Puppet at Redgate

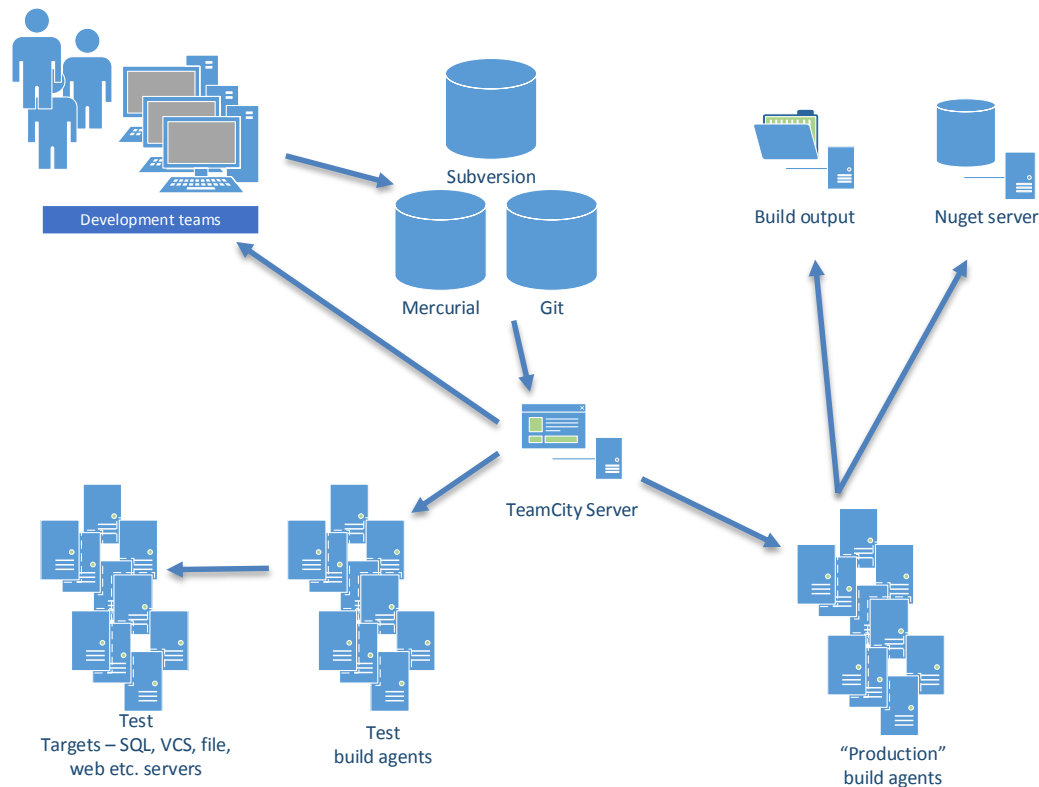**Robert Chipperfield**

DevOps Engineer

twitter.com/rmc47

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Redgate's build system

Building build agents

Build Server Third Generation

i.e. how rg-build05 is set up

Software

1. Get IS to give you a blank VM: Windows Server 2008 R2, 4 CPUs, 4GB RAM (may be dynamic - crazy Hyper-V stuff), 75GB C:, 50GB D:
2. Install all the Windows updates
3. Upgrade to IE 9 -- http://windows.microsoft.com/en-gb/internet-explorer/download-ie
4. Add RED-GATE\automated.build and RED-GATE\Build Master to the Administrators group
5. Turn of IE ESC for both admins and users
6. Install Microsoft .NET Framework 3.5.1 -- Server Manager -> Features -> Add Features -> .NET Framework 3.5.1 Features -> .NET Framework 3.5.1 -> N
7. Install all the Windows updates (a few for .NET 3.5.1)
8. Install Microsoft Visual Studio 2012 Premium -- \\red-gate.com\files\Disks\Development Software\Visual Studio\Premium\2012\vs_premium.exe
   - Deselect Expression Blend
   - Deselect Lightswitch
9. Run Microsoft Visual Studio 2012 as automated.build so that the first run wizard has completed
   - Install all the Windows updates (published after Microsoft Visual Studio 2012 Premium)
   - Run VS, and under Tools -> Extensions and Updates, apply any updates
10. Install Microsoft Windows SDK 7.1 -- http://www.microsoft.com/download/en/details.aspx?id=8279
    - Uninstall Microsoft VC++ Redistributables (x86 / x64) v10.0.40219 (or the SDK installer will fail; will be installed again by SDK and updated)
    - deselect Windows Native Code Development -> Samples
    - deselect Windows Native Code Development -> Visual C++ Compilers
    - select Redistributable Packages -> Application Verifier
    - select Redistributable Packages -> Debugging Tools
    - select Redistributable Packages -> Windows Performance Toolkit
    - Re-install VC++ Redistributable (x86 / x64) v10.0.40219: http://www.microsoft.com/en-gb/download/details.aspx?id=8328 and http://www.microsoft.

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Building build agents

About 60 times

Build Server Third Generation

i.e. how rg-build05 is set up

Software

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    - deselect Windows N... Development -> Visual ... Compilers
    - select Redistributa... Application Verifi...
    - select Redistributa... -> Debugging Tools...
    - select Redistributa... -> Windows Perfor...
    - Re-install VC++ Redistributable (x64) v10.0.40219 -- http://www.microsoft.com/download/en/details.aspx?id=8328 and (x86) -- http://www.microsoft.com/en-gb/download/details.aspx?id=13523
11. Install FxCop 10.0 -- http://www.microsoft.com/en-gb/download/details.aspx...
12. Install another round of Windows updates
13. From a UACd cmd
    - C:\Windows\Microsoft.NET\Framework\v4.0.50727\... /regis.exe -ga... ated.build
    - C:\Windows\Microsoft.NET\Framework64\v4.0.30319\... /regis.exe -ga... ated.build
14. Install Microsoft Visual Studio 2012 Premium -- ... /details.aspx
15. Install Windows Azure SDK for .NET -- http://go.microsoft.com/fwlink/?LinkID=254364&clcid=0x409
16. Install WiX 3.7 -- http://wix.codeplex.com/releases/view/99514
17. Install WiX 3.8 -- https://wix.codeplex.com/releases/view/115492
18. Also need Wix V2.0 (I copied the folder under Program Files from rg-build02!)
19. Install RG Maxi Installer magic -- copy D:\Maxi Installer from a machine that has it (sucky I know)
20. Install MSBuild Extension Pack v4.0.6.0 (x64) -- http://msbuildextensionpack.codeplex.com/
21. Install MSBuild SDC Tasks 2.1.3155.0 -- http://sdctasks.codeplex.com/
    - Unzip to C:\Program Files (x86)\MSBuild\Microsoft\Sdc
22. Install MSBuild Community Tasks 1.4.0.56 -- http://code.google.com/p/msbuildtasks/downloads/list
23. Install Mercurial 2.5.1 (x64) -- http://mercurial.selenic.com/downloads/
    - deselect Documentation
24. Setup Mercurial SSH key for rg-source02 - run "\\rg-teamcity01\SecureShare\SetupSshForHg.bat" as automated.build
    - NOTE: The above assumes x64 (plink version) and Windows 7 (C:\users rather than documents & settings)
    - You have to manually say "y" to the SSH key (several times)
25. Install Python 2.7.3 -- http://www.python.org/download/releases/2.7.3/ (was 2.4)
    - deselect Python -> Documentation
26. Install Python for Windows extensions -- http://sourceforge.net/projects/pywin32/files/pywin32/Build%20218/pywin32-218.win-amd64-py2.7.exe/download
27. Install SCons 2.2.0 UACd -- http://sourceforge.net/projects/scons/files/latest/download (run "setup.py install" from a UAC'd cmd)
28. Install NUnit 2.6.2 -- http://www.nunit.org/?p=download
    - Everyone
29. Install Gallio 3.4 x64 -- http://www.gallio.org/Downloads.aspx
    - Deselect Documentation and Samples
30. Install OpenCover 4 -- https://github.com/opencover/opencover/releases
    - Install this from the command line so it's available to all users - msiexec /i opencover.4.0.519.msi ALLUSERS="1"
31. Install Doxygen -- http://www.stack.nl/~dimitri/doxygen/download.html
    - deselect doxywizard GUI
    - deselect doxygen manual (HTML)
    - deselect doxygen manual (compressed HTML)
    - deselect doxygen Example Projects

32. Install Actipro Syntax Editor v4.0.0274 -- \\red-gate.com\files\Disks\Development Software\Actipro\SyntaxEditor-Full-40027\setup.msi
    - see \\red-gate.com\files\Disks\Development Software\Actipro\LicenseDetails.doc
    - deselect SyntaxEditor for .NET 2.0 and later -> Sample Projects
    - deselect Documentation
33. Install Actipro UIStudio v2.0.0098 -- \\red-gate.com\files\Disks\Development Software\Actipro\UIStudio-Full-20009\setup.exe
    - see \\red-gate.com\files\Disks\Development Software\Actipro\LicenseDetails.doc
    - deselect UIStudio for .NET 2.0 and later -> Sample Projects
    - deselect Documentation
34. Install Actipro Wizard v3.0.0125 -- \\red-gate.com\files\Disks\Development Software\Actipro\Wizard-Full-30012\setup.exe -- NOT DONE - LICENSE UNAVAILABLE
    - see \\red-gate.com\files\Disks\Development Software\Actipro\LicenseDetails.doc
    - deselect Wizard for .NET 2.0 and later -> Sample Projects
    - deselect Documentation
35. Install ComponentOne Studio for WinForms -- \\red-gate.com\files\Disks\Development Software\ComponentOne\AntsProfilerUsesThese\C1StudioNET2_T308_Setup.msi
    - S8110PS-JY-225760-06-8FAN27D
    - deselect Install controls to the Visual Studio toolbox
    - deselect Install controls to the Global Assembly Cache
36. Install DevExpress 10.1.4 -- \\red-gate.com\files\Disks\Development Software\DevExpress\DXperience-10.1.4.exe
    - see \\red-gate.com\files\Disks\Development Software\DevExpress\Readme.txt
37. Install Syncfusion 6.3.1.8 -- \\red-gate.com\files\Disks\Development Software\syncfusion\syncfusionessentialstudiosetup v6.3.1.8.exe#
    - Ignore any errors about x64 or .NET 2.0 not being installed
    - ...q8OKEOR3T L... ...PSDPNYyd75VukVv9PdTpH81XaWSdixpTcaTZ4JdmIN...vxt5kdg==
38. ...builds.red... ...BuildGetter\2.5.0\Installs\Bu... ..._2.5.0.61_x86...0.msi
    - Get it from \\builds.red... ...\Program... (release
    - ... first then put it ...
    - Copy ...MSB...asks.dll to the mach... note the path
    - Start a VS co... ...prompt (admin and call gacu... ...filename> from a VS CMD... ...ot run as admin
    - set HKEY_LOCAL_... ...INE\Wow6432No... ...d Gate\SmartAssembly @S...artsMergingFramew... a string va... ...ng_sz) of 1
    - ...stall MS Visual St... ...2010 (p... ...that build VS extr... ...ne need this)
    - ...all MS Visual ... ...2010 SD...

Team...
1. Install ...Agent A
   - Installer:
     - deselect Windows Service
     - Destination Folder: d:\BuildAgentA
     - name: rg-build05A
     - ownPort: 9091
     - serverUrl: http://buildserver.red-gate.com
     - env.STANDARD_BUILD_MACHINE: yep
     - env.HAS_AZURE_SDK: yep
     - env.HAS_COMPARISON_SDK: yep
   - D:\BuildAgentA\launcher\conf\wrapper.conf
     - wrapper.ntservice.name=TCBuildAgentA
     - wrapper.ntservice.displayname=TeamCity Build Agent Service A
     - wrapper.ntservice.description=TeamCity Build Agent Service (A)
   - D:\BuildAgentA\bin\service.install.bat
   - Run the service under RED-GATE\automated.build
   - Start
2. Install TeamCity Agent B
   - Installer:
     - deselect Windows Service
     - Destination Folder: d:\BuildAgentB
     - name: rg-build05B
     - ownPort: 9092
     - serverUrl: http://buildserver.red-gate.com
     - env.STANDARD_BUILD_MACHINE: yep
     - env.HAS_AZURE_SDK: yep
     - env.HAS_COMPARISON_SDK: yep
   - D:\BuildAgentB\launcher\conf\wrapper.conf
     - wrapper.ntservice.name=TCBuildAgentB
     - wrapper.ntservice.displayname=TeamCity Build Agent Service B
     - wrapper.ntservice.description=TeamCity Build Agent Service (B)

- D:\BuildAgentD\bin\service.install.bat
  - Run the service under RED-GATE\automated.build
  - Start
5. Enable PowerShell -- Set-ExecutionPolicy Unrestricted
6. Copy https://rg-source01/svn/RedGate/InternalProjects/BuildSystem/Trunk/TeamCity/Scripts/onboard.ps1 to "C:...
7. Copy https://rg-source01/svn/RedGate/InternalProjects/BuildSystem/Trunk/TeamCity/Desktop backgrounds/golde...
8. gpedit.msc -> User Configuration -> Administrative Templates -> Desktop -> Desktop -> Desktop Wallpaper
   - Enabled
   - C:\DesktopBackground.jpg
   - Center
   - OK
9. Run UACd D:\BuildAgentA\work\...a8d1128ffa6aa029\Build\Release\RedGate.Licensing.ClientTest.exe
   - Refresh Licenses
   - SQL Toolkit
   - Activate...
   - No
   - Copy/paste a key with 1000 users from http://licensing.testnet/sales/SerialNumbers/Generate.aspx
10. Run UACd D:\BuildAgentA\work\...a8d1128ffa6aa029\Build\Release\RedGate.Licensing.ClientTest.exe
    - Refresh Licenses
    - SmartAssembly
    - Activate...
    - No
    - Copy/paste a Professional key with 1000 users from http://licensing.testnet/sales/SerialNumbers/Generate.asp...
    - Yes
11. Share D:\...\TeamCityAgentA as ...
    - Development allow Read
    - No files or programs from the shared folder are available offline
12. Share D:\...\TeamCityAgentB
    - Development allow Read
    - No files or programs from the shared folder are available offline
13. Share D:\BuildAgentC as TeamCityAgentC
    - Development allow Read
    - No files or programs from the shared folder are available offline
14. Share D:\BuildAgentD as TeamCityAgentD
    - Development allow Read
    - No files or programs from the shared folder are available offline
15. Install NAnt
    - Grab binary zip from http://sourceforge.net/projects/nant/?source=dlp
    - Right-click it in Windows Explorer, go to Properties, and click Unblock -- http://bit.ly/Z7lRsT
    - Unzip to C:\Program Files\nant-0.92
    - Create new environment variable %NANTHOME% pointing to C:\Program Files\nant-0.92
    - Restart TC agents if applicable
16. Do Workaround #1 of http://blogs.msdn.com/b/vcblog/archive/2011/03/11/10140139.aspx
17. Install Windows6.1-KB2506143-x64 from \\rg-file01\Files\Disks\Development Software\Powershell\Powershell 3...

notable differences to the past

1. Previously the Application Server role was installed, but this time we've gone for just the Microsoft .NET Framew...
2. ILMerge is no longer installed (people should be using (SA))

Building build agents

- Spin up a new VM with the OS installed

- Install Puppet Agent

- Sign the node

- Classify the node

- Wait.

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Building build agents

```
# Build agent for BI stuff
node 'rg-buildbi01.red-gate.com' {
    include tcbase
    include buildserver
    include licensingtestnet
    class { visualstudio: versions => ['2013'] }
    class { tcagents: buildAgentsToMake => 1, isStandardBuildMachine => true, has_SSDT => true , servi
    include windowsupdates
}
```

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Windows package management

```
1   class javasesdk
2   {
3    package { 'java.jdk':
4      ensure   => installed,
5      provider => 'chocolatey',
6      require  => [Exec['install-chocolatey'], Package['javaruntime']],
7    }
8   }
```

```
1   class openmanage
2   {
3       package { 'Dell OpenManage Systems Management Software (64-Bit)':
4           ensure         => '7.4.0',
5           source         => '\\rg-puppetmaster01.red-gate.com\puppetdata\Dell\OpenManage Server Admini
6           install_options => ['/qn'],
7       }
8   }
9
```

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Not always so easy…

```
1   class visualstudio ($versions)
2   {
3    if member($versions, '2010')
4    {
5      package { 'Microsoft Visual Studio 2010 Premium - ENU' :
6        source          => "${tcbase::shareb}\\VS2010\\Setup\\Setup.exe",
7        install_options => ['/unattendfile Custom.ini', '/quiet', '/norestart'],
8        require         => [Package['Microsoft Windows SDK for Windows 7 (7.1)'], Exec['NET-Framework-Core']],
9      }
10     package { 'Microsoft Visual Studio 2010 SDK SP1' :
11       source          => "${tcbase::shareb}\\vssdk2010extracted\\vssdk.msi",
12       install_options => ['/qb'],
13       require         => [Package['Microsoft Visual Studio 2010 Premium - ENU']],
14     }
15
16     # Workaround 1 from http://blogs.msdn.com/b/vcblog/archive/2011/03/11/10140139.aspx
17     file { 'C:/Users/Public/Desktop/vs2010SigningWorkaround.ps1':
18       ensure           => 'file',
19       source           => 'puppet:///modules/buildserver/vs2010SigningWorkaround.ps1',
20       source_permissions => ignore,
21     }
22     exec { 'rewriteTargetsFile':
23       command  => "C:/Users/Public/Desktop/vs2010SigningWorkaround.ps1",
24       provider => powershell,
25       require  => [File['C:/Users/Public/Desktop/vs2010SigningWorkaround.ps1'], Package['Microsoft Visual Studio 2010 SDK SP1']],
26     }
27   }
28   if member($versions, '2012')
```

Monitoring

Hello, RED-GATE\Robert.Chipperfield

Nodes

Name	State	Fingerprint	Sign now	Last report	Last catalog	Last facts
is-hv17.testnet.red-gate.com	signed	91:86:C1:F4:8F:E1:E2 ...	Signed	27/01/2015 17:13:27	27/01/2015 17:14:11	27/01/2015 17:14:11
is-hv18.testnet.red-gate.com	signed	28:6C:68:6B:D6:F9:69 ...	Signed	27/01/2015 17:31:54	27/01/2015 17:32:22	27/01/2015 17:32:22
jason64.red-gate.com	signed	1E:A2:1C:A0:76:24:8F ...	Signed	-	-	-
nhcubetest1.testnet.red-gate.com	signed	DF:97:05:AB:E4:E5:8A ...	Signed	-	01/12/2014 16:15:08	01/12/2014 16:15:06
nhcubetest2.testnet.red-gate.com	signed	1B:81:BA:32:6E:86:06 ...	Signed	-	01/12/2014 16:17:22	01/12/2014 16:17:20
nhcubetest3.testnet.red-gate.com	signed	68:2E:33:59:2E:3C:B4 ...	Signed	-	01/12/2014 15:59:15	01/12/2014 15:59:13
puppetlicensing.testnet.red-gate.com	signed	DD:5A:85:31:CF:24:09 ...	Signed	22/01/2015 08:47:34	22/01/2015 08:47:18	22/01/2015 08:47:18
rg-buildbi01.red-gate.com	signed	DF:A2:51:B5:41:C3:28 ...	Signed	-	19/01/2015 04:23:25	19/01/2015 04:23:24
rg-buildpuppet1.red-gate.com	signed	FB:CE:FE:74:EB:26:72 ...	Signed	-	19/01/2015 04:30:31	19/01/2015 04:30:30
rg-buildpuppet7.testnet.red-gate.com	signed	67:10:28:07:B6:46:D5 ...	Signed	-	15/10/2014 09:37:01	15/10/2014 09:37:00
rg-buildvs2010-1.red-gate.com	signed	DF:D2:FD:AB:B4:FF:A7 ...	Signed	-	19/01/2015 04:26:12	19/01/2015 04:26:11
rg-drclu01-n1.red-gate.com	signed	10:D8:51:C6:4E:42:7B ...	Signed	27/01/2015 17:24:57	27/01/2015 17:25:25	27/01/2015 17:25:24
rg-drclu01-n2.red-gate.com	signed	0A:FB:C4:57:FE:5F:98 ...	Signed	27/01/2015 17:10:57	27/01/2015 17:11:26	27/01/2015 17:11:25
rg-drclu01-n3.red-gate.com	signed	56:C2:52:D6:DD:DF:B6 ...	Signed	27/01/2015 17:16:18	27/01/2015 17:16:49	27/01/2015 17:16:48
rg-drclu01-n4.red-gate.com	signed	5E:46:04:49:9D:C4:7C ...	Signed	27/01/2015 17:12:11	27/01/2015 17:12:39	27/01/2015 17:12:38
rg-eventcube02.red-gate.com	signed	01:44:37:28:DD:72:ED ...	Signed	27/01/2015 17:22:20	27/01/2015 17:22:06	27/01/2015 17:22:05
rg-exchlb01	signed	83:B4:21:25:AC:63:32 ...	Signed	27/01/2015 17:19:30	27/01/2015 17:14:04	27/01/2015 17:14:03
rg-puppetmaster01.red-gate.com	signed	5D:90:BE:9E:A3:9A:4E ...	Signed	27/01/2015 17:24:02	27/01/2015 17:24:03	27/01/2015 17:24:02
rg-vmhostdmz02.red-gate.com	signed	AB:60:E1:29:78:01:8F ...	Signed	27/01/2015 17:15:50	27/01/2015 17:16:10	27/01/2015 17:16:10
rg-webcap01.red-gate.com	signed	3E:BE:E7:BA:3A:CD:8E ...	Signed	27/01/2015 17:31:10	27/01/2015 17:30:54	27/01/2015 17:30:53
sabuildserver1.testnet.red-gate.com	signed	AB:76:16:7B:77:36:14 ...	Signed	-	26/11/2014 19:21:59	26/11/2014 19:21:58
testagent01.testnet.red-gate.com	signed	4D:B4:E1:3B:64:09:6F ...	Signed	27/01/2015 17:29:44	27/01/2015 17:29:05	27/01/2015 17:29:04

Report

Properties

Node name	testagent01.testnet.red-gate.com
Start time	27/01/2015 17:28:56
End time	27/01/2015 17:29:44
Duration	0m48s

Events

Type	Name	Status	Message
Exec	add-buildmasters-to-local-admin	success	executed successfully
Exec	add-automatedtest-to-local-admin	success	executed successfully
Exec	AddAutomatedTestToLogonAsService	success	executed successfully
Exec	add-automatedbuild-to-local-admin	success	executed successfully
Exec	licensing_registry_permissions	success	executed successfully
Exec	AddAutomatedBuildToLogonAsService	success	executed successfully
File	C:/scripts/su2D.var	success	defined content as '{md5}2e3db55e96f7d5af180fe32a31cd1
Exec	changeUserOnAgentServiceD	success	executed successfully
Exec	delete_su2D_var	success	executed successfully
File	C:/scripts/su2C.var	success	defined content as '{md5}2e3db55e96f7d5af180fe32a31cd1
Exec	changeUserOnAgentServiceC	success	executed successfully
Exec	delete_su2C_var	success	executed successfully
File	C:/scripts/su2A.var	success	defined content as '{md5}2e3db55e96f7d5af180fe32a31cd1
Exec	changeUserOnAgentServiceA	success	executed successfully
Exec	delete_su2A_var	success	executed successfully
Exec	sql_toolbelt11_license	success	executed successfully
Exec	smartassembly_license	success	executed successfully

The harder bits

- Ordering / dependencies not always clear

- Installers of variable quality

- User profiles – particularly UAC
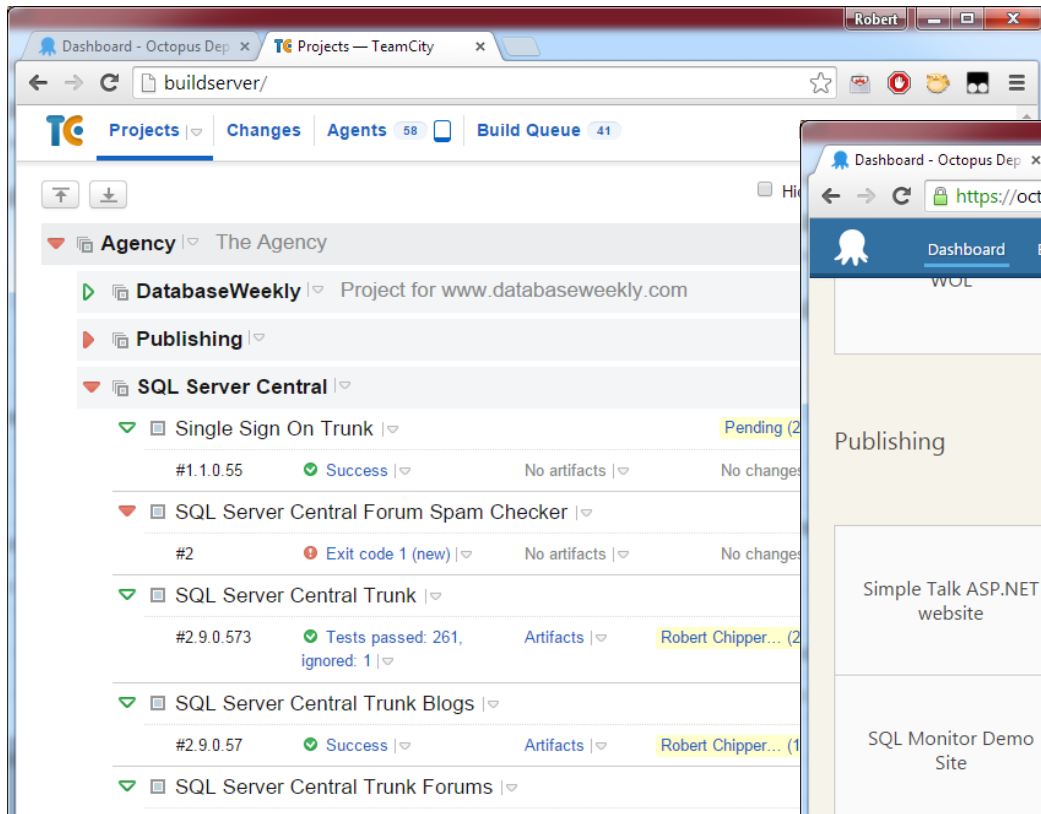
- Credential security

- Discipline!

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Next?

- Anything you have more than one of
- …or have to rebuild frequently
- …or have to know its configuration

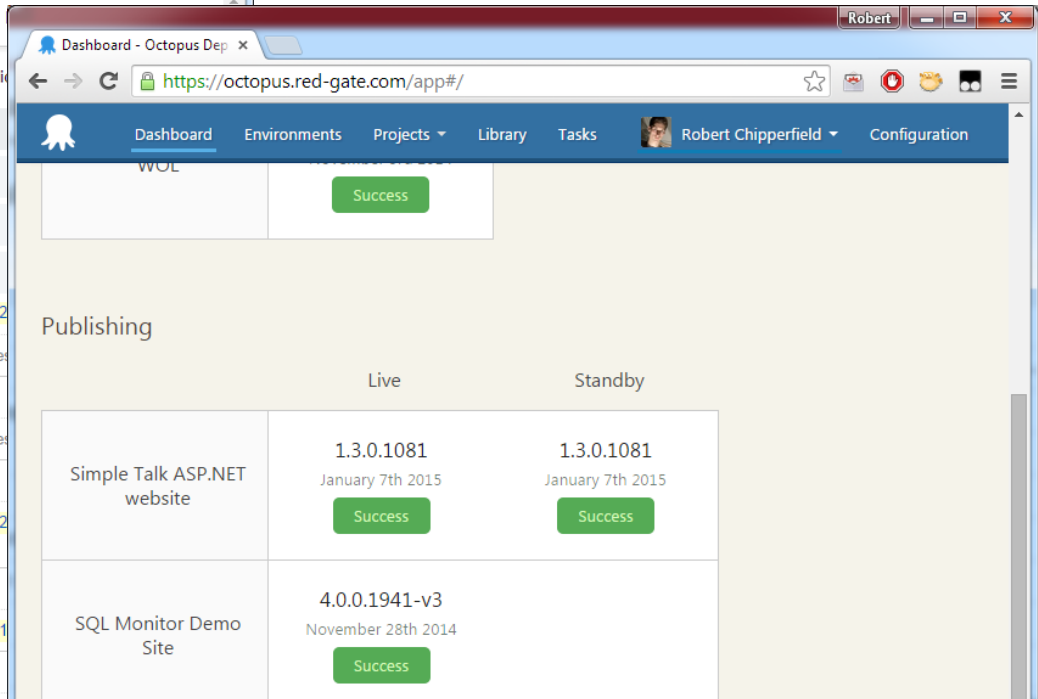- Probably not core MS infrastructure (DCs, System Center suite, WSUS, …)

http://hyperboleandahalf.blogspot.co.uk/

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Puppet and continuous delivery