



Introducing IBM Rational's New Integration Testing and Virtualization Solution

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IBM Software

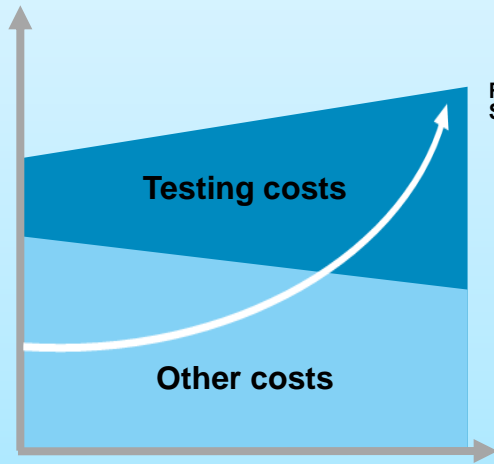
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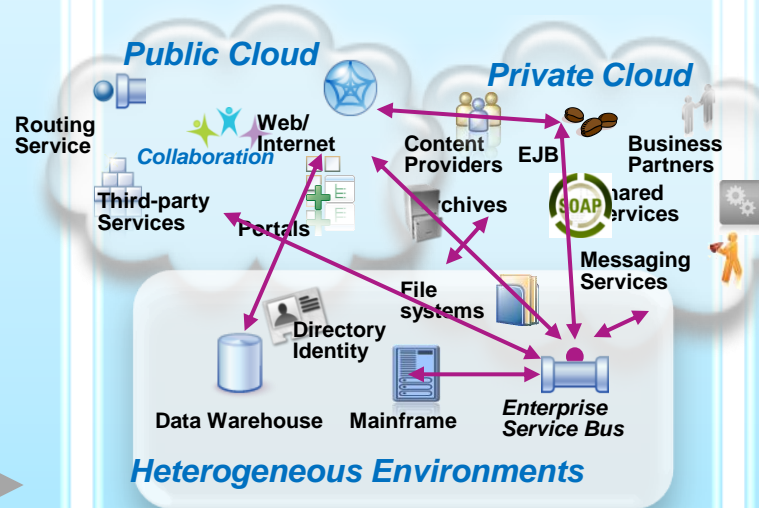


What is driving the need for a change?

Increasing Cost of Quality



Increasing Development Complexity



Balancing Quality and Speed



13%

The forecasted increase in wages for India IT workforce in 2011^a

\$5-30 million

The typical investment to build a single test lab for a Fortune 500 company. Most have dozens^b...

30-50%

The average amount of time testing teams spend on setting up test environments, instead of testing^c

^a Source: <http://www.sei.cmu.edu/about/message/>

As the Role of Testing is Changing...

Techniques to make Your Testing more agile

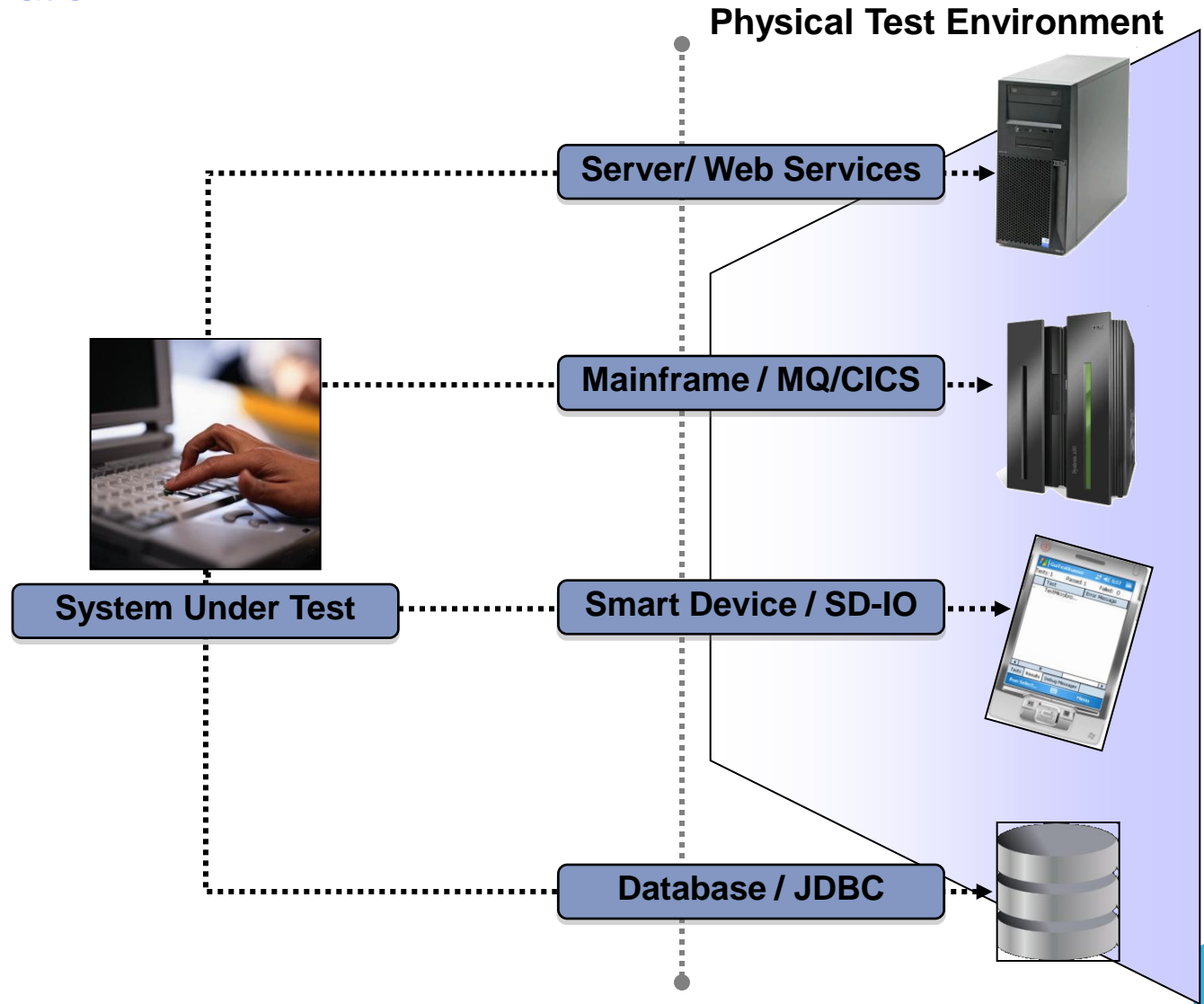
Technique #1: Continuous and Incremental Integration Testing

- Integration Testing: The ability to Test your application across all components/service boundaries
 - Injecting stimuli and check reactions and side effects, validating that components/services meet specifications
- Test components at the API level – reduce delays (no need to wait for UI)

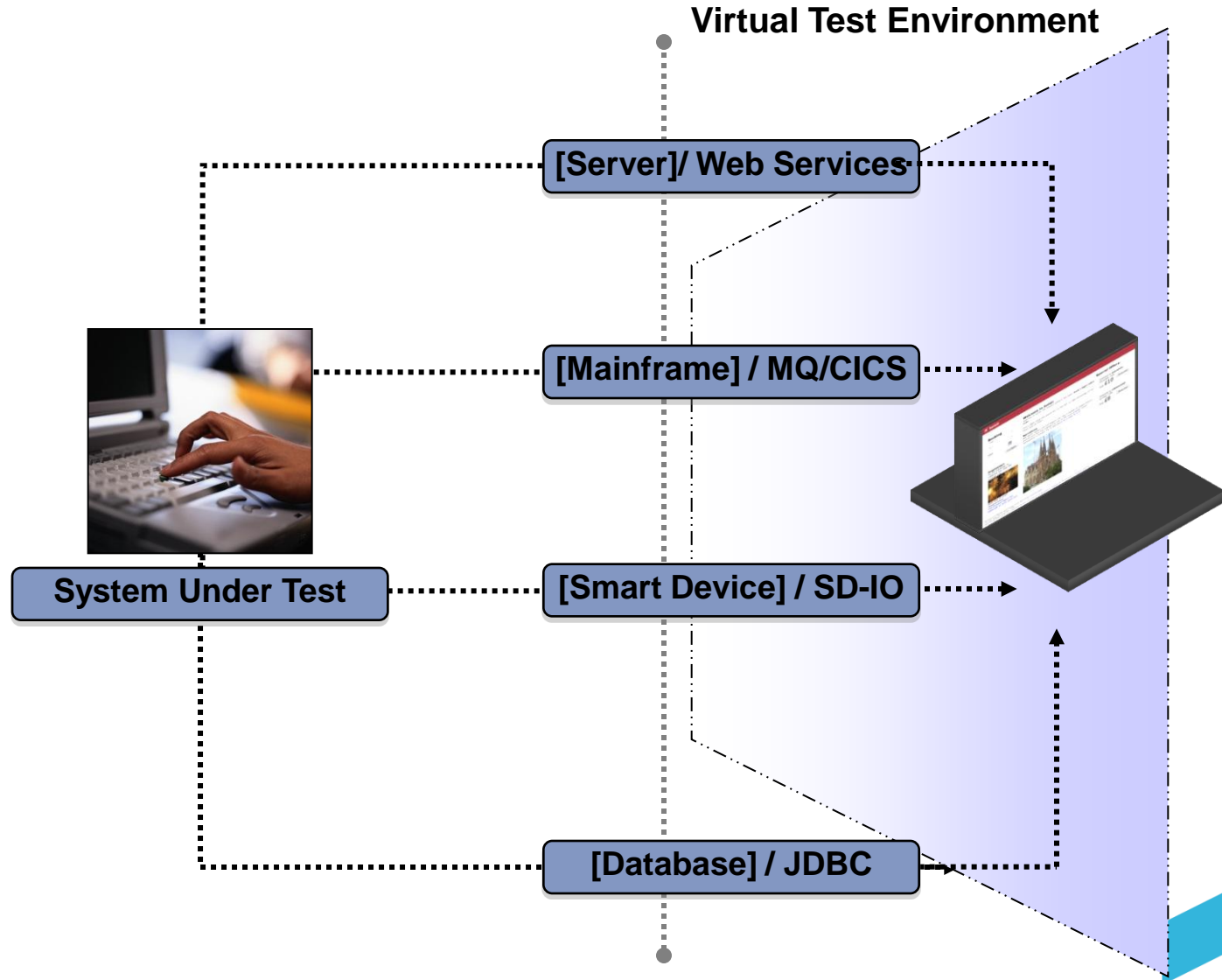
Benefits of Continuous Integration Testing

- Earlier and less costly defect detection
- Accelerated resolution
- Reduction of overhead (defect raising, prioritization) for regression issues
- Full approach enables parallel development of components with minimal integration issues

Technique #2: Virtualization



Technique #2: Virtualization

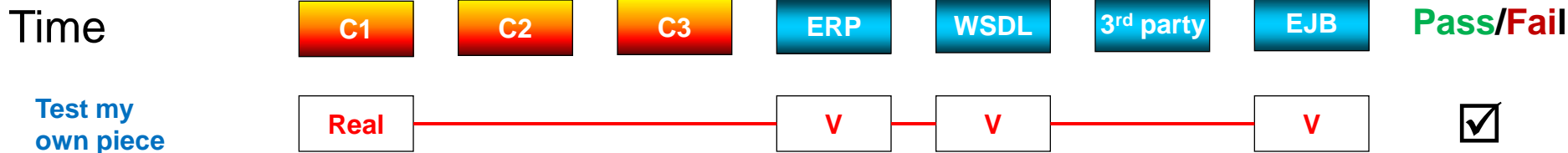


Benefits of Test Virtualization

- Personal Integration Environments
- Remove dependencies on other applications through virtualization – avoid late stage integration issues
- Deliver testing environments in minutes instead of days
- Power in the hands of the testers
- Reduction in need for application domain skills
- Visibility
- Lack of reliance on individual developer or tester
- Delays reduced waiting for development resource
- Standardization

Continuous Integration Testing with Test Virtualization

- Integration Testing requires components that may not be ready/available yet, or expensive to use - Test Virtualization enables replacing them with a virtual component.
- Services, applications, systems are introduced into the continuous integration cycle in a prioritized, controlled fashion.

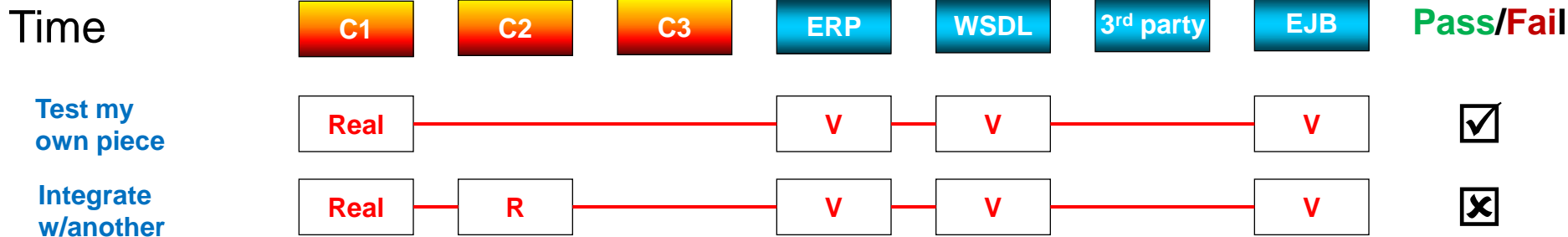


Example:

- Test C1 with three virtualized services.
- Can use simple or complex integration scenarios.
- Quick to setup and low-cost.

Continuous Integration Testing with Test Virtualization

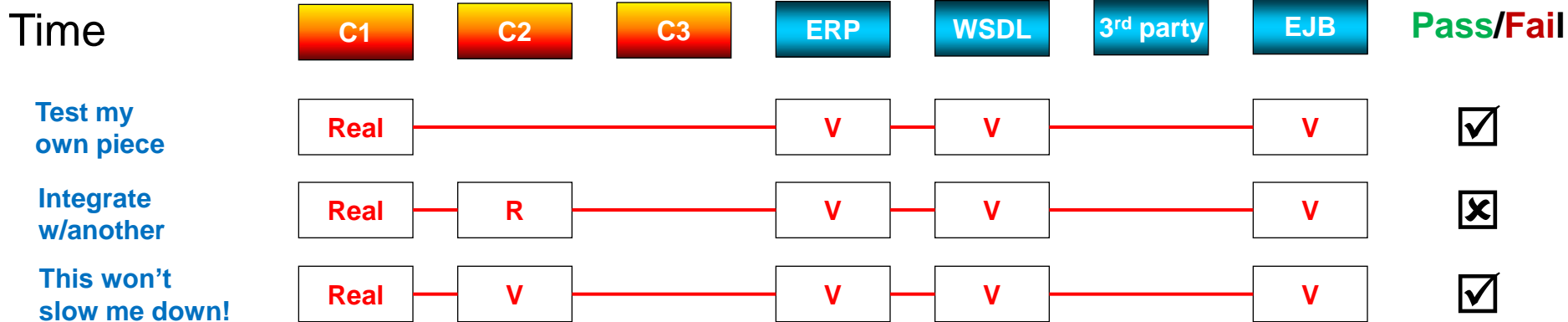
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- Integrate with C2...
- Can use more complex integration scenarios.
- Quick to setup and low-cost.
- OOPS !

Continuous Integration Testing with Test Virtualization

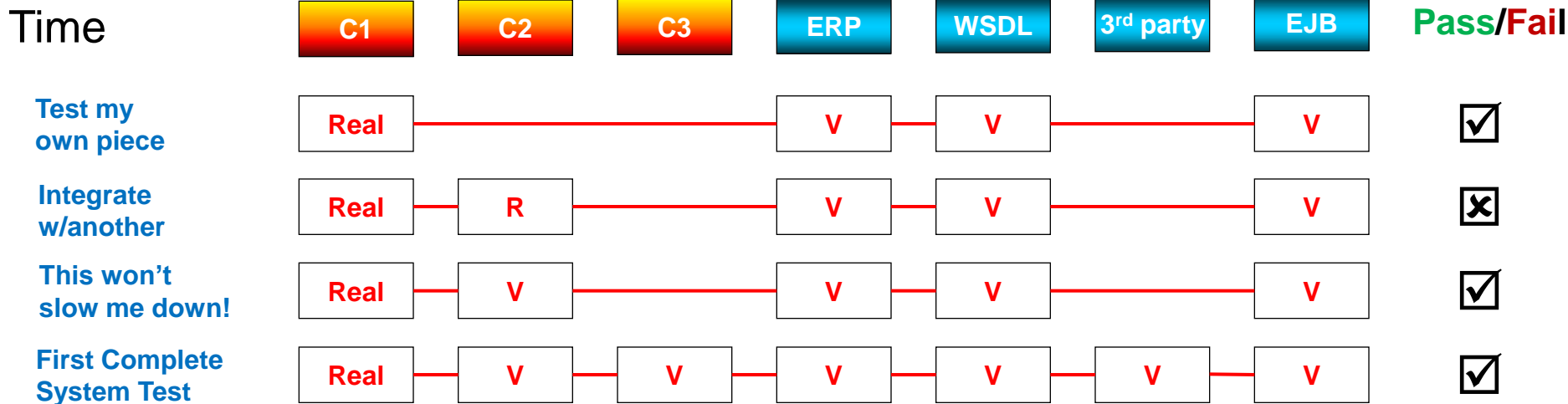
- Integration Testing requires components that may not be ready/available yet, or expensive to use - Test Virtualization enables replacing them with a virtual component.
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- C2 introduced some defects – replace it with a virtual service!
- A defect in C2 doesn't stop testing of those who depend on it!
- Quick to setup and low-cost.

Continuous Integration Testing with Test Virtualization

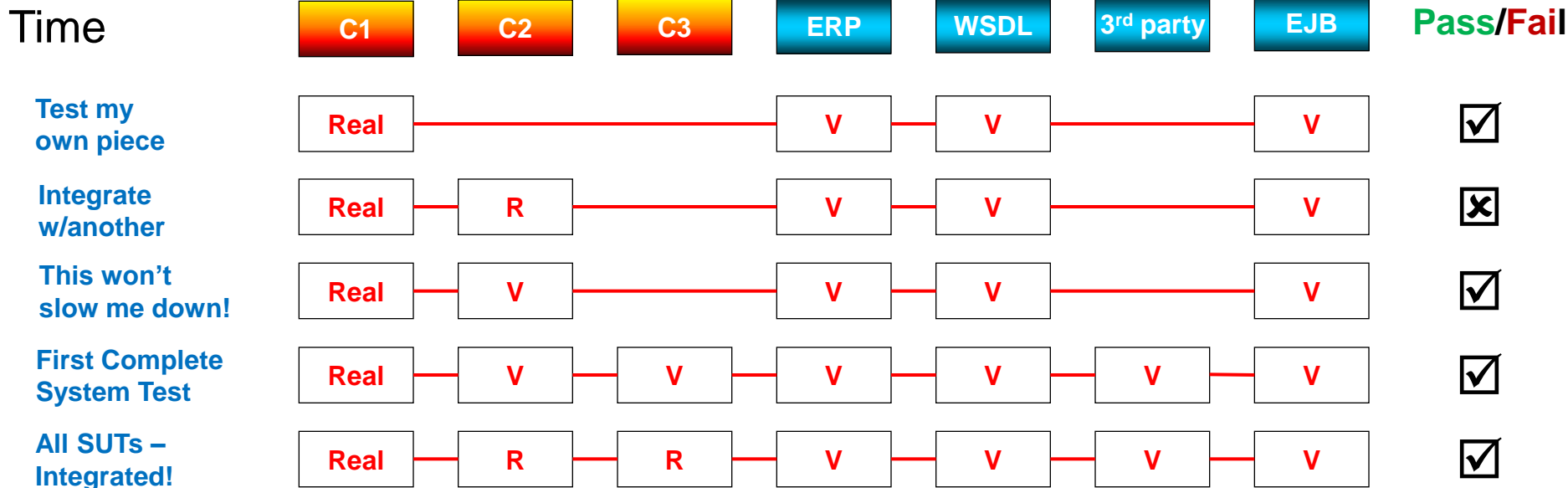
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- First complete system test: Everything but C1 is Virtual!
- Enables Testing with enterprise integration scenarios.
- Add testing scenarios to Build Verification Testing (BVT)
- Quick to setup and low-cost.

Continuous Integration Testing with Test Virtualization

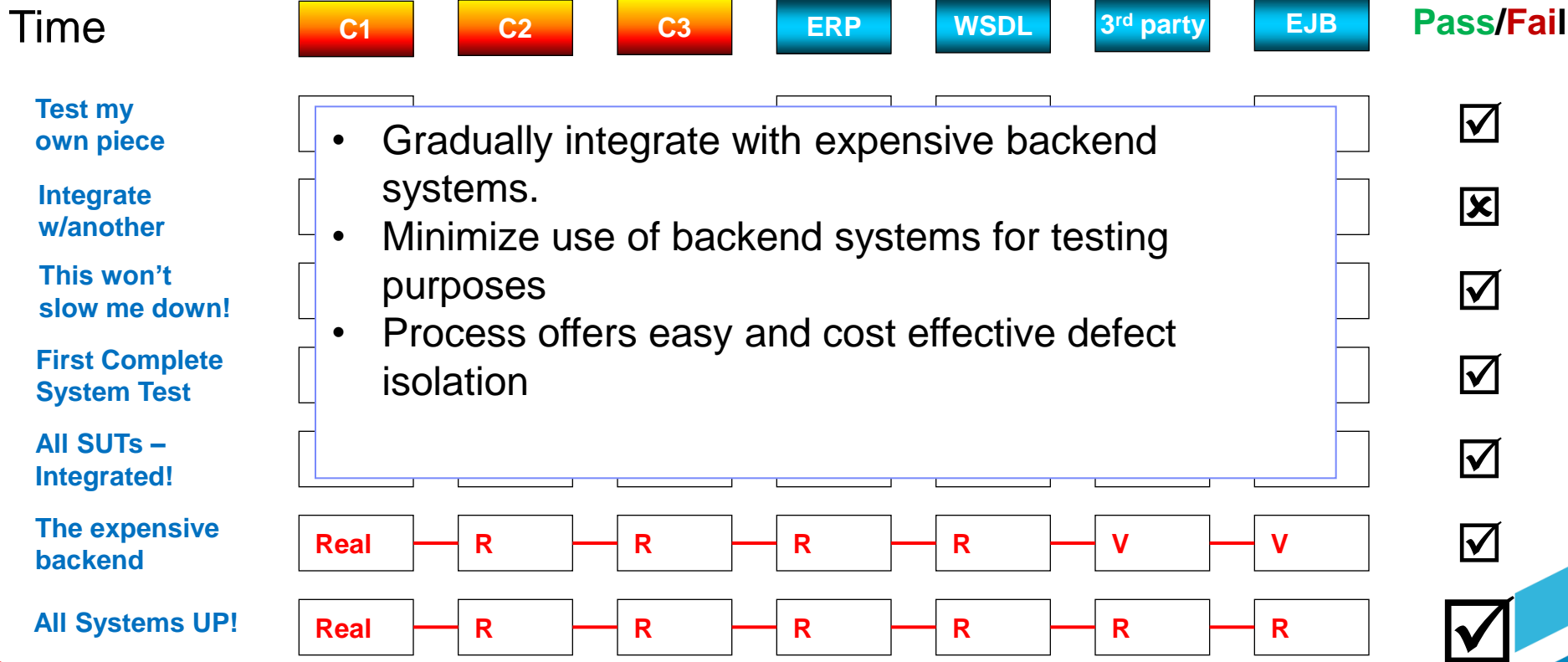
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- Integrate C2 and C3... with virtualized backend systems
- Use enterprise integration scenarios for Testing, inc BVT!
- Quick to setup and low-cost.

Continuous Integration Testing with Test Virtualization

- Integration Testing requires components that may not be ready/available yet, or expensive to use - Test Virtualization enables replacing them with a virtual component.
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By SUT I also mean custom code... **Next NOW!**

You've heard.... IBM Rational Acquired Green Hat !

Green Hat VIE is a server solution that:

- Provides a central environment to virtualize heterogeneous hardware, software and services to provide 24x7 testing capabilities
- Reduces infrastructure costs of traditional testing environments

■ **Green Hat Tester** is a desktop solution that enables testers/developers to:

- Capture and model virtual services
- Test services and applications before their user interfaces becomes available and do integration testing

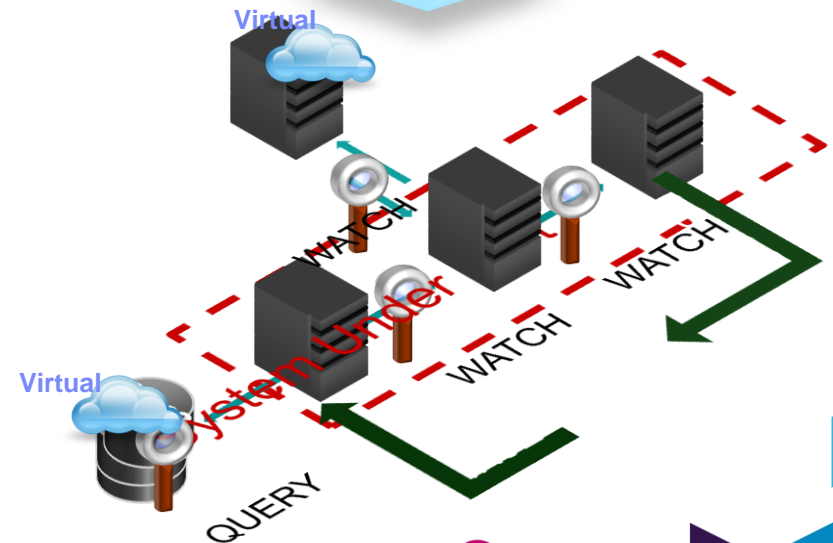
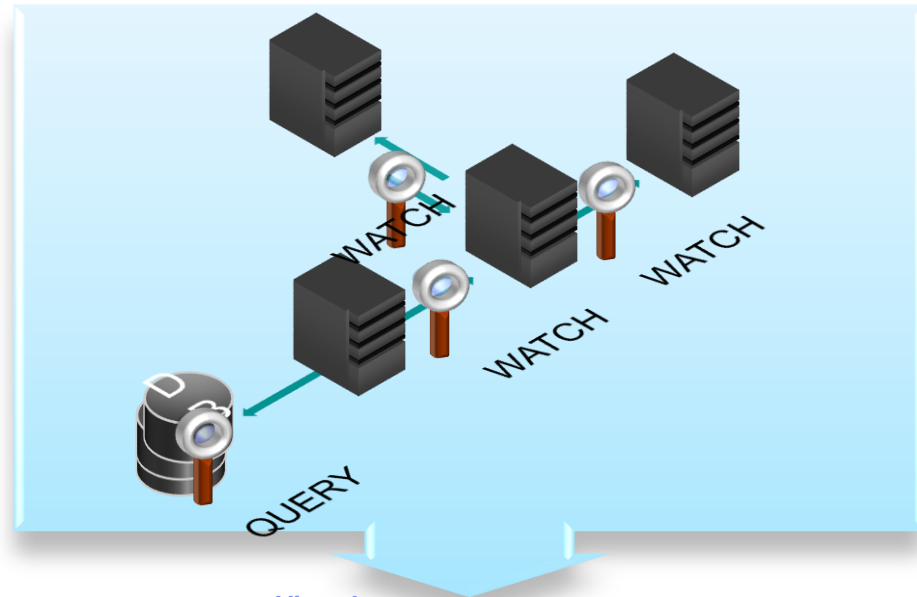
■ Combined with IBM Quality Management solutions, ***Green Hat capabilities dramatically improve Agile Development.***

- Improve development and test cycle time by making test environments readily available
- Share test environments across teams enabling parallel development
- Employ traceability and collaborate in-context across development domains



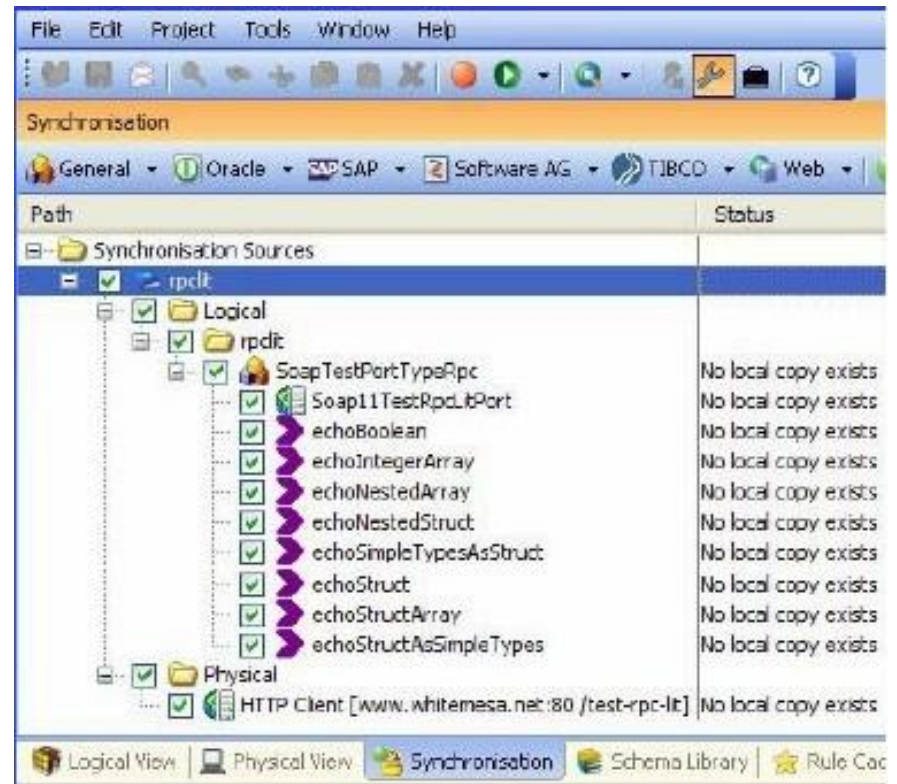
Test Virtualization with Green Hat

- Virtual Services can be created from
 - Service specifications or,
 - From recording actual traffic to existing services/applications
- Virtual Services can be further customized
 - To simulate simple to complex behaviors (e.g. negative testing)
 - To simulate latency, performance profiles, etc.
- Virtual Services are published for consumption by developers, testers
 - Testing can start earlier: Testers can now create their tests against virtual services
 - Systems can be incrementally tested as sub-systems become available



Accelerate test development

- Synchronize your test project with your application environment
- Create an architectural view of your system to accelerate the development of test assets
- Supported resources include WSDL, webMethods Integration Server, TIBCO BusinessWorks, SAP systems, and Oracle Fusion



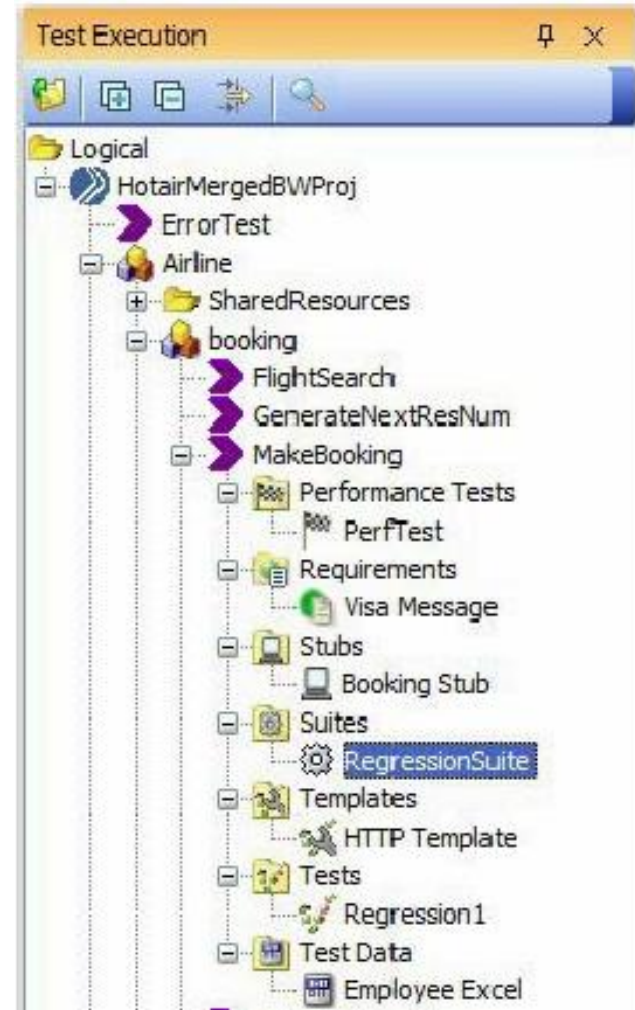
Code-free Test Development

- Create tests using
 - Recorded messages from a live system
 - Message ‘requirements’ defined in the project architecture
 - Forms and wizard-driven UI
- Build your own transports and formatters to deal with your project’s custom messages
- Leverage our library of industry standards for SWIFT, IATA, EDI, HL7 and more



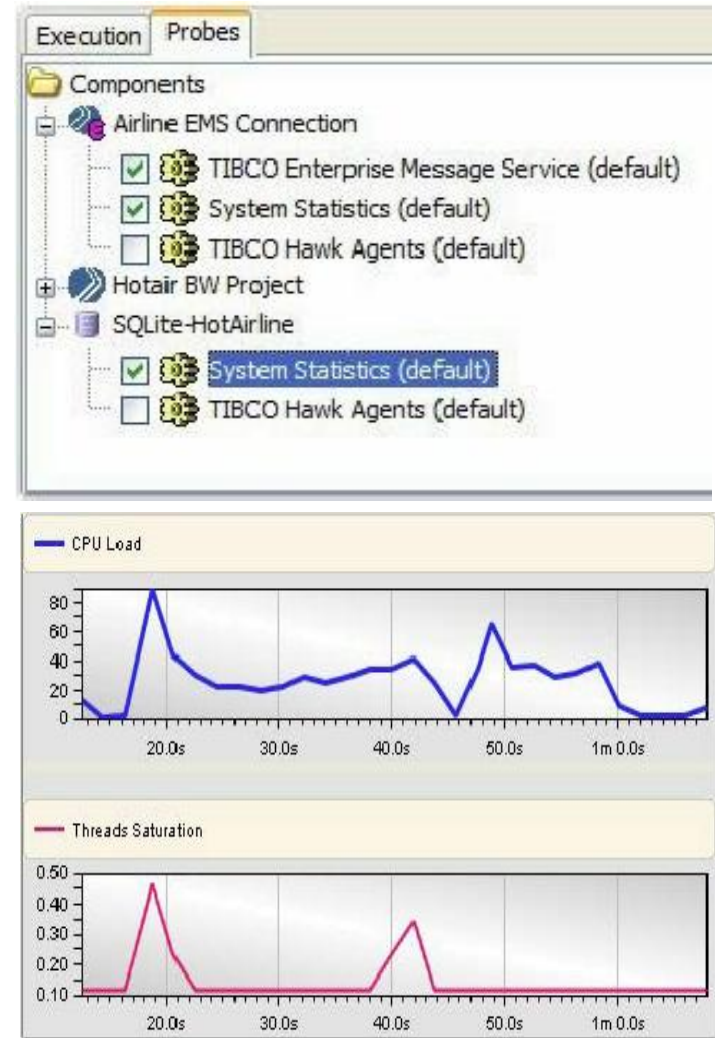
Flexible Test Execution

- Isolate test execution focusing on specific areas of your composite application
- Monitor events and messages in real-time for troubleshooting
- Repair Wizard helps correct validation errors
- Command line execution enables integration with build environments and other systems
- Integrates with Rational Quality Manger (oh, and HP Quality Center too)



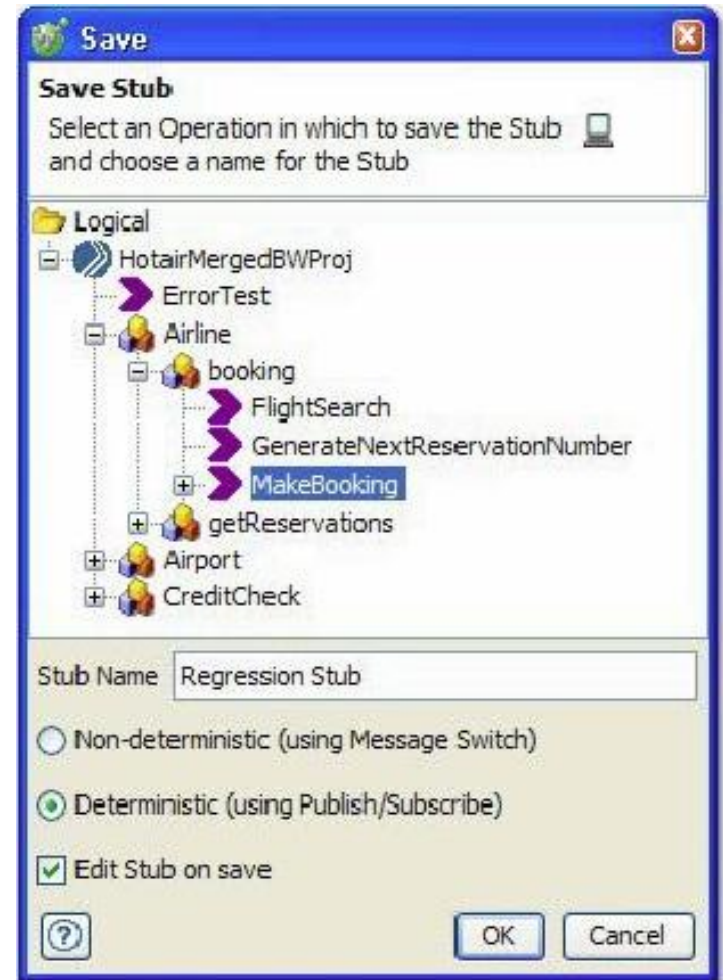
Assess System Performance

- Reuse integration tests to develop real-world load scenarios
- Examine system health through a variety of probes
- Combine performance measurements with probe data to identify performance bottlenecks



Create Virtualized Test Environments

- Code-less virtualized applications help eliminate test dependencies
- Create virtualized services from your exiting test messages
- Centrally manage virtualized applications for each environment
- Make changes without having to modify the system under test
- Enable earlier testing across all phases of development



Supported Integration Environments & Technologies

Messaging Protocols

- ActiveMQ
- Email (SMTP, IMAP)
- Files
- FTP/S
- HTTP/S
- JMS (JBOSS et al)
- IBM WebSphere MQ
- JBoss MQ
- SAP IDoc, BAPI, RFC & XI/PI
- Software AG's IB & IS
- Solace
- Sonic MQ
- TCP
- TIBCO Rendezvous, Smart Sockets & EMS
- Custom

SOA, ESB, Others

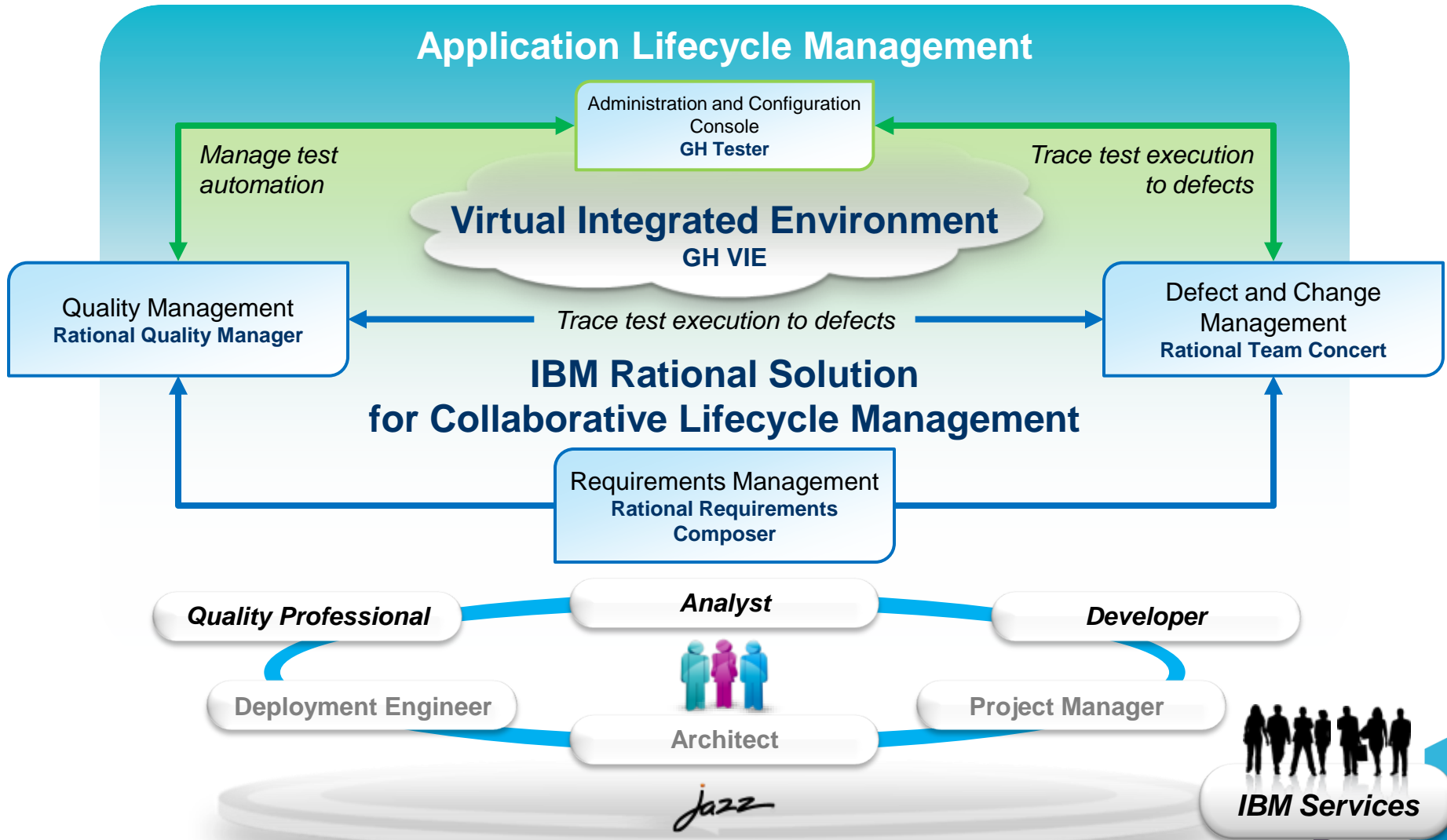
- CentraSite
- Oracle Fusion
- SCA Domain
- Software AG IS, BPMS
- Sonic ESB
- TIBCO ActiveMatrix
- UDDI
- Web Services
- WebSphere RR
- WSDL

- BPM
- Databases
- Log Files

Message Formats

- .Net Objects
- Bytes
- COBOL Copybook
- ebXML
- EDI
- Fixed Width
- HL7
- IATA
- Java Objects
- MIME
- OAG
- SOAP
- Software AG Broker Docs
- SWIFT
- TIBCO ActiveEnterprise
- XML (DTD, XSD, WSDL)
- Custom

Green Hat Test virtualization capabilities extend IBM Application Lifecycle Management



IBM Rational Test Automation Solutions

IBM Rational Test Workbench

End-to-end functional, integration, and performance testing throughout your integration project lifecycle

IBM Rational Performance Test Server

Service and application-level performance testing for your integrated application environment

IBM Rational Test Virtualization Server

Leverage application virtualization to increase agility and deliver cost-effective 24x7 test environments

For more information

To learn more about IBM Rational software quality solutions, please contact your IBM sales representative or IBM Business Partner, or visit:

<http://www.ibm.com/software/rational/offerings/quality>

See also:

IBM Rational Test Workbench: <http://www.ibm.com/software/rational/products/rtw>

IBM Rational Performance Test Server: <http://www.ibm.com/software/rational/products/rpts>

IBM Rational Test Virtualization Server: <http://www.ibm.com/software/rational/products/rtvs>

QUESTIONS

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