TESTING IN PRODUCTION: ENHANCING DEVELOPMENT AND TEST AGILITY IN A SANDBOX ENVIRONMENT

Xiudong Fei
xiufei@microsoft.com
Sira Rao
sirarao@microsoft.com
Before we begin …

Thanks to our Reviewers

- Moss Drake
- Chris Blain
Agenda

- What’s Testing in Production (TiP)
- Sandbox environments and scope
- Why TiP
- What are challenges of TiP
- How SilverlightDetour addresses the challenges
- Results
- Takeaways
What is Testing in Production (TiP)

- Using production environments, topologies to validate system or application
- Capture actual usage data to identify, verify reported issues
- Use of tools to provide a window into a production system
Sandbox Environment and Scope

- Sandbox environment
  - Limits resources for guest program to run in, e.g. disk space, memory
  - Usually closed, restricts application from access to system resources
  and what application can modify
  - Scope is Plugin based applications e.g. Silverlight

- Silverlight – Plugin, app framework; enables Interactive media experiences and Rich business apps

- Microsoft Lync Web app (LWA) – Real time communications, collaboration app
Why should we TiP

- Limitations of test environments
  - Load Balancers, PSTN GW
  - Concurrent users, user activities

- Find problems at a larger scale than test environments

- Uses complexity of production environments to our benefit

- Could reach faster development and test cycles
Complexity of Production Environments
Challenges of TiP

➢ Production environment affects agility of development, testing
  • Install / Upgrade back-end environments
  • Access permissions

➢ Difficult to perform debugging, troubleshooting tasks

➢ Logging Limitations
  • Hard or impossible to get logs e.g. application crash or hang
  • Control amount of logging, at different layers
  • Limited size and Logs often overwritten

➢ How to Test and Dogfood early and Iterate on Feedback
SilverlightDetour Addresses the Challenges

- Bypass production Install, Access issues
- Provides Out of process Debugging with no disruption to Production system
- Provides Logging mechanisms
- Provides seamless and transparent replacement of client application for testing and Dogfood
Silverlight Detour Solution Architecture

**DETOUR concept**

- Intercept product package
- Replace the whole product package
- Inject test dlls, javascript

Diagram:

- Silverlight Detour
- http(s)
- tcp
- Server
- Browser

Excerpt from PNSQC 2011

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PNSQC.ORG
Addressing the Logging Challenges

Limited logging size in Sandbox

SilverlightDetour

Unlimited space
Sequence Diagram

Web Browser

GET web page

SilverlightDetour

Inject Javascript

GET Silverlight package

Server

Modify Silverlight package

Establish TCP connection
Debugging Made Easy

```powershell
PS> $disp = [MS.SLDetour].::GetDisplayNameTextBox()
PS> $disp.Text = "SilverlightDetour"
PS> $disp.TextAlignment = 2
PS> [MS.SLDetour].::ClickJoinButton()
```
Other Possibilities of Silverlight Detour

- Provides Remote Assistance
- Alternate UX Automation mechanism
  - Uses TCP connection
  - Manipulate Silverlight objects
- Fault Injection and Security tests
  - Change error codes
  - Change XML schema and Fuzz test XML parsers
Results

**Agility Improved** in development, testing and iterated faster to achieve desired quality levels in production environments

**Savings** of about 2 person days per month on install / upgrade / maintenance of test topologies

**Increased Overall productivity** of Dev, test teams and better collaboration within Product teams

**Tool identified issues** impacting various aspects of product – UI, functionality, stability, security and back-end environment

**Dogfooding** improved and Users provided with latest version of Lync Web app
Takeaways

- We envision Plugin-based applications could employ our framework for TiP
- Teams developing Web-based apps can employ principles mentioned
- These techniques will help improve development, test agility
- Use framework for UI automation, Remote assistance and Fault Injection

Need thought, frameworks, solutions that will help each of us embrace Testing in Production ...
Thanks and Questions?