



CMC SAIGON TECHNOLOGY & SOLUTION

Aspire to Inspire the Digital World

CMC TSSG

# AZURE VIRTUAL DESKTOP

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# COMPETENCE

CMC TS – One of a few Licensing Solution Partner with Microsoft in Vietnam

CMC TS – Is a Gold Partner in almost all essential IT arrays

- **Gold** Datacenter
- **Gold** Collaboration and Content
- **Gold** Cloud Productivity
- **Gold** Messaging
- **Gold** Cloud Platform
- **Gold** Data Platform
- Windows Server and SQL Server Migration to Microsoft Azure Advanced Specialization
- Teamwork Deployment Advanced Specialization



# SERVICES

## MICROSOFT



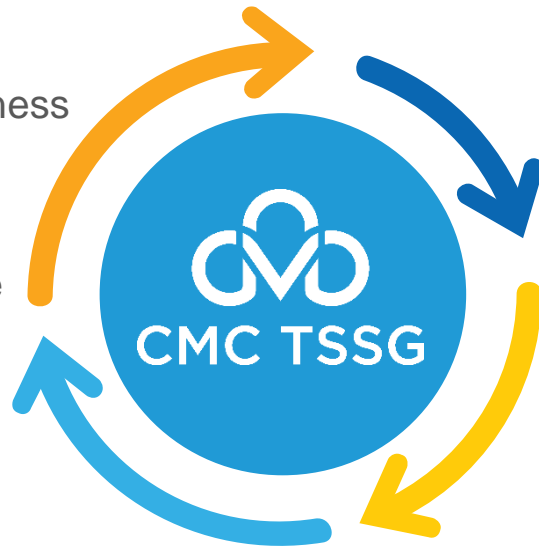
### PROFESSIONAL SERVICES

- Active Directory
- Microsoft Exchange
- Microsoft SQL
- Microsoft Hyper-V
- Skype for Business
- Microsoft 365
- Power Platform
- Microsoft Azure



### TRAINING SERVICES

- Power BI
- MS Project
- MS Excel
- MS PowerPoint
- MS Teams



### SUPPORT SERVICES

- Standard
  - After-Hours
  - 365-Cover
- For:*
- Active Directory
  - Exchange Server
  - Skype for Business Server



### MANAGED SERVICES

- 24/7 monitoring
- Report monthly
- Health check system
- Advanced consultant
- Remote administration & troubleshooting

# WHY CMC TSSG?



The Leading **IT Managed Services** Provider in Vietnam

2019 - 2023



## #1

The Leading System Integration Provider in Vietnam (HCA, 2011 –now)

## Top 50

The Leading IT Companies in Vietnam (Vinasa, 2017)

## 200+

Technical Experts with deep knowledge and extensive experience

## 26+

Years of experience in ICT Services

## +1.5M

We have already helped over 1,500,000 clients move to Office 365

## FASTTRACK

Help you to get the most out of FastTrack services

## Quality System

Apply ITSM to manage event, incident, problem and change  
Comply with ITIL, ISO 9001, ISO 27001

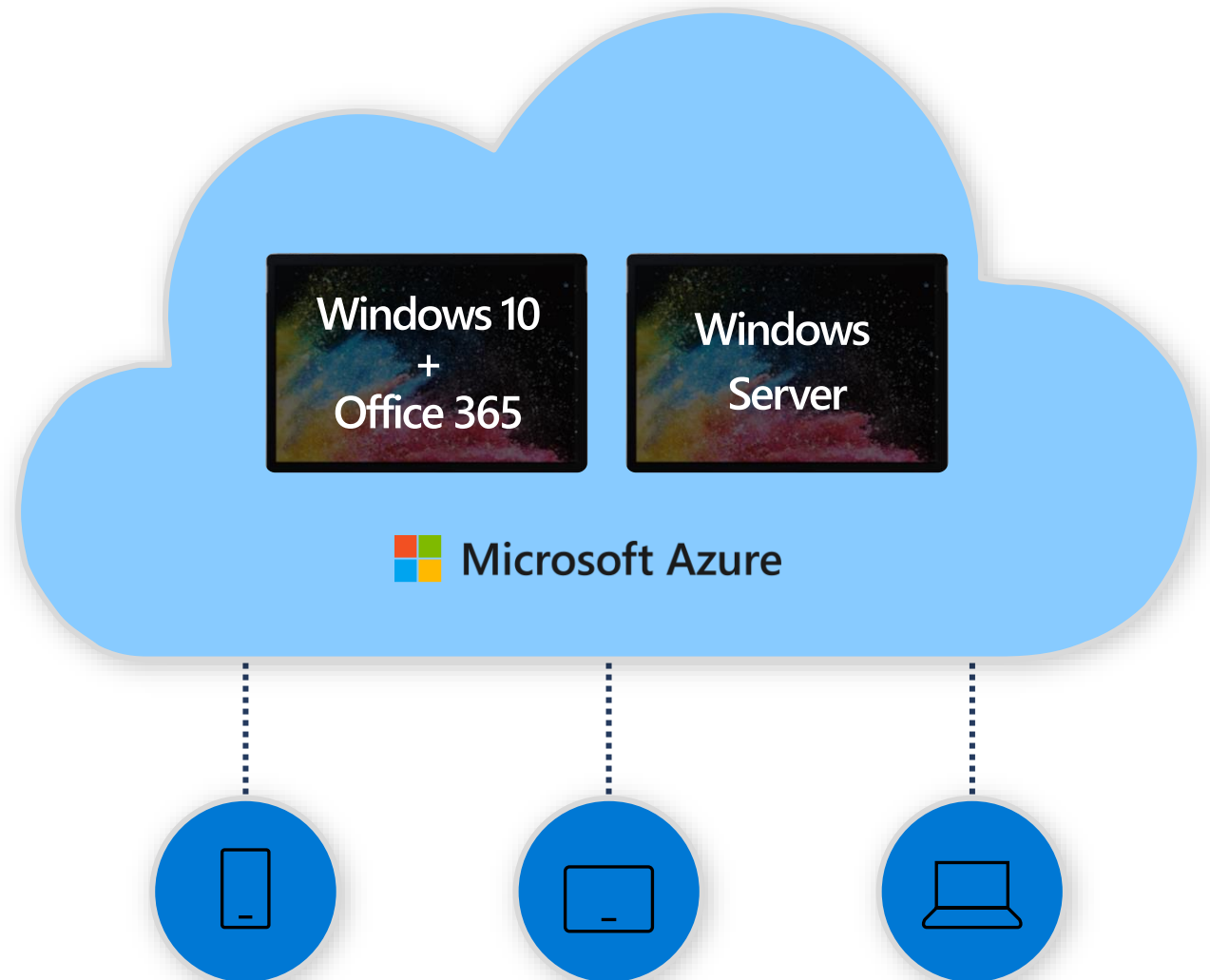
## Microsoft **Gold** Partner

Microsoft's Gold Partner in almost all essential IT arrays

# Azure Virtual Desktop

The best virtual desktop experience,  
delivered on Azure

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



# Deliver the only multi-session Windows 10 experience

Provide your users with the only multi-session Windows 10 experience virtualized in the cloud that's highly scalable, always up to date, and available on any device.

- ✔ Multi-session and single-session Windows 10
- ✔ Store and legacy app remoting
- ✔ Free Windows 7 Extended Security Updates



# Deploy and scale in minutes

Quickly virtualize and deploy modern and legacy desktop app experiences in minutes with unified management in the Azure portal.

- • Azure has datacenters available in 54 regions, and 140 countries
- • Azure management portal for Azure Virtual Desktop
- • Built in security and compliance (Windows and Azure)
- • Partner ecosystem extensibility (coming soon)



# Azure Virtual Desktop benefits

- ✓ Enables a multi-session Windows 10 experience, optimized for Microsoft 365 Apps for enterprise
- ✓ Supports Windows Server (2012R2+)
- ✓ Most flexible service allowing you to virtualize both desktops and apps
- ✓ Windows 7 virtual desktop with free Extended Security Updates
- ✓ Integrated with the security and management of Microsoft 365

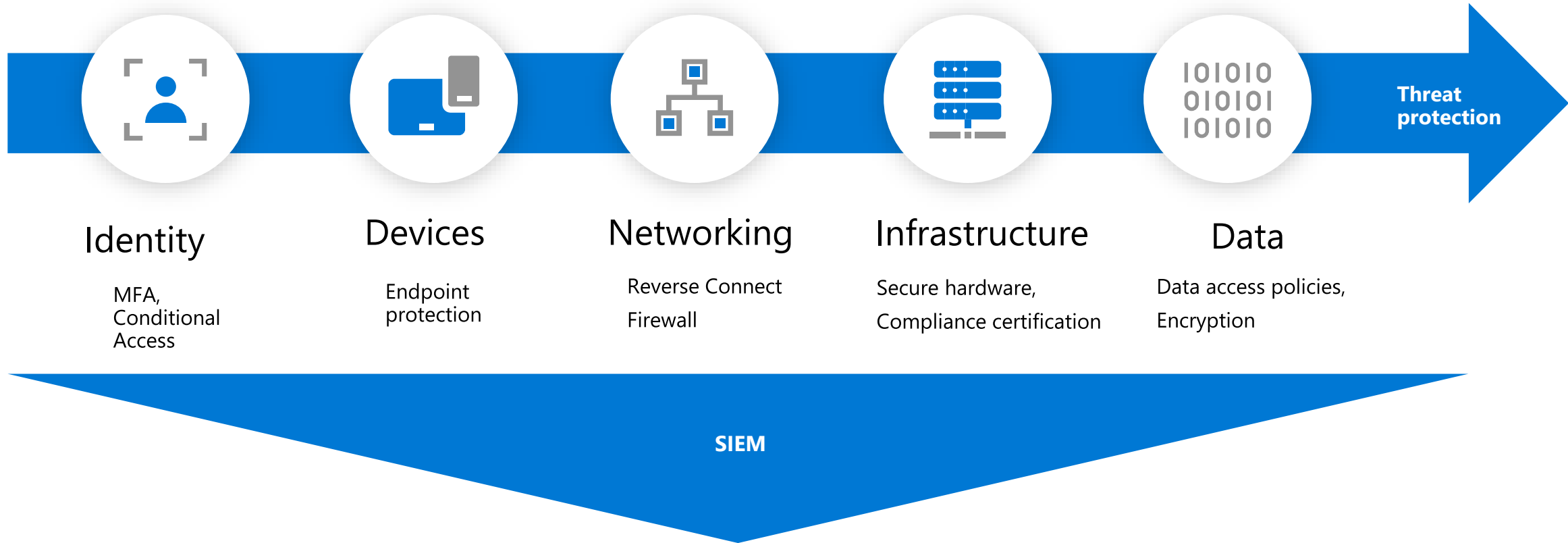




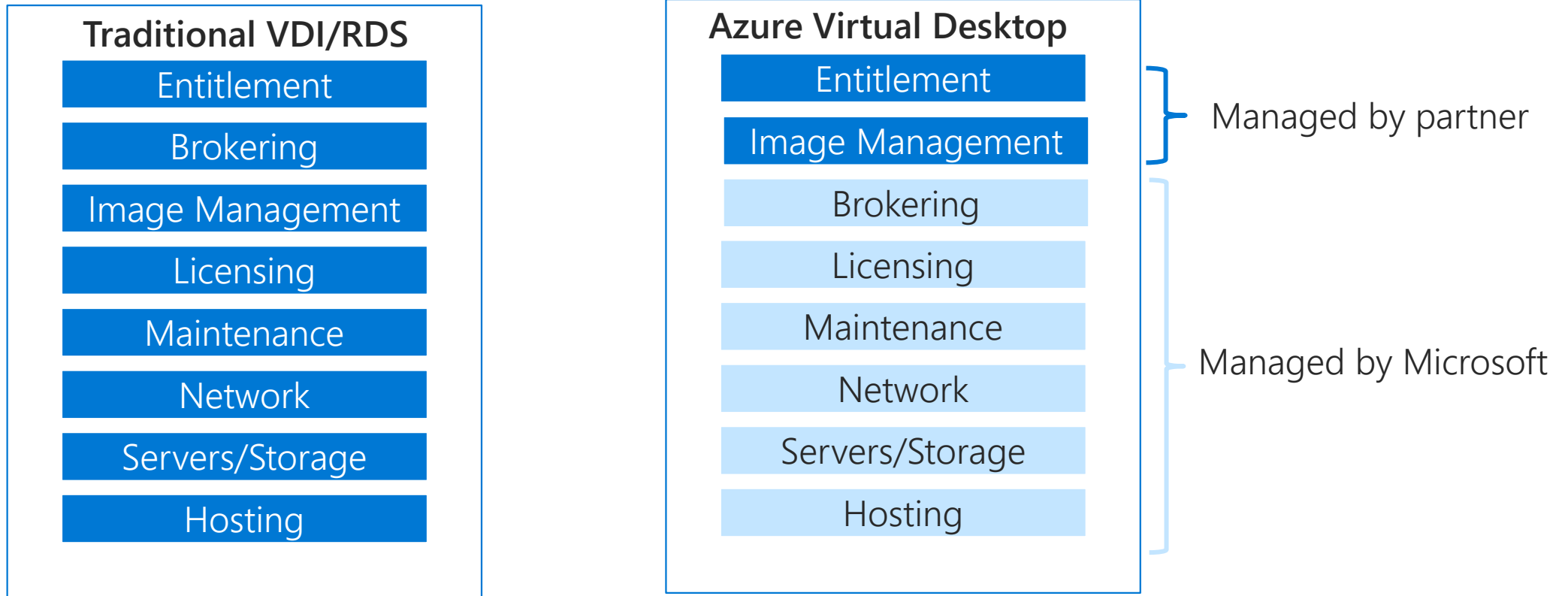


Secure your  
user data and VM's

# Microsoft provides end to end security for your virtual desktops



# Traditional VDI/RDS vs. Azure Virtual Desktop



# Virtualization before Azure Virtual Desktop

## Windows Server 2019 Desktop Experience

Scalable multi-user **legacy**  
Windows environment

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Windows Server 2019

Multiple users

Win32

Office 2019 Perpetual

Long-Term Servicing Channel

## Windows 10 Enterprise

Native single-session **modern**  
Windows experience

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Windows 10

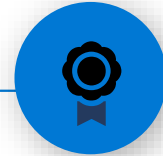
Single user

Win32, UWP

Microsoft 365

Semi-Annual Channel

# Virtualization after Azure Virtual Desktop



## Windows Server 2019 RD Session Host

Scalable multi-user **legacy**  
Windows environment

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Windows Server 2019

Multiple users

Win32

Office 2019 Perpetual

Long-Term Servicing Channel

## Windows 10 Enterprise session user

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

Windows 10

Multiple users

Win32, UWP

Microsoft 365

Semi-Annual Channel

## Windows 10 Enterprise

Native single-session **modern**  
Windows experience

---

Windows 10

Single user

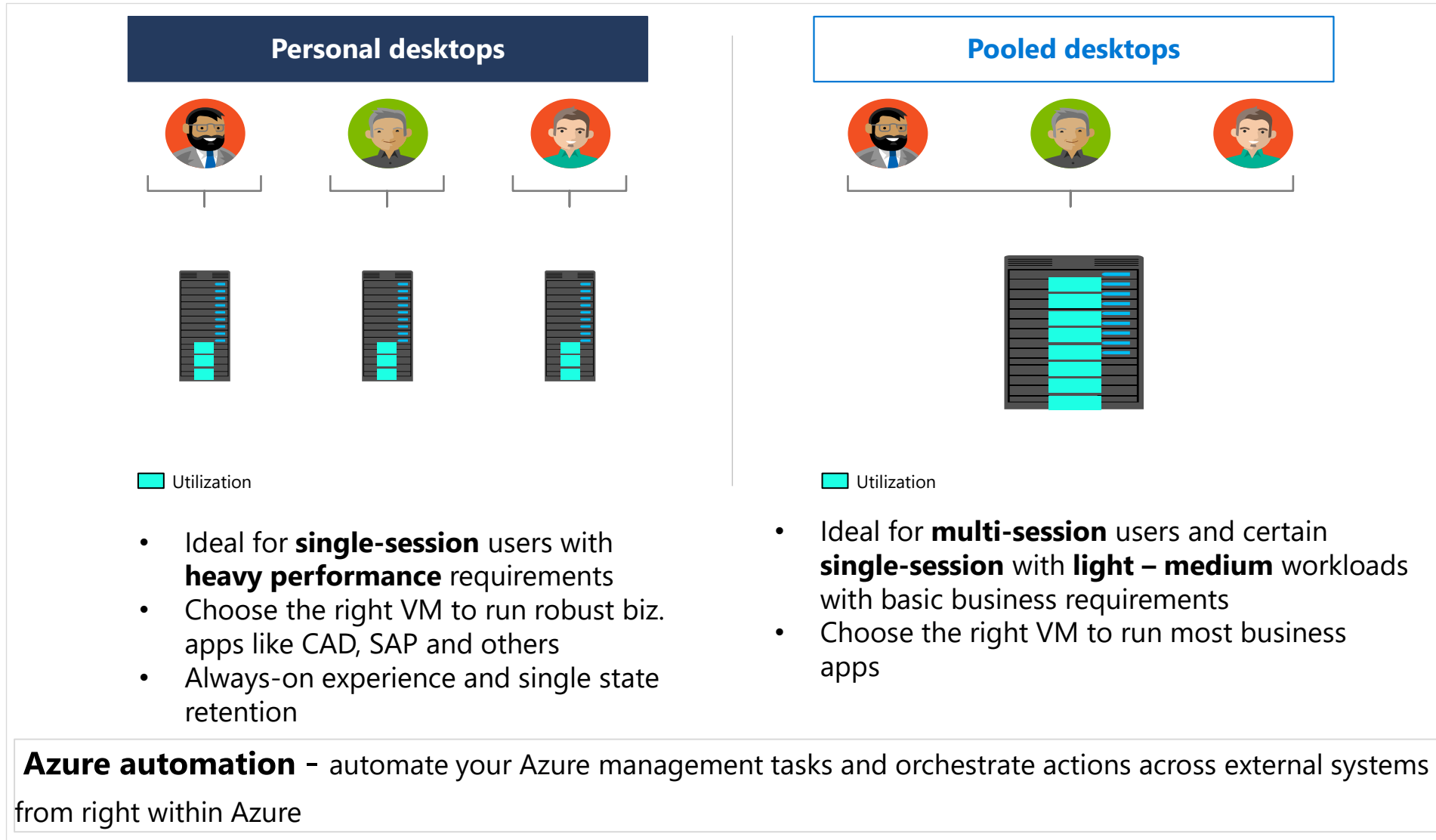
Win32, UWP

Microsoft 365

Semi-Annual Channel

# Compute

Choose the right configuration to meet your user requirements



# User profile management with FSLogix



## Optimize profile containers

Faster login and application launch times than roaming profiles and folder redirection.



## Pick from multiple storage options

Store profile containers in Azure files/NetApp Files/File server clusters



## Migrate existing user profiles

Perform mass conversions of user profiles from various types to FSLogix based profile containers at scale

# Apps with FSLogix and MSIX

Minimize number of master images by creating a single image with all applications

## Why App Masking with FSLogix?

- Excellent app compatibility with no packaging, sequencing, backend infrastructure, or virtualization.
- Control app licensing costs by limiting access to specific users
- Reduce the amount of host pools

## Why MSIX?

- Single format for physical and virtual environments
- Doesn't require packaging to be delivered
- Clean install/ uninstall
- Secured by default
- Optimized storage and network bandwidth

## Why MSIX app attach?

- Dynamic application delivery
- Only authorized users can see or access apps running on multiple user instances
- MSIX apps behave like natively installed apps

# Most customers are already eligible for Azure Virtual Desktop



## Client

Customers are eligible to access Windows 10 single and multi session and Windows 7 with Azure Virtual Desktop (Azure Virtual Desktop) if they have one of the following licenses\*:

Microsoft 365 E3/E5

Microsoft 365 A3/A5/Student Use Benefits

Microsoft 365 F3

Microsoft 365 Business

Windows 10 Enterprise E3/E5

Windows 10 Education A3/A5

Windows 10 VDA per user



## Server

Customers are eligible to access Server workloads with Azure Virtual Desktop (Azure Virtual Desktop) if they have one of the following licenses:

RDS CAL license with active Software Assurance (SA)



- Pay only for the virtual machines (VMs), storage, and networking consumed when the users are using the service
- Azure Virtual Desktop session host virtual machines (including Citrix Cloud and VMWare Horizon Cloud on Azure deployments) are charged at Linux compute rates for Windows 10 single, Windows 10 multi-session, and Windows Server. Customer only needs to bring appropriate Windows license
- 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!](#)

\*Customers can access Azure Virtual Desktop from their non-Windows Pro endpoints if they have a Microsoft 365 E3/E5/F1, Microsoft 365 A3/A5/Student Use Benefit or Windows 10 VDA per user license.



# Pricing for Azure Virtual Desktop

## Calculate your user cost

- No charge for users with eligible Microsoft/Windows licenses
- Monthly per user price to access Azure Virtual Desktop for external users\*

\*Windows Server not supported



## Calculating your infrastructure costs

An Azure user account and subscription are required to deploy and manage a virtual machine. Pricing factors include:

- Virtual machines and operating system (OS) storage
- Data disk (personal desktop only)
- User profile storage
- Networking



### Per user cost –

- **License** – purchased by the organization
- **Monthly price** – purchased by the organization/ISV offering the desktop/app to their customers

**Pay only for the virtual machines (VMs), storage, and networking consumed when the service is in use.**

# Azure Infrastructure Prerequisites to Deploy AVD



## Azure subscription

- Create your [Azure free account](#) today if you don't have one
- For information on Azure administrative roles, see [Classic subscription administrator roles](#), [Azure RBAC roles](#), and [Azure AD administrator roles](#).



## Azure Active Directory

- Learn how to [create a new tenant in Azure Active Directory](#).
- See how to use [Azure AD Connect](#) to synchronize your cloud and on-premises identities.



## Determine your identity strategy

- [AD](#)
- [AAD DS](#)



## All associated Azure resources in one region

- [Image](#)
- [Virtual Network](#)
- [Storage](#)



## Required credentials

- [Azure AD](#)
- AD Domain join account
- [Subscription Contributor](#)

- [Get started at aka.ms/startAVD](#)
- [AVD documentation on Azure.com](#)
- [Microsoft Cloud Adoption Framework for Azure](#)

# High-level service architecture

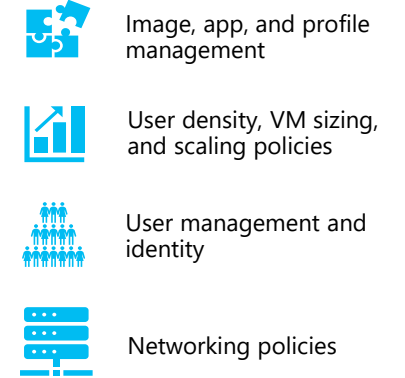
- Customer managed – Desktop/ Apps/ Management/ Policies
- Microsoft managed – Virtualization infrastructure and service
- Can connect to on-premises resources via ExpressRoute or VPN
- User authentication using Azure Active Directory identities
- Integrates with \*Systems Center Configuration Manager and \*Microsoft Intune
- Supports devices running non-Windows operating systems with Linux thin-client SDK and other tools

## Your subscription—your control

### Desktops and remote apps

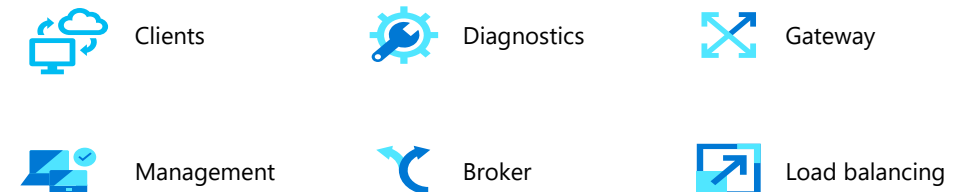


### Management and policies



## Managed by Microsoft

### Azure Virtual Desktop Service



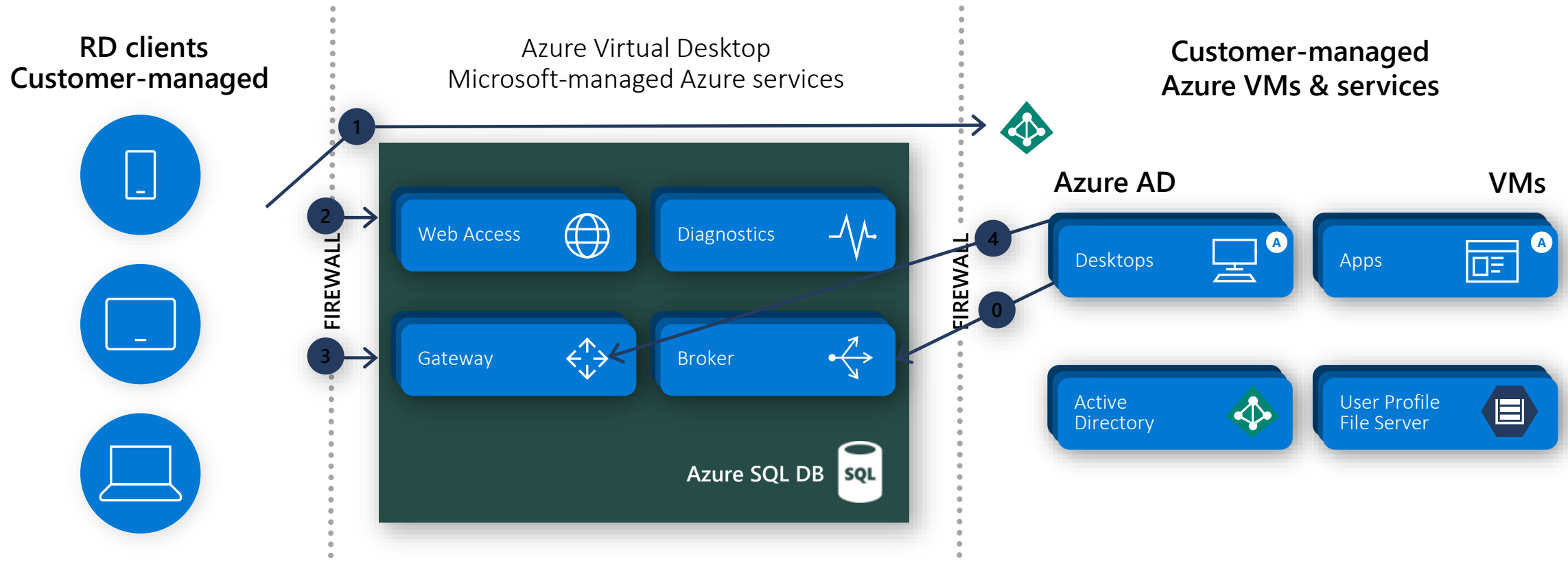
### Infrastructure



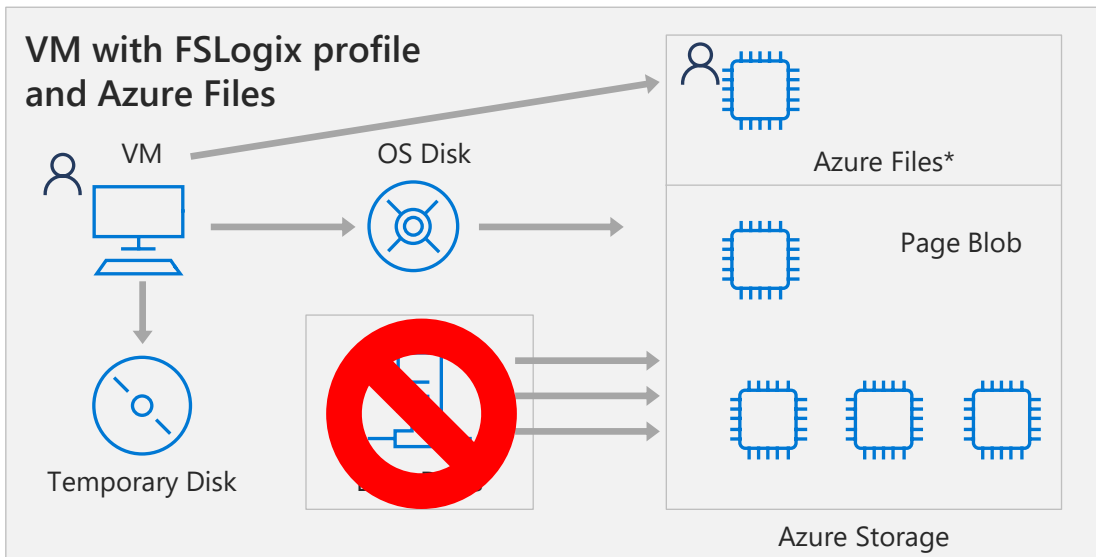
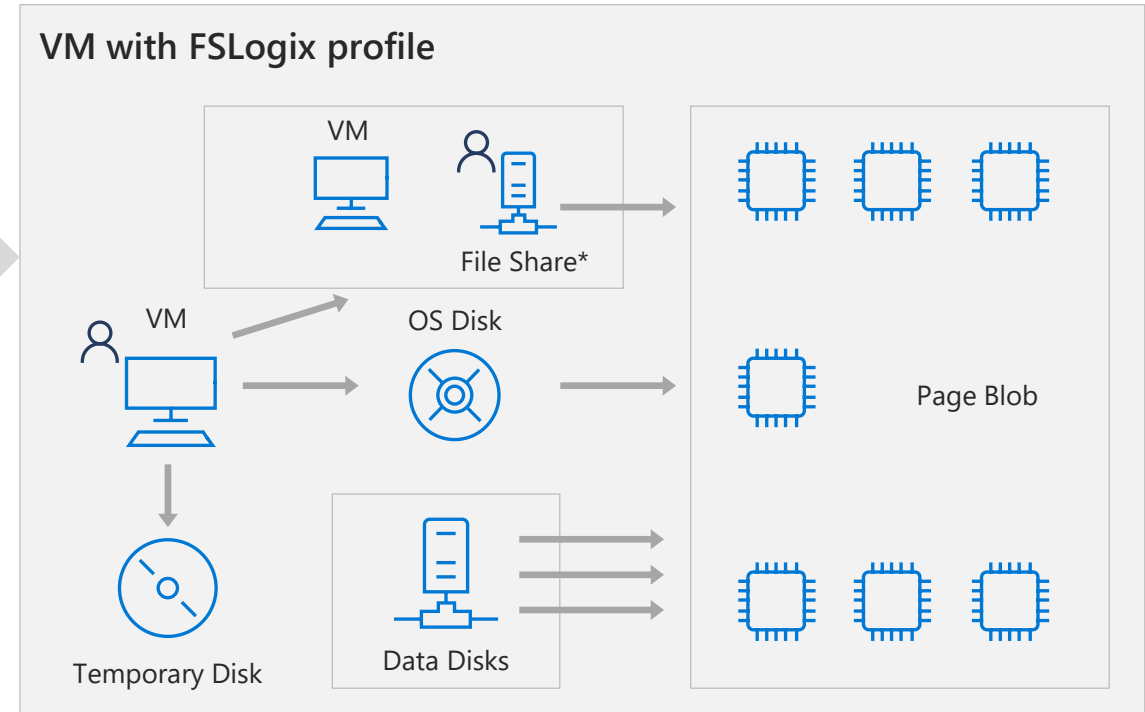
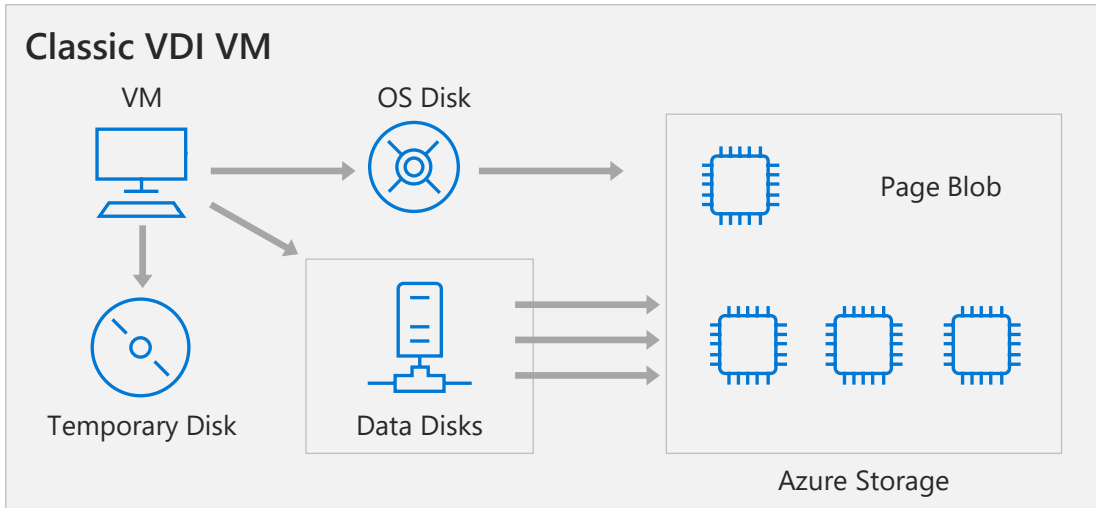
# User Connection Flow

- 0 Agents within the VM interact the AVD managed service that it's active
- 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

RDP traffic now flows between RD client and session host VM over connections 3 and 4



# Storage options in AVD



## Dependencies

- On prem AD integration
- Premium Files rollout (overlap in hero regions)
- ✓ AADS integration

# Azure Virtual Desktop Host Sizing Recommendations

## Multi-Session Recommendations

The following table lists the maximum suggested number of users per virtual central processing unit (vCPU) and the minimum VM configuration for each workload. These recommendations are based on [Remote Desktop workloads](#)

Workload type	Maximum users per vCPU	vCPU/RAM/OS storage minimum	Example Azure instances	Profile container storage minimum
Light	6	2 vCPUs, 8 GB RAM, 16 GB storage	D2s_v3, F2s_v2	30 GB
Medium	4	4 vCPUs, 16 GB RAM, 32 GB storage	D4s_v3, F4s_v2	30 GB
Heavy	2	4 vCPUs, 16 GB RAM, 32 GB storage	D4s_v3, F4s_v2	30 GB
Power	1	6 vCPUs, 56 GB RAM, 340 GB storage	D4s_v3, F4s_v2, NV6	30 GB

## Single Session / Personal Desktop Recommendations

- Sizing largely dependent on the workload, apps deployed, and user type.
- We recommend at least two physical CPU cores per VM (typically four vCPUs with hyperthreading).
- If you need more specific VM sizing recommendations for single-session scenarios, check with your software vendors specific to your workload.
- VM sizing for single-session VMs will likely align with physical device guidelines.
- Use other tools to get granular level sizing and scaling recommendations.

# Rely on multi-layered security controls across hybrid environments



## Identity & access

Unify identity management and secure identities to implement zero trust

Azure Sentinel



## App and data security

Encrypt data, and protect keys and secrets used by apps

Azure Security Center



## Network security

Enhance the protection of your virtual networks

Azure Active Directory



## Threat protection

Access cloud-native SIEM and AI-driven security analytics

Azure Key Vault



## Security management

Manage security state of hybrid workloads with a single view

Azure Firewall & DDoS

# Network Requirements and Considerations

## Requirements

Network must route to a Windows Server Active Directory (AD)

This AD must be in sync with Azure AD so users can be associated between the two

VMs must domain-join this AD

## Considerations

	Connectivity Type	Special Considerations
ExpressRoute	Hybrid	Dedicated network through service provider
Site-to-Site VPN	Hybrid	Limited bandwidth compared to ExpressRoute
Azure AD Domain Services	Isolated	Must synchronize password hashes to Azure AD



# Patch management



Use one host pool as a pilot group before updating all host pools



Update VMs with existing Azure management solutions and all VMs in a host pool



Updates can be staged in a maintenance window to keep systems available after logon

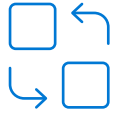


All VMs must be at the same update level after maintenance window is completed



Use SCCM to manage your images

# Profile Management



## Profile Container

- The user profile is placed into a VHD container that is stored in a central location on the network or in the cloud
- This VHD is dynamically attached at user login
- Content appears to be in its native location

### Benefits

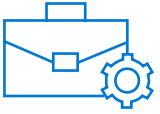
- Extremely fast login times
- Helps to eliminate profile corruption
- Uses native Windows VHD capabilities
- Easy to deploy and manage
- Seamless end-user experience



## Cloud Cache

- Cloud Cache absorbs reads and optimizes writes into cost-effective payloads
- Adds a local cache component
- Applications communicate with the local cache and the cache connects with the remote container
- If the connection to the remote container is interrupted, the apps still work because they're connected to the cache
- If the interruption is short, or data that isn't in the cache is requested during the outage, everything behaves normally
- When the connection comes back online, the system reconnects and re-syncs if necessary

# Master image management



The master image can be managed by already existing processes and technologies, including:

- [Azure Update Management](#)
- [System Center Configuration Manager](#)
- [Third-party](#)



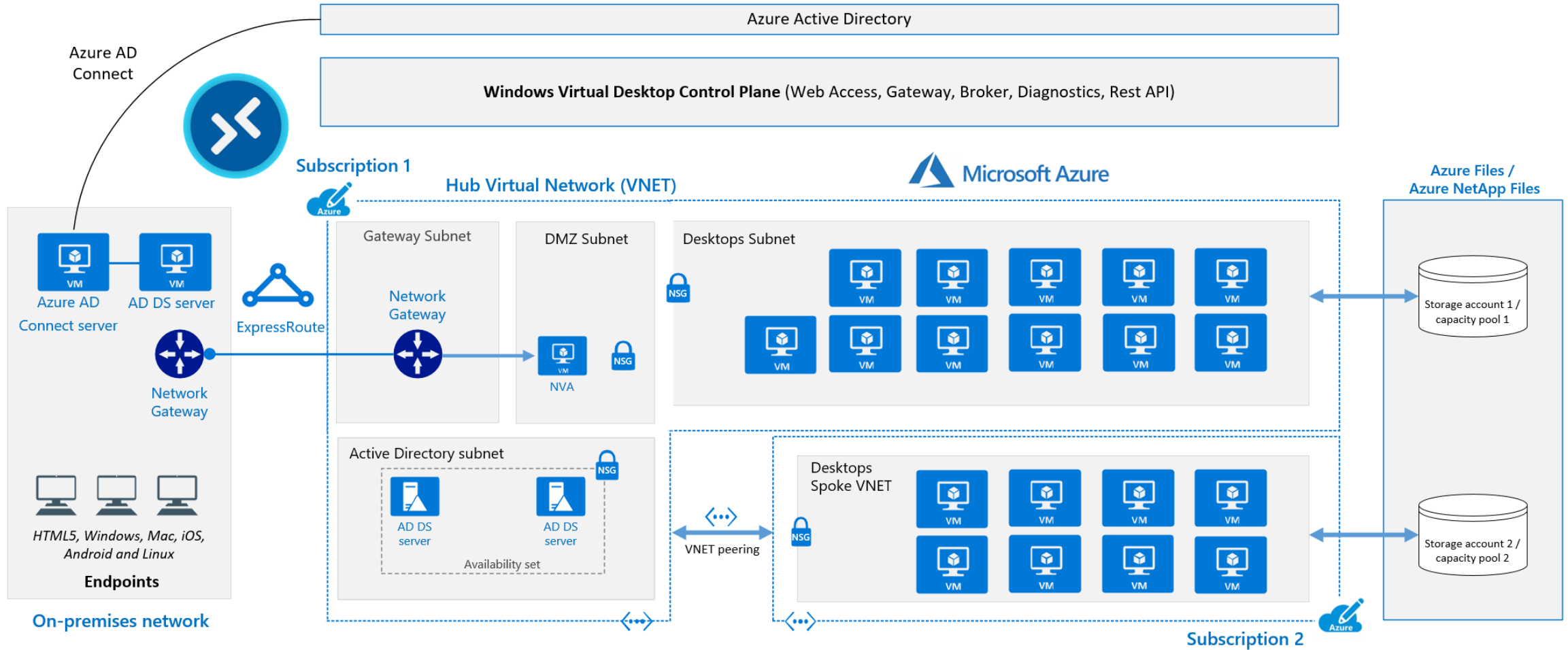
A “best practices” document helps to configure a golden image for Azure Virtual Desktop



Application-masking technology helps to minimize the number of golden images and simplify app image management

[Preparing a Master Image](#)

# Sample Architecture



# SERVICES OFFERS

## AZURE VIRTUAL DESKTOP



SERVICES	DESCRIPTIONS		PRICE
<p><b>AVD RAPID-START</b></p> <p><i>For 20 users</i></p>	<p><b>INCLUDES</b></p> <ul style="list-style-type: none"> <li>Initial Azure Tenant</li> <li>Initial AVD Tenant</li> <li>Azure AD Sync configuration</li> <li>Public App to hostpool</li> <li>Assign users to AppGroup</li> <li>Configuration Profile Container</li> <li>Cloud Only Identity</li> </ul>	<p><b>PREREQUISITES</b></p> <ul style="list-style-type: none"> <li>Microsoft 365 licensing that supports AVD</li> <li>Azure Subscription</li> <li>RDS CAL license with active Software Assurance (SA)</li> </ul>	<p><a href="#">Contact us</a> <a href="#">Deployment Package</a></p> <p><a href="#">Contact us</a> <a href="#">Year Managed Services*</a></p>
<p><b>WVD PREMIUM</b></p> <p><i>For:</i></p> <ul style="list-style-type: none"> <li>50 users</li> <li>2 custom OS</li> </ul>	<p><b>INCLUDES</b></p> <ul style="list-style-type: none"> <li>Initial Azure Tenant</li> <li>Initial WVD Tenant</li> <li>Azure AD Sync configuration</li> <li>Public App to hostpool</li> <li>Assign users to AppGroup</li> <li>Configuration Profile Container</li> <li>Cloud Only Identity</li> <li>Deploy customer's OS to AVD</li> <li>Setup the automatic Scalable</li> <li>Setup the diagnostics tool</li> </ul>	<p><b>PREREQUISITES</b></p> <ul style="list-style-type: none"> <li>Microsoft 365 licensing that supports AVD</li> <li>Azure Subscription</li> <li>RDS CAL license with active Software Assurance (SA)</li> <li>On-premises VPN devices support Azure VPN S2S</li> </ul>	<p><a href="#">Contact us</a> <a href="#">Deployment Package</a></p> <p><a href="#">Contact us</a> <a href="#">Year Managed Services*</a></p>

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## Social Media

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**THANK YOU!**

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