Red Hat OpenShift on Azure

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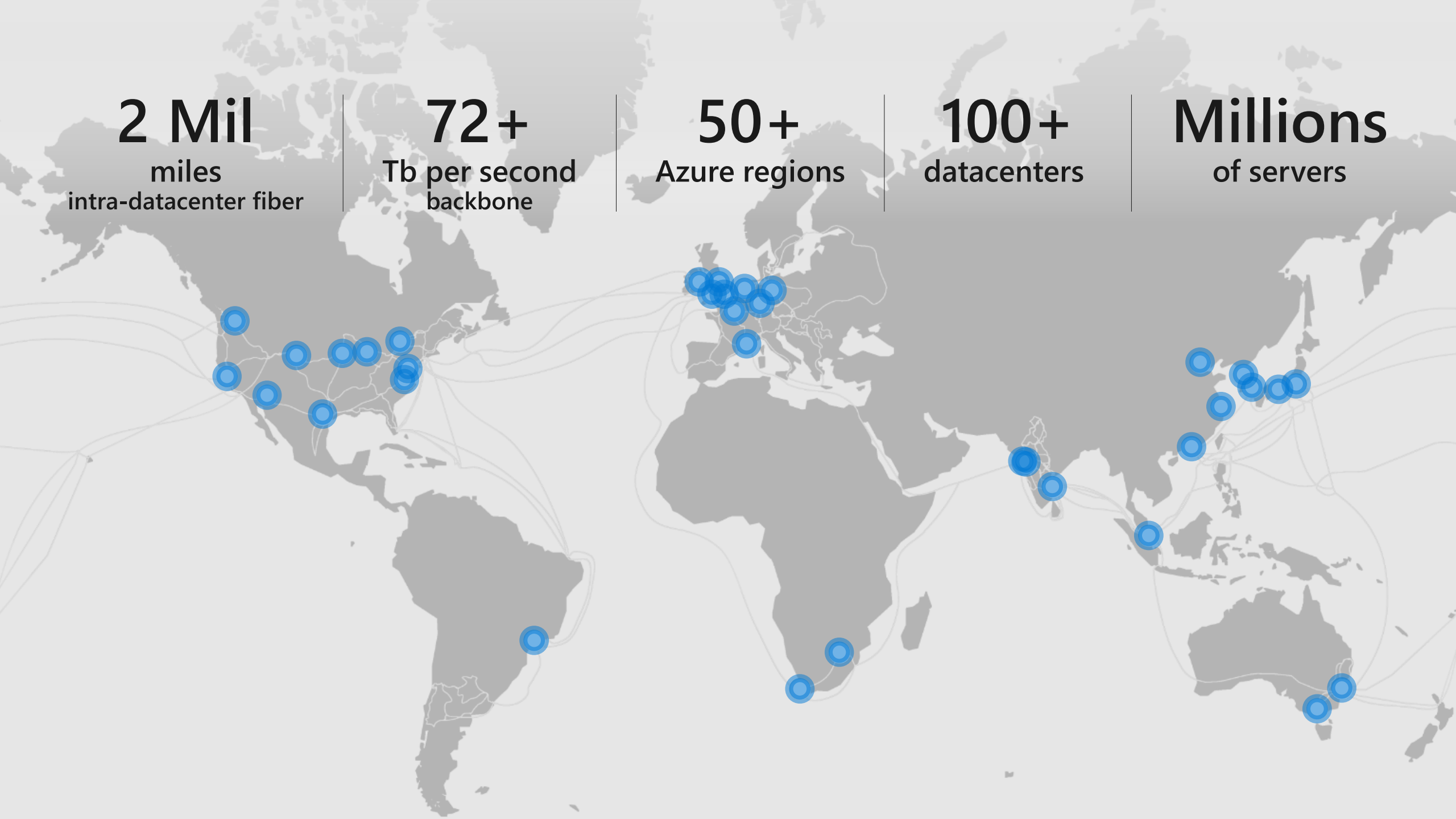
Agenda

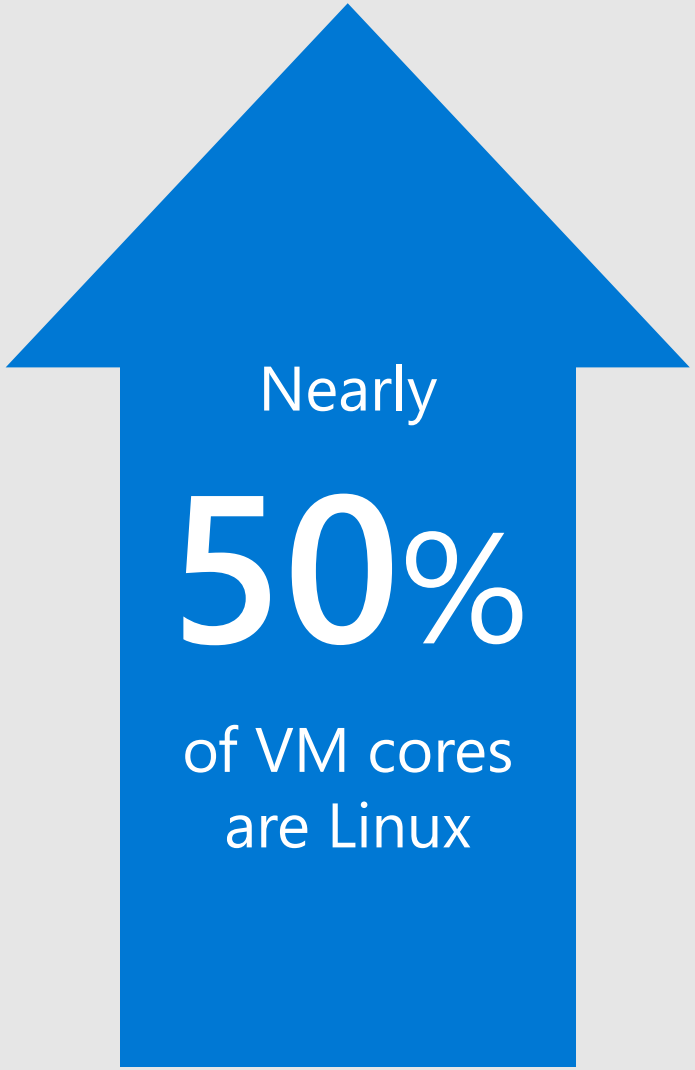
- Microsoft Azure, D
- Microsoft Loves Linux, I
- RedHat and Microsoft, D
- Different versions of OpenShift and Azure Integration, I
- Demo: Deploying OCP on Azure, D
- Openshift on Azure (OSA), I

MICROSOFT AZURE

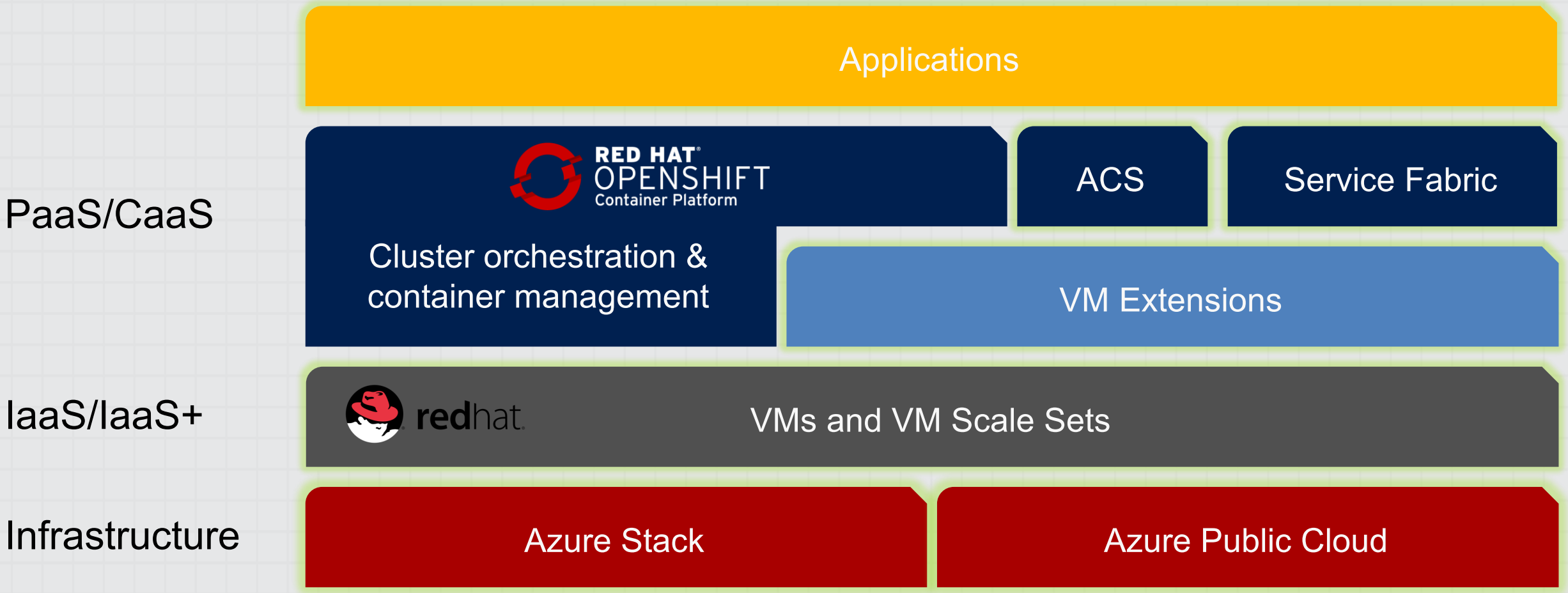

54
Azure regions


2 Mil
miles
intra-datacenter fiber
72+
Tb per second
backbone
50+
Azure regions
100+
datacenters
Millions
of servers

Customers are moving their Linux workloads to Azure



OPENSHIFT IN AZURE – WHERE IT FITS



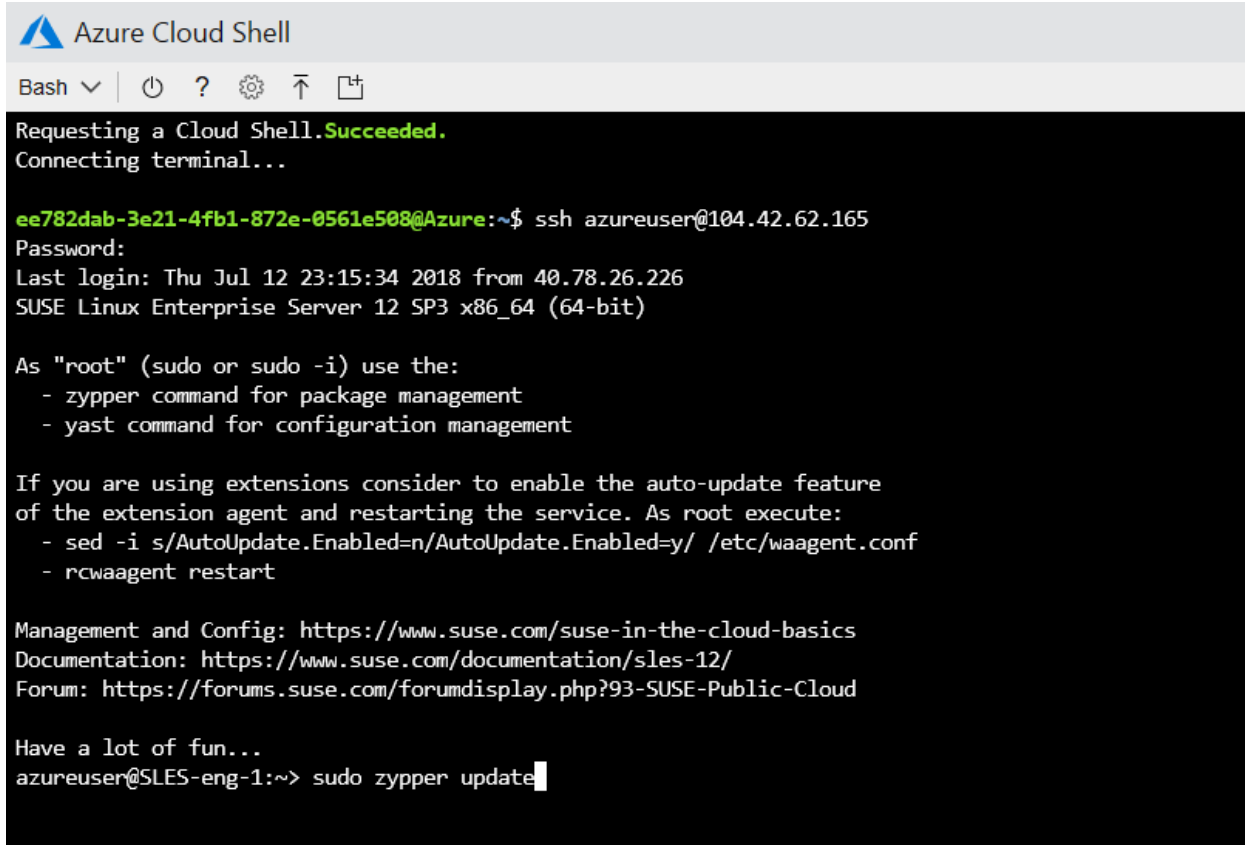
Microsoft  Linux

Broad open source portfolio support for Linux

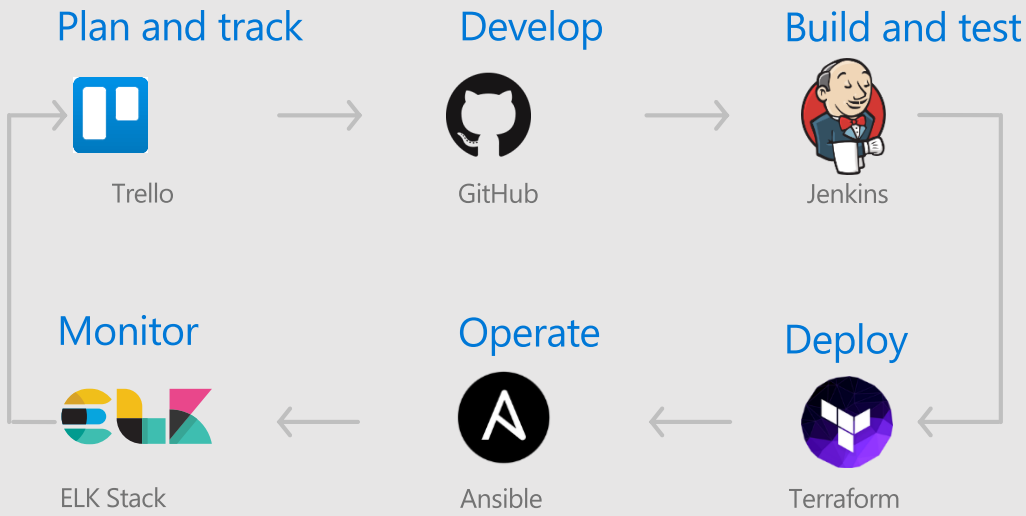
DevOps	Nagios	VAGRANT		GRUNT				Xamarin		
Management	CHEF	puppet labs	ANSIBLE	SALTSTACK			mist.io	libcloud		SCALR CLOUD MANAGEMENT
Applications		Joomla!	Drupal		APPRENDA		Pivotal		SAP	
App frameworks & tools	php	nodeJS		JS	Ruby		eclipse	Azure Container Service		
Databases & middleware		redis	CLEARDB	cloudera	MySQL	mongoDB.		Couchbase	Microsoft SQL Server	SAP S/4 HANA
Infrastructure			redhat	suse		bitnami	ORACLE LINUX	FreeBSD	docker	OPENSHIFT

Use the tools you like in Azure

Familiar scripts, command shell, package managers

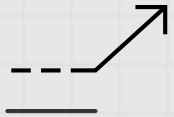


Support for your DevOps toolchain choices



REDHAT AND MICROSOFT

Microsoft + Red Hat: Stronger together



Wide **availability** of Red Hat solutions whether PAYG or BYOS, across all Azure regions.

Microsoft Azure participation in Red Hat Certified Cloud & Service Provider Program (CCSP)

Developers can easily create and **deploy** apps with a .NET front-end on Windows and a MySQL database on Red Hat Enterprise Linux through Red Hat OpenShift Container Platform.

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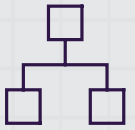
Secure, **manageable** and well-supported Red Hat solutions in the Microsoft cloud, including Red Hat Enterprise Linux, Red Hat OpenShift Container Platform, SQL, Red Hat Ansible Automation and Red Hat JBoss Middleware.

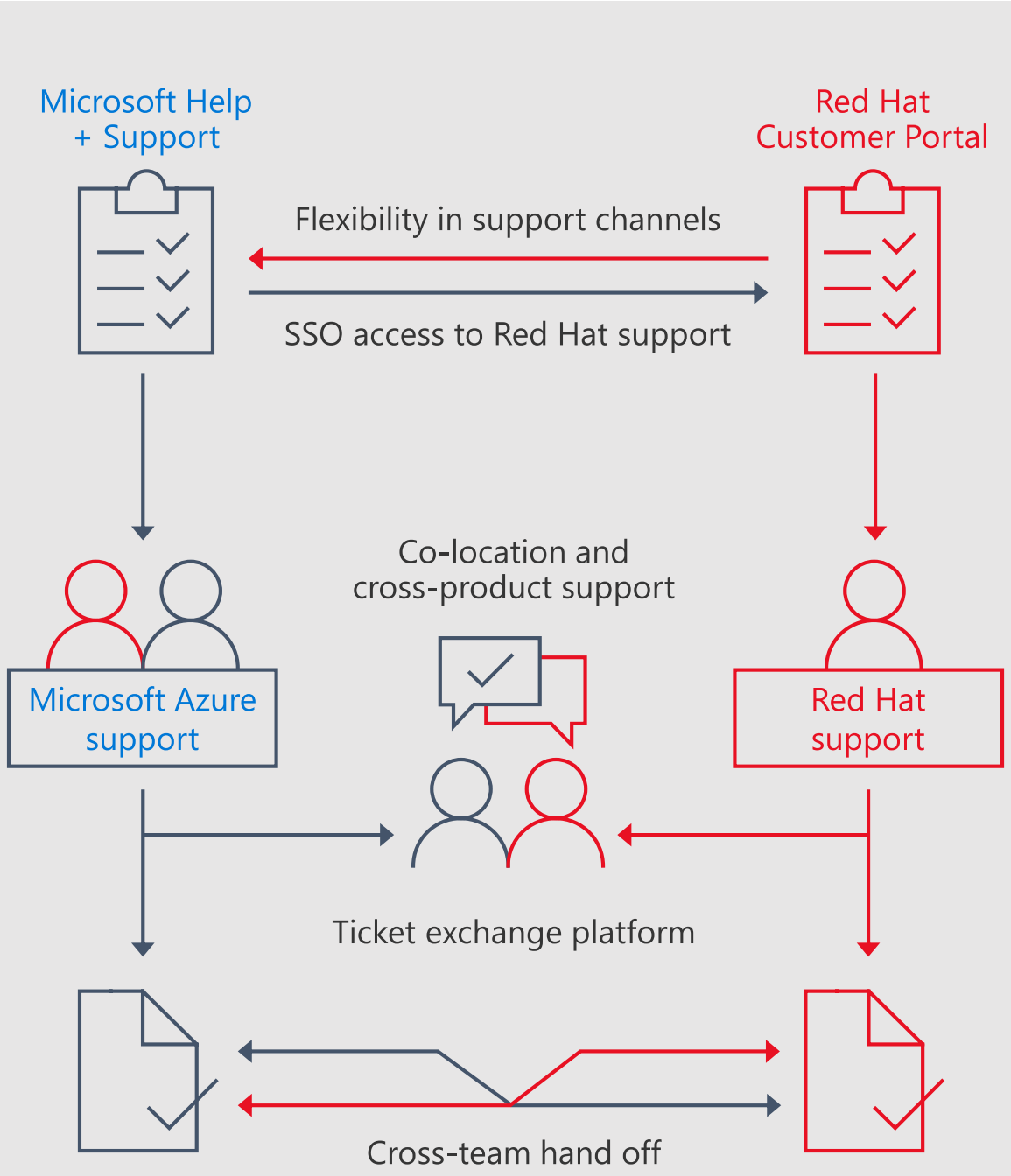


Integrated enterprise-grade support spanning hybrid cloud, including co-located support resources.

Microsoft | redhat.

Red Hat Integrated Support

- In-portal customer experience for PAYG deployments
- Co-located support with Red Hat on-site team
- ISO 27001 compliant B2B communication channel
- Integrated support is available 24x7 for Cloud Access (BYOS) as well as On-Demand (PAYG) deployments



Key scenarios

Red Hat Enterprise Linux in Azure

- Cost savings and operational efficiency gained form using consistent / standard OS platforms across your hybrid infrastructures.
- Integrated support for RHEL in the Azure Marketplace.
- Red Hat subscription flexibility / portability.

Red Hat OpenShift Container Platform in Azure

- Easily build, deploy, and manage modern container-based apps on OpenShift in Azure.
- Technology that enables digital transformation and application modernization.
- Consistent application platform for hybrid cloud infrastructures.

SQL Server on Red Hat Enterprise Linux

- Industry-leading, most secure data platform on a leading OS & a leading cloud platform.
- Optimize with a modern data platform.

Red Hat Enterprise Linux for SAP Solutions in Azure

- Most powerful and scalable cloud for SAP HANA.
- Deep partnership between SAP, Microsoft & Red Hat.
- First-class hybrid support experience for Red Hat on Azure.
- Integrated management portal experience.

Hybrid Application Framework

Hybrid Cloud Storage

Hybrid Cloud Management

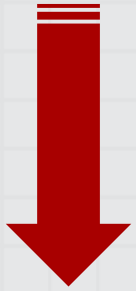
DIFFERENT VERSIONS OF OPENSHIFT AND AZURE INTEGRATION

GETTING TO KNOW OPENSHIFT

Community Supported

OPENSHIFT origin OKD

http://docs.openshift.com



RED HAT® OPENSHIFT

Commercially Supported

- Your choice of infra
  - Microsoft Azure
  - Dev: single VM
  - Dev: container
  - …
- OpenShift Online
- OpenShift Dedicated

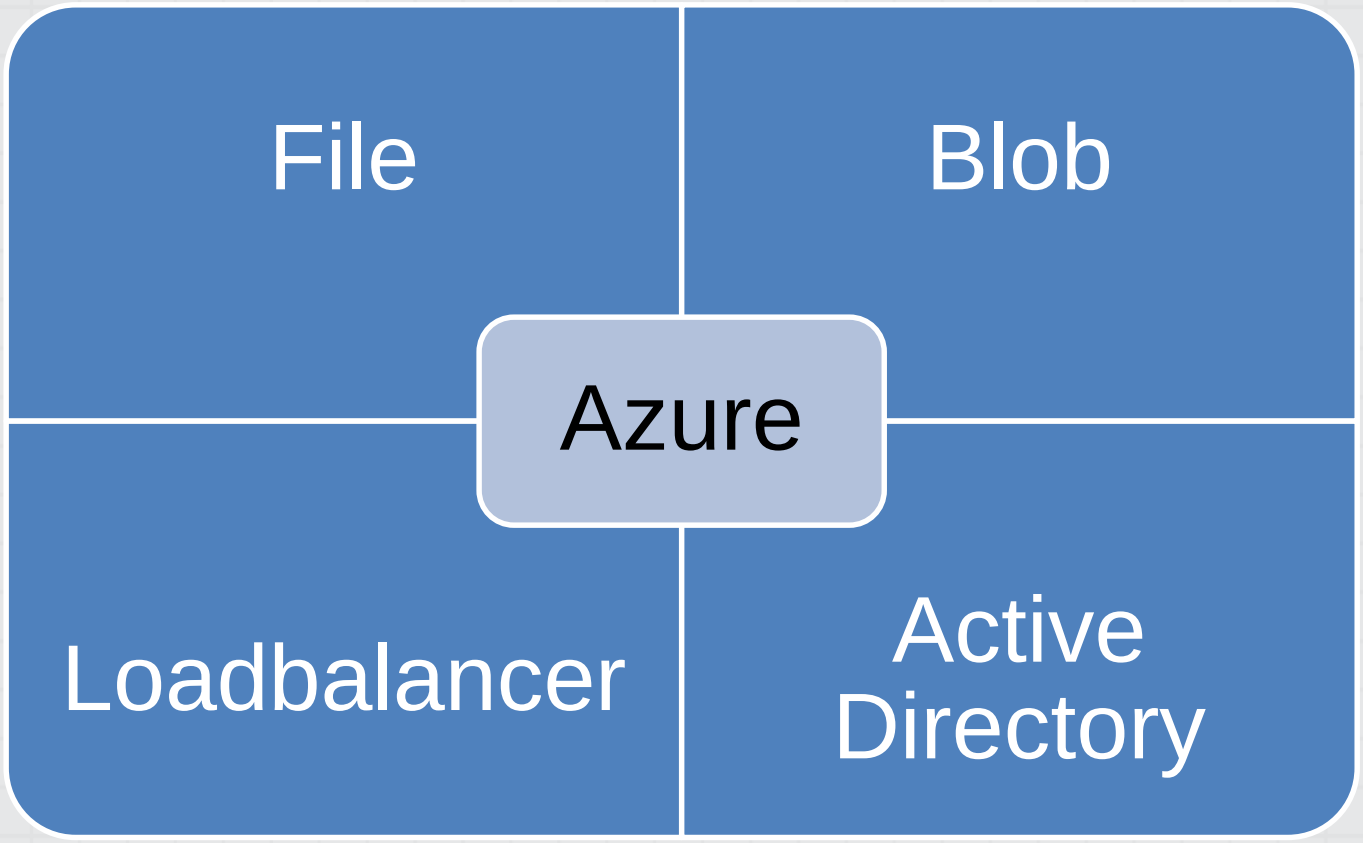
AZURE PLATFORM INTEGRATION

Azure CloudProvider

Auth

Microsoft | redhat.

AZURE PLATFORM INTEGRATION



RED HAT® OPENSHIFT

Azure CloudProvider

Auth

- Peristent Volumes
- Service:Type:LoadBalancer
- Auth

Microsoft | redhat.

OPENSHIFT DEPLOYMENTS

OKD

- ARM Template
- Community
- Github

OCP

- ARM Template
- Marketplace

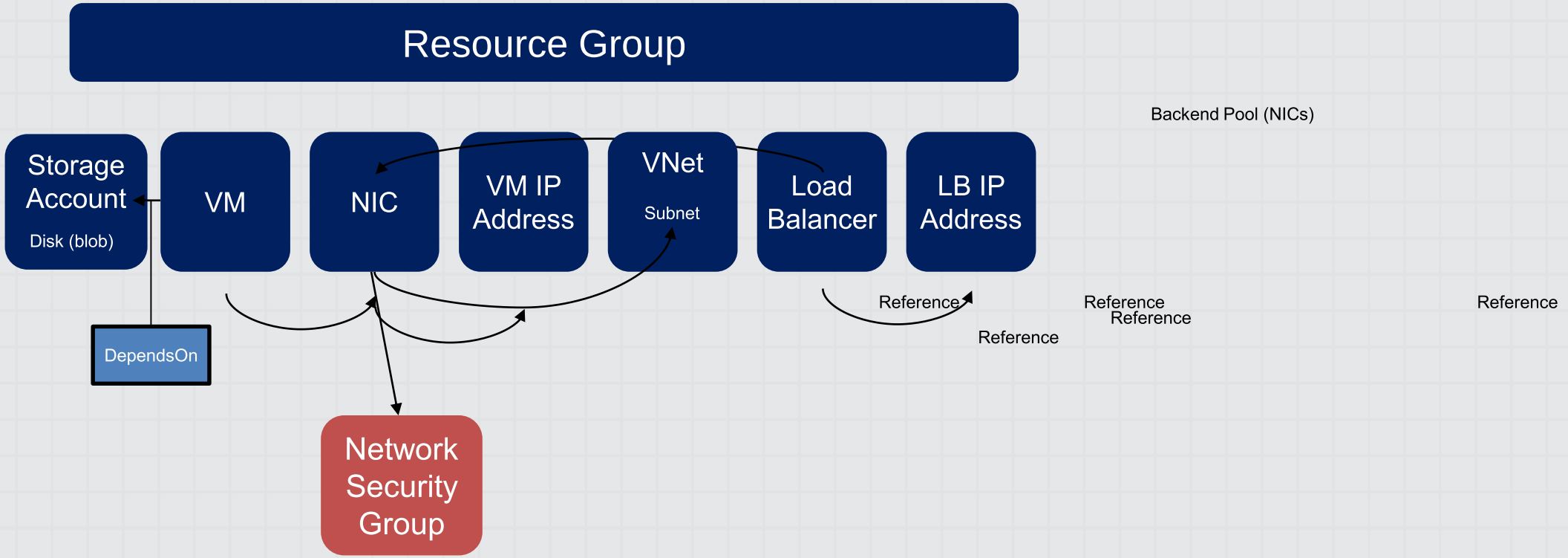
OSA

- Managed

https://github.com/Microsoft/openshift-origin

AZURE RESOURCE MANAGER

Resource Manager



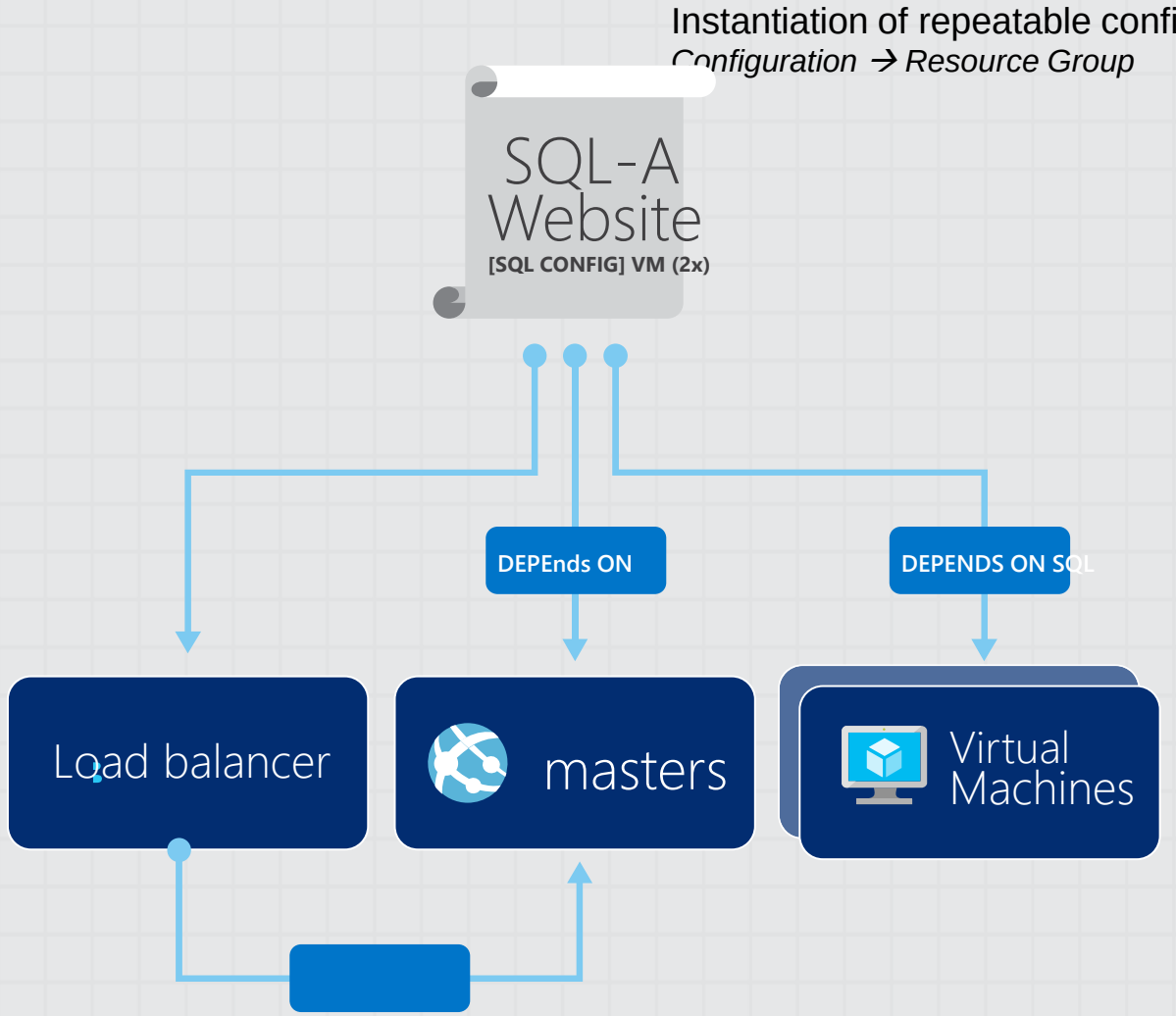
POWER OF REPEATABILITY

Azure ARM Templates can:

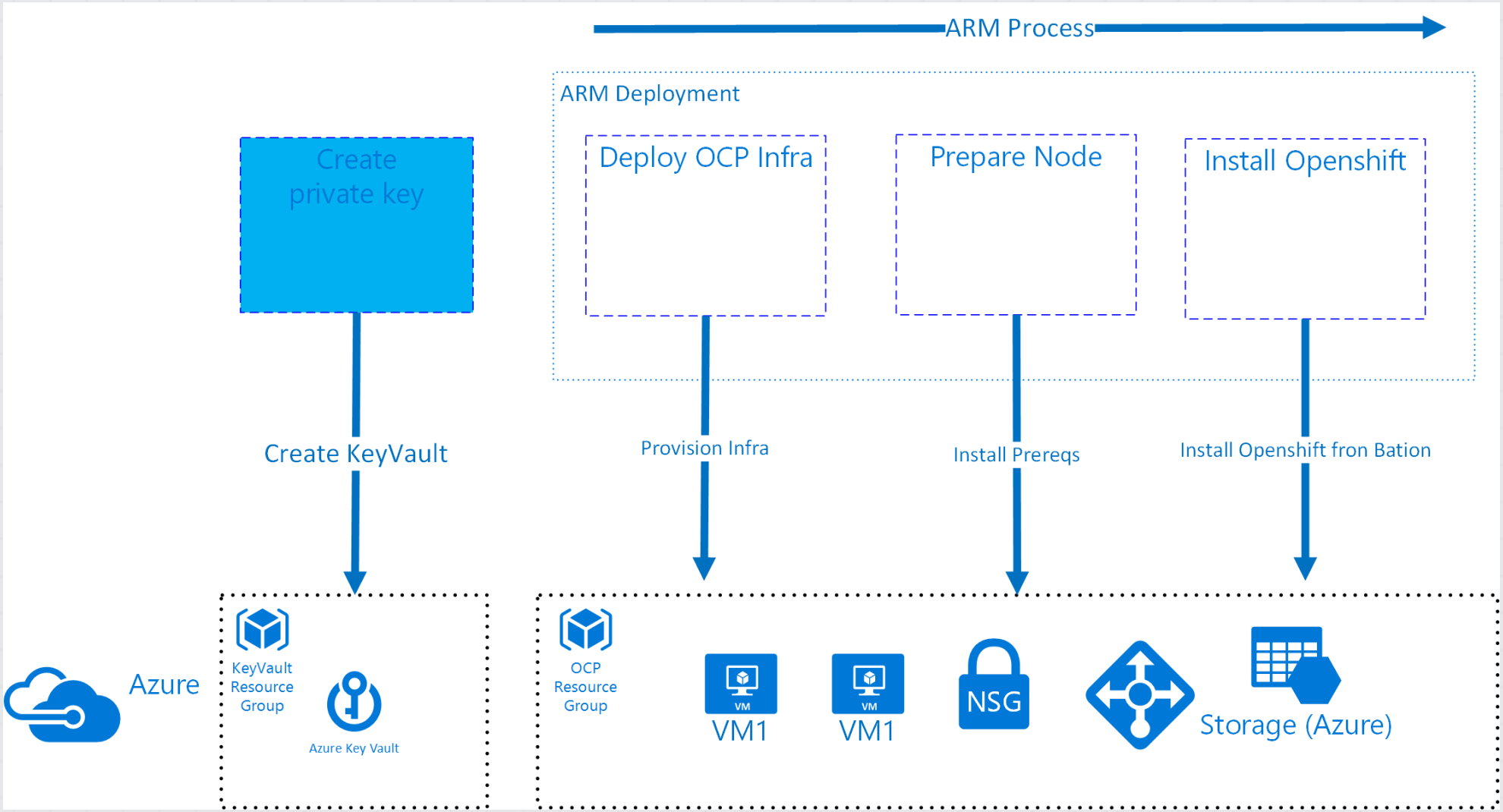
- Ensure Idempotency
- Simplify Orchestration
- Simplify Roll-back
- Provide Cross-Resource Configuration and Update Support

Azure Templates are:

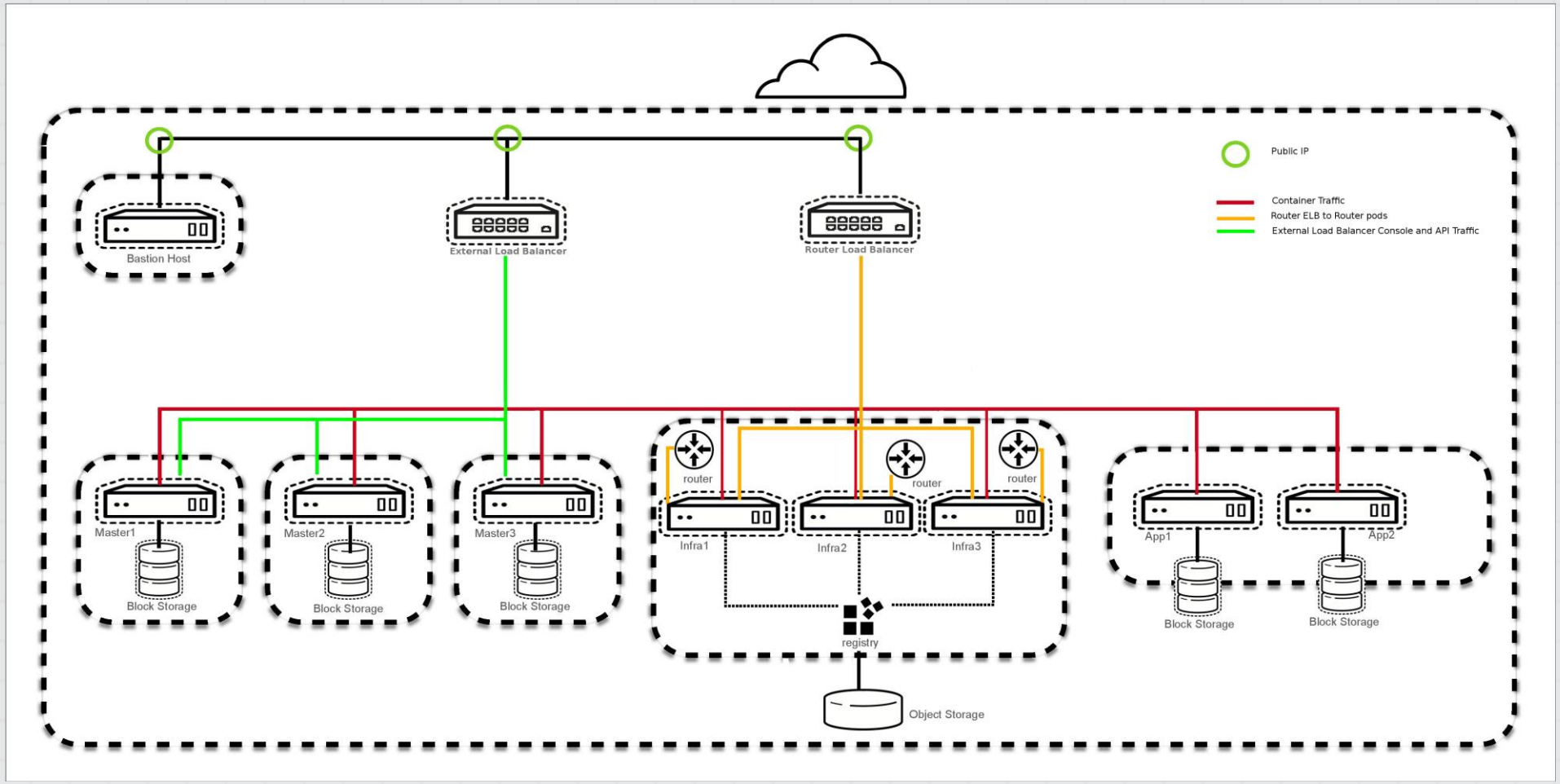
- Source file, checked-in
- Specifies resources and dependencies (VMs, WebSites, DBs) and connections (config, LB sets)
- Parametized input/output



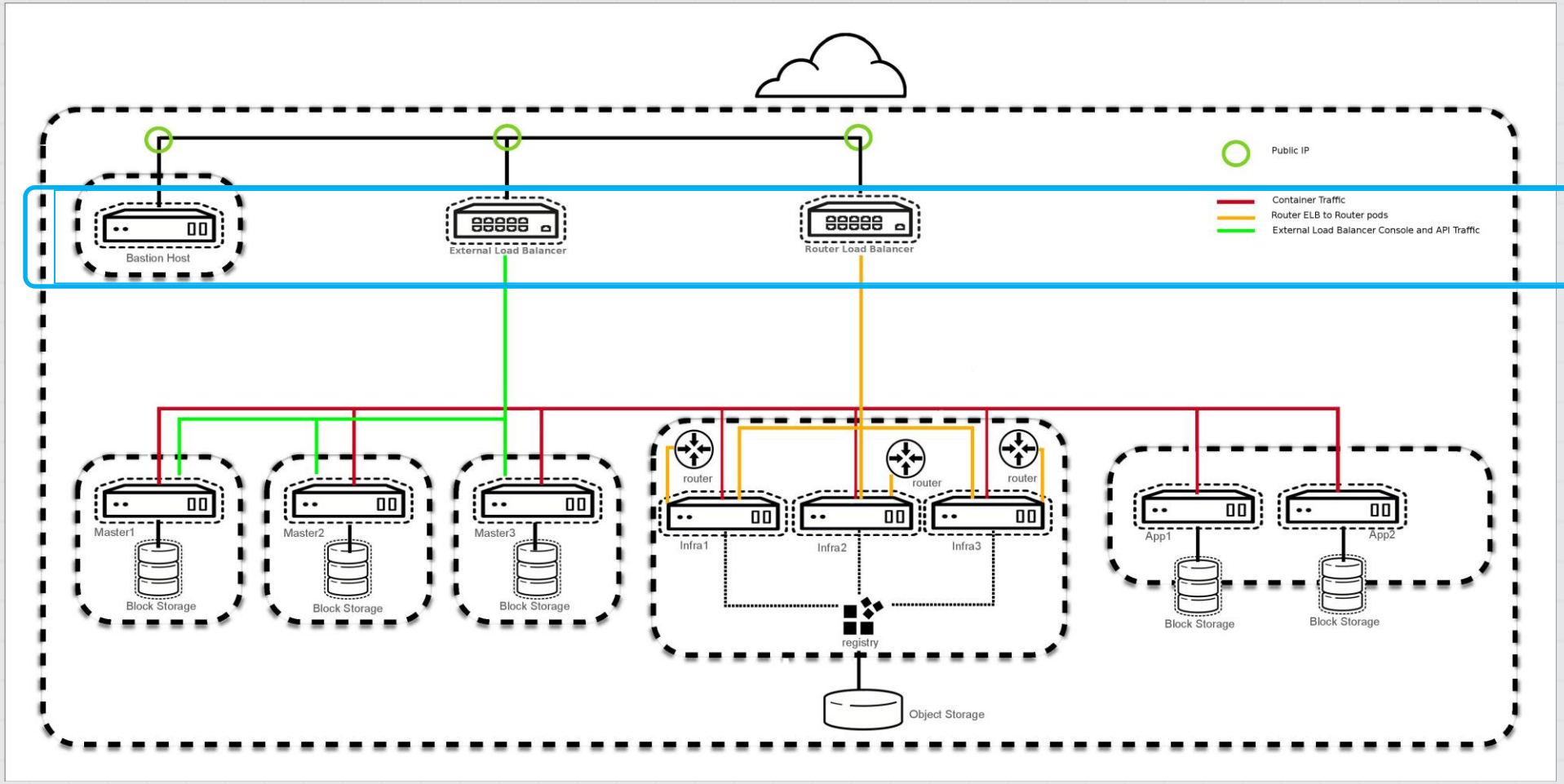
Openshift Deployment process



Openshift Deployment Architecture

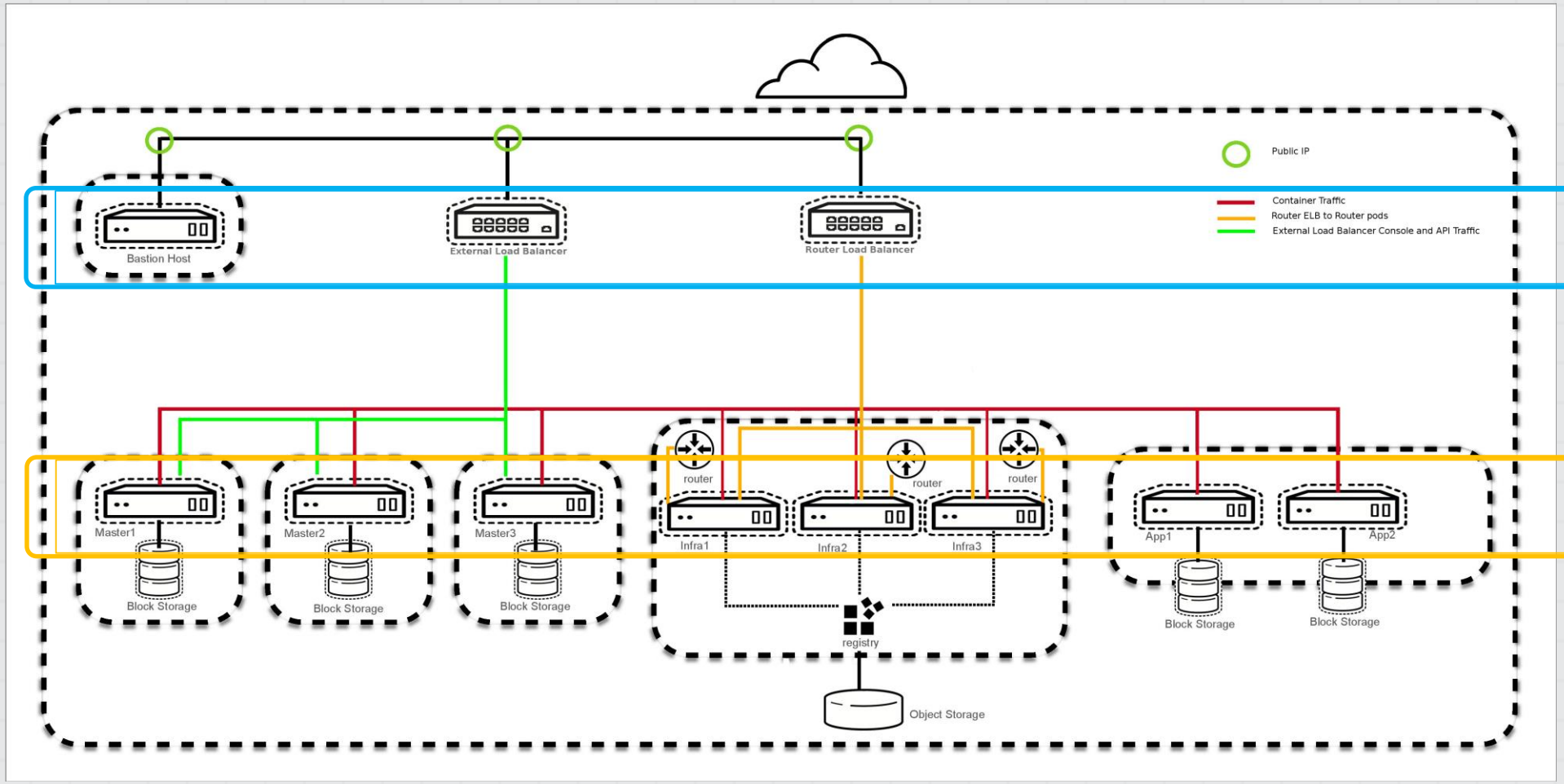


Openshift Deployment Architecture

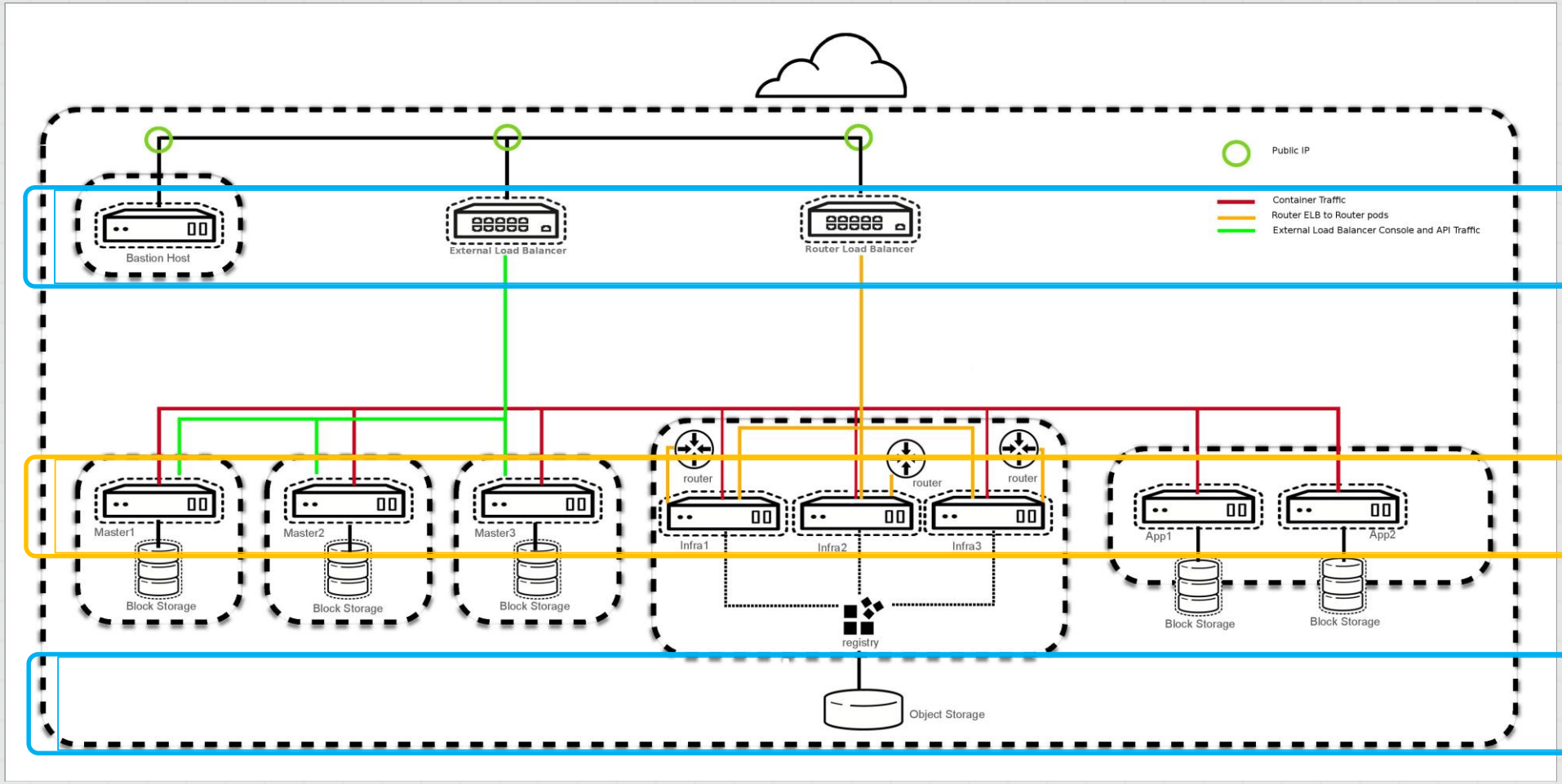


Load Balancer

Openshift Deployment Architecture



Openshift Deployment Architecture



DEMO: DEPLOYING OCP ON AZURE

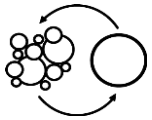
OPENSHIFT ON AZURE (OSA)

What is OpenShift on Azure (OSA)

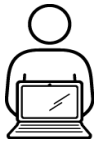
- OpenShift Container Platform running in Azure
- Jointly managed and supported by Microsoft and Red Hat
  - Fully managed cluster (Just care about your apps)
- First Party Service
- GA 2019

OSA Architecture

You *focus on your apps*

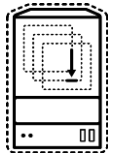


Rapidly deploy and scale containerized apps and services



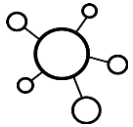
Premium support from Red Hat

Red Hat and Microsoft *handles the infrastructure*



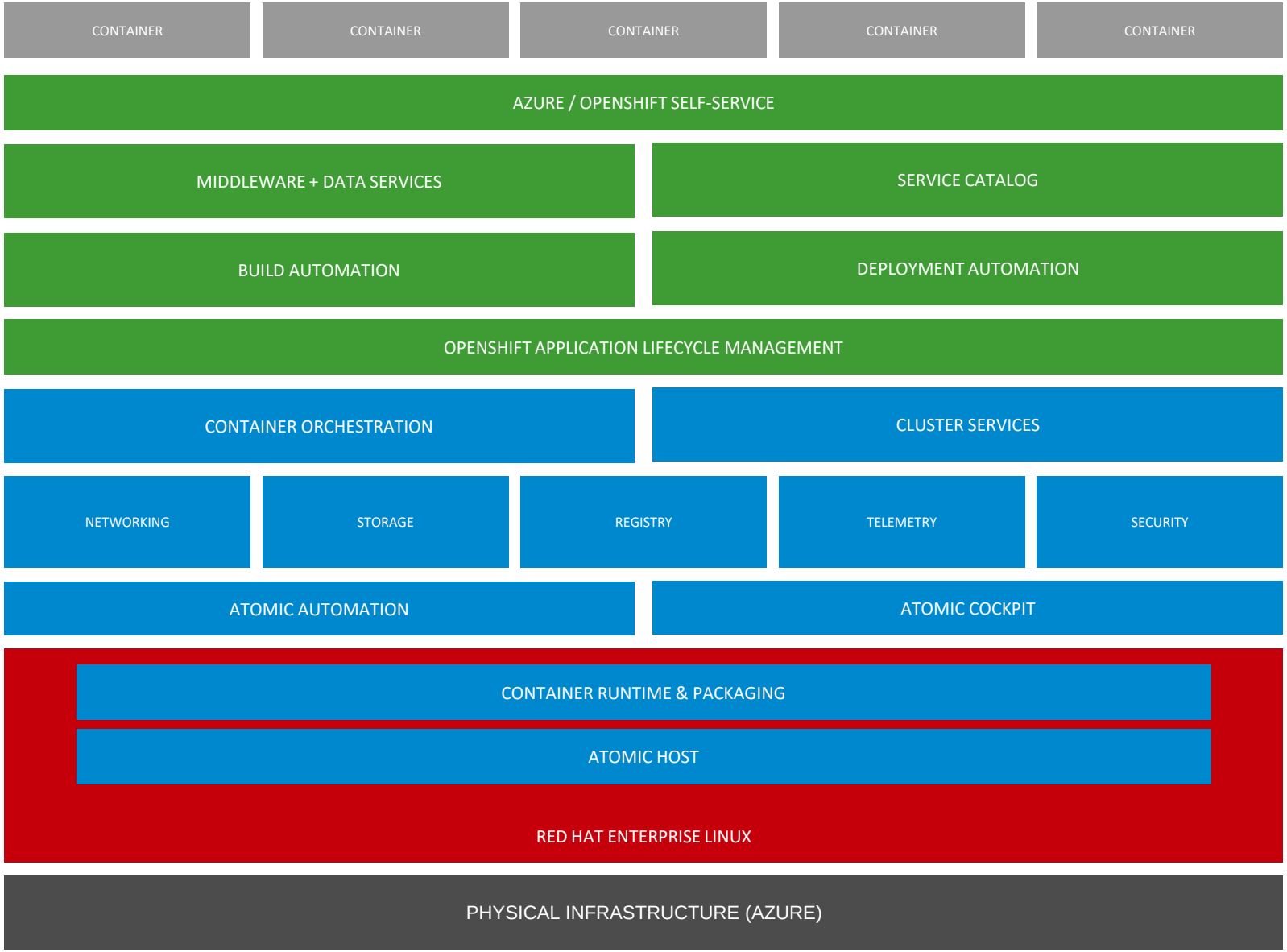
An entire OpenShift cluster dedicated to your organization

Setup, maintenance, and monitoring provided by Red Hat



VPN connectivity back to the customer environment

Hosted in the Azure Region of your choice



OSA – Roles and Responsibilities

Tasks	RH/MSFT	Customer	Description
Initial Installation and Configuration	R	C	Install OpenShift Dedicated and configure the platform
Ongoing Cluster Management	R	C	Manage the cluster and update configuration with software upgrades
Monitoring	R		Observe and check quality of cluster
Status Notifications	R	I	Communicate outages, updates, patches, and other operational events
Ongoing Network Configuration (VPN/VPC)	R	C	Manage the VPN/VPC configuration, including routing tables, connection details, ip restrictions, etc.
Software and Security Updates	R	I	Apply software patches and updates
Platform Support	R	A	Submit support requests and resolve potential issues
Infrastructure Management	R		Monitor, scale, and update cluster infrastructure as needed
Project Quota Management		R	Set project-level quotas for Dedicated users
Application Lifecycle		R	Manage applications (create, update, CI/CD) and application components on the platform
Image Registry Management		R	Add images to the cluster registry to make them available to cluster users
Integration with External Services		R	Integrate external services into projects on the platform
User Management		R	Add or remove user access to the platform. Authentication is handled by customer's user identity management solution

OSA Features

- Flexible deployment
  - Self-service cluster deployment from the Azure portal and Azure command line
- Cluster scaling
  - Scale compute nodes to match resource demand from the Azure portal or CLI
- Azure Active Directory integration
  - User management with Azure Active Directory identity and group membership
- Virtual network integration
  - Deploy your cluster into a new or existing VNet. Use ExpressRoute and site-to-site (S2S) VPN connections to connect your VNet to on-premises networks
- Open Service Broker for Azure
  - Automatically discovers Azure services you can use, such as Cosmos DB, Azure KeyVault, and more

OSA Roadmap

- Disk encryption
  - Encryption for both operating system and data disks
- Windows containers
  - Run Windows Server containers and RHEL containers on the same OpenShift cluster
- Shared storage volumes
  - Support for dynamically provisioned shared storage volumes for persistent data
- Cluster autoscaling
  - Compute nodes are automatically added and removed from the cluster to match resource demand

Q&A