ACHIEVING SUSTAINABLE BUSINESS AGILITY WITH SOA:

CLOSED LOOP Life Cycle Governance & SLA Management of Shared Services Ecosystems

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Ray Lane: “Good Riddance, Software Business”

- We'll see fewer and fewer shrinkwrapped CDs, less lock-in to proprietary stacks, and far more user-generated and user-driven applications.
- From an SOA perspective, is the growing availability of services both from within and outside the firewall.
- Enterprise applications may evolve to bundles of hot-swappable services that can be purchased from sources from across the globe.
SOA is Equal Opportunity

- All platforms, all technologies - Not just for the Web
  - Mainframe & Legacy systems (housing bulk of corporate data & business logic)
  - Storage
    - “So, what is exciting in storage? SOA. Yes, storage is now all about SOA. If you are in “storage” and aren’t thinking about the implications of SOA and Web 2.0 then you may want to think again. SOA changes how we construct applications by changing how application services interact.” – Mark Lewis, EMC, Jan 2007
  - Network
  - Applications
  - Organization & Culture (social): People & Processes – Web 2.0
  - Virtualization – not just for servers!
Web 2.0, MashUps & Information as a Service

Yahoo Pipes = feed aggregator that lets you mix and match RSS feeds

http://content.zdnet.com/2346-10532_22-54097-5.html
The Rise of Service Oriented IT

Global SW Development

Dynamic App

MashUps

Global Intelligence Mining

“The Experience Economy”

Digital Lifestyle

Virtualized

Connected

Service Oriented IT & SaaS

Federated

“24x7”

“Flat” World

Horizontal Value Chains

Google

eBay

Amazon

Myspace

Yahoo

Digital Lifestyle
The Pursuit Of Agility = IT Transformation Journey

Transform frozen silos & stovepipes into Liquid Enterprise Assets: Bridge Gaps among People, Processes, Applications and Systems
Flexibility To Gain – Looking for “The Next Big Thing”?

Frozen

- Unintended Consequence Of Change: Flexibility Lost
- Frozen IT & Inflexibility

Daunting Challenge: Adapting To Rapid Changes

Liquid

Flexibility To Gain:

Agility Enablers: Options to exercise
Agenda

SOA: What? Why? Raison d'être is sharing of reusable services/assets

Sustainable Sharing of Reusable Services is no accident: requires coordinated (multi-organizational community) planning
• IT: From stand alone app silos to Shared Services Ecosystems
• Analogy and lessons/principles learned from a real world global shared services ecosystem

Service Closed Loop Life cycle Governance is Key
• Promoting effective shared service reuse face technical, cultural and organizational barriers
• Introducing the concept of a federated ServiceMART - Subjective & Objective Assurance Metrics for consistent, predictable shared reuse

Flexibility in IT & with IT is a double edge sword
• Emerging new governance & performance management challenges stemmed from the rise of composite – situational, emergent – app
Why SOA: Business Enablement Incentives

- Improve Flexibility: 100%
- Decrease Cost: 97%
- Reduce Risk: 71%
- Increase Revenue: 51%
- Enable New Products: 43%
- Enable SOX: 26%

Data Source: IBM (IGS) survey based on 35 SOA Projects
SOA Real World Adoption “Statistics” Profile –
source from IBM, Oct 2006

- 50% world’s 30 biggest electronics companies
- 8 of the world’s 10 biggest banks
- 9 of the world’s 10 biggest telcos
- 10 of the world’s 10 biggest auto manufacturers
- 8 of the world’s 10 biggest insurers
- 4 of the world’s 10 biggest retailers
- 80% of the biggest US 10 health plans
- 80 SMB references
SOA “Success” Stories : Reported in 2005-6

- eBay
- IBM
- Wachovia
- HP
- Harley Davidson
- Ameriprise Financial

- Amazon.com
- Citigroup
- OnStar
- DreamWorks Animation
- International Truck
- MedicAlert

- Experian
- Washington Group
- Siemens AG
- The Hartford
- Aetna
- Monster.com

- Transamerica
- ING Group
- Vital Forsikring
- FBI
- Ertan Hydropower
- British American Tobacco
BEA Customer’s Experiences With SOA
SOA From 50,000 Feet

- Mind the Fable of the Elephant & the Blind Men

- SOA is a **multi-faceted/multi-discipline** “business-smart” IT **strategy** based on an **modular architectural (patterns)** approach that organizes (**model/design, create, deploy, govern & manage**) autonomous functions, [may be contained in applications], into **standards-based services** (with **uniform** interfaces & externalized contracts) that can be shared, combined and reused quickly to meet changing business needs.
SOA: Multi-Faceted, Multi-Discipline, Life Cycle

Multi-Faceted
- Architectural
- Technical
- Financial
- Organizational
- Social, Cultural

Multi-Discipline
- Architects
- Developers
- IT Administrators
- Business Analysts
- Line Of Business

360: Life Cycle
- Design Time
- Run Time
- Change & Config Time

SOA: Mind the Elephant & the Blind Men Fable
Application Infrastructure versus Service Infrastructure
SOA Shared Services Ecosystem: Multi-Organizational Federated Community
SOA: Lost In Translation?

SOA is Not equal to Web Services
• Life cycle – design, create, assemble, orchestrate, deploy, govern, manage

SOA Not restricted to coding software
• Architectural Principles & Patterns
• Think Modularity, Organization

SOA Not just technology
• A Business-smart IT Strategy
• Business Process & Messaging Oriented

SOA Not “technology in a box”:
• Legacy is key to the value prop of SOA: “Save Our Assets”

SOA is Not just for distributed platforms
• Think City Planning /Administration
• Think people, processes

SOA is Not a one off project:
Cohesion
• Think City Planning /Administration
• Think people, processes

SOA is Not one size fit all – blending old with new; SOAs of SOA

Multi-Discipline

Multi-Faceted
Obstacles to Large Scale Adoption of SOA

“The CIO's case for ROI will be realized in two steps. First, within IT. Then, for the business once the IT solution/implementation is ready. The CIO has to educate the business that with SOA, it’s such a paradigm shift that it requires a certain level of investment before ROI is realized.” – Aberdeen Group Report, Jan 2006

Source: InfoWorld Research Report, 2006
The Road to Agility: Theory & Practice

**In Theory**
- Adopt the SOA (service-centric IT) Approach
- Improve the Application Design, Development, and Deployment Life Cycle Process
- Achieve Business Agility, Competitive Edge and Sustainable Innovation

**In Reality**
- A Challenging Transformation Journey
- Begin with the Concept of Shared Service Reuse Ecosystem – crucial link, perhaps Raison d'être
  - SOA: “Save Our Assets”
  - “State of the Art”? or “Same Old Architecture”?
SOA Agility Enablement: A Tale of 2 Cities

The Risk Factors
- Cultural & Organizational Shifts towards shared services ecosystems—limited scope; yielding control; communication & co-ordination is key
- The “Stick”: SOA Life Cycle Governance is critical (assurance of uniformity, cohesion & manageability)
- Situational (Emergent) Composite App
- Horizontal Federated Management Challenges
- Loose Coupling – more “moving parts”, inter-dependencies & performance overhead
- Business-centric Contracted SLAs

The “Carrot”
- Shared Services Reuse, Mix & Match Assembly/Composition
- Flexibility
- Freedom of Choice
- Sustainable Innovation
- Competitive Edge – Costs Down + Productivity Up

Increase Flexibility without Risk Increase
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SOA Governance: Elephant in the Room

“SOA is neither a product you buy nor a panacea, but rather an approach that requires careful planning, effective change management processes, and strong governance in addition to technology. The companies that are successful adopting SOA will focus on the first three before they address number four.” – AMR 2006

SOA = shared services ecosystems
- Without governance, all you have is “JBOWS” and unmanageable as services proliferate & inter-dependencies grow exponentially.
- Use a portfolio management approach: a project-by-project approach to managing the portfolio of SOA services.

SOA governance = organizational operating model/process that enables the definition, management & enforcement of SOA policies.

SOA Governance = “Elephant in the Room”: Difference between success & failure in your SOA Transformation Journey

“An enterprise chock-full of services is not an SOA. For that, you need the matrix of rules and policies that make up SOA governance (run time and design time)” – Phil Windley
From Siloed (Vertical) to Horizontal To “360”

• Traditionally, the ownership, chargeback and management of applications or workloads (including their underlying infrastructures) were governed by appropriate business units in a vertical or siloed manner.

• However, SOA, SaaS, Open Source, and Utility Computing typically cause functionality and/or services to be shared across applications and workloads.

• These shared resources require a horizontal governance strategy that crosses the vertical business lines.

• Further, because these four initiatives impact common areas of IT resources and expertise, an overarching management process needs to be implemented to balance their respective priorities, cost strategies, long-term goals and key challenges.
Governance towards Trust/Confidence Building

Insure standards, specifications and policies are followed during design & implementation

Measure and report upon quantities that affect confidence/trust
- Technical metrics: availability, performance, SLA etc
- Usage reports: usage frequency, user ratings

Objective metrics
- Shared service reuse rate; concurrency; SLA scorecards; Availability; Designed versus Actual
- Lists of prominent users

Subjective user "experience" ratings
- Numerical satisfaction scores
- Text-based blogs, RSS, wikis

Special incentives to designers and developers
- Rewards/recognition for reusing existing services
- Rewards/recognition when their services are reused

Conventional marketing/advertising campaigns
- Discover that services exist
- Promote use of these services
Run Time Performance Governance

- Insure that run-time SLA expectations are being met
  - SLAs for Availability, Performance, etc.
  - Shifting responsibilities
    - Conventional software – in-house data center
    - SaaS – Vendor’s data center
    - In-house SOA applications
    - Cross domains Composite/Emergent/Situational/MashUp App
    - Multi-enterprise SOA Composite Applications

- Who is responsible if SLAs are not met?

- Increased need for service analytics metrics: measurement, reporting, analysis
  - Large number of “moving parts”
  - Opportunities for industry standards initiatives
  - Shared service SLA scorecard
Service Life Cycle Governance

- Who & How to insure that appropriate standards are followed? Policies are externalized (design time) and adhered to (run time)? What about rogue services? “Bad” services?
- Who /which organization is responsible for
  - What standards? Which version? Time Line for adoption?
  - Setting targets for degree of shared reuse for individual services in the service portfolio
  - Taxonomy/Semantics for Metadata
  - Quality assurance for autonomous versus Assembled /Composite /Emergent Services
  - Versioning, Change/Configuration Issues
  - Technical Support

Major implications for mission critical SOA Composite Applications

Formation of In-house Cross-Domains SOA Governance Committees

Lessons from the open source community and the “Web 2.0” communities
SOA Closed Loop Life Cycle Governance

A focus on sustainable service delivery with consistent & predictable quality / experience is a focus that is predicated on closed-loop thinking.
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The concept of conventional application to blur

Tomorrow: the concept of app will become blurred

Goal: Increase flexibility (freedom of choice) but not risk via the ability to realize the benefits of shared services ecosystems

Today: Shrink wrap app

• Composite App; Emergent, Situational
• Enterprise Mashups; Mix & Match Templates
• SaaS
Rise of Composite “App”: Today’s frozen IT

Frozen IT: Butterfly Effect; Flexibility (Freedom of Choice) Lost

Hard coded App:
- Tightly coupling UI, Business Logic, data & Non functional “operational” specifications
- One off; Point to Point Integrations

Tight Coupling Analogy: Every DVD requires its own DVD player; Every “wardrobe outfit” is custom made as an ensemble – no mixing and matching

“The Elephant has left the building” by Anne Thomas Manes, June 2005
- The age of the massive, lumbering, elephantine application is passing. The new age of flexible, plug-and-play services is about to begin. With careful planning and attention to both technical and cultural details, your organization will grasp the new reins of IT power and ride to market first.”
SOA Performance Assurance Challenges

SOA: Federated, Connected, Virtualized

**Shared Service Ecosystems** present challenges to traditional (static) server-centric management tools

- Location Independent, Loosely Coupled & Composability
- Pros: Agility & Flexibility (Adaptive)
- Cons: unlike client/server - no fixed end points; Many more moving parts and inter-dependencies expected + performance overhead
- Ad Hoc Composite and Situational (Emergent) App – Assembled & Composed on demand (@speed of needs)
- Messaging Oriented (interactions beyond request/reply to event driven, pub/sub, asynch. etc) & Network Effects

“Infrastructure management has to be delivered as a [set of] service and SOA is the architecture through which it will happen….” - Bloor Research.

“Dealing with SOA performance…those bottleneck moles can appear anywhere in the enterprise, at any level of abstraction. The fact that SOA hides the complexity of the infrastructure from the user only exacerbates the need for an enterprise perspective, because high quality, high performance SOA requires high performance from every part of the enterprise.” - Zapthink
SOA: Cohesive Visibility Challenges

SOA: Architecture of Modularity & Partition

- **Pros**: Flexibility (Flex-ponsive), Mix & Match, “DIY”, Choice

- **Cons**: More sharing reuse: human elements & social/organizational issues hurdle – need carrot & stick approach + subjective & objective metrics

- **Cons**: More moving parts, more inter-dependencies and more abstraction layers

- **Examples**:
  - Infrastructure Services
  - Data Services – From proprietary data embedded in silo app to a set of common shared data services accessed by all services/app
  - Pros: single version of “truth”; uniform access to data; unified authentication
  - “Cons”: Need data modeling; Meta data; Semantics
  - Visibility Challenge: Data Services are now proxies: How do you break down data accesses broken by applications?
SOA = Federated, Connected, Virtualized Shared Service Ecosystems
Business Processes & Services: Inter-dependencies
Overall Summary

SOA Transformation to enable flexibility in IT & with IT is a double edge sword:

Pros: Increase Flexibility
- Modular Architecture with a portfolio of Mix & Match services to enable Composite (Emergent, Situational) App @speed of needs, for COIs
- Sustainable Innovation, Choice & Competitive Edge

Cons: Increase Risk
- Goal: Flexibility Gain + Risk Avoidance
- Establish SOA Best Practices, Good versus Anti Patterns
- SOA Assurance Methodology
  - Trust & Performance Assurance
  - Closed Loop Thinking
  - SOA Governance Assurance

"Sometimes I lie awake at night, and I ask, 'Where have I gone wrong?' Then a voice says to me, 'This is going to take more than one night.'"—Charlie Brown.
Thank You!

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