Service Virtualization: How to Speed Up Delivery of Modern Applications

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Brought to you by

Vivit Melbourne, Australia Chapter
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&

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Housekeeping

• This “LIVE” session is being recorded
  Recordings are available to all Vivit members

• Session Q&A:
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Webinar Control Panel

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Questions
Service Virtualization: How to Speed Up Delivery of Modern Applications

Ferhan Kilical, WW Sr. Product Marketing Manager
Manish Gupta
Walid Hbeika,

March 2013

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Question #1

How much do you know about Service Virtualization?

• I have no idea
• Just heard about and want to learn how that helps
• Some knowledge, have tried already
• Expert level
Question #2

What are your current challenges for performance testing?

- No test environment, not enough resources to test
- Complex platform, composite applications
- Time on scripting
- Test data preparation
2013 Applications Reality

- When it comes to delivering new applications your organization wants two things:
  - Speed
  - Quality
Let’s build what the business wants…

Modern systems of engagement for this new type of user

By 2016, integration projects that include on-premises applications and cloud services

50%

By 2015, mobile application development projects will outnumber native PC projects

4 to 1

By 2016, organizations with joint App Dev and Ops initiatives for continuous delivery and simplified release management

40%

Composite

Mobile

Agile

Source: Gartner
And, Applications are fundamentally changing…

Technology

Delivery

Reach

Infrastructure

Composite applications
Web 2.0

Mobile, tablets, app store

Social media

Hybrid and Cloud
Applications have become compositions, representing business processes

Shopping Process

- Search
- Buy
- Pay
- Ship
- Track

Each of these steps are interconnected software components, also called services.

Components can run anywhere— in-house or in the cloud.
## Quality today is more than functionality…

<table>
<thead>
<tr>
<th>Quality</th>
<th>What it means</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Experience</strong></td>
<td>Users’ perceptions of the usefulness, usability, and desirability of the application.</td>
</tr>
<tr>
<td><strong>2. Availability</strong></td>
<td>An application that is ready and able to perform its functions when needed.</td>
</tr>
<tr>
<td><strong>3. Performance</strong></td>
<td>Time taken to perform a transaction that meets the business requirements and expectations of the user.</td>
</tr>
<tr>
<td><strong>4. Scalability</strong></td>
<td>Handle increasing (scale-up) or decreasing (scale-down) volumes of transactions, services, and data.</td>
</tr>
<tr>
<td><strong>5. Adaptability</strong></td>
<td>Change or extend the functionality of the application quickly and cost effectively.</td>
</tr>
<tr>
<td><strong>6. Security</strong></td>
<td>Supports the security properties of confidentiality, integrity, authentication, authorization, and non-repudiation.</td>
</tr>
<tr>
<td><strong>7. Economy</strong></td>
<td>Business value exceeds cost to build, operate, and change.</td>
</tr>
</tbody>
</table>
Hybrid and Cloud composite applications bring three challenges

1. It takes too long to develop and deliver applications
2. It’s too costly and risky to use cloud sourced and third party services
3. It’s too difficult to test all scenarios—too many defects leak to production
Why the issues?

- Software components not ready yet
- Components/services with limited access
- Dependency on third party—costs
- Data too difficult to source
- Security and compliance restrict access
Service Virtualization becomes a key answer

Keep developing and testing moving forward with virtualized services

• Virtualize for always available services
• Virtualize data scenarios
• Make available for Dev and Test
• Share services-- lower infrastructure costs

Application Under Test  Service Virtualization  Existing Infrastructure

- Web browser
- Mobile App

Composite Application

Application Under Test

SOAP
REST
JMS
MQ

Perf.
Config

Simulation

SOAP
Web service and Legacy application

Existing database

Mainframe

LDAP

Single sign on

Third Party

Pay-per-transaction

MQ

JDBC

Under construction
Introducing HP Service Virtualization 2.3

Virtualize modern and legacy applications and data services

Features

- Easily and visually virtualize modern and legacy applications
- Virtualize data services
- Manage data with virtual services—mask, scramble, import/export
- Enable unit, functional and load testing against virtual services
- Instantly make virtual services available for cross team use in HP Performance Center, Quality Center and ALM
Complexity of Test Lab Environment

Client
- Employees
- Customers
- Browsers & Devices

Carriers & ISPs

Content Delivery Networks
- 3rd Party Cloud Services
- Major ISP

Secured
- Load Balancers

Backend & 3rd party Systems
- Web Servers
- App Servers
- DB Servers
- Mainframe
- Storage
- Web Services
- Mobile Components
- 3rd party

AUT Configuration
- Provision Infrastructure
- Provision Software
- Provision Data

Align Test Data
Virtualize to Simplify Test Environment Provisioning

- Quick test environment provisioning
- Dynamic data changes
- Instant resets
- Aligned client and backend test data
Mobile Apps? Virtualize services and network to deliver high quality faster:

The complete user experience with Network and Service Virtualization

Load Testing: Multi-user and multi-location with Performance Center / LoadRunner

Real-World Network Conditions & Performance

Device-Side Functionality / Response

Backend Monitoring: Sitescope and Diagnostics

Service Virtualization
How do you test performance characteristics?

Load generators

Virtual users

Loadrunner controller

Monitors

AUT Configuration

3rd Party services

PayPal API

Equifax Credit Report

SLA

2.0s -> 0.5s
Virtualize to Allow Testing of Performance Characteristics

Load generators

Virtual users

SLA

Monitor response time and throughput
Control performance profiles

Loadrunner controller

AUT Configuration

SV

Virtualized

3rd Party services

PayPal API

Equifax Credit Report

SLA 0.5x

Embedded Objects vs. Response Time

0.5x
Speeding up release cycles by eliminating testing delays for unlimited testing

**TTNET** is the largest internet service provider in Turkey with more than six million customers providing internet services, IPTV, Voice over IP and mobile phone services.

**Challenge**
- Deploy more than 200 apps per year. Major delays in testing and were never able to complete test on time. Test had a lot of down time.
- Test blocking issues were: Dependency on third party services, authorization issues, services not available during working hours, development was always behind.

**Results**
- Reduced test wait time 100%. On average saved 5-8 days/month.
- 95% of test cases are available through use of HP Service Virtualization.
- Increased test cycles and test coverage 45%
- Less defects in Production.

**Solution**
- Virtualize 3rd party endpoints to validate coding changes
- Multiple development teams started using Service Virtualization to eliminate dependencies
- Modify performance factors of the virtualize service to ensure upstream calls
- Deploy virtual services as shared resource

“We can start testing earlier without waiting the end to end systems to be ready. Now we can do efficient resource management, predict schedule and launch apps in a timely manner.”

Test and Release Manager, TTNET
Complete HP Test Automation Platform
Agile Application Delivery with HP Service Virtualization

HP Application Lifecycle Management

store, run, report

state, profiles, metrics

store, find, deploy

Performance

Security

Web UI

API

Mobile App

Composite Application

Service Virtualization

Test Automation

Application Under Test

Store, find, deploy

state, profiles, metrics

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HP Service Virtualization benefit summary

Reduce development and test wait time
- Allow parallel development and early functional testing

Reduce dev/test infrastructure costs
- Required to manage and run complex test environments

Decrease third-party service access costs
- Incurred by using 3rd party production systems

Lower the risk of defect leakage to production
- Test early, test often. Decrease risk with broader test coverage

Improve total user experience
- Achieve desired levels of quality and performance levels
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>24%</td>
<td>Reduced Wait Times</td>
</tr>
<tr>
<td>50%</td>
<td>Decreased Software Cycles</td>
</tr>
<tr>
<td>22%</td>
<td>Shorter Test Cycle Times</td>
</tr>
<tr>
<td>23%</td>
<td>Increased Test Coverage</td>
</tr>
</tbody>
</table>

Service Virtualisation ROI

- Faster Time to Market
- Increase in Service Availability
- Fewer Production Defects
HP SV and Demo
HP Service Virtualization

Designer
Authoring of virtual services
Virtual services are stored on file system
• Embedded server included

• Server
• Runtime for virtual services
• Agents connecting to application environment (HTTP, JMS, CICS…)
Virtual Service Designer

Virtual Service Control

Data Model

Performance Model

Virtual Service

States

Learning

Simulating

Stand-By

Configuration
Wizard based Virtual Service creation

Pre-Set Starting Points

Dialog Based Wizards
How can Service Virtualization accelerate your testing?

- Easier the preparation of your test environment
- Re-use of scripts
- Reduce time to test
- Cost savings on resources
- Fasten the performance testing results
Your Performance, Our Passion!

Got questions?

Ferhan.kilical@hp.com

For more information go to:

hp.com/go/sv
Thank you!