I Needed to Install 80 SQL Servers…Fast. Here's How I Did It!

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Agenda

- Scenario
- What is DSC?
- DSC “resources”
- DSC Fundamentals
- Installing SQL Server With DSC
- Implementing SQL Server Best Practices
- Leveraging DSC for Disaster Recovery

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The Scenario

- Migrating a client between two data centers
- Management mandated build new for all systems
- Staff turnover left them with 0 DBAs

DSC to the Rescue!

- PowerShell Desired State Configuration
- Defining configuration in code
- Repeatable process
- Configuration standardization
- Scale out installations
- Reducing human error (or increases it) ;)
- DSC isn’t just deployment…it’s configuration management

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Learning DSC

- Pluralsight
- The DSC Book by Don Jones and Missy Januszko
- GitHub Examples
- Building a Test Lab
  - Start off with a very simple configuration…creating a file

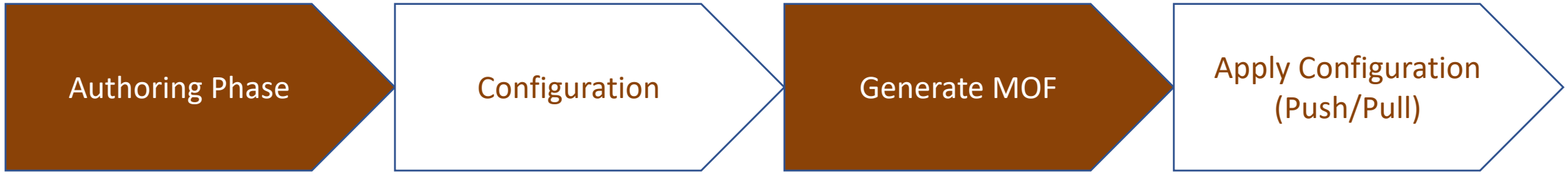
DSC Fundamentals

- Local Configuration Manager (LCM)
- Configurations
- Resources
- Deployment model – pull or push?
- MOF and the Meta-MOF
- Authoring workstation
- Windows Management Framework

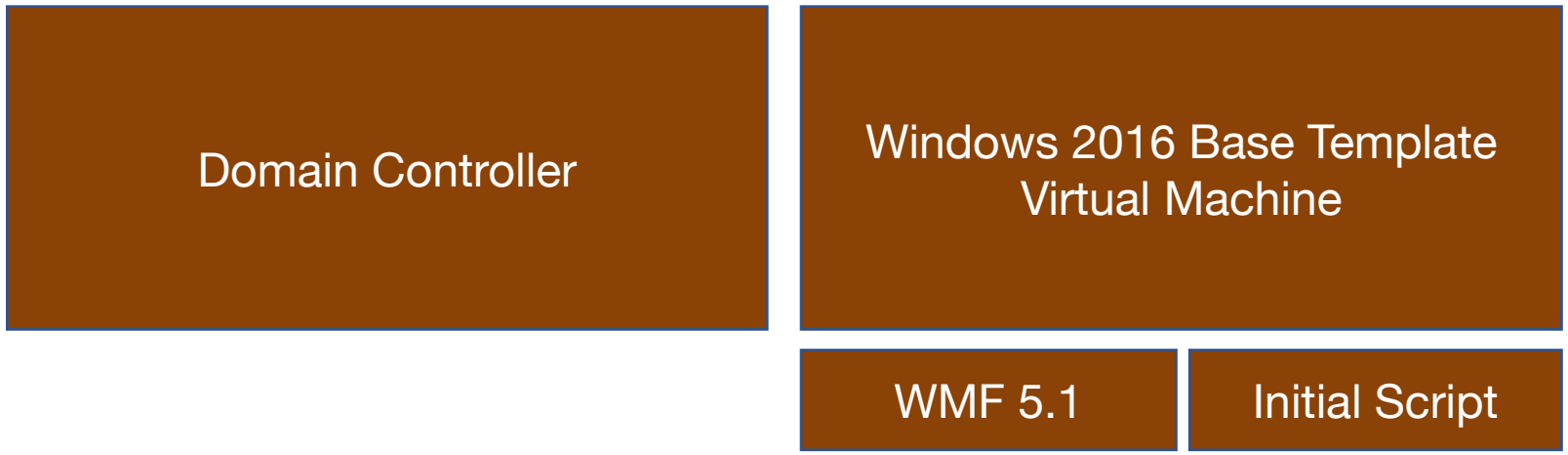
DSC Resources

- Provide the implementation of your desired state
- Resources implement an interface
  - Get/Set/Test functions
- Deployed as PowerShell modules
  - `Install-Module SqlServerDsc`
  - Must exist on the authoring workstation and target system

Using DSC


Authoring Phase
Configuration
Generate MOF
Apply Configuration
(Push/Pull)

Needed a Test Lab



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Demo

- Copying a file with DSC

Describing the Environment

- Goal is to build many SQL Servers, fast!
- Parameterized configuration scripts
- Configuration Data

Demo

- Installing two SQL Servers with DSC

Best Practice SQL Server Configuration

- Enforcing installation standards
- Documented installs
- Reduces errors and installation inconsistency
- Implement and standardize SQL Server best practices
  - File locations, instance settings…etc
  - Windows OS specific configuration
    - Power Plan, directories, memory and swap settings

Leveraging DSC for Disaster Recovery

- Don’t need to troubleshoot, just re-deploy and restore your databases
- Deploying a two replica AG configuration takes about 2 minutes
- This is hard
  - Install and configure a failover cluster
  - Deal with the Active Directory components of the cluster
  - Install and configure SQL Server
  - Create and configure the AG
  - Create the Listener

Scenario

- About half way through the project 2 DBAs were hired
- Built new and migrated 80 SQL Servers
  - Migrated 1000+ databases
- Tightly controlled configuration
- Team embraced the automation mentality
- Financial institution, 300 SQL Servers taken out by malware
  - No problem!

What's next

- Configuration management
  - Detecting when configuration skews from the desired state
- Persisting the state of the system
- Embedded MOF for domain join and network configuration
- Test lab migration from VMWare Workstation to Hyper-V

Review

- Scenario
- What is DSC?
- DSC “resources”
- DSC Fundamentals
- Installing SQL Server With DSC
- Implementing SQL Server Best Practices
- Leveraging DSC for Disaster Recovery

Need more data?

- Blog
- www.centinosystems.com/blog
- Email: aen@centinosystems.com
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- Pluralsight – www.pluralsight.com
- Windows PowerShell Desired State Configuration Fundamentals – Jeff Hicks
- Practical Desired State Configuration (DSC) – Josh Duffney

- The DSC Book – Don Jones and Missy Januszko

- GitHub
- SQL Server - https://github.com/PowerShell/SqlServerDsc
- SQL Server Examples - https://github.com/PowerShell/SqlServerDsc/tree/dev/Examples
- DSC Resource Kit - https://github.com/PowerShell/DscResources

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