Maximizing Best Practices for Innovation

Leveraging Technology to Take Healthcare to the Next Level

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Topics

- Accountability
- VA/DoD Interoperability
- Nationwide Health Information Network
- Architecture: SOA Overview
- Architecture: SOA at VA
- Innovation
- Philosophical Views and Challenges
PMAS: Introduction

• Program Management Accountability System (PMAS) introduced on 15 June 2009
  □ All projects will utilize incremental delivery (smaller, more frequent delivery of functionality)
  □ Rigorous management to committed schedule milestones (3 misses cause project stop)
  □ Provides near-term visibility into troubled projects to eliminate “big bang” project failures
• Initial 45 projects paused on July 17, 2009
  – Worst performing projects in the portfolio
  – Most were over one year behind schedule

All VA IT projects will be PMAS compliant by June 2010.
Incremental Development

• All new VA IT projects/programs must use an incremental development approach
  – Frequent customer delivery milestones; at most every six months
  – Customer must test and accept functionality
• To be approved for investment, a program or project must have:
  – An identified customer sponsor
  – An established integrated project team
  – Program plan that documents frequent delivery milestones
  – Documented, agreed to requirements for initial milestones
  – Clear plan for necessary program disciplines
  – Clear access to necessary program resources
  – Customer, program, and vendor acceptance of PMAS
  – Jointly established success criteria
VA/DoD Interoperability
Current State

HEC IM/IT WORK GROUP

- Pharmacy Data
- Allergy Data
- Lab Results
- Discharge Summaries
- STD Ambulatory Data Record
- Inpatient Consults
- Radiology Reports
- Pre-Deploy Assessment
- Post-Deploy Assessment
- Problem Lists
- Potential Sharing (Unfunded & Uncosted)
- Social History
- Operative Reports
- Provider Notes
- Procedures
- Additional Inpatient Data
- Other History
- Family History
- Vital Signs
- Questionnaires

DoD and VA Shared Health Data

Plan Completed Jun 08
Interoperability Plan, V 1.0

Images (Enterprise-Wide)
Add'l Data Elements (Viewable)
Add'l Data Elements (Computable)

BEC IS/IT WORK GROUP

- Combat Military Pay
- Accessions & Separations
- Activation / Mobilization
- Military Pay Information
- MGB Eligibility Information
- Add'l Education Benefit Data
- UIC Mailing Address Data
- Insurance / Benefit Eligibility
- Comp. & Pension Data
- MGB Program Usage Data
- Military Service Imaged Record via DPRIS

DoD and VA Shared Personnel / Administrative Data

Plan Completed Jun 08
Interoperability Plan, V 1.0

Images (Enterprise-Wide)
Add'l Data Elements (Viewable)
Add'l Data Elements (Computable)

Member / Veteran Family Member Information for Insurance and Cemetery Benefits

- Dis Eval Sys Pilot - VTA Tracking (LOA1)
- Wounded Warrior Indicators (LOA4)
- eBenefits Portal (LOA4)

KEY

- Current Sharing (Viewable)
- Current Sharing (Computable)
- Planned Sharing (funded)
- Potential Sharing (unfunded & Uncosted)
- Potential Sharing (DoD funded)
- Potential Sharing (VA funded; DoD identified funding requirements – FY09 supplemental)
- On Contract
North Chicago – Captain James A. Lovell Federal Health Care Center

- First FHCC managed jointly by VA and DoD
- Opening Day October 2010

- On Schedule
- Provide Information Management/Information Technology
- Key to establishing VA/DoD electronic health record
Proposed Future State

**Common Services**

- Other Government Agencies
- Beneficiary / Stakeholder
- Managed Care / Fee Private Providers

**DoD**

- DoD Unique Data
  - Ex: Enrollment, Operational/Theater Information
- Army
- Marine Corps
- Navy
- Air Force
- JOINT

**VA**

- VA Unique Data
  - Ex: Extended Care Data, Veteran/Dependent Benefits
- VHA
- VBA
- NCA

**Virtual Lifetime Electronic Record**

- Health
- Benefits
- Personnel

**Accession**
- Training
- Readiness
- Deployment
- Education
- Personnel Data
- Medical Care: Theater & Home
- Separation
- Compensation
- VA Extended Care

**Orders and results**
Nationwide Health Information Network
Nationwide Health Information Network

Health Bank or PHR Support Organization

Community #1

Integrated Delivery System

Community Health Centers

CDC

VA

DoD

SSA

State and Local Gov

Labs

Pharmacies

The Internet

Standards, Specifications and Agreements for Secure Connections

Mobilizing Health Information Nationwide
Federal CONNECT Concept of Operation

*Agencies may share some development efforts for the Gateway Adapter

Developed by NHIN-C Federal Consortium
Wounded Warrior Scenario: Key Concepts

Continuity of Care for the Wounded Warrior

Aggregated View of Retrieved Patient Health Information

Determination of Disability Benefits
NHIN can Enable VLER (Phase II)

Private Providers

NHIN Exchange Standard

Administrative Record Standard

DoD Apps. Shared Services VA Apps.

NHIN Record Standard

National Standards
Architecture: SOA Overview
Line of Sight in Action

Line of Business (LOB) or Business Process Modeling Center of Excellence (PMCE)

Strategy

Performance Reference Model (PRM)/Strategy Documents

Business Process Models

Business

Information & Data

Systems Engineering (SE)/Architecture and Engineering Processes

Applications & Services

SE Artifacts

Technology Infrastructure

System Development Life Cycle (SDLC) Process

IT Products
System of Systems (SoS)

Software module or Service i.e. lab, scheduling, identity, etc

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SDLC Process

• Provide boundary conditions and definition of black boxes
• Software Engineering Management Plan (SEMP)
• Heavy focus on SoS Architectures/Designs
  • 508 Requirements/Design
  • Disaster Relief (DR)
  • Service Oriented Architecture (SOA)
  • Etc.

Business Architecture Artifacts

Systems Engineering/Architecture and Engineering Processes

Common Services

SOA Stack

• Provide processes in the development of individual modules
• Heavy use of Rational/Jazz Tool Suite although has some need for software engineering tool suites
• Agile Development Methodology
• Project/Service focused requirements
  • Lab
  • Payment of benefits
  • Etc

Common Services

• Heavy use of Rational Tool Suite (with Jazz enhancement). Some Systems Engineering Tools

SOA Stack

• Heavy use of a modeled based Systems Engineering Tools Suite and some Rational (with Jazz enhancement) Products

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SOA Stack  Common Services

Systems Engineering/Architecture and Engineering Processes

• Artifacts of SE Process feed into various spots in SDLC
• Artifacts need be focused on SoS
• Artifacts need to tie into business architecture

SDLC Process

Challenge

• How do artifacts which are updated on a periodic basis fit into a time based (project based) project
  • Sequencing artifact updates to all project schedules not possible
  • SE artifacts must take into account projects at different states in SDLC and be able to account for different life cycle states
Architecture: SOA at VA
VA SOA Transition Road Map

**Phase 1 – Prepare the Business and IT**

Perform Pre-Audit & Assess Readiness
Define Guidelines & Constraints
Identify Business & IT Stakeholder- Conduct Analysis on Executives, Managers & Executers
Conduct Initial Training
Define Metrics: Goals, Stakeholder Impacts & Changes
Prepare Organization
Change Strategy & Framework Training Plan, Materials Training Content, Structured to Complement Other VA Training

**Phase 2 – SOA Governance and Management**

Provide Governance Assessment, Model & Framework Document Requirement
Define Roadmap
Define Reference Architecture & Security Model
Prepare Developers' Handbook
Center of Excellence
Enable Enterprise Framework – Deploy & Manage Common, Documented Methodology
Facilitate Cross-Organizational Requirements Gathering for Service Development & Enhancement Activities
Implement Governance Strategy & Framework
Enforce Common Development, Coding, Documentation & CM Standards
Provide Education Outreach & Awareness Initiatives
Complement Current Training
Provide Plan & Materials, & Conduct Training
Integrate VA Business Process Modeling
Provide CM Plan, SOA COE Ops Guide

**Phase 3 – Legacy Transformation**

Establish VA SOA Infrastructure
Wrap Legacy VA Systems as Services
Secure Service Interfaces
Design, Procure and Deploy SOA Infrastructure
Implement Reference Stack
Refine Design and Implement, Policies, Processes, Procedures, Documents, etc
Implement the Above

**Phase 4 – Business Enablement with SOA**

Establish VA SOA MetaModel
Semantic Integration Across VA
VA Services and Processes Implementation
• Data Strategy, Interface Design and Architecture with associated Coding standards are synergistically evolved through BRM/BPM analysis.

• Service-Oriented is appropriate embedded in each of these based on a business case evaluation of the capabilities being augmented or transformed.
Example: Chapter 33 Tactical Governance

• Implementing Governance for Chapter 33
  – Established OED / Chapter 33 Architecture and Engineering Governance Board
  – Established ESOA / Chapter 33 Architecture Integrated Product Team (IPTs) to manage issues in key areas
    • Security, Architecture, Infrastructure
• Identifying and managing critical gaps in Governance for Chapter 33
  – Process and artifacts that:
    • Identify connection to systems outside CH33
    • Determine responsibility for changes to these systems
    • Determine service agreement type
    • Enable CH33 service deployment and certification
• Developing service-oriented Standards, Specifications, Patterns and Practices (SSPP) and an associated reference implementation of core services

Chapter 33 Governance Model is scalable to the Enterprise level
Innovation
Health Information Technology Innovation

A partnership between VHA and VA Office of Information and Technology (OI&T)

Objectives:

- Allow mission critical healthcare innovations reliant on information technology to emerge.
- Establish processes that ensure investments in innovation are reviewed and prioritized by stakeholders.
- Ensure that innovations are developed, tested, piloted and deployed with due regard for security, network integrity and privacy.

Full Transparency

Low Bar for Entry

High Bar for Exit
Innovation Components

- Greenfield Incubation—field innovators propose new opportunities
- Strategic Incubation*—leadership identifies opportunities
- Innovation Diffusion—evaluation of the quality of products and how products work in the healthcare delivery process
- Collaborative Tools—technologies used to advance innovation and encourage the building of communities of interest
- Workforce Development—activities undertaken to build a culture of innovation and a knowledgeable workforce
- VA OI&T Innovation Advancement Program (IAP)

*cross-Administration strategic initiatives to be undertaken; points of contacts have been identified
Conclusions

• Investment (Cost) vs. Value
• Consensus of IT “Sellers” and “Buyers” on Meeting Business Need
• Information Interoperability Is Key
• Information Interoperability Is More Important Than Code Re-Use to Meet Business Need
Top 10…

SOA General Misconceptions

10. Orchestration = dynamic discovery = dynamic consumption
9. Configurable = loosely coupled
8. Identity is Identity, and there is only 1
7. SOA is a “Big Bang Theory”
6. Granularity of services is easy to define
5. Standards and Specifications compliance is strictly defined
4. WSDL exchange = interoperability
3. Security and auditing can be retrofitted
2. Service-Oriented Architectures are primarily a technical or management approach

And the #1 General misconception is…
1. SOA is the answer to interoperability (and you can buy one)
Philosophical Views and Challenges
PHR
Driving Forces
Or Obstacles?

• Improve patient safety
• Aging population: manage multiple co-morbidities
• Align health care cost with value (= health outcomes)
• Empowered consumers: use of internet tools
• Employer-driven consumer models
• Physician acceptance of technology: reimbursement driven
• Disease and case management
• Pay for Performance and value-based purchasing
Innovation

"The people in the field are the closest to the problem, closest to the situation, therefore, that is where real wisdom is."

– (Former Secretary of State Colin Powell)
Greenfield Incubation Timeline

- Greenfield LOI Solicitation Issued to Field by DUSHOM
- Greenfield RFP Invites
- Greenfield RFP Peer Review
- Welcome Packages Distributed
- Off-site Review / Acquisitions Assistance
- Greenfield LOL Submission Deadline
- Greenfield LOL Peer Review
- Greenfield RFP Submission Deadline
- Fatal Flaw Confirmatory Reviews
- Innovative Ideas Kicked-off

2009

January, February, March, April, May, June
# Greenfield Award Overview

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<th>Category</th>
<th>Reviewed LOI Impacting Category</th>
<th>Awards Impacting Category</th>
<th>Award Percent</th>
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<tr>
<td>Administrative</td>
<td>114</td>
<td>29</td>
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<tr>
<td>Clinical</td>
<td>159</td>
<td>43</td>
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<tr>
<td>Education</td>
<td>56</td>
<td>21</td>
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<tr>
<td>Other</td>
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<td>9</td>
<td>26%</td>
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<tr>
<td>Veteran Direct Impact</td>
<td>124</td>
<td>36</td>
<td>29%</td>
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44 TOTAL CONCEPTS SELECTED FOR FUNDING
Innovation Evaluation

- Innovation criteria
  - Improves patient care (e.g., safety, quality or access)
  - Improves efficiency (e.g., clinical workflow or cost/benefit)
  - Impacts numerous Veterans, staff or other stakeholders
  - Addresses an unmet need rather than incrementally improves existing methods
  - Helps meet an organizational requirement (e.g., Joint Commission or Congressional mandate)

- Three review teams, five reviewers per team with multi-discipline and leadership level mix

- Preliminary Review Process:
  - Addressed Conflicts of Interest
  - Randomly assigned LOI to teams
  - Used blinded independent review with established Innovation Evaluation Criteria on 1-5 scale
  - Group discussed and determined final scoring

- Final Review Process and Criteria:
  - Same review teams, evaluated full proposals
  - Benefit factors: Quality, Efficiency, Scope, Novelty, Requirement
  - Feasibility factors: Team, Approach, Environment
Approaching Service Orientation

- Strategic Governance needs to enforce the “design by standards” approach versus “design by product” across the Enterprise

- Critical elements required to scale Tactical Governance Model
  - Enterprise review boards
  - Programmatic Governance Boards: Enterprise Management Processes
  - Functional Governance Boards: portfolio and capability establishment
  - Technical Governance Boards
    - Roadmap for core services utilized by all development efforts
    - Reference Architecture to enable experimentation and development including Standards, Specifications, Patterns and Practices (SSPPs)
Current Architecture
Possible Future Architecture