Red Hat Solutions on Microsoft Azure
Cleveland Red Hat Users Group Meeting

November 7th 2016

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Technology Solutions Professional

Global Black Belt Team - Open Source Azure Incubation

Microsoft

Agenda

- Who am I ?
- Microsoft and Open Source
- Running Linux Workloads on Azure
- A tour of github and the Azure Marketplace
- A tour of the Azure Portal
- Deciphering ARM (Azure Resource Manager) Templates
- Deploying a 10-node load balanced Linux cluster using ARM

Who am I ? – Stuart R. Kirk

- Joined Microsoft in June/2016
- Live in Ann Arbor, Michigan, originally from Canada
- Part of Americas Global Black Belt OSS Team
- Majority of career in OSS: Wipro, Dell, Cisco, Red Hat
- MCSA: Linux on Azure
- Red Hat Certified Architect (RHCA)
- Interests: Linux Infrastructure, Open Source PaaS, Docker, DevOps
- Enjoys: NCAA Hockey, Travel / Cruises, Music, All things Disney!

Microsoft

Microsoft and Open Source

Microsoft + Open Source: Empowering Customers

Our Products

SQL Server on Linux

Acquisition

HD Insight managed service on Linux

```
Windows Subsystem for Linux
C:\Users\markhill> bash
  root@localhost: #
```

Run Linux on Windows natively

Our Offerings

Azure Marketplace

1 out of 3

60% of all images in Azure Marketplace are based on Linux/OSS

1 out of 3 VMs on Azure run Linux, and more than half of all new VMs run Linux

Our Partnerships

Partnership

Jenkins project on Azure

Microsoft joins Eclipse Foundation

Partnership with the Linux Foundation for Linux on Azure certification

Our Employees

Ross Gardler
President Apache SW Foundation

Brendan Burns
Co-Founder of Kubernetes

600 Million+
Lines of open source code
[Microsoft Open Source Hub]

Linux Distribution Status

Red Hat Enterprise Linux (RHEL)			
Version	*32/64?*	*LIS Built-in?*	*LIS download?*
5.2 thru 5.4*	32 & 64		LIS 4.1
5.5 thru 5.8	32 & 64		LIS 4.1
5.9 thru 5.11	32 & 64	Yes	LIS 4.1
6.0 thru 6.3	32 & 64		LIS 4.1
6.4 thru 6.7	32 & 64	Yes	LIS 4.1
6.8	32 & 64	Yes	Soon
7.0 thru 7.1	64 only	Yes	LIS 4.1
7.2	64 only	Yes	LIS 4.1

CentOS			
Version	*32/64?*	*LIS Built-in?*	*LIS download?*
5.2 thru 5.4*	32 & 64		LIS 4.1
5.5 thru 5.8	32 & 64		LIS 4.1
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7.2	64 only	Yes	LIS 4.1

Microsoft

RHEL versions with LIS built-in are certified by Red Hat for running on Hyper-V/Azure, so you get the full benefits of your RHEL subscription.

Azure is an open cloud

Why Linux on Azure

- Our customers want it!
- Roughly 1 out of 3 VMs run Linux & OSS
- Enterprise grade cloud leadership
- Only true hybrid cloud

→ Our goal is to be the most complete and *open* cloud

Linux in Azure

IaaS → PaaS

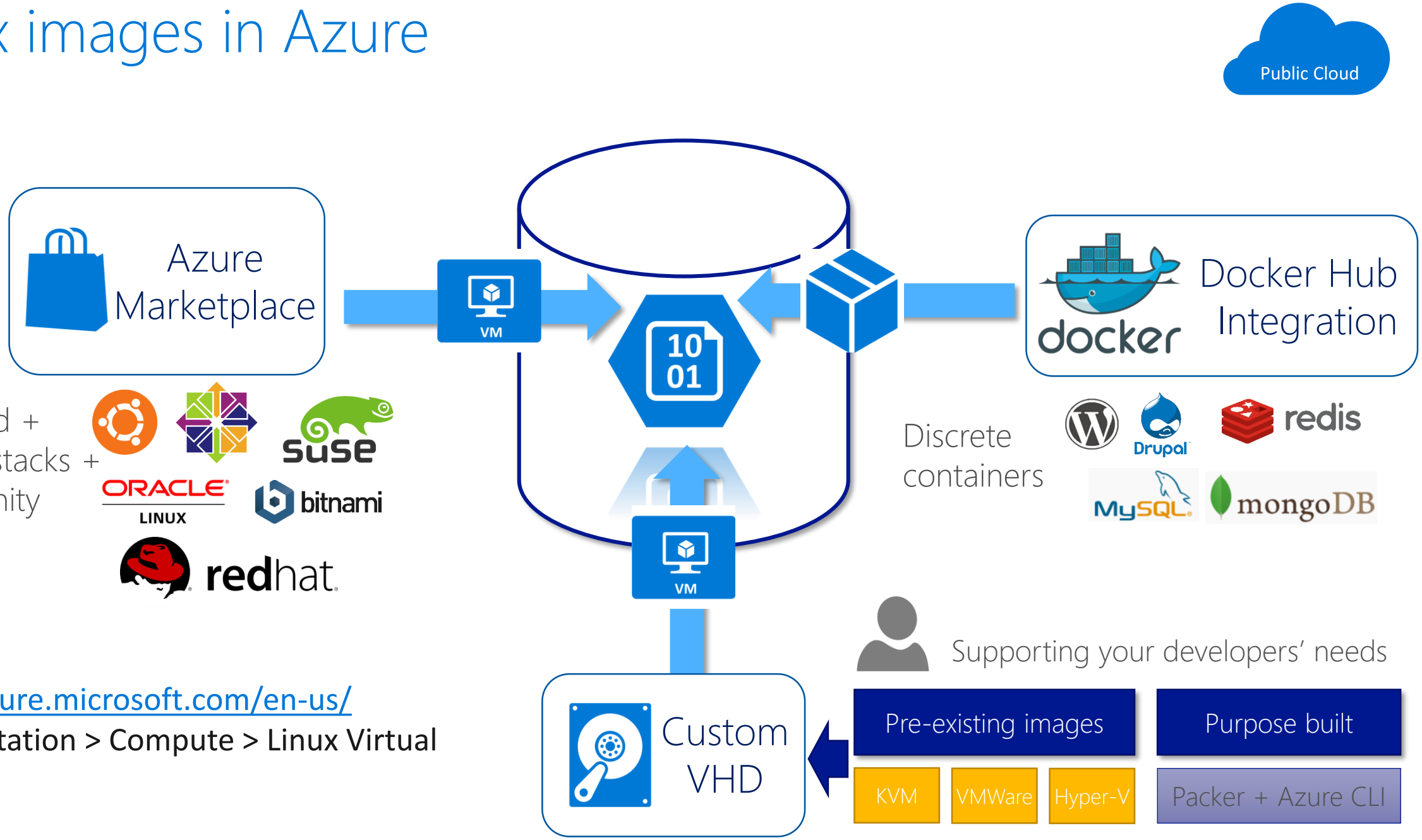
Virtual Machines	VM Extensions + Containers	VM Scale Sets	OpenShift Container Services Service Fabric (future)
Bring your Linux VM	Automate everything	Elastic Declarative	Stateless & Stateful

Ultimate Control → Cost & Agility

All running in your Linux OS, leveraging the skills and tools you have, in Azure's hyperscale platform

Running Linux Workloads on Azure

Linux images in Azure

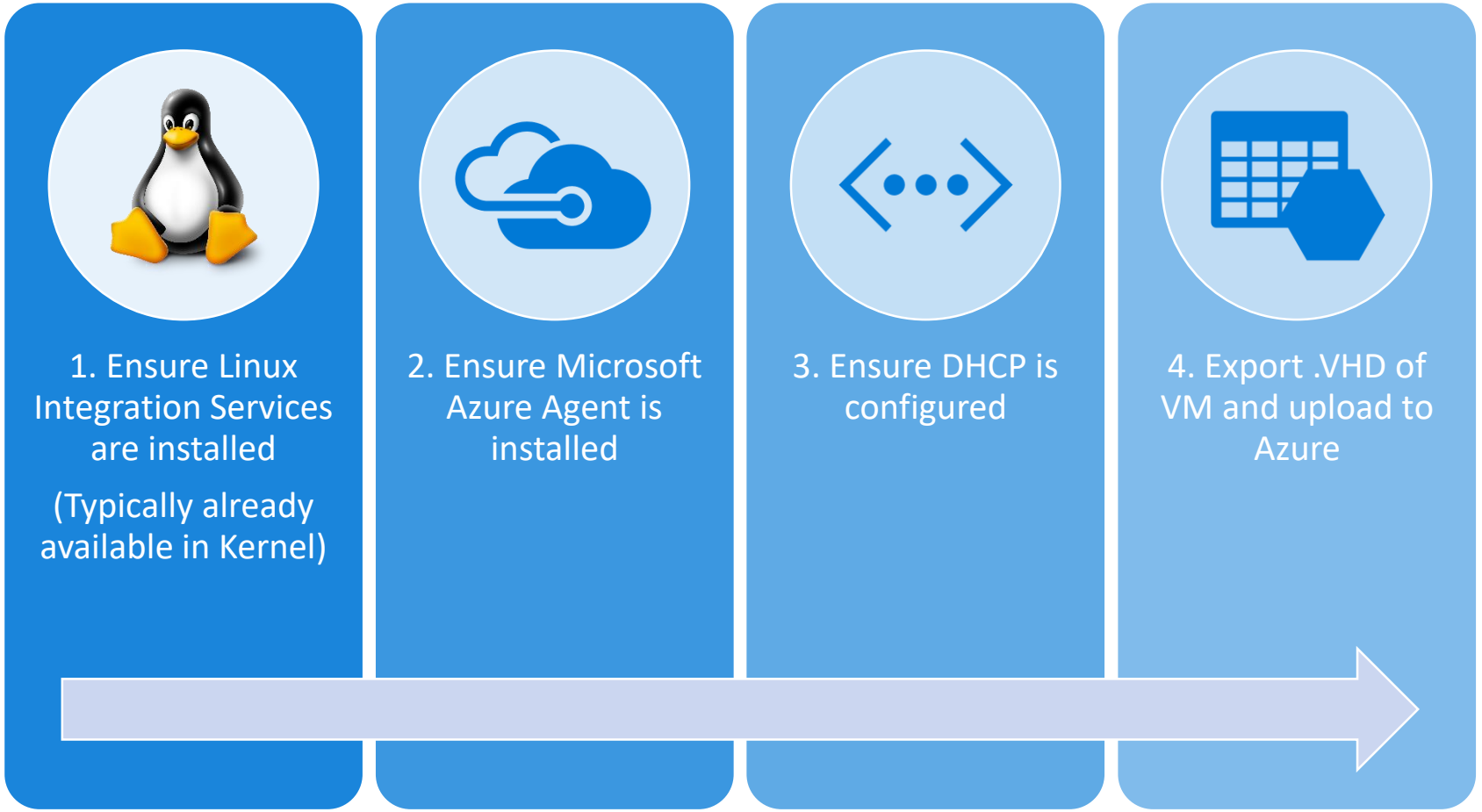


https://azure.microsoft.com/en-us/

Documentation > Compute > Linux Virtual Machines

Microsoft

Creating a Linux VM Image for Azure



https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-linux-agent-user-guide/

https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-linux-redhat-create-upload-vhd/

Linux images in the Azure Marketplace

Azure Endorsed Linux Distributions

Published, maintained and supported by partners, curated & tested by Microsoft

Most endorsed distros maintain repos in each Azure region for fast updating

Standard Images

Customers can contact Linux vendor/partner for Linux support

Azure-related platform issues supported by Microsoft

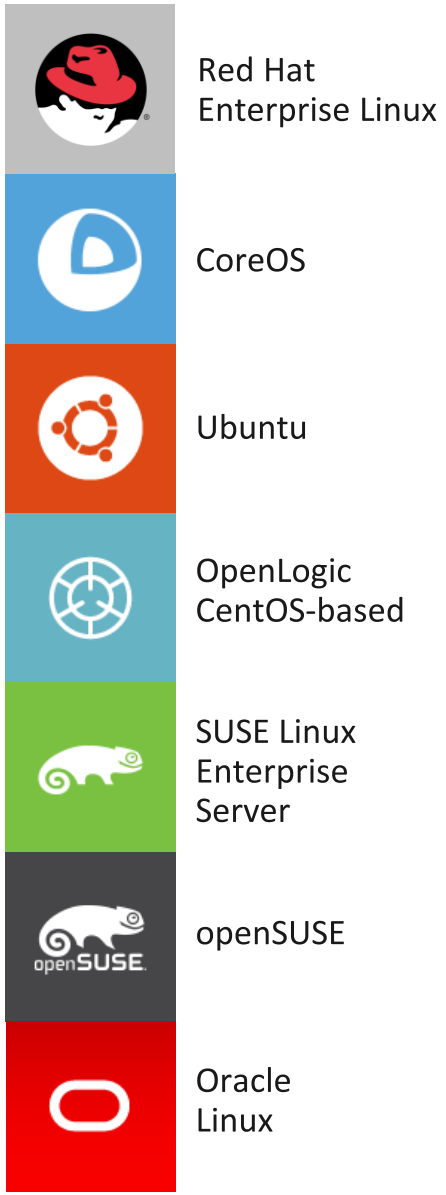
Limited support for Linux issues -- from Microsoft

Premium Images

Microsoft engages the Linux vendor/partner on behalf of the customer for support

Includes updates, patches, and support through 24x7 web, email, chat and phone

Available for Red Hat Enterprise Linux and SUSE Linux Enterprise Server



Microsoft

Working with Microsoft Azure

- Many methods to access Microsoft Azure
- Main interfaces are through the Azure Portal and CLI
  - Web Portal: http://portal.azure.com
  - CLI: NodeJS-based command line toolset (`npm install -g azure-cli`) or available as Docker container
  - PowerShell: Install-Module AzureRM ; Install-Module Azure

- Integration into IDEs
  - Microsoft Visual Studio
  - Eclipse

Microsoft

Transitioning to Azure

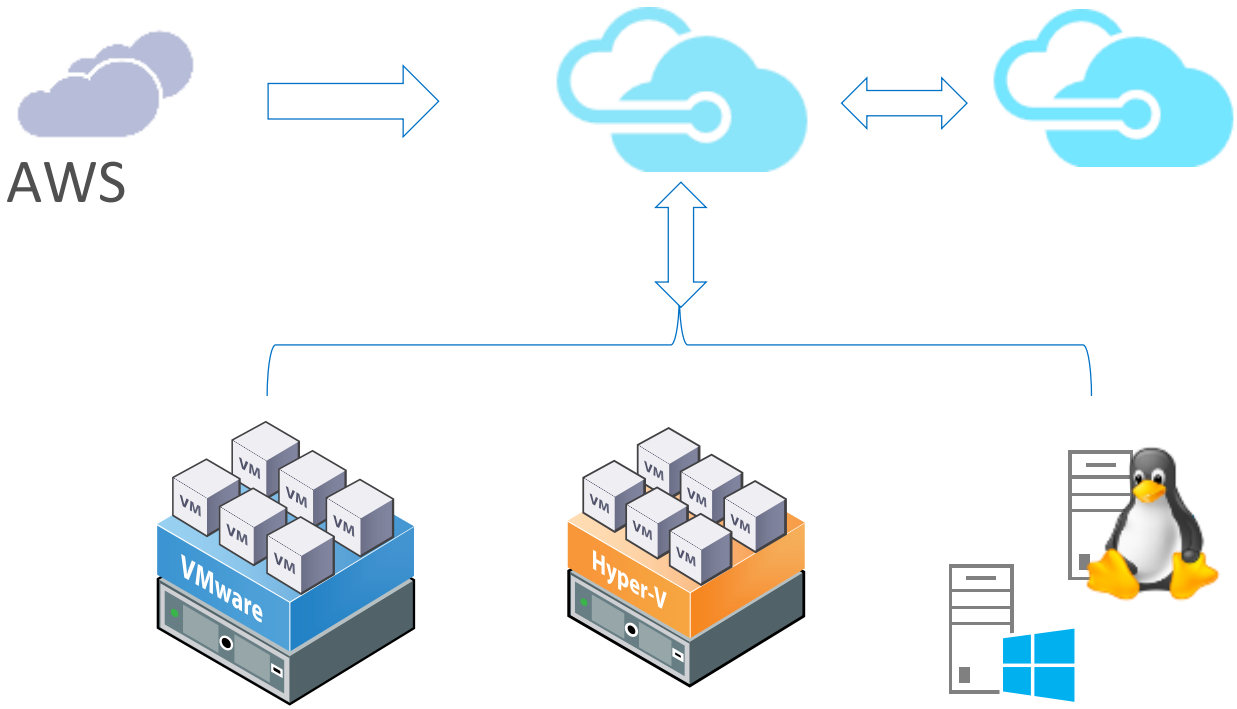
- Azure Site Recovery (ASR)
  - Physical (Bare Metal) to Cloud
  - Vmware to Cloud
  - Hyper-V to Cloud
  - AWS to Azure

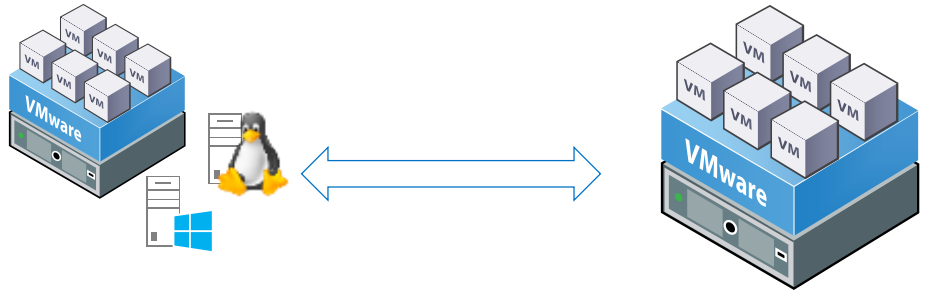
- Cloudforms Automation Method (Jason Ritenour – Red Hat)
  - Hyper-V to Cloud
  - Uses Cloudforms & Ansible Playbook
  - https://www.youtube.com/watch?v=6_YA8uiA_0g

Microsoft

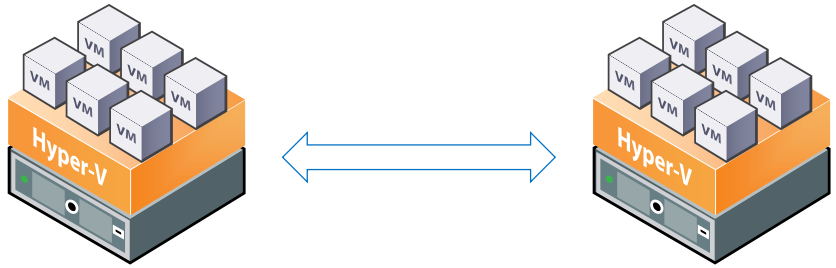
Azure Site Recovery: The DR / Migration Solution

Site to Azure | Any cloud | **Site to site**





Physical/VMware to VMware



VMM to VMM

Windows

Linux

A tour of github & the Azure Marketplace

A tour of github & the Azure Marketplace

- Azure Quickstart Templates
- https://github.com/Azure/azure-quickstart-templates

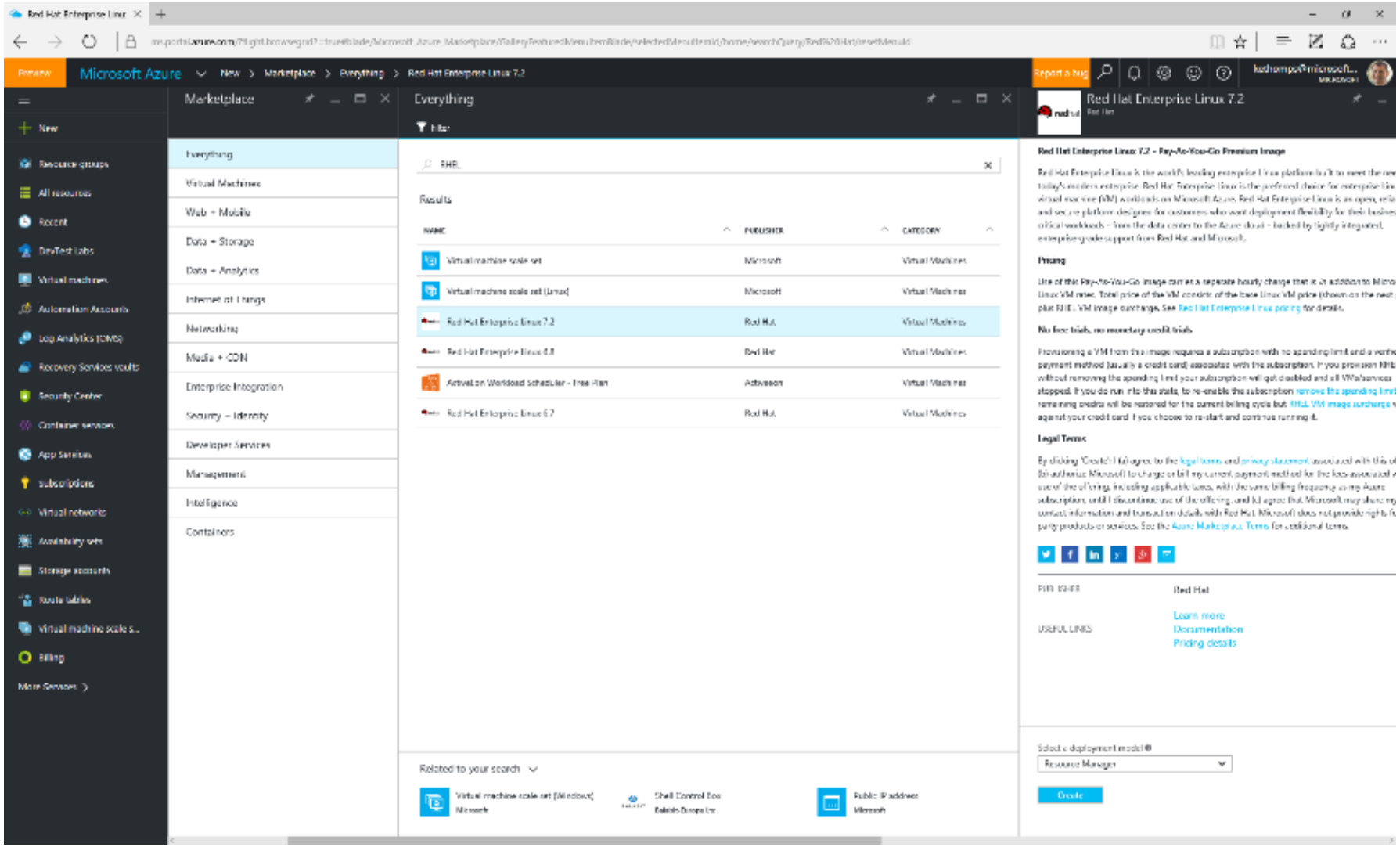
- Powershell for Everyone!
- https://github.com/PowerShell/PowerShell

- Most Open Source Contributors on github
- https://octoverse.github.com/

Microsoft

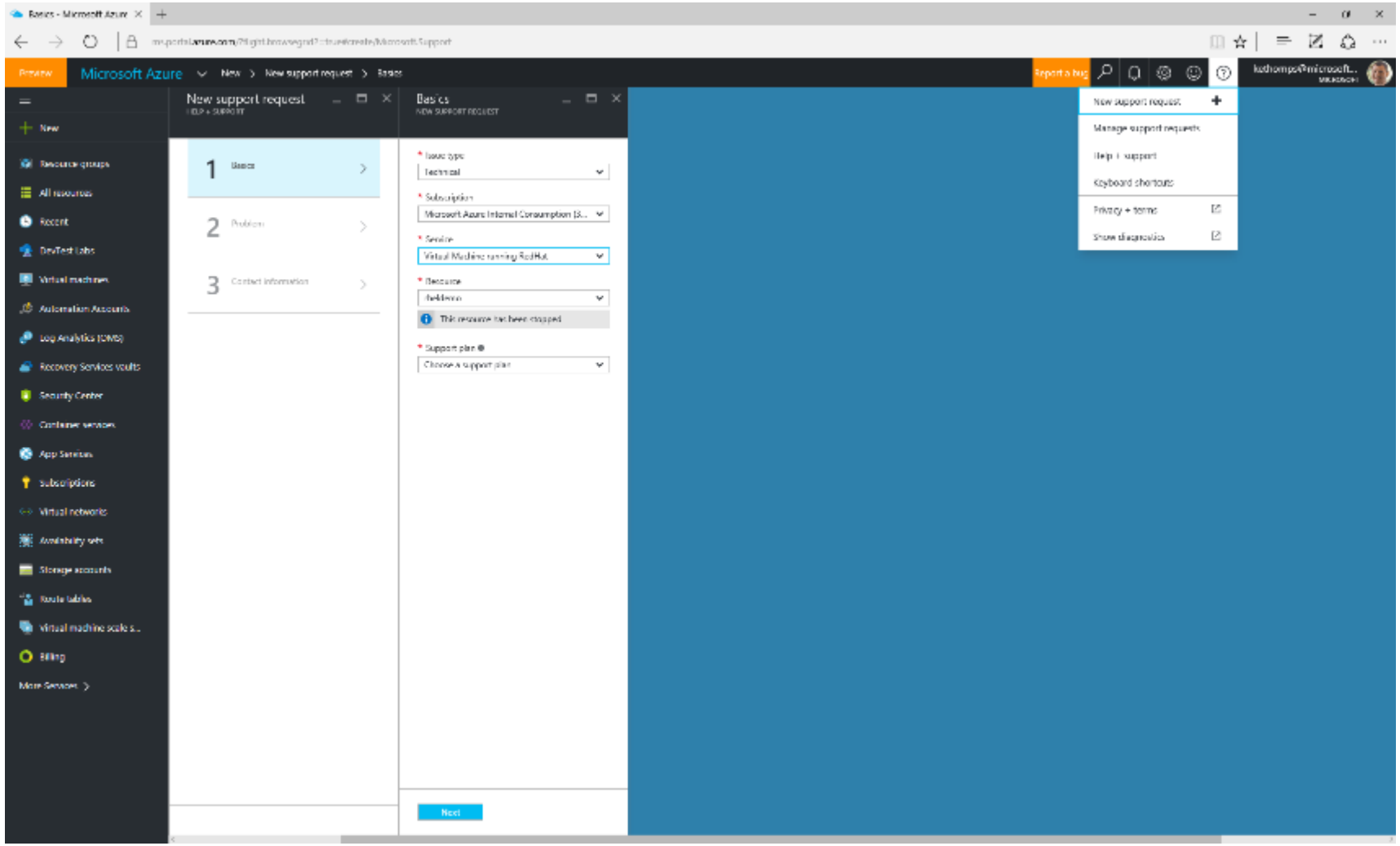
A tour of the Azure Portal

A Tour of the Azure Portal



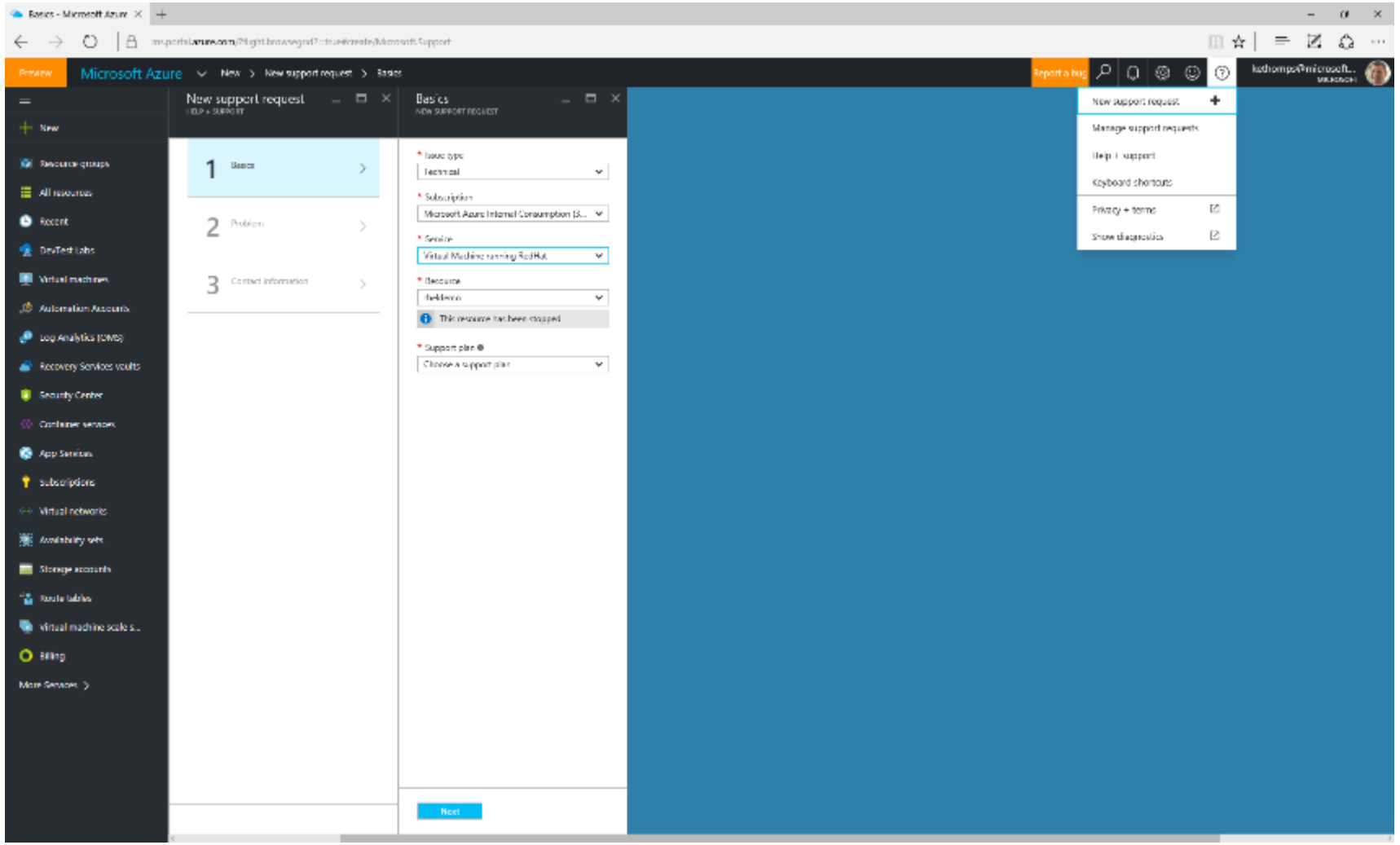
Microsoft

A Tour of the Azure Portal – Raise Support Ticket



Microsoft

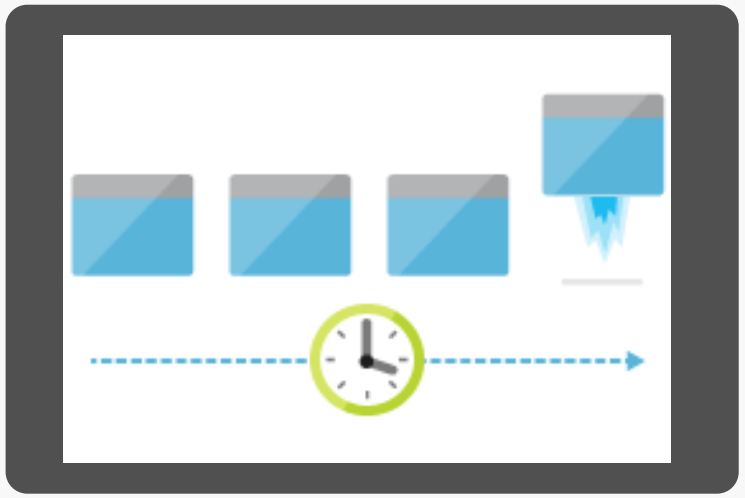
A Tour of the Azure Portal – Access Red Hat Customer Portal



Microsoft

Deciphering ARM

Areas of Focus



Deploy

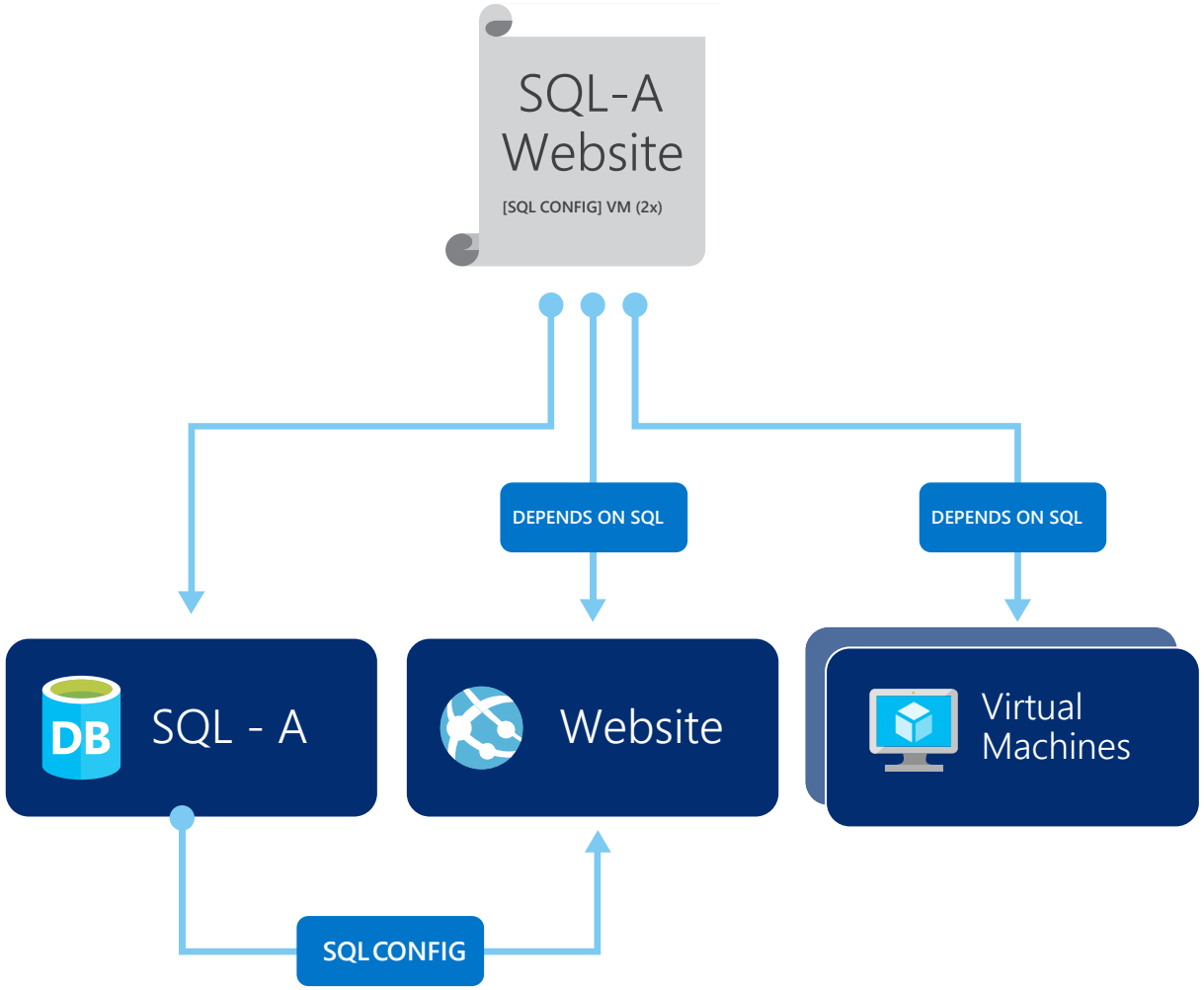
Organize

Control

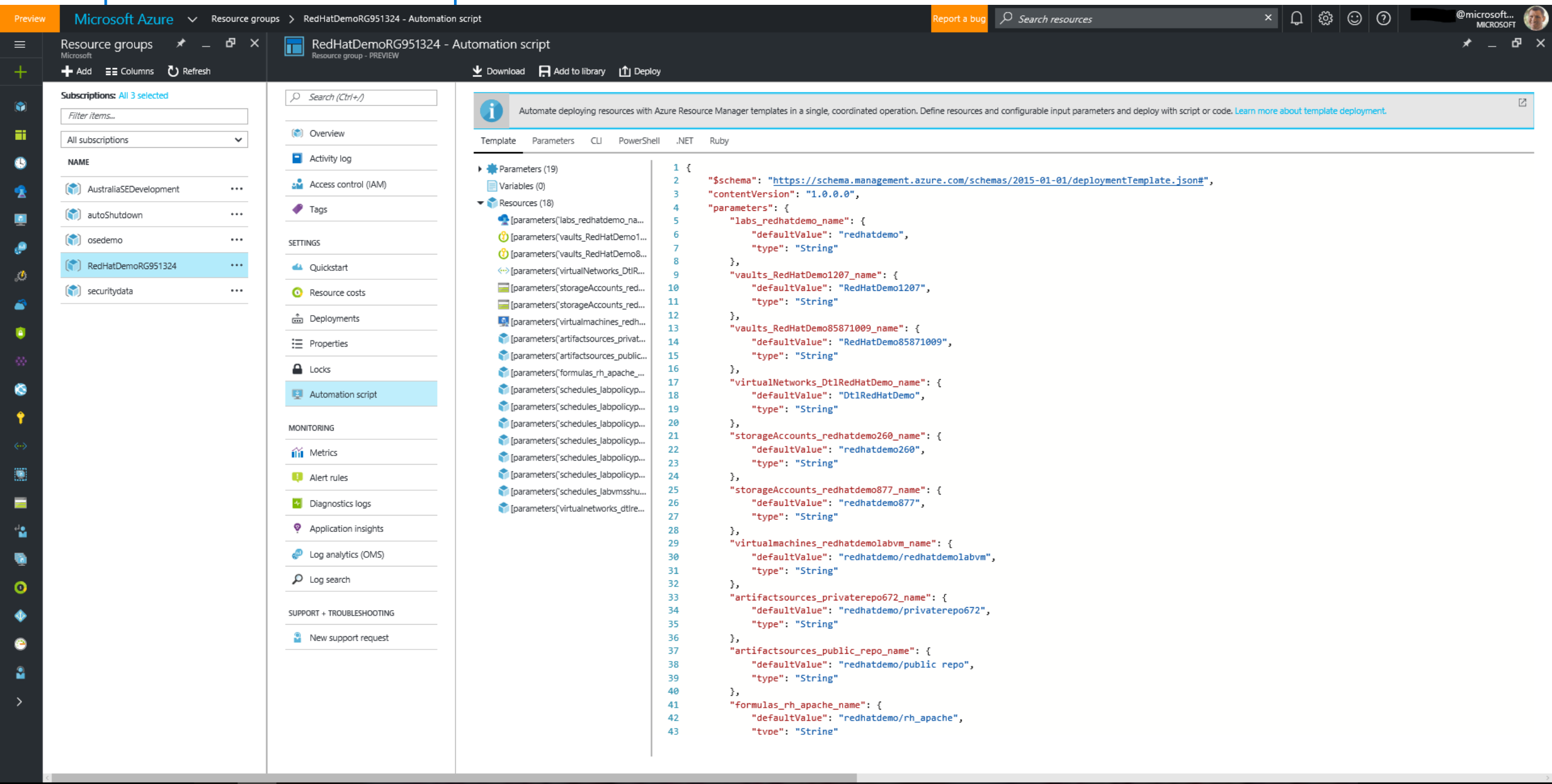
What are Azure Resource Manager (ARM) templates?

Azure Templates:

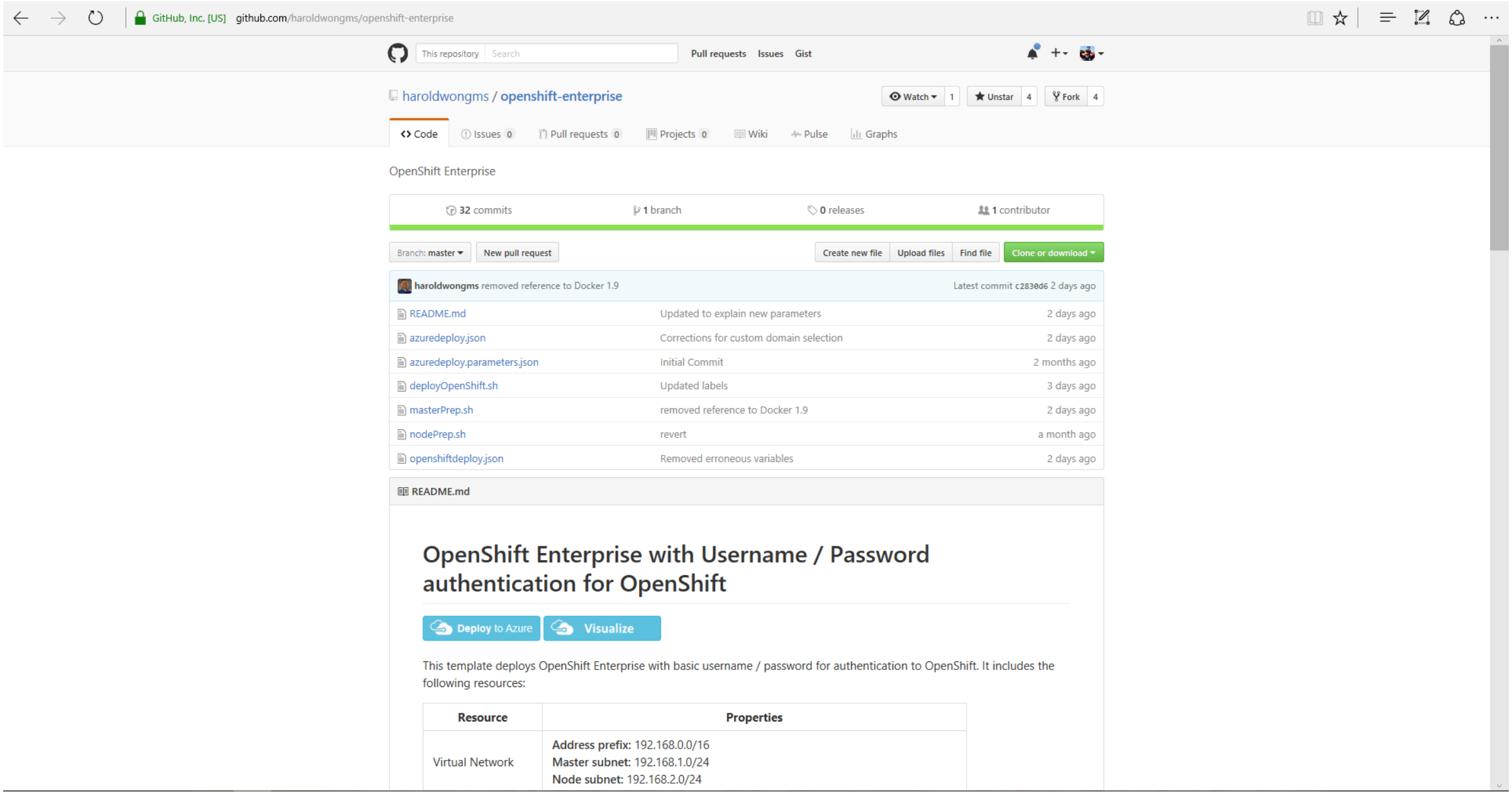
- Source code, checked-in
- Enable repeated deployment and consistent state
- Simplify Orchestration
- Simplify Roll-back
- Provide unified management and Update Support
- Able to specify resources, dependencies (VMs, WebSites, DBs) and connections (config, LB sets)
- Based on parametrized input/output
- VM extensions enable imperative & desired state configuration of resources (Scripts, PowerShell, Chef/Puppet/Ansible)



Export ARM Template from Azure Portal



OpenShift Enterprise ARM Template



Deploying a 10-node Load Balanced Cluster

Deploying a 10-node Load Balanced Linux Cluster Using ARM

- How long would it take to deploy a 10 node cluster?
- Public Networking
- Private Networking
- Configuring a Load Balancer

- Deploy your configuration using ARM:

https://github.com/Azure/azure-quickstart-templates/tree/master/centos-2nics-lb-cluster

Microsoft