

Web-scale XenDesktop with PowerShell DSC

#E2EVC Berlin 2015



Agenda

- Er? You desire what?!
- Microsoft RDS and DSC
- Citrix XenDesktop and DSC
- Demo time!
- Wrap up
- Questions

Iain Brighton

- Principal Consultant @ Virtual Engine
 - Automation and end-user computing focused
 - RES Consulting Partner
 - E2E sponsor
- RES Certified Trainer (RCT) and Valued Professional (RSVP)
- Part-time amateur developer and Powershell “junkie”
 - Virtual Engine Toolkit (VET)
 - App-V Configuration Editor (ACE)
 - App-V ~~OneGet~~ Package Management provider **new**



What is Desired State Configuration?

"DSC is a new management platform in Windows PowerShell that enables deploying and managing configuration data for software services and managing the environment in which these services run."



Say whaaat?!

- Standards-based
 - DMTF Managed Object Framework (.MOF) document
 - Linux support via OMI
- Declarative document
 - Defines the target state
 - Contains no implementation details
 - Powershell is not required to author documents
- Idempotent resources
 - Rinse and repeat
 - Eventually consistent

Why Use DSC?

- Windows-native
 - Support in Windows Management Framework 4.0
- Traditional deployment methodologies don't work in the cloud
 - OSD, MDT, WDS and/or PVS
 - Image management (except MCS in AWS)
- It's "just" a document
 - Great for version control/change management
 - Self-documenting
- Environmental separation
 - Continuous integration
 - Dev > Test > UAT > Production



Our Requirements

- Native
 - Little or no reliance on 3rd party products
 - 2008 R2+ (with WMF 4.0)
- Hypervisor- and cloud-agnostic
 - Deploy locally, on premises or in the cloud
- Use cases
 - Local and/or cloud training environments
 - Local and/or cloud development environments
 - Local and/or cloud test environments
 - Local and/or cloud RES Showcase environments



Microsoft RDS DSC Resources

- **xRemoteDesktopSessionHost**

- xRDSessionDeployment, xRDSessionCollection, xRDSessionCollectionConfiguration and xRDRemoteApp
- Now open source!
- <https://github.com/PowerShell/xRemoteDesktopSessionHost>

- **cRemoteDesktopServices**

- Open source community resource created by Nicholas Dille
- cRDSessionHost, cRDWebAccessHost, cRDSessionDeployment
- <https://github.com/nicholasdille/DSCResources>
- Requires WMF 5.0




Citrix XenDesktop DSC Resources

- **CitrixXenDesktop**

- Citrix_XenDesktopRole
- Released by Citrix Labs (Brian Ehlert)
- <http://blogs.citrix.com/2014/09/18/what-is-desired-state-configuration/>





...to the Bat cave!

@\$!#!?%

- Delivery Controller = 614 cmdlets
- Storefront = 106 cmdlets
- XenDesktop cmdlets
 - **Have** to run with a domain account
 - **No** *–Credential* parameter on (any) Citrix XenDesktop cmdlets
 - **No** *–Credential* parameter on Invoke-Command -ScriptBlock
 - DSC runs as **LOCALSYSTEM**
 - LOCAL SYSTEM **cannot** impersonate



Think big
Start small
Move fast



NEW

New XenDesktop Resources

- Open source!
- cCitrixXenDesktop7
 - 16 x new targeted DSC resources
 - **Should*** work on XenDesktop 7.0 upwards
 - **Should*** be DSC 2.0 compatible
 - <https://github.com/VirtualEngine/cCitrixXenDesktop7>
- cCitrixXenDesktop7Lab
 - 8 x new composite DSC resources
 - Hides some of the complexity
 - Requires xCredSSP, xWebAdministration and cPfxCertificate
 - <https://github.com/VirtualEngine/cCitrixXenDesktop7Lab>



Partial Deployment



E2EDC01



E2EDB01



EUDBLS01



E2EXC01



E2EXC02



E2ESF01



E2ESF02



E2ESH01



E2ESH02

Pre-Installation Tasks

- Hyper-V Host
 - Created an anonymous file share
 - LCM runs under LOCALSYSTEM context
 - Downloaded, extracted and shared XenDesktop ISO
 - Updated to License server version 11.12.1
 - Downloaded and shared Citrix XenDesktop license file
- All VMs
 - Fully patched (including KB2883200 and KB3000850)
 - Installed required DSC resources
 - Installed self-signed public root CA certificate
 - Installed self-signed Client certificate (with private key)



Pre-Installation Tasks Cont.

- E2EDC01
 - Installed Active Directory and DNS
 - CNAME created for 'storefront.testlab.local'
 - Created XenDesktop user accounts/groups
 - 'TESTLAB\XDA' account is local administrator on all servers
- E2EDB01
 - Installed SQL 2012 Express
- E2ESF01 / E2ESF02
 - Installed Internet Information Services role features*
- E2ESH01 / E2ESH02
 - Installed Desktop Experience and Remote Assistance*



Complete Deployment



HOST



E2EDC01



E2EDB01



EUDBLS01



E2EXC01

E2EXC02



E2ESF01

E2ESF02



E2ESH01

E2ESH02



Pray to the
demo Gods

Citrix and Powershell



Why/When Not to Use DSC?

- Disruptive **operational** change
 - Cloud management technologies are disruptive
- DSC != Infrastructure as code
 - Requires additional orchestration
 - AWS CloudFormation and Azure Resource Manager Templates
 - Chef and Puppet etc.
- Not all services are a good candidate
 - Active Directory users/groups?
 - DNS client host records?
 - Patching?!

DSC 2.0 Enhancements

- Push and Pull Partial Configurations
 - Pull resources from SMB
 - Pull configurations from Odata web server
- Pull server configuration guides removed
- **PsDscRunAsCredential**
- Scheduled Tasks Removed
- Class-based resources





What's Next?

- Community contributions
- XenDesktop 7.x testing
- Resources
 - Storefront/X1
 - Application
 - Controller HTTPS communication
 - PVS/MCS machine catalogs
 - Citrix Receiver
- Cloud platform integration
 - AWS CloudFormation Templates
 - Azure Resource Manager Templates



Additional Resources

- Getting Started with DSC (Series)
 - <http://channel9.msdn.com/Series/Getting-Started-with-PowerShell-Desired-State-Configuration-DSC>
- Advanced DSC and custom resources (Series)
 - <http://channel9.msdn.com/Series/Advanced-PowerShell-Desired-State-Configuration-DSC-and-Custom-Resources>
- Open source DSC resources
 - Microsoft – <https://github.com/powershell>
 - Powershell.org – <https://github.com/powershellorg>



Questions?



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