Enterprise Services Architecture
The basis for an Adaptive Supply Chain Network

Pravin Kumar
Director, Market Strategy
Application Platform & Architecture
SAP Global Marketing, Inc.
Agenda

The Challenge

Adaptive Supply Chain Network

Enterprise Services Architecture

Process Examples

Conclusion

Q&A
The Challenge

- Financial markets are shrinking capital availability
- Globalization is reducing distance to markets and resources
- Consumer personalization is increasing customer expectations
- Accelerating innovation is decreasing time-to-market & time-to-volume
What does this mean for supply chain operations?

- Focus on core competencies
- Match assets to market needs rapidly
- Increase visibility over a complex global structure
- Enable personalized products
- Track customer demand closely
- Compress time-to-market
The Response: The Adaptive Supply Chain Network

Adaptive Supply Chain Network:
A community of customer-focused companies that share knowledge and resources to intelligently adjust to changing market conditions.

- **ADAPTIVE**
  Ability to rapidly anticipate and/or respond to changing environmental conditions

- **SUPPLY CHAIN**
  All activities involved in the manufacturing, demand management, storage, and transportation of materials

- **NETWORK**
  End-to-end, round trip communications among all supply chain participants
 Five Key Characteristics of the ASCN

- Set performance goals and define resources needed
- Locally react to deviations from plan during execution
- Proactively evaluate and act on performance opportunities
- Use available resources to meet goals
- Locally recognize deviations from plan during execution

Plan → Learn → Execute → Respond → Sense
The Transformation

Sequential Supply Chain

Adaptive Supply Chain Network
## Linear vs. Adaptive Supply Chain Network

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Linear Supply Chain</th>
<th>Adaptive Supply Chain Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Propagation</td>
<td>Sequential and slow</td>
<td>Parallel and dynamic</td>
</tr>
<tr>
<td>Planning horizon</td>
<td>Days and weeks</td>
<td>Hours and days</td>
</tr>
<tr>
<td>Planning characteristics</td>
<td>Batch</td>
<td>Dynamic</td>
</tr>
<tr>
<td>Response window</td>
<td>Days and hours</td>
<td>Hours and minutes</td>
</tr>
<tr>
<td>Analytics</td>
<td>Historical</td>
<td>Real-time</td>
</tr>
<tr>
<td>Supplier characteristics</td>
<td>Cost and delivery</td>
<td>Network capability</td>
</tr>
<tr>
<td>Control</td>
<td>Centralized</td>
<td>Distributed</td>
</tr>
<tr>
<td>Exception management</td>
<td>Centralized and manual</td>
<td>Distributed and automated</td>
</tr>
<tr>
<td>Integration</td>
<td>Stand-alone &amp; point solution</td>
<td>Intra &amp; inter enterprise</td>
</tr>
<tr>
<td>Standards</td>
<td>Proprietary</td>
<td>Open</td>
</tr>
</tbody>
</table>
Adaptability Imposes Architectural Requirements

Sense & Respond
- 1\textsuperscript{st} level feedback loop
- Deep connections to customers and partners
- 360-degree view inside and outside the enterprise
- Distributed control and exception management
- Response to market stimuli must be fast and accurate

Plan & Execute
- Integrated processes across entire value chain
- Faster planning cycles

Learn
- 2\textsuperscript{nd} level feedback loop
- Comprehensive analytical capability
- Modify existing processes & introduce new processes
Enterprise Service Architecture – An IT blueprint that enables adaptive business processes across value chains

Web Service – Any interface that is described and can be executed through Web-based standards

Application Service – A Web Service offered by an application corresponding to events in the application

Enterprise Service – A Web Service that corresponds to a business event, independent of any applications
How Are Enterprise Services Provided?

Standard business applications
- An application can offer its data and functionality as Enterprise Services

Specialized applications or services
- Specialized applications may be necessary to offer Enterprise Services

Orchestration
- Several services orchestrated into composite services
Enterprise Services Architecture: A Logical Evolution

- Technology Advances
- Business Requirements

1. Mainframe
   - Standard software
   - Integrated processes
   - Replace

2. Client/server
   - Client/Server
   - Extend

3. Enterprise Services Architecture
   - Adaptive business
   - Web Services

THE BEST-RUN BUSINESSES RUN SAP
## Traditional vs. Enterprise Service Architecture

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<tr>
<th>Characteristics</th>
<th>Traditional Architecture</th>
<th>Enterprise Service Architecture</th>
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</thead>
<tbody>
<tr>
<td>Application &amp; Interface Coupling</td>
<td>Tight &amp; proprietary</td>
<td>Loosely coupled &amp; open</td>
</tr>
<tr>
<td>Distribution</td>
<td>Limited (client/server)</td>
<td>Highly distributed</td>
</tr>
<tr>
<td>Interfaces Standards-based</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Platforms &amp; Languages</td>
<td>Proprietary &amp; language specific</td>
<td>Platform &amp; language independent</td>
</tr>
<tr>
<td>Process focus</td>
<td>Data &amp; Function focus</td>
<td>Strong process focus</td>
</tr>
<tr>
<td>Protocols</td>
<td>Proprietary &amp; firewall unfriendly</td>
<td>Open &amp; firewall friendly</td>
</tr>
</tbody>
</table>
Enterprise Services Architecture

- Role-specific UI
- Composite Application
- Interactive Form
- B2B Process

Internal and External Users

Enterprise Services

- Enterprise Object Model
- Enterprise Data Access
- Enterprise Service Orchestration

Integration Platform

Application Services

Point Service Provider | Partner | BPO Provider | In-house Transactional | In-house Functional | In-house Data | Service Providers
The Connection: Enterprise Services Architecture & Adaptive Supply Chain Networks

Characteristics | Adaptive Supply Chain Network
--- | ---
Information Propagation | Parallel and dynamic
Planning horizon | Hours and days
Planning characteristics | Dynamic
Response window | Hours and minutes
Analytics | Real-time
Supplier characteristics | Network capability
Control | Distributed
Exception management | Distributed
Integration | Intra & inter enterprise
Standards | Open

Characteristics | Enterprise Services Architecture
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Application & Interface Coupling | Loose & open
Distribution | Highly distributed
Standards-based | Yes
Platforms & Languages | Platform & language independent
Process focus | Strong process focus
Protocols | Open & firewall friendly
Process Example 2 – Multi-Company Planning & Execution

- Consumer Hi-Tech OEM
- Demand Forecast
- Sales Orders

Strategic Suppliers

- Strategic Components
- POs (Consolidated SOs)

Contract Manufacturer

- Finished Goods

3rd Party Logistics Provider

- Consolidated Shipments
- Retailer DCs
The Benefits

The Virtual Enterprise
- “Unbundle” or “decompose” the enterprise

Business Agility
- Easily change business processes
- Increase implementation speed

Extend the Value Network
- Outsourcing/include business partner services
- Provide/sell services to business partners

Innovate Business Processes Continuously
- Enable composite applications
- Allow various rates of adoption of innovation

Leverage existing investments

Lower TCO
Conclusion

Adaptive Supply Chain Network is a response to:
- Shrinking capital availability
- Increased Globalization
- Increased Customer Demands
- Accelerating Innovation

Adaptability requires a flexible, connected environment
- Speed and accuracy
- Feedback of analytics into planning & execution cycles
- Loosely coupled, process oriented architecture

Enterprise Services Architecture
- Agile – respond to threats & opportunities rapidly
- Process oriented not data oriented
- Open and standards based
Resources on Enterprise Services Architecture*

Books
- Enterprise Services Architecture, Dan Woods, O’Reilly Books
- Services Blueprint: Roadmap for Execution, Ravi Kalakota, Marcia Robinson

Web sites
- http://searchwebservices.techtarget.com/

Analysts
- Gartner
- Forrester
- ZapThink

*This list not exhaustive
Questions?

Q&A