Integrated Product Delivery Framework
Achieving Operational Excellence – improved Time to Market

Kedar Walimbe
Technical Professional Leader – IBM Rational ASEAN
Agenda

- Product Delivery Challenges in Telecom Industry
- Current Trends for Improving Product Delivery
- How to make Product Delivery efficient
- Framework Solution Components
- Integrated Product Delivery Framework
  - Product Portfolio Management
  - Product Development & Delivery
CEO Business Model Question:
What are my differentiating capabilities and new growth markets?

The operating model for Organizations can be described by its major components which can in turn be selected to drive strategic differentiation and growth:

**Differentiated = Effectiveness**
- Management focus on core, differentiating activities that drive growth
- Human and working capital aligned with strategic priorities
- Supply chain aligned with strategic priorities
- **Rapid delivery of innovative, superior-quality products and services**
- A culture of forward-looking, market-driven decision making

**Non-Differentiated = Efficiency**
- Some components outsourced to best-of-breed partners with higher efficiency and operating excellence
- Competitive markets emerging with Tier 1 service providers for most major areas
- Core capability in alliance management; your company focuses on SLAs and target outcomes (not process management)
Focus on Releasing Business Service - Not Individual Products

Business Service to be Released

Processes

Payments Processing

Anti-Money Laundering

Account Opening

Compliance Reporting

Customers

Partners

Regulators

3rd Party Service Providers
Challenges - Rapid delivery of innovative Products & Services

- Technological change & convergence drives increasingly shorter product lifecycles.
- Shrinking timeframe to recoup market advantage from an innovation or IP advantage.
- Product uptake and sales peak occur earlier, and profits erode much sooner.

- Business Requirements changes infusing ripple effect in product delivery environment.
- Difficult to keep projects on track with effort, cost, and schedule.
- Development teams are not agile to keep up with the pace of Business Requirements.

- Unclear or continually changing product definitions: 42%
- Product does not meet customer or market requirements: 37%
- Unrealistic schedule expectations: 27%
- Projects not adequately staffed: 26%
- Unclear or continually changing priorities: 24%
- Unrealistic financial expectations: 24%
Silo-ed approach for Development Teams makes Product Delivery Challenging
Challenges increasing cost, lengthen delivery time and increase project risk

- IT Teams not aligned with business needs
- Lack of Roadmap & Release Planning tools
- Error prone, manual Delivery Processes
- Inability to Recreate Environments
- Inability to integrate multiple Applications Lifecycles

...slowing deployment of solutions and decreasing agility
Agenda

- Product Delivery Challenges in Core Banking refresh
- **Current Trends for Improving Product Delivery**
- Improving the performance of Product Delivery
- Framework Solution Components
- Product Delivery Performance Improvement Framework
  - Product Portfolio Management
  - Product Development & Delivery
Product Delivery Framework is critical for Operational Excellence

- **Product Delivery Framework** is viewed as a strategic business asset

- **Product Delivery Framework** is helping clients:
  - Align IT with Business
  - Manage risk by Aligning Product Roadmaps
  - Provide Competitive Advantage.
  - Shorten Product Delivery Schedules.
  - Achieve Predictability and Automation.
  - Optimize Human & Infrastructure Resources.

- Accelerating innovation and enabling effective change is highly dependent on the ability to manage effective software delivery
Enterprises look to IT to bring efficiency and stability in delivery of core capabilities to the business, and drive innovation and differentiation for new services to the market.

IT uses systems integrators and technology partners to create centers of excellence specialized in delivering value to the business.

We call these software delivery factories.
Business Depends on the Ability to Deliver Systems & Software

**Collaboration, Automation and Reporting**

Enhanced **collaboration** enables you to manage relationships between subcontractors and multiple suppliers.

Increased **automation** enables you to develop products at a lower cost and with fewer resources than before, while coping with rapidly changing market demands and technological advances.

Advanced **reporting** enables you to demonstrate compliance to requirements and regulations with complete accountability.
Integrated Product Delivery framework Components

**Product Program Management**
- Business Requirements
- Product Requirements
- Service, Program Planning
- Release Scoping & Scheduling
- Month, Quarter & Yearly Plans
- Individual Product Plans & Schedule

**IT Resource Optimization**
- Skills, Profiles inventory
- Deployment Plans
- Infrastructure Resources
- Manage Test Environments
- Delivery Workflow Process
- Process Approval & Automation

**Enterprise Release Management**
- Version Control
- Change Management
- Manage Program Releases
- Release Roadmap & Planning
- Quality Management
- Packaging & Deployment

**Definitive Software Library**
- Maintain Dynamic BOM
- Auditing and Compliance
- Asset Reusability
- Historical Environments
- Accuracy and Efficiency
- Integration with Release Mgmt.
Agenda

- Product Delivery Challenges in Core Banking refresh
- Benefits of Integrated Product Delivery Framework
- Improving the performance of Product Delivery
  - Framework Solution Components
  - Product Delivery Performance Improvement Framework
    - Product Portfolio Management
    - Product Development & Delivery
IBM Rational Integrated Product Delivery Framework
- Accelerates and Delivers smarter solutions with greater Agility

The framework gives you speed, flexibility and choice in delivering solutions while reducing cost and risk

The framework provides a Solution Delivery Platform…

- Product Program Management
- Enterprise Release Management
- Quality and Test Lab Management
- Definitive Software Library
- Best practices and business-specific usage patterns to lower risk
- An approach to align technology with business needs
IT Systems Release and Roadmap Planning

Product Program Management

Core System Release

Supporting System 1
- Business Requirements
  - Release Plan
  - Cost
  - Schedule
  - Resources
  - Risks & Mitigations

Supporting System 2
- Business Requirements
  - Release Plan
  - Cost
  - Schedule
  - Resources
  - Risks & Mitigations

Supporting System 3
- Business Requirements
  - Release Plan
  - Cost
  - Schedule
  - Resources
  - Risks & Mitigations

Supporting System 4
- Business Requirements
  - Release Plan
  - Cost
  - Schedule
  - Resources
  - Risks & Mitigations

Prioritization
Impact Assessment
Portfolio Analysis
End-to-End Release Management

Solution Delivery Framework

Rel 6.5
Supporting System 1
In-house

Rel 8.0.1
Supporting System 1
Out sourced

Rel 7.1
Core Banking System
Packaged Software

Rel 9.3.2
Supporting System 1
CRM

Rel 12.7.0
Supporting System 1
Legacy

Development
Design
Regression
SIT
Usability

Unit Test
Regression
Functional
SIT
UAT

SIT
UAT

Time

Rel 6.5
Supporting System 1
In-house

Rel 8.0.1
Supporting System 1
Out sourced

Rel 7.1
Core Banking System
Packaged Software

Rel 9.3.2
Supporting System 1
CRM

Rel 12.7.0
Supporting System 1
Legacy

Development
Design
Regression
SIT
Usability

Unit Test
Regression
Functional
SIT
UAT

SIT
UAT

Time
**Integrated Product Delivery Framework**
- Supported by *Industry Best Practices and Innovation*

**Improving Performance of IT Solution Delivery**

**Integrated Product Delivery Framework**
Best Practice framework for multi-product Delivery

**Roadmap & Release Planning**
- Web based tool for requirements capturing.
- Product Roadmap Planning
- Real-time Dashboard and Status

**Release Delivery & Deployment Framework**
- Automated deployment of multiple Applications across multiple test environments simultaneously.
- Find and fix defects as early as possible and prevent future defects from being injected
Prescription for successful Product Delivery Framework

Stage 1
- Product Program Management
  - Business Requirements Planning & Analysis
  - Program Planning, Tracking and Monitoring
  - Schedule, Cost & Resource Management

Stage 2
- Roadmap and Release Planning
  - Monthly, Quarterly Roadmap Definition
  - Release Dependency Analysis
  - Release Planning and Scoping

Stage 3
- Test Lab Management
  - Test Lab configuration
  - Definitive Software Library
  - IT Resource Optimization

Stage 4
- Release Management framework
  - Setting up and Configuration
  - Process for Product releases
  - Asset Optimization

Value

Time
Agenda

- Product Delivery Challenges in Core Banking refresh
- Benefits of Integrated Product Delivery Framework
- Improving the performance of Product Delivery
- **Framework Solution Components**
  - Product Delivery Performance Improvement Framework
    - Product Portfolio Management
    - Product Development & Delivery
IBM Rational Focal Point – Product Program Management

Choosing the right initiatives at the right time

- Automated request capture
  - Automate tactical activities like request capture and provide consistency to the evaluation and approval processes
- Value-based selection and trade-offs
  - Focus on creating value for your customers and your business
  - Make trade-offs based on the changing priorities of the organization and customers
- Prioritize Product Releases
  - Balance and sequence product releases to maximize value and meet strategic goals
  - View stages, gates, milestones, requirements associated with each product
  - Understand impact of sequence on cost, headcount and revenue with consideration for constraints

Elicit, analyze, prioritize and plan demands according to business value
Program/Product Plans : Roadmap Development

- View Dependencies and Milestones
- Balance and sequence releases to maximize value and meet strategic goals
- View stages, gates, milestones, requirements associated with each release in the pipeline
- Understand impact of sequence on cost, headcount and cost/benefit with consideration for constraints
Product Development & Delivery Process

Needs integration with Program Planning Framework

Product Development and Delivery Framework

Tasks

- Manage Requirements
- Manage Code & Changes
- Build Source Code
- Test and Quality Management
- Security Vulnerability Analysis
- Deploy Tested application
- Release Application

Requirements Definition & Management

Software Configuration & Change Management

Product Build & Developer level Testing

Business Driven & Risk Based Quality Management

Product Code Analysis & Security Testing

Test Lab Management with Deployment Automation

Product Deployment and Approval Process
Automate Test Lab Environment Setup

- Automate the configuration and provisioning of resources in the test lab
  - Spend less time configuring and more time testing
    - Automate the installation and configuration of OS, Network settings, the software stack, & patches in the test lab
  - Make sure the production environment matches the test environment
    - Mimic production system configurations
    - Reduce unnecessary re-testing by sharing production configurations

Result: Increase customer satisfaction through deployment consistency and quality
Infrastructure Resource Optimization

**Before lab automation**

- 40% Lab Setup
- 60% Test Time

**With lab automation**

- 20% Setup
- 80% Test Time
- **Free Cycles**
- 20% gain

### Automate

- Deploy the configurations my teams require for test

### Collaborate

- Ensure infrastructure required to fulfill my test plan

### Report

- Analyze patterns to minimize cost and optimize utilization

**Non-automated tasks or steps** (50% of setup effort):

- Ad-hoc or varying workflows and setup tasks
- 50% reduction in effort for test system deployment

**Application setup with RTLM** (30-50% reduction):

- System setup with TPM (15-20% reduction)

Source: IBM
Recreating a Release Quickly and Efficiently
A Library that manages published/Golden software and business assets:

Tasks

- Identify Business Need
- Propose
- Develop
- Publish and Review
- Use
- Retire or create new version

- Enterprise Arch
- Data Model
- Design Model
- Application
- Service Specification
- Reference Arch
- Bus Process
- Test Data
- Test Results
- Release
- Virtual Image
- SLA
- Deploy Plan
- Install Guide
- Tuning Guide
- Bus Case
- Measure asset performance
- Harvest assets
- Create, publish, search & use assets
- Gold Build
- Report Policies
- Understand Impact of change
- Measure asset performance

Business:
- Business Manager
- All Roles
- Microsoft System Architect
- Analyst
- WebSphere Business Modeler
- Req Pro
- Architect
- Rational Software Architect
- Developer
- WebSphere Integration Developer
- Tester
- RFT RPT ClearQuest
- Build Mgr
- Build Forge
- Project Manager
- Rational Method Composer
- Policy Manager
- Web-layers
- Deployment Manager
- Tivoli CCMDB
- SQA Architect
- Service Registry

Development:
- Eclipse
- Sharepoint
- Wikis
- Requirements
- SCM
- Defects
- Builds
- Policies
- CMDB
- UDDI Registry

Operations:
Integrated Product Delivery framework Components

Product Program Management
- Business Requirements
- Service, Program Planning
- Month, Quarter & Yearly Plans
- Product Requirements
- Release Scoping & Scheduling
- Individual Product Plans & Schedule

IT Resource Optimization
- Skills, Profiles inventory
- Deployment Plans
- Delivery Workflow Process
- Infrastructure Resources
- Manage Test Environments
- Process Approval & Automation

Enterprise Release Management
- Version Control
- Manage Program Releases
- Quality Management
- Change Management
- Release Roadmap & Planning
- Packaging & Deployment

Definitive Software Library
- Maintain Dynamic BOM
- Asset Reusability
- Accuracy and Efficiency
- Auditing and Compliance
- Historical Environments
- Integration with Release Mgmt.
Agenda

- Product Delivery Challenges in Core Banking refresh
- Benefits of Integrated Product Delivery Framework
- Improving the performance of Product Delivery
- Framework Solution Components
- **Product Delivery Performance Improvement Framework**
  - Product Portfolio Management
  - Product Development & Delivery
Common and Consistent Interface to capture Requests

- Collect enhancement requests, market requirements and breakdown to technical requirements for development
- Capture product ideas through simple or detailed web forms
- Link requirements to customer, products, markets, other valuable categories
- Automate requirements gathering with email direct email capture
- Ability to define different forms for different roles
Managing Relationships

- Links can be created between any kind of elements, e.g. releases to requirements, business requirements to technical requirements and so on
- All links are hyperlinks for easy navigation

- Assign requirements to releases
- Automatically calculate values such as total estimated cost for a release
Analyzing and understanding impact
• Benefit to business
  • Visualize the cost/risk/benefit trade-off
  • Include other criteria to build full picture of value
  • Visualize needs of particular markets or customers and see the impact on value delivered to them
  • Understand which projects and initiatives to invest in, retire and/or de-prioritize
Core System Release Planning

- Balance and sequence product releases to maximize value and meet strategic goals
- View stages, gates, milestones, requirements associated with each product in the pipeline
- Understand impact of sequence on cost, headcount and revenue with consideration for constraints
Visibility to all Products/Releases

- View the entire product portfolio, analyze specific product lines, or drill-down to details of a single product
- Include competitor products for easy analysis and comparison
- Easily accessible through any desktop’s web browser
Product (Technology) Roadmap Planning

1. Three roadmaps are selected for review and analysis.

2. A set of milestone criteria are selected and applied to the roadmaps.

3. Resource burden through the planning horizon is aggregated for selected roadmaps.
Agenda

- Product Delivery Challenges in Core Banking refresh
- Benefits of Integrated Product Delivery Framework
- Improving the performance of Product Delivery
- Framework Solution Components
- Product Delivery Performance Improvement Framework
  - Product Portfolio Management
  - **Product Development & Delivery**
End-to-End Release Management

Rel 6.5
Supporting System 1
In-house

Rel 8.0.1
Supporting System 1
Out sourced

Rel 7.1
Core Banking System
Packaged Software

Rel 9.3.2
Supporting System 1
CRM

Rel 12.7.0
Supporting System 1
Legacy

Development  Design  Regression  SIT  Usability

Unit Test  Regression  Functional  SIT  UAT

SIT  UAT

Time
Infrastructure Resource Optimization

Define Test Environment → Request Environment → Search Environment → Find Match and Reserve → Schedule Testing → Prepare Environment → Install, Tune, Configure → Deploy Tools → Execute Tests → Clean up Environment

Collaborate
Ensure infrastructure required to fulfill my test plan

Automate
Deploy the configurations my teams require for test

Report
Analyze patterns to minimize cost and optimize utilization

Before lab automation

40% Lab Setup
60% Test Time

Non-automated tasks or steps (50% of setup effort)
Application setup with RTLM (30-50% reduction)
System setup with TPM (15-20% reduction)

With lab automation

20% Setup
80% Test Time

Cycles

Free

20% gain

Ad-hoc or varying workflows and setup tasks
50% reduction in effort for test system deployment

Source: IBM
Building Blocks for Deployment Automation

**Automation Signatures** are Pattern Topologies with an identifier and parameters used by the analysis.

Architect uses best practice patterns and standards to design and plan **Deployment Topology**.

**Automation Workflow** describes how to deploy and is published to **Automation Engine**.

**Automation Definitions** provide an identifier and list of parameters to interface with the script.
Topology Generated Automation

- Ability to define and automate the tasks necessary to provision the content described in a deployment topology

- Automation Workflow Generation
  - Generated from topologies
  - Select and order automation tasks
  - Map parameter values to property values in the topology

- Publish Automation Workflows
  - Publish to an automation engine (support for Build Forge out of the box)
  - Translates the workflow information into a necessary format in the automation engine (e.g., an automation project with steps and variables)
  - Integration with other automation engines is possible
Framework to automate repetitive tasks

Environment

1. RELEASE=Release_1.1
2. JAVA_HOME=C:\Program Files\Java\jdk1.5.0_06
3. PATH=C:\Program Files\Java\jdk1.5.0_06\bin
4. ...

Project

Source | Build | Test | Package | Deploy | ...

Steps

1a. cleartool mkview -snapshot -tag $BF_TAG -vws $VIEW_STG\$BF_TAG.vws $BF_SERVER_ROOT\$BF_TAG
1b. cleartool setcs -tag $BF_TAG config.spec

2a. gcc main.c -o main.o
2b. gcc main.c -o ui.o
2c. make Release

3a. testscript.sh -run -r $RELEASE -module HelloWorld.exe
Achieving efficiency by collecting multiple projects

- Reduce costs of software delivery
- Increase quality of software deliverables
- Decreased overall time-to-market
- Comprehensive documentation for governance and compliance

Diagram: Workflow of project processes with steps such as Get Src, Compile, Link, Test, Package, and Deploy. Each project/ process includes reusable steps like Compile Windows (main), Compile Windows (ui), and Link Windows (main, ui).
Putting it all together…

- Reduce costs of software development
- Increase quality of software deliverables
- Decreased overall time-to-market
- Comprehensive documentation for governance and compliance
Technical Overview

SOFTWARE DELIVERY AUTOMATION FRAMEWORK

Management Console
Centralized Web-based, Collaborative Distributed Access, Role-Based Security

IDE Plug-Ins
Developer Self-Service, Role-Based Security

Process Automation & Continuous Integration
Automated, Repeatable Application Development Lifecycle

Business Requirements

Dev Source Control Analyze Source Product Build Package Deploy Test

Control Acceleration Environment Notification Scheduling Log Analysis Tracking Analysis

Production

Languages
Java, C, C++, C#, etc.

Source Control Continuous Integration and Interaction

Source Analysis Rational Software Analyzer, Logiscope, etc.

Build Tools ObjectMake, ClearMake, Ant, Maven, etc.

Package Tools Wise, Install Shield, RPM, JAR, WAR, etc.

Release Simple deploy or Interaction with Tivoli, etc.

Test Tools Test Manager, Robot, Functional, etc.

IDE Plug-Ins

Platforms
UNIX, Windows Mac, Linux, zSeries, iSeries, RTOS, Virtualized
Recreating a Release quickly and efficiently

A Library that manages published/Golden software and business assets:

Tasks

1. Identify Business Need
2. Propose
3. Develop
4. Publish and Review
5. Use or Deploy
6. Retire or create new version

Tasks include:
- Create, publish, search & use assets
- Harvest assets
- Create, publish, search & use assets
- Gold Build
- Harvest assets
- Measure asset performance
- Measure asset performance

Business

- Business Manager
- Business Analyst
- Architect
- Developer
- Tester
- Build Mgr
- Project Manager
- Policy Manager
- Deployment Manager
- SQA Architect

Development

- Eclipse
- WebSphere Integration Developer
- Rational Method Composer
- Rational Software Architect
- WebSphere Business Modeler
- Req Pro
- RFT
- RPT
- ClearQuest
- Build Forge
- Tivoli CCMDB
- Web-layers
- Service Registry

Operations

- Sharepoint
- Wikis
- Requirements
- SCM
- Defects
- Builds
- Policies
- CMDB
- UDDI Registry

IBM Software Group | Rational software
IBM Rational Integrated Product Delivery framework

### Product Program Management
- **Business Requirements**
- **Product Requirements**
- **Service, Product Planning**
- **Product Roadmaps**
- **Release Plans**
- **Program Plans & Schedule**

### IT Resource Optimization
- **Skills, Profiles inventory**
- **Applications Impacted**
- **Infrastructure Resources**
- **Manage Test Environments**
- **Delivery Workflow Process**
- **Process Automation**

### Enterprise Release Management
- **Version Control**
- **Change Management**
- **Build & Release Management**
- **Packaging & Deployment**
- **Quality Management**
- **Manage Program Releases**

### Definitive Software Library
- **Maintain Dynamic BOM**
- **Auditing and Compliance**
- **Asset Reusability**
- **Historical Environments**
- **Integration with Release Mgmt.**
- **Accuracy and Efficiency**
Business Service Delivery Challenges

- Technological change & convergence drives increasingly shorter product lifecycles.
- Shrinking timeframe to re-coup market advantage from an innovation or IP advantage.
- Product uptake and sales peak occur earlier, and profits erode much sooner.

![New Profitability Curve](image)

- Business Requirements changes infusing ripple effect in product delivery environment.
- Difficult to keep projects on track with effort, cost and schedule.
- Development teams are not agile to keep up with the pace of Business Requirements.
Business Service to be Released

- Call Center
- CRM Service
- ERP System
- Supplier
- Outsourced Shipping, Credit Check