

Quality Is Not Accidental Using Rational Quality Manager

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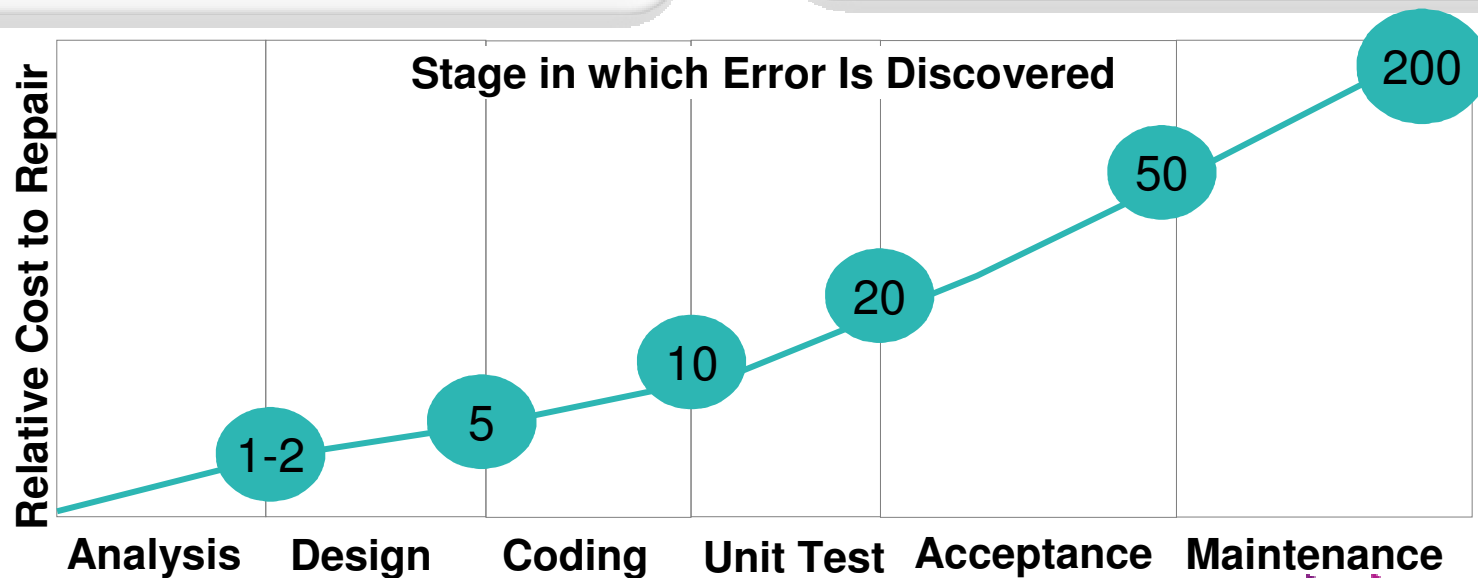
Errors caught early cost less to fix . . .

- Bugs/failures are exponentially more expensive the longer they go uncaught
- Extends to analysis, requirements, development, and everywhere across the application lifecycle

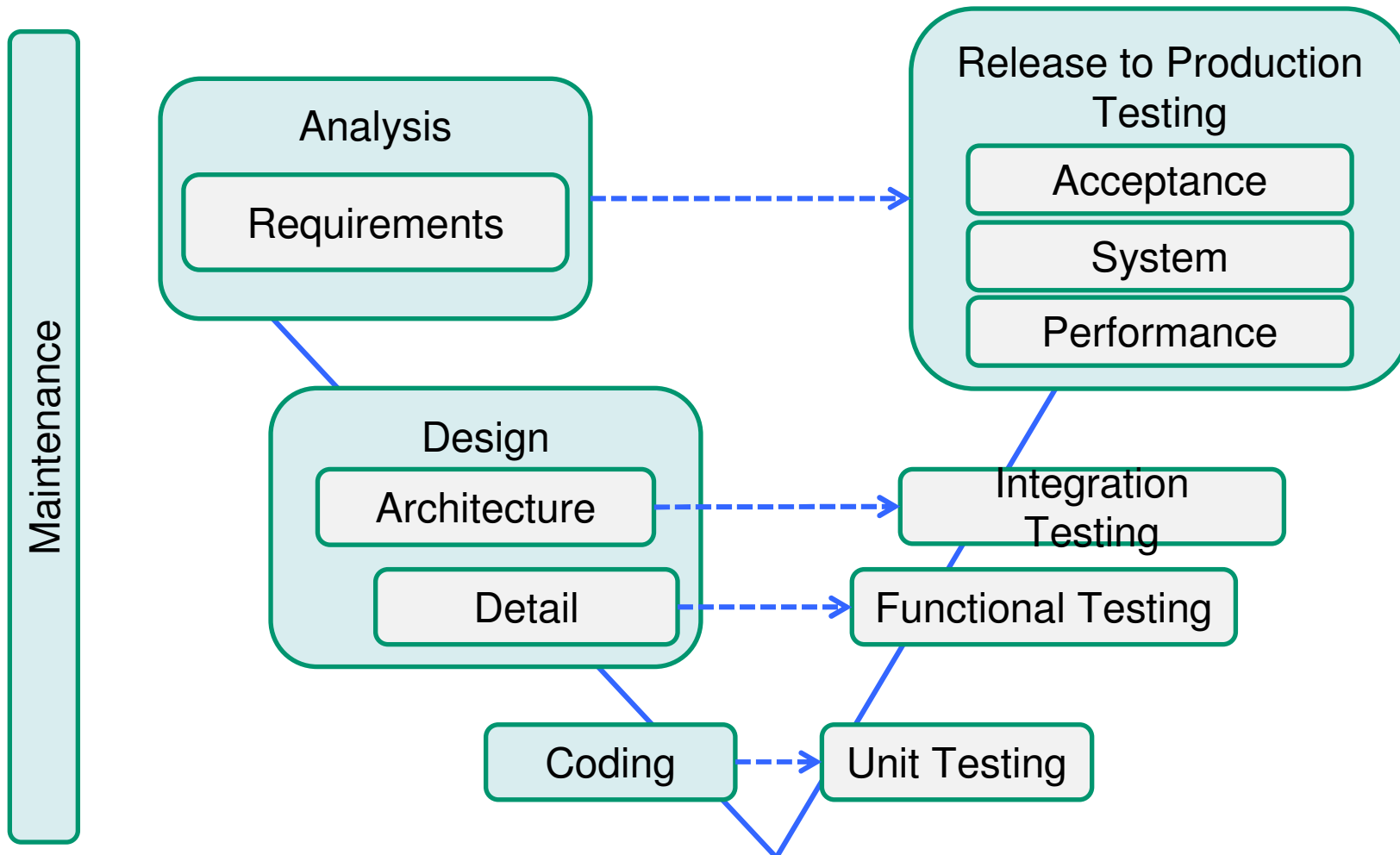
“34% of software projects are deemed successful costing \$300B annually”

“30% of project costs are due to rework and poor execution of requirements”

“50% of outsourced projects are expected to under perform”

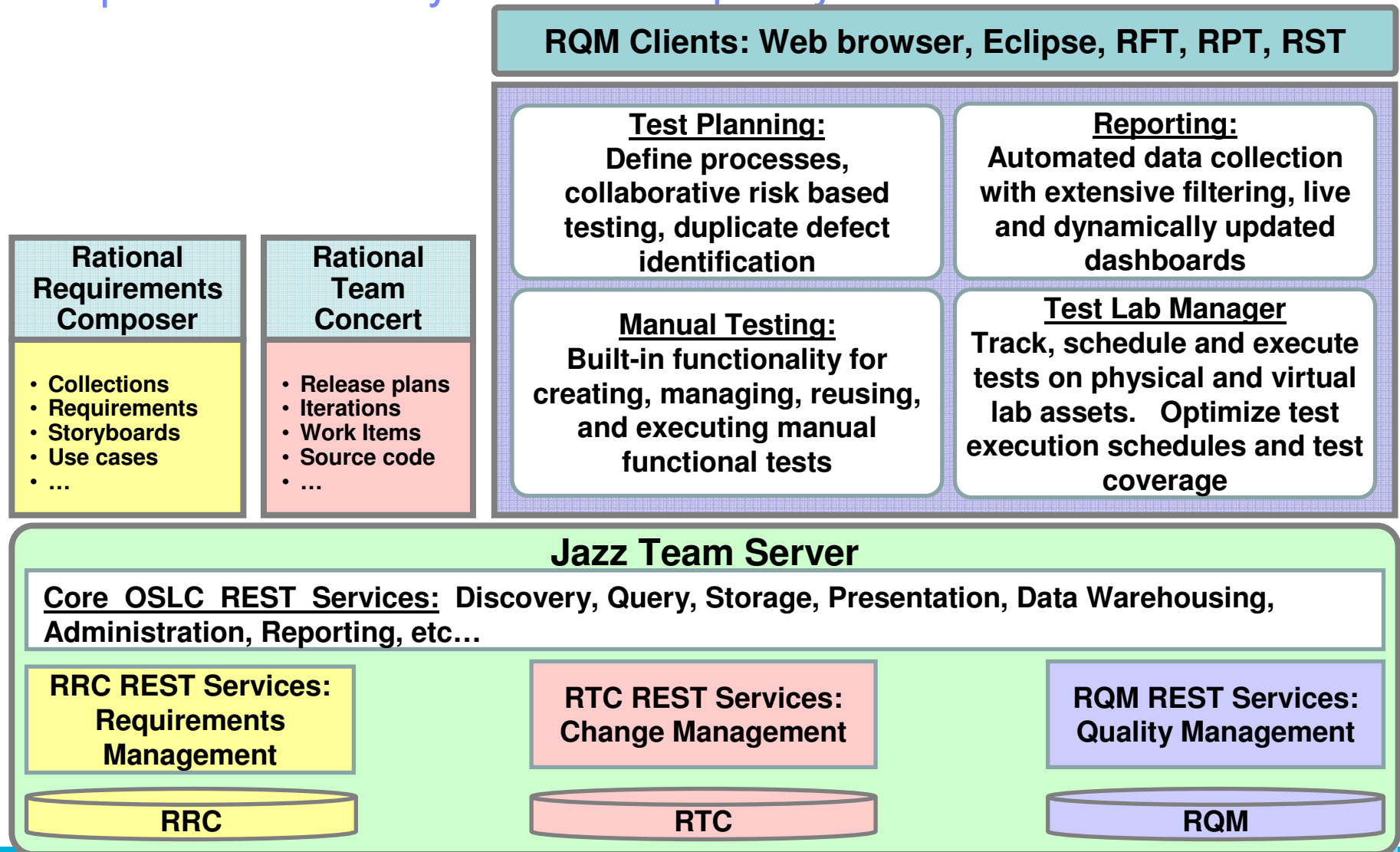


... so quality management must span the lifecycle



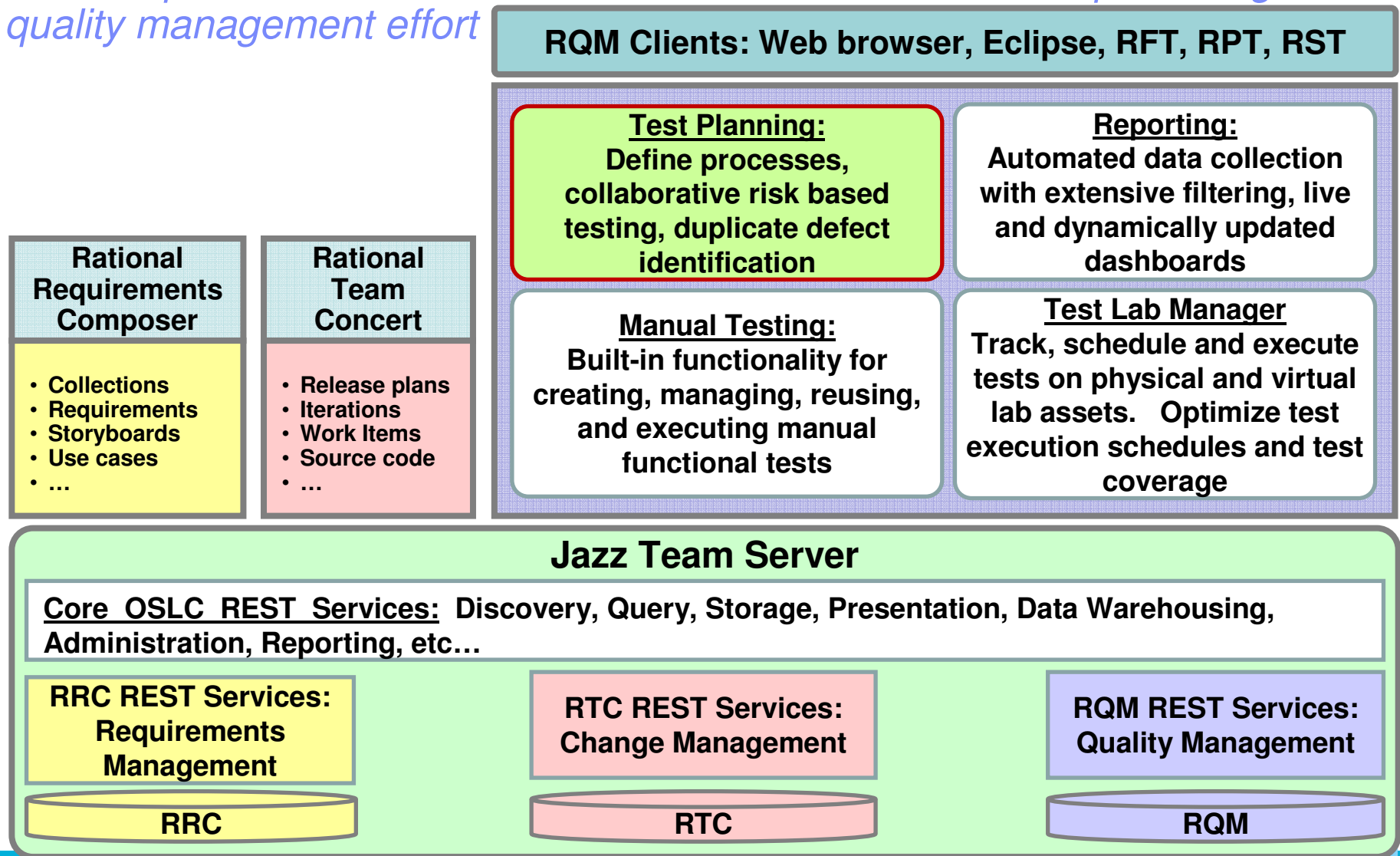
All of these tests must be planned. Artifacts created by tests need to be managed, linked to other development artifacts, and analyzed.

Rational Quality Manager – a centralized test management hub that provides a lifecycle view of quality artifacts



Rational Quality Manager Test Planning:

The test plan is the core artifact that contains all information pertaining to the quality management effort



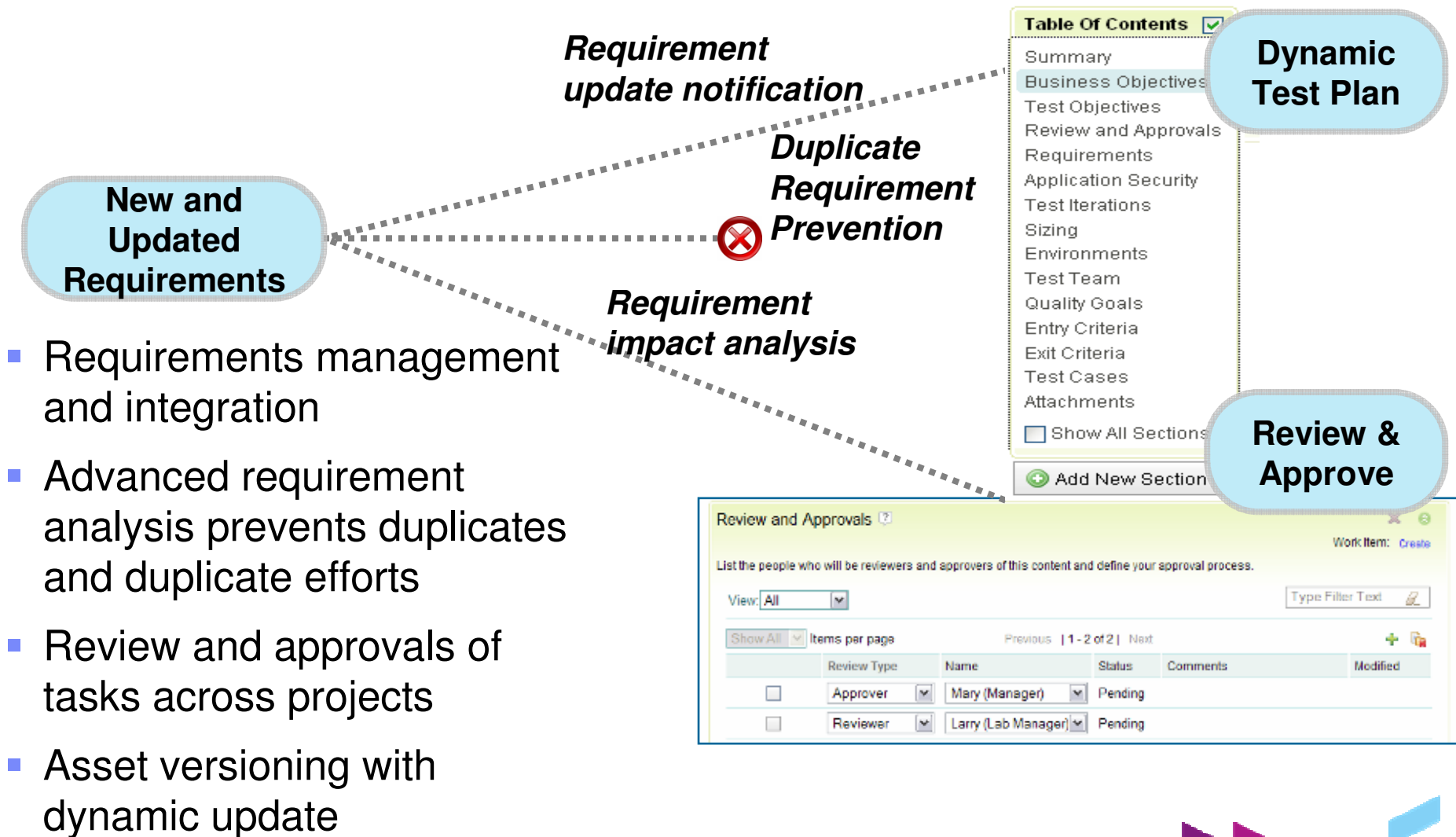
Rational quality manager's test plan

- Central location for business objectives, requirements, resources, platform and exit criteria to name a few
- Defined Responsibilities
 - ▶ Individual sections
- Goal-Oriented
 - ▶ Formalized and documented exit criteria
- Extensible
 - ▶ Add sections, import custom data
- Snapshot version control to track plan history

The screenshot shows the Rational Quality Manager interface for a test plan titled "1 : JKE Banking Release 1". The interface includes a navigation sidebar on the left with sections like "Table Of Contents" and "Requirement Collection Links". The main content area displays the test plan overview, including the originator (Tammy), owner (Tammy), and a description: "Defines testing for the Release 1 of JKE Banking. Significant 1 include the Money that Matters initiative whereby account from their investments to causes needing assistance." Below this, there is a "Requirement Collection Links" section with a table of linked requirements.

| Status | Risk | Summary |
|--------------------------|-------|------------------------|
| <input type="checkbox"/> | ○○○○○ | 14: Release 1 Planning |

Requirements - driven testing with RQM



Duplicate defect identification

- RQM has built-in function for scanning existing defects (test case failures) associated with a variety of related artifacts and identifies suspected duplicates
- Every time a new defect is created (via RQM or from an integrated testing tool), duplicate defect identification
- Less rework saves costs

Change and Configuration Management (ccm)
 JKE Banking (Change Management)
 Project Dashboards ▾ Work Items ▾ Plans ▾ Source Control ▾ Builds ▾ Reports ▾

Work Items > Queries >

Potential Duplicates ?

Show All ▾ Items Per Page Previous | 1 - 3 of 3 | Next

| Type | Id | Summary | Owned By |
|------|----|--|------------|
| | 66 | Organization must provide justification for why funds are needed | Marco |
| | 56 | Donors Deposit Money Into a Pooled Assistance Fund | Unassigned |
| | 49 | Implement - Organization must provide justification for why funds are needed | Marco |

Previous | 1 - 3 of 3 | Next

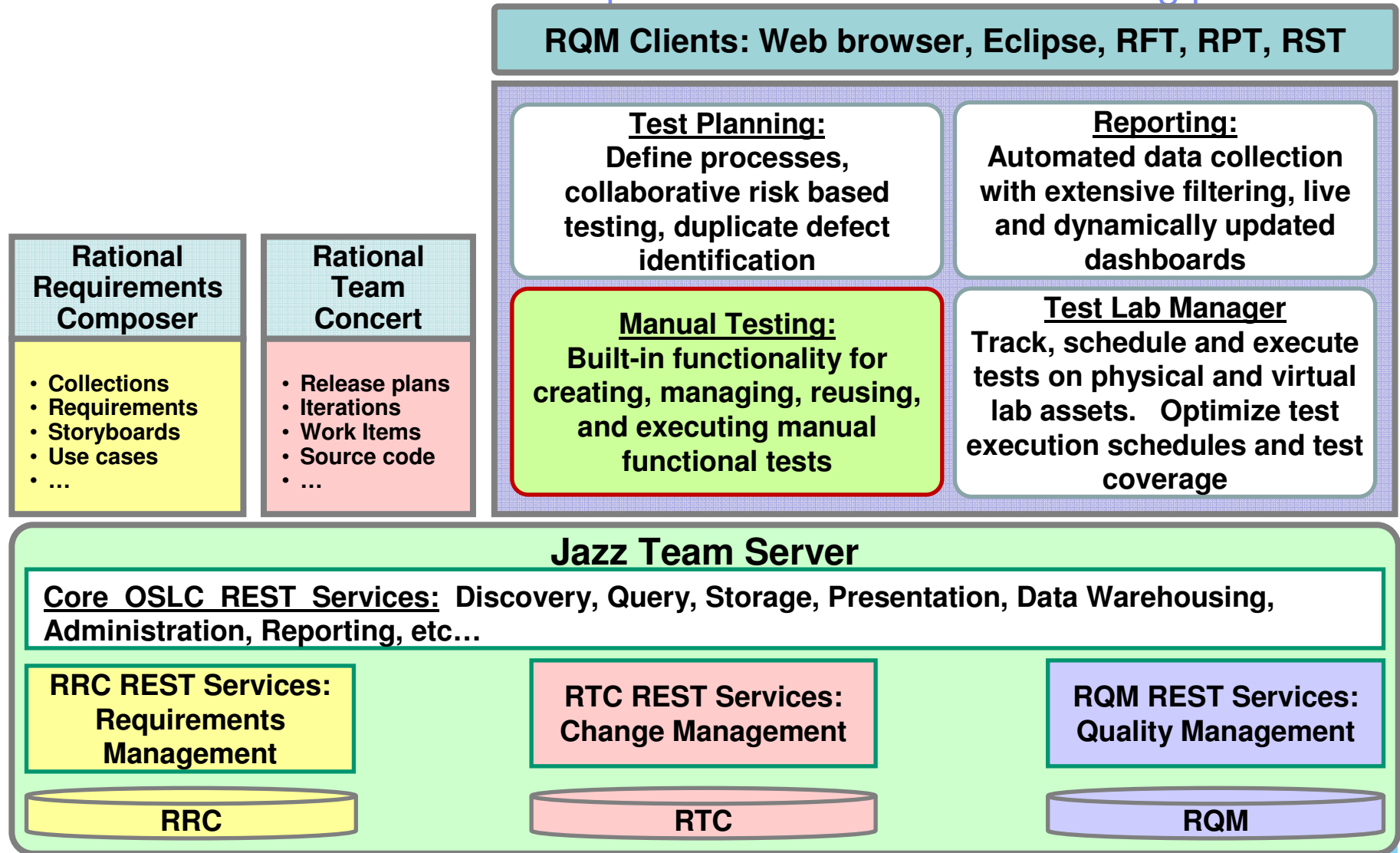
| | Developing repeatable industry test solutions | | | Advanced Defect Analysis |
|--------------------|---|-----------------------|----------------------|-----------------------------------|
| Asset | Test cases copied | Manual scripts copied | Manual scripts Reuse | Prevent & block duplicate Defects |
| Quantity | 343 | 350 | 1,393 | 905 |
| Hours saved | 167 | 175 | 696 | 1,755* |
| Value | \$16,690 | \$17,514 | \$69,633 | \$175,452 |
| Total | | | \$103,387 | \$175,452 |

* Hours saved assumes an average of 4 hours to detect the duplication. In reality, it often takes much longer.

Source: GBS Test Practices study, 2005-2008, over 846 projects

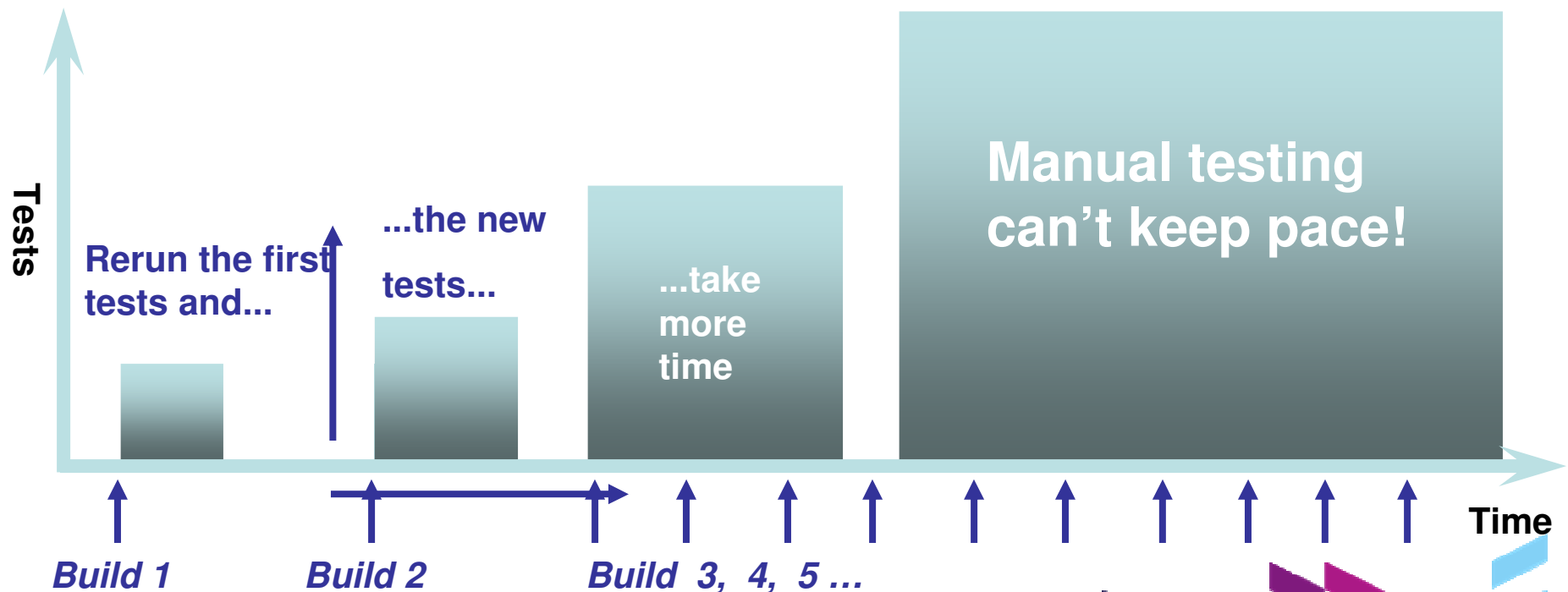
Average per project saving with automation and collaboration best practices calculated on a per asset task and process savings, at a rate of 100\$/hr rate.

Rational Quality Manager Manual Testing: a built-in manual tester tool to help teams with the manual testing process



Manual testing needs some level of reuse and automation...

- Manual testers can't keep pace with the rapid releases of an agile development process
- They need a tool to **provide assistance to the manual tasks involved with manual testing** (i.e. data entry, data validation, reuse)



RQM's manual tester assists manual test case execution

Rich Text Editor

Reusable keywords

Step by step capture and execution

Automatic defect creation – send directly to RTC (or your own CCM tool)

Assisted data entry and validation

| Step | Description | Expected Results |
|------|--|--|
| 1 | Select Money Market account | Accounts Details screen appears. Dividends earned will be \$500.00 |
| 2 | Click Allocate Dividend Percentage | |
| 3 | Select American Cancer Society and click Add | American Cancer Society is added to the organizations list |
| 4 | Select Salvation Army and click Add | Salvation Army is added to the organizations list |
| 5 | Enter 10 for the percentage | |
| 6 | Click Next | Verify Donation Amount is \$50.00 total |
| 7 | Click Confirm | |

| Step | Result | Description | Expected Results | Actual Results |
|------|--------|--|--|----------------|
| 1 | ✓ | Login with jbrown/jbrown | Accounts Overview screen appears | |
| 2 | ✓ | Select Money Market account | Accounts Details screen appears. Dividends earned will be \$500.00 | |
| 3 | ✓ | Click Allocate Dividend Percentage | Money That Matters screen appears | |
| 4 | ✓ | Select American Cancer Society and click Add | American Cancer Society is added to the organizations list | |
| 5 | ✓ | Select Salvation Army and click Add | Salvation Army is added to the organizations list | |
| 6 | ✓ | Enter 10 for the percentage | | |
| 7 | ✗ | Click Next | Verify Donation Amount is \$50.00 total | |
| 8 | ✗ | Click Confirm | | |

Script Steps

| Step | Result | Description | Expected Results |
|------|--------|--|--|
| 1 | ✓ | Login with jbrown/jbrown | Accounts Overview screen appears |
| 2 | ✓ | Select Money Market account | Accounts Details screen appears. Dividends earned will be \$500.00 |
| 3 | ✓ | Click Allocate Dividend Percentage | Money That Matters screen appears |
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| 7 | ✗ | Click Next | Verify Donation Amount is \$50.00 total |
| 8 | ✗ | Click Confirm | |

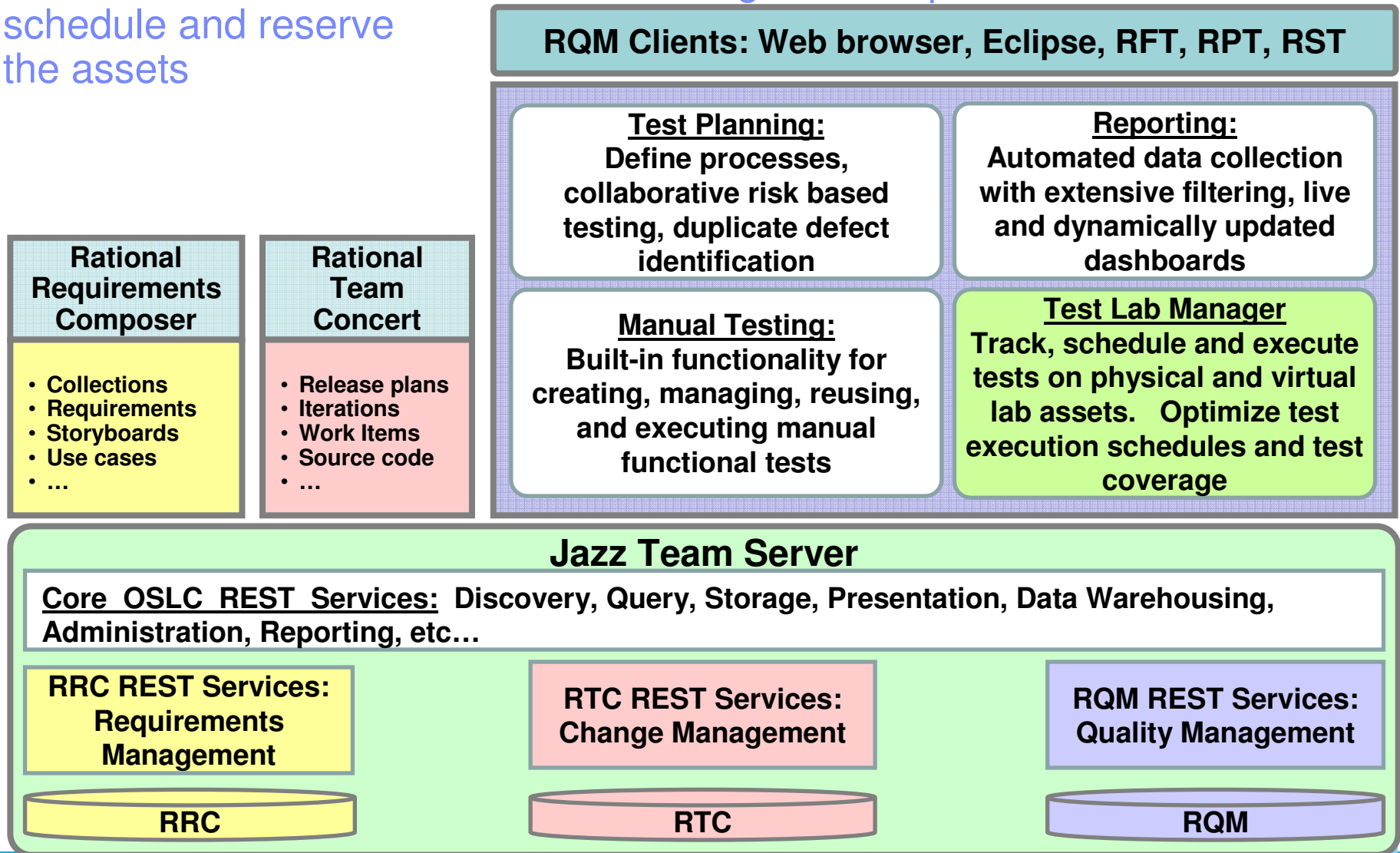
Money That Matters

Donation Confirmation

| Organizations | Amount |
|---|----------|
| American Cancer Society, Salvation Army | \$100.00 |
| New Organizations | \$400.00 |
| Dividends | \$500.00 |
| Dividends | \$35.00 |

Rational Quality Manager Test Lab Manager:

allow teams to track lab assets and configurations, provision lab assets, and schedule and reserve the assets

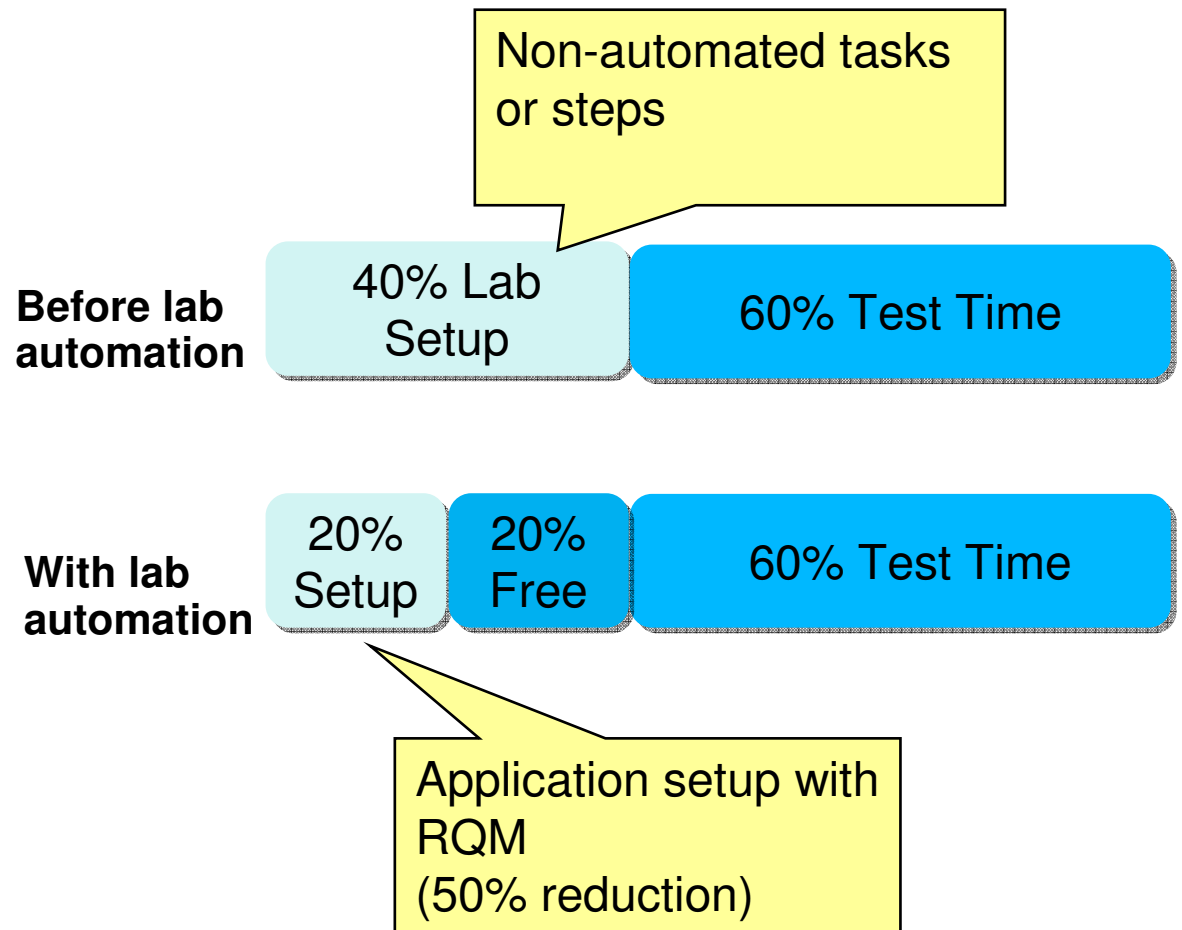


RQM built-in Test Lab Management

- RQM includes test lab management capability
 - ▶ Capture and organize test lab inventory
 - ▶ Manage requests and reservations of test lab components
 - ▶ Deploy test tools to lab machines
 - ▶ Analyze usage patterns to optimize lab utilization
 - ▶ Do comprehensive reporting on test assets
- Integrates with virtual automation platforms, e.g., Surgient and VMLogix
- RQM can integrate with 3rd party test lab management products

RQM's Test Lab Management allows the IT to gain more time, work smarter, save on test lab overhead, infrastructure and test duration costs

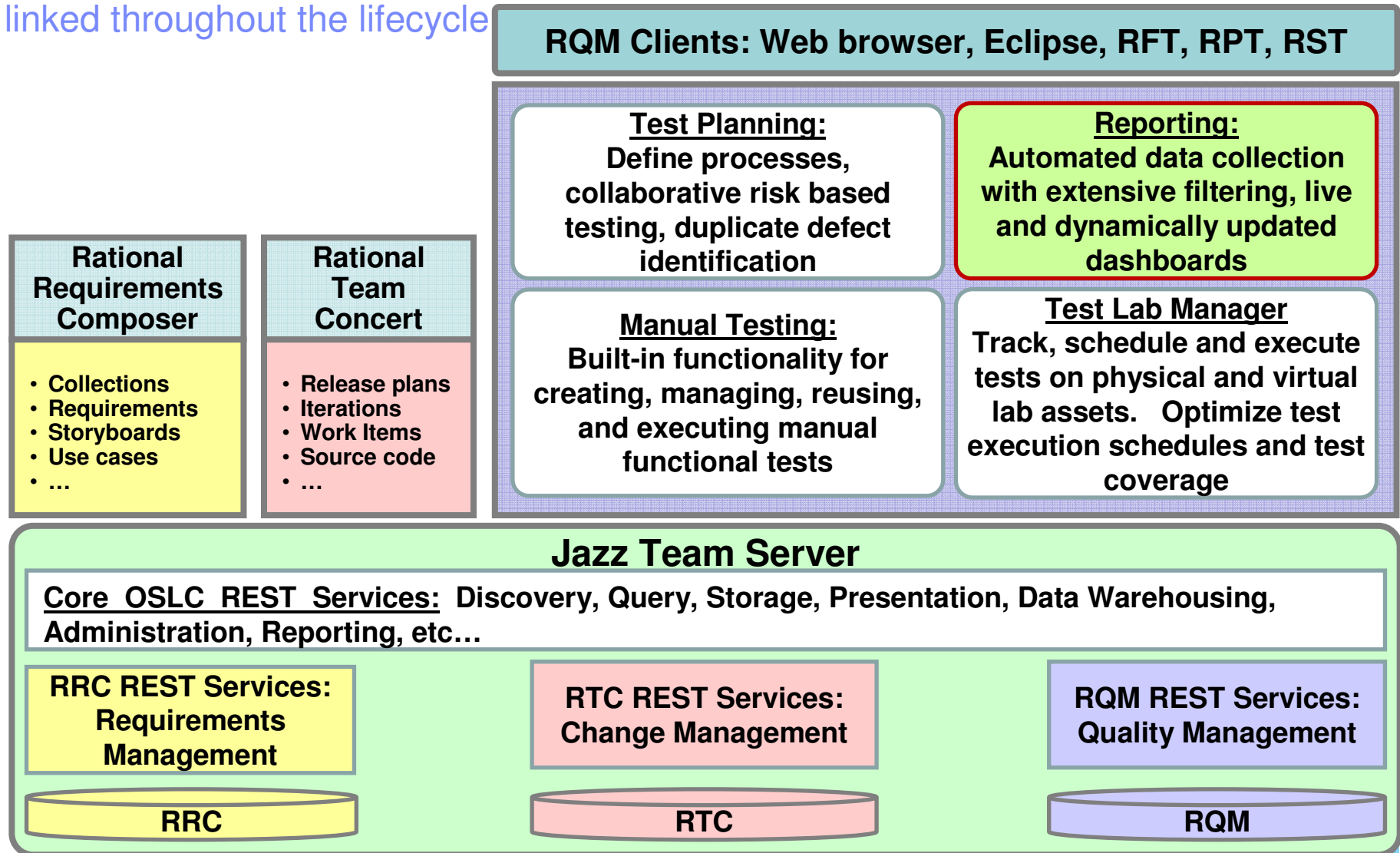
- Manage
 - ▶ Verify that the IT has the resources required to fulfill their test plan
- Deploy
 - ▶ Deliver the configurations IT teams require for test
- Optimize
 - ▶ Analyze patterns to minimize cost and maximize utilization



Source: IBM

Rational Quality Manager Reporting:

reports based on Jazz Common Reports show how quality management artifacts are linked throughout the lifecycle



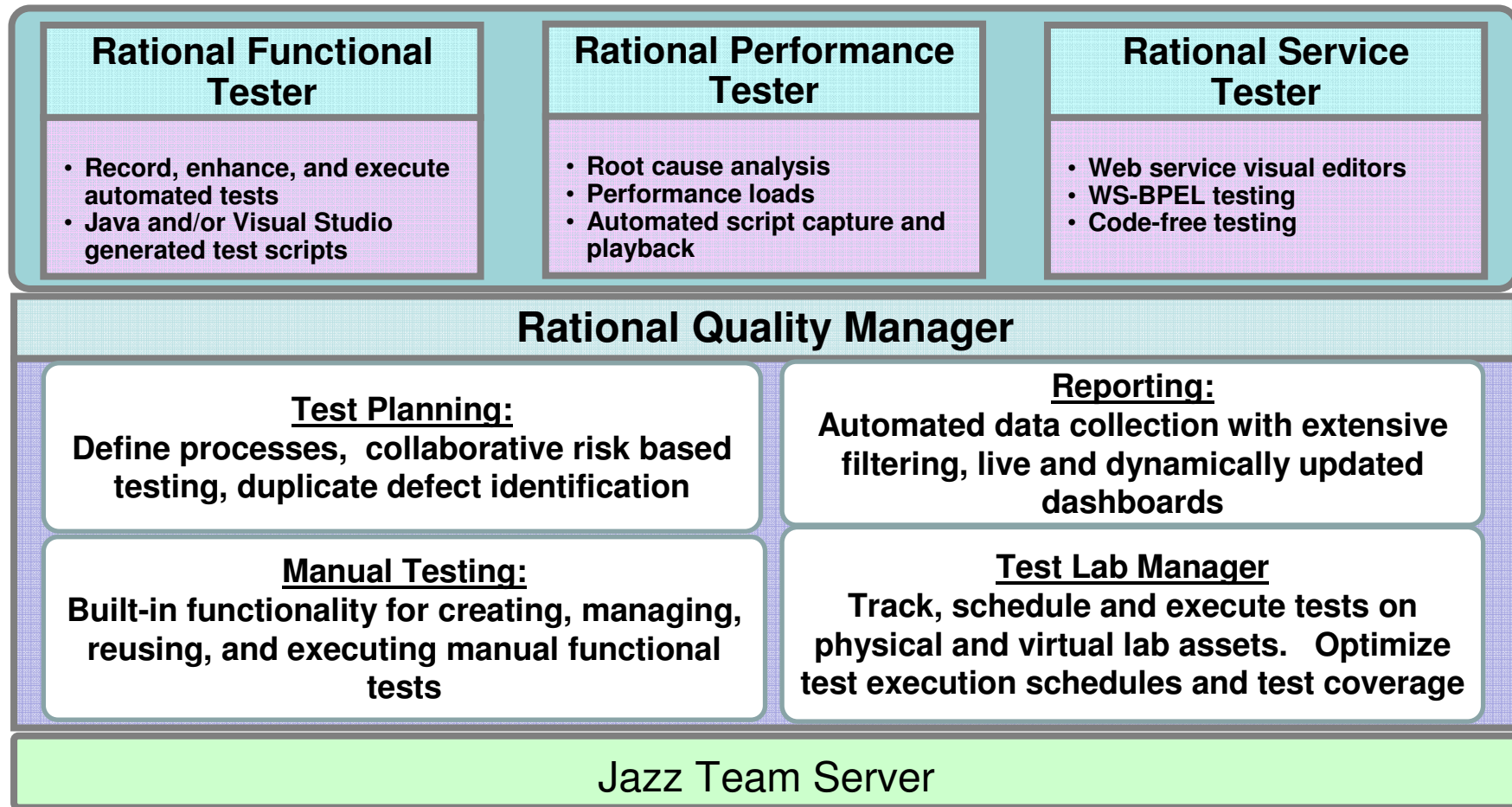
Rational Quality Manager Reporting:

Common reporting across RQM, RTC and RRC means that all QM artifacts are traceable and the quality is transparent through the entire lifecycle

The screenshot displays the Rational Quality Manager interface. On the left, the 'View Reports' section shows a list of reports grouped by 'Theme'. The 'Execution' group is expanded, showing reports like 'Execution Status using TER Count', 'Execution Status using Weight', and 'Execution Status by Owner using TER C...'. On the right, the 'Plan Requirements Coverage Detail' window is open, showing a table of requirements covered by test cases for the 'JKE Banking Release 1' test plan.

| Test plan | Requirement ID | Requirement name | Test case |
|-----------------------|--|---|-----------|
| JKE Banking Release 1 | 120 | Dividend allocation by percentage | |
| | 116 | Allocate dividends by amount and frequency | |
| | 111 | Donors Deposit Money in a Pooled Assistance Fund | |
| | 109 | Donor Dividend Allocation Criteria | |
| | 108 | Dividend processing payment is a one time transaction. | |
| | 99 | Organization must identify how much money is desired | |
| | 90 | Allocate dividends by Percentage | |
| | 86 | Frequency of dividend transfer | |
| | 81 | JKE Charity Coordinator will respond to request in the website triggering.. | |
| | 79 | Donors will receive confirmation and receipt | |
| | 78 | Requests sent in form of email | |
| | 77 | Organizations may apply with an initial request | |
| | 76 | Organizations can apply | |
| | 70 | Donation by Amount | |
| 43 | Donor Chooses an Organization | | |
| 29 | Customers can nominate an organization for the program | | |
| 16 | Requests sent in form of hard copy mail | | |

Rational also offers a complete suite of testing tools
 RQM integrates with testing products like Functional Tester, Performance Tester, and Service Tester, for a complete Quality Management solution



RQM integration with rational testing tools

- Automatically populate defects, scripts, results, etc. from Rational Functional Tester, Rational Performance Tester, and Rational Service Tester into Rational Quality Manager for complete lifecycle integration
 - ▶ Testers don't need to learn how to use RQM – their artifacts are sent to RQM via their own tools
 - ▶ All artifacts can be linked to RRC and RTC from RQM for greater traceability
- Build and execute tests with scripts from any combination of testing tools
 - ▶ Example: RFT or RST scripts in a performance test

Automated Functional Testing

- Definition: Testing that ignores the internal mechanism of a system or component and focuses solely on the outputs generated in response to selected inputs and execution conditions.¹
- Automated test scripts are more productive
- Use to test new code or for regression testing on changed code



**Record
Test Script**

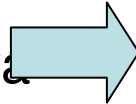
**Enhance
Recorded Script**

**Execute
Test Scripts**

¹[IEEE 90] Institute of Electrical and Electronics Engineers. *IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries*. New York, NY: 1990.

Rational Functional Tester

- Use Rational Functional Tester
 - ▶ Record/Enhance/Execute scripts on Windows/Linux
 - ▶ Functional test any .NET, web, Java application, Siebel, SAP, and many more

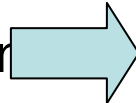


.NET, Browser, Java UI

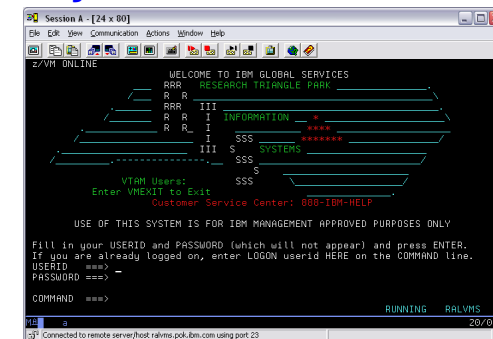


- Use Rational Functional Tester Extension for Terminal-based Applications

- ▶ Record/Enhance/Execute scripts on Windows
- ▶ Functional test System z terminal based applications

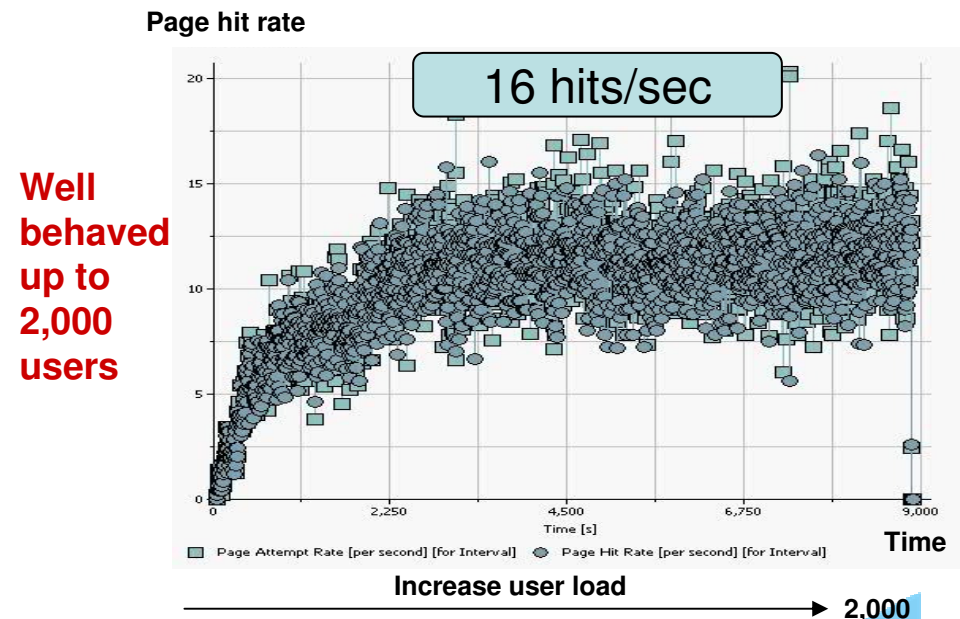
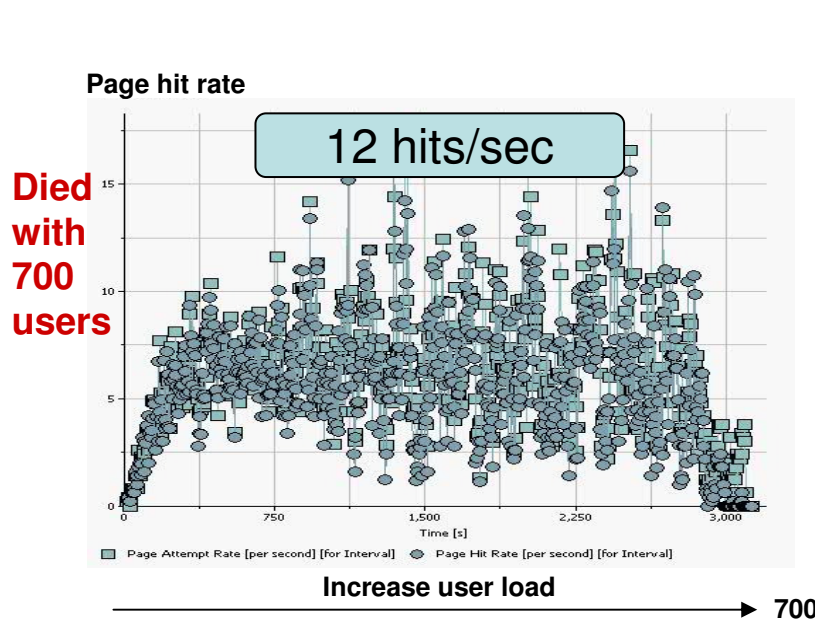


System z Terminal UI



Performance Testing

- Definition: Testing conducted to evaluate the compliance of a system or component with specified performance requirements¹
- The evaluation of a system's capability to provide acceptable response times and function while serving a large number of clients
- Also known as Load Testing, Capacity Testing, or Stress Testing

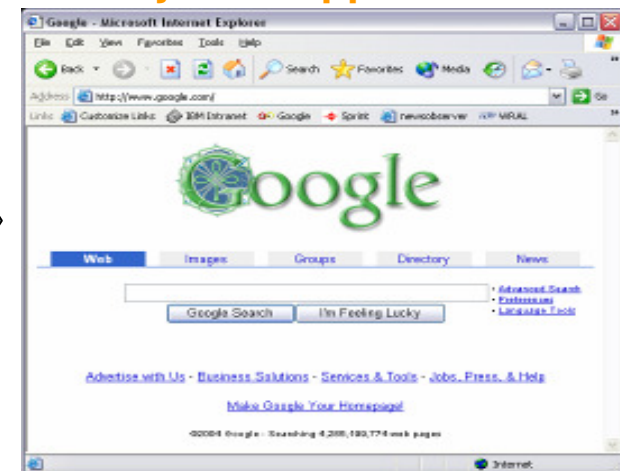
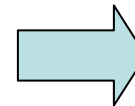


¹[IEEE 90] Institute of Electrical and Electronics Engineers. *IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries*. New York, NY: 1990.

Rational Performance Tester

- Use Rational Performance Tester
 - ▶ Develop and execute scripts on Windows or Linux
 - ▶ Collect server resource data and application performance data in the same product
 - ▶ No programming knowledge necessary to create/execute test
- Perform tests on a variety of applications
- Root Cause Analysis – identify both source code and application tier causing the bottleneck

Any Web Application



Rational Service Tester

- Functional testing tool - test web services without writing code
- Create, execute and analyze tests
 - ▶ SOAP over HTTP
 - ▶ SOAP over JMS
 - ▶ WS-Security
- Visual editor for testing web services
- Automated data detection and creation
 - ▶ Record tests
 - ▶ Update tests with custom data via editor and data sets
 - ▶ Playback test
- Create tests from WS-BPEL business processes

Available Quality Management integrations today



Rational. software

Automated Testing

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

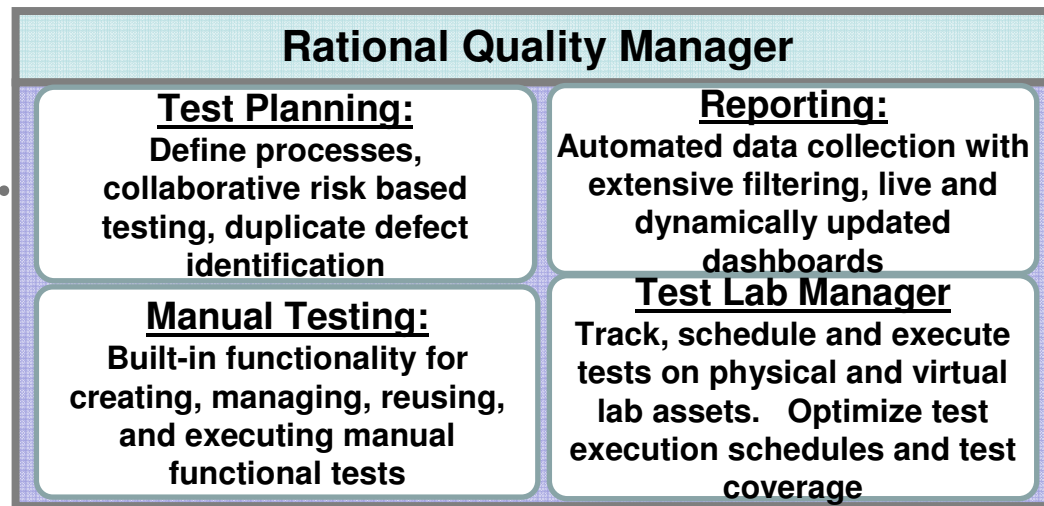
Reporting

- Rational Insight

Tivoli. software

Provisioning

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



Bidirectional integration with the Jira change management system



Mobile applications testing across a global handset test environment



Accelerating test cycles with virtual machine management and execution



TMAP Process

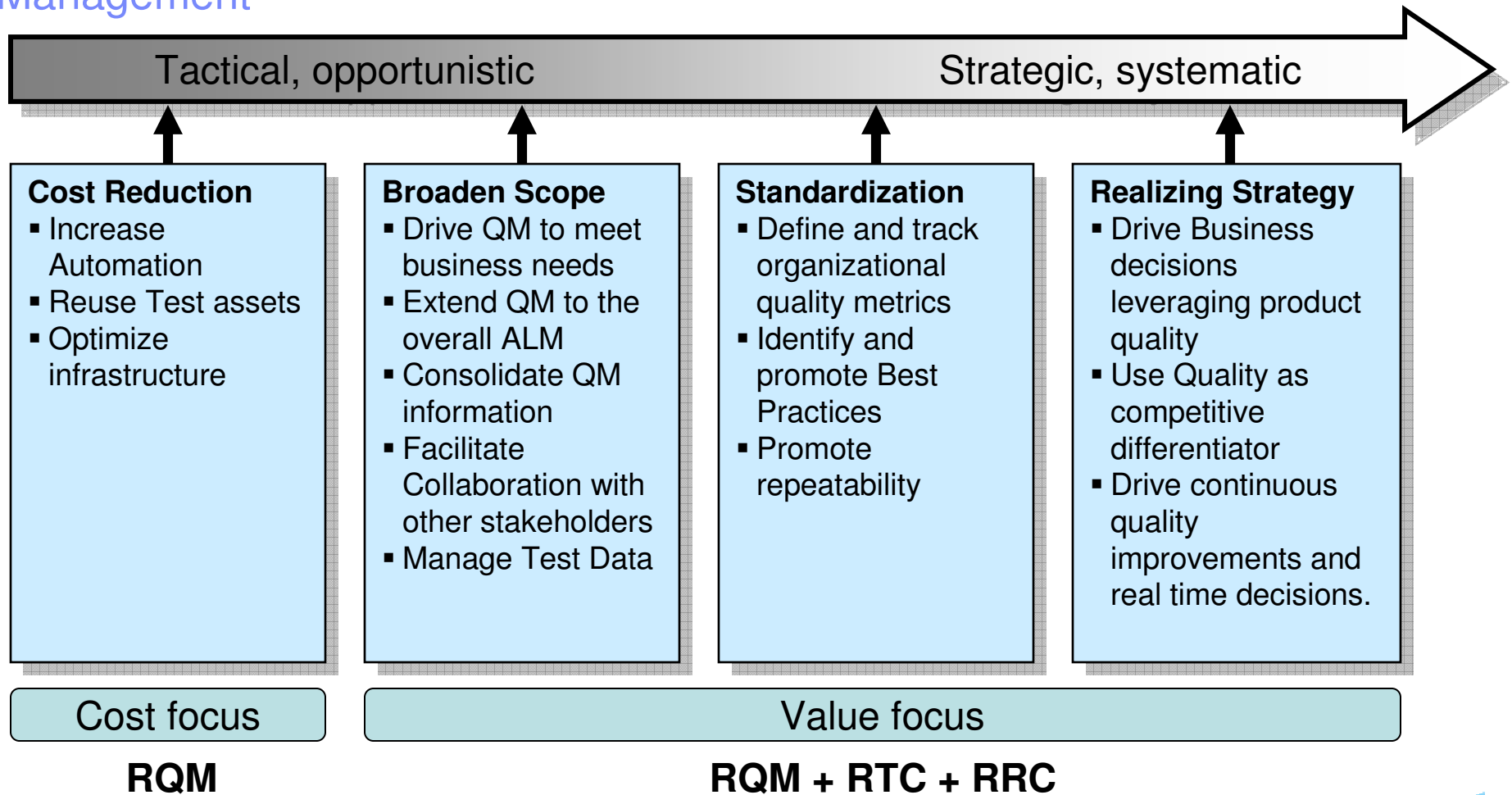


Greater quality and productivity with automated SOA governance support

IBM Business Partners

Jazz Quality Management adoption model:

Organizations often move through a set of phases as they adopt Quality Management

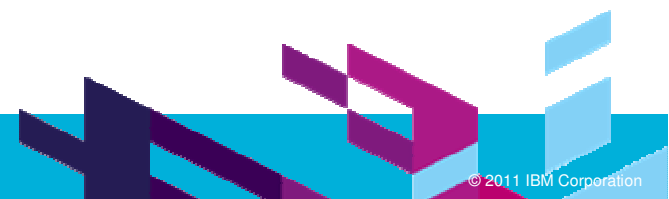


Summary

- Complete coverage of all quality management artifacts throughout the entire ALM
- Detailed test planning
- Requirements driven testing is built-in
- Built-in manual tester
- Built-in test lab manager
- Comprehensive reporting capabilities
- Seamless integrations with testing tools to provide a complete Quality Management environment

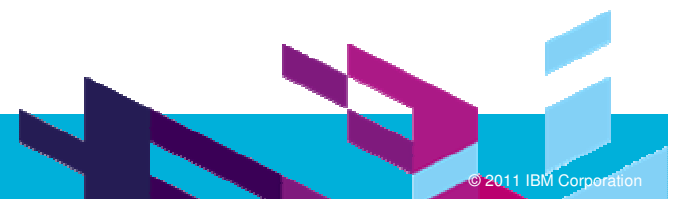


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QUESTIONS

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