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

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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

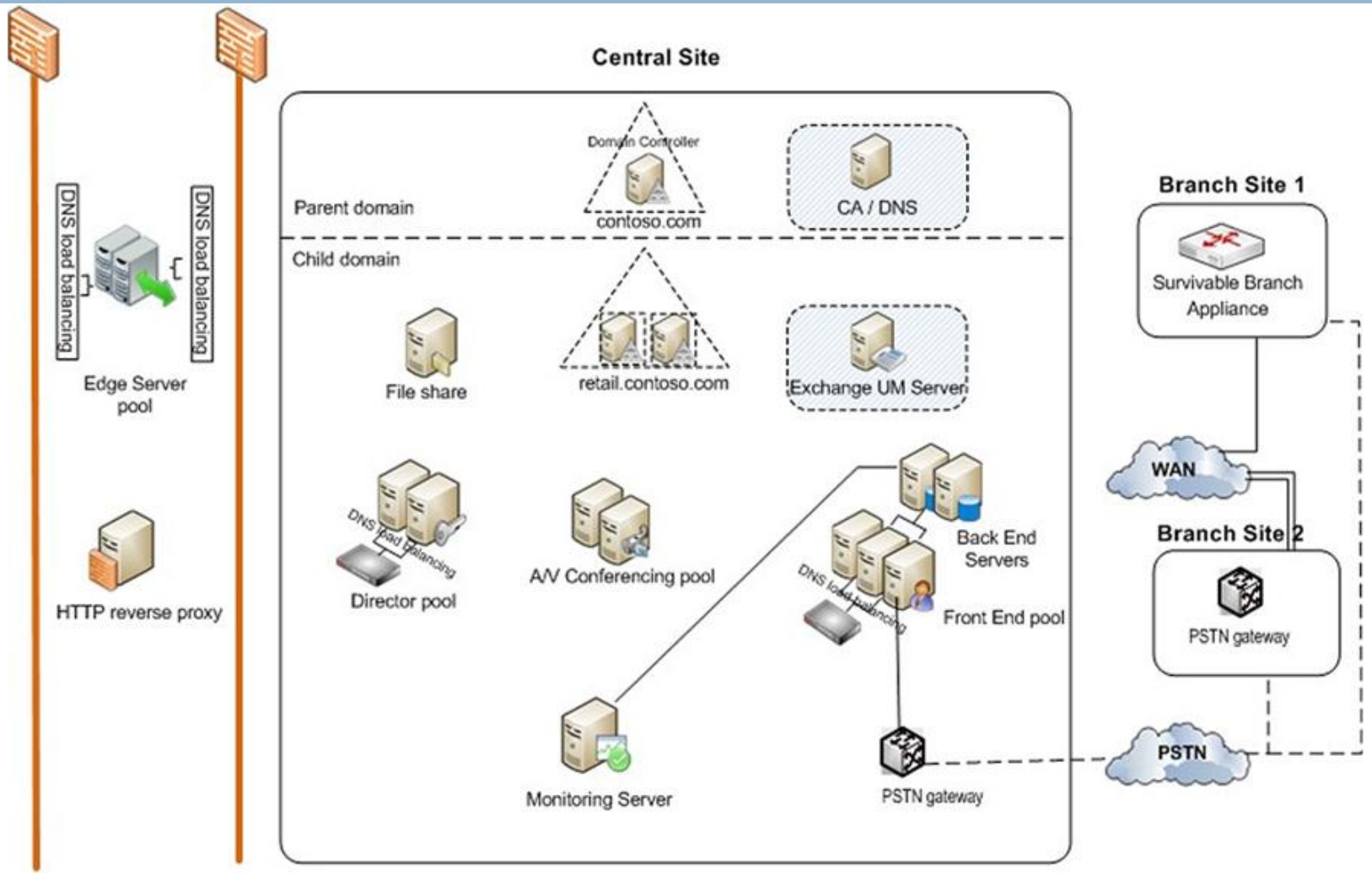
- Silverlight – Plugin, app framework; enables Interactive media experiences and Rich business apps

- 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

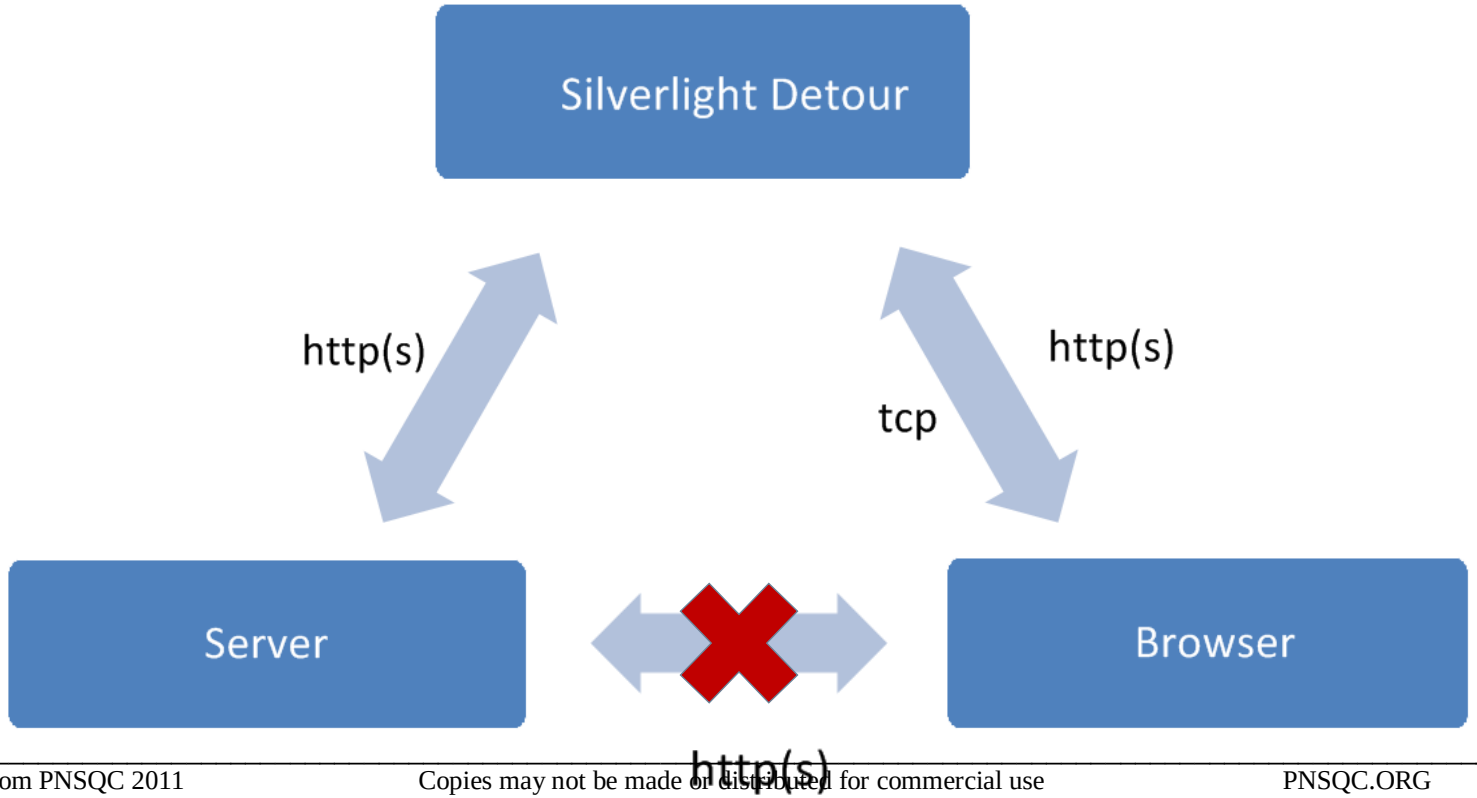
SilverlightDetour Addresses the Challenges

- 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

SilverlightDetour Solution Architecture

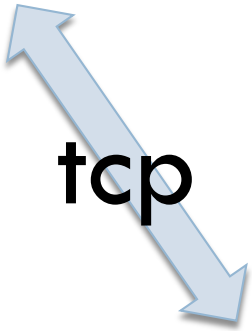
DETOUR concept

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



Addressing the Logging Challenges

Limited logging size in Sandbox

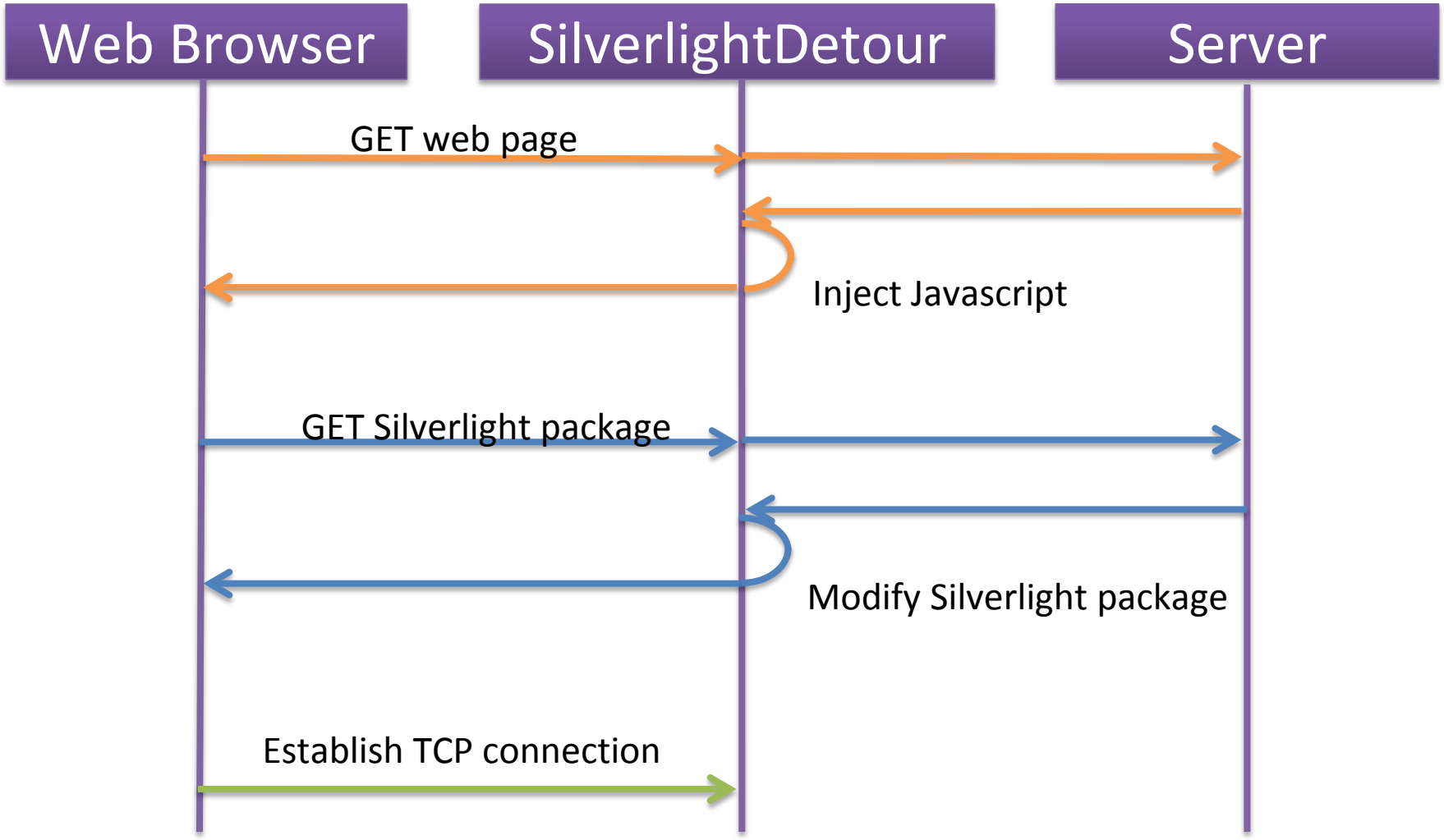


Unlimited space

SilverlightDetour

Desktop

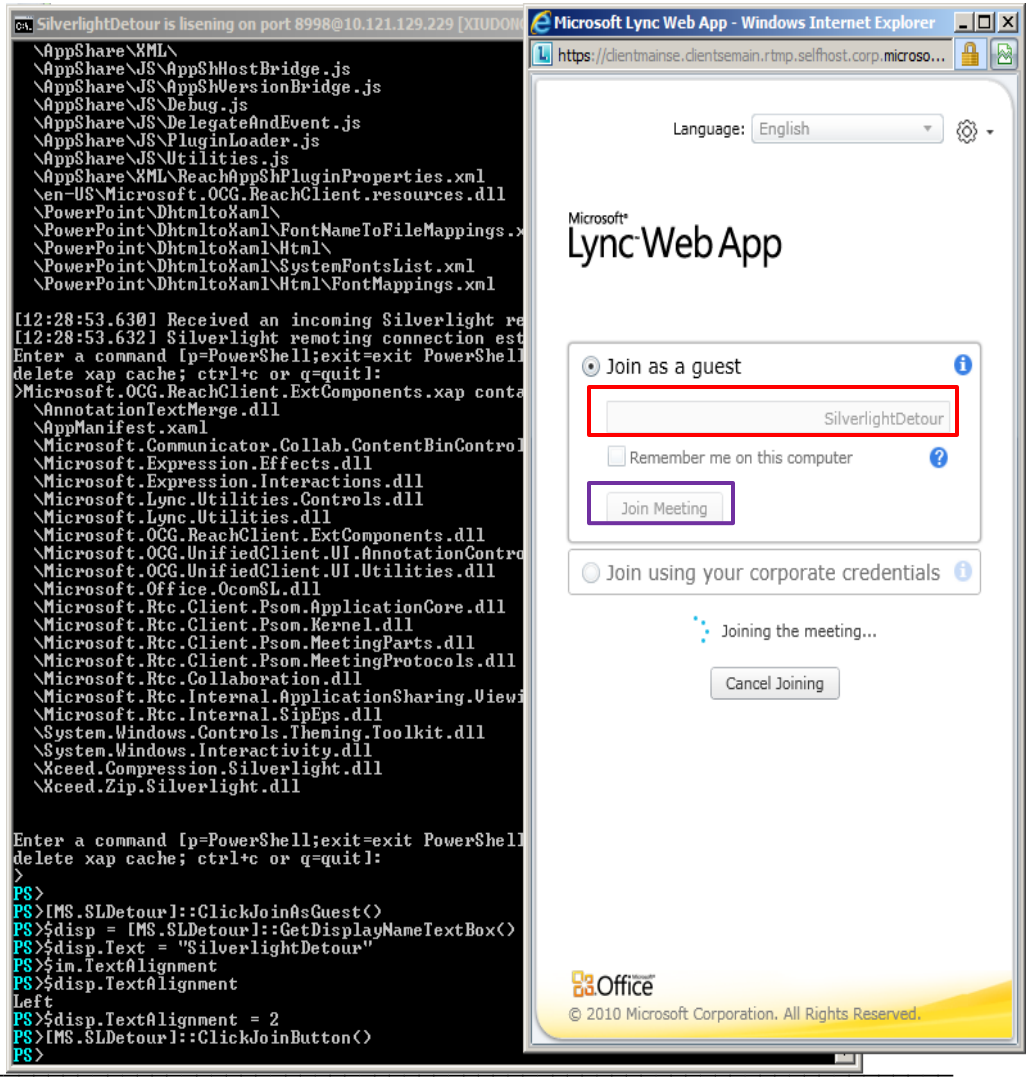
Sequence Diagram



Debugging Made Easy

```
PS>$disp = [MS.SLDetour]::GetDisplayNameTextBox()
PS>$disp.Text = "SilverlightDetour"
PS>$disp.TextAlignment
Left
PS>disp.TextAlightment = 2
```

```
PS>[MS.SLDetour]::ClickJoinButton()
```



Other Possibilities of SilverlightDetour

- 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?