



Widget & Mobile Technologies a Forcing Function for Acquisition Change

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Agenda

- ▼ Introduction
- ▼ Problems with the Defense Acquisition System
 - The Current Process
 - Industry Approach
- ▼ Overview of Recommended Solution
- ▼ Ozone Widget Framework
- ▼ Widgets in Action
- ▼ DOD Storefront and PEO C4I Marketplace Overview
- ▼ Widget Governance Process
- ▼ Conclusion



Introduction

- ▼ The commercial world has shifted focus to small flexible mobile code via widgets and other mobile applications
- ▼ IBM's Global Technology Outlook for 2006 noted an impending shift toward "situational applications"
 - Rapidly evolving software development paradigm
 - A driving force in delivery of web-based dynamic content
- ▼ Using standard acquisition processes in DOD, by the time new solutions are deployed to the warfighter, the technology is obsolete
- ▼ Several programs within the DOD have started similar initiatives that hold the promise of reducing the "heavy lifting" required as part of the current acquisition process



Problems with the Defense Acquisition System

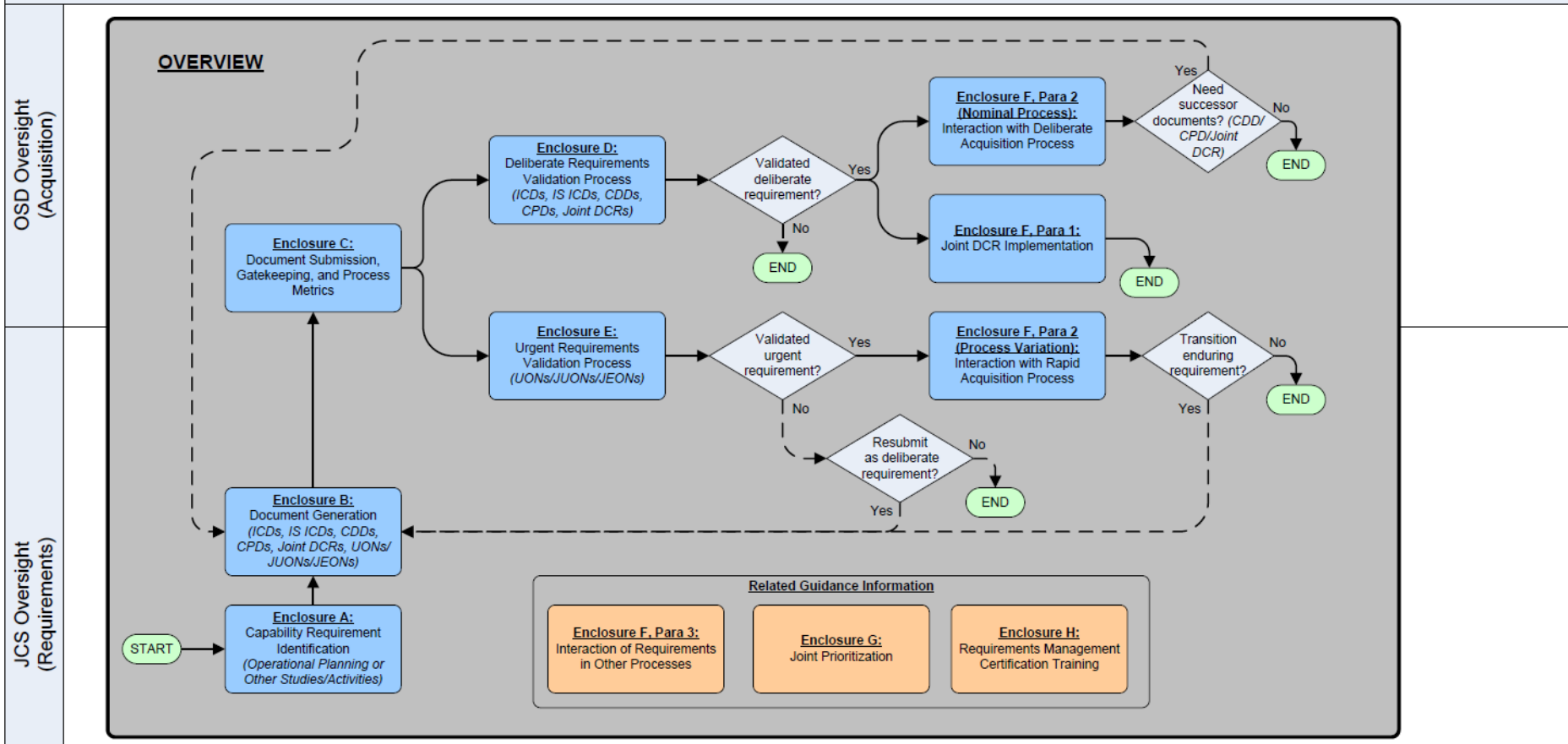
- ▼ Major defense acquisition programs continue to experience significant cost growth and schedule delays
 - In a 2008 report to Congress regarding an evaluation of 95 MDAPs, the GAO noted
 - \$296 Billion in cost growth
 - Average schedule delays of 22 months

- ▼ Excessive development and update cycles
 - Private sector cycles are 12 -18 months
 - Defense IT systems routinely require 48 - 60 months

The Current Process

Joint Capabilities Integration and Development System (JCIDS) Process Flow Chart

Capability Requirement Identification (including planning, studies, and other activities)





Industry Approach

- ▼ Current acquisition rules required for POR systems have caused a major gap between the technology available to the warfighter and that which is available commercially
 - Exacerbated by capabilities of smartphones and tablet computers
 - Greater gap for younger service members raised on commercial technologies and then forced to use outdated systems

- ▼ Apple and Google are both known for their mobile operating systems and the applications (or “apps”) that run on them
 - Both companies have “app” stores that allow developers to rapidly deploy applications, but they do so in very different ways



Overview of Recommended Solution

- ▼ DON/DOD lacks a lightweight web application test and integration (T&I) environment
 - Needed to model, test, exercise, and perform certification and accreditation of widget capabilities

- ▼ A Widget T&I environment is required for widget technology development throughout the DOD

- ▼ A DON/DOD widget T&I environment is needed that incorporates the unique and common aspects of Navy widget environments

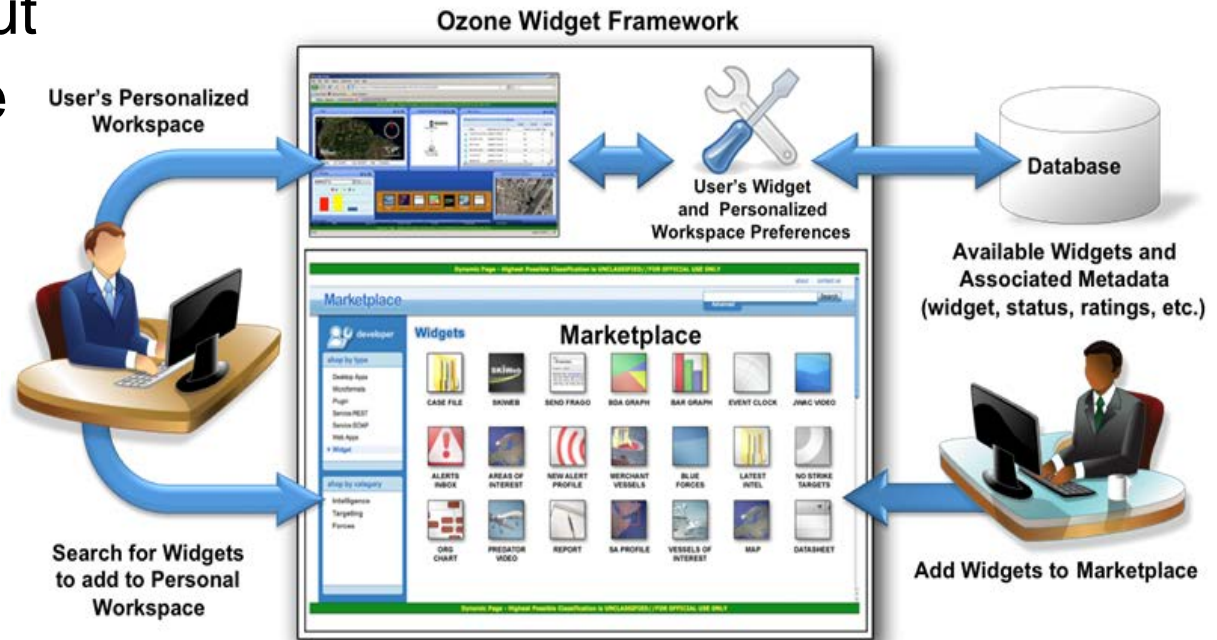


What is a Widget?

- ▼ Lightweight
- ▼ Single-purpose
- ▼ User configured
- ▼ Web-enabled application
- ▼ Provides summary information or a limited view into a larger application
- ▼ Also used alongside related widgets to provide an integrated view

Ozone Widget Framework

- ▼ A platform that offers infrastructure services to simplify the development of workflows and presentation-tier application integration
- ▼ It is also a layout manager for the operation of widgets on a single web page





DOD Widget Efforts

- ▼ DOD Chief Information Officer Storefront Pilot
- ▼ National Security Agency Denver Store
- ▼ Global Command and Control Systems – Joint
 - Joint Command and Control Common User Interface (JC2CUI)
 - Integrated, Imagery and Intelligence
- ▼ Command and Control Rapid Prototyping Continuum
- ▼ Integrated Intelligence Architecture
- ▼ Defense Common Ground Station Army & Army Mission Command
- ▼ Defense Intelligence Information Enterprise Framework (Di2E-F) Quick Response Capability



Widgets in Action – Sample Widgets

▼ GCCS-J I³ Sample Widgets

- I³ Common Geospatial Display Widget
- I³ Vessels of Interest Widget
- I³ Maneuver Unit Widget
- I³ Latest DMOB Equipment Widget
- I³ Naval Activity Widget
- I³ Channel List Widget, I³ Blue Forces Widget
- I³ AOB Widget
- I³ Recent Activity Widget
- I³ Targeting Widget
- I³ Naval Order of Battle Tracking
- I³ Motion Imagery Viewer

▼ DCGS-A Sample Widgets

- Common Admin Widget
- Common Help Widget
- Common Query Widget
- Common Map Widget
- Coordinate Conversion Widget
- DIB Query Widget
- plus over 50 additional widgets
 - Weather
 - HUMINT
 - IMINT
 - Geospatial
 - Alerting tools



Widgets in Action – Engineering at the Edge

- ▼ Seeks to use OWF and widgets to reduce an operational command's dependency on end-to-end systems development efforts that need years to develop and may not address requirements that have emerged since development started
- ▼ OWF has enabled the DOD community to decouple the User Interface and visualization components from the rest of the architecture

Widgets in Action – Widget Developer's Toolkit



C4 Widget Cookbook

- Guidance Recipes
- READMEs

C4 Widget SDK

- Scripts
- Core Widgets
- Widget Templates
- Code Demos
- Configured Environment
- Test Data

C4 Widget Training

- Boot Camp
- Online Tutorials

Widgets in Action – Widget SDK Test Environment

A distributable development, test, and debug environment for widget development.

Code Demos

- Example code and tutorials for developing various Web and OWF widget concepts.

Configured Environment

- A package with the C4 Widget SDK components and an environment with OWF, OMP, various testing and debugging tools, and OWF extensions already installed and configured.

Test Data

- Unclassified data for widgets and services to utilize in order to better prototype and test functionality.



Widgets in Action – Widget Training

Provide a means for developers to gain remote and local experience with widget development and using the toolkit.

Boot Camp

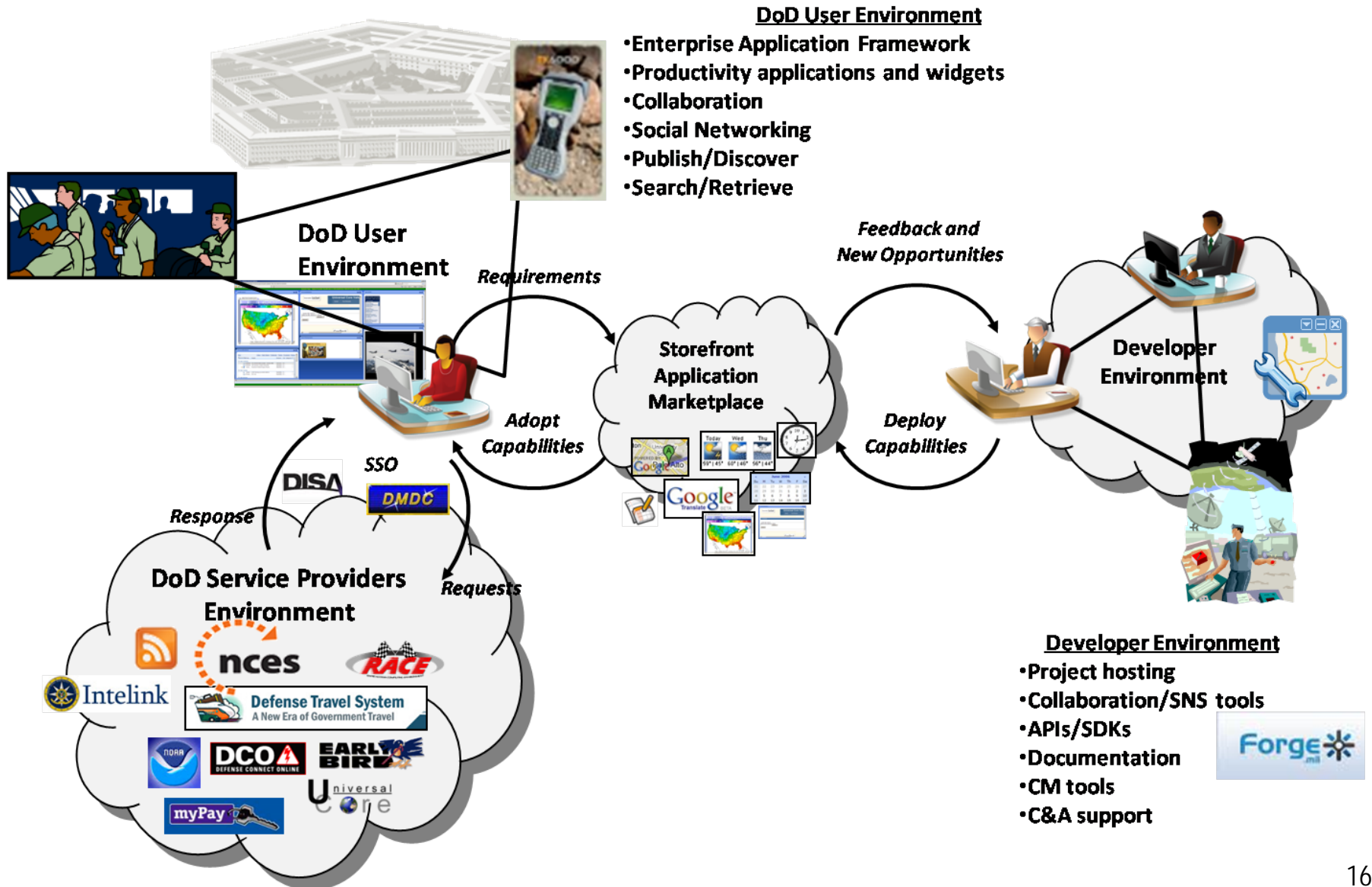
- 2 day instructor-led presentations and hands on examples with widget development and toolkit concepts and products geared for developers of all skill levels.

Online Tutorials

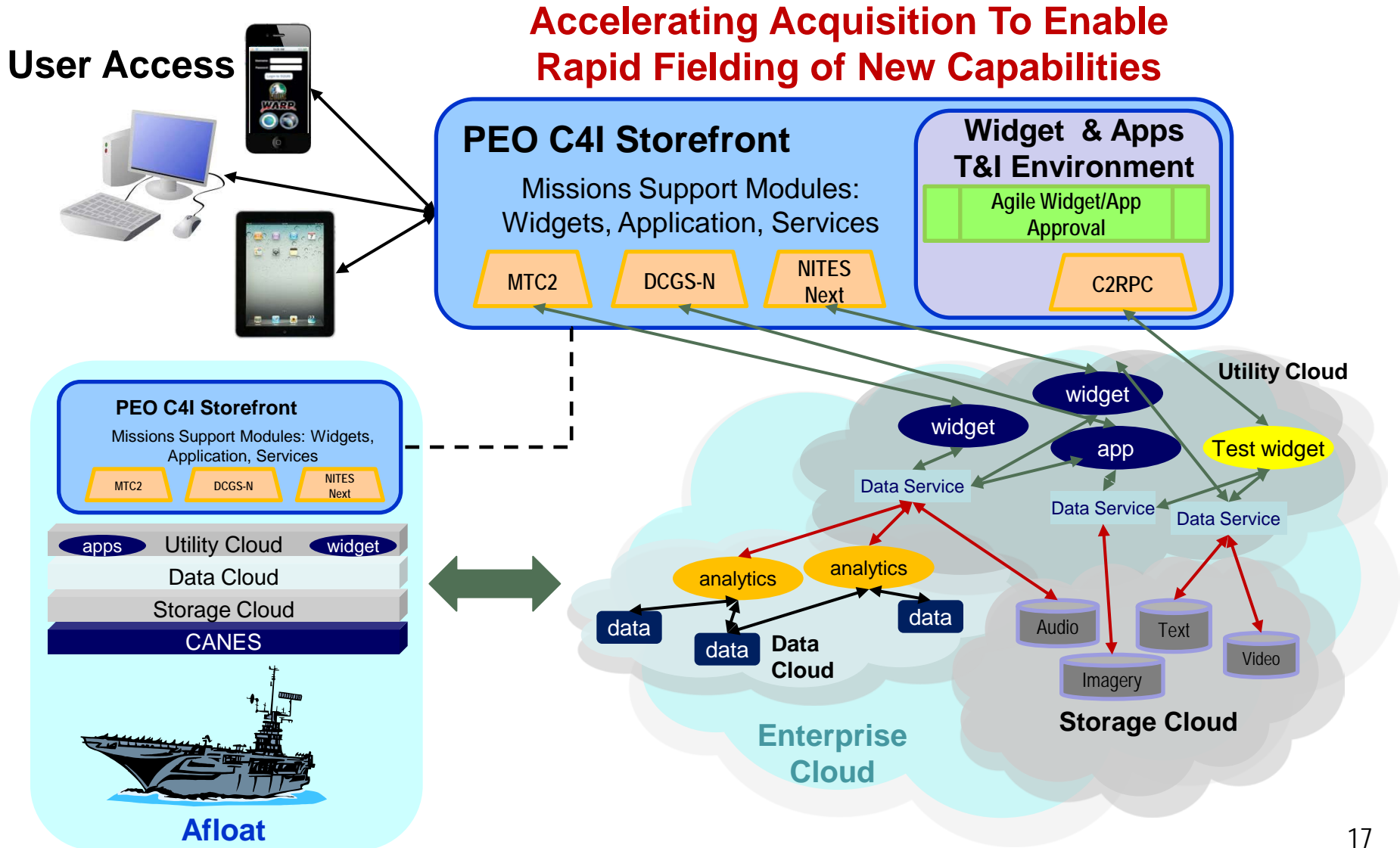
- Observe & Take Action (OTAs) videos using the toolkit and developing widgets.
- Recorded boot camp tutorials via WebEX/DCO



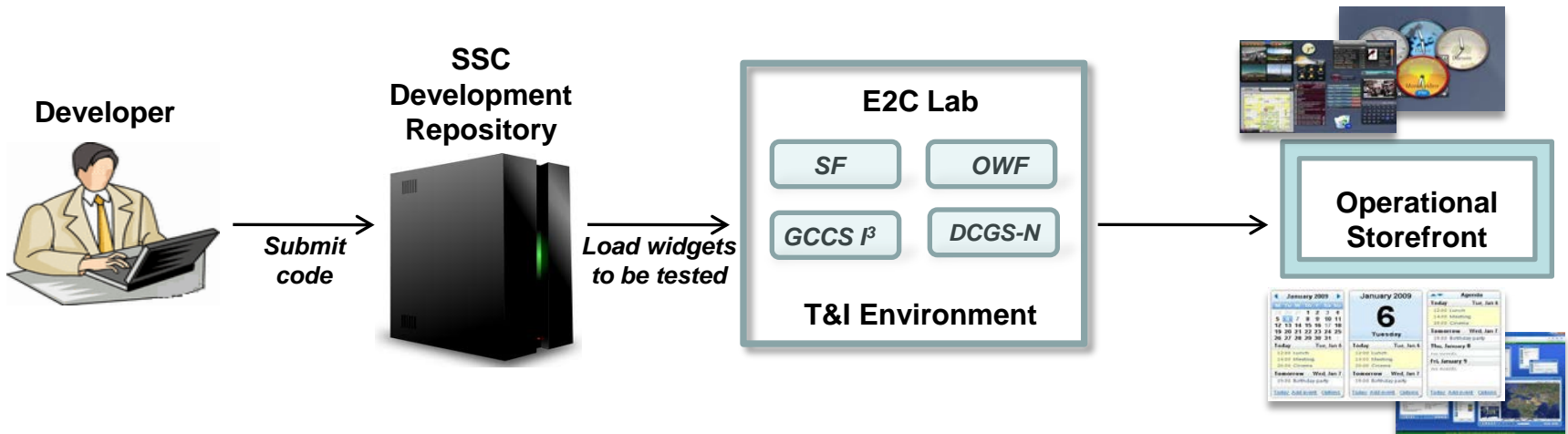
DOD Storefront OV-1



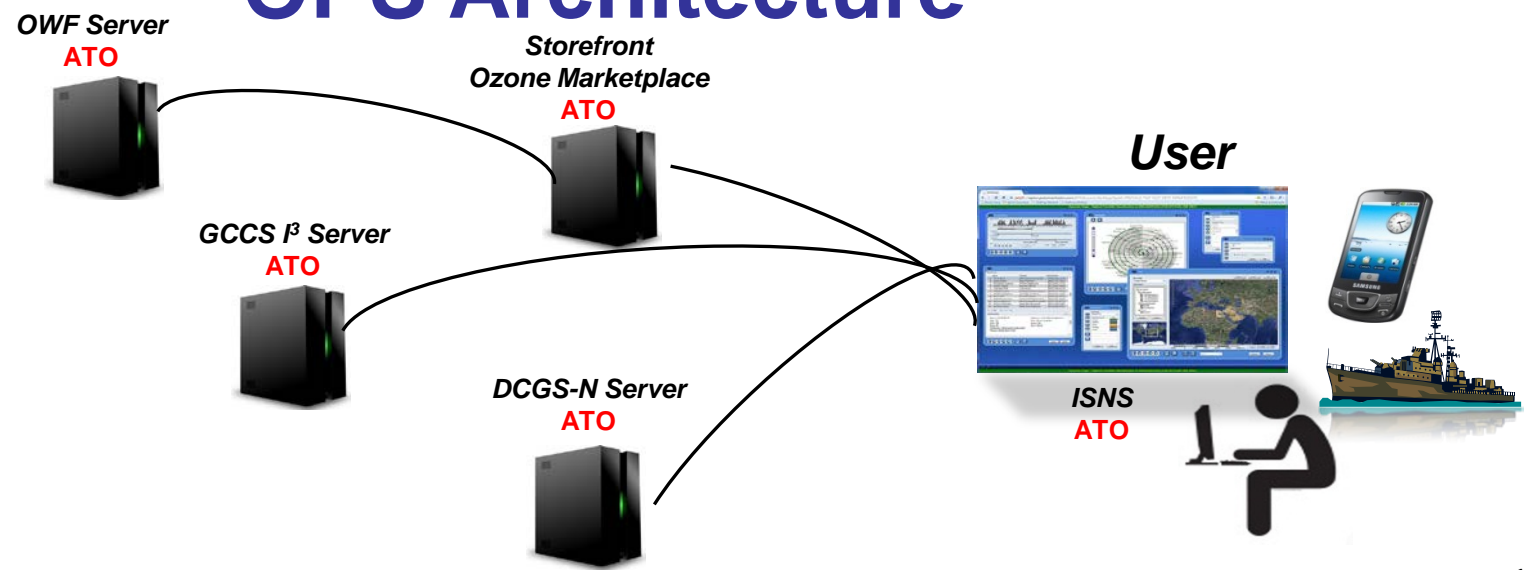
PEO C4I Storefront & Navy Cloud



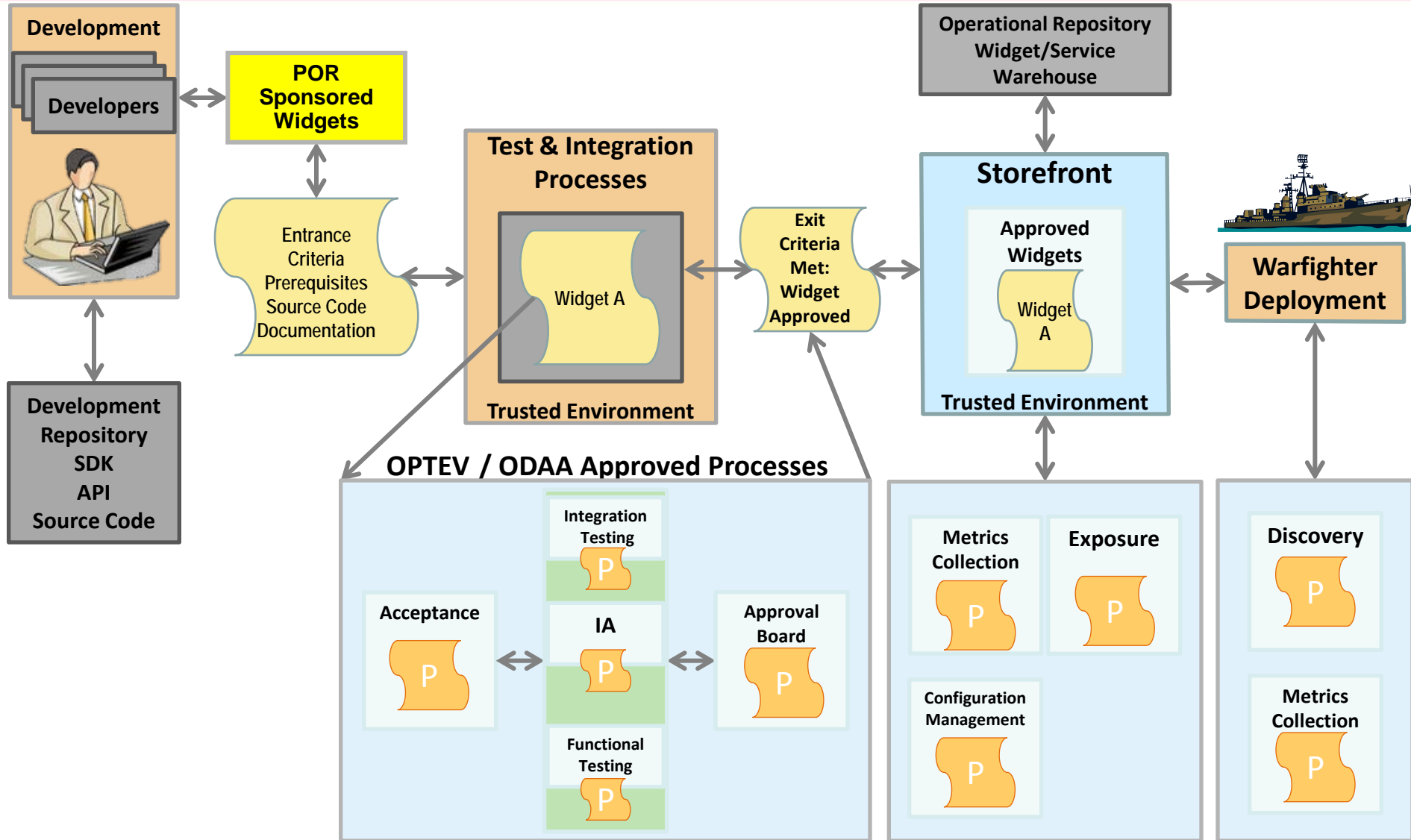
Widget Lifecycle and Operational Architecture



OPS Architecture



Proposed Widget Governance Process





PEO-C4I Storefront/Marketplace

Marketplace

https://marketplace-ti.sd.spawar.navy.mil/marketplace/search/filterType/4

United Airlines - Airlin... CyanogenMod | Andr... Other bookmarks

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PEO-C4I Marketplace

Welcome, RANEY CHRISTOPHER J.1274328289 | Logout

Developer

Advanced Search

Market

Type

- Any Type
- Widget (3)

Category

- Any Category
- Category A (3)

State

- Any State
- Active (3)

Rating

- Any Rating

Listing Manager

- My Listings
- Create Listing

Types: Widget x

PEO C4I Marketplace

Marketplace is a registry of applications and services similar to a commercial application store where Users can submit and interact with software components or "Listings" such as widgets, plugins, REST & SOAP services, web apps and more.

Showing 1-3 of 3 results

Sort by most relevant

Items per page 5

Copy

American Forces Press Service...

Type: Widget

Version: 1.0 Release: 10/17/2011

The AFPS News widget makes it easy for anyone with a Web site, blog or social networking page to carry the latest AFPS articles on their site. The widget allows Web sites to carry a steady stream of the latest official news and information about the Defense Department.

Categories: Category A

Owner: Aaron Bajek
Modified: 10/17/2011

Launch

[ACTIVE]

Copy

Department of Defense Photogr...

Type: Widget

Version: 1.0 Release: 10/17/2011

The Department of Defense Photography widget brings the latest and

PEO-C4I Storefront Widget Samples

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PEO-C4I Storefront | DESKTOP_4e5af464-aa51-1833-... | MDA GMMS

Welcome Administrator | Logout | Hide

Launch Menu | Share | Customize | Eventing

MDA GMMS Vessel Map

Channel Name: Baltic Sea | Showing 3383 of 3383 vessels

Map | Satellite | Hybrid

JASON
Latitude: 43.042
Longitude: 6.408

MDA GMMS Vessel Details

Name	JASON
Latitude	43.042488
Longitude	6.408180
Data Source	MSSIS
Event Time	2011-10-19 17:23:09.0
Heading	289
Speed	0.0
Course	198.1
Draft	50.000000
IMO	9320922
MMSI	228329900
Call Sign	FMEE

MDA GMMS ...

- ↓ MSSIS
- ↓ NAIS
- ↓ NAVY C2F
- ↓ NAVY C5F
- ↓ NAVY CPF
- ↓ SSCCHAS

MDA GMMS Vessel History Map

Map | Satellite | Hybrid

JASON
Latitude: 43.042
Longitude: 6.408
Event Time: 2011-10-19 17:23:09.0Z

MDA GMMS Vessel List

- 1414. JAGUAR
- 1415. JAMIK
- 1416. JAN D
- 1417. JAN SNIADOCKI
- 1418. JANAS
- 1419. JANIS
- 1420. JANNIE ALBRI
- 1421. JANSUM
- 1422. JANTAR
- 1423. JASMIJN
- 1424. JASON
- 1425. JBB NICOLA AT
- 1426. JBBONA BOREALE
- 1427. JBBY SCHULTE
- 1428. JBCNOS
- 1429. JBCS
- 1430. JEAN NICOLI
- 1431. JEANINE PARQUI
- 1432. JEHANDER 1

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Conclusion

- ▼ **DOD must modify its acquisition philosophy to get new capabilities in the hands of the warfighter**
 - Light weight mobile applications
 - Access to services and data sources
 - Streamlined processes for accredited PORs
 - Allows rapid fielding of associated Widgets
 - PEO C4I Marketplace and accompanying Widget Governance Tool
 - Cost effective and expedient
 - Provides trusted and secure capabilities

- ▼ **The future of warfare is information dominance and speed to capability can provide the tactical or strategic advantage our warfighters need**



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Backup Slides

BACKUP SLIDES



Problems with the Defense Acquisition System

Analysis of DOD Major Defense Acquisition Program Portfolios (fiscal year [FY] 2008 dollars)

	FY 2000 Portfolio	FY 2005 Portfolio	FY 2007 Portfolio
Portfolio size			
Number of programs	75	91	95
Total planned commitments	\$790 Billion	\$1.5 Trillion	\$1.6 Trillion
Commitments outstanding	\$380 Billion	\$887 Billion	\$858 Billion
Portfolio performance			
Change to total RDT&E costs from first estimate	27 percent	33 percent	40 percent
Change in total acquisition cost from first estimate	6 percent	18 percent	26 percent
Estimated total acquisition cost growth	\$42 Billion	\$202 Billion	\$295 Billion
Share of programs with 25 percent or more increase in program acquisition unit cost	37 percent	44 percent	44 percent
Average schedule delay in delivering initial capabilities	16 months	17 months	21 months

Source: GAO analysis of DOD data.

Industry Approach

- ▼ The Apple App Store contains Apple-created applications and third-party mobile applications are available where they may be discovered and downloaded by the customer
 - Apple's app approval process
 - Ensures submitted applications are reliable & perform properly
 - Adhere to Apple's requirements regarding appropriate content
 - Developers are provided App Store Review Guidelines
 - Upon submission for review
 - Applications are checked for compliance
 - Apps must comply with technical, content, and design criteria before they are made available in the App Store
 - Appeals of rejected applications are sent to an App Review Board



Industry Approach

- ▼ Developers of apps for Google's Android OS have two deployment options
 - The Android App Section of Google Play (formerly Android Marketplace) and the Amazon Appstore
 - Google Play does not monitor uploaded applications
 - It does place restrictions on application content, network usage, spam, and processing payments
 - If an application violates restrictions, Google can remove the application from Google Play
 - Apps submitted to the Amazon Appstore are tested
 - Ensure that apps work as described in the product description
 - Do not impair the functionality of the user's mobile device
 - Comply with Appstore Distribution Agreement and content guidelines



Overview of Recommended Solution

- ▼ A DON/DOD widget T&I environment is needed that incorporates the unique and common aspects of Navy widget environments
 - Will replicate the environment that connects directly to the Global Information Grid (GIG)
 - Also replicate Navy, afloat, ashore, deployed and limited communication environments
 - Hardware, software, and associated configurations
 - Creates a Navy trusted source environment for widget transition to the fleet
 - Help to develop more effective and efficient techniques, processes, and procedures to achieve speed to capability



Overview of Recommended Solution

- ▼ Providing standards, specifications, processes, and a T&I environment will ensure proper products are discoverable by the warfighter
 - Enable software based mission capabilities to be released in weeks rather than months or years
- ▼ A DOD marketplace or application store is also needed to rapidly and securely field software capabilities to the warfighter in the form of widgets and web applications
- ▼ Widgets provide a technological capability to foster this rapid fielding ability
 - Widgets provide very specific functionality
 - Generally require a relatively small amount of software code
 - Created on a relatively short timeline

Widgets in Action – Widget Cookbook

Provide toolkit product documentation and recipes to help quickly design and implement widgets for the OWF.

Guidance Recipes

- Preface
- Ch. 1: The Widget Environment
- Ch. 2: User Experience
- Ch. 3: Widget Resources & Services
- Ch. 4: Inter-Widget Communication
- Ch. 5: Core Widgets & OWF Extensions
- Ch. 6: Security
- Ch. 7: Testing & Debugging
- Ch. 8: Performance
- Ch. 9: Packaging & Deployment
- Ch. 10: Marketplace
- Appendices

READMEs

- Documentation for relevant Toolkit products (e.g. core widgets).



Widgets in Action – Widget SDK Tools

Provide tools to help simplify, automate, and reduce duplication of effort in the build, package, and deploy process.

Scripts

- Tried and tested scripts to prepare and deploy widgets for use in the OWF.

Core Widgets

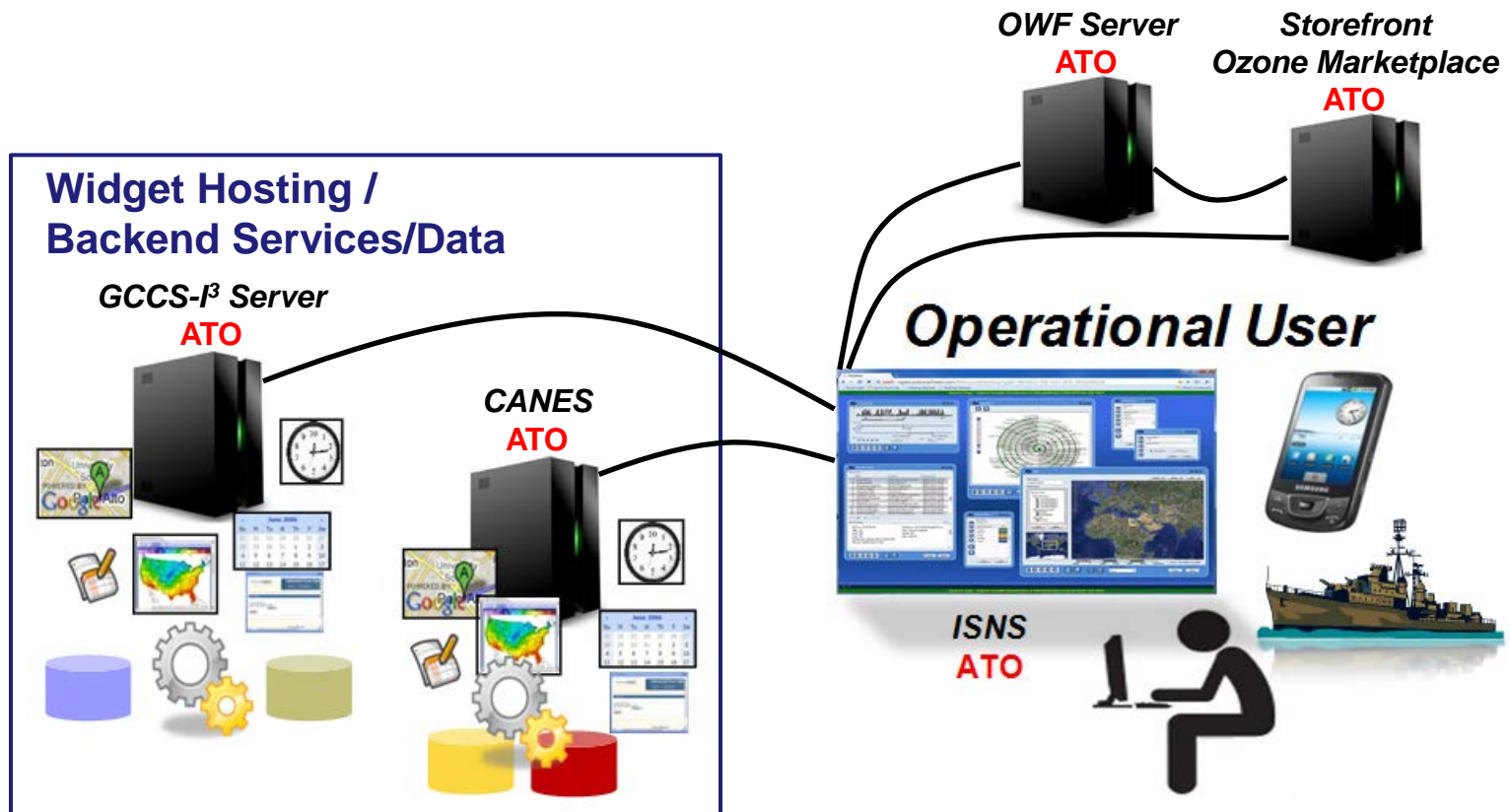
- Provide ready-to-go widgets that have common functionality and are used almost all of the time (e.g. map widget) along with instructions for use.

Widget Templates

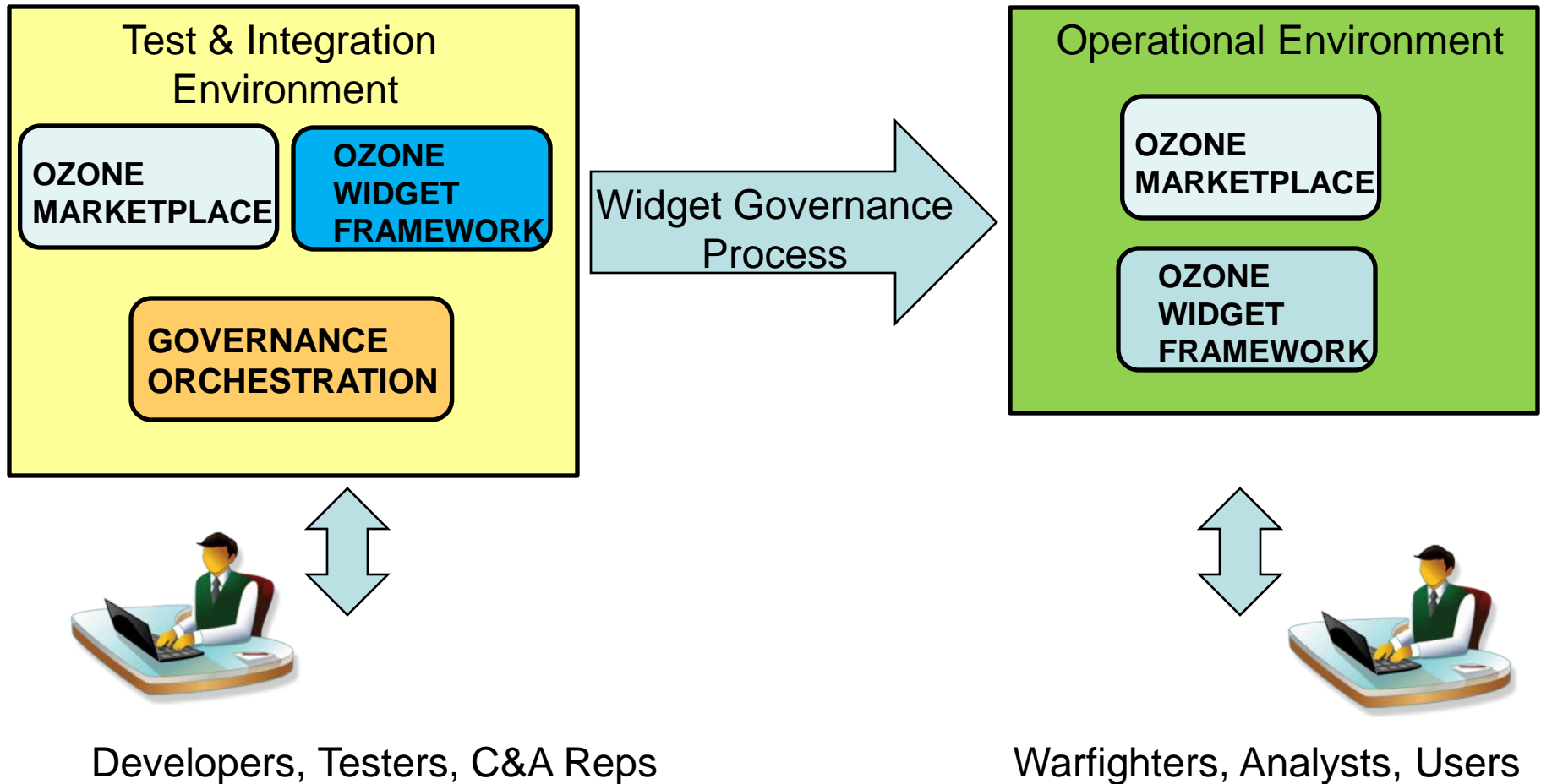
- Provide a number of configurable widget templates for developers to fill-in-the-blanks and make their own.



Ozone Market Place



PEO C4I Storefront



Widget Governance Tool

