
20 DATACENTERS
50 WEB APPLICATIONS
1.7 Gbps of Network Capacity and Growing

● NIPRNET   ▲ SIPRNET   ■ *NIPRNET / SIPRNET PENDING INSTALLATION*

Customer	Total BW	BW from Origin	BW Offload Savings
NKO	160 GB	62 GB	61%
NEL (5)	450 GB	45 GB	96%
GDS CRL	7129 GB	5 GB	99.9%
GCSS-AF	150 GB	60 GB	60%
AKO	154 GB	7.6 GB	95%
ADLS	338 GB	30 GB	91%
Both NIPRet & SIPRNet			
DoD Symantec	8.74 GB	2.48 GB	72%
DoD McAfee	2.9 GB	0.12 GB	96%
Customer	Total BW	BW from Origin	BW Offload Savings
CJTF (2)	40.85 GB	16.92 GB	59%
MNFI	956 MB	0.05 MB	99.98%
MARCENT (2)	24.56 GB	6.37 GB	74%
NGA (6)	12.1 GB	5.9 GB	51%
Intelink	238.5 GB	102 GB	57%
TEC	20.4 GB	13.2 GB	35%

Extending Computing Power To The Edge

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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)

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- **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

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- **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

Share/Dedicated ~ MOSS ~ Web based ~ Per User Pricing

Forge.mil (Software Development)

Systems Development Life Cycle (SDLC)

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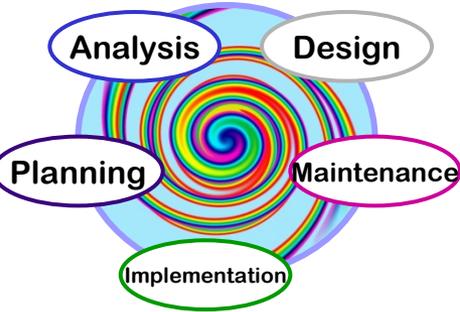
- The logical process used to develop an information system
- Includes requirements validation, training, and user ownership
- Works like a library – Code checked out, worked on, & checked in

DoD SDLC

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

SOURCEFORGE®

Forge.mil "Bits & Pieces"

software Forge .mil
- **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
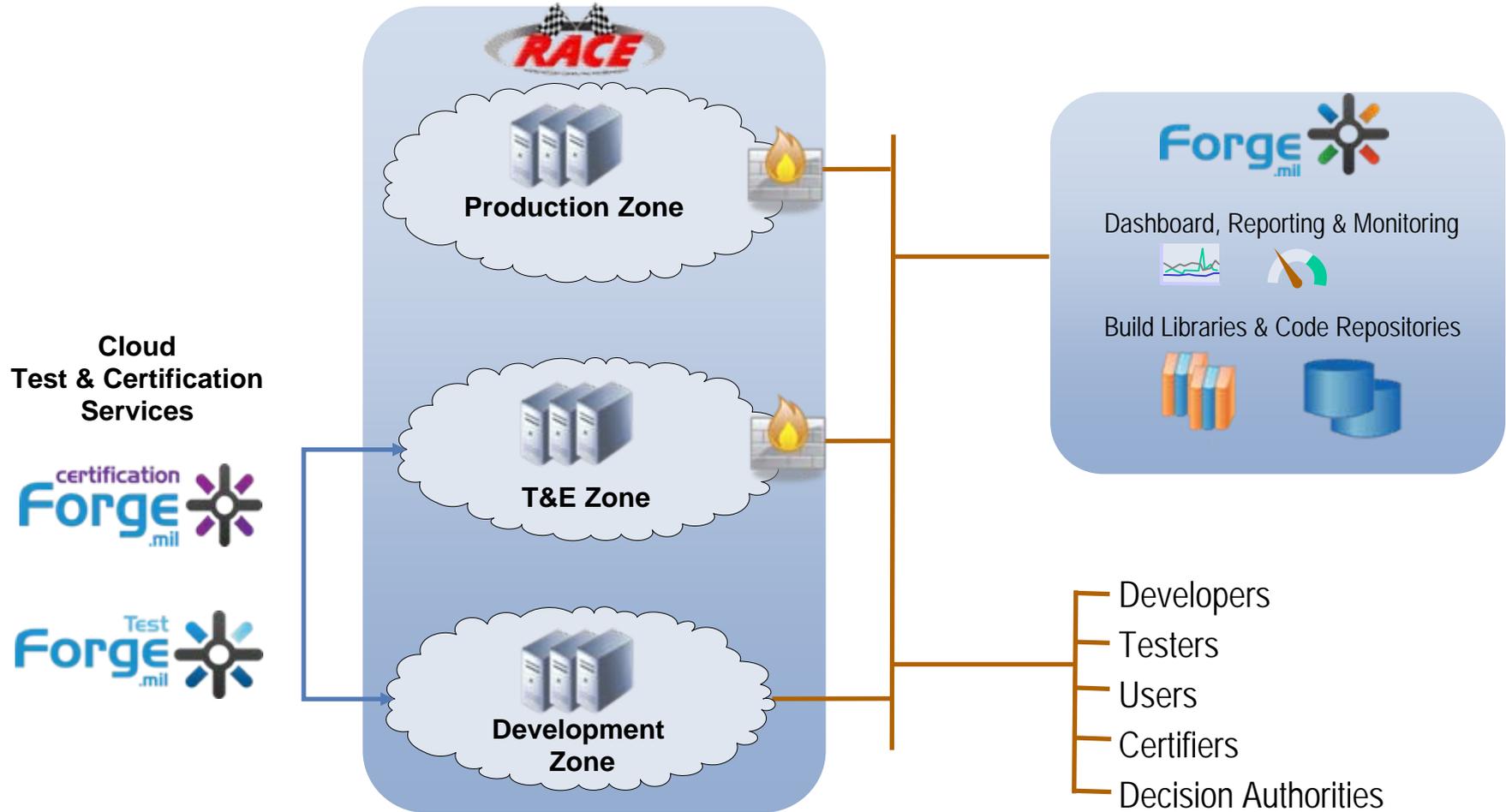- **Available:** Today

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

project Forge .mil
- **Private:** Allows a closed development environment for DoD projects and programs
- Fee-for-service
- Availability: Today

DoD's Software Development Life Cycle

Use Case: Apps for the Army (A4A)

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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.

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
CONOPS & Scope Process	**Initiation & Planning**	**Execution & Judging**	**Announce Winner & AAR**	**Transition**	**Deploy App to Army**

Phase 1
- Scope Process
- CONOPS
- Development Environment
- Participants
- Legal Considerations

Phase 2
- Roles & Resp.
- Technical Environment
- LOI/PIA
- Logo
- Legal Review
- AKO Web Site
- ROC Drill
- Strategic Communications
- Budget
- Judging Criteria

Phase 3
- Manage Resource
- Track Progress
- Strategic Communications
- Competition Technical Support
- Proof of Concept
- Judge Apps
- Certification & Accreditation

Phase 4
- Rewards
- Demonstration
- LandWarNet
- Thank You Notes

Phase 5
- Transition Apps to Army Software Transformation
- Program Transition
- Policy Updates

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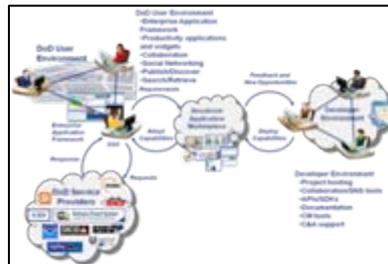
Army, DoD & DISA Initiatives

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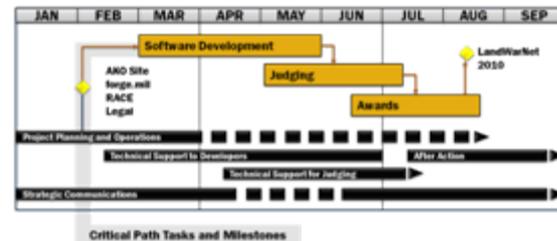
Army Software Transformation (AAIC)	DoD Storefront Goals (OSD)	Apps for the Army Solution
Standardize User Environments and SDKs	Deploy in a Government Virtual Computing Environment (e.g. RACE, NASA Nebula)	Work with AONS and CERDEC to develop standard VM images for the DISA RACE environment
Establish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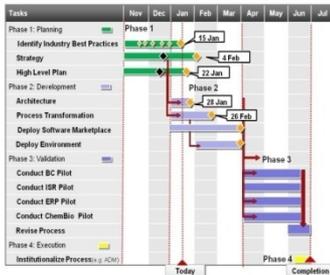
Army Software Transformation Plan

Storefront Operational Concept

Apps for the Army Project Timeline

Department Software Developers In Alignment

![DISA logo] **DISA**
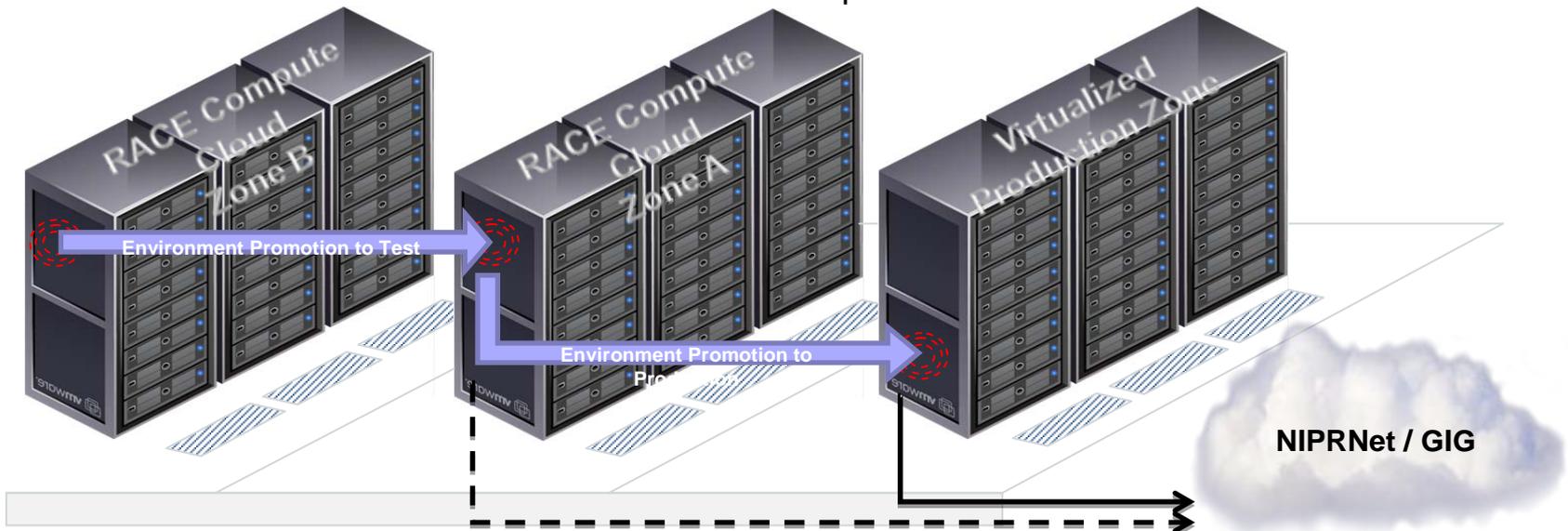**A Combat Support Agency**

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

RACE Compute Cloud Zone B

RACE Compute Cloud Zone A

Virtualized Production Zone

Environment Promotion to Test

Environment Promotion to Production

NIPRNet / GIG

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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

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🖧 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