

Welcome to

# Practical SOA & EA

Cost-Effective Legacy Modernization  
& Data Management

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## Legacy, Data & the Cloud

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## What's a Service?



- Word has many meanings
- Even in IT, has many meanings
  - Software-as-a-Service
  - IT Service Management
  - SOA



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## Levels of Service Abstraction



- Service Implementation
  - Working software that implements the Service



- Service Interface
  - Contracted interface to underlying functionality (includes Web Services)



- Business Service
  - Abstraction of underlying functionality and data with a clear business context

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## What are Services? (Technically, Service *interfaces*)

- Contracted interfaces to software functionality and data that communicate via messages



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## Service Interfaces Aren't Good Enough!



- Service Interfaces provide a *technical* context
  - Standard interfaces like Web Services help, but don't provide all the benefits of SOA
- Business Services provide the *business* context
  - The business doesn't care *how* it works, as long as it does!

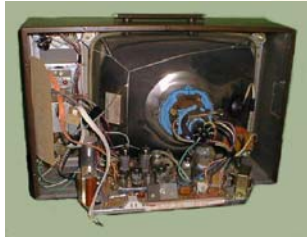
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## The Difference is the Abstraction

- Mature technology is complex on the inside yet simple on the outside



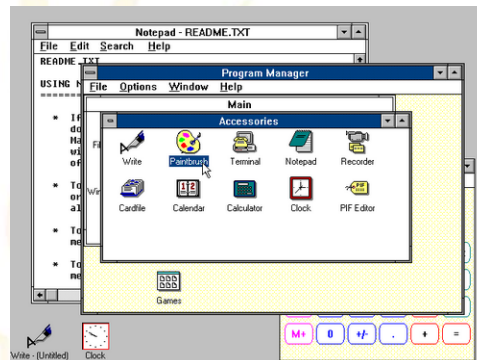
- The secret is the *abstraction layer*

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## Abstraction = Working Illusion



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## Building a Working Illusion

- Service abstraction provides simplicity to user
- Requires additional complexity "behind the scenes"
- Sleight of hand & misdirection!



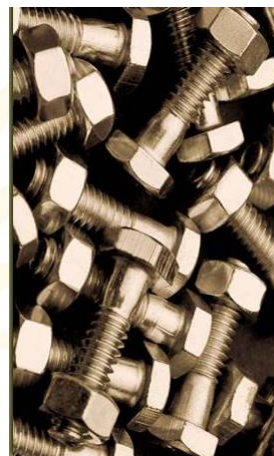
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## Exposing Existing Capabilities

- Service interfaces exposed from existing systems
- Often pre-defined by existing software
- Low-level representations of internal application functions or interfaces often exposed as Web Services



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## SOA, Integration & Legacy

- Key goal of SOA: Integration as a byproduct of Service composition
- Goal of legacy integration: building Services to support this goal, NOT connecting systems to address a particular business need



***Move away from "connecting systems" and toward "composing Services"***

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## The Continued Value of Legacy



- Definition of legacy: "anything that works"
  - Sometimes old, but not necessarily
- Expensive & risky to replace
  - Often contains mission critical business logic
- Expensive & risky to keep around
  - Maintenance consumes major portion of IT budget

***"Rip & Replace" rarely a viable option***

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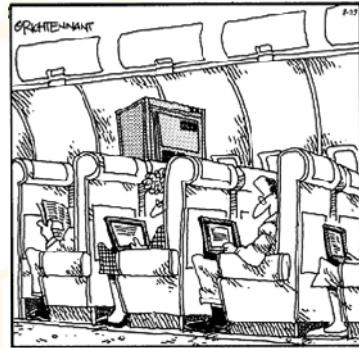
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## Legacy Migration

### *Retire legacy applications & systems; Application consolidation*

- Pros:
  - Reduces ongoing costs of maintenance
  - SOA abstracts interfaces, easing replacement
- Cons:
  - System still provides value
  - High cost and risk



"In preparation for takeoff, we ask that you turn off all electronic devices, laptop computers and mainframes ..."

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## Legacy Enablement

### *Simplistic exposure of legacy capabilities/data as Services*

- Pros:
  - Lowers risk and cost of migration
  - Maintains value of legacy
  - Does not require SOA
- Cons:
  - Inflexible
  - Can lead to "ABOS" problems



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## Legacy Rejuvenation

***Leverage legacy (especially mainframe)  
as active SOA participant***



- Pros:
  - Squeeze more value out of existing assets
  - Increases business agility
  - Non-invasive
- Challenge:
  - Requires new architectural approach to legacy

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## Migration vs. Rejuvenation

- Retiring legacy systems typically takes years
- Transition plan required regardless of final disposition
- Migration may involve rejuvenation during transition



***You may never pull the plug!***

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## Business Driver: Cost Savings

- Reduction in integration expense
  - EAI replacement/EAI maintenance reduction
  - Legacy enablement/migration/rejuvenation

### Legacy Migration

- ✓ Retire legacy applications & systems
- ✓ SOA abstracts interface, easing replacement

### Legacy Enablement

- ✓ Expose legacy capabilities as Services
- ✓ Maintain value of legacy

### Legacy Rejuvenation

- ✓ Leverage mainframe as active SOA participant
- ✓ Extract additional value from legacy

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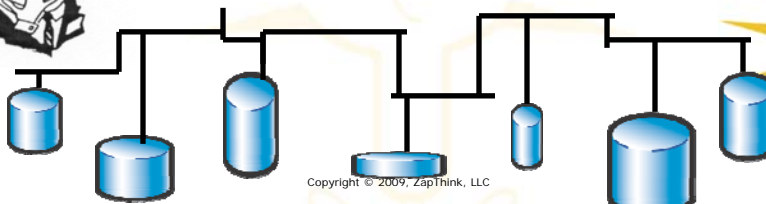
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## SOA & "Legacy" Heterogeneous Data & Data Stores

- Heterogeneity hides data and their meaning
- Data cleanliness, consistency, availability issues
- Data-related issues cascade thru the entire distributed computing environment



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## The Data Services Layer

- Provides a separation of concerns between the persistence tier and the Business Services/infrastructure Services
- Requires contracted Service interfaces
- Services can abstract single queries, joins, etc., depending on need



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## The Data Services Layer Abstraction

- Data Services Layer can easily be reconfigured
  - Account for changes to data and Service requirements
  - Requires minimal work
- Example: physical databases in many instances need not be changed
- Simply change the abstraction via reconfiguration



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## Data Services & the Cloud

- Data Services abstract physical location of data
- Facilitates third-party hosting of data stores
- New deployment options and funding models



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## What is Cloud Computing?

- Software-as-a-Service + virtualization delivered via loosely-coupled Services?
- SOA taken to the next level?
- Virtualization via hosted provider model?
- Old wine in new bottles?

***Cloud definition still nebulous***



## Software-as-a-Service?

- Software deployment over the Internet
- Traditionally delivered via a browser interface
- Increasingly delivered via Web Services interface as well
- SaaS is Service-oriented when Services are Business Services that support business processes via metadata-driven composition



*The CRM is particularly good this evening.*

***Location independence taken to its natural conclusion!***

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## Virtualization?

- Many kinds: platform, network, resource (includes storage) & application virtualization
- Generally focus on abstracting operating systems & other physical resources
- The Service abstraction is technically a form of virtualization, but not in practice
- Virtualization projects can support highly available SOA infrastructures



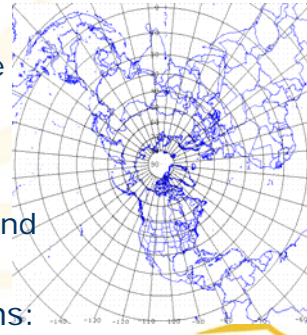
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## Components of Cloud Computing

- Software-as-a-Service (SaaS), as well as:
- Infrastructure-as-a-Service (IaaS)
  - Delivery of computer infrastructure (typically a platform virtualization environment) as a service
- Platform-as-a-Service (PaaS)
  - Delivery of a computing platform and solution stack as a service
- Where “As a Service” (\*aaS) means:
  - Being able to call up reusable software components across a network



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## Private Clouds

- Enterprises building their own clouds
- Data centers preconfigured with resource virtualization
- Challenges:
  - Does resource demand even out or experience spikes?
  - Is chargeback mechanism viable?
  - Is environment sufficiently homogeneous?



***Impractical use of existing systems***

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## Cloud Issues

- Erosion of data integrity
- Data replication and coherency
- Loss of privacy
- Regulatory violation
- Application sprawl & dependencies



Hey boss, I'm not sure our covert surveillance is real covert any more.

## Cloud Hype

- Old wine in new bottles
  - Application Service Providers
  - Utility Computing
  - SaaS
  - Virtualization
- Anti-architecture noise
  - “Cloud is SOA done right”
  - Cloud as product-centric effort
  - Lack of virtualization in practice





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## Relationship between Cloud & SOA

- SOA is an architectural approach; it is a philosophy guiding the development and management of applications
- Cloud is a deployment and operational model suited to host certain Services under a SOA initiative
- Cloud in the SOA context: Service implementation deployment option
- SOA in the Cloud context: application-level abstraction of Cloud resources



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## SOA Governance & Cloud Synergies

- Access to Cloud platforms typically via Web Services
- SOA governance tools often missing in Cloud Computing environment
- No central point for a Cloud Computing user to view all Services and associated policies
- Policies not consistently enforced on client side



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## Cloud: Raising the Governance Bar

- Applying policies to the use of Cloud Services
- Avoid chaos of Cloud Services used by an organization without any oversight
- Policies for Cloud Service use to control leakage of private information to the Cloud
- Control the excessive use of Cloud Services



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## Rogue Clouds

- Like the early days of Web Services: JABOWS issues
- Developers using capabilities undetected by IT management
- Not unusual for a developer to dabble with Amazon Machine Image (AMI) image for a project
- Simply use personal Amazon account and credit card!



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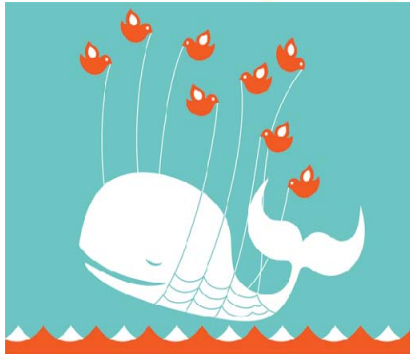
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## Cloud Availability & Failover



- Cloud availability issues
  - Internet issues, disaster scenarios
- Cloud failover
  - Redundant clouds
  - Failover, disaster recovery policies
- Cloud business failure
  - What if Cloud provider goes out of business?

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## Do YOU Trust the Cloud?



***Are you willing to bet your business?***

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Thank You!



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