Roles based approach

Enterprise Architecture Modeling
Agenda

- Why Model?
  - Business trends that impact software and systems delivery
  - Different Modeling Techniques

- Evolving software and systems delivery
  - Business driven development
  - Applying governance to development
  - Benefits and IBM Rational software

- Business Driven Development
  - In action

- Taking action, today
Enterprise Architecture: How are they developed and delivered?

A construction analogy….

Development & Delivery Process

Little/No Process
- “Artist” / Single Person Effort

Some Process
- Small/Mid-sized Teams
- Blueprints and Inspections

Established Processes
- Large Teams, Teams of Teams or, Decision Boards
- Mission, Life, or IT Critical Projects
The Role of Modeling in Business
What kinds of Compelling Reasons To Act can you find?

Describe it this way:

- It’s how companies reach their customers
- It’s how you manage your sales pipeline
- It’s how you buy products
- It’s how companies go after new markets
- It powers your car’s computer systems
- It monitors safety systems
- It connects people across the globe, or around the corner

Software & Systems Are Everywhere!
Modeling techniques

*The new norm*

- Unified Modeling Language (UML)
- Model-Driven Architecture (MDA)
- Zachman Framework (ZF)
- Roles based approach (RUP)
UML

Pros

- Well defined
- continues to evolve (albeit slowly)
- well accepted within the IT industry by both practitioners and tool vendors

Cons

- UML is overly complex, defining far more notation than what the average developer wants or needs
- UML is not sufficient for business system development
Pros

- Tabular representation..easy to understand
- collection of perspectives pertinent to enterprise architecture

Cons

- Documentation-heavy approach
- Process-heavy approach
- Top-down approach to development
MDA

Pros

- Defines a coarse separation of views
- Defines a viable strategy for system integration
- May support tool integration

Cons

- How will MDA-based models be tested?
- How will MDA-based models handle the inherent complexities of legacy system integration?
Roles based approach (aka RUP): How are they developed and delivered?

Organizations who depend on software use an integrated team of disciplines

Why can’t the Dallas team coordinate with the London team?

This is NOT the feature we asked for!!!!

End users NEVER give us enough information!

If I don’t properly GOVERN this effort – we’ll be late again.

The changes I made yesterday are GONE!

Why can’t development get me the right files?

I thought we fixed this bug already??

End users

NEVER

give us

enough

information!
Leveling the global playing field
Open computing

A new route to collaboration and innovation

- **Open standards**
  - Improve data sharing by simplifying integration of disparate technologies

- **Open architecture**
  - Increase collaboration by easily extending business processes

- **Open source**
  - Promote innovation by leveraging community development
Modular systems

Greater flexibility

- **Maximize investments: Reuse components**
  - Leverage existing assets and investments
  - Avoid rip and replace

- **Increase flexibility: Interoperable systems**
  - Connect and share business components
  - Easily distribute business processes

- **Accelerate initiatives: Scalable and agile**
  - Add capacity or functionality quickly
  - Scale technology based on business demands
  - Increase business process efficiency—globally

*Today, service-oriented architecture (SOA) takes business process automation to the next level*
Agenda

- Business trends that impact software and systems delivery
  - Challenges and opportunities
- Evolving software and systems delivery
  - Business driven development
  - Benefits and IBM Rational software
- Business Driven Development
  - In action
- Taking action, today
Overall environment

- Analysis Process Model
- Design Process Model
- Business Object Model
- Interface Design Model
- Java Design Model
- BPEL Export
- WSDL Export
- UML to UML
- UML to EJB
- Service Analysis
- Service Design
- Service Implementation
- Process and Service
- Deployment
- Business Analyst
- Integration Developer
- Integration Developer
- Solution Architect
- Java Developer
- Deployment Engineer
Business Driven Development

GOVERNANCE DASHBOARD

- Business priorities
- Align and trade off
- Source/resource
- Buy versus build
- Deployment ready
- Value analysis

Evaluate initiatives
Identify solution
Buy Evolve Build
Integrate
Deploy Monitor Assess

Informed decisions drive development activities
Benefits of Business Driven Development

- Align business and software
- Balance risk and return
- Provide clarity and accountability

- Leverage resources anywhere
- Enable agile sourcing choices
- Adopt easily extended architectures

- Continuously measure to reduce risk
- Enable lifecycle change management
- Meet compliance needs
The IBM Rational Software Development Platform

Governing the business process of software and systems development
How does IBM Rational® software make this possible?

GOVERNANCE DASHBOARD

- Process and portfolio management
- Requirements and analysis
- Design and construction

Business driven process

Manage value
- Real-time analytics linking financial and software information
- Real-time resource management
- Comprehensive dashboard reporting and drilldown

Develop flexibly
- Proven best practices
- Integrated requirements management
- SOA design and construction capabilities
- Open, role-based team environment

Control risk and change
- Lifecycle change and asset management
- Built-in audit and status information on projects and assets
- Performance testing
- Service-level monitoring
Agenda

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Business Driven Development in Action

*Examples: Financial Services, Aerospace & Defense, Supply Chain, and multi-solution*
Scenario: International Consumer Bank

Challenge: Gaining worldwide market share while ensuring quality

IT Audit Findings

- Testing: Test results differed across locations
  - Root Cause: Bank was unknowingly running different versions of applications across servers and client PCs
- Security: Analysis determined that select Web applications posed a “backdoor” risk
- IP Compliance: Select applications were utilizing unapproved open source software

Cost to the business

- Audit took over 500 person hours
- No centralized audit records
- Difficult to do forensic analysis – what, who, when, where
- Inconsistent approvals/checkpoints

Managing Worldwide Branches
Maintaining ATM Network
Scenario: International Consumer Bank

Solution: Accelerating global software delivery with the IBM Rational Software Development Platform

Global Delivery Benefits
- Reproducible software deliveries
- Clear line-of-sight over software deliveries in distributed environments
- All deliveries passed tests in target environments
- Black Duck - Enhanced control over open source elements
- SPI Dynamics - Improved application security

Business Benefits
- Faster time to value on acquisitions
- Improved quality and performance in ATM network
- Reduced audit cycle time from 500 to 20 hours
- Better development governance across geographies
- Increased security
Business Driven Development in action
Financial services: Banking industry cost-efficiency

**Initiative**

- Consolidate operations of a new acquisition
- Ensure new acquisition meets regulatory compliance requirements
- Integrate acquired development staff into the worldwide development team
- Integrate core banking capabilities into existing applications
Business Driven Development in action
Financial services: Banking industry cost-efficiency

Initiative

Consolidate operations of a new acquisition

- Ensure new acquisition meets regulatory compliance requirements

GOVERNANCE DASHBOARD

Business driven process

Development challenges

- Establish an auditable, yet low overhead, development process
- Manage business control and regulatory requirements of operating a bank in Spain

IBM Rational solution

- Auditable workflow and change management
- Lifecycle traceability of compliance requirements

Business value

- Established compliance policy guidelines, controls and processes
- Ability to track and certify software remediation projects
Business Driven Development in action

Financial services: IBM Rational solutions for compliance

Manage value
- Rational Portfolio Manager
- Rational Method Composer and Best Practices Content

Develop flexibly
- Rational RequisitePro
- Rational Software Architect

Control risk & change
- Rational Portfolio Manager
- Rational ClearQuest
- Rational Performance Tester for zSeries
- Rational Performance Tester for Siebel

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)

GOVERNANCE DASHBOARD
Process and portfolio management
Requirements and analysis
Design and construction

Business driven process

Change and configuration management
Software quality

Governance Dashboard:
- Process and portfolio management
- Requirements and analysis
- Design and construction

Manage value:
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Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)
Business Driven Development in action

Aerospace & Defense: Mission effectiveness

**Initiative**

**Mission systems optimization**

- Integrate satellite, ground and ship control systems
- Manage certification and accreditation

Business driven process
Business Driven Development in action
Aerospace & Defense: Mission effectiveness

Development challenges
- Connect multiple teams in a secure, distributed environment

IBM Rational solution
- Support for geographically distributed development, enforcing access rights and audit trails

Business value
- Faster time to value without reducing program targets
- Greater visibility into development status throughout life of the project

Initiative
Mission systems optimization
- Integrate satellite, ground and ship control systems
Business Driven Development in action
Aerospace & Defense: IBM Rational solutions

GOVERNANCE DASHBOARD

Process and portfolio management  Requirements and analysis  Design and construction

Business driven process

Manage value
- Rational Portfolio Manager

Develop flexibly
- Rational Unified Process
- Rational RequisitePro
- Rational System Developer
- Rational Functional Tester
- Rational Manual Tester

Control risk & change
- Rational Portfolio Manager
- Rational ClearCase
- Rational ClearQuest

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)
Business Driven Development in action

Supply chain scenario

Initiative

Open a new market in India

- Distributor expansion project to link new partners
- Export management project to comply with regulations
- Order entry optimization to ramp new retail stores
Business Driven Development in action

Supply chain scenario

Initiative

Open a new market in India

Distributor expansion project to link new partners

GOVERNANCE DASHBOARD

Business driven process

Development challenges
- Distributed software teams
- Newly acquired businesses
- Differing partner infrastructures

IBM Rational solution
- Business process modeling and iterative development
- SOA construction to abstract, componentize and expose services
- Distributed change management

Business value
- Ability to bring new distributors online in days versus weeks
- Ability to modify to local country needs
Business Driven Development in action

Supply chain scenario: IBM Rational solutions

GOVERNANCE DASHBOARD

Process and portfolio management → Requirements and analysis → Design and construction

Business driven process

Manage value
- Rational Portfolio Manager
- Rational Method Composer and Best Practices Content

Develop flexibly
- Rational RequisitePro
- Rational Software Architect

Control risk & change
- Rational Portfolio Manager
- Rational ClearQuest
- Rational Performance Tester for zSeries
- Rational Performance Tester for Siebel and SAP

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)
Business Driven Development in action

Compliance scenario: Evaluating risk and reward of competing initiatives

- Project proposal submitted for planning and assessment
- Consistent criteria used to assess and prioritize proposals
- Auditable project approval authorizes effort
## Customer success

<table>
<thead>
<tr>
<th>Company</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volkswagen AG</td>
<td>20% productivity increase</td>
</tr>
<tr>
<td>TTI Telecom</td>
<td>Improved time-to-market by 50%</td>
</tr>
<tr>
<td></td>
<td>Estimated savings of $2 million per year</td>
</tr>
<tr>
<td>Unisys</td>
<td>25-40% improvement in cycle time</td>
</tr>
<tr>
<td></td>
<td>75-100% improvement in productivity</td>
</tr>
<tr>
<td></td>
<td>25-60% cost savings</td>
</tr>
<tr>
<td>Acuity</td>
<td>15% higher profitability</td>
</tr>
<tr>
<td></td>
<td>46% higher employee productivity</td>
</tr>
<tr>
<td>Viveo ToolObject</td>
<td>60% reduction in development cycles</td>
</tr>
<tr>
<td>Assurant Health</td>
<td>Projects delivered on-time</td>
</tr>
<tr>
<td></td>
<td>30% under budget</td>
</tr>
<tr>
<td>Ludwig Gortz</td>
<td>25% increase in employee satisfaction</td>
</tr>
<tr>
<td>Thomson Financial</td>
<td>Pilot project costs reduced 50%</td>
</tr>
</tbody>
</table>
Business Driven Development

Balancing the interests of developers and management

- Visibility to real-time information about risks and issues
- Traceability and predictability
- Fact based decision making for greater accountability and agility

Managers

- Collaboration context, enhancing team interactions and ease of use
- Ability to focus on the task at hand
- Increased productivity

Practitioners

Practitioners need productivity, collaboration and tools that help them focus, while managers need the information and process to govern the business of development
Ask yourself

*Today, am I able to…*

- Consistently align software investments with business goals?
- Leverage geographically distributed development resources?
- Comply with regulatory standards?
- Quickly extend business processes to third parties and partners?
- Gain real-time visibility into projects without creating overhead?
- Enable software teams to innovate, yet be accountable?
Agenda

- Business trends that impact software and systems delivery
  - Challenges and opportunities
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Optional Summary Slides
Managing distributed processes and projects

*Governing development*

- Customer (Topeka)
- Executive (Somers)
- Project Manager (Bangalore)
- Developer (Warsaw)
- Testing (Toronto)
- Provisioning (Boulder)
IBM Rational Software Development Platform

GOVERNANCE DASHBOARD

Solutions for geographically distributed development, compliance, SOA

Process & portfolio management
- IBM Rational® Portfolio Manager
- IBM Rational Method Composer
- Best practices content (IBM Rational Unified Process®, IBM Tivoli Unified Process®, Portfolio Management)
- IBM Rational Team Unifying Platform™

Requirements & analysis
- IBM WebSphere® Business Modeler
- IBM Rational RequisitePro®
- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Rose® Data Modeler

Design & construction
- IBM Rational Application Developer
- IBM Rational Systems Developer
- IBM WebSphere Integration Developer
- IBM Rational Data Architect
- IBM WebSphere Developer for zSeries

Software quality
- IBM Rational Performance Tester
- IBM Rational Functional Tester
- IBM Rational Manual Tester
- IBM Rational PurifyPlus

Change & configuration management
- IBM Rational ClearCase®
- IBM Rational Build Forge®
- IBM Rational ClearQuest®
- IBM Tivoli Provisioning Manager
- IBM Tivoli Intelligent Orchestrator

Partner ecosystem & open computing
Eclipse™, Linux®, Microsoft® Windows®, UNIX®, IBM z/OS®
Business Driven Development Solutions

GOVERNANCE DASHBOARD

Geographically Distributed Development

Solution capabilities
- Comprehensive insight into distributed projects
- Consistent portfolio management practices
- Resource management across geographical boundaries
- Provide “next door” access to distributed assets for reuse
- Enable faster response through 7x24 change management
- Consistent development analytics across projects

Enabling products
- Rational Portfolio Manager
- Rational Method Composer
- Rational Portfolio Manager
- Rational Change Management Solutions
- Rational ClearQuest
- Rational ProjectConsole
- Rational Software Quality Products

Regulatory Compliance

Solution capabilities
- Enterprise-wide visibility into compliance remediation projects
- Line-of-sight from compliance requirements through delivery
- Create and enforce compliant development processes
- Automate workflow and approval cycles
- Enforce ITIL and COBiT requirements for change and release management

Enabling products
- Rational RequisitePro
- Rational Portfolio Manager
- Rational ClearQuest
- Rational Change Management Solutions
- Rational Test Case
- Rational Testing Tools
- Tivoli Provisioning Manager
- Tivoli Configuration Manager

SOA Governance

Solution capabilities
- Resource allocation and management
- SOA governance guidance
- Comprehensive management view
- Customizable SOA development and governance best practices
- Integrated architecture and development platform
- Closed loop services management
- Consistent change management
- Business level monitoring

Enabling products
- Rational Portfolio Manager
- Rational Method Composer
- Tivoli Composite Application Manager
- Rational Unified Process for SOA
- Rational Software Architect
- WebSphere Business Modeler
- Rational ClearQuest
- Rational ClearCase
- IBM Tivoli Unified Process
- WebSphere Business Monitor
Today’s Rational solutions enable governance

GOVERNANCE DASHBOARD

Process and portfolio management

- Analyze Business, approve policy
- Analyze IT portfolio, Initiate projects
- Architect Software and Systems
- Implement software
- Test
- Certify quality
- Deploy
- Monitor and measure

Requirements and analysis

- Analysis
- Portfolio Management
- Architecture
- Development
- Test
- Project Management
- Operations
- Portfolio Management

Development processes

- Rational RequisitePro
- Rational Portfolio Manager
- WebSphere Business Modeler
- Rational Data Architect
- Component Business Modeling

Development services

- Rational Software Architect
- Rational Application Developer
- WebSphere Integration Developer
- Rational Functional Tester
- Rational Manual Tester
- Rational ClearCase
- IBM Rational Build Forge
- Rational ClearQuest
- Rational Portfolio Manager
- Rational Performance Tester

Change & configuration management

Best Practices and Process Management

- Requirement
- Policy
- Word Doc
- Use Case
- Project
- Resource
- Timesheet
- Component Model
- Topology Model
- Service Model
- Class
- EJB
- JSP
- Defect
- Performance Test
- UI test
- Manual Test
- Test Record
- Coverage Data
- KPI
- Task
- Cost
- Work Breakdown

Design and construction

Software quality
Evolving software and systems development

**PROJECT DRIVEN**
- Co-located teams
- Technology led
- Vendor lock-in
- Application silos

**BUSINESS DRIVEN**
- Right-sourcing
- Standards
- Geographically distributed
- Compliance
- Open computing
- Modular systems (SOA)

**Business Driven Development**

Enabling organizations to *govern* the business process of software and systems development.
Benefits of Business Driven Development

Improved business performance

- Align technology with business
- Effectively manage risk
- Enforce compliance
- Improve responsiveness
- Increase efficiency
What the analysts are saying

Rational Leads In Application Lifecycle Management

Source: Application Lifecycle Management, Bola Rotibi, Ovum, 22 September 2005
What the analysts are saying

Rational Leads In Project And Portfolio Management

Source: Gartner, June 2005
What the analysts are saying

Rational Leads In Software Configuration Management

Forrester Wave™: Process-Centric
Software Configuration Management, Q4 ‘05