



# Jump start your Windows Virtual Desktop deployment on Azure today!

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# Remoting Windows Scenarios



## Security and regulation

Financial Services

Healthcare

Government



## Elastic workforce

Mergers and acquisition

Short term employees

Contractor and partner  
access



## Specific employees

BYOD and mobile

Call centers

Branch workers



## Specialized workloads

Design and engineering

Legacy apps

Software dev test

# The options

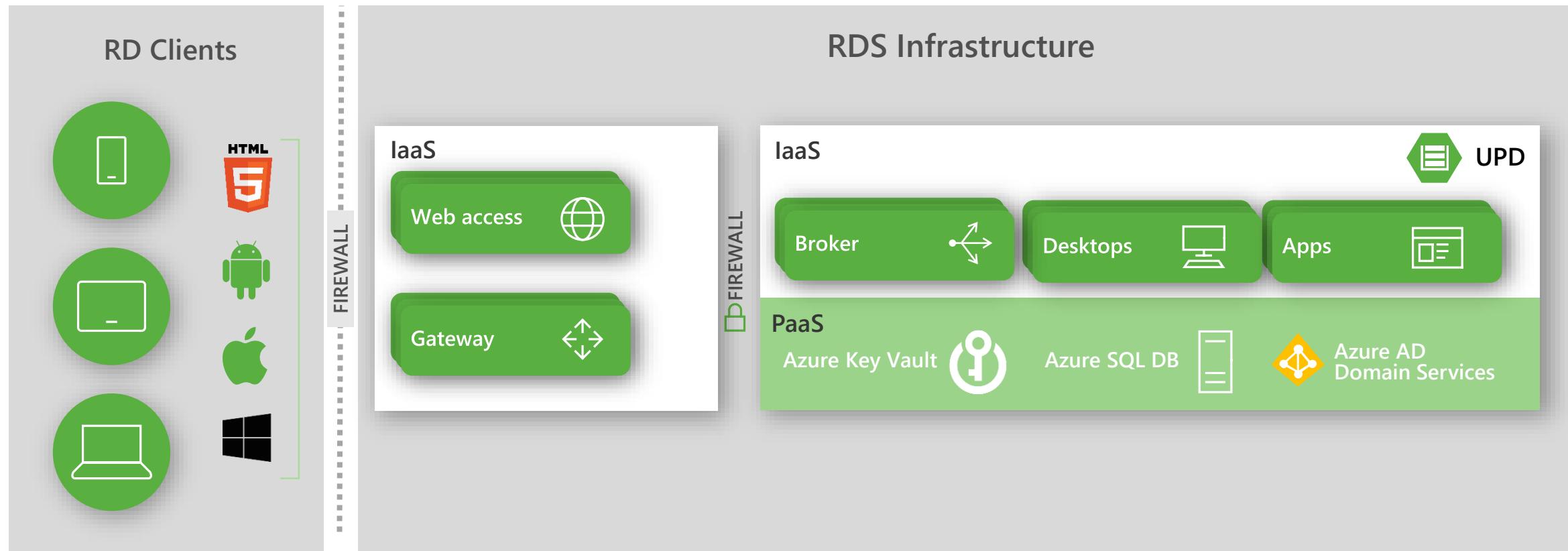
RDS on (Azure) IaaS ideal if you want...

- full end-to-end control of the desktop virtualization environment
- a private, isolated environment
- to extend current deployments

Windows Virtual Desktop ideal if you want...

- Microsoft to manage the brokering infrastructure as a service
- Windows 10 Enterprise multi-session capabilities
- Windows 7 Extended Security Updates

# RDS on Azure IaaS 2019



SEPTEMBER 30, 2019

# Windows Virtual Desktop is now generally available worldwide

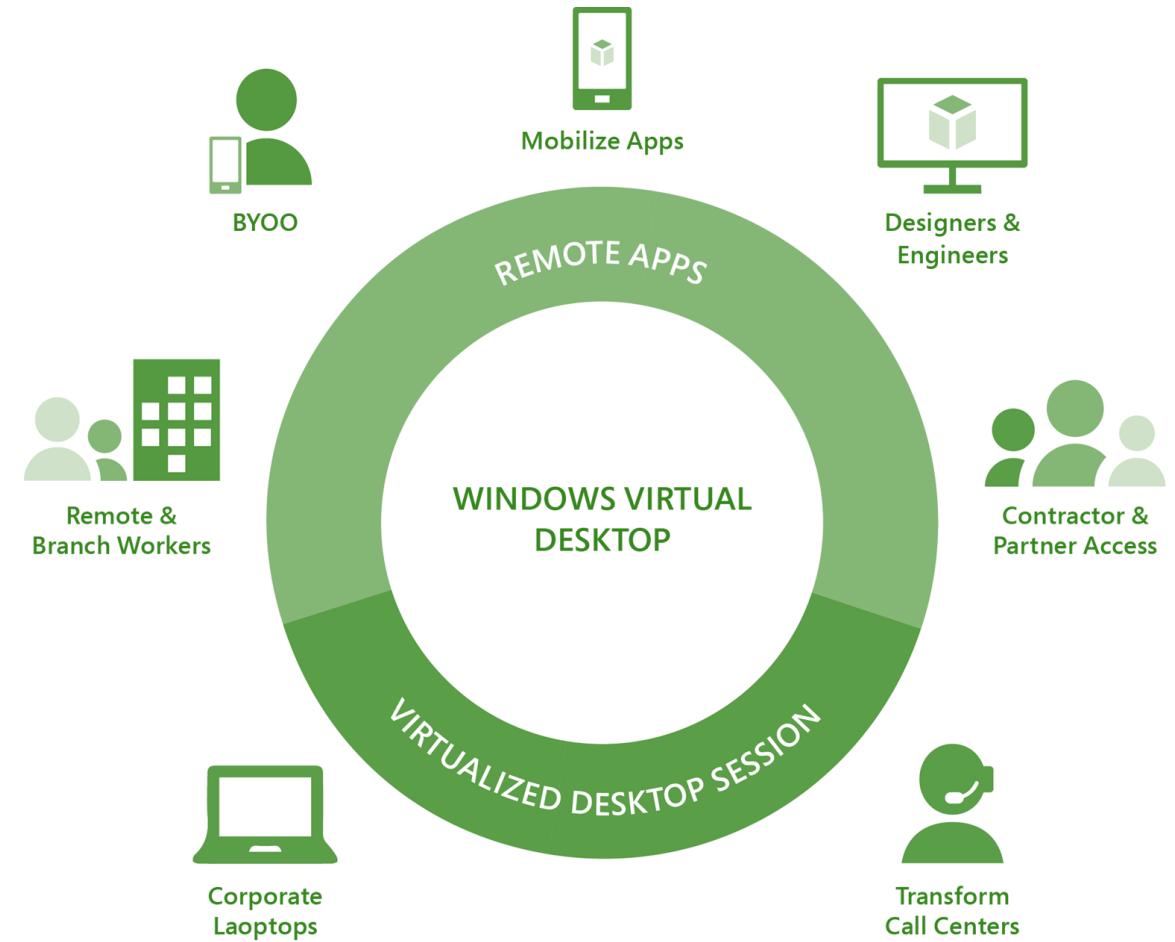
By Brad Anderson, Corporate Vice President for Microsoft 365, and Takeshi Numoto, Corporate Vice President for Microsoft Azure

Today, we're excited to announce that Windows Virtual Desktop is now generally available worldwide. Windows Virtual Desktop is the only service that delivers simplified management, a multi-session Windows 10 experience, optimizations for [Office 365 ProPlus](#), and support for Windows Server Remote Desktop Services (RDS) desktops and apps. With Windows Virtual Desktop, you can deploy and scale your Windows desktops and apps on Azure in minutes.

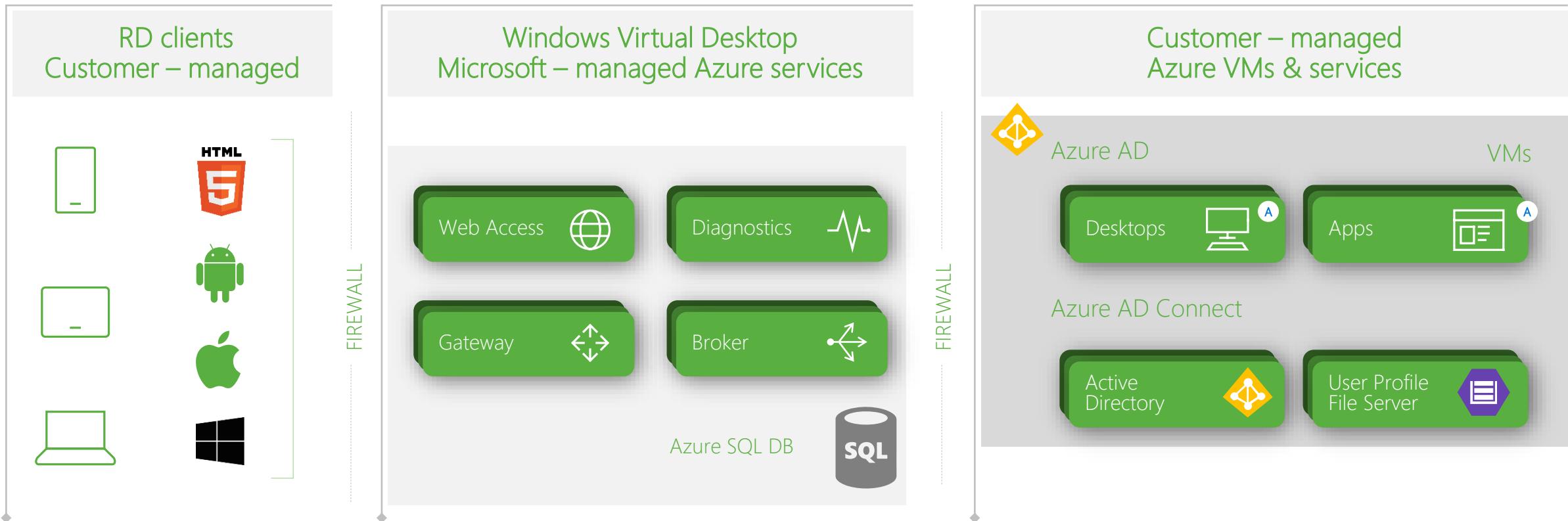
# Windows Virtual Desktop

The best virtual desktop experience, delivered on Azure

- Deliver the only multi-session Windows 10 experience
- Enable optimizations for Office 365 ProPlus
- Migrate Windows Server (RDS) desktops and apps
- Deploy and scale in minutes

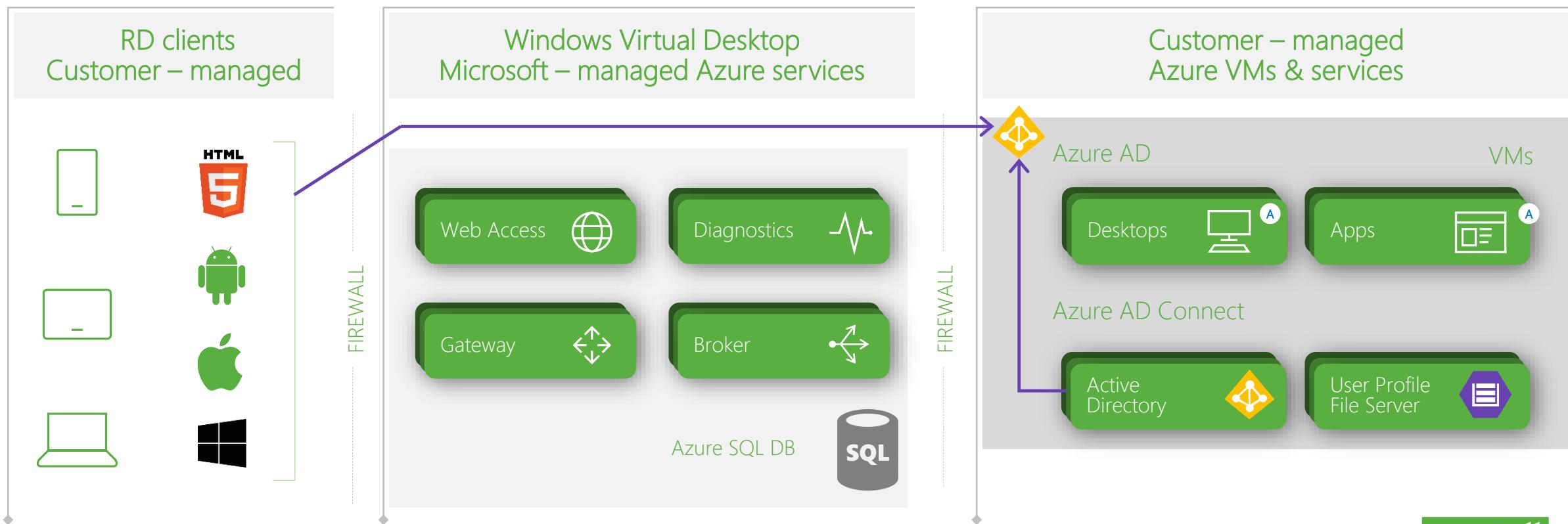


# Detailed architecture



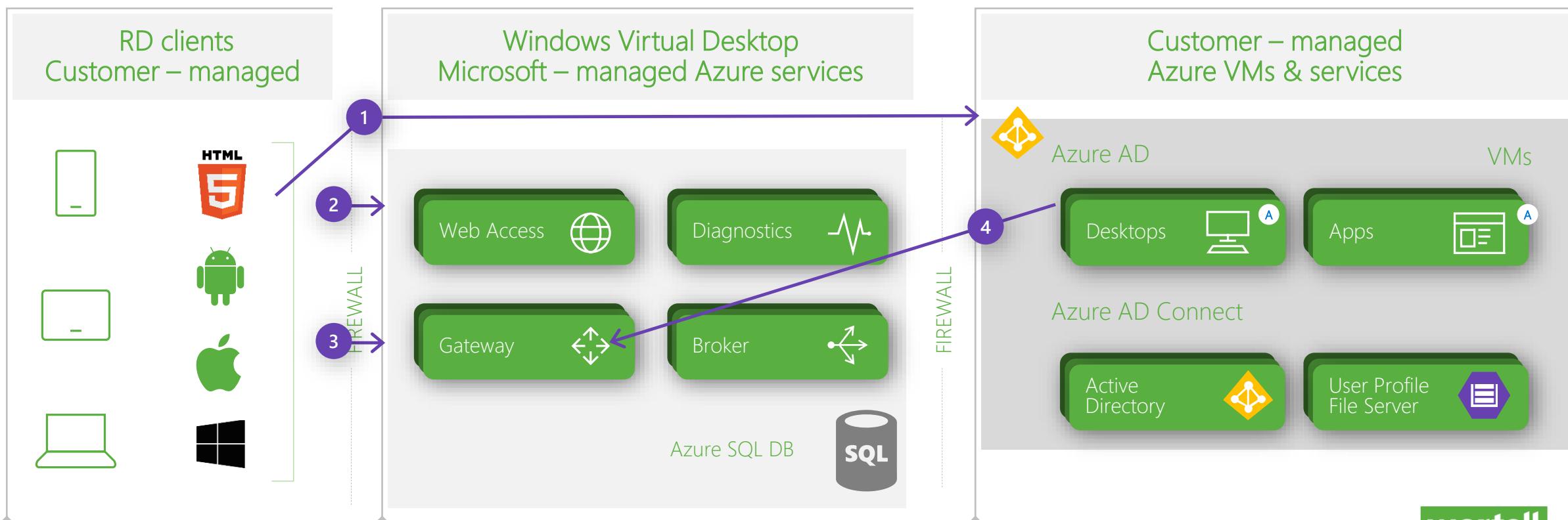
# Authentication

- Clients authenticate with Azure Active Directory (Azure AD) identities
- Azure AD allows usage of Conditional Access and Multi-factor Authentication
- Windows VMs are AD domain-joined for optimal app compatibility



# User Connection Flow

- 1 User launches RD client which connects to Azure AD, user signs in, and Azure AD returns token
- 2 RD client presents token to Web Access, Broker queries DB to determine resources authorized for user
- 3 User selects resource, RD client connects to Gateway
- 4 Broker orchestrates connection from host agent to Gateway

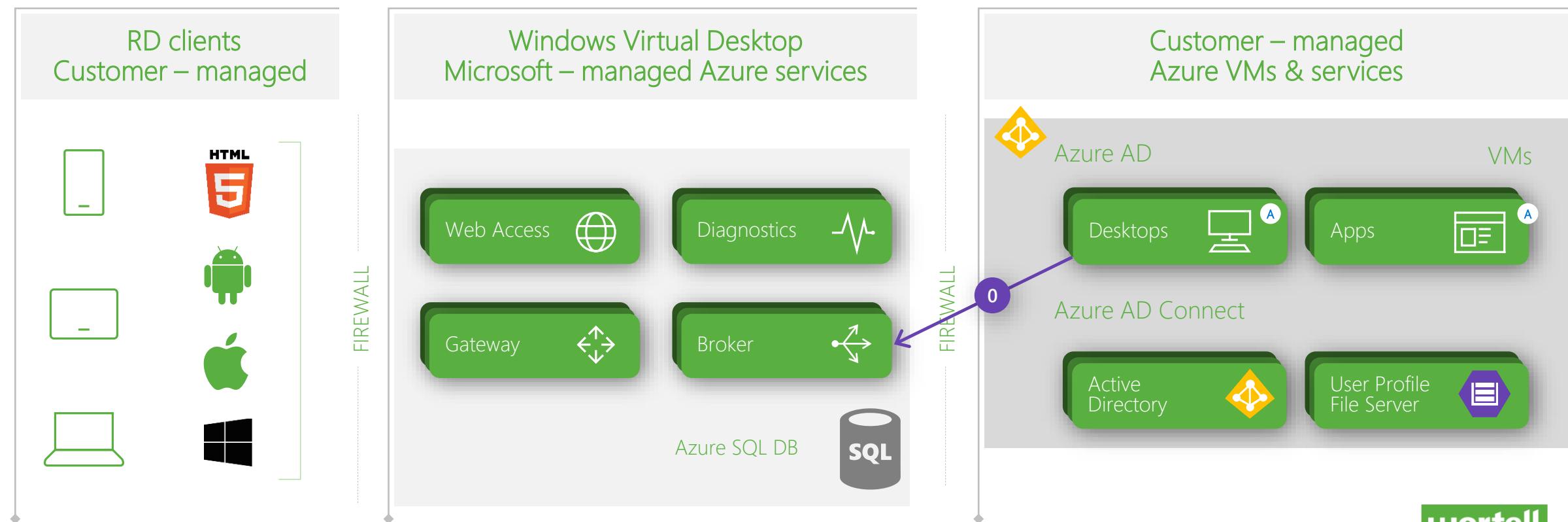


# Improved Isolation: Reverse Connect

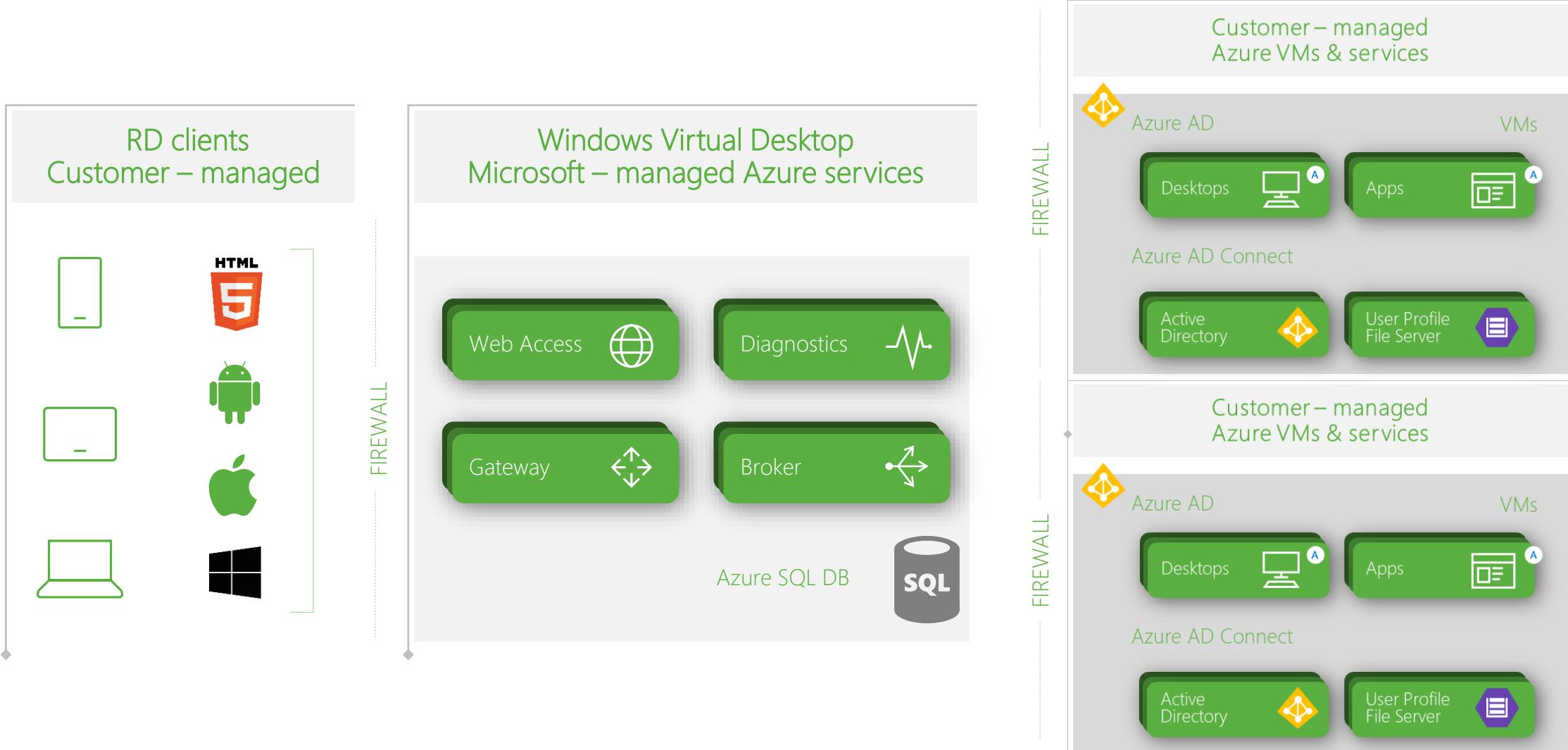
Outbound WebSocket connections from VMs to Broker and Gateway

Bidirectional communications between VMs and RD infra over https (443)

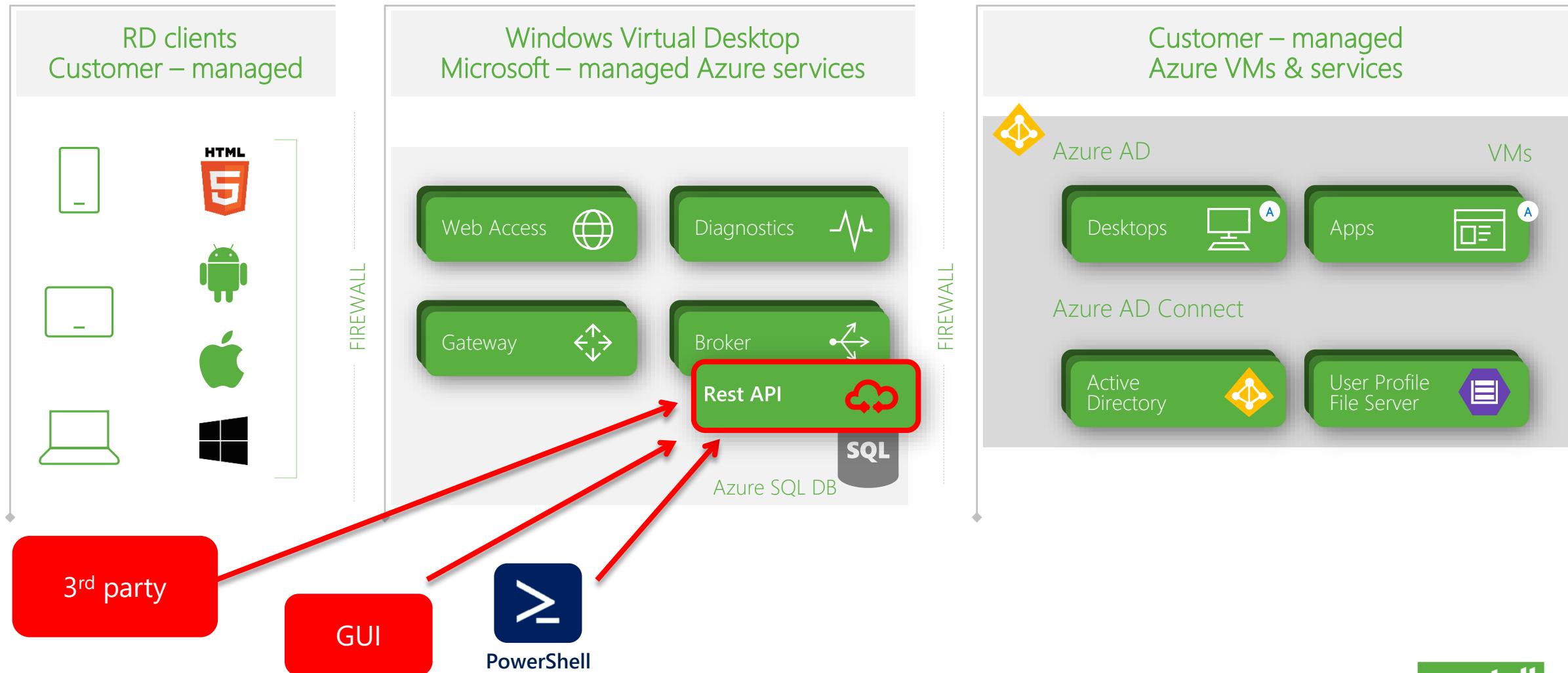
No inbound ports need be opened on the VM.



# Multitenancy



# Extensible Platform



# Identity Strategies

Domain Controller inside your Azure subscription.

PRO:

- Reuse existing GPO's
- Optionally sync with on-prem

CON:

- Additional VM to manage

Cloud based organizations can use AADDS

PRO:

- Isolated environments that do not need connectivity to on-prem
- Azure AD leading source of identities

CON:

- AADDS costs per month
- No (full) reuse of existing GPO's

Hybrid based organizations can Use VPN or ER to connect DC's

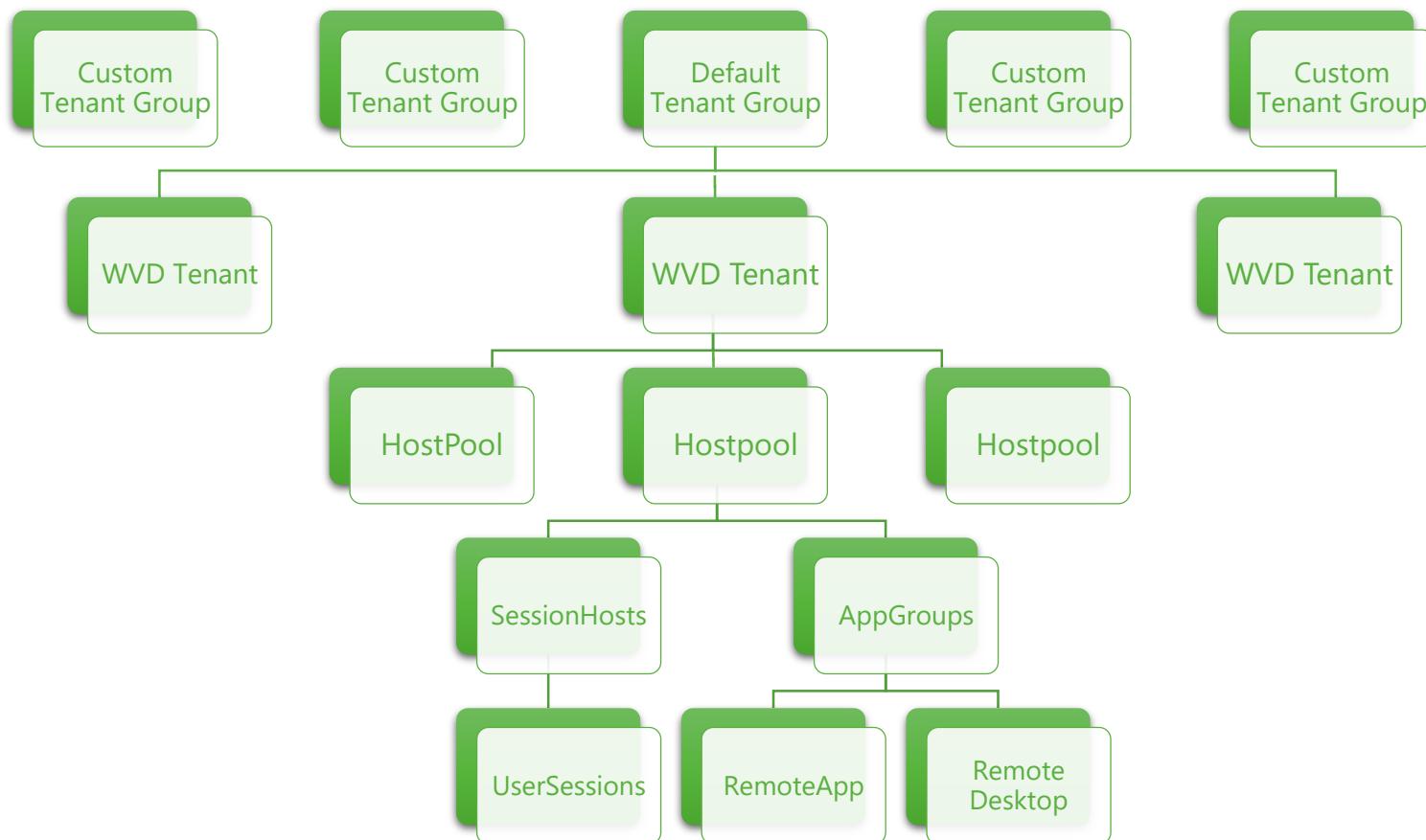
PRO:

- Reuse existing GPO's
- No AADDS or DC in Azure is required

CON:

- Latency could be increased during authentication
- Not suitable for Cloud Only

# WVD Object Model



# Operating Systems



## Windows Server 2019 RD Session Host

Scalable multi-user **legacy**  
Windows environment.

Windows Server 2019

Multiple users

Win32

Office 2019 Perpetual

Long-Term Servicing Channel

## Windows 10 Enterprise multi-user

Scalable multi-user **modern**  
Windows user experience with  
Windows 10 Enterprise security

Windows 10

Multiple users

Win32, UWP

Office 365 ProPlus

Semi-Annual Channel

## Windows 10 Enterprise

Native single-session **modern**  
Windows experience.

Windows 10

Single user

Win32, UWP

Office 365 ProPlus

Semi-Annual Channel

# Supported Hosts

Windows 7 (x64)

Windows 10

Windows 10 Enterprise Multisession

Windows Server 2012

Windows Server 2012 R2

Windows Server 2016

Windows Server 2019



# Supported VM Types

Hosts can be based on any VM type that is available in the region.

Configure number of VMs... □ ×

Usage Profile ⓘ  
Light Medium Heavy Custom

\* Total users  
100

\* Virtual machine size  
**4x Standard D8s v3**  
8 vcpus, 32 GiB memory  
**Change size**

\* Virtual machine name prefix ⓘ

Select a VM size  
Browse available virtual machine sizes and their features

nv  Restore default filters  
Add filter

Showing 3 of 83 VM sizes. | Subscription: Microsoft Azure Enterprise | Region: East US 2 | Current filters

VM SIZE ↑↓	OFFERING ↑↓	FAMILY	↑↓ VCPUS ↑↓	RAM (GiB) ↑↓	DATA DISKS ↑↓	MAX IOPS ↑↓
NV12	Standard	GPU	12	112	48	40000
NV24	Standard	GPU	24	224	64	80000
NV6	Standard	GPU	6	56	24	20000

# Hostpool flexibility

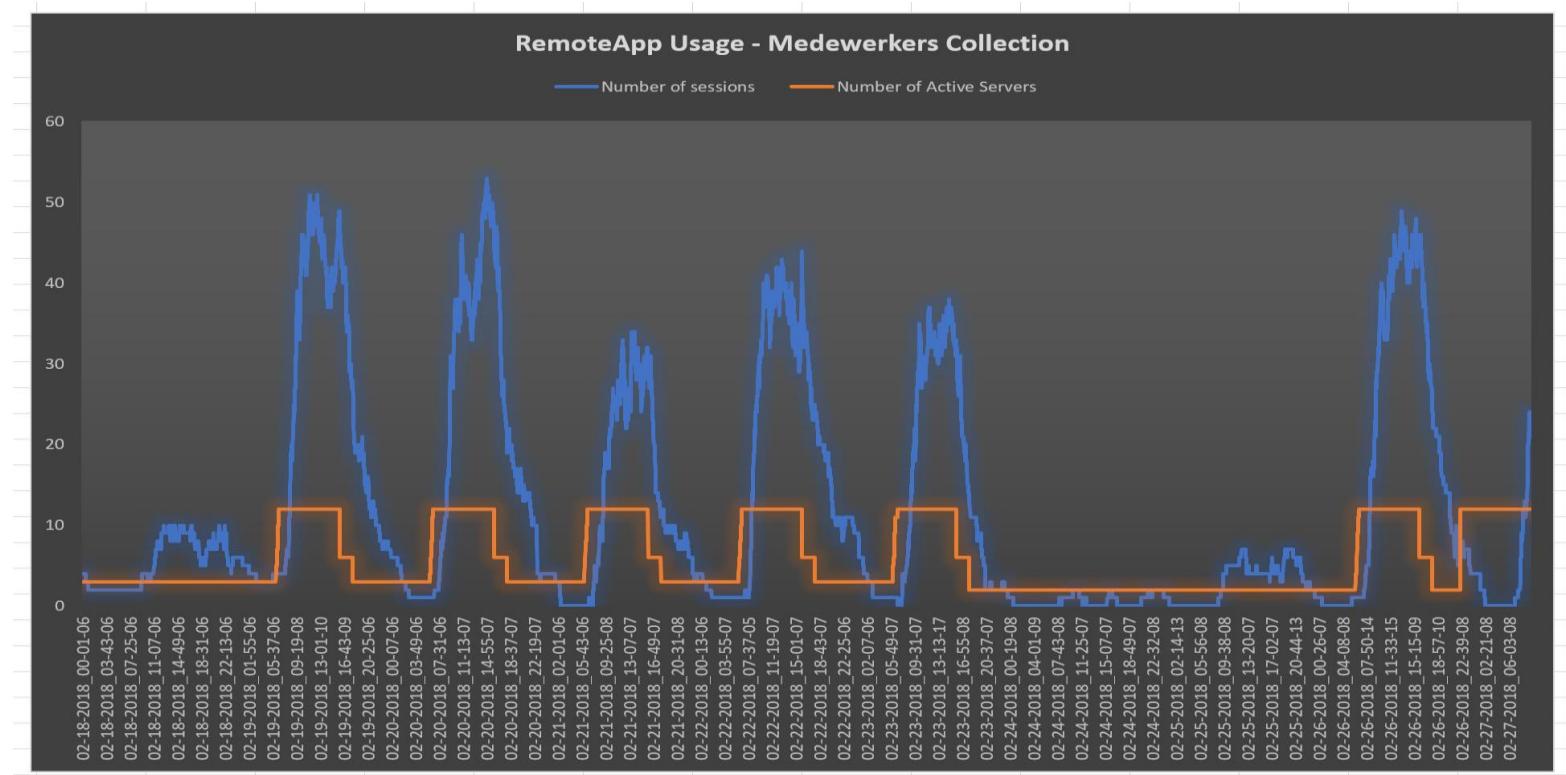
- RemoteApp and desktop app groups
- Set different load balancing algorithms
  - Breath mode, with Reserved Instances
  - Depth mode, with scaling of host VM's
- Single or multi-session session host VMs
- Pooled or personal VMs



# Scaling to save costs

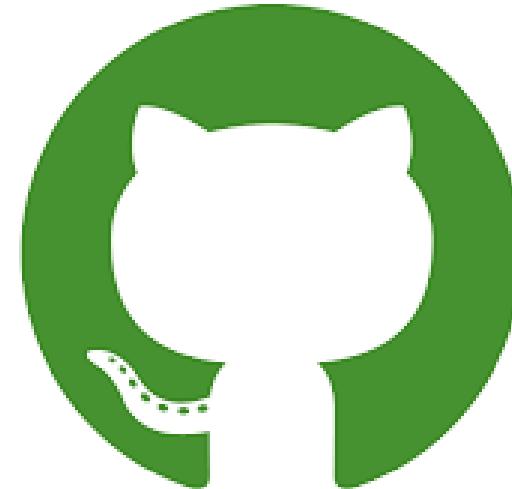
All WVD Infrastructure components will auto scale

Recommendation to use scaling scripts to save costs on Session Host servers.



# Automation

- Create and update VM's in a hostpool
  - [Create and provision host pool](#)
  - [Update VM's in existing host pool](#)
- Scale your hostpool
  - [Scaling script](#)
  - 3<sup>rd</sup> party scaling: Sepago, Nerdio



# Management UI

The screenshot shows the Microsoft Azure Management UI with the following details:

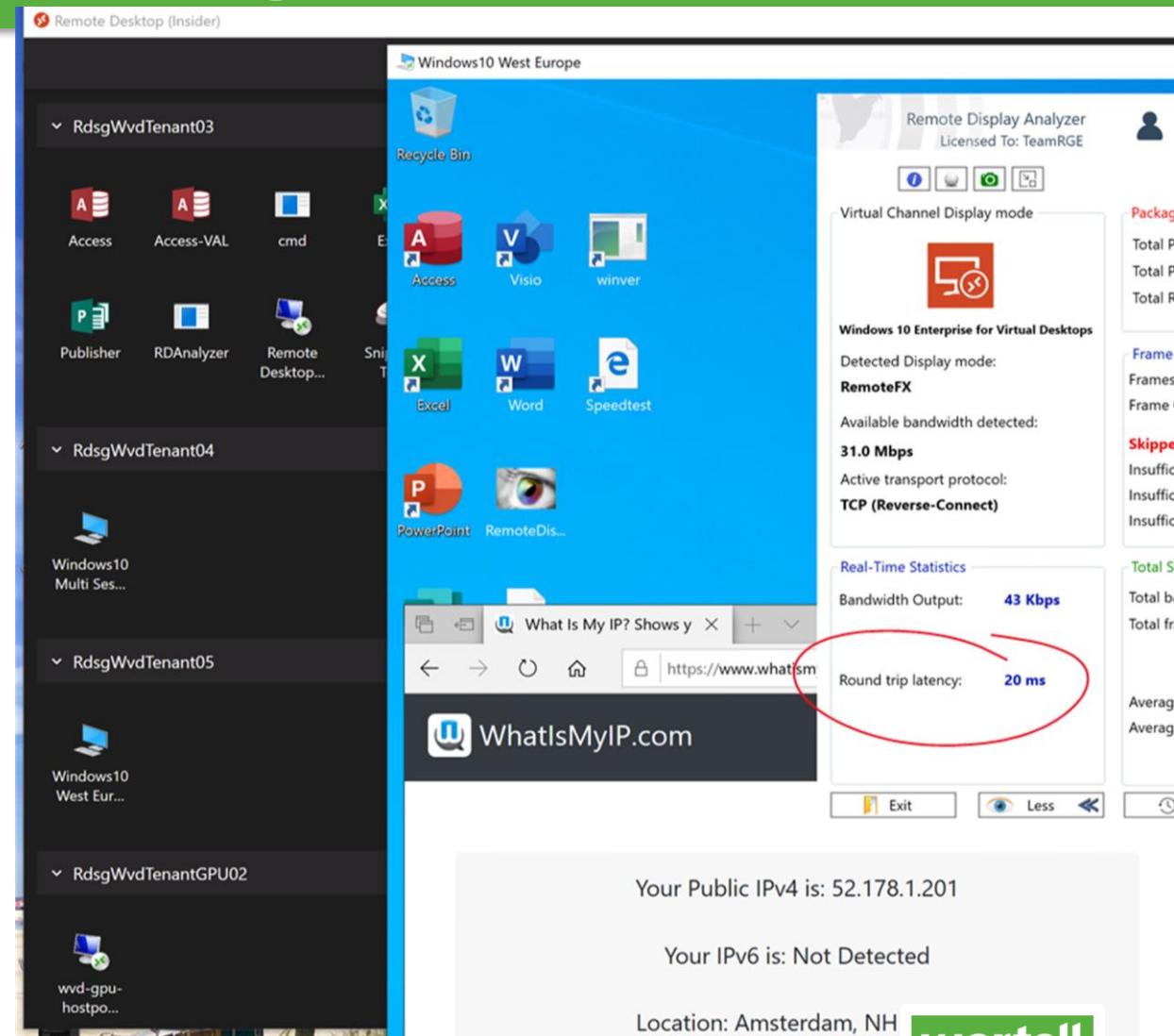
- Navigation:** The top navigation bar shows three tabs: "Windows Virtual Desktop - Microsoft", "Windows Virtual Desktop - Host", and "Windows Virtual Desktop - Application groups".
- Search Bar:** A search bar at the top right says "Search resources, services, and docs (G+)".
- User Profile:** The top right also shows the user's email (scott@rubiconvict.com) and name (RUBICONVICT).
- Left Sidebar:** The sidebar under "Manage" has sections for "Overview", "Workspaces", "Host pools", "Application groups" (which is selected), and "Users".
- Main Content:** The main area is titled "Windows Virtual Desktop - Application groups" and lists three records:

Name	Resource group	Location	Subscription	Application group	Host pool
Browsers	WVDHP1	West US	Visual Studio Ultimat...	RemoteApp	WVDHP1
Office Apps	WVDHP1	West US	Visual Studio Ultimat...	RemoteApp	WVDHP1
WVDHP2-DAG	WVDHP2	West US	Visual Studio Ultimat...	Desktop	WVDHP2
- Toolbar:** At the top of the main content area are buttons for "Add", "Edit columns", "Refresh", "Export to CSV", "Assign tags", and "Feedback".
- Filtering:** Below the toolbar are filters for "Filter by name...", "Subscription == all", "Resource group == all", "Location == all", and "Add filter".

# Multiple rings

- Azure Traffic Manager & DNS to support multi region WVD backplane
- User will access Gateway closest to region

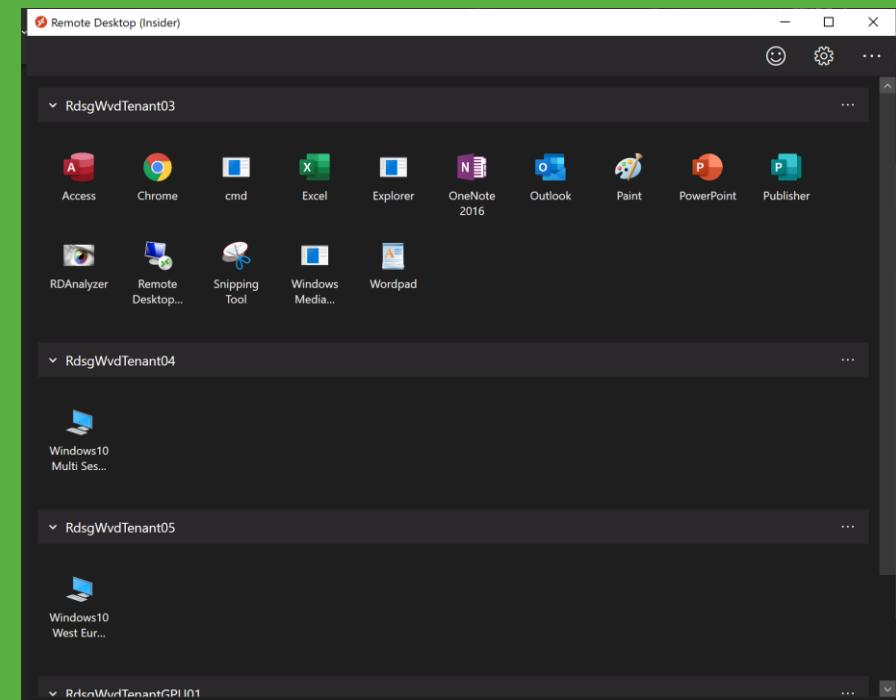
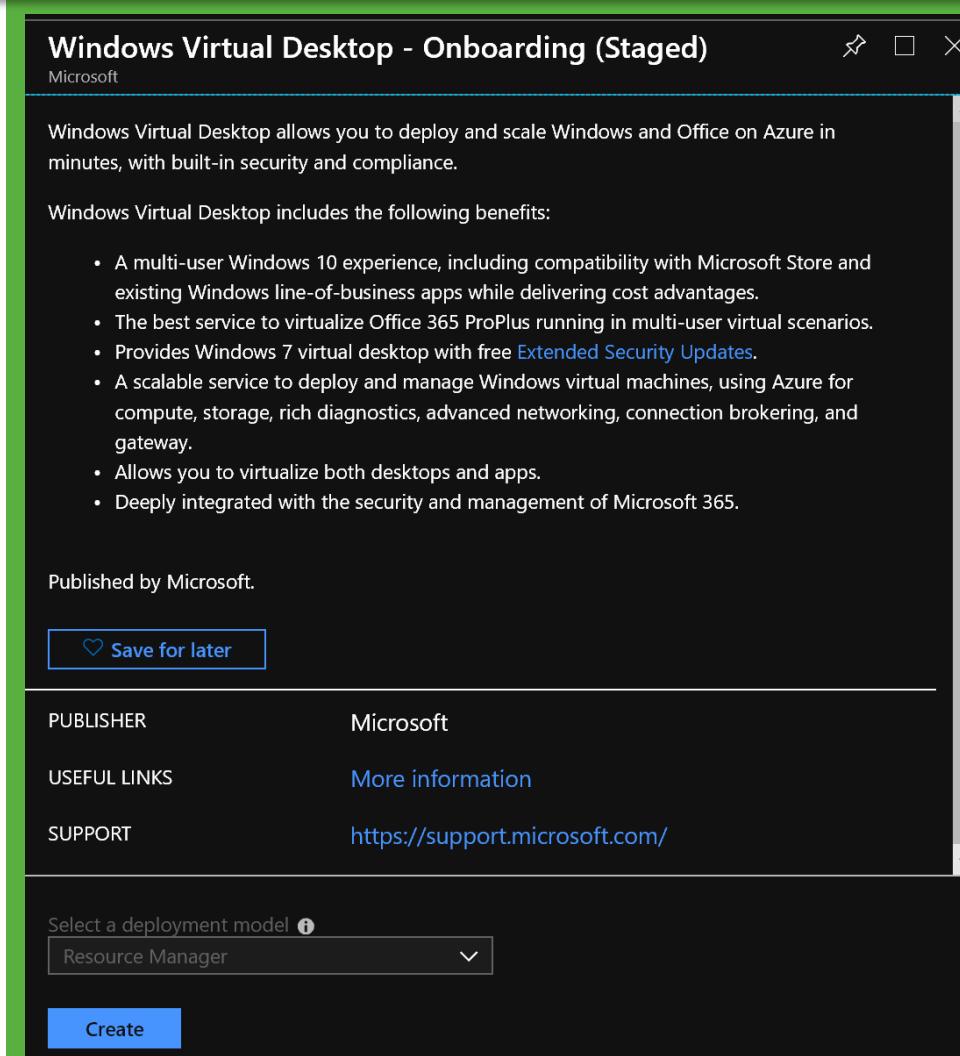
rdgateway-r1.wvd.microsoft.com = Production  
rdgateway-r0.wvd.microsoft.com = Validation



# WVD Backplane regions



# Demo: WVD admin & user experience



# Licensing

To run Windows 10 multi-session, Windows 10, or Windows 7

Microsoft 365 E3/E5

Microsoft 365 A3/A5/Student Use Benefits

Microsoft 365 F1

Microsoft 365 Business

Windows 10 Enterprise E3/E5

Windows 10 Education A3/A5

Windows 10 VDA per user

To run Windows Server 2012 R2, 2016, 2019

Remote Desktop Services (RDS) Client Access License (CAL) with active Software Assurance (SA)

*Take advantage of options such as [one-year or three-year Azure Reserved Virtual Machine Instances](#), which can save up to 72 percent versus pay-as-you-go pricing. [Now with monthly payment options!](#)*



# Discounts on Azure VM Prices

Search by VM size... x Clear all filters

Size : Small (0-6) x Generation : 2 selected x Family : General purpose x Premium disk : Supported x + Add filter

Showing 11 of 109 VM sizes. | Subscription: Hendrix Genetics - Production | Region: West Europe | Current size: Standard\_DS3\_v2

VM Size↑↓	Offering ↑↓	Family ↑↓	vCPUs↑↓	RAM (...↑↓)	Data disks↑↓	Max IOPS ↑↓	Temporar...↑↓	Premium ...↑↓	Cost/mon...↑↓
B1ls	Standard	General purp...	1	0.5	2	200	1	Yes	€6.65
B1ms	Standard	General purp...	1	2	2	640	4	Yes	€17.41
B1s	Standard	General purp...	1	1	2	3200	2	Yes	€10.04
B2ms	Standard	General purp...	2	8	4	1920	16	Yes	€65.25
B2s	Standard	General purp...	2	4	4	1280	8	Yes	€35.19
B4ms	Standard	General purp...	4	16	8	2880	32	Yes	€130.94
D2s_v3	Standard	General purp...	2	8	4	3200	16	Yes	€133.18
D4s_v3	Standard	General purp...	4	16	8	6400	32	Yes	€266.35
DS1_v2	Standard	General purp...	1	3.5	4	3200	7	Yes	€83.48
DS2_v2	Standard	General purp...	2	7	8	6400	14	Yes	€166.66
DS3_v2	Standard	General purp...	4	14	16	12800	28	Yes	€334.80

Regular VM Prices!

Search by VM size... x Clear all filters

Premium disk : Supported x + Add filter

| Region: West Europe | Current size: Standard\_D4s\_v3

VM Size↑↓	Offering ↑↓	Family ↑↓	vCPUs↑↓	RAM (...↑↓)	Data disks↑↓	Max IOPS ↑↓	Temporar...↑↓	Premium ...↑↓	Cost/mon...↑↓
						200	1	Yes	€3.76
						640	4	Yes	€15.03
						3200	2	Yes	€7.53
						1920	16	Yes	€60.26
						1280	8	Yes	€30.13
						2880	32	Yes	€120.53
						3200	16	Yes	€75.14
						6400	32	Yes	€150.29
						3200	7	Yes	€42.63
						6400	14	Yes	€85.56
						12800	28	Yes	€170.38

WVD VM Prices!

# FSLogix

Microsoft acquires FSLogix to enhance the Office virtualization experience

In November 2018, Microsoft acquired FSLogix, a next-generation platform that reduces the resources, time and labor required to support desktop and app virtualization.

FSLogix technologies enables faster load times for non-persistent users accessing Office 365

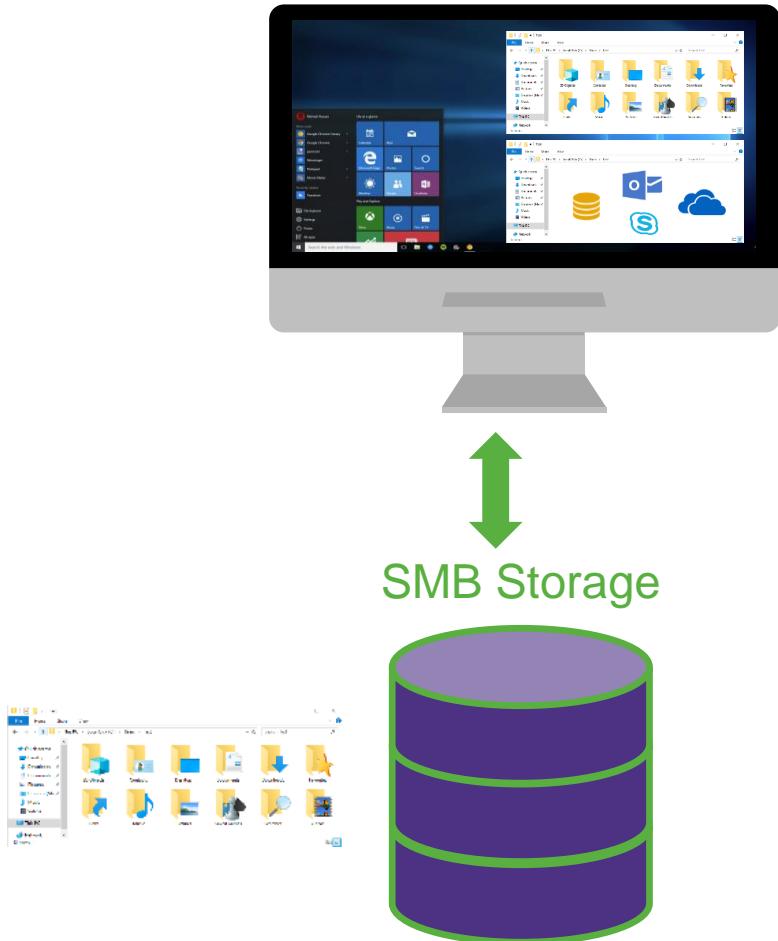


# Benefits for WVD

- Outlook caching + Windows Search support
- OneDrive for Business (and Files On-Demand) support
  - Per-Machine version of OneDrive now available
- Native SharePoint support in Windows Explorer
- Office 365 ProPlus computer activation license roaming
- Skype for Business GAL caching
- OneNote support + UWP
- Microsoft Teams support for Virtual Desktops coming soon
  - Per-Machine installation available now



# Profile Container



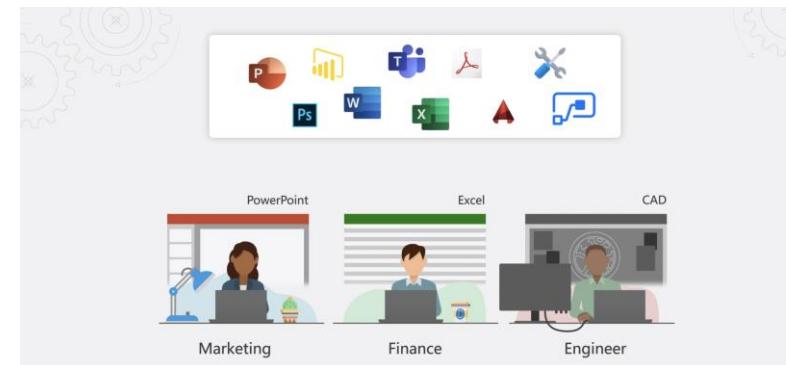
Places entire user profile in network-based container.

Extremely fast logon times.

Virtually eliminates profile corruption.

Works alongside existing User Environment Management platforms.

# Current application landscape options



## OPTION 1 Multiple images by role

- Manage numerous VM pools customized for different users' roles
- These images would all need to be individually maintained and patched

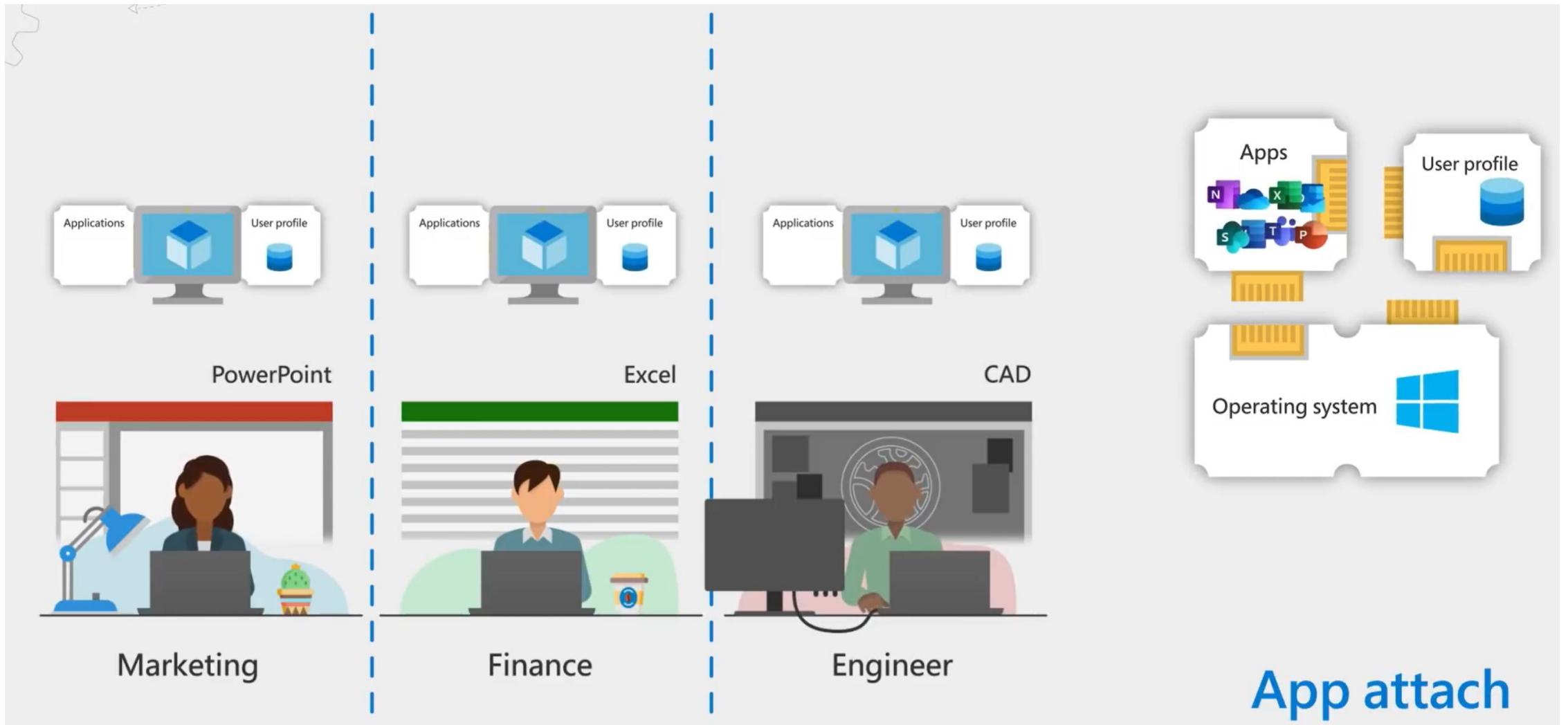
## OPTION 2 Traditional App layering

- Using Masking
- Image can get bloated

## OPTION 3 App streaming

- Requires apps to get cached into OS during user session
- Need to manage app streaming infra

# Roadmap: AppAttach

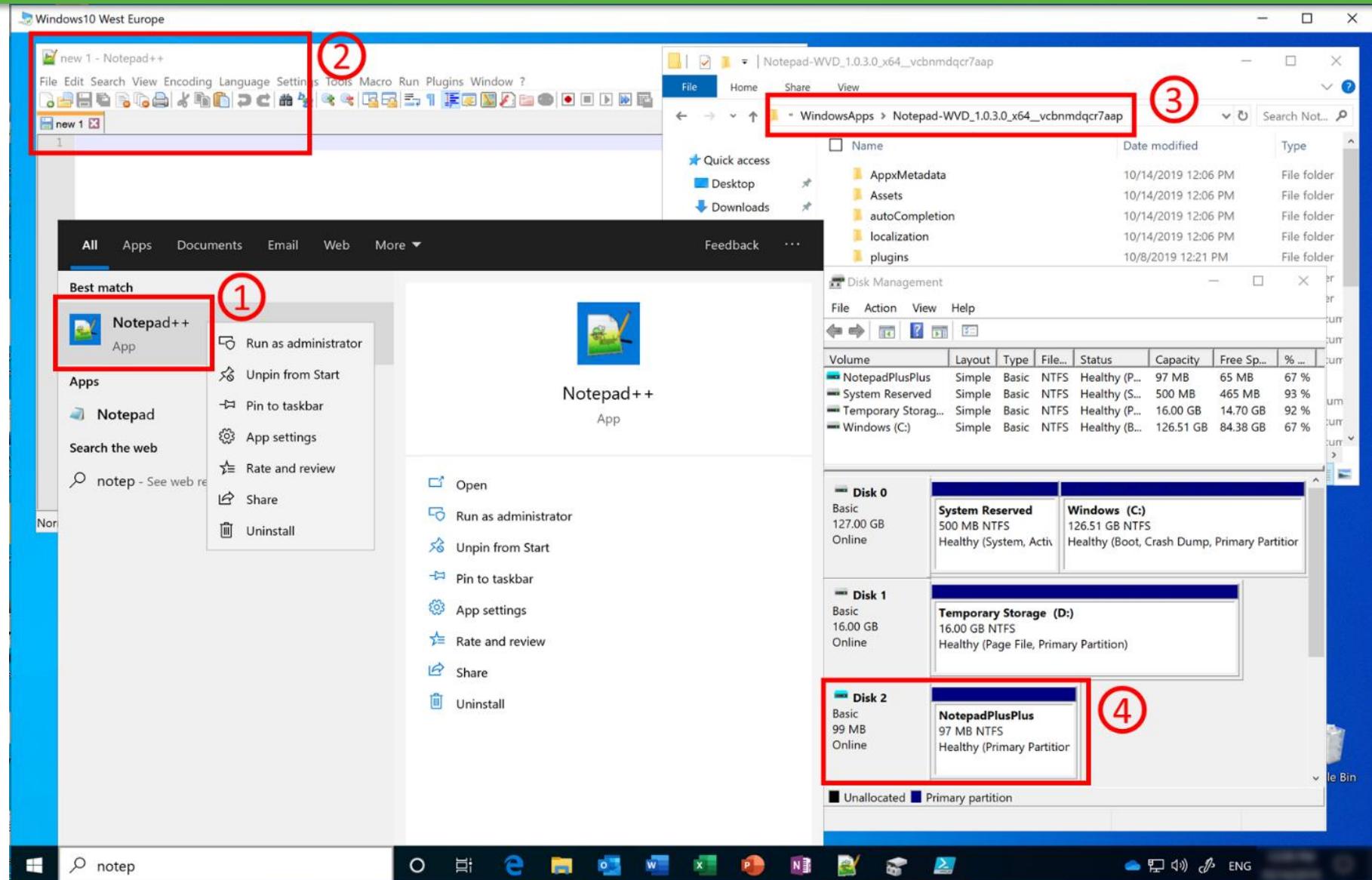


# AppAttach

- Native format is MSIX (no re-packaging)
- Minimal performance impact
- MSIX Apps can be stored off the windows disk
- Remotely mount the apps to the VM on-demand
- Apps groups are assigned to users, and they're available instantly on login
- Looks and feels local to the user and to windows

# AppAttach Preview concept

1. Notepad++ is available as a new application
2. Notepad++ successfully launches
3. To the OS and user, the location where Notepad++ resides is under C:\Program files\WindowsApps
4. The location is a mount path to the centrally stored VHD



# Demo: FSLogix & MSIX app attach

# Announcements – Ignite 2019 Orlando

- Native Linux thin client support (expected January 2020)
- MSIX app attach public preview  
<https://aka.ms/msixandwvd>
- Support for on premises workloads based on Azure Stack HUB  
<https://aka.ms/azswvd>
- WVD Backplane deployed in Japan(Australia, India & Brazil coming!)
- Support for Azure File with ADDS (coming soon)
- Teams Audio/Video support (coming soon)
- Migration tool UPD to FSLogix Profile Containers
- Personal Desktop Direct Assignment



# Questions?

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