Automating vSphere with Ansible

VMware User Group Session

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What is Ansible?

Open Source configuration management solution owned by IBM/RedHat

- An Enterprise edition does exist for additional capabilities on top of the existing freely-available option.

Strong enabler of Infrastructure as Code concept within IT.

Leverages an easy to understand scripting model and a wide array of modules that enable automation across many services.

VMware + Ansible

Ansible has a wide and deep array of modules that provides automation-access to many services… including VMware-based solutions.

This enables IT teams to manage VMware-based solutions using similar toolsets… and provides efficiencies as a result.

Ansible leverages a VMware-developed Python SDK for the vSphere API called pyVmomi.

- The SDK enables access for a number of solutions, including:
  - On-prem vSphere: 6.0, 6.5, 6.7, 7.0
  - NSX-T: 2.2, 2.3, 3.0
  - NSX-T (VMC): 1.7, 1.8, 1.9

vRealize Automation 8 includes the ability to run Ansible Playbooks!

What are we going to do here?

Keep slides to a minimum! ☺

Run through some Ansible concepts to help level-set.

Define a set of configurations that we want to see in a vSphere environment.

Deploy a vSphere environment using our desired configuration, defined and executed with Ansible playbooks.

Validate everything works like we wanted it to.

Ansible Concepts Used In This Session

Control Node: A machine that has Ansible installed

- Ansible is agentless and relies on SSH and/or Python to manage configurations.

Modules

- Sections of code that Ansible executes.
- Enables automation of various infrastructure services.

Playbooks

- List of tasks to be executed in order. Tasks call a module to perform an action.

Answer File

- Contains category and key-value pair that enables the creation of generic playbooks that can be used multiple times. Just change the answer file to provide environment-specific configurations.

Show Ansible Cloud Documentation

https://docs.ansible.com/ansible/latest/modules/list_of_cloud_modules.html

Highlight the categories in the Module Index on the left.

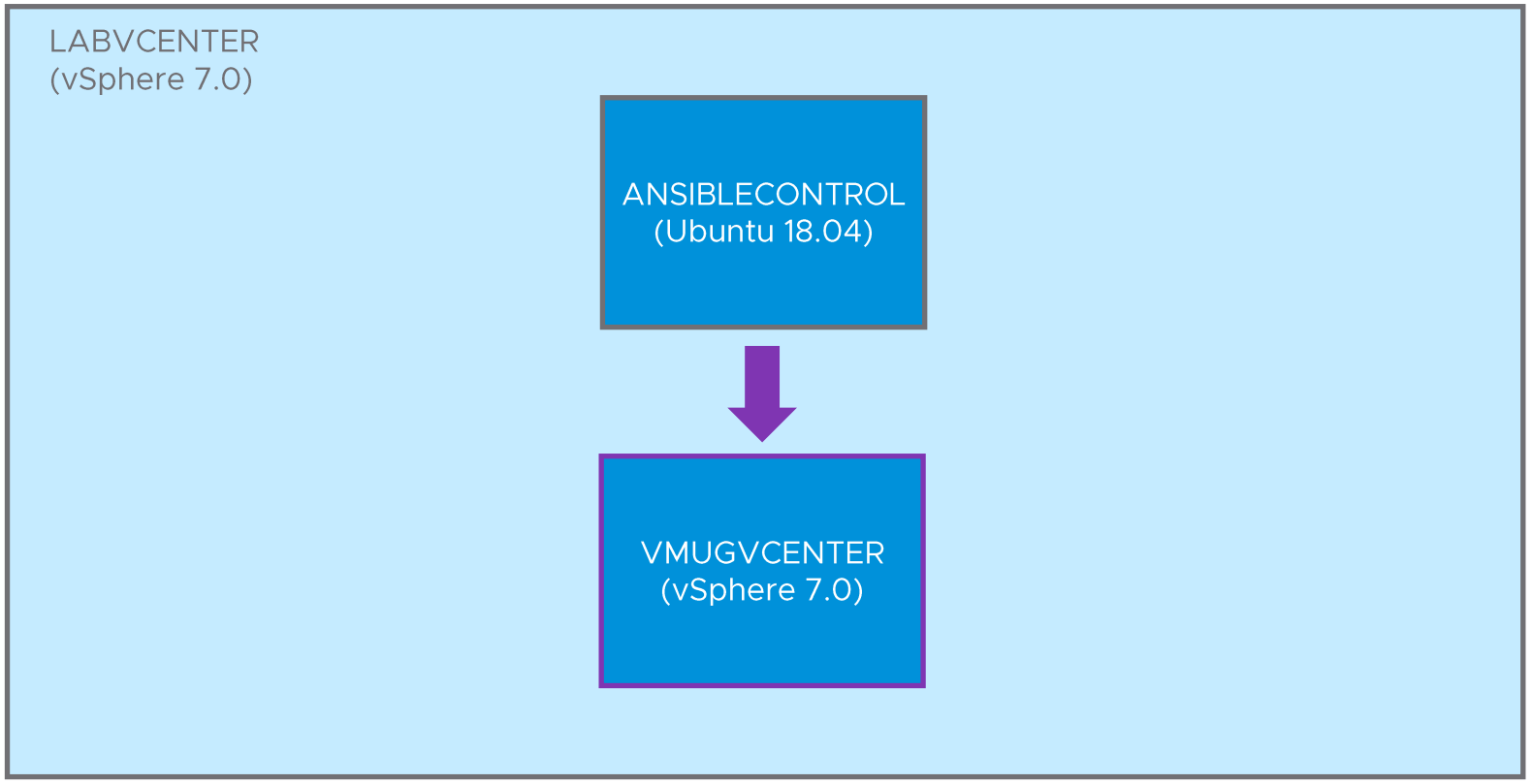
We are in the Cloud module section

Let's scroll to the VMware section

- As we scroll through, make note of the significant number of integrations and solutions available to Ansible users.

Open one of the modules and tour through it.

Lab Environment Details



Let's Review

Specified environment specific parameters in an answer file

Leverage generic Ansible playbooks to:

- Deploy a vCenter Server Appliance
- Configure a Datacenter
- Configure a Cluster
  - Enable HA/DRS
- Configure a Distributed Virtual Switch
- Configure a Port Group
- Create Tag Categories
- Create Tags and assign to appropriate Category
- Assign Tags to objects in vSphere

What were we setting out to do?

Introduce you to what Ansible is.

Show how you can leverage Ansible to automate vSphere environments.

Move beyond concepts and actually deploy and configure the vSphere environment.

- Create playbooks and answerfile
- Deploy the vCenter environment using Ansible and playbooks
- Confirm successful deployment and configuration after execution of the playbooks
- Validate in the live vCenter environment that the deployment was successful and all of the configurations we wanted to make were there.