IBM Retail Integration Framework

Supporting choice, flexibility and speed for aligning IT systems with business objectives

Rajaraman Hariharan
Agenda

- Section 1 The Retail Environment
- Section 2 The Framework approach
- Section 3 IBM Retail Integration Framework
- Section 4 Wrap-up
Constants: Some Things Never Change

Shoppers

Transactions

Merchandise
Four macro forces have been challenging the current retail landscape

**Competitive**
- Consolidation / Globalization
- New Business Models

**Macroeconomic**
- Slow GDP Growth in Established Markets
- Emerging Markets
- Social Responsibility

**Consumer**
- Fragmentation – Trading Up and Down
- Empowerment
- Security and Privacy

**Emerging Technology**
- Pervasive Connectivity
- Technology Innovation

Deliver a Superior Shopping Experience
Create a Demand Driven Merchandise Supply Chain
Drive Operational Excellence
And three key imperatives will enable retailers to avoid irrelevance, spur innovation and drive growth

**Deliver a Superior Shopping Experience**

*Personalized* experiences that enable customers to shop in store and across channels on their own terms.

Shopping experiences that *excite and motivate* consumers

**Create a Demand Driven Merchandise Supply Chain**

*Fully integrated* and driven by *consumer insights* that dynamically align products and services with demand

**Drive Operational Excellence**

*Integrated processes and systems* that achieve operational *efficiencies*, enable insightful *decisions* and establish a platform for *rapid* deployment of new capabilities and innovation
Retailers Are Responding with Smart Solutions

- Multi-channel Retailing
- Merchandising and Supply Chain
- Total Store
- Retail Business Intelligence
Most retailers have barriers to driving the necessary transformation and delivery of the necessary capabilities

**The Inhibitors**

- Siloed business units with different needs and priorities
- Packages that are often complex & costly to integrate
- Redundant, fragmented, or conflicting data in multiple places

“Forty-two percent of the almost 500 IT executives polled said their systems were more complex than necessary. And maintaining and managing that excess complexity cost them an average of 29 percent of their IT budgets.” — CIO Insight
Aligning Business and IT Objectives is Critical To Success

How do I...

…*speed* the deployment of retail solutions to meet business objectives?

…get the *flexibility* to re-use existing resources and IT systems while enabling new process capabilities?

…ensure I have a *choice* of retail technologies and projects that best support our strategy and deliver a quick ROI?
Agenda

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A Framework is Needed to Deliver New Capabilities
That Give You Speed, Flexibility and Choice

IT Capabilities

Dynamic Business Process Optimization

Leverage Information

Sense & Respond with Business Agility

Flexible Deployment

Business Composition and Management

Process Security and Monitoring

STOP TALKING INNOVATION.

START DOING IT.
The IBM Solution Strategy

Clearly Links Business and IT to Enable New Capabilities

- Provide a framework for transformation that creates flexibility and accelerates the deployment and integration of multiple retail solutions
- Provide solution offerings based on industry assets and best practices that enable agile and efficient retail operations

Retail Integration Framework

- Rapid Development and Integration
- Leverage Information
- Flexible Deployment
- Process Security and Monitoring
- Dynamic Business Process Optimization
- Sense & Respond with Business Agility

Retail Solutions

Business Partner Ecosystem

Infrastructure and Governance
IBM Industry Frameworks

Speed Solution Delivery While Providing Flexibility and Choice

- Integrated industry software platforms
- Pre-built solution accelerators
- Open standards
- Ecosystem of partner content
- Smart SOA foundation
- Information Agenda

• Speed
• Flexibility
• Choice
The IBM Retail Integration Framework

Industry Solutions
- Total Store
- Multi-channel Retailing
- Retail Business Intelligence
- Merchandising & Supply Chain

Many more of the Ready for Store integration Framework-validated IBM Business Partners

Retail Integration Framework
- Rapid Development and Integration
- Leverage Information
- Flexible Deployment
- Process Security and Monitoring
- Dynamic Business Process Optimization
- Sense and Respond with Business Agility

Infrastructure and Governance
Frameworks Provide IT Capabilities

- Reduce project risk and complexity
- Reuse of standard external integrations
- Common process and data models
- Pre-built content
- Prepackaged integration with many leading solutions

- Employs IBM Information on Demand technologies
- Enables retailers Information Agenda
- A consistent view of information
- Advanced analytics and insight into core Retail process areas
Frameworks Provide Capabilities (cont’d)

**Dynamic Business Process Optimization**

- Collaboration between IT & Business for business level modeling and simulation
- Making business processes dynamic, flexible while reusing IT assets
- Continuously optimize processes

**Sense & Respond with Business Agility**

- Monitor business processes with real-time visibility and alerts
- Sense and respond to business events in real-time
- Monitor and control SOA services
Frameworks Provide IT Capabilities (cont’d)

- Flexible deployment patterns
- Leverage best practices

- Monitor processes with dashboard reporting
- Manage identity flow across services
- Monitor and control SOA services
- PCI Compliance
The Business Partner Ecosystem

Providing a Choice of Applications that are Proven to Run on IBM Frameworks

Pre-integration between IBM SOA Foundation and industry-leading partner applications provides…

- Faster deployment
- Easier integration of new applications
- Lower TCO and quicker time to market
A Smart SOA™ Approach Delivers Business Agility??

Without SOA:
Integration is done with “hardwiring”
Applications have to be “ripped and replaced”

With SOA:
Integration is done “loosely” with modular “services”
New services can be built flexibly by reusing assets
Frameworks Support Progressive Transformation
Driving ROI with Each Project

1. Start with disparate systems with complex integration
2. Pick an on-ramp project and start rationalizing
3. Build on the value of previous projects and reuse assets
4. Achieve a simplified SOA-enabled infrastructure
Businesses Deploying Solutions on the Retail Integration Framework Achieve Significant Benefits

- **Speed** - quickly and cost-effectively integrate processes and solutions and reduce project risk and complexity

- **Choice** - Integrate the best-in-class applications and ERP modules that make the most sense for your environment

- **Flexibility** - Establish a flexible IT infrastructure
  - to control costs and to integrate new technologies with legacy systems
  - integrate channels and reorchestrate processes in support of business change.
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Retail Solutions Address Your Pain Points

- Get started with defined on-ramp projects targeted to business issues
- Exploit partner and IBM solution content
- Leverage selected Retail Integration Framework components
Enabling solutions for:
- Shopper driven experience
- Loss prevention
- Employee productivity
- Consumer checkout
- Store Infrastructure and support

Featured Products & Accelerators
- IBM SOA Foundation
- WS Commerce Server
- Lotus Expeditor
- WS Portal
- Retail Transaction Interface to 4690 POS
- GBS POS Execution & Cash Mtm WBM Models
- WebSphere Remote Server
- WebSphere System Management Accelerator
- Central Site Server
- WBI-based TLOG Processor
Store Infrastructure – It’s more than just Software

IBM POS Hardware Design Points

- POS is “Mission Critical”
- Support for Retail Specific I/O
- Ergonomic Design of the Retail Workstation
- Open Standards Based
- Integration with the Enterprise IT Structure
- Service and support
Store Infrastructure – SurePOS family

Integrated Form Factor

SurePOS 500 (TouchPOS)

SurePOS 500 532
SureOne

Modular Form Factor

SurePOS 700

SurePOS 300
Enabling solutions for:
- Merchandising analytics
- Multi-channel analytics
- Store operation analytics
- Supply chain analytics
- Customer analytics

Featured Products & Accelerators
- Cognos BI
- InfoSphere Data Warehouse
- Alphablox
- InfoSphere Master Data Management Server
- InfoSphere Master Data Management Server for PIM
- InfoSphere Information Server
- Retail Data Warehouse Model
- Business Soln Templates for Customer, Merchandising, Supply Chain, Store Operations, MCR, Product and Services, Finance
Retail Integration Framework for Merchandising and Supply Chain

Enabling solutions for:
- Product Info & Attribute Mgmt
- Multi-Channel Order Mgmt
- Merchandise Operations Strategy
- Core Merchandise Mgmt
- Integrated Merchandise Planning
- Price / Revenue Optimization
- Supply Chain Planning & Execution
- Sourcing / Procurement

Validating ISVs

Featured Products & Accelerators
- WebSphere Product Center
- WebSphere Process Server
- WebSphere Portal Server
- WebSphere Premise Server
- WebSphere Remote Server
- Adapter - Oracle Retail Integration Adapter
- Composite App - New Product Introduction
- Process Model – Merchandising/Store WMB Integration
- Data Model – WPC data model for Retail
Enabling solutions for:

- Cross channel integration
- Product Information and Attribute Management
- Next Generation e-commerce
- Endless Aisle
- Single view of the customer
- Multi-channel gift registry

Featured Products & Accelerators

- IBM SOA Foundation
  - WS Commerce (WCS)
  - Gift Center for WCS
- FileNet
- IBM MDM Server
- MDM Server for PIM
- Cognos BI
- SWG PIM for Commerce
- SWG Buy online /Pickup in Store
- SWG MDM Integration to Siebel, SAP, & Oracle
- SWG Adobe Integration
- eCommerce RAPID
- GBS Content Delivery Sys
Agenda

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IBM is a Leading Retail Business and Technology Solutions Provider

- Global Delivery Capabilities
- Long Term Commitment to Industry Standards
- Leader in Retail Models
- Strong Business Partner Network
- Industry Leading Software and Hardware
- Dedicated IBM Technology Research Professionals
THANK YOU
BACKUP SLIDES
The “Framework Approach”: Extending The Business Partner Ecosystem

Ready for IBM Retail Store Innovations - Store Integration Framework
IBM Business Partners

70+

Highweb & Page
A business project roadmap drives SOA and IT

Business Initiatives based on a business design → start with one or more “Onramps”

More agile business processes through SOA

Technical Infrastructure

Simplify thru SOA services → greater re-use and flexibility

Consolidate and simplify

Time

Project 1

Project 2

Project 3

Project 4

Deliver business functions & value, and simplify environment in phases

More Services, Easier to add new functions

Flexible and simpler infrastructure, easier to change
Grouping on Services for Phased Implementation of the Services’ Data and Operations

Simplify thru SOA services with phased implementation → greater agility

Group 1 ~60% implemented
Group 2 ~30% implemented

All groups @ ~90% implemented, with continuing refinements

G1 = Group 1
1. Customer svc.
2. Promotion svc.
4. Order svc.
5. Infra. svc. for SMS

G2 = Group 2
6. Pricing svc. thru AEF
7. Payment svc.
8. Catalog & Item Svc.
9. Inventory Svc.
10. Tax Svc.
11. Store Svc.

G3 = Group 3
12. Shipping svc.
Using a Service Oriented Architecture (SOA) approach to design and implement these projects can drive a lot of benefits for Retailers. For example:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
<th>Business Benefits</th>
<th>Use Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reuse</strong></td>
<td>SOA promotes the building of discrete components that can be designed to be used by multiple consumers in different ways, thus promoting reuse</td>
<td>Ability to reuse and “expose” key capabilities to other sales channels and the supply-chain.</td>
<td>Multi-Channel capabilities; e.g. by online, store-pickup. Selling via other channels Supplier integration for VMI, CPFR etc..</td>
</tr>
<tr>
<td><strong>Loose coupling</strong></td>
<td>By using discrete components, a more loosely coupled integration is achieved between systems</td>
<td>Ability to augment, replace, enhance business functionality in systems with less impact / dependency to other systems.</td>
<td>Augment Merchandising capability with a Global Sourcing &amp; Import Mgmt solution Integrate to a common Master Data Management Solution</td>
</tr>
<tr>
<td><strong>Open standards</strong></td>
<td>SOA promotes the use of open standards for how components are invoked and information is exchanged</td>
<td>Ability to interoperate / converse with suppliers, trading-partners, vendor systems using a common, industry-accepted standards</td>
<td>Supply-Chain Visibility Systems Service Scheduling &amp; Delivery Systems</td>
</tr>
</tbody>
</table>
What does it mean to be service oriented for Retail –
A Point of View:

**Business**

SOA is most importantly about **aligning Business & IT** in a ‘service oriented’ manner in order to gain key business flexibility.

SOA is most compelling when business capabilities need to be exposed across domains, promoting better **collaboration across the supply-chain**

The business solution to address the challenge is the primary driver. SOA should be a **value-added by-product** of implementing the solution.

SOA is not an ‘all or nothing’ proposition. It can be **incrementally adopted** into the enterprise.

**Technology**

**SOA does not equal Web Services.** Similarly, it is possible to build Web Services in a ‘non service oriented’ manner.

At the technology level, manifesting SOA via Web Services does have some inherent benefits like open standards, industry momentum and the ubiquity of SOAP/HTTP. However, **NOT all services are appropriate** to be manifested as Web Services.
SOA can be appropriately engineered to meet the needs of the enterprise

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several legacy applications, with specialized business logic that needs to be leveraged</td>
<td><strong>Rejuvenate legacy with SOA</strong>&lt;br&gt;Use a legacy transformation approach and “organically” develop “access services” to expose key capabilities to the rest of the enterprise. This leverages legacy investment and elongates the lifespan of the legacy functions</td>
</tr>
<tr>
<td>Need to implement new applications to fulfill business needs</td>
<td><strong>Adopt a Service Oriented Integration (SOI) approach</strong>&lt;br&gt;Use SOA principles to build better integration between business / ISV applications, resulting in a more pragmatic use of SOA</td>
</tr>
</tbody>
</table>
Retail Industry Map

Market Shifts
- Competition: Consolidation & New Models
- Macroeconomics: Green, Global Growth, Emerging Markets
- Consumer: Fragmentation, Empowerment & Security/Privacy
- Emerging Technologies: Connectivity & Tech Innovation

Imperatives
- Deliver a Superior Shopping Experience
- Create Demand Driven Merchandising & Supply Chain
- Drive Operational Excellence

Key Attributes & Capabilities
- Enrich Customer Loyalty & Advocacy
  - Store Experience
  - Customer Service
  - Assortments
  - Product Availability
- Optimize Supply Chain Efficiency
  - Inventory Management & Planning
  - Transportation and Logistics
  - Strategic Sourcing
- Enable Organizational Effectiveness
  - Customer Service
  - Appropriate Associate Utilization
  - Organizational Alignment

Retail Solutions
- Merchandising & Supply Chain
- Multi-Channel Retailing
- Total Store
- Business Intelligence

Solution Offerings
- Merchandise Operations Strategy
- Core Merchandise Management
- Product Information & Attribute Management
- Integrated Merchandise Planning
- Price / Revenue Optimization
- Supply Chain Planning & Execution
- Sourcing / Procurement
- Multi-Channel Strategy
- Next Gen e-Commerce
- Enterprise Content Management
- Customer Lifecycle Management / Single View of Customer
- Product Information & Attribute Management
- Multi-Channel Order Management
- Multi-Channel Gift Registry
- Endless Aisle
- Guided Selling
- Multi-Channel Contact Center
- Kiosk Business Solutions
- Customer Checkout
- Experiential Retail
- Total Store Outsourcing
- Workforce Management
- Item Level Inventory Control
- Green Store
- Secure Store
- Store Networking
- Customer Analytics
- Merchandise & Services Analytics
- Merchants Workbench
- Supply Chain Visibility Workbench
- Multi-Channel Workbench
- Store Management Workbench
- Executive Workbench
- Retail Optimized Site Selection

Industry Framework

IBM Retail Integration Framework

Infrastructure: servers, storage, communication networks & associated services
**Service orientation**

progresses from “information integration” thru “capability integration”.

A given solution may most likely have all of the following layers.

1. **Integrate Information**
   - Integrate applications by exchanging information between each other via interfaces

2. **Provide Information**
   - Provide Information at the source for (read-only) access by consuming applications to create Information as a Service (IAAS)

3. **Consume Information**
   - Consume Information at the source for (read/write) access by applications to create Information as a Service (IAAS)

4. **Expose Capabilities**
   - Expose business functions/capabilities within applications for access by consuming applications

5. **Compose Capabilities**
   - Combine multiple (often smaller) capabilities to create a composite business capability/function

6. **Orchestrate Processes**
   - Combine capabilities (simple & composite) with the view to automate and/or manage business processes

7. **Build Composite Solutions**
   - Combine information, capabilities and processes to form a cohesive business solution to address a problem domain

In order to enable these capabilities, services have to be exposed

Exposing services (capabilities & information) provide the foundation for a “self-service” pull-model

“Push model” of service-interfaces using SOI

**Typical Progression Path**

- **PUBLISH**
  - **1. Integrate Information**
    - Integrate applications by exchanging information between each other via interfaces

- **EXPOSE**
  - **2. Provide Information**
    - Provide Information at the source for (read-only) access by consuming applications to create Information as a Service (IAAS)

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**Service orientation** progresses from “information integration” thru “capability integration”.

A given solution may most likely have all of the following layers.
The hardest part of SOA is understanding how it fits within the enterprise and how to get started

A. Establish
Use a business-driven initiative to establish an SOA infrastructure

B. Enhance
Now build upon it… operationalize the model, improve governance, and grow services portfolio

C. Propagate
Propagate the SOA design in other parts of the organization

Typical Retail business initiatives that can be used to get started

- Core Merchandising
- Trade Management
- Master Data Management
- Global Sourcing/Logistics
- WMS/Fulfillment
- Allocation/Replenishment
- Store POS/ISP Refresh
- Web-Store / eCommerce
- Single View of Customer
Adopting SOA can be accomplished via a business sponsored IT initiative.

- Develop or tailor an SOA strategy and approach that fits your enterprise
- Instantiate a central solution architecture organization which includes business which will oversee and govern key aspects of the SOA design
- Buy and build out an Enterprise Service Bus Infrastructure
- Develop templates, patterns, reference design on how to use the “integration layer” appropriately
- Develop a “modular view” (e.g. Component Business Model) of the solution to understand the discrete business components and the “business services” they will be expected to provide
- Develop an “information flow” of how these components will interact with each other to exchange services / information
- Determine which patterns apply to which services to meet the project’s needs. For e.g. some services may be “publishing information”… whilst others may be built with a “request / reply” pattern
Retail and IBM

SOA helps reduce cost and helps Retailers keep pace with Market changes and business requirements

Experience in Retail
- IBM has been in the Retail business for 30 years

Market Leadership
- IBM is the undisputed worldwide leader in POS and SOA
- IBM has 60 of the top 100 retailers as customers

Worldwide Presence
- IBM has over 2 million POS terminals installed in over 100 countries

Technology Leadership
- IBM holds the most patents in the industry

Environmentally hardened design
- IBM POS hardware is specifically built and tested to withstand the rigors of harsh point-of-sale environments

Worldwide Network of Business Partners
- Provides a vast assortment of solutions and services

Open Systems and Broad OS Support