



# Managing Azure for Citrix Admins

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Cloud Architect with Zerto

Citrix CTP since 2013

CUGC Content Committee

Microsoft MVP C&D

Microsoft Azure Advisor

VMware vExpert



# Topics

XAE, XDE, and Azure  
Key Azure Concepts  
The Portal & PowerShell  
Azure Services & Tools

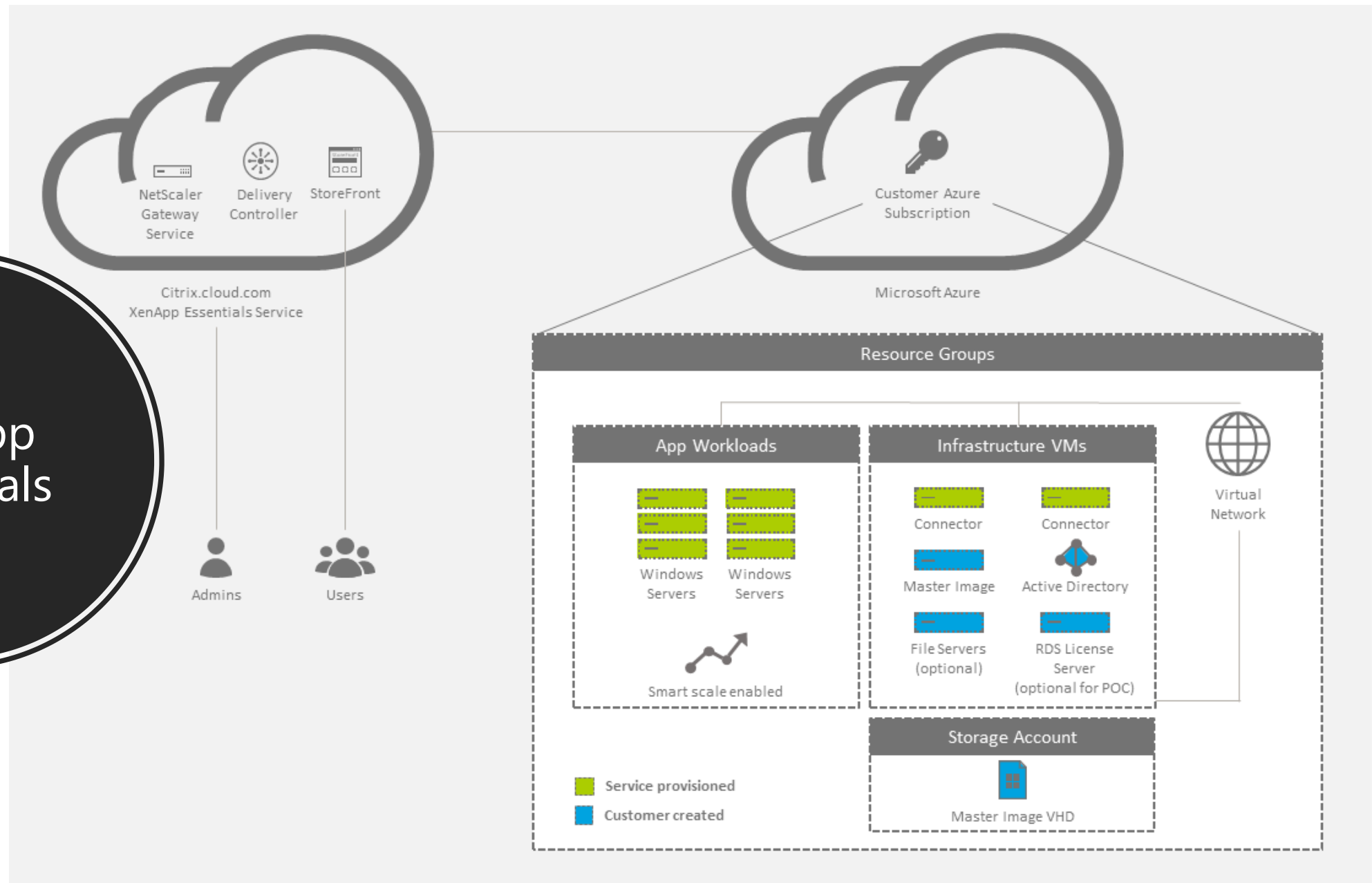




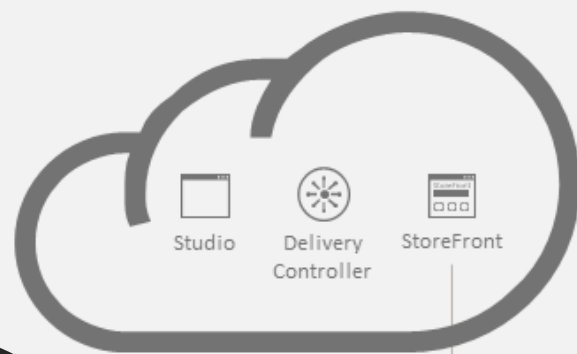
# Delivering and Optimizing Citrix from Microsoft Azure

Marius Sandbu & Dave Brett

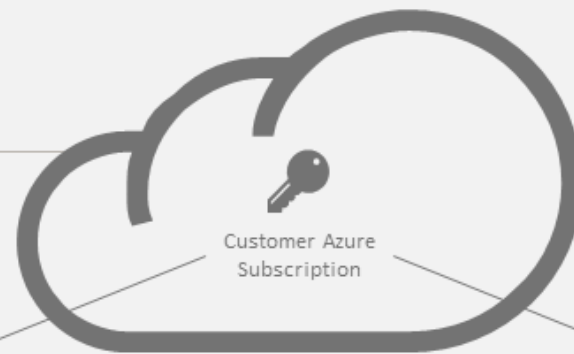
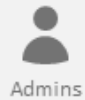
# XenApp Essentials



# XenDesktop Essentials

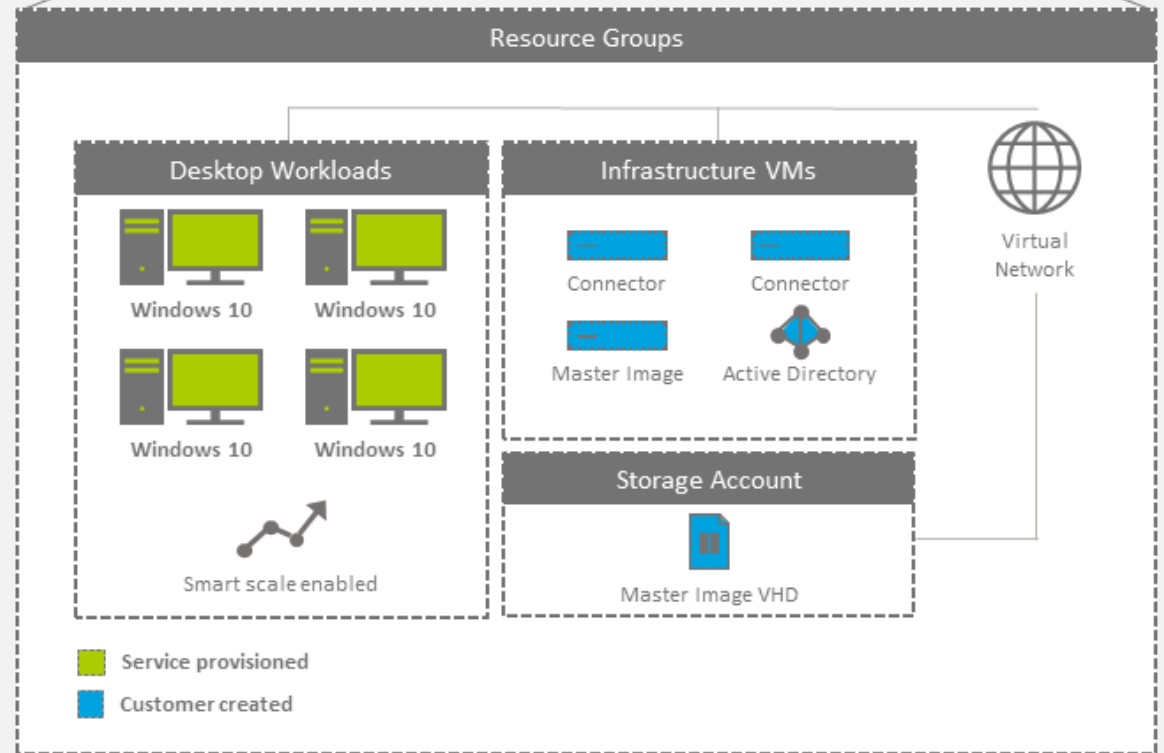


Citrix.cloud.com  
XenDesktop Essentials Service

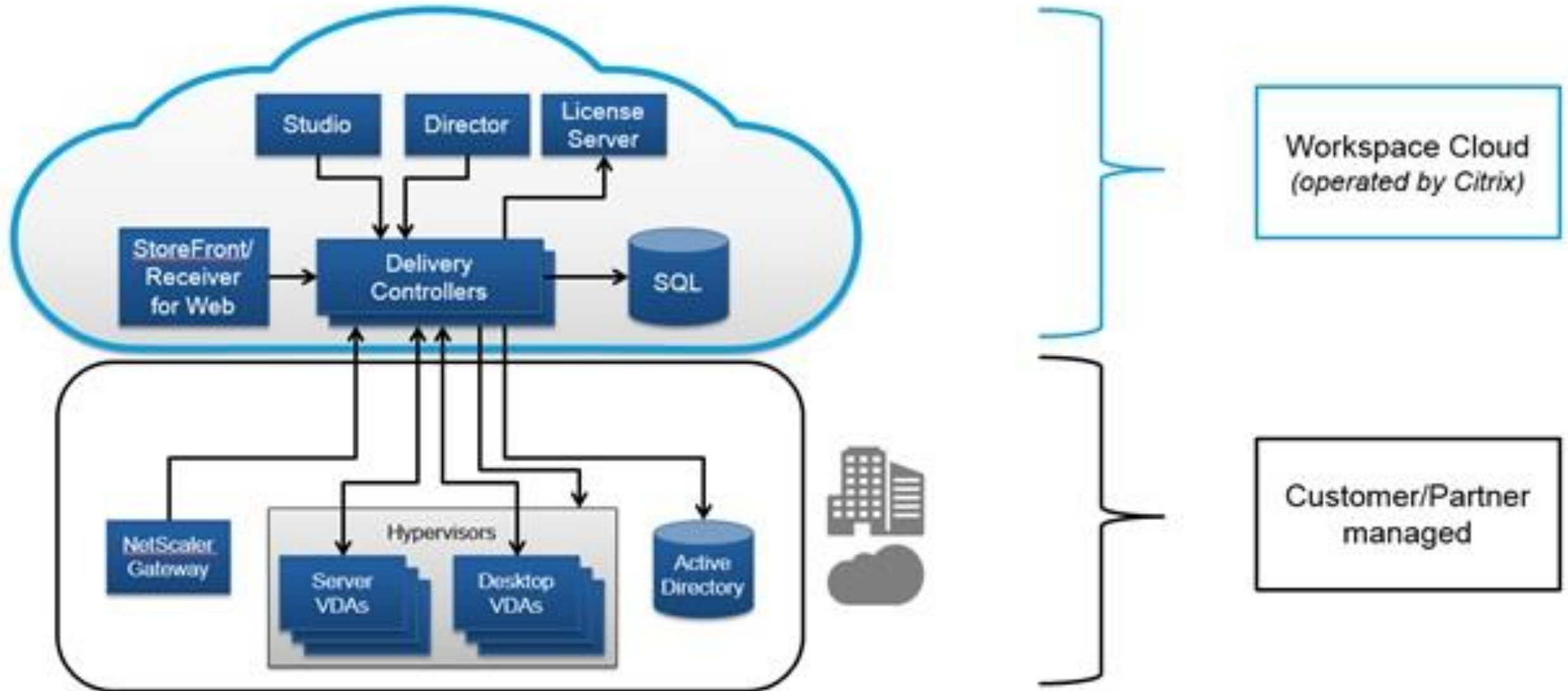


Customer Azure  
Subscription

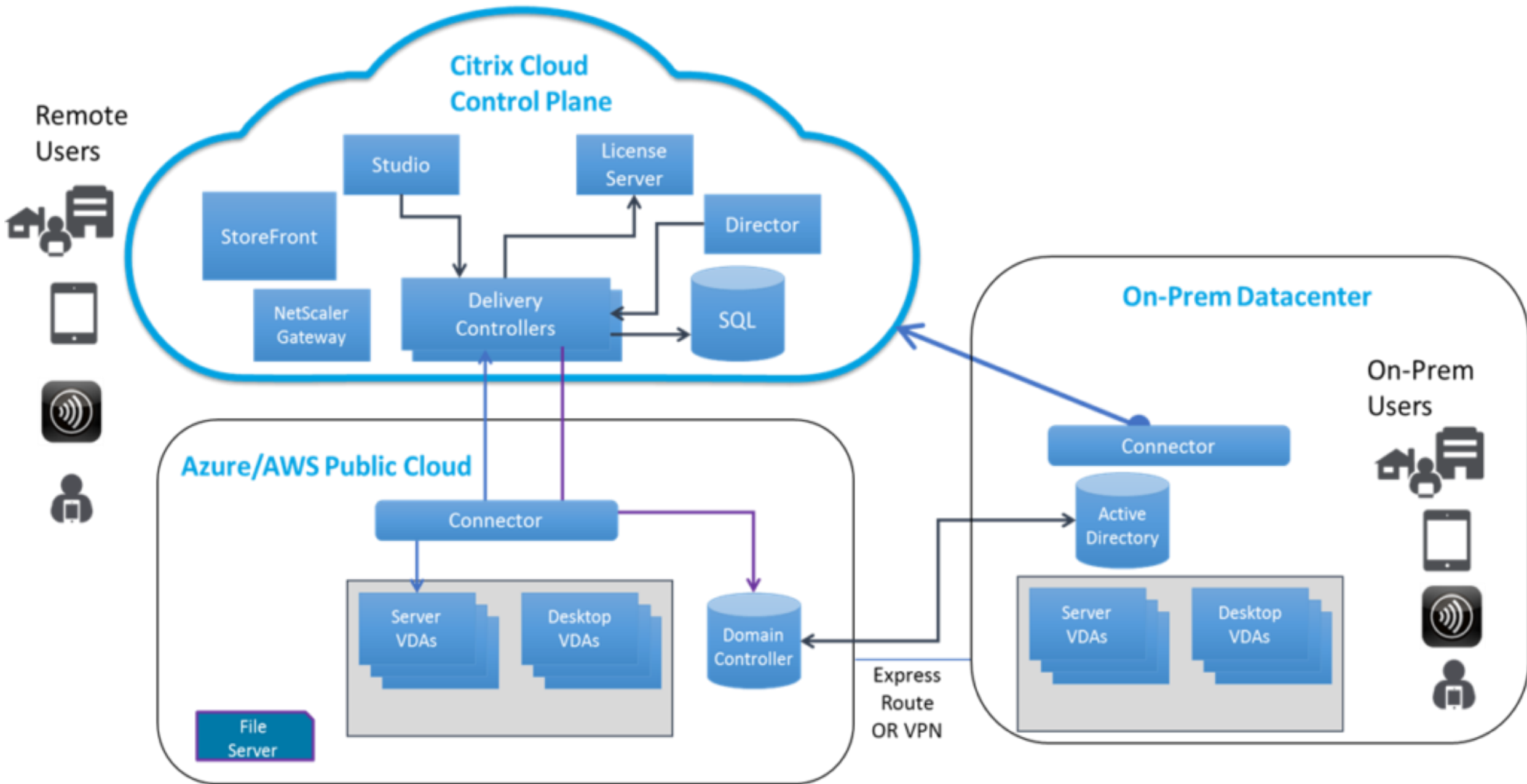
Microsoft Azure



# Apps and Desktops Service







- Direct Internet
- VPN
- ExpressRoute
- SD-WAN

Connectivity

- Tenant
- EA
- Limits

Subscription

- Portal
- RESTful API's
- VS (IDE)

Manage

- Provisioning
- Orchestration
- Lifecycle

Resource  
Manager (ARM)

- Logical groupings
- RBAC

Resource  
Groups

- Identity Management
- Users, groups, devices, etc.

Active Directory  
(AAD)

# Azure Resource Manager

Application Lifecycle Container

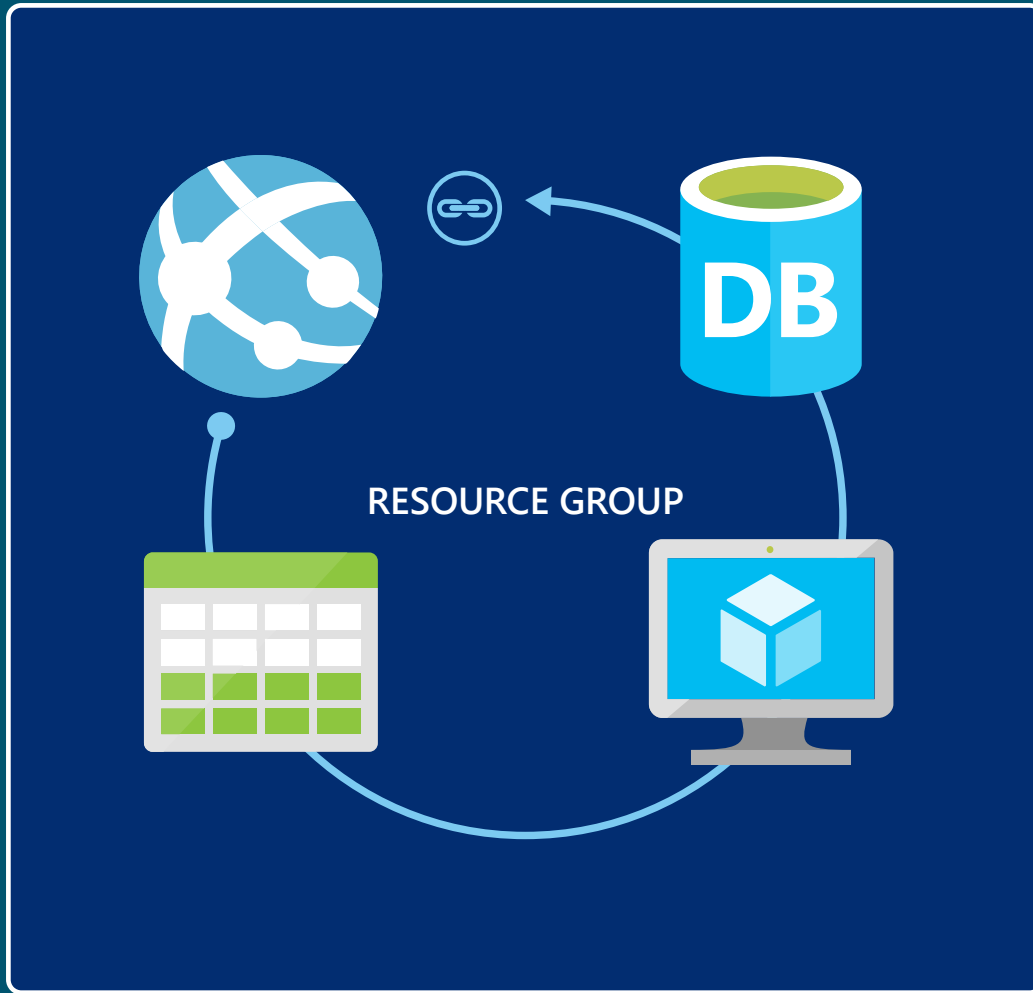
Declarative solution for Deployment and Configuration

Consistent Management Layer

Fading Fast... ASM

# Resource Groups

- Tightly coupled containers of multiple resources of similar or different types
- Every resource *\*must\** exist in one and only one resource group
- Resource groups can span regions



# Coupling for Resources

*Resource Group is a unit of management*

- **Lifecycle:** deployment, update, delete, status
- **Identity:** resources can talk to each other
- **Grouping:** Metering, billing, quota: applied & rolled up to group



# Resource Group Lifecycle

Question:

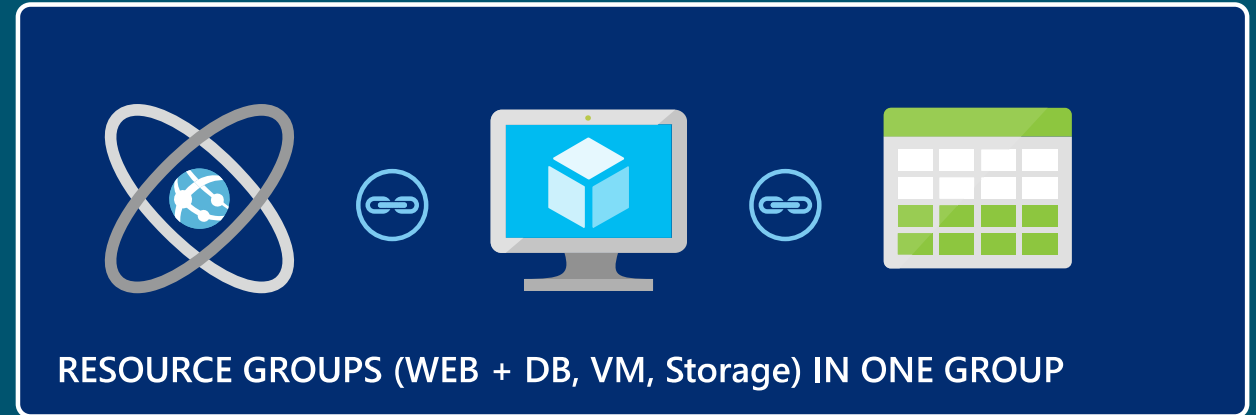
Should these resources be in the same group or a different one?

Hint:

Do they have common lifecycle and management?

Answer:

Up to you.



OR



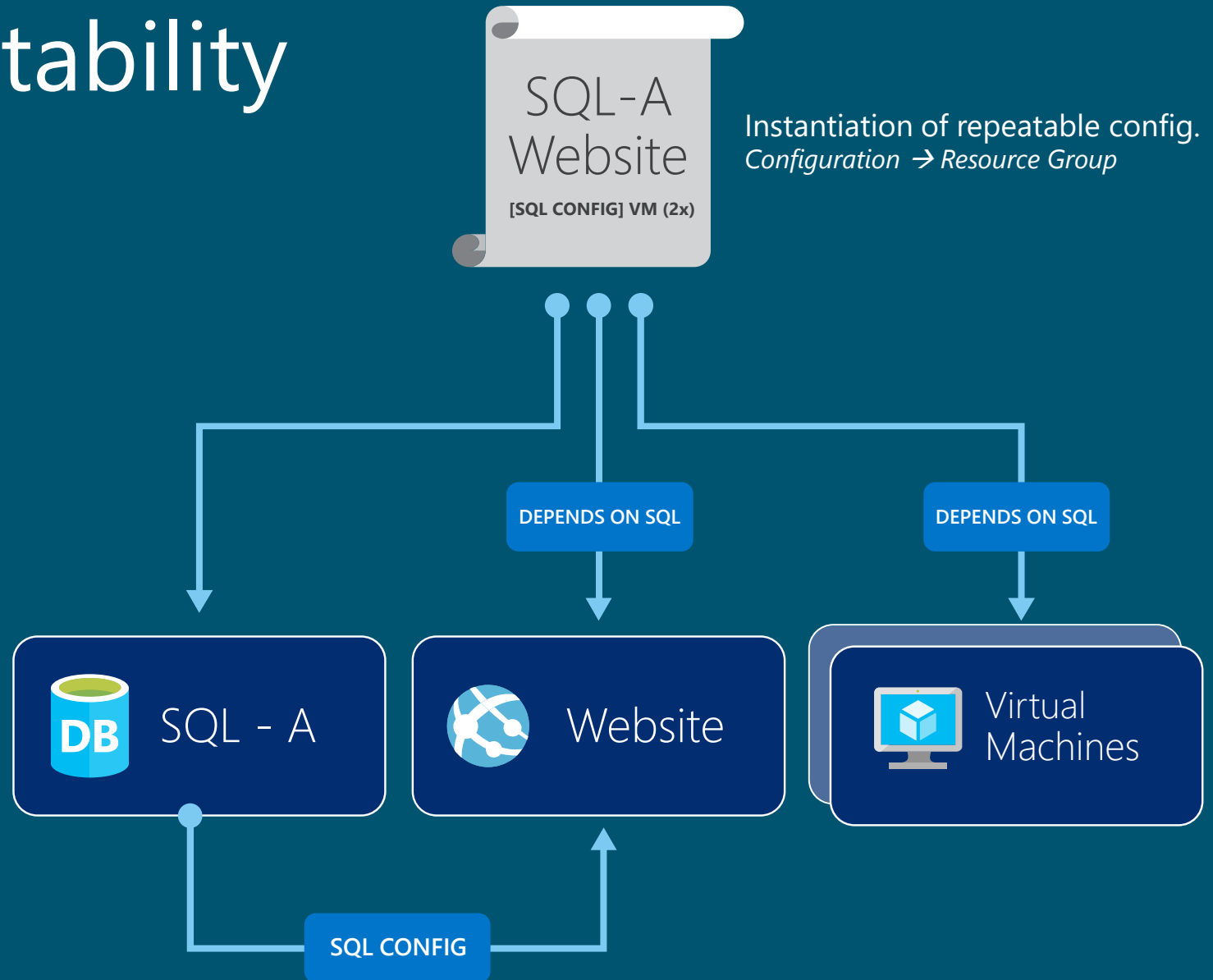
# Power of Repeatability

## Azure Templates can:

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

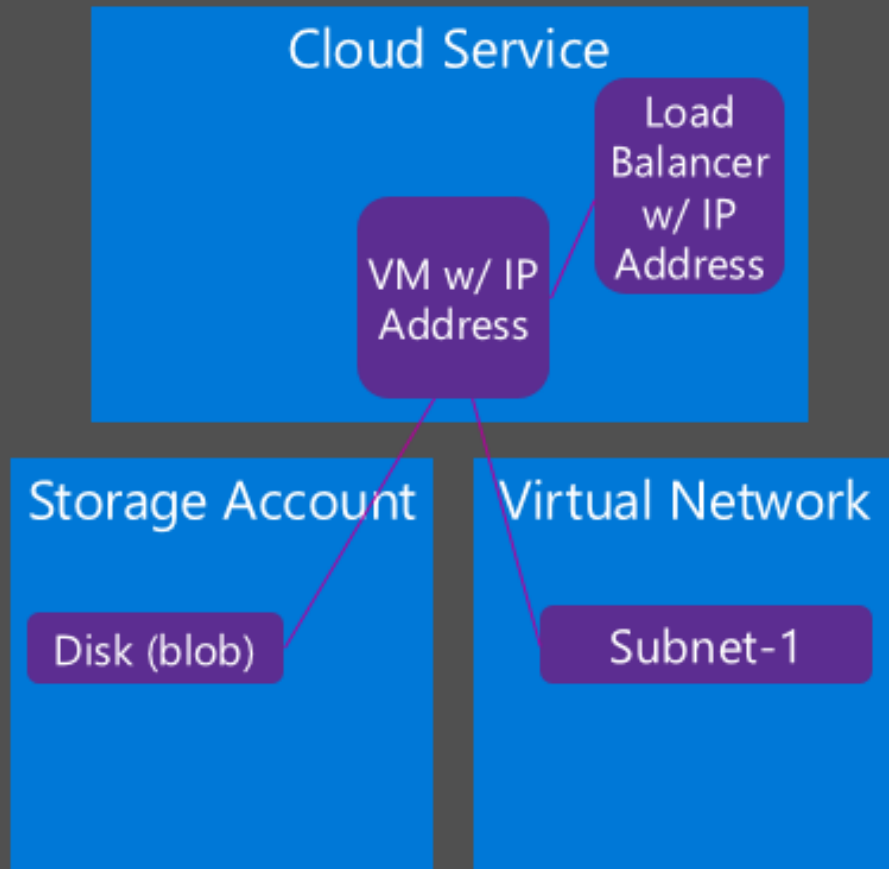
## Azure Templates are:

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

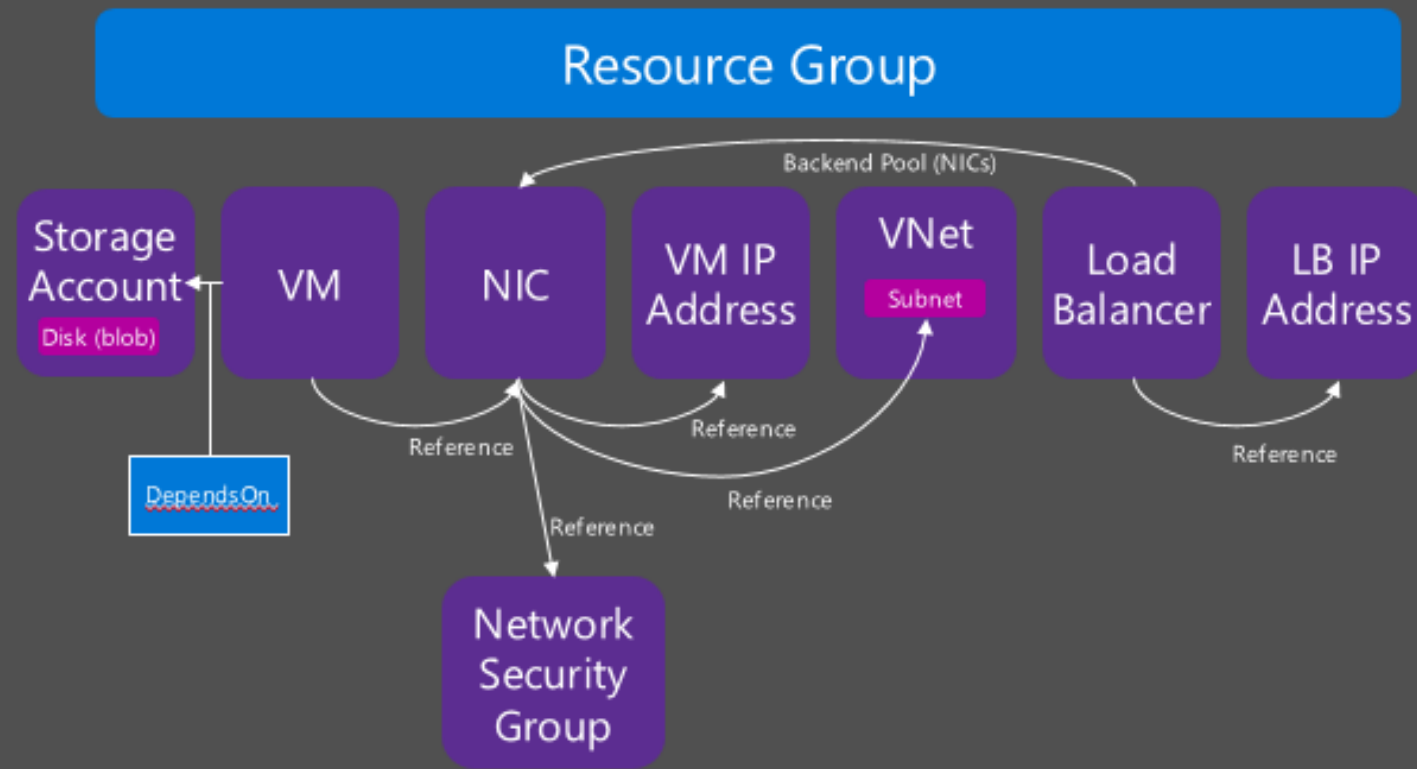


# Azure Networking: ASM vs. ARM

## ASM (v1)



## ARM (V2)



# Many Ways to Create a VM

Portal

PowerShell

Azure CLI

ARM - ASM  
Template

REST API

VS SDK

SCCM App  
Controller

3<sup>rd</sup> Party  
Admin

# Choosing a VM Size

## General Purpose

A0 – A5 Basic

A0 – A7 Standard

D1 – D4

D1v2 – D5v2

## Compute Optimized

F1, F2, F4, F8, F16

## Memory Optimized

D11 – D14

D11v2 – D15v2

G1 – G5

## GPU

NV6, NV12, NV24

NC6, NC12, NC24,  
NC24r

## High Performance Compute

A8 – A11

H8, H8m, H16, H16m,  
H16r, H16mr

*\*Not all sizes available in all regions*

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# Storage Disks

## Standard Storage

- Cloud-scale reliable storage
- Maximum 500 IOPS, 60 MB per second throughput per disk
- Available in all VM Sizes

## Premium Storage

- High-performance, low-latency disk support, ideal for I/O intensive workloads
- Maximum 5000 IOPS, 200 MB per second throughput per disk
- Only supported in "S" series VMS (DS, DSv2, GS, FS)
- Locally redundant storage only

## Azure File Storage

- Mount Azure Storage as network share volumes
- Can be accessed via SMB 3.0 or REST APIs
- Up to 1000 IOPS, up to 60 MB/second throughput per share
- Max share size = 5TB, Max file size = 1 TB.

# Disks vs Images

## OS Images

- Microsoft
- Partner
- User



Base OS image for new Virtual Machines  
Sys-Prepped/Generalized/Read Only  
Created by uploading or by capture

## Disks

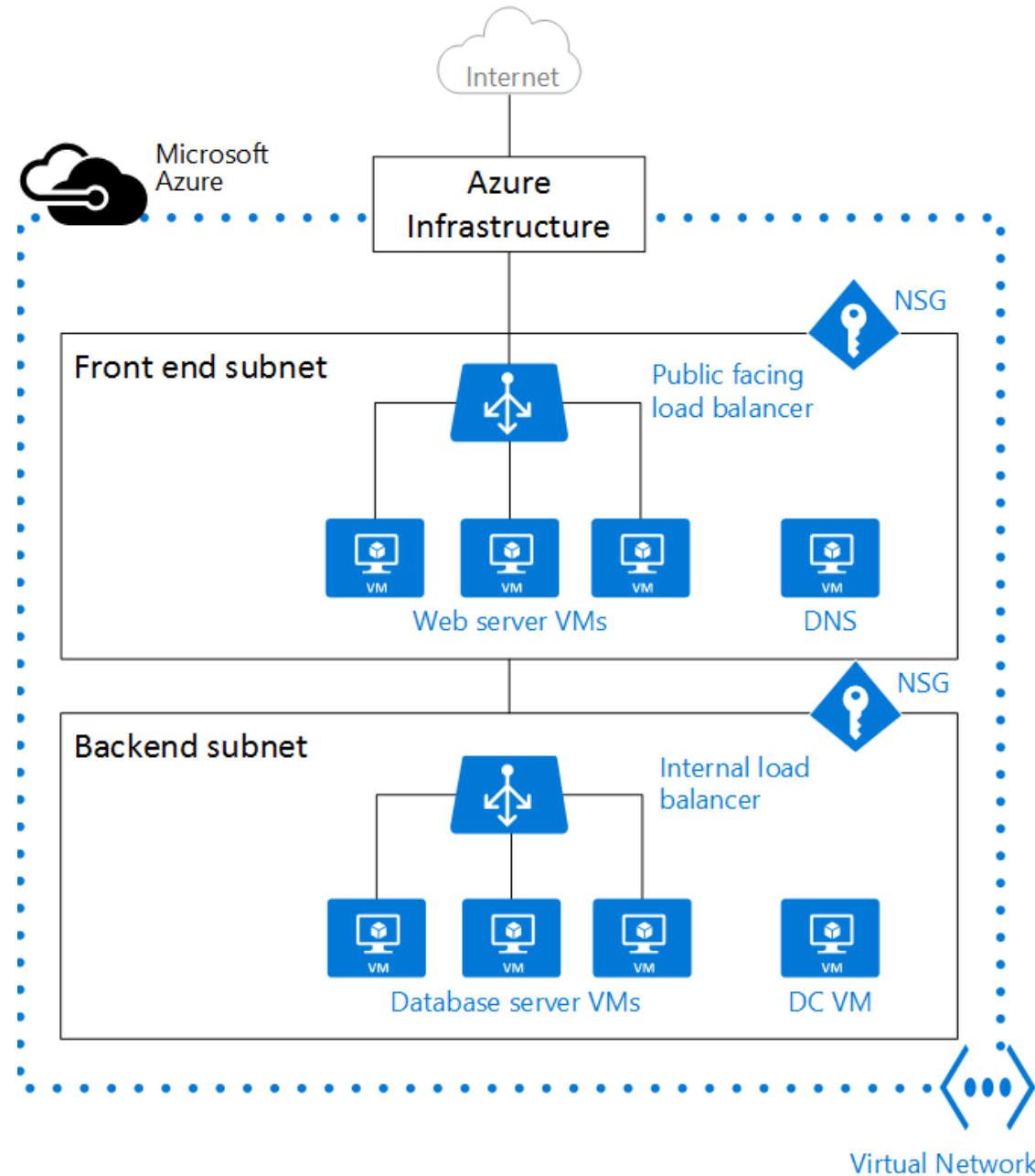
- OS Disks
- Data Disks



Writable Disks for Virtual Machines  
Created during VM creation or during  
upload of existing VHDs.

# Virtual Networks

- “Bring your own network”
- Provides security and isolation by creating a private network inside of Azure
- Supports:
  - Defining subnets
  - “Peering” with other non-overlapping VNETs in the same region
  - Defining Network Security Groups (ACL rules)
- Allows you to create complex and/or sophisticated network topologies around your VM's



Virtual Network

# Control Your Spend

<https://azure.microsoft.com/en-us/pricing/calculator/>

\*\*\*\*Different regions, different prices! (<http://map.buildazure.com>)

# South Central US Azure Region

DS1_V2 Standard ★	DS2_V2 Standard ★	DS11_V2 Standard ★
1 Core	2 Cores	2 Cores
3.5 GB	7 GB	14 GB
2 Data disks	2 Data disks	2 Data disks
3200 Max IOPS	6400 Max IOPS	6400 Max IOPS
7 GB Local SSD	7 GB Local SSD	7 GB Local SSD
Load balancing	Load balancing	Load balancing
Premium disk support	Premium disk support	Premium disk support
47.62 USD/MONTH (ESTIMATED)	94.49 USD/MONTH (ESTIMATED)	123.50 USD/MONTH (ESTIMATED)

# West US 2 Azure Region

DS1_V2 Standard ★	DS2_V2 Standard ★	DS11_V2 Standard ★
1 Core	2 Cores	2 Cores
3.5 GB	7 GB	14 GB
2 Data disks	2 Data disks	4 Data disks
3200 Max IOPS	6400 Max IOPS	6400 Max IOPS
7 GB Local SSD	7 GB Local SSD	7 GB Local SSD
Load balancing	Load balancing	Load balancing
Premium disk support	Premium disk support	Premium disk support
42.41 USD/MONTH (ESTIMATED)	84.82 USD/MONTH (ESTIMATED)	110.86 USD/MONTH (ESTIMATED)



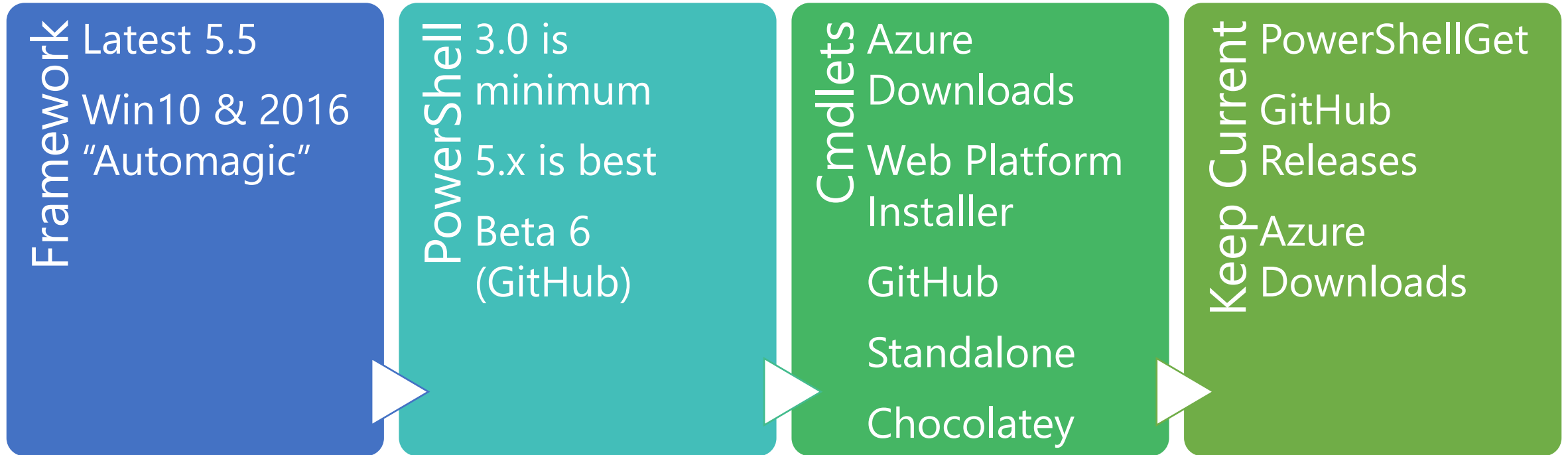
# Be Aware of your Limits

<https://docs.microsoft.com/en-us/azure/azure-subscription-service-limits>

Resource	Default Limit	Max Limit
Cores per sub	20	10,000
VMs per sub (RM)	20 per region	10,000 per region
VM total cores (RM)	20 per region	10,000 per region
VM per series	20 per region	10,000 per region
Resource Groups per sub	800	800
RM API Reads	15000 per hour	15000 per hour
RM API Writes	1200 per hour	1200 per hour
RM API Request Size	4194304 bytes	4194304 bytes
VMs per cloud service (ASM)	50	50

# The Azure Portal

# Setting Up PowerShell



PowerShell DSC - Learn It!

# PowerShell Management Methods

- ASM (Classic) – Built-In access via WinRM
- ARM – Requires Config pre or post VM (w/certs)
- Internal
  - Windows Jump Box
  - Linux OMI Provider via PSRP
  - SMT
- External
  - RDP / SSH
  - HTTPS WinRM tcp/5986 – PoSH Remoting (Certs)
  - SMT

# Azure Tools and Services



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