Enterprise IT Architectures

BPM (Business Process Management)
Introduction
Agenda of this Part

- Business Process Management (BPM), a relatively new approach in IT

- Key is:
  - Business Processes can be captured in models and visualized in Business Terms (Activity, Task, Participant)
  - Business Processes are automated using process models for execution
  - Integration with existing applications through interfaces and services
BPM Introduction
The New Normal: Change, Complexity, Uncertainty

- $488 billion: Lost in process inefficiencies in Fortune 500 companies
- $534 billion: In mobile transactions by 2015
- 85%: Of enterprises use external cloud services
- 50%: Of businesses plan to adopt more collaborative sourcing models
- 70%: Of businesses outsource one or more strategic activities
- 50 billion: Devices connected to the Internet by 2020

© 2012 IBM Corporation
Complexity exists internally within organizations……
...and externally within the broader business network

**Companies need end-to-end process management**

*To orchestrate human tasks…*

*… to increase visibility…*

*… to manage exceptions and cases…*

*… and for scalable transactions…*

*… everything you need to manage end-to-end business networks*
Can Your Processes Handle Change, Uncertainty and Complexity?

Transformation Today Means:

- Simpler Business Led Change
- Full Process Visibility and Governance
- Optimized Processes and Decisions

*Agile Processes and Decisions with Business Process Management*
BPM Architecture
Root Causes of Business-Driven Processes Problems

1. Informal Tasks and Communication (ex Paper or email)
2. Inefficient Working Environment Spans Systems
3. Inconsistent Prioritization
4. Incomplete or Inaccurate Data Flow Between Systems
5. Lack of Control Over System and Business Events (Exceptions)
6. Poor Visibility Into Process Performance

Business Pains:
- Cannot Grow Efficiently
- Customer Satisfaction

Diagram showing interactions between Customer Service, Finance and Ops, Invoice Reconciliation Teams, Account Administration, Executive Management, and various systems (ERP, CRM, Imaging, Billing).
BPM Delivers a Layer for Control and Visibility

1. Automatically prioritizes and routes work
2. Guides users through decisions
3. Standard and consistent work prioritization
4. Leverages existing system data systems
5. Reacts to business events and generates actions
6. Real-time visibility and process control

Benefits:
- 80% Reduction in Manual Interactions
- Faster Issue Resolution
BPM Leverages SOA Infrastructure

- BPM can abstract the “business process” from underlying systems and services.

- Over time, IT can consolidate those services into a common set of services within one SOA layer.

- Users of the process are not affected as services and systems are merged, replaced, or updated.
Now focusing on BPM
Terms for BP Modelling based on BPMN (Business Process Model and Notation)
BPMN 2.0 (Business Process Model and Notation)

- BPMN (formal/2011-01-03) is an OMG Standard (Object Management Group – see www.omg.org), most IT vendors are supporting BPMN

- BPMN 2.0 covers notation as well as the metamodel suitable for execution (BPMN 1.x covered only the notation)

- BPMN supports:
  - Notation that a business person understands including a visual model with an appropriate Interchange Format
  - Semantic Metamodel and an appropriate Interchange Format (such that models can be exchanged between tools)
  - BPMN “execution semantics”
Definition of Terms
(see also Standard BPMN – Business Process Model and Notation)

- Business Process Definition (BPD)
- Swim Lane
- Milestone
- Participant
- Step/Activity
- Flow Line
- Business Event
- User Story
Business Process Definition (BPD)

*A diagram that illustrates a business process*

- includes participants, steps, activities, and sub-processes

**Business Process Definition objectives:**

- **Universally understood** by both business and technologists
- **Clearly and easily** communicated in 5 minutes or less
  - at any level of granularity
- **Executable** in a Business Process Management System
What is not a Business Process Definition?

- Entity State Diagrams
- Use Cases, Use Case Relationship Diagrams
- System Relationship Diagram
- Architectural Diagram
- Workflow Model (Application Development), Screen Flow
(Swim) Lane

- Highlights role oriented activities versus the flow oriented activities
- A lane has a default set of participants
Milestones

A milestone in a process…

- **Represents**
  - A period of time
  - Goal/transition in the process
- **May be expressed as a single moment in time**
  - e.g. graduation
  - A milestone end-marker
A *participant* is a user of a BPM environment

Sets of users are *Participant Groups*
Activity/Step

A unit of granularity in a process that…

- **Has a goal that can be expressed as a singular outcome**
- **Implemented as**
  - Task (human or system)
  - Sub-process
- **Can be a human task**
  - Single participant begins the activity
- **Can contain multiple steps, (e.g. screens in a screen flow)**
  - These steps are not process steps
- **Can be a sub-process**
  - Implemented as another BPD
Sequence Flow Lines

A sequence flow line…

- Defines the transition from one step or event to another
Events

A business event…

- Is the occurrence of a condition that triggers an activity.
- Can listen to catch a condition to trigger an activity or…
- …throw a result upon occurrence.

- Types of events include the following:
  - Start /End
  - Timer
  - Message
  - Exception
Modeling with BPMN (Business Process Modeling Notation)

- Single Interface that enable business process authors and analysts to
  - Model and implement
  - Simulate
  - Inspect and debug
  - Examine process performance
  - Automatically optimize
The Business Problem – one process instead of many actions
Exercise: Check it out with www.blueworkslive.com

- Go to www.blueworkslive.com
- Register with your private email address (30 day trial)
- Go through tutorials
- Do first Discovery Maps – just entering milestones and activities
- Use Process Maps – modeling the business process
BlueworksLive “Discovery” Maps

- Milestones represent phases, Activities are within milestones
Blueworkslive “Process” Maps

- Common ground for Business as well as IT
  - Business is specifying and defining activities and provides conditions / rules to be used in control flow
  - IT specifies services
BPM in Action
BPMN in Action: Automation of Business Processes

- BPMN 2.0 Semantics automates the execution of business processes
  - It is always known where the process stands
  - KPIs (Key Performance Indicators) can be attached
  - Bottlenecks can be identified
  - Processes can be optimized

- BPMN supports a Round Trip: modeling, implementation, deployment, execution, monitoring, and back to modeling

- Business people are eligible to monitor the execution of processes (and the KPIs)
Business Process Management is a Team Sport …

“How can I work smarter supported by flexible and dynamic processes modeled for the new way people buy, live & work?”
Shared Model within a BPM Architecture

- Collaborative platform
- Repeatable & iterative development cycle
- What you model is what is executed
- Shortened cycle of development
- Decrease maintenance workload
- No code approach
Seamless Collaboration Across Roles

Business Process Owner
- Authors a Process Application
- Defines Service Interfaces for Implementation by Integration Developer

Integration Developer
- Imports the Process Application
- Generates Service Implementations
- Unit Tests Services
- Delivers Services to Repository

Business Process Owner
- Wires the Implemented Services to the Process
- Unit Test the Process

Shared Assets
- Versioned Assets
- Server Registry

BPM Repository
Business Author requires a back-end integration for an Expense Reporting process that he is building.

Integration Developer is building a straight-through Credit Check process that has a business exception path requiring human interaction.
Built-in Monitoring for Visibility

1. Single BPMN model drives monitoring as well as execution
2. Data analysis performed continuously on-the-fly
3. Real-time visibility to tasks, SLAs in jeopardy
4. Visualize “hot spots” on diagram and drill down for insights

Performance Data Warehouse

Process Server

BPMN  |  Rules  |  Monitoring  |  BPEL  |  ESB
Out-of-box Process Portal  |  Configurable Business Space  |  Optional Microsoft Add-ons
Experience Monitor through your iPhone – Process Control
Exercise: Watch 15 min video demoing a BPM environment

- BPM Demo
  - Videos on
    http://IBMBPM Demos.com
    or http://BPM web Demos.com
  - Recommendation
    watch
    BlueworksLive.com & IBM BPM End-2-End -- SHORT 15 min Demo mit Bill Hahn
Questions