Service Oriented Enterprise Architecture
Overview

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SOA – the lighter side

Google search for SOA gives:

- School Of Actuaries
- Spirit Of Americas
- Saskatchewan Outfitters Association
- Southern Orthopedic Association
- Scottish Orienteering Association

- And of course ‘Service Oriented Architecture’

- And now, ‘Service Oriented Enterprise Architecture’

EA + SOA = SOEA

‘Enterprise Architecture and Service Oriented Architecture are coming together to enable a Service Oriented Enterprise Architecture’
Agenda

- Section 1: Enterprise Architecture Key Requirements
- Section 2: Service Oriented Enterprise Architecture – Vision, Concepts and Key Components
- Section 3: HHSC SOA Architecture – What It’s NOT
- Section 4: Standards
- Section 5: Industry Adoption
- Section 6: Benefits
- Section 7: How far are we along this path?
Section 1: Enterprise Architecture Requirements
Key Business Drivers

- Business Process Outsourcing
  - Insourcing and Outsourcing
  - KPI/SLA management and monitoring

- Cost
  - Higher Efficiencies
  - On demand pricing

- Better Customer Service
  - Increase Reach
  - Increase Richness
  - Increase service levels

- Consolidation
  - Organization
  - Business Processes
  - Applications

- Security
  - New security concerns
  - Changes to policy

- New Business Models
  - Self-Service
  - Call Center
  - Multi-channel
  - Mobile Computing

- Business Agility
  - Constant Change
  - Learn and Evolve
  - Speed
Why SOA?

- Architecture that provides a foundation and a framework for transforming business processes while leveraging existing applications and other assets

- **Align with Business using Architectural paradigms**
  - Abstraction and Encapsulation
  - Separation of concerns
  - Patterns
  - Standards

- **Facilitate change**
  - Use of Industry Standards
  - Independent business services & SLAs
  - Service Aggregation Frameworks
What is SOA?

Business Process Framework

Business Process Logic

Core Business Logic

Services
HHS SOA framework

Business Patterns
- Self-Service
- Process Consolidation
- Automated Voice Response
- B2B
- Mobile workforce

HHS SOA Framework
- Patterns (EAI, B2B, Portal, User Workflow, etc.)
- Services
- Training
- Best practices and Methodologies
- Templates
- Hardware/Software
- Support
- ...

HHS Framework consists of the following:
- Process framework
- Portal framework
- Business Services framework (including SLAs)
- Common Information Model
- Business Objects
- Common User Model
- Dev, Dev Int, and Test Environments (on demand)
- Production Environments (on demand)
- Monitoring framework
Section 2: Service Oriented Enterprise Architecture

Vision, Concepts and Key Components
HHSC SOA Vision – Conceptual Model

Today’s Siloed Apps and Heterogenous Platform Landscape

Services Oriented Platform managing the Heterogeneity and Evolving to Unified Enterprise Architecture

HHSC Services BUS – Standardizing Application Architectures

Process Models and Service Models

10 Enhancing Accountability • Improving Services • Increasing Efficiencies 6/3/2005
HHSC SOA Architecture Organization

Concept

Employee Portal

Citizen Portal

Partner Portal

Legacy Platform

Shared SOA Platform

Vendor 1

Vendor 2

Agency/IRM

HHS Bus

End to End Business Systems Management

Federated Identity Management

Business/Arch SLA’s

HHS Enterprise

Vendor 2

Legacy Platform

Shared SOA Platform

Vendor 2

Legacy Platform

Vendor 2

Vendor 1

Shared SOA Platform

Vendor 2

Legacy Platform

Vendor 2

Legacy Platform

Vendor 2

Vendor 1

Vendor 2

Vendor 2

Vendor 2

Vendor 2
Section 3: SOA Architecture – What It's NOT
Are we moving to a single technology for all applications? ....

NO

• HHS is a complex enterprise with multiple agencies, business requirements, vendors and skill sets
• Inheritance of a diverse set of applications and technologies ranging from Mainframe to Client Server to Web; Desktop to Browser; Hard disks to SANs; Boxes to Blades

There is no room for .NET or other technologies ....

NO

• Microsoft technologies play a big part of HHSC enterprise at the desktop level and e-mail
• There are very good packaged applications which are built using ASP and .NET technologies that address specific business requirements extremely well
• SOA specifically lays out standards and methodologies to enable different technologies to interoperate and co-exist
• Certain functions need to be standardized on an enterprise platform and infrastructure, but services and business functions can be implemented using the best fit technology
Section 4: Standards
# Web Services Standards

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<td>Mark-up Language (SAML)</td>
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<td>Web Services Remote Portlets (WSRP)</td>
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<th>Business Process Execution</th>
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<td>Business Process Execution Language for Web Services (BPEL4WS)</td>
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<td>Business Process Modeling Language (BPML)</td>
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<th>Services Publishing &amp; Discovery</th>
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<td>Universal Description, Discover, and Integration (UDDI)</td>
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<th>Services Description</th>
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<td>Web Services Description Language (WSDL)</td>
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<th>Services Communication</th>
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<td>eXtensible Markup Language (XML)</td>
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<th>Network Transport Protocols</th>
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<td>Transmission Control Protocol/Internet Protocol (TCP/IP)</td>
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<td>Hyper Text Transport Protocol (HTTP)</td>
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Source: Executive’s Guide to Web Services by Eric A. Marks & Mark J. Werrel
Web Services Standards Governance

- World Wide Web Consortium (W3C)
  - Founded by Tim Berners-Lee
  - Over 400 member companies
  - SOAP, WSDL

- Organization For the Advancement of Structured Information Standards (OASIS)
  - Global consortium for developing e-business standards
  - UDDI, WSRP, SAML
  - SOA-RM
Section 5: Industry Adoption
SOA: Is it hype?

Gartner’s Projection
By 2008, 60% of enterprises will use SOAs as their “guiding principle”

Yankee Group
75% of enterprises are now planning large SOA investments
Example – State of Massachusetts

**Problem**
Integrate data between hospital systems, insurer systems and physician systems throughout the State of Massachusetts

**Solution**

**Option 1**: deploy a common development platform for all applications, and rewrite all applications

**Option 2**: create a unified database, and have all systems access this database

**Option 3**: an SOA-based solution, enable interoperation through web services built on top of these applications
Example – State of Massachusetts

- Leveraged SOA to enable data exchange between doctors, hospitals and insurers
- Reused existing systems & applications
- Cost: $1M vs. expected cost of $50M to go with creating a unified database
Section 6: Benefits of Adopting an SOA-based Enterprise Architecture
Benefit Categories

- Customer Service
- Business Agility
- Cost Savings
- Business & Operational Efficiencies
## Benefits – Better Customer Service

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| Enables quicker response to customer issues & benefits applications     | • By integrating applications and data from multiple sources  
• By developing better business processes                               |
| Enables multiple channels for doing business                             | • Face-to-face, call center, self-service                                                                         |
| Provides consistent user experience across all applications              | • By organizing applications through citizen, employee and partner portals                                       |
| Improves ease of use of Enterprise functionality                         | • By providing capabilities such as single sign-on & collaboration                                               |
| Provides Better Security                                                 | • Enterprise Identity Management  
• Enterprise Security Framework (protection of environments and data)  
• Compliance with Rule & Law (HIPAA, IRS, etc.)                        |
### Benefits – Business Agility

| Enables IT to respond faster to Business and Legislative Changes | • By separating business process logic from core business logic  
|                                                            | • By enabling standards-based integration of disparate systems running on heterogeneous technology  
|                                                            | • By promoting reuse and leveraging existing applications through the use of services across the Enterprise |
## Benefits – Cost Savings

| Enables reuse of legacy assets & eliminates building redundant systems | • By allowing for existing applications to be wrapped into services regardless of the technology  
• By providing a standards-based Enterprise Service Bus |
|---|---|
| Helps to leverages outsourcing | • By providing standard interfaces for services, it is easy to split the application into several logical components, some of which can be outsourced  
• By adopting an enterprise SLA framework consisting of business SLAs and technical SLAs |
| Helps to control operations cost | • By moving towards utility-based computing  
• By optimizing enterprise-wide infrastructure for demand for multiple applications instead of silo’d infrastructures  
• Demand-based pricing |
### Benefits – Business & Operational Efficiencies

| Provides better views into Enterprise Data helping Executive decision-making | • Enterprise data can now be integrated across heterogeneous software and hardware platforms |
| Provides Better Tools & Mechanisms to Manage IT Systems | • Monitor the performance of the services and applications through KPIs & SLAs |
Section 7: How far are we along?
Current SOA based Initiatives

- **Integrated Eligibility and Enrollment (IEE)**
  - TIERS has been SOA enabled (IE Pilot)
  - Methodologies, best practices and design patterns identified
  - New IEE Contract (under negotiation) with Vendor

- **Mainframe Migration**
  - Two mainframe system designators (NB & PX) being rebuilt on an SOA platform and delivered through the Enterprise Portal infrastructure
  - Metrics being collected to evaluate effort involved with other system designators
  - In-house development
Current SOA based Initiatives

• **Utility Computing initiative**
  – Pilot being envisioned to understand vendor readiness and capabilities as well as pricing models

• **Vendor Management SLA Framework**
  – work-in-progress

• **Mobile Computing Effort (DFPS)**
  – Enterprise team interactions with the team to bring mobile computing methodology and tools into the Enterprise Architecture framework
Thank You