

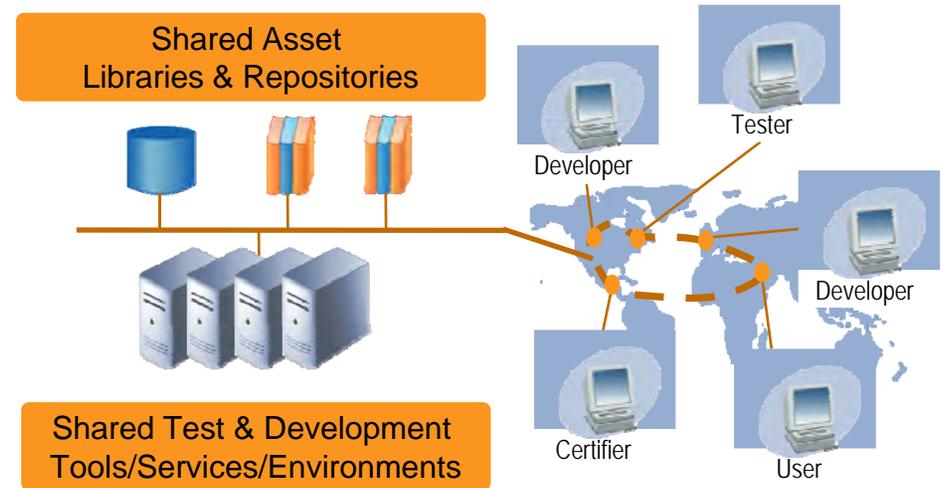
DoD Open Source and Community Source Software Development in Forge.mil

SoftwareForge Document ID – doc26066

Forge.mil

TODAY

- Siloed development environments
- Expensive and time consuming start-up
- Limited exposure, sharing, or re-use
- Duplication of effort



FORGE.mil

- Agile development and testing
- Cross-program sharing: software and services
- Early and continuous collaboration
- Integrated approach to development life cycle
- Extensible platform to support delivery of partner capabilities





Policy and Guidance

HR 2647, National Defense Authorization Act for Fiscal Year 2010, Sec. 804.

“The Secretary of Defense shall develop and implement a new acquisition process for information technology systems. The acquisition process developed and implemented pursuant to this subsection shall, to the extent determined appropriate by the Secretary —

. . . be based on the recommendations in chapter 6 of the March 2009 report of the Defense Science Board Task Force on Department of Defense Policies and Procedures for the Acquisition of Information Technology; and

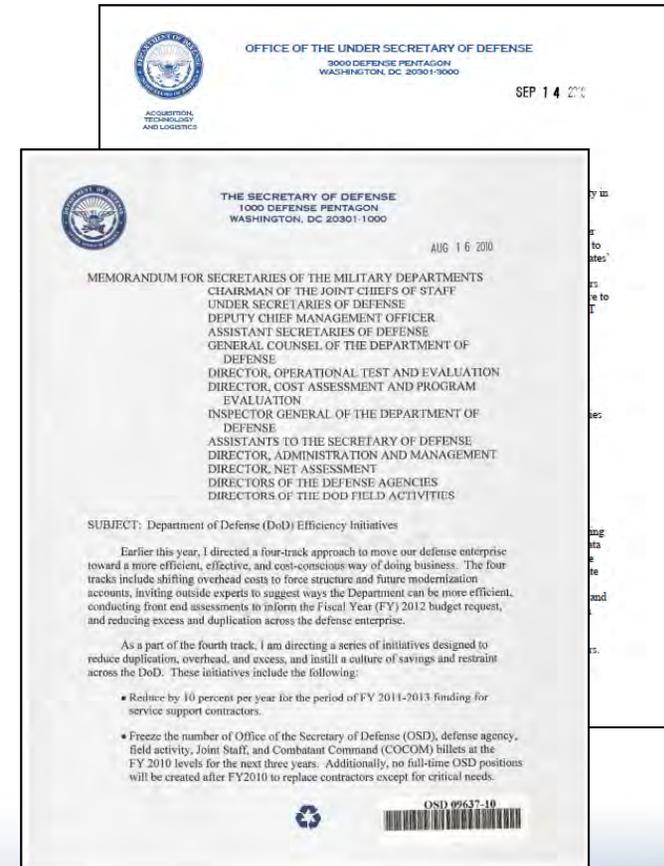
. . . be designed to include —

- early and continual involvement of the user;*
- multiple, rapidly executed increments or releases of capability;*
- early, successive prototyping to support an evolutionary approach; and*
- a modular, open-systems approach.”*



Additional Guidance

- SecDef Memo – Department of Defense Efficiency Initiatives
- OSD (AT&L) Memo – Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending



Forge.mil Vision

Forge.mil Community – Stakeholders and SMEs



Collaborative Development/Test Environment



Cloud Computing Services

Improve DoD's ability to rapidly deliver dependable Software, Services and Systems

Process and Methods



Agile Software Development



Continuous Delivery

Tools and Resources



Continuous Integration



Community Shared Knowledge and Best Practices



Testing Services



Forge.mil Family of Services



Collaborative content and knowledge management site for Forge.mil users to connect and share information



Free, collaborative development environment for open-source and DoD community source software



On-demand, fee-for-service, development environment for individual programs and projects

Forge.mil Key Features

Application Lifecycle Management (ALM)

-  Source Code and Configuration Management
-  Track Bugs/Requirements/Feature Requests
-  Task Hierarchy and Alert Mechanism
-  Collect, archive, and release Packages
-  Real-time Reports on Tasks and Trackers
-  Discussion Forums
-  Project-Based Wiki
-  Document Management

Collaborative Content and Knowledge Management

-  Project Activity Streams
-  Open and Moderated Groups
-  Blog and micro-blogs
-  Document Management
-  Group-based Collaborative Wiki
-  Threaded discussions
-  Idea forums with vote-up/vote-down
-  Group Calendar and Event Management
-  Group/'Public' Notices and Announcements
-  Relationship/Connections Management
-  Group Polls



Forge.mil Benefits

ALM Cost Savings

Project Size	Small	Medium	Large	Enterprise
ALM Acquisition and Operations Costs	\$18,750	\$39,800	\$466,500	\$1,289,000

Small: 1-15 Developers; Chooses free open source software (FOSS) to support their ALM needs; team has the organic skills to install, configure, operate and support their ALM solution; development work occurs at a single location.

Medium: 16-50 Developers, Mixture of FOSS and COTS components to support their ALM needs; the team provides organic support for ALM operations and support; centralized development facility

Large: 51-300 Developers: COTS ALM infrastructure with some FOSS components; outsourced support for ALM system installation, operations and support; distributed development environments

Enterprise: 301 - 2000 Developers: Installation, operations, on-going enhancement, and administration is outsource to an LSI; significant annual licensing and operations costs; operations distributed across different development locations and different development teams.

SME estimates based on the typical costs associated with projects acquisition and operation of ALM tools



Forge.mil Benefits

ALM Cost Savings – What’s Covered

Project Start-up and Development Tool Acquisition Cost Benefits

- **Reduction** in product evaluation, source selection and acquisition costs
- **Reduction** in internal solution implementation costs
- **Reduction** in IA approval costs
- **Reduction** in training expenses
- **Hardware benefits** to include hosting, hardware refresh costs and hardware maintenance costs
- **Software benefits** to include a single licensing model for globally distribute teams

Annual Development Environment O&M Cost Benefits

- **Reduction** in system administration costs (tasks performed by Forge.mil team)
- **Reduction** in support costs (Forge.mil provides Tier 1, 2 and 3 help desk support)
- **Reduction** in upgrade and testing costs (Forge.mil deploys monthly drops of new features)
- Hardware & software maintenance cost is embedded into service cost



Forge.mil Benefits

Collaboration and SW Reuse

- **Software Reuse**
 - SoftwareForge provides an open environment for the collaborative development and sharing of software across the DoD community
- **Collaborative Development**
 - Developing software for reuse can be much more expensive than developing a single use solution
 - Collaborative development off-sets these costs by allowing multiple developers to make ongoing contributions to an incrementally expanding set of functionality
 - Software may start as a single purpose solution then become incrementally enhanced by other developers
 - No single development activity bears the full cost for developing a reusable solution and each contributing developer benefits from the pre-existing capability
- **Forge.mil Collaborative Development & Reuse ROI**
 - An extensive study of the reuse of existing Forge.mil projects has not been performed, but case studies of two different Forge.mil projects show very compelling results

Benefits of the Forge.mil Community

The screenshot displays the Forge.mil website interface. At the top, there is a navigation bar with links for Home, Dashboard, People, Groups, Projects, Blogs, and Ideas. A green banner indicates that the page contains dynamic content with a highest classification of UNCLASSIFIED//FOUO. The user is identified as Susan Groenheider (groenheider@csa.mil) with a LOGOUT button. The main content area is divided into several sections: a 'Groups - 30' sidebar with a 'Top 10 topics' list (including DoD Community Source, Other, Java, Cross-platform, Windows, Defense Information Systems, Agency, Air Force, Linux, .NET, and Army), a 'Latest notices' section with various announcements, and a central area for 'Find Software' with a search bar and 'Advanced Search' link. Below this, there are sections for 'Featured group' (DCGS Enterprise Software Storefront) and 'Featured project' (DIB). At the bottom, it states '9800+ Forge.mil members' and provides a link to learn more about the community.

- **Connect with other Forge.mil users**
- **Find Projects and Software for Reuse**
- **Discover and join sub-communities or Groups**
- **Improve Collaboration**
- **Expand the Discussions**
- **Share Ideas or find Ideas to act on**
- **Share Knowledge, Experience and Lessons Learned**
- **Cast a Wider Net to Find the Answer**
- **See the Bigger Picture**

Benefits of Forge.mil

Reduce administrative costs, Increase productivity, Improve visibility



Developers

- * Access a full featured development platform via the web or directly from your IDE
- * Have fewer face-to-face meetings and less administration when collaboration is part of everyday development
- * Link to continuous integration servers and provision build and test servers in the cloud whenever you need them



Managers

- * Speed new project startup
- * Secure access to project assets
- * Enhance team productivity and collaboration
- * Improve visibility into project status
- * Reduce management and administrative overhead
- * Access critical team assets via the web or your Microsoft Windows desktop



Executives

- * Consolidate and centralize to reduce administration, licensing, and infrastructure costs
- * Establish governance and regulatory compliance
- * Improve predictability of the development organization
- * Integrate easily into existing systems to extend return on investments

The Forge.mil Community

Forge.mil by the Numbers

- Connect with over 14,000 DoD developers, IT experts, and users sharing lessons learned, best practices, and solutions
- Participate in over 700 development efforts
- Collaborate in over 100 sub-communities
- Download over 1,700 software releases
- Contributions include over
 - 100,000 software commits
 - 74,000 downloads
 - 7,500 discussion posts
 - 33,000 documents
 - 6,600 wiki pages
 - 1,400 software repositories

and Growing . . .

The screenshot shows the Forge.mil website homepage. At the top left is the Forge.mil logo. Below it is the tagline "Transforming the Way DoD Innovates IT" and a description: "Forge.mil is a collaborative environment to accelerate the development and deployment of dependable software and services within the Department of Defense." A navigation bar includes links for ABOUT, FAQs, NEWS, RESOURCES, and SUPPORT. A prominent orange button says "Join Community". The main content area is divided into sections: "Top 10 FAQs" with a list of questions, "The Forge.mil Program" with a descriptive paragraph, "Tools & Resources" with a list of downloadable documents, and "Latest News" with a list of recent articles. The DISA logo is visible in the bottom left corner of the page.

Community Victories



Joint Organizations

- Distributed Common Ground/Surface System (DCGS) Integration Backbone (DIB)
- National Senior Leader Decision Support Service (NSLDSS)
- Chemical, Biological, Radiological and Nuclear (CBRN) Software
- DoD Cloud Computing Strategy – collaborative development/implementation of DoD Strategy
- Community CAC – provides guidance and tools for using the Common Access Card



Army

- Apps for the Army – Innovation challenge to develop new ‘mashups’ of Army data
- System of Systems Common Operating Environment (SOSCOE) – tactical middleware
- Tank and Automotive Research, Development and Engineering Center Software Engineering Center



Navy

- Naval Undersea Warfare Center (NUWC)
- Joint Explosive Ordnance Disposal Decision Support System (JEOD DSS)



Air Force

- Air and Space Operations Center Weapon System (AOC WS) Modernization
- Sensor Processing Architecture for Data Exploitation (SPADE)



Marine Corps

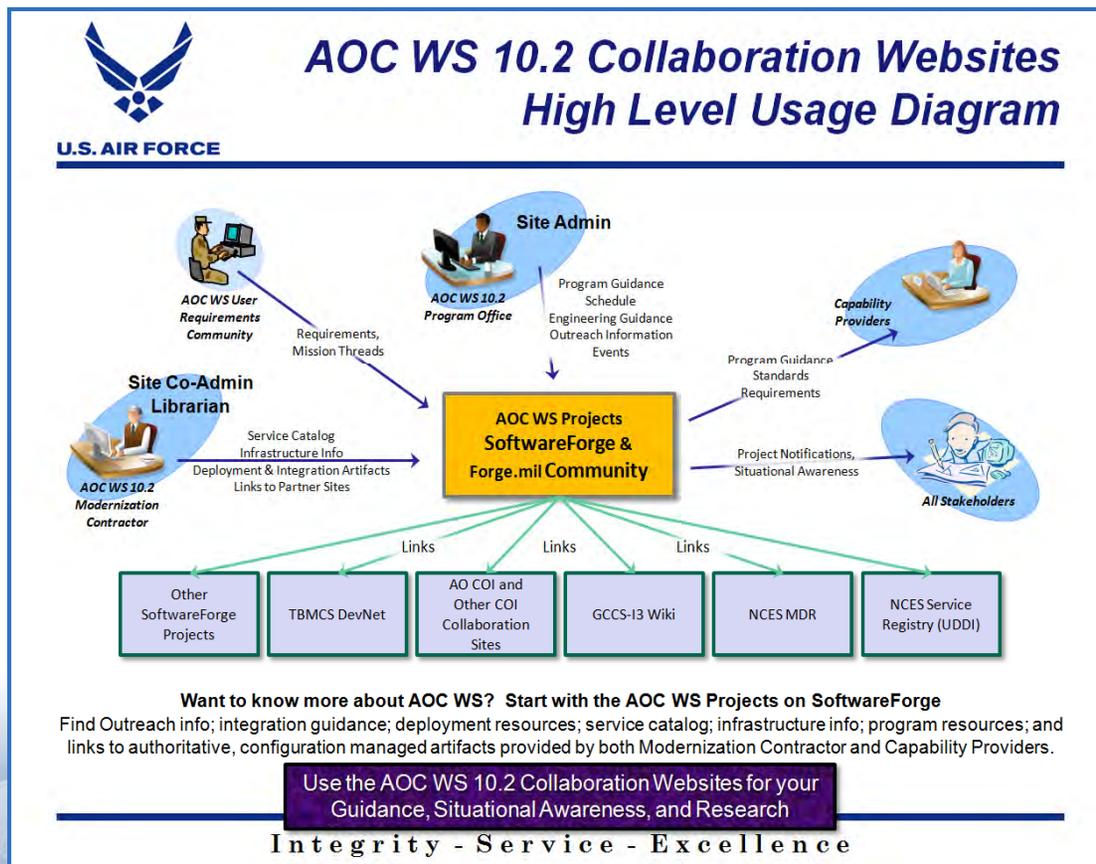
- Distributed Common Ground/Surface System – Marine Corps (DCGS-MC)
- Marine Air Ground Task Force Command and Control (MAGTF C2)



Case Study – AOC WS

SoftwareForge – doc22529

Air Operations Center Weapon System 10.2 Outreach Collaboration Goals



- Improve quality of 3rd Party Capability Provider guidance
- Harmonize product applicability across projects
- Maintain technical consistency
- Retain project autonomy, but collaborate cross-functionally
- Leverage “existing” DoD-recommended collaboration environments
 - Collapse collaboration to fewest websites possible; supporting programmatic concerns and developer concerns independently
 - Do not create from scratch!!

Case Study – DIB

SoftwareForge – doc22016

Distributed Common Ground Systems (DCGS) Integration Backbone (DIB)

software Forge This briefing is Cleared for Public Release

PROJECTS MY WORKSPACE SEARCH HISTORY COMMUNITY SUPPORT

Why SoftwareForge.mil?

Our mission:
Provide a common set of enterprise (software) services and standards for reuse by DCGS Programs of Record (PoR)

AIR FORCE **DCGS A** **DEPARTMENT OF THE NAVY** **DCGS MC MARINE CORPS** **DCGS SOF** **Intelligence Community** **NEXT GENERATION INTELLIGENCE AGENCY**

SoftwareForge enables our mission through:

- Software sharing and reuse
- Posting of standards along with the software
- Configuration control over multiple versions
- Tracking of Customer requests for changes
- At no cost to our office

Download Now

Approved for Public Release 66ABW-2010-0525

Before . . .



. . . After!



87% Savings!

Case Study – TARDEC SEC

SoftwareForge – doc17904

U.S. Army Tank Automotive Research Development Engineering Center Software Engineering Center adopted ProjectForge to meet Program Needs

UNCLASSIFIED
RDECOM

New Challenges

TARDEC



- New Software Development Program
 - Government developed
- Growing into a distributed team
 - Mix of Government & Contractor support
 - Multiple locations
- Expected High Volatility
 - Lots of new code
 - Expected early focus on prototyping
 - Issues/bug tracking



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

UNCLASSIFIED

Requirements

- Centrally Accessible with SCM for teams of developers
- Needed to Meet DIACAP and IA Related Requirements
- Needed to be Available
- Project Tools
- Bug Tracking

Why ProjectForge?

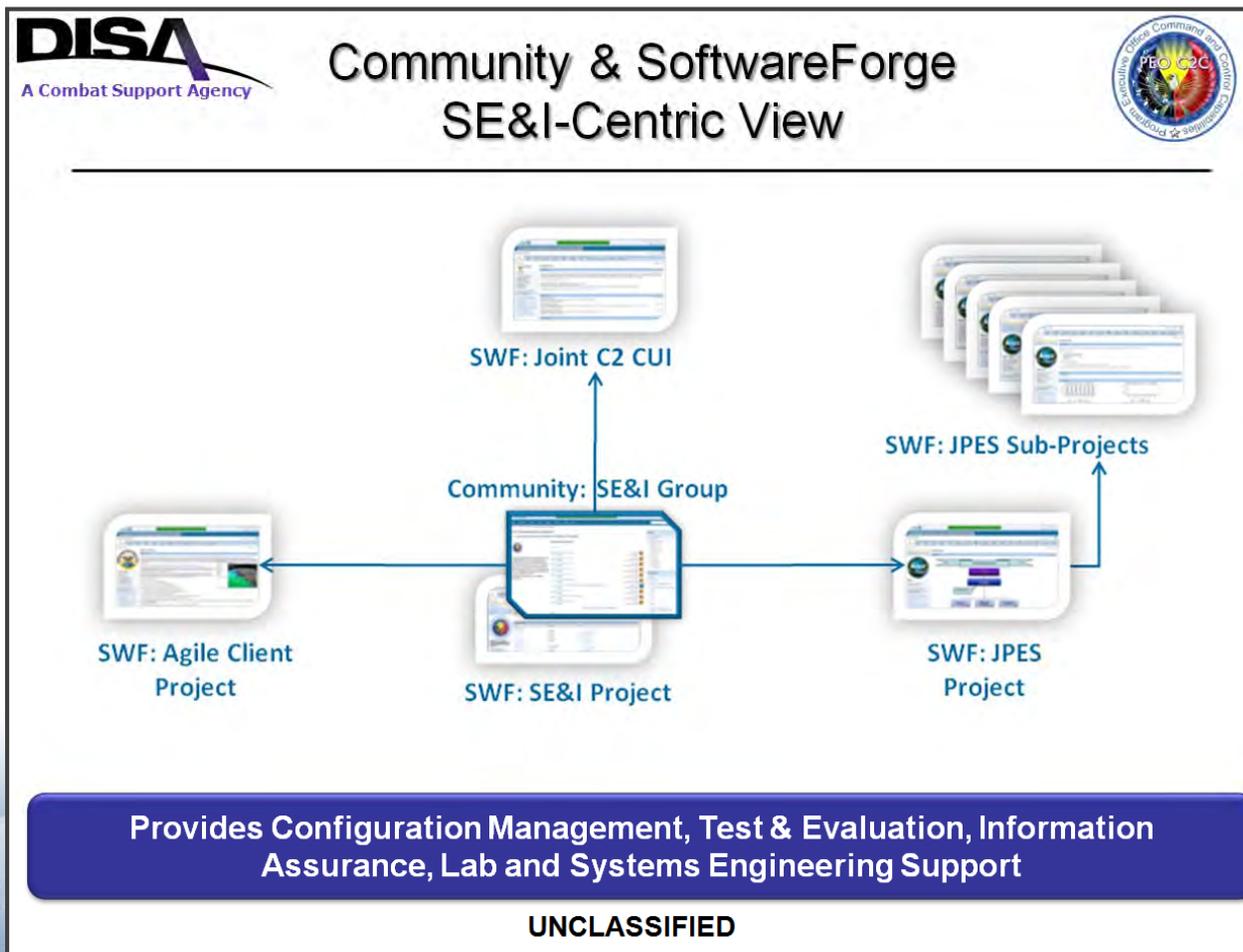
- Addresses ATO/DIACAP/IA
- Provides SVN
- Provides Web Based Project Tools
- Ability to Tailor Process
- Cost Savings
- Need for Controlled Access
- DoD Program



Case Study – PEO C2C SE&I

SoftwareForge – doc15693

PEO C2C Systems Engineering & Integration maintains a Project on SoftwareForge as well as a Group on Community



Benefits

- Visibility
 - Product baseline tracking & information
 - Development schedule
 - Change Control Request status
- Collaboration
 - Sprint planning
 - User stories
 - Document
- Streamlining process
 - Change Control Board



ADDITIONAL FORGE CAPABILITY



Share

https://community.forge.mil/content/software

A primary mission of Forge.mil is the promotion of cross-program sharing of hardware, software, system components, and services within the DoD.

Forge 'Share' allows users to search for and download

- Software created within Forge.mil or
- Locate repositories and points of contact for reusable items outside of Forge.mil

The screenshot displays the 'Share' section of the Forge.mil website. At the top, there is a navigation bar with links for Home, Dashboard, People, Groups, Projects, Share, Blogs, and Ideas. Below this, the page title is 'Home > Share'. The main heading is 'Share Items', followed by a sub-heading 'Promote Reuse of Software & Hardware Within the DoD!'. A paragraph explains the mission of Forge.mil and provides a link to the Share User Guide. Below this, there is a 'Share' section with filters for 'Most viewed', 'Most downloaded', 'Highest rated', and 'Most recent'. A 'Filter' dropdown is also present. The main content area lists several items for download, each with a logo, title, description, author, and download statistics. The items listed are:

- Mozilla AddOn - 1.0.3 - Stable** - Updated 28 Feb 2012 - 13:35. Description: Mozilla Firefox is a free and open source web browser... Download location: 13 views, 6321 downloads. By: Community CAC.
- Vulnerator - Beta3 - Beta** - Updated 29 Feb 2012 - 14:16. Description: The Vulnerator is a C#/Net application that imports and aggregates finding data... Download location: 127 views, 5538 downloads. By: Thinking Compliance.
- EUI Hosted Code - Installer - Stable** - Updated 29 Feb 2012 - 14:07. Description: EUI Hosted Code... Download location: 17 views, 4520 downloads. By: AF TBA Enhanced User Interface.
- Vulnerator - Retina IAC Mappings - None** - Updated 29 Feb 2012 - 14:17. Description: These are csv files that map retina findings ID's to IA Controls... Download location: 129 views, 3739 downloads. By: Thinking Compliance.
- Mozilla AddOn - 1.0.2 - Stable** - Updated 16 Feb 2012 - 18:27. Description: - Version bump to support Firefox 3.5... Download location: 9 views, 2693 downloads. By: Community CAC.

Forge = Agility

<https://community.forge.mil/groups/agile-development-group>

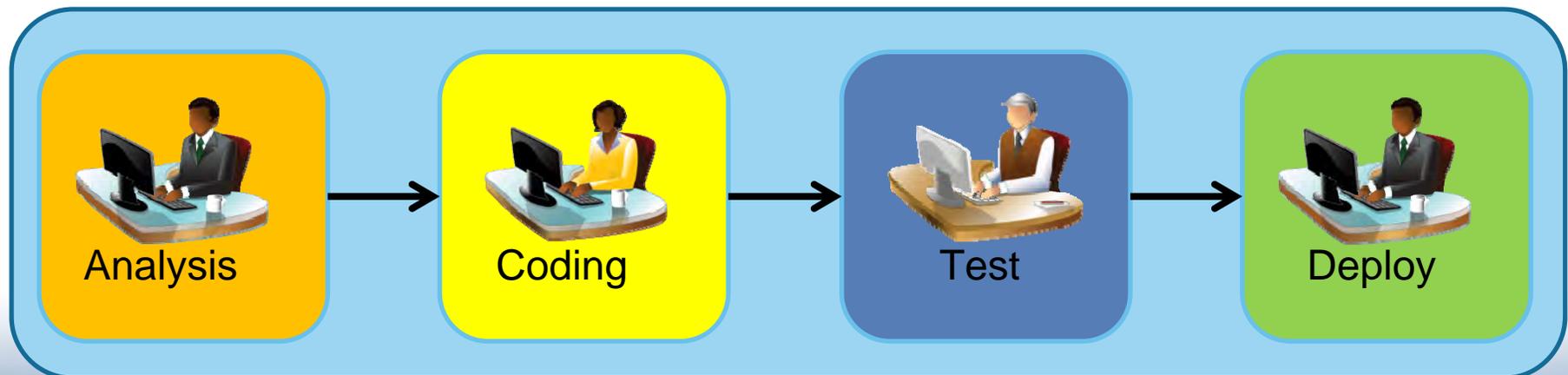
Why Agile? Modern software development demands a new, lean approach...

Conventional projects take too long and often miss the mark



Lean methods link developers and users to hit the mark quickly

Agile requires cross-functional teams working collaboratively



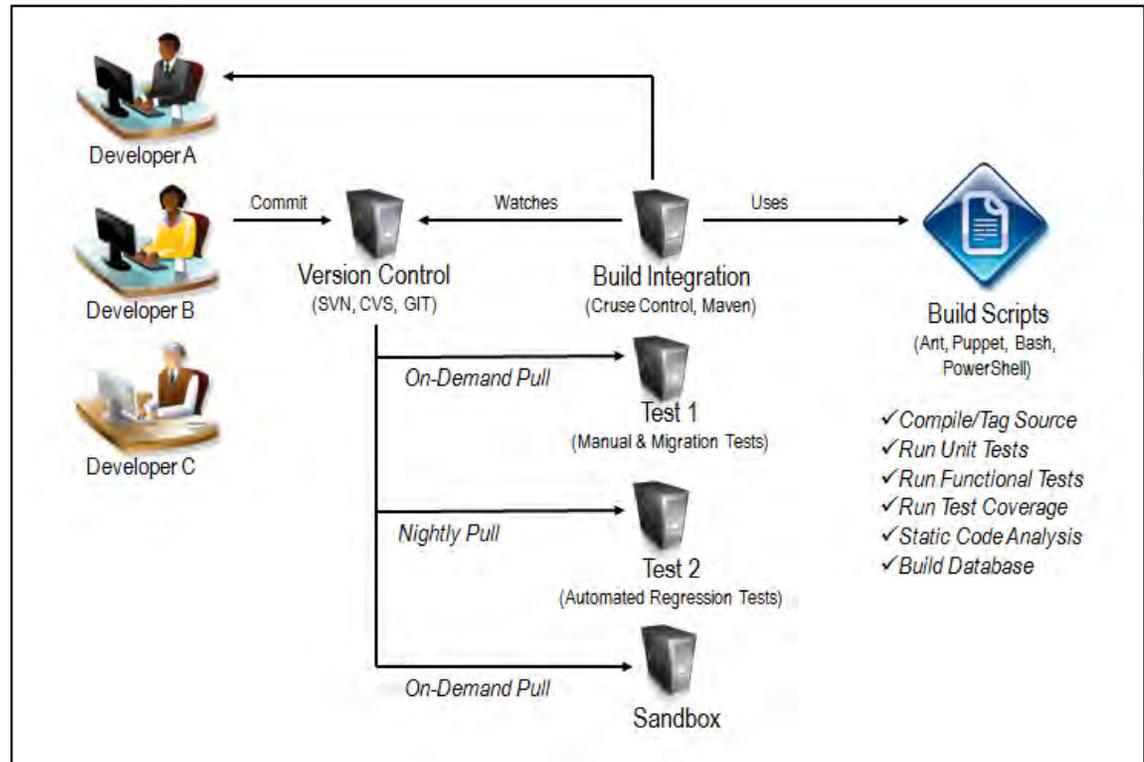
- Use Tracker to capture Release/Iteration Plans and User Stories
- Make Continuous Integration a Hub for Coding/Test – Build – Test – Integrate – Report
- Automate Everything and Deploy Often (Continuous Delivery)

Continuous Integration

<https://software.forge.mil/sf/projects/forgeci>

Continuous Integration is a practice where –

- Team members integrate work frequently so that –
- Each integration is verified by automated builds to –
- Identify integration errors early.

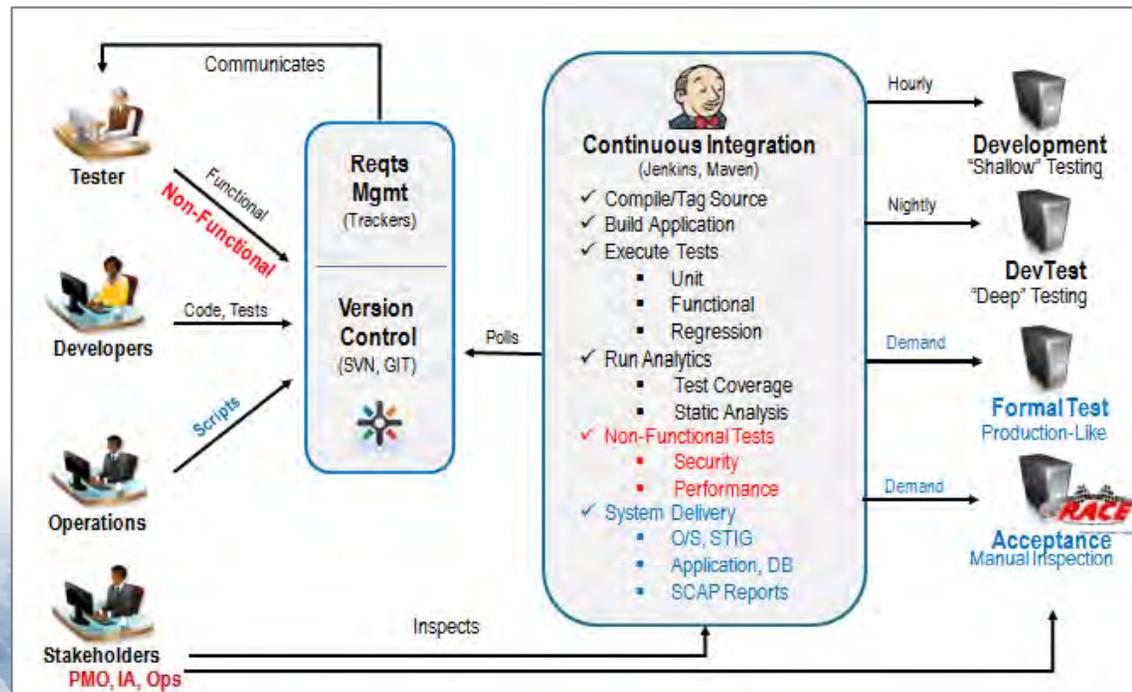
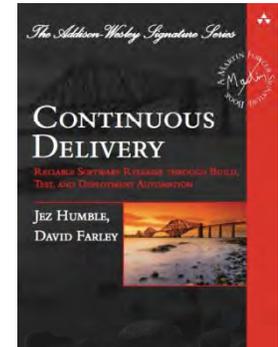


- The [Forge Continuous Integration Project](#) provides
 - Documentation
 - Reference Implementations
 - How to Guides

Continuous Delivery

<https://software.forge.mil/sf/go/proj1585>

- “....a set of practices and principles for **building**, **testing** and **releasing** valuable software faster and more frequently...”*
- To learn more, see the [DISA Continuous Delivery Platform Project](#)



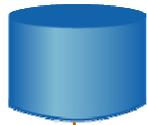
* Continuous Delivery, Jez Humble & Dave Farley

Cloud Computing

Forge.mil – RACE Environment

Shared Asset Libraries and Repositories

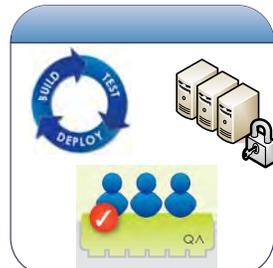
Software Code
Repositories



Profile
Library



Build
Library



Test & Development Services

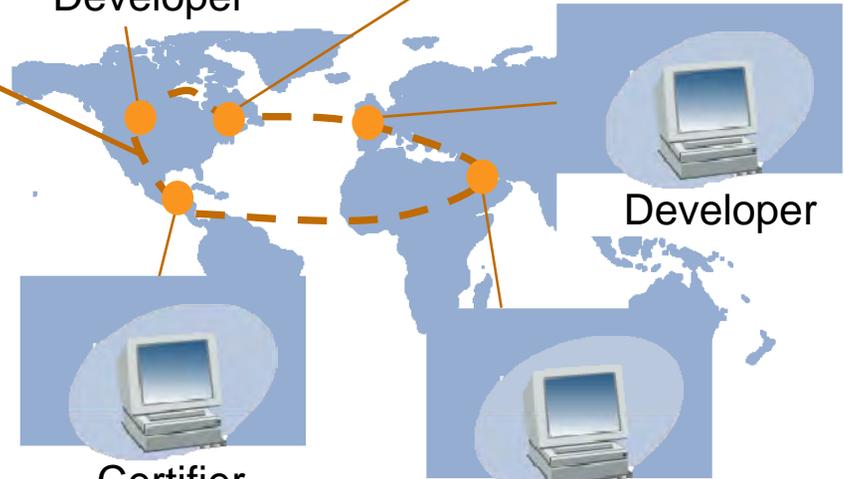
Rapid Path to Production



Developer



Tester

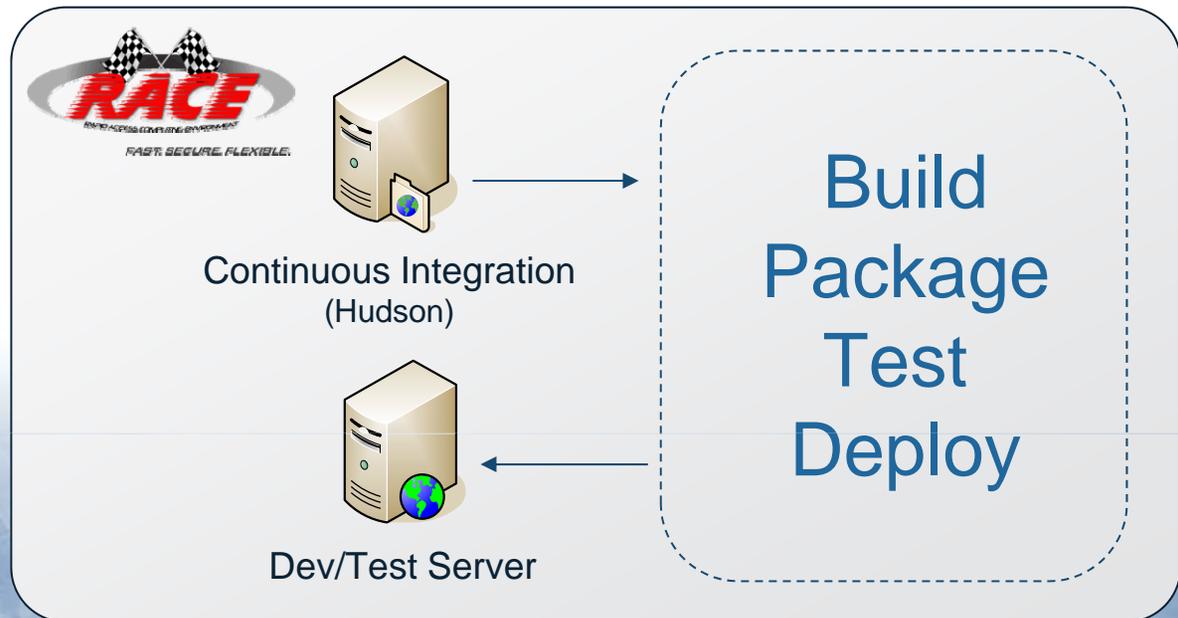
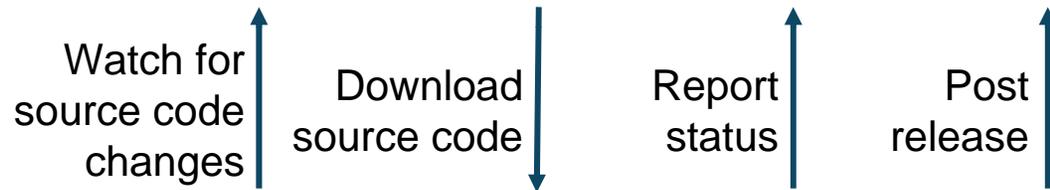
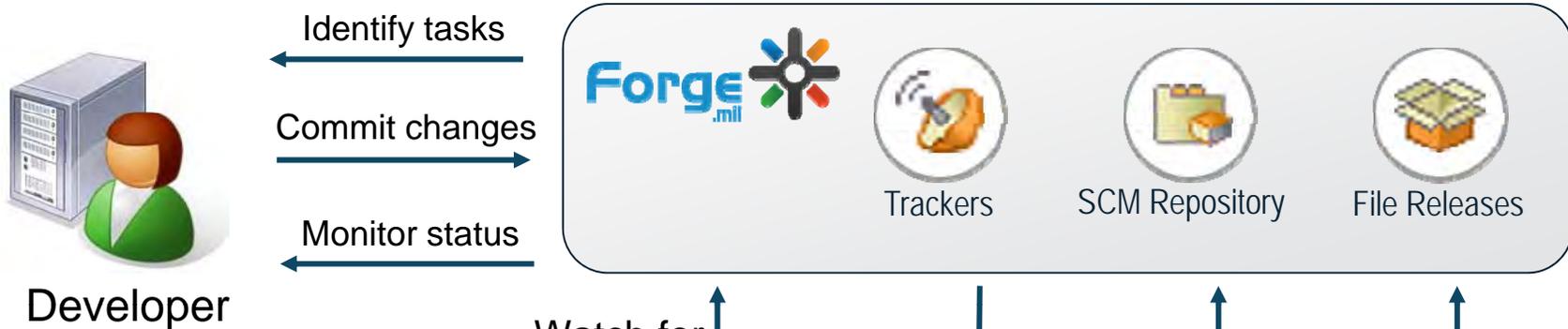


Developer

Certifier

User

Using Forge and RACE for Continuous Integration





TestForge Approach

<https://software.forge.mil/sf/projects/testforge>

Provide access to the all resources necessary...



Desktops & servers



Operating Systems & updates



Applications & code



Test cases

...to all parties involved...



Program Office



Developer



Tester



Community Members

... so they can support & perform rapid, repeatable, agile, on-demand testing of software systems...



...while leveraging automation and virtualization to expand resources.



Virtual services



Virtual machines



Virtual users



Next Steps

- **Get an account**
 - Navigate to <https://community.forge.mil> (requires a valid DoD CAC or ECA Certificate).
 - Your account is active once your email address is confirmed.
 - For info on how to obtain and install an ECA Certificate, see the FAQ – “How can I get access to Forge.mil” at <https://www.forge.mil>.
- **Join the [Forge Community Support Group](#)**
- **Find, connect and follow other members** – [browse users](#) under the People tab
- **Find and join a group** – search the [Group Directory](#) in Community
- **Find and join a project** – search the [Project Directory](#) in Community or ‘All Projects’ on SoftwareForge or ProjectForge
- **Find software, hardware, system components and services** – search the [Share](#) page in Community
- **Visit the Forge.mil Community Home**
 - Visit the featured group and project
 - View the most popular content – What do other users think you should be reading?
- **Still have questions** – contact the Forge.mil Community Management Team at community@forge.mil

Where to Find Help

<https://community.forge.mil/groups/forge-community-support>

The screenshot shows the Forge Community Support page with several callouts:

- Found a bug? Need immediate Assistance?** - Points to the "Incident Report" link in the "If you need immediate assistance, please submit an Incident Report via SoftwareForge." text.
- Updates, New Features, 'Best of Forge'** - Points to the "Blogs" link in the navigation menu.
- QRGs, Getting Started Guides** - Points to the "Documents" link in the navigation menu.
- Ask Questions** - Points to the "Discussions" link in the navigation menu.
- Recommend Improvements, Enhancements** - Points to the "Ideas" link in the navigation menu.

The page content includes a navigation bar with links: Home, Dashboard, People, Groups, Projects, Software, Blogs, Ideas. The main heading is "Forge community support resources". Below it, a red-bordered box contains the text: "Frequently Asked Questions | Training Modules | Getting Started Guide - the Forge Community | Getting Started Guide - SoftwareForge and ProjectForge".

Below the navigation bar, there are several sections:

- Recent group content**: A list of recent posts with details like "0 replies", "3 replies", "new wiki link updated", "Add a 'File Releases Associated with a Group' Node to Group Home Page Options new", and "Labels for Separators new".
- Home**: A section with a gear icon and text: "Consolidate here for community." and "New to Forge.mil? Get started quickly with our guides and list of resources - Getting Started Guide - the Forge Community and Getting Started Guide - SoftwareForge and ProjectForge." and "Ask questions and find answers in Support Discussions, discover and share Best Practices and Lessons Learned, view How-To-Guides in Support Documents, learn about New".



Contact Info



Email us at community@forge.mil



Follow us on Twitter [@ForgeMil](https://twitter.com/ForgeMil)



Connect with us on [LinkedIn](#)



Join the Forge.mil Group on [milBook](#)



Join our live DCO chat at [forge support](#)



Sign up for Forge.mil updates at

<http://www.disa.mil/forge/>

QUESTIONS

