IBM SOA Architect Summit

SOA on your terms and our expertise
SOA Case Study: A Practical Guide to SOA

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Senior Managing Consultant
JK Enterprises (JKE) Case Study

JKE Enterprise Architecture

- Service Integration Maturity Model
- Defining and Enforcing SOA Governance
- Project Prioritization and Planning

JKE Business Architecture

- Portfolio Strategy, Analysis and Planning
- Business Components
- SOA Design
- Business Process Management

JKE Application Architecture

- Exposing Services using Indirect & Direct Patterns
- Developing Service Flows

JKE Information Architecture

- Developing Data Federation
- Exposing Information Services

JKE Infrastructure Architecture

- Security Architecture
- Composite Application Management

Business Operating Environment and IT Infrastructure

- IT Solutions

IT Solutions

Information Technology Strategy

Business Strategy

Enterprise Architecture

Transition Planning

Architecture Governance

JK Enterprises (JKE) Case Study

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JK Enterprises

Corporate Overview
- JK Enterprises is a premier supplier to retail channel, small business channel, and corporate customers
- Founded in 1935, now a well liked brand image
- High-touch approach to our customers
- Customers of all types can interact with us in a way that suits their individual needs
- Best service at the lowest cost
- Now with customer centers around the world
- Acquired Jensen Incorporated in 2000, which strengthened our corporate customer base
- Corporate customers are true business partners

Corporate Attributes
- 900 Offices, 6 Countries
  - Corporate Headquarters (2)
  - 350 Customer Centers
  - 500 Remote Sales Offices
  - 6 Call Centers
  - 8 Data Centers
- 11,000 employees
  - 1500 Corporate
  - 1000 Sales and Sales Support
  - ~15 per Customer Center
  - 150 per Call Center
  - 2000 in IT

Line of Business Organization

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Envisioned Future State
- The most profitable high-touch company in the industry
- Aggressive growth with minimal risk
- Optimized responsive corporate organization
- A company that leverages its strategic investments
  - Best Web Site in the industry
  - Expert Sales force
  - Global CRM
  - Sales Focused Call Centers

Key Initiatives
- Grow organically and leverage our size
  - 100,000 new customers this year
  - Increase cross-sell ratio to over 2.0 in 24 months
- Multi channel integration
  - Access any service from any channel with consistent experience
  - Then move customers toward lower cost channels
- Business transformation and optimization
  - Optimize then grow - organization and processes
  - Remove redundancies - centralized shared services
  - Shift our focus to strategic functions - outsource high cost tactical business functions, invest in the rest
- Control access to information to ensure appropriate security
Agenda

- Enterprise Architecture
- SOA Business Considerations
- SOA IT Architecture
  - Application Architecture
  - Information Architecture
  - Infrastructure Architecture
- Getting Started
SOA and Enterprise Architecture: Best Practices

Enterprise Architecture:
- Assess SOA Readiness and Maturity
- SOA Governance
- Business Component Design

Transition Planning

SIMM

JK Enterprises Project Prioritization & Planning

SOA Design:
- Service Identification
- Service Specification
- Service Realization
- Service Implementation

Governance

SGMM

SOA Development/Deployment:
- Developing/creating Services
- Developing Information Services
- Developing User Interaction and Collaboration Services
- Developing Business Process Services

SOA Management:
- Service Infrastructure Considerations
  (Performance, Security, Virtualization)

JK Enterprise Projects

Enterprise Architecture Models

SOA on your terms and our expertise
## Service Integration Maturity Model (SIMM) – Next Steps

<table>
<thead>
<tr>
<th>Business</th>
<th>Organization</th>
<th>Methods</th>
<th>Applications</th>
<th>Architecture</th>
<th>Information</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Silo</strong></td>
<td><strong>Application Specific Skills</strong></td>
<td><strong>Structured Analysis &amp; Design</strong></td>
<td><strong>Modules</strong></td>
<td><strong>Monolithic Architecture</strong></td>
<td><strong>Application Specific</strong></td>
<td><strong>LOB Platform Specific</strong></td>
</tr>
<tr>
<td>Isolated Business Line Driven</td>
<td><strong>IT Transformation</strong></td>
<td><strong>Object Oriented Modeling</strong></td>
<td><strong>Objects</strong></td>
<td><strong>Layered Architecture</strong></td>
<td><strong>Deploy Common Information Services</strong></td>
<td><strong>SOA Infrastructure Standard</strong></td>
</tr>
<tr>
<td><strong>Integrated</strong></td>
<td><strong>Business Process Decomposition</strong></td>
<td><strong>Move to SOA-based Design Methodology</strong></td>
<td><strong>Components</strong></td>
<td><strong>Component Architecture</strong></td>
<td><strong>Information As a Service</strong></td>
<td><strong>Common SOA Environment</strong></td>
</tr>
<tr>
<td>Componentized</td>
<td><strong>Componentized Business offers Services</strong></td>
<td><strong>Service Oriented Modeling</strong></td>
<td><strong>Choreography Assembly</strong></td>
<td><strong>Focus on SOA Foundation</strong></td>
<td><strong>Enterprise Data Dictionary and Repository</strong></td>
<td><strong>Virtual SOA Environment</strong></td>
</tr>
<tr>
<td>Services</td>
<td><strong>Processes Through Service Composition</strong></td>
<td><strong>Service Oriented Modeling</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>SOA</strong></td>
<td><strong>Virtualized Data Services</strong></td>
<td><strong>Dynamic Sense &amp; Respond</strong></td>
</tr>
<tr>
<td>Composite Services</td>
<td><strong>Geographically Independent Service Centers</strong></td>
<td><strong>Service Oriented Modeling</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Grid Enabled SOA</strong></td>
<td><strong>Semantic Data Vocabularies</strong></td>
<td><strong>Level 7</strong></td>
</tr>
<tr>
<td>Virtualized Services</td>
<td><strong>SOA and IT Infrastructure Governance Alignment</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Virtualized SOA Environment</strong></td>
<td><strong>Dynamic Sense &amp; Respond</strong></td>
<td><strong>Level 6</strong></td>
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<tr>
<td>Dynamically Re-Configurable Services</td>
<td><strong>Governance through Policy</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Dynamically Reconfigurable Architecture</strong></td>
<td><strong>Semantic Data Vocabularies</strong></td>
<td><strong>Level 5</strong></td>
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<td>Mix and Match Business and Location Capabilities</td>
<td><strong>Business Grammar Oriented Modeling</strong></td>
<td><strong>Process Integration via Services</strong></td>
<td><strong>Process Integration via Services</strong></td>
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<td><strong>Semantic Data Vocabularies</strong></td>
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<td><strong>Business Service Decomposition</strong></td>
<td><strong>Define &amp; Enforce SOA Governance</strong></td>
<td><strong>Service Oriented Modeling</strong></td>
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<td><strong>Component Assembly</strong></td>
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<td><strong>Process Integration via Services</strong></td>
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**SOA on your terms and our expertise**
SOA Governance
Defining SOA Governance at JK Enterprises

Execute the “JKE SOA Governance Project”

- Identify SOA Business and IT Principles
- Determine Existing Governance Structure
- Define CoE Structure

Create the SOA Governance Framework

- Roles
- Processes
- Policies
- Metrics
- Quality Gates

Implement Tools and Infrastructure

Refine Operational Environment

Tailor SGMM
Create Project Proposal
SOA Governance
Enforcing Governance at JK Enterprises
Agenda

- Enterprise Architecture

- **SOA Business Considerations**
  - SOA IT Architecture
    - Application Architecture
    - Information Architecture
    - Infrastructure Architecture

- Getting Started
## Business Analysis

### Identifying Business Components

#### Target Competency:
- **Base**
- **Competitive**
- **Differentiated**

#### Investment Review
- **Contribution**
- **Cost (H, M, or L)**

#### ‘Hot’ Component

<table>
<thead>
<tr>
<th>Business Administration</th>
<th>New Business Development</th>
<th>Relationship Management</th>
<th>Servicing &amp; Sales</th>
<th>Product Fulfillment</th>
<th>Financial Control and Accounting</th>
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**SOA on your terms and our expertise**
Business Analysis
Identifying Business Components

Target Competency:
- Base
- Competitive
- Differentiated

Investment Review
- Contribution
- Cost (H, M, or L)

‘Hot’ Component

Cost control opportunity

Revenue / Profit improvement opportunity

Cost control opportunity

Cost control opportunity

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Business Analysis
Identifying Improvement Areas at JK Enterprises

- Negotiate volume discounts based on combined volume of all departments
  - Decrease negotiated cost of automated credit report by 20%
  - Automate 75% of credit report retrievals
- Implement consistent business rules to improve risk management
  - Decrease number of credit report retrievals by 10%
- Automate manual tasks for creating and administering accounts
  - Decrease cost of account activation by 50%
  - Decrease time to open account by 50%
- Develop optimized cross-channel account application process
  - Increase cross-sell ratio to 2.0
  - Add 500 new corporate customers
  - Improve STP of applications by 35%
  - Reduce call center calls from sales force and offices by 30%
- Decrease paper processes by automation of manual tasks
  - Increase electronic applications by 25%
Defining Solution Scope

Business Context Diagram

Customer

CSR (Store)

Account Open Request

New Account Request

Account Manager (HQ)

Portal

Real-time Collaboration re: Account History

Forms

Account History

Credit Scoring Partner

Account Owner (HQ)

Account On-Boarding

Account Open Request

Account Requests
eForms

Decision

eForms

Decision

Account Requests

New Account Request
Service Design via SOMA

Service Identification

**Domain Decomposition**
- Techniques:
  - Process Modeling Tools
  - Design of KPIs/Metrics

**Goal Service Modeling**
- Techniques:
  - Requirements Planning Tools
  - Design of KPIs/Metrics

**Existing Asset Analysis**
- Techniques:
  - Asset Analysis Tools
  - Interviews/Documentation

**Services Identified**
- Open Account
- Account Activation
- Account Verification

**Services Identified**
- Determine Applicant Eligibility
- Address Verification

**Services Identified**
- Account Inquiry (CICS 2.2)
- AR Setup (CICS 2.2)
- Account Setup (CICS 3.1)
- Create Account (SAP)
Service Specification

Applying The Service Litmus Test

- **Candidate Service Name:** AR Setup

- **Business Alignment:**
  - Is the service business relevant? **YES**
  - Is funding available for service development and management? **YES** (Governance Board)
  - Is the service sharable? **YES**

- **Composability**
  - Is the service consistent with NFRs at the composite level? **YES** - As per current requirements
  - Is service stateless? **YES**
  - Is the service self-contained? (Are there dependencies?) **YES** – No Dependencies
  - Is the service technology neutral? **Implementation is CICS 2.x** - technology neutral

- **Externalized Service Description**
  - Is there an externalized service description e.g. WSDL? **NO** - done as part of service creation
  - Can the service be discovered and bound via the service description? **Following service creation**
  - Does the description contain meta-data about itself? **Following service creation**

- **Redundancy Elimination**
  - Can the service be applied to all processes where its function is required? **YES**
SOMA Service Specification
Defining the “Account Receivable (AR) Setup” Service

Building the Service Message Model
Designing the Service Components
Service Specification

**Service Model for “Account Activation”**

- **Consumers**
  - Sales Application Central Office
  - Sales Application Regional Office

- **Business Process**
  - Composition; choreography; business state machines

- **Services**
  - Atomic and composite
    - **Account Activation**
    - **Account Inquiry**
    - **AR Setup**
    - **Account Setup**
    - **Create Account**
    - **Determine Eligibility**
    - **Address Verification**

- **Service Components**
  - J2C
  - Message Flow
  - SCA
  - EJB

- **Operational Systems**
  - Customer (CICS 2.x)
  - Billing (CICS 3.1)
  - GL (SAP)

**Exposure Types**
- Indirect exposure
- Direct exposure
- Create from scratch
- Third-party reuse

**Message Flow**
- Open Account
- Account Activation
- Account Verification
- Determine Applicant Eligibility
- Address Verification

**Indirect exposure**
- Address Verification

**Direct exposure**
- Account Setup

**Create from scratch**
- Create Account

**Third-party reuse**
- Customer (CICS 2.x)
SOMA Service Realization

*Designing the implementation for the “AR Setup” Service*

### Architectural Considerations
- Implementation is CICS 2.2
- WebSphere MQ on mainframe
- Security requirements (RACF)
- Alternatives
  - ESB Integration
  - Custom EJB Development
  - J2C Adapter
  - Application-level messaging

### Architectural Decisions
- ESB Integration
  - Security requirements
  - Availability requirements
  - Message augmentation/transformation
- Support for both synchronous and asynchronous interactions
- Compensatory service need to be designed and deployed
Agenda

- Enterprise Architecture
- SOA Business Architecture
- **SOA IT Architecture**
  - Application Architecture
  - Information Architecture
  - Infrastructure Architecture
- Getting Started
The End-to-end Account Opening Solution

**People**

- Customer
- Account History
- Customer Orders
- Customer Application
- Account Status
- Customer Account
- Internet/Intranet Portal

**Information**

- Account History Service
- Customer Application
- Account Info Service
- Account Opening Service
- Customer
- Account Info
- Customer Application
- Customer Account

**Process**

- Account Open Process
- Receive Request
- Check Application
- Credit Application
- Create Account
- Confirm Account

**SOA on your terms and our expertise**
Developing the Process Model

Completing the “Account Open” Process Model

Design and Simulation of the “Account Open” Business Process Model

Collaborative Development of the “Account Open” Business Process Model

WebSphere Business Modeler

WebSphere Business Modeler Publishing Server
Application Architecture
"Account Setup" Service (Billing System)

Direct Exposure
CICS 3.1

Service Creation
With CICS TX 3.1

Rational Developer for System z

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Application Architecture
“Account Inquiry” Service (Customer Management)

Indirect Exposure
J2C Adapter to CICS

Adapter Development

WebSphere Integration Developer

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Application Architecture

“Create Account” Service (SAP)

Indirect Exposure to SAP

Developing The SAP Adapter Instance

Setting SAP Adapter Properties

Selecting BAPIs For Adapter Operations

WebSphere Adapter for SAP Software
Service Reuse
Integration with the Service Registry

Browsing for Services and Publishing Services with the Web Interface

Browsing for Services with the Eclipse Interface

WebSphere Service Registry and Repository
Application Architecture
Developing Basic and Composite Service Flows

Develop Service Flows for “Determine Eligibility” and “Account Activation” Services
Information Architecture

Data Federation, XML Retrieval and Data Cleansing Services

Building Federation Services

Table: INFORMIX ACCOUNT
id: Informix
DW: ibmpassword

INFORMIX

Table: JKE CUACCOUNT
Instance: DB2
id: administrator
pw: ibmpassword
INFORMIX Server Name: ol_plstew

DB2 Federation Server

Building Native XML Retrieval Services

DB2 Federation Server

Building Account Application Data Cleansing Service

WebSphere Federation Server

DB2 v9 Viper

WebSphere Quality Stage
Information Architecture

Exposing Information Services

Registering Information Services

IBM Information Server
Process Design and Deployment
Assembly and Deploy

WS-BPEL Process Implementation

“Account Open”
WS-BPEL Implementation

Wiring the Components for the
“Account Open” Process

WebSphere Integration Developer
Process Monitoring and Management

Building BPM Monitoring Components and Dashboards

Monitoring Credit Risk

Building Components to Monitor Account Opening Duration

WebSphere Business Monitor

WebSphere Dashboard Framework
Building User Interaction Services

Developing and Deploying the “New Account” Application

Lotus Forms
WebSphere Dashboard Framework
WebSphere Portal

Building Role-Specific Portlets and Dashboards
Deploying the Solution Architecture

Implementation Topology for JK Enterprises

- Account Open Process
- WebSphere Process Server
- WebSphere Enterprise Service Bus
- Determine Eligibility
- WebSphere Application Server
- Account Activation
- WebSphere Message Broker
- DataPower Security Gateway
- Address Verification Service (external)
- SOAP/HTTP
- SOAP/JMS
- SOAP/HTTPS

- Create Account
  - SAP Adapter
  - CICS Adapter
- Account Inquiry
- AR Setup
  - Direct Call
  - CICS 2.x
- Account Setup
  - CICS 3.1
- WebSphere Service Registry and Repository
- IBM Information Server
- WebSphere Application Server
- SAP
- WebSphere Process Server
- WebSphere Enterprise Service Bus
- CICS 2.x
- CICS 3.1
JK Enterprises Security Architecture
Infrastructure Architecture
Composite Application Management

Configuring Service Management Agents

Monitoring Account Opening
Performance and Availability

Tivoli Composite Application Manager for SOA

Tivoli Enterprise Portal

SOA on your terms and our expertise
Agenda

- Enterprise Architecture
- SOA Business Architecture
- SOA IT Architecture
  - Application Architecture
  - Information Architecture
  - Infrastructure Architecture
- Getting Started
SOA Adoption: Tactical and Strategic Action Combined

**SOA Goal**
- Market return through transformation: quicker time to production, lower costs, competitive differentiation

**Two Primary Roadmap Perspectives**
- **Strategic Vision**
  Business and IT statement of direction which can be used as a guideline for decision making, organizational buy-in, standards adoption
- **Project Plans**
  Implementation projects to meet immediate needs of the current business drivers
Why IBM?

- Trusted, experienced guidance based on 6550 customers*
- Simplicity & robustness for consumability and confidence
- Basic to advanced to grow as your needs evolve
- Investment protection through open standards
- Pioneering metrics for SOA and agility
- Only vendor across people, process, and information
- End-to-end processes based on industry best practices

*# of Customers using our SOA offerings
Why IBM for SOA?

IBM understands service orientation and your business

Expertise in aligning business and IT processes
- 7500+ certified SOA consultants, architects, IT specialists
- Dozens of SOA-enabled business solutions

Thriving ecosystem of partners (ISVs, SIs, Resellers)
- 2500+ partners in SOA community
- 3500+ assets in SOA Business Catalog

Extensive Industry experience and best practices
- Over 4000 customers worldwide
- SOA Entry Points, SOA Reference Architecture, SIMM

Unmatched breadth and depth of products
- Over $1B/yr invested in SOA
- Leadership in open standards & 300+ SOA-related patents

Leadership in Governance & Service Lifecycle Management
- IBM SOA Governance & Management Method that spans the services lifecycle

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Let's Go!
Build on SOA Successes for Greater Business Value

1. Continue to discover the value of SOA
   - Not just doing the same thing a different way
   - SOA is not just about technology, but technology’s integration with business insight

2. Get Assessed! SOA Self Assessment

3. Evaluate and select a SOA project

4. Arrange for a SOA Workshop to begin your SOA journey

"...IBM is the leader in the development of SOA intellectual property.... with firm-wide SOA investment of $1 billion, IBM will leverage cutting-edge R&D, leading to quicker SOA value and reusable SOA assets for clients."

The Forrester Wave™
North American SOA Integration, Q3 2006, September 2006
Thank You

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IBM SOA Architect Summit

SOA on your terms and our expertise