

# Quality Management Keynote

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IBM Software

# Innovate2011

The Premier Event for Software and Systems Innovation



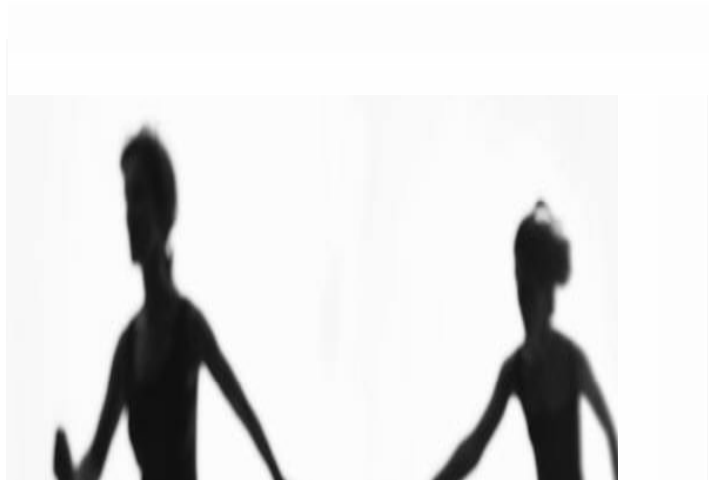
August 9-11, Bangalore | August 11, Delhi



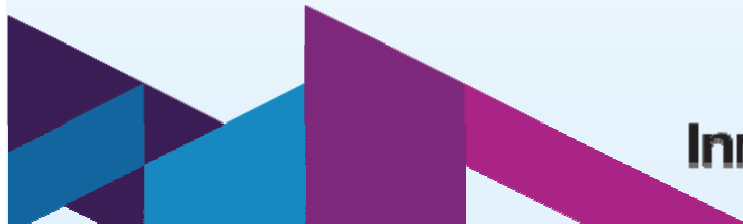
# Agenda

- **Where we've been**
- Open Ecosystem
- Where we're going





# Quality Management



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# Inhibitors to drive strategic value for QA



***Silos of People, Processes and Tools***

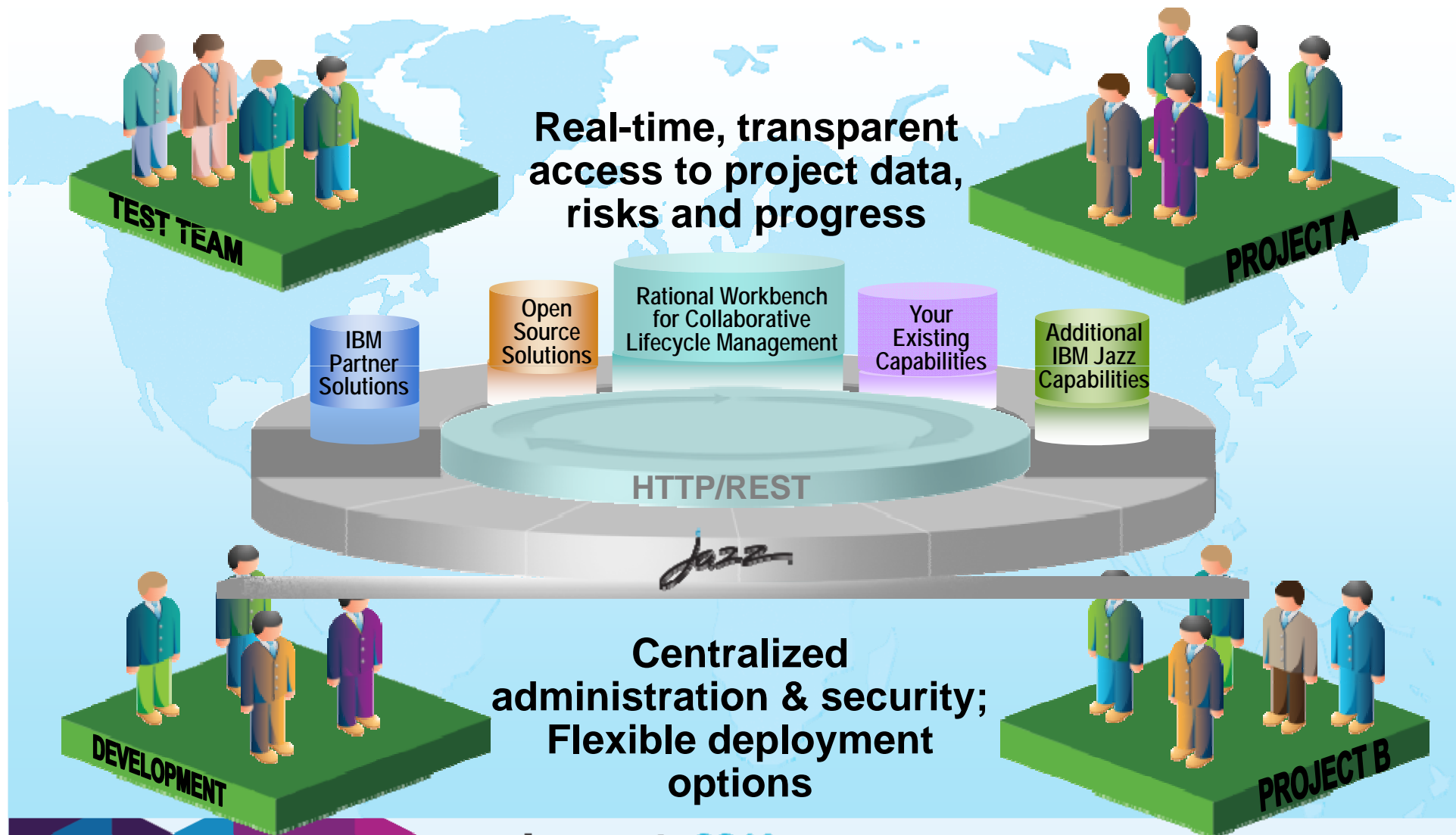


***Poor Visibility***



***Distributed / Virtual Teams***

# Scalable collaborative lifecycle management



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# IBM Rational Quality Manager

*A central hub for business-driven software quality*



## Mitigate business risk with collaboration

- ✓ Stakeholder and team coordination reduces mistakes
- ✓ Risk identification and management leads to educated prioritization decisions
- ✓ Test traceability linked to business requirements improves customer satisfaction

## Improve operational efficiency with automation

- ✓ Running tests earlier leads to reduced repair costs
- ✓ Running more tests in less time improves coverage
- ✓ Reducing manual labor leads to fewer testing errors
- ✓ Lab configuration automation improves efficiency and asset utilization

## Make confident decisions with effortless reporting

- ✓ Real-time dashboards enable proactive risk management
- ✓ Customizable reports facilitate ongoing process improvement





# Rational Quality Manager: 2.5 years later

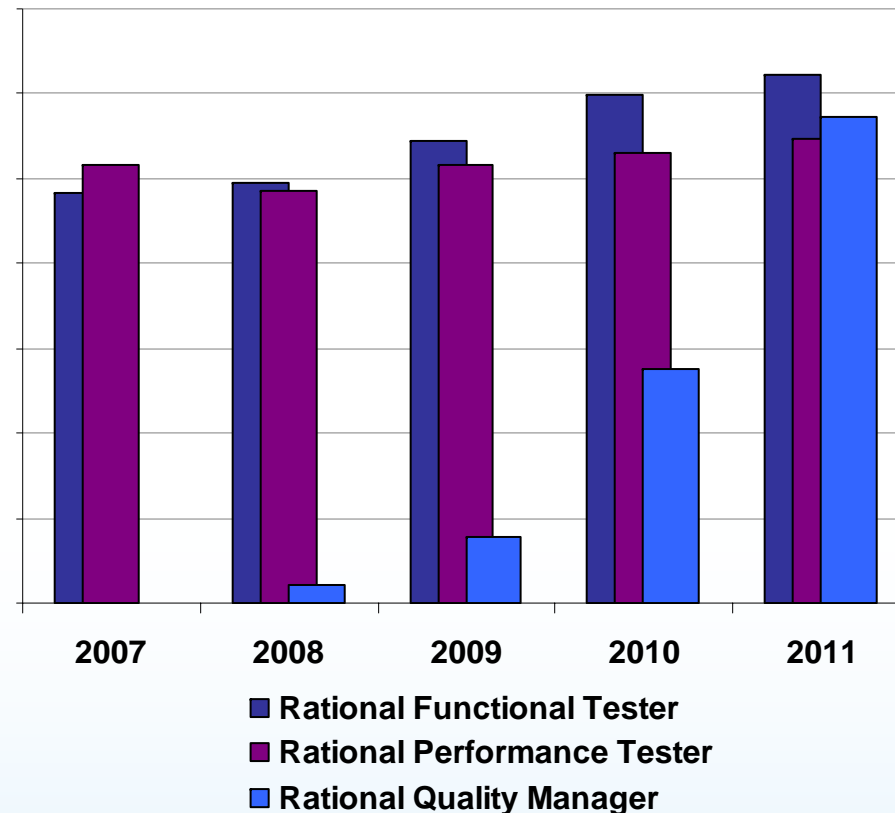


## ■ Timeline

- ▶ Oct 2008: RQM v1.0
- ▶ July 2009: RQM v2.0
- ▶ March 2010: RQM v2.0.1

## ■ Results

- ▶ User base growing @ 200% YtY
- ▶ 2011: RQM users exceed RFT/RPT?
- ▶ 100+ conversions from HP




■ Some very positive feedback... and some...

# Rational Quality Manager: The good & the bad



- Requirements Driven Quality
- Test Planning
- Manual Testing
- Test Accelerators
- Integrations



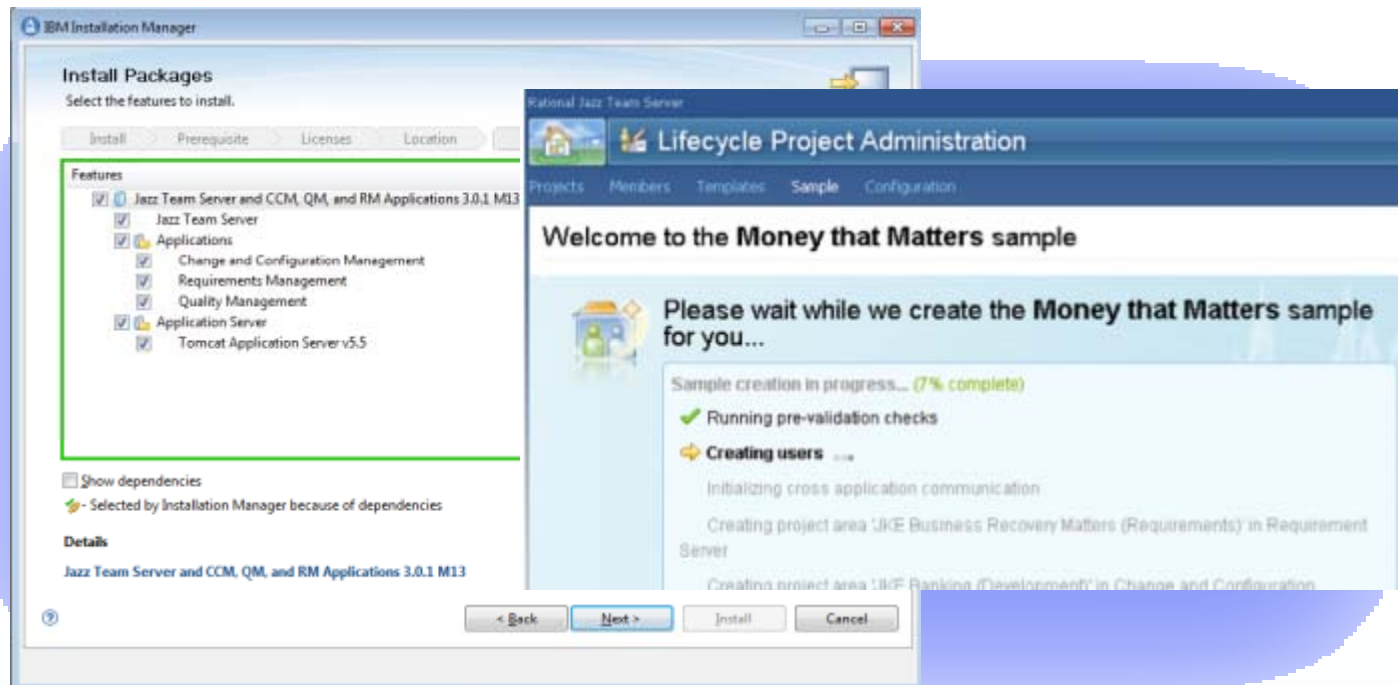
- Installation, deployment, administration
- Usability, usability, usability
- Better, deeper integrations with CLM
- Reporting





# Simplified installation and administration

## Reduce Cost of Ownership



- Installation in less than 30'
- Get started on a fully functional sample
- Single user/license management
- Unified project administration
- Flexible installation options

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Get up and running faster





# Supercharged CLM integrations: Requirements

*Improved collaboration and visibility*



The screenshot displays the Rational Requirements Composer interface. On the left is a sidebar with navigation icons for Requirements, Planning, Construction, Lab Management, Builds, Execution, Reports, and Defects. The main content area features a 'Classic CD (Requirements)' header and a 'Create new Requirement or Requirement collection' dialog box. The dialog includes fields for Name, Artifact Type, Artifact Format, Description, Location (Folder: root), and Tags. Below the dialog is a 'View All Artifacts' table with the following data:

ID	Name	Artifact Type	Last Modified
1	Add CD to Cart	Requirement	john
2	Remove CD from Cart	Requirement	john
3	Update CD in Cart	Requirement	john
4	Add CD to Catalog	Requirement	john
5	Remove CD from Catalog	Requirement	john
6	Update CD in Catalog	Requirement	john
7	Classic CD V3.1	Test Plan Collection	john
8	Classic CD V3.2	Test Plan Collection	john

- **Powerful requirements shared with Rational Requirements Composer**
  - Collections, traceability
  - Comment, review, approval
- **Improved integration with RequisitePro**
- **Seamless transition to Rational Requirements Composer**

Requirements have never been so powerful

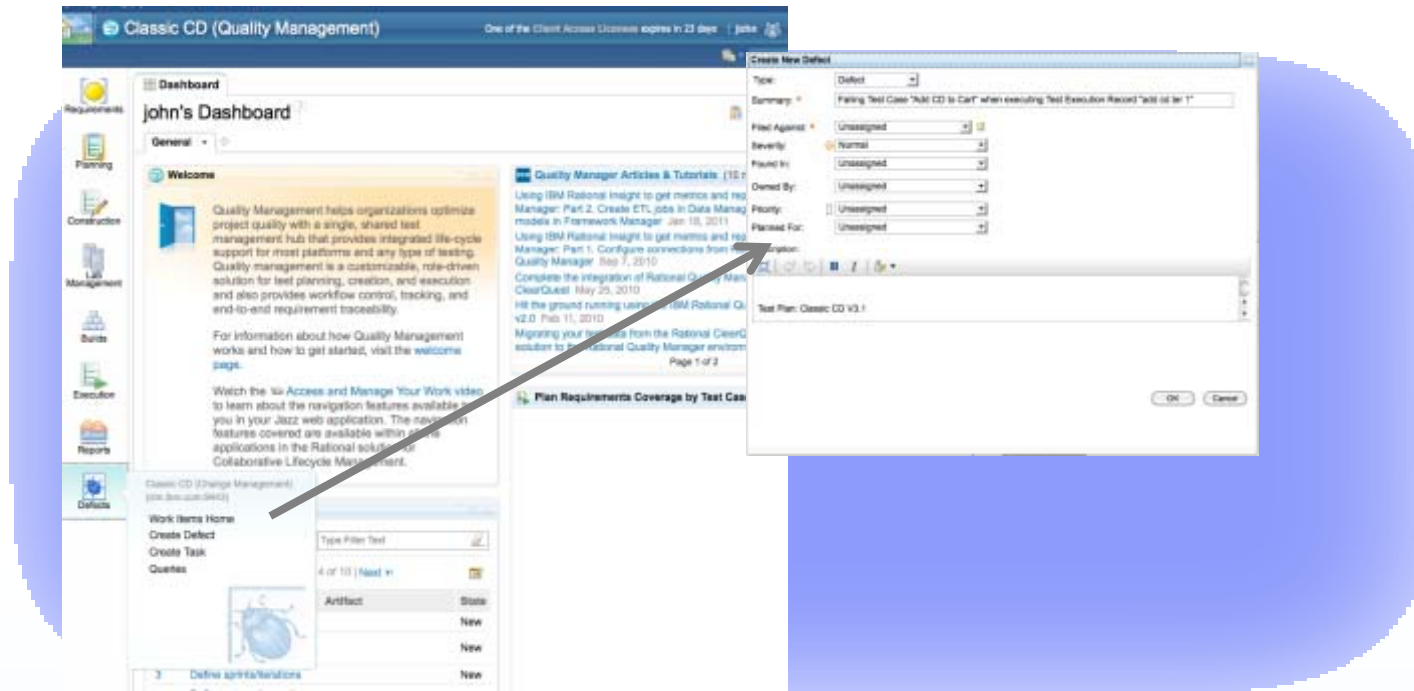
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# Supercharged CLM Integrations: Work Items

*Improved collaboration and visibility*



- Common work item across all CLM products
  - Defects, Quality tasks

- My Tasks viewlet now cuts across all CLM products

Planning has never been easier

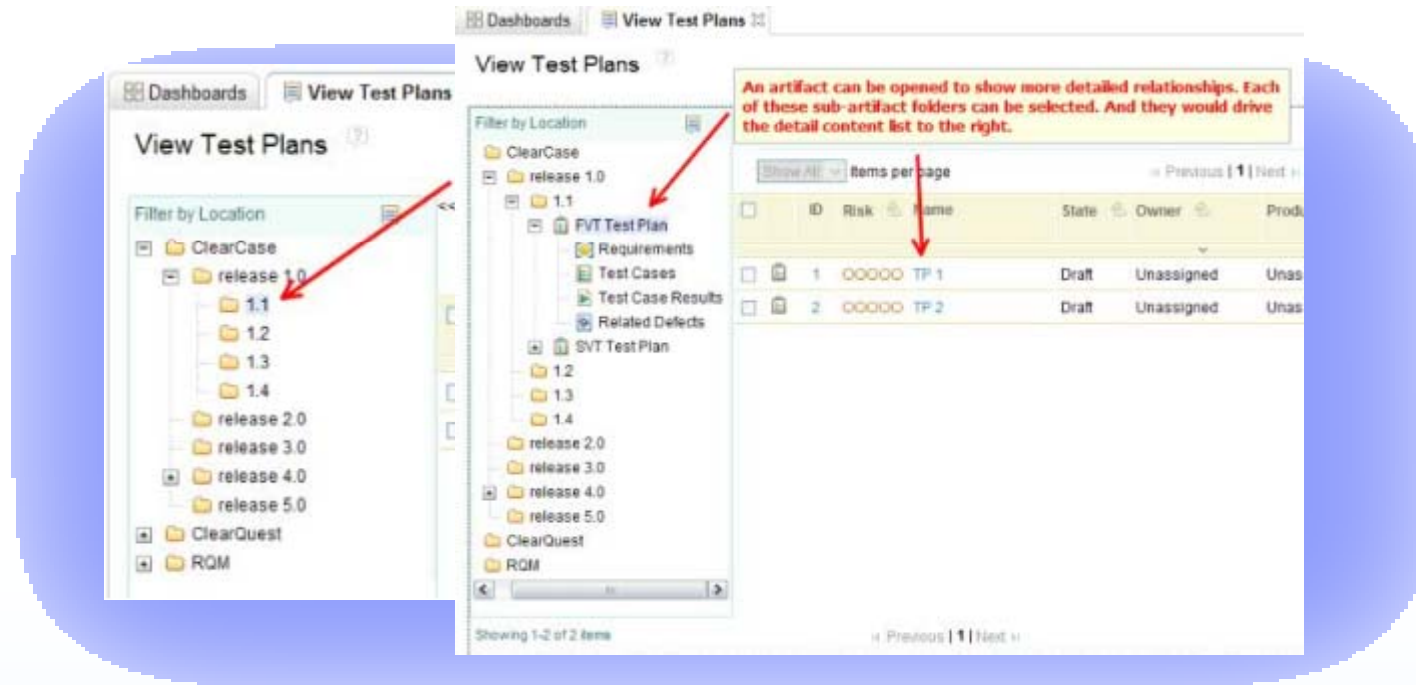
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# User Experience

*Scale from Day one productivity to very large projects*



- Polishing, polishing and more polishing
- Filtered views can be stored as saved queries

- Dynamic rendering of assets in user definable folder style relationships
  - Looks and feels like folders
  - Maintains reusability

Find the needle in the haystack

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# Flexibility & Governance

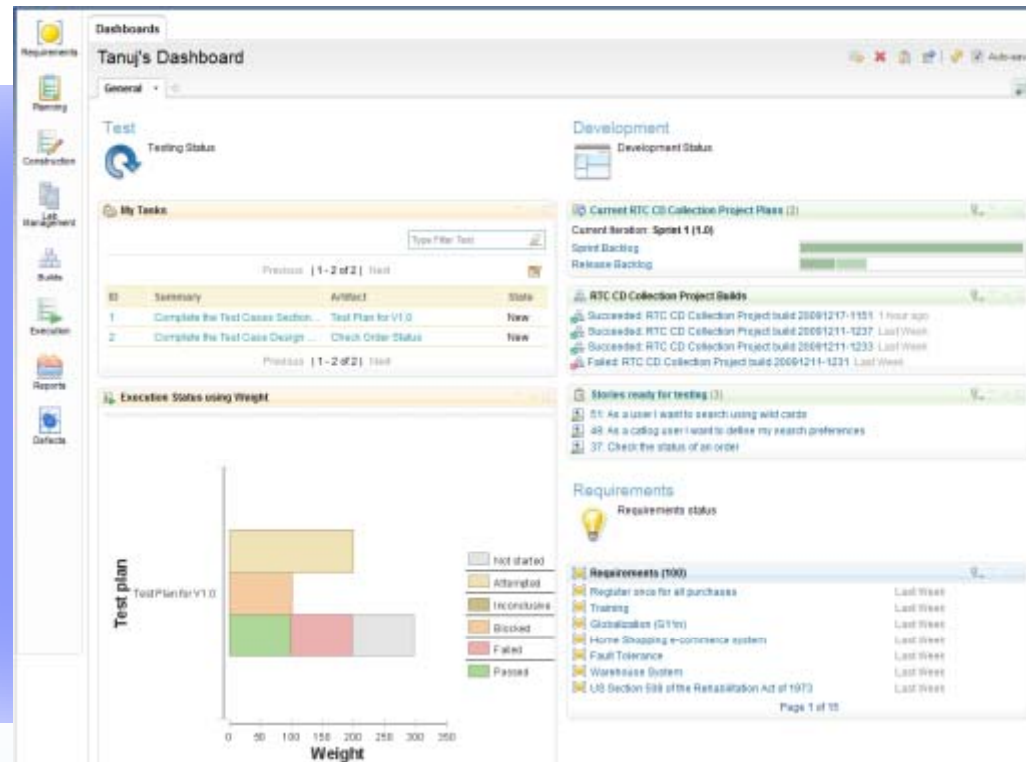
*Optimized to meet your needs*

- Custom attributes on test artifacts
- Owner attributes on test artifacts
- Mandatory attributes
- Audit trails
- Approval processes



# Reporting

*Improved visibility at the practitioner and project level*



- Cross-capability reporting
- Enhanced traceability views and lifecycle queries

- Personal dashboards across all applications
- Mini dashboard

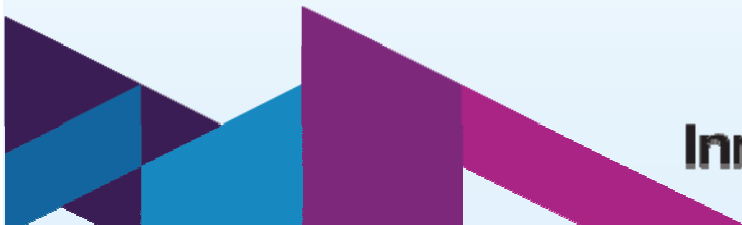


## And... the many other things

- **Improved Test Suites**
- **Offline test execution**
- **Much improved printing: Scalability, fidelity**
- **User assistance**
  
- **Many defects fixed...**



# Test Automation



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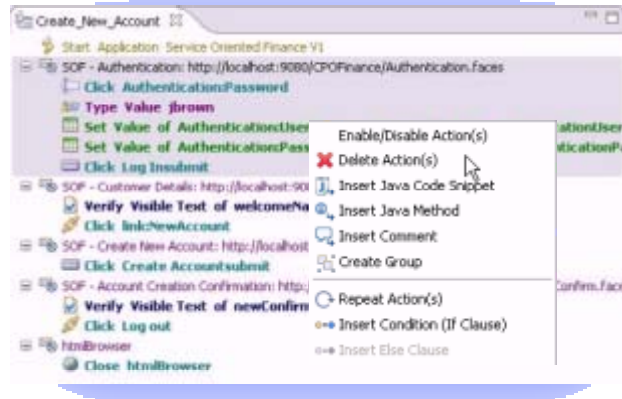
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# Ease of use

Accelerating time to productivity

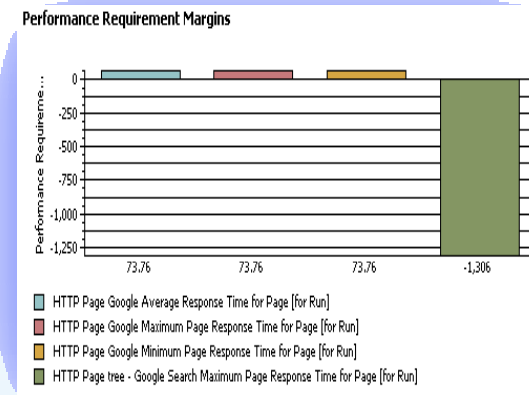


## Rational Functional Tester

- ▶ Storyboard testing
- ▶ RQM advanced logging
- ▶ MS Visual Studio 2010 Support

## Rational Performance Tester

- Performance requirements
- Event Console
- User defined Correlation Rules





# Environment support

*Keeping up with the Jones'*



# SAP Functional Testing



- IBM Rational & Worksoft have signed a strategic partnership
  - IBM to resell Worksoft Certify
  - IBM to provide support for Worksoft Certify

Functional Area	<b>WORKSOFT</b>	<b>Rational</b> software
Ease of Use	Superior	Fair
Support for cross-platform SAP business processes	GUI, Web, Verticals	GUI
End-to-End Test Management	with RQM	with RQM
Test Content /Accelerators	Yes	None
Integration w SAP Test Workbench	Yes	No



# E2E Quality Management of SAP Solutions



**SAP** Solution Manager  
**Business Blueprint**

- Setup of business process hierarchy
- Business requirements

**SAP** Solution Manager  
**Business Process Change Analyzer**

- Identification of business processes affected by code / customizing changes

**Rational. software**  
**Rational Quality Manager**

- Test Planning
- Test Requirements
- Business requirements linked with test cases

**Rational. software**  
**Rational RequisitePro**

- Business to IT requirements

**SAP** **SAP TDMS**

- Setup of lean Test system

**SAP** Solution Manager  
**Service Desk**

- Incident Management

**Rational. software**  
**Rational Quality Manager**

- Lab Management
- Defect Tracking

**WORKSOFT**  
**Worksoft Certify**

- Automated Functional Testing

**Rational. software**  
**Rational Performance Tester**

- Load and Stress Test

**Rational. software**  
**Rational ClearQuest**

- Defect and Change management



# Agenda

- Where we've been
- **Open Ecosystem**
- Where we're going

# Rational Quality Management Open Ecosystem



**IBM.**

**Rational.** software

**Tivoli.** software



**Automated Testing**

- Rational Functional Tester
- Rational Performance Tester
- Rational Service Tester for SOA Quality
- Rational AppScan Tester Edition
- Rational Test RealTime
- Rational Rhapsody

**Builds, WorkItems and Defects Reporting**

- Rational ClearQuest
- Rational Team Concert
- Rational BuildForge
- Rational Requirements Composer
- Rational DOORS
- Rational Insight

**Provisioning**

- Tivoli Provisioning Manager (TPM)
- Tivoli Service Request Manager
- TADDM



Supporting bidirectional integration with the Jira change management system



**WORKSOFT.**

Certify



Quick Test Professional LoadRunner



TMAP Process



**iTKO LISA™**

Accelerating test sandbox creation through service virtualization

**DeviceAnywhere™**  
by Mobile Complete

Managing mobile applications testing across a global handset test environment

**smartesting**  
OPEN SOURCE TEST FRAMEWORK

Model-based test generation

**SPIRENT**

Telecom Test Automation

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# Summary



**1 Rational Quality Manager: More, more and more**

**2 Test Automation: SAP support with Worksoft**

**3 Ecosystem is expanding faster**

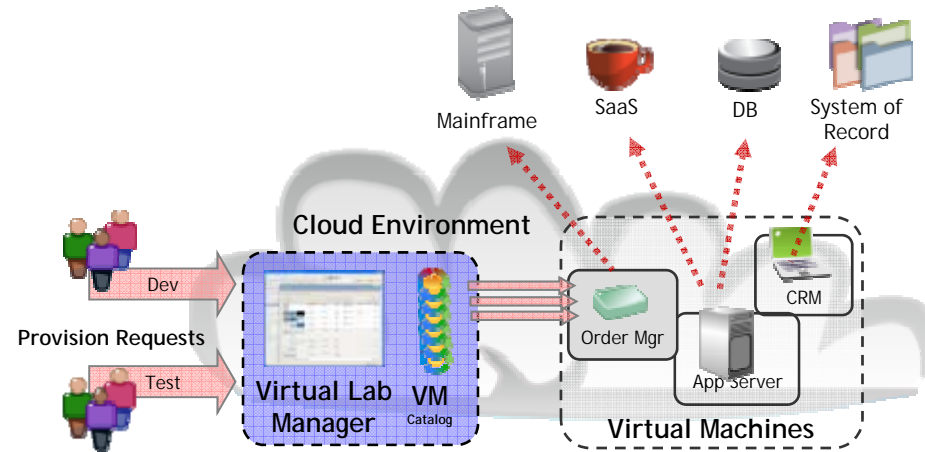
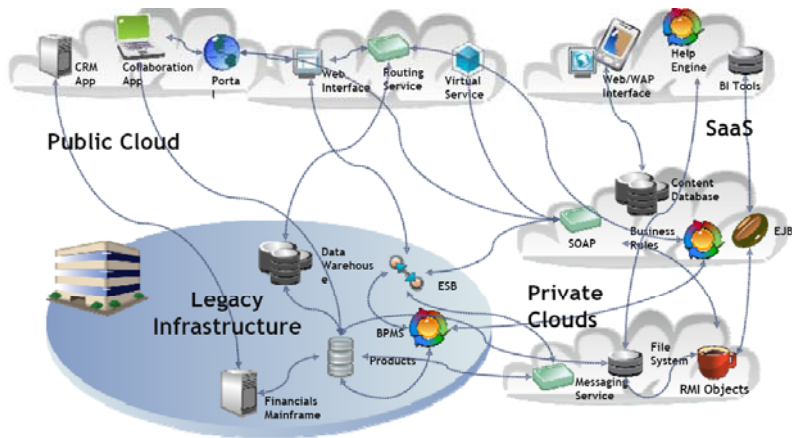


# Agenda

- Where we've been
- Open Ecosystem
- **Where we're going**



# Complexity is through the roof

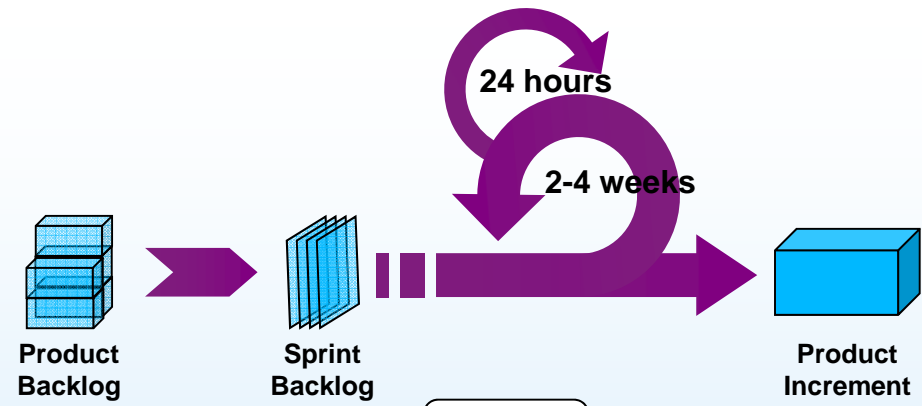


**SOA**

**Cloud**



**Systems of Systems**



**Agile**

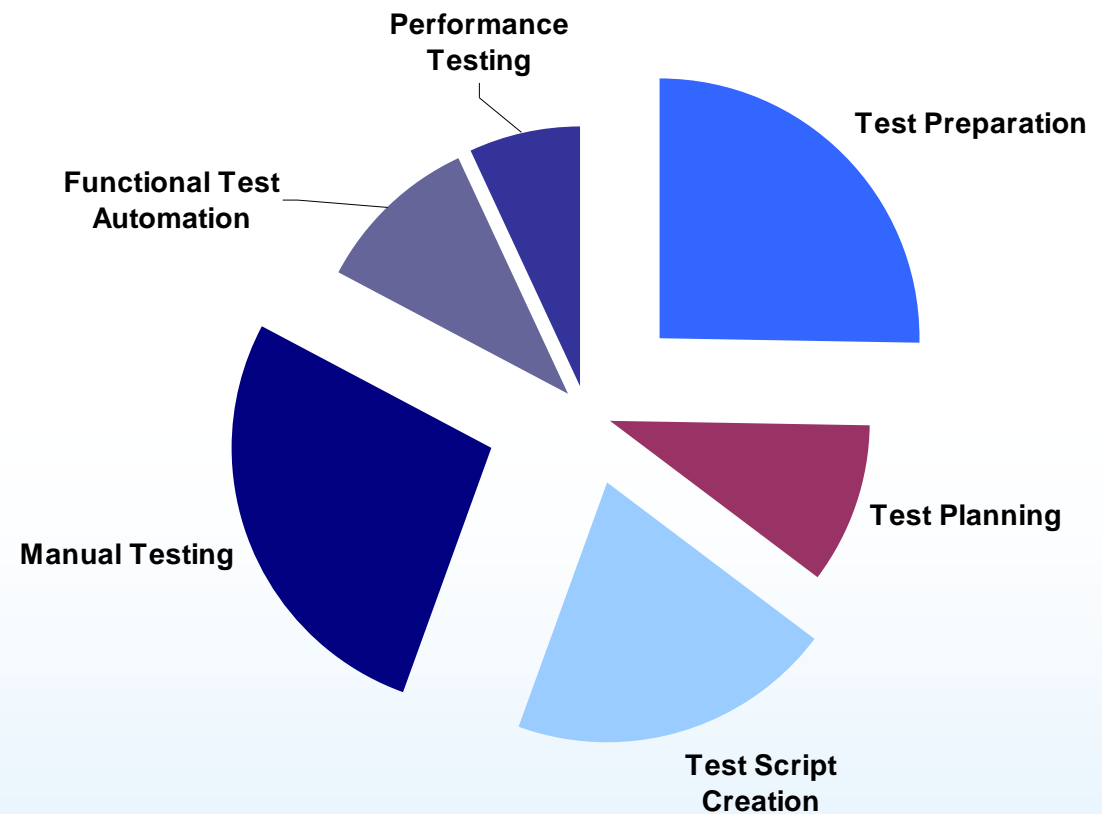
# The untold dirty secret of Quality Assurance



- **Too much focus on Test Automation**

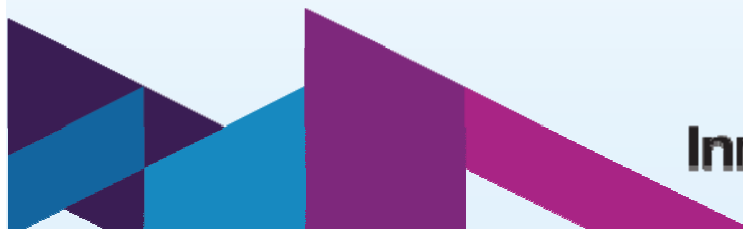
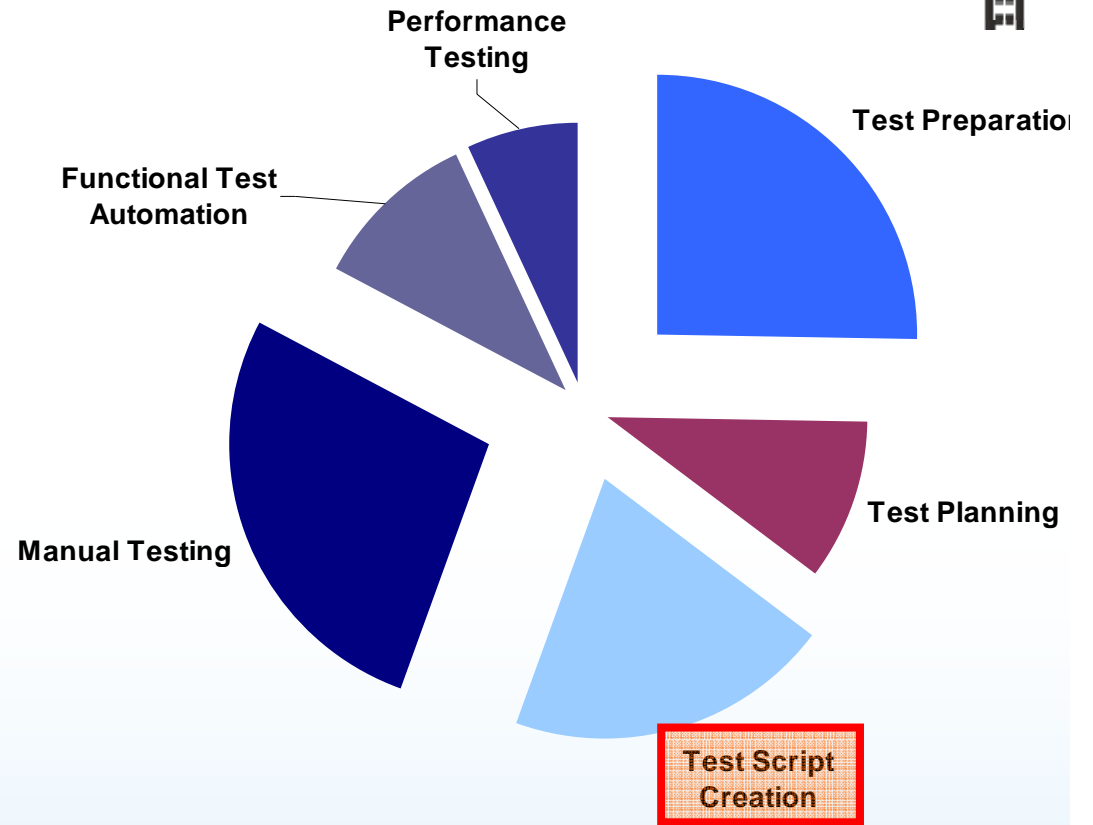
- ▶ 80% of the testing is still done manually
- ▶ Testing < 30% of the overall QA effort

- **No or little tooling addressing 50%+ of QA**



Estimated QA labor cost breakdown by activity – IBM Feb. 2011

# Smarter Testing





# Smarter Testing vs. More Testing

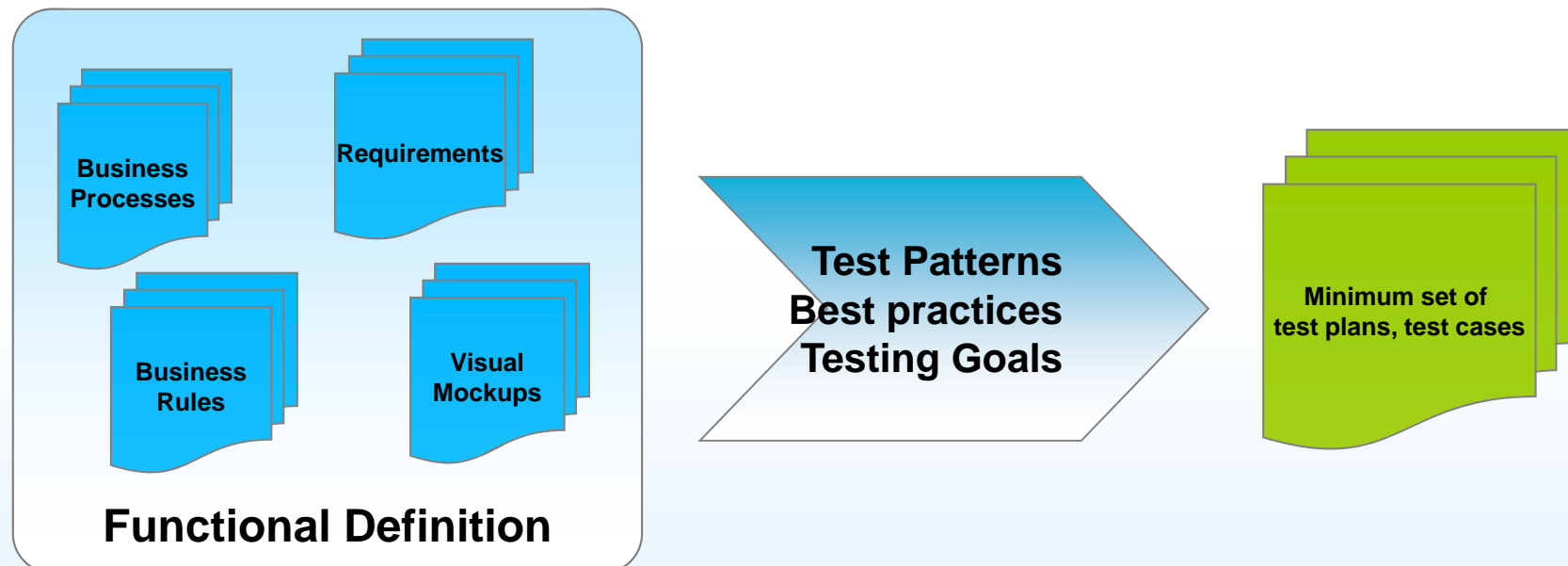
- **Fact:** It is Impossible to Test Everything
- The logical approach is to focus on the “right” tests
- **Research shows that...**
  - ▶ *80% of the defects come from 20% of the modules -- Barry Boehm*
  - ▶ *20% of test cases cover 80% of business value – Barry Boehm*

*What's the right 20% to pick?*



# Optimize and rationalize test planning

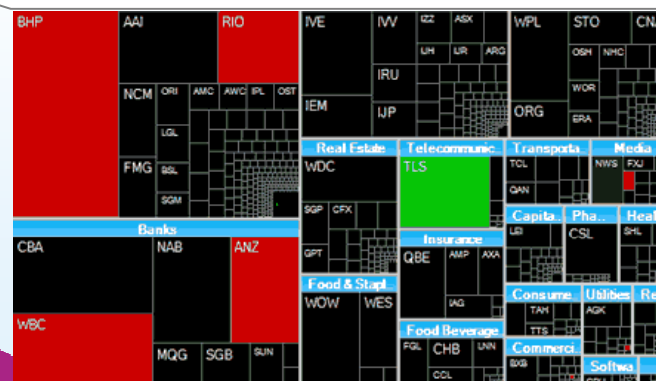
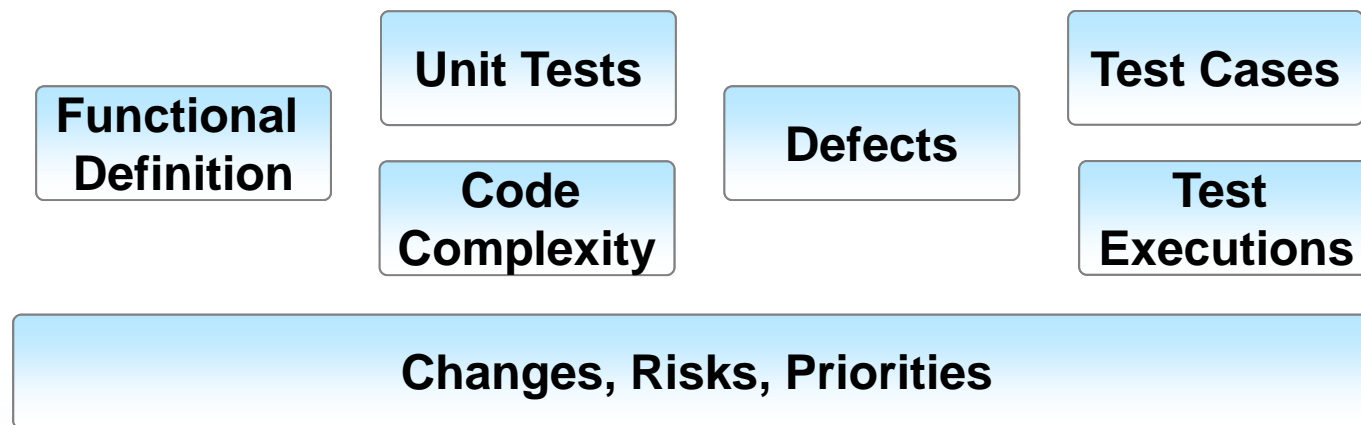
- **From ad-hoc test planning to process-driven test creation**
  - ▶ Create the minimum of test cases that maximize test coverage





# In process test creation guidance

- **Leverage analytics to better target testing**
  - ▶ e.g. Heatmaps of functional areas with risks



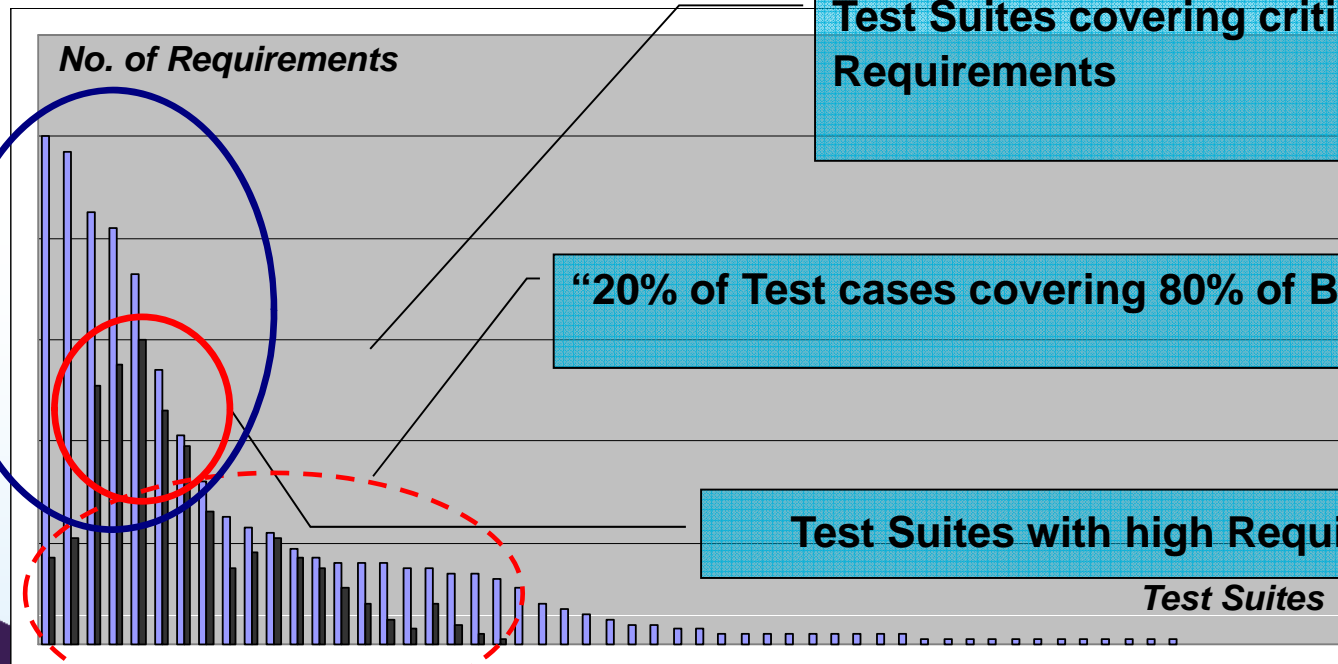


# Applying automation where it matters the most



	No. of Changes
Module A	12
Module B	9
Module C	15
Module D	10
Module E	43
Module F	6

“80% of the defects come from 20% of the modules”



Test Suites covering critical Requirements

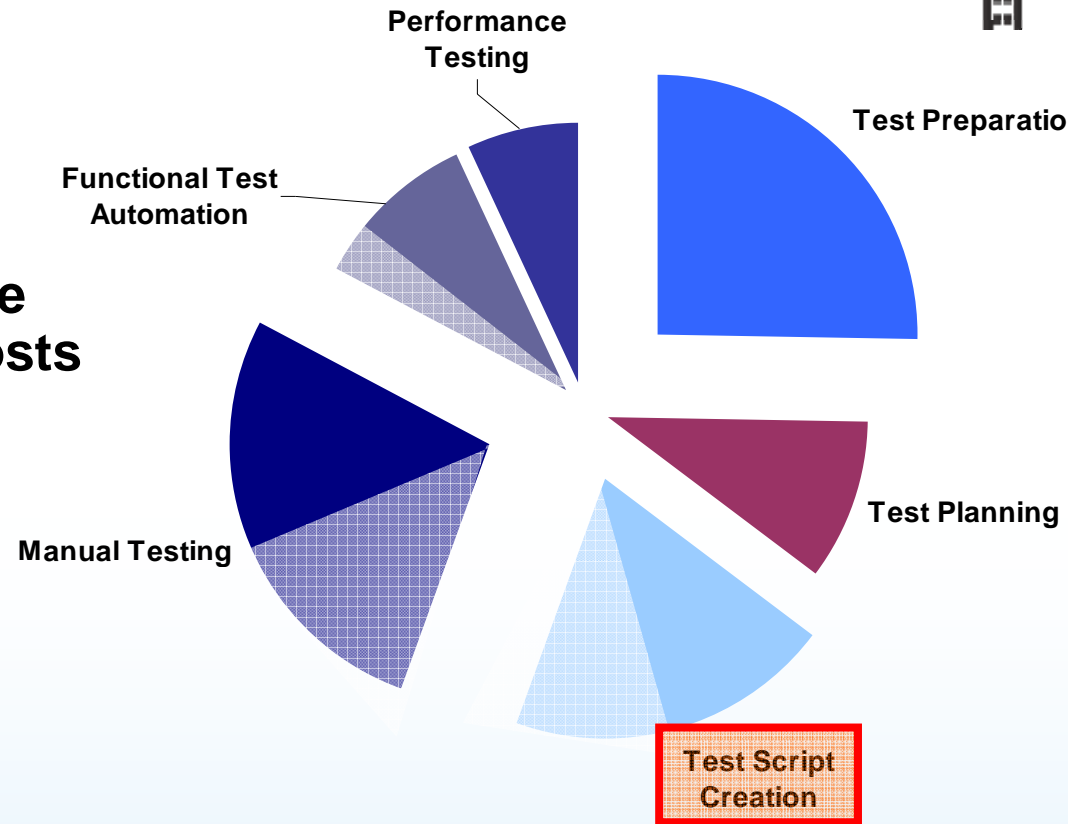
“20% of Test cases covering 80% of Business value”

Test Suites with high Requirements coverage



# Smarter Testing

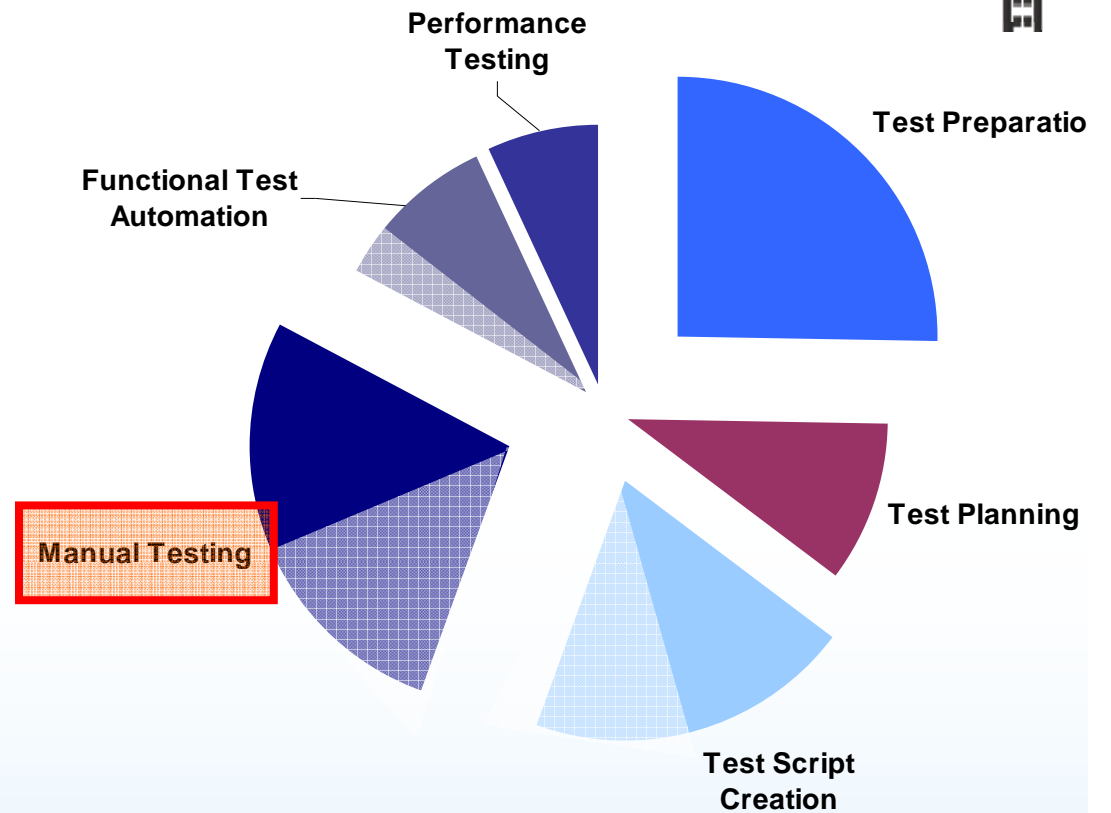
- 50% Test Scripts
- + 20% Functional Coverage
- 30% Test Automation Costs







# Manual Testing





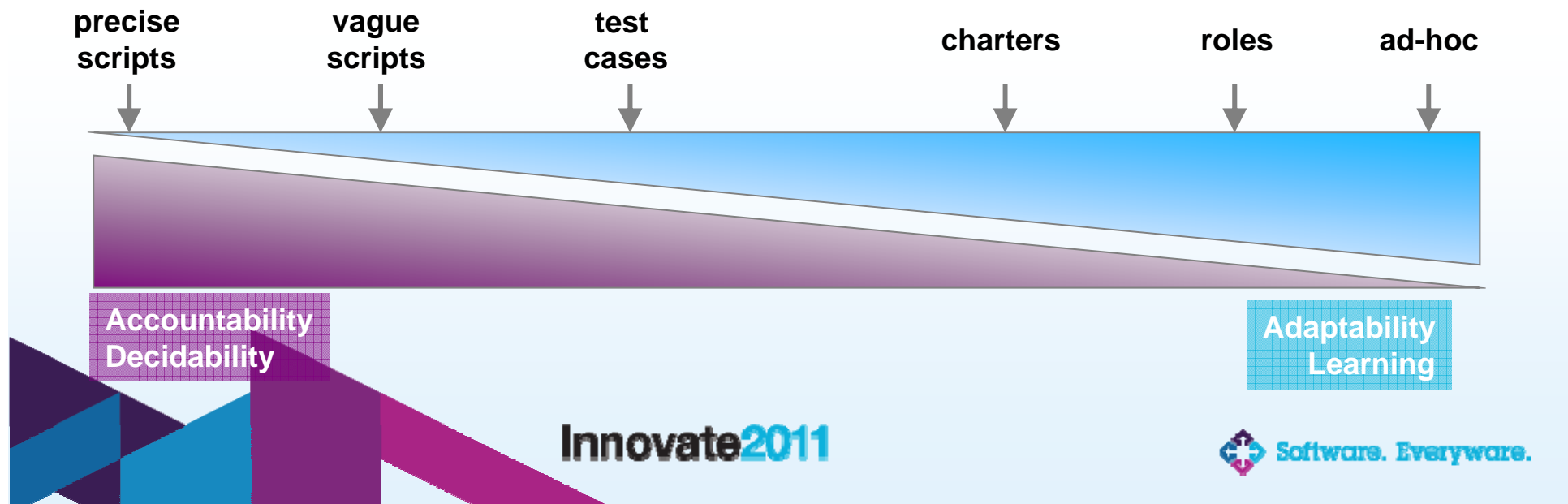
# Manual testing and its many flavors

## ■ Scripted Testing

- ▶ Tests are first designed, then recorded
- ▶ Tests may be executed at a later time by a different user

## ■ Exploratory Testing

- ▶ Simultaneous learning, test design and execution
- ▶ Cognitive engagement with the process: Use of deductive reasoning
- ▶ Less preparation up front, important bugs are found quickly





# Exploratory testing assistance

## Smarter Testing

- **Learning:** How do we get to know the program?
- **Visibility:** How to see below the surface?
- **Risk / selection:** Which are the best tests to run?

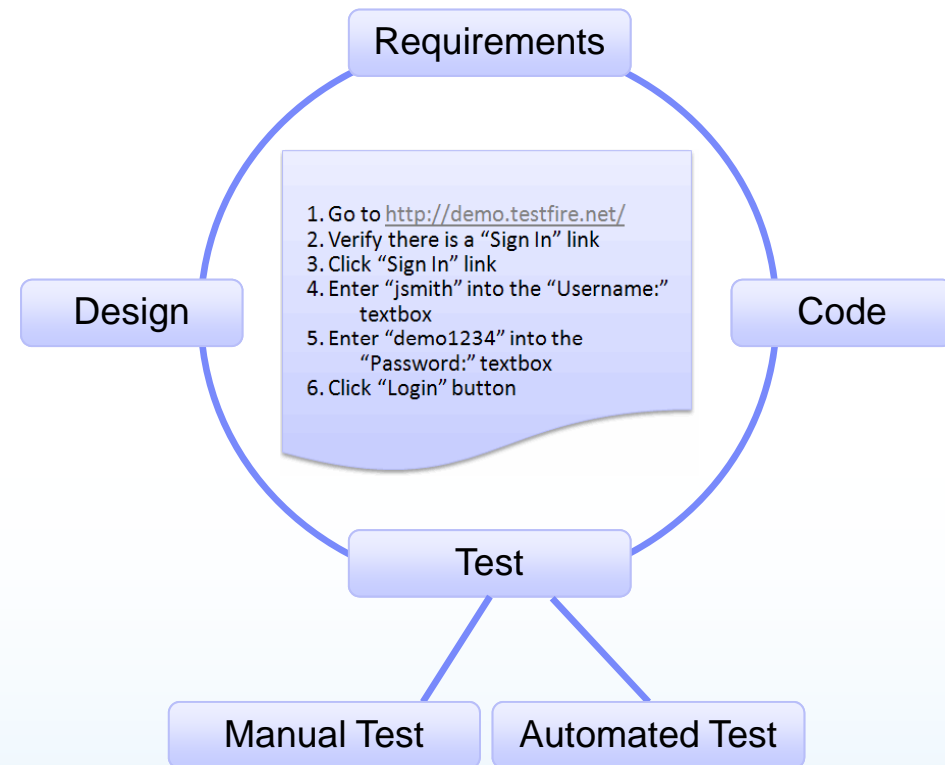
## Logging Recording Coverage

- **Execution:** What's the most efficient way to run the tests?
- **Reporting:** How can we replicate a failure and report it effectively?
- **Documentation:** What test documentation do we need?
- **Measurement:** What metrics are appropriate?
- **Stopping:** How to decide when to stop testing?



# Describe once, Use throughout the Quality Lifecycle

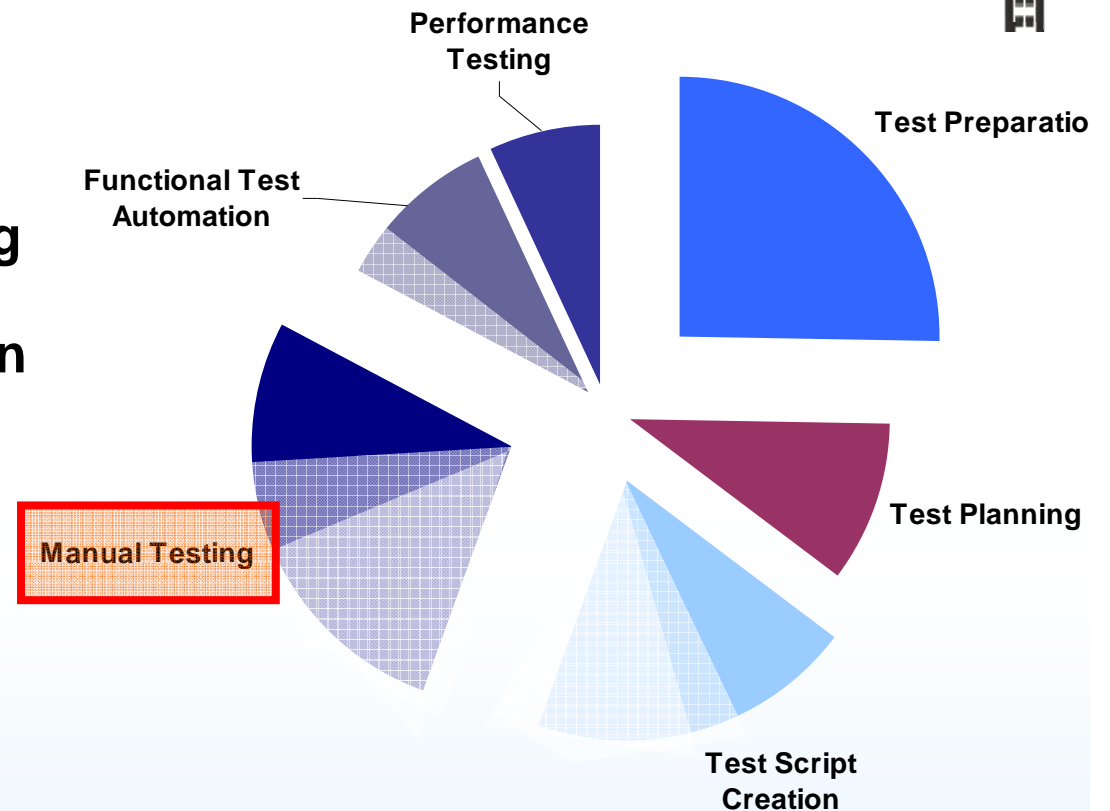
- Capture your test from the earliest stages of development
- Leverage as a manual test asset as the application is refined
- Transition to automated regression testing when the code stabilizes





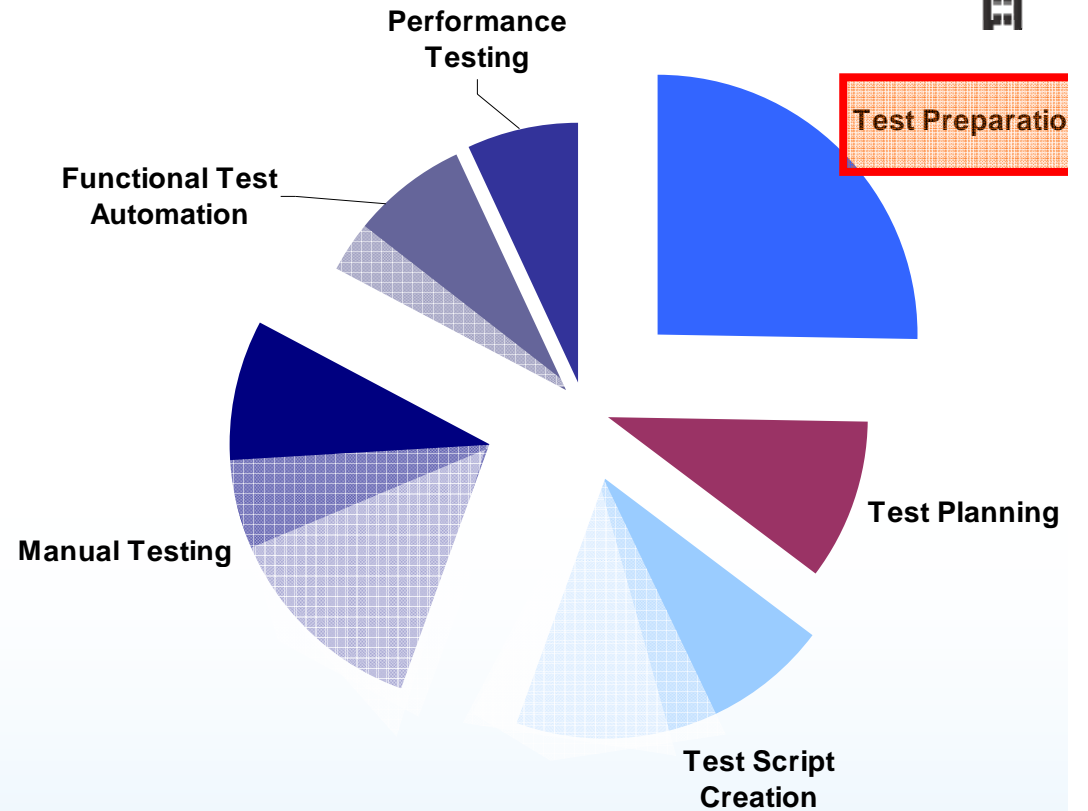
## Manual Testing

- 50% Exploratory Testing
- 15% Test Execution
- 20% Test Script Creation





# Test Preparation





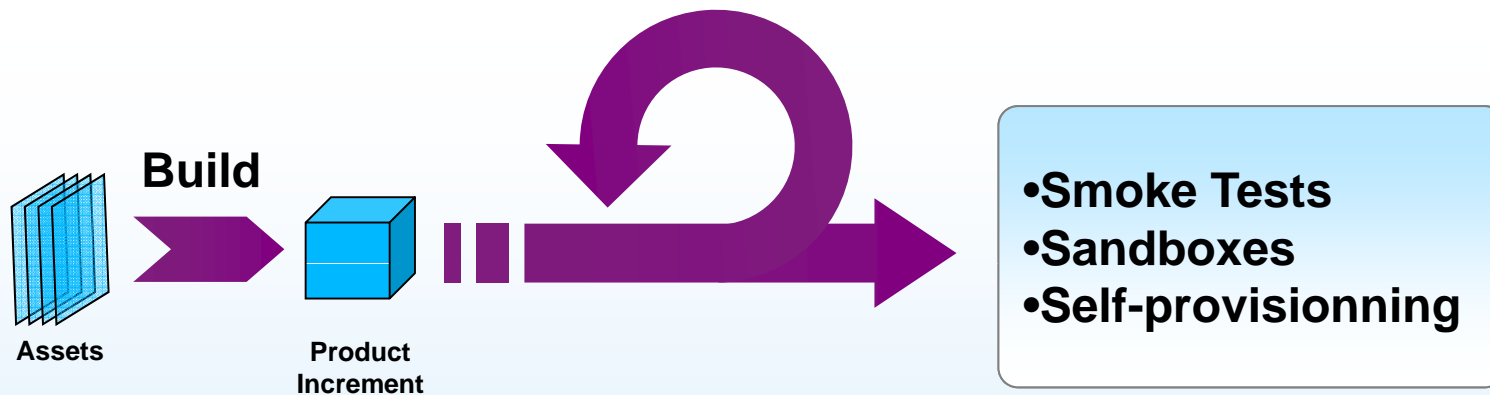
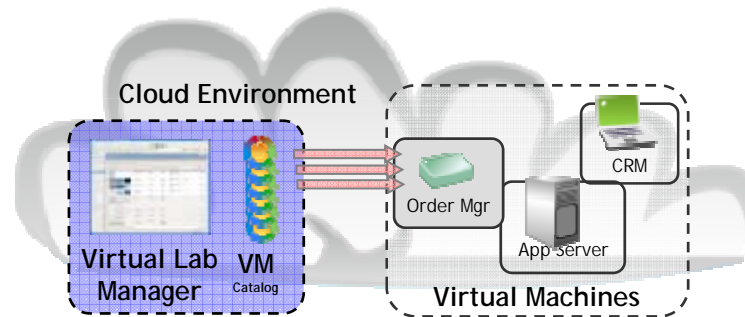
# Testing preparation challenges

- **Difficult to access/ acquire of hardware resources on time**
- **Poor reuse of resources**
- **Long and often error-prone set up of test machines - Loading up of OS/Patches as per test specs**
- **Long lead time & error prone process in meeting the needs of Dev and ops team**
- **Difficult to scale up with sharp ramp-up and ramp-down of resources**



# Test lab automation

- From build automation, to deployment, to staging area, to smoke tests, to self-services sandboxes







# Flexible and affordable testing options



Cloud Provisioning



Integrated Infrastructure  
“Stacks”



Rational Tools  
virtual images

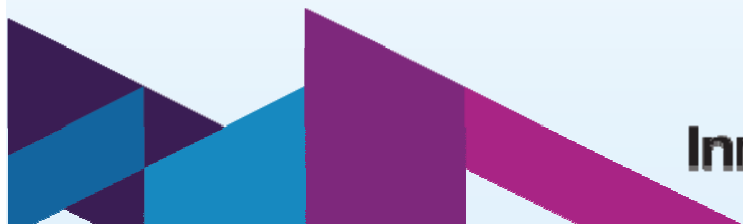
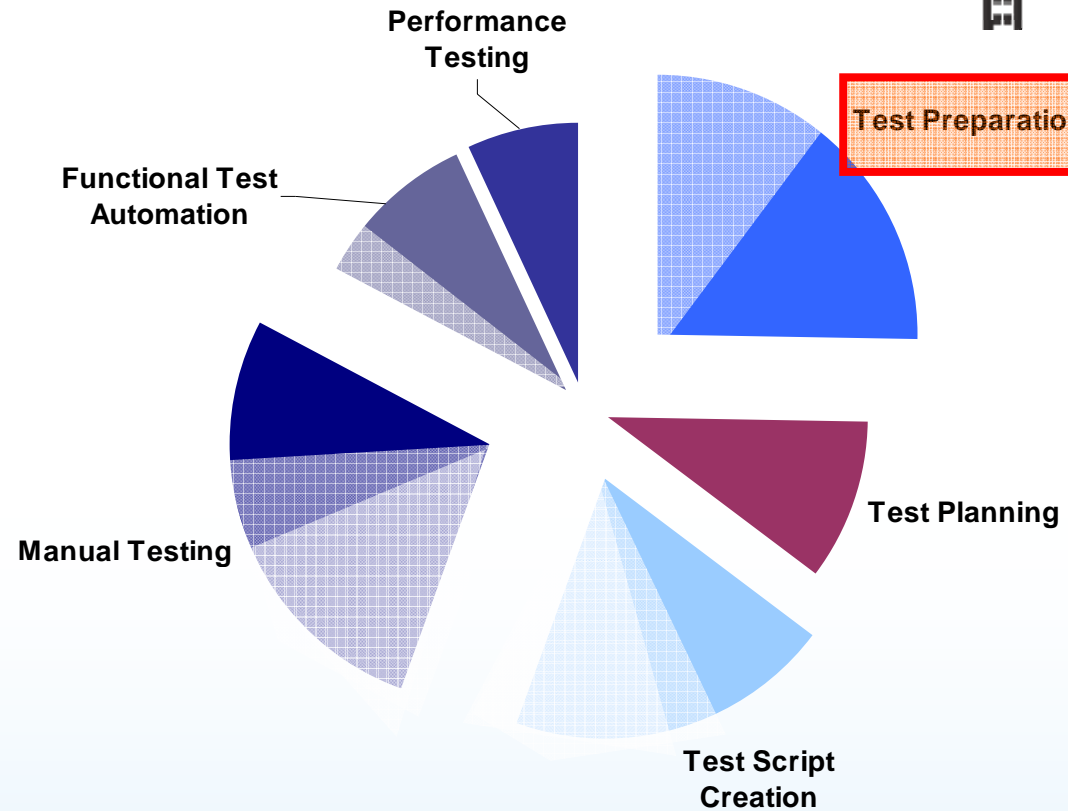
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# Test Preparation

- 30% Test Preparation





# Testing vs Quality Assurance

## ■ Testing

- ▶ A technical investigation done to expose quality-related information about the product or service under test

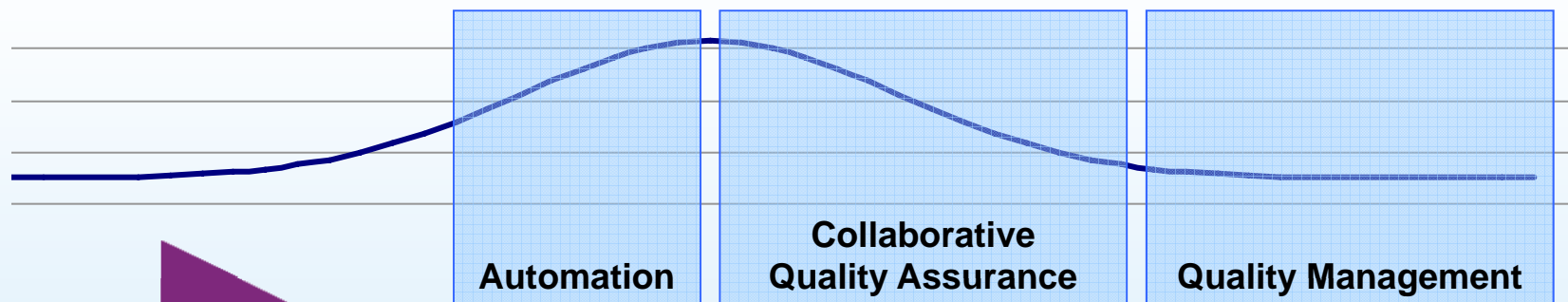
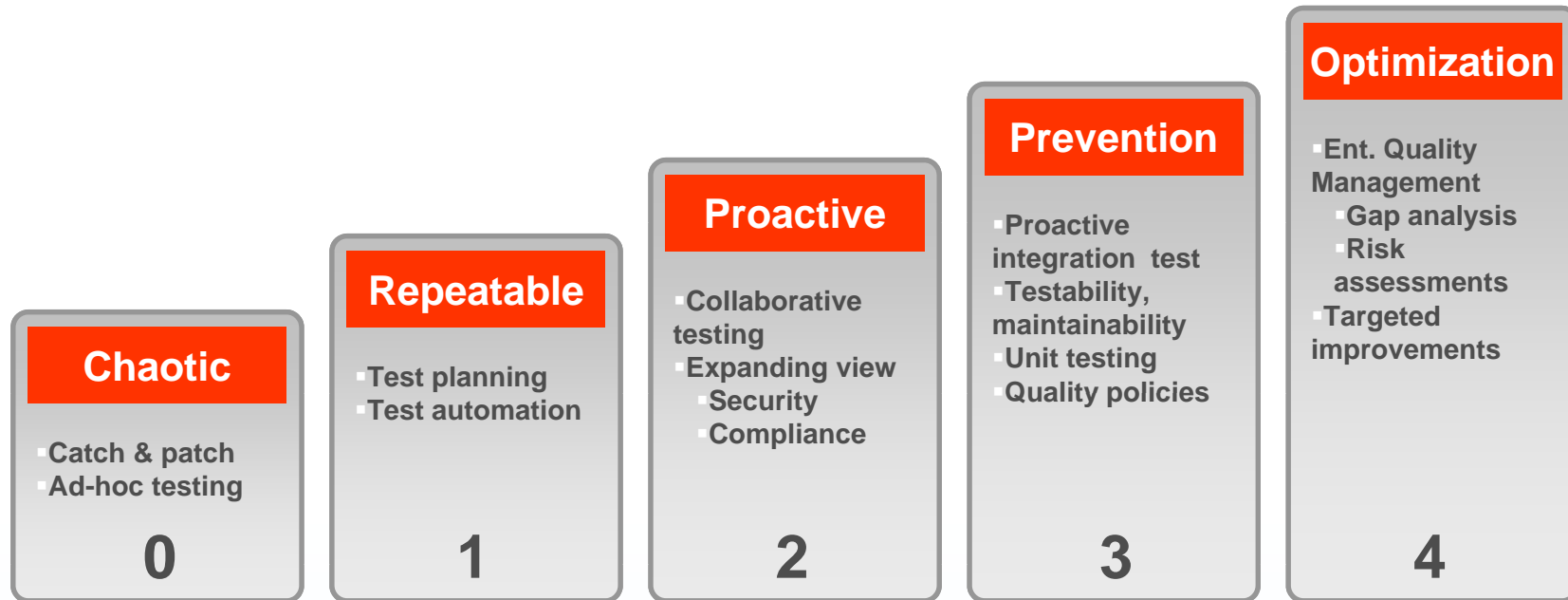
## ■ Quality Assurance

- ▶ Systematic monitoring and evaluation of the various aspects of a product or service, to maximize the probability that target quality standards are being attained

## ■ Neither QA nor Testing can build quality in...



# From Testing to Quality Management

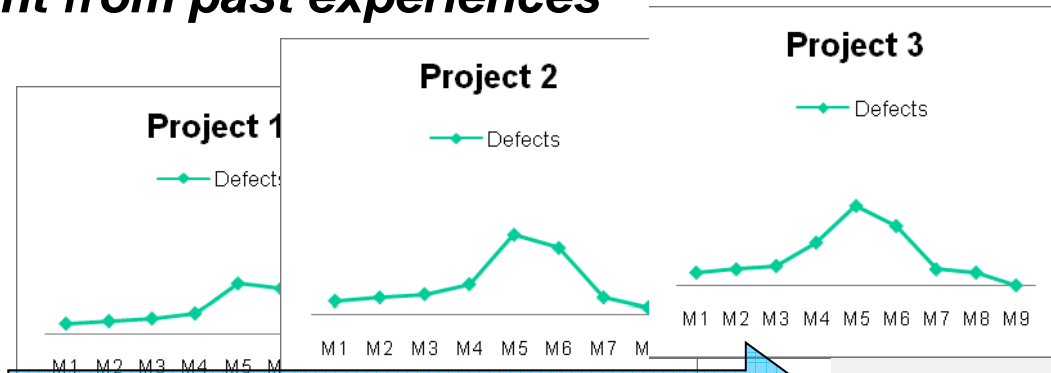


# Better quality process from historical trends

## Process Improvement from past experiences



- Collect Data over Time



**Trend shows late milestone defect spike**

- Release Impact
  - Add time and additional milestone
  - Remove content to contain schedule

- Intelligence gathered from Data Analysis



- Real time Process Adjustments



- Release Impact
  - No major defect backlog per any milestone
  - Ship on time
  - Ship with all planned content

**Goal – Minimize spike and contain release**

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# Summary



1

## Address labor intensive areas of testing

- ▶ Test Script creation
- ▶ Manual testing
- ▶ Test Preparation

2

## Leverage insight to maximize Test Automation ROI

3

## Advance our Quality Management Solution



# QUESTIONS

[www.ibm/software/rational](http://www.ibm/software/rational)

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