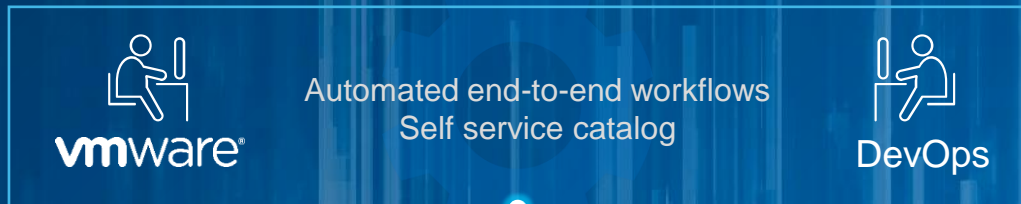


# Automation with PowerShell & Ansible

# Programmable infrastructure

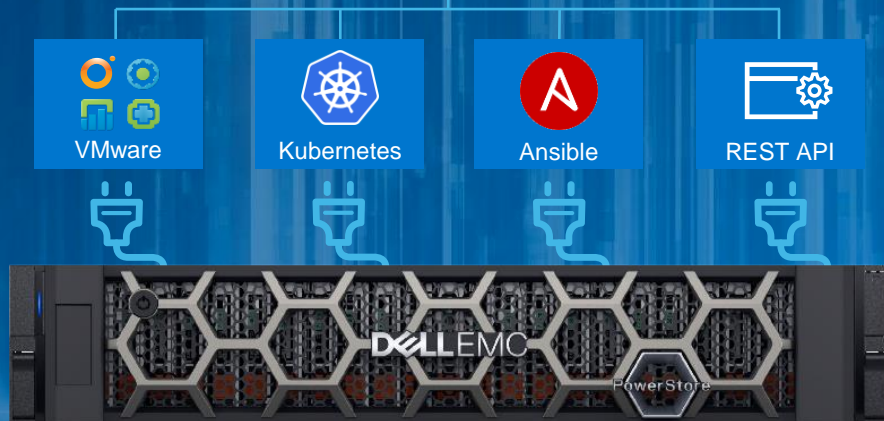
Enabling automation and DevOps



Automate storage provisioning processes

Deploy new resources in **seconds** vs days\*

Eliminate manual steps to reduce risk



\*Assumes multiple teams and manual approval process

# Why automation?

- Standardization
- Homogenization
- Optimization of recurring tasks
- Time savings
- ...

# Automation use case

Provision new volumes to a single host or multiple hosts

- Create ne volumes
- Map volumes to host(s)
- Lookup volumes on host(s)
- Create filesystems on volumes

# Automation use case

Create and assign protection policies to volume

- Create/modify protection policies
- Create/modify snapshot schedules
- Assign protection policies to volume

# Automation use case

Create application consistent snapshots

- Pause application on host
- Take volume snapshots
- Resume application on host

# Powershell

# PowerShell

- PowerShell is a cross-platform automation platform that is rapidly gaining in popularity.
- PowerShell offers functionality that is lot more than typical shell scripting environment.
- The .NET object support with easy to discover functionality makes it much more powerful in building automation and configuration management that connects applications and infrastructure across applications, databases and operating systems.
- PowerShell Gallery has thousands of third-party contributed packages and is a must-have in any IT environment.



# PowerShell Modules for Dell EMC PowerStore

- Use PowerShell to automate and orchestrate the configuration and management of Dell EMC PowerStore arrays
- The following Cmdlets are available to list, show, create, modify, and delete the PowerStore objects.
  - **Host and Host Group Management**
  - **Volume and Volume Group Management**
  - **Protection Policy Management**
  - **Volume and Volume Group Replication Management**
  - Cmdlets for PowerStore Cluster
  - Cmdlets for PowerStore Volumes
  - Cmdlets for PowerStore Volume Snapshots
  - Cmdlets for PowerStore Volume Mappings
  - Cmdlets for PowerStore Volume Groups
  - Cmdlets for PowerStore Volume Group Snapshots
  - Cmdlets for PowerStore Protection Policies
  - Cmdlets for PowerStore Replication Sessions
  - Cmdlets for PowerStore Host
  - Cmdlets for PowerStore Host Group

# Requirements

What do I need?

- One control host (Windows)
- PowerShell
- PowerShell Module for Dell EMC PowerStore 1.0
  
- Dell EMC PowerStore Arrays version 1.0

# PowerShell Demo

# Ansible

# What is Ansible

- An open-source configuration management, provisioning, and automation platform
- Agentless. Use only SSH to connect to hosts and perform various configuration tasks.
- Flexible and scalable. A single control host can manage many hosts.
- Simplify administration and configuration tasks – Ansible comes with a large number of build-in modules.
- Ansible Galaxy – An Ansible community that provides pre-packaged roles.

# Ansible Modules for Dell EMC PowerStore

- Use Ansible to automate and orchestrate the configuration and management of Dell EMC PowerStore arrays
- The following modules are available to list, show, create, modify, and delete the PowerStore objects.
  - Volume module
  - Volume group module
  - Host module
  - Host group module
  - Snapshot module
  - Snapshot rule module
  - Protection policy module
  - Gather facts module
  - File system module
  - NAS server module
  - SMB module
  - Quota module
  - File system snapshot module
  - NFS module
- The operations of the modules are idempotent.

# Requirements

What do I need?

- One control host (Red Hat Enterprise Linux 7.6, 7.7, 7.8, 8.2)
- Ansible 2.8 or higher
- Python 2.7 or higher
- Python Library for PowerStore version 1.2
  
- Dell EMC PowerStore Arrays version 1.0

# Ansible Demo



# Additional resources

- PowerStore resources
- See [Dell.com/StorageResources](https://www.dell.com/storage-resources) for additional videos and white papers.
- See [Dell.com/PowerStoreDocs](https://www.dell.com/powerstore-docs) for user manuals and product documentation.
- See [github.com/dell](https://github.com/dell) for Ansible module download and sample scripts.
- See <https://www.delltechnologies.com/en-us/storage/storage-automation-and-developer-resources/index.htm>

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