Azure

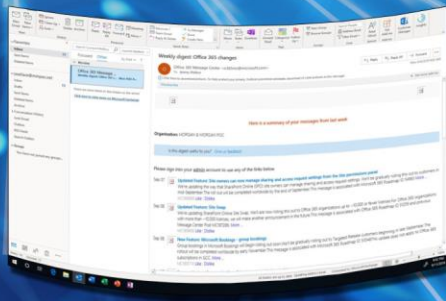# Windows Virtual Desktop
as a VDI Solution

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Your Guide to IT Solutions

Today's organizations are adopting virtual desktop infrastructure (VDI) solutions in order to take advantage of cost savings while still implementing secure centralized computing for workforces that desire remote work and BYOD strategies. The need for these VDI solutions is reinforced by the heavy pressure put on (often understaffed) IT departments to minimize purchases and operating expenses. Now, with advancements in cloud technologies, the list of benefits to having a VDI solution have grown significantly. This is especially true of Microsoft Azure's Windows Virtual Desktop (WVD) – Windows 10 desktop virtualization powered by the instantly scalable, secure, and redundant Azure cloud.

> *By 2023, 30% of todays on-premise VDI users will access a workspace in the cloud.* <u>*Information Age*</u>

What is Azure?

Azure is Microsoft's cloud solution.

While a term like 'the cloud' can sound like a rather abstract idea, it is built upon a simple idea – virtualization. Using what is called a hypervisor, we can take a single set of hardware (one physical server/computer) and 'carve' it up into smaller sized chunks that each emulate its own individual computer. So instead of having to have 30 different physical machines, you can simply have one machine on which 30 different Virtual Machines (VMs) *live*. Microsoft takes this concept and applies it globally through large datacenters located all over the globe. In each datacenter there are racks of hardware that can be used for virtualization. Through the azure portal, which you can access via an internet browser, you can create applications, services, and virtual machines that live on that hardware from one of these datacenters. All without having to buy and setup any hardware of your own. That's the power of the cloud.

Windows Virtual Desktop (WVD)

In 2018, Microsoft announced a virtual desktop infrastructure solution in Azure called Windows Virtual Desktop (WVD). Microsoft describes WVD as the following:

Windows Virtual Desktop is a comprehensive desktop and app virtualization service running on the cloud. It is the only service that delivers simplified management, multi-session Windows 10, optimizations for Office 365 ProPlus, and support for Remote Desktop Services environments. With Windows Virtual Desktop, you can deploy and scale your Windows desktops and apps on Azure in minutes, with built-in security and compliance.

azure.microsoft.com

Windows 10 multi-session

Until now Windows 10 only worked well in a single instance usage where one user was logged onto one virtual machine running Windows 10. With the release of Windows Virtual Desktop (WVD), Microsoft custom developed a version of the Windows 10 operating system designed to provide virtual desktop experiences to multiple users simultaneously from a single virtual machine and even developed an image of Windows 10 *multi-session* that natively comes with Office 365 Pro Plus.

What does Windows 10 multisession mean for VDI usage? To show the significance of this, here is an example: For an office of 30 people, each needing a Windows 10 virtual desktop of their own, it used to be that you needed to create and manage 30 individual virtual machines – one for each user. Now with a Windows 10 OS that supports multiple simultaneous sessions on a single virtual machine, you can have those 30 people all connect to a single virtual machine running Windows 10 multi-session.

Efficient use of Computing Resources

Often the majority of users are not constantly consuming all of the computing power that their virtualized desktops offers. This means wasted computing power which really translates to costs running wasted resources. With multiple users on a single virtual machine, you are maximizing the usage of that virtual machine's resources, ensuring that you are efficiently using the resources you are paying for.

Have SCCM? You can manage your WVD server operating system with SCCM while Intune can be used to manage the virtual desktop operating systems

Scalability of the cloud

Now, with the Windows 10 multi-session experience, you are limited only by the 'size' of (the amount of resources available to) the virtual machine. This is where the power of the cloud comes into place. Increasing and decreasing the size of a virtual machine is only a few clicks away and happens in a matter of seconds. This in combination with automation tools also found in azure gives you an automated solution that increases and decreases your entire VDI environment dynamically based on demand for resources.

Best Office 365 ProPlus experience

Windows Virtual Desktop (WVD) provides the best service experience for Office 365 ProPlus running in a multi-user virtual solution. In the past, Office has worked best in a single user per virtual machine scenario due to the needs of *persistent storage* (the ability to maintain data when the user is not running their desktop) for applications like Outlook. This has been a problem in virtualized environments that are commonly non-persistent, which is more cost effective and efficient. Now with WVD this data can roam with you, providing the great Office experience you've come to expect on traditional computers, but now in a multisession scenario. WVD has also been optimized to provide increased performance and lower latency for Office apps like OneDrive's on-demand feature which can quickly hydrate files (download to your computer for instant use) through the highspeed infrastructure of the Microsoft cloud on which both the virtual desktop and the OneDrive storage is located.

Mobile work spaces for a mobile workforce

Everyone is mobile today.

A study by the International Workplace Group (IWG) has uncovered that 70% of the global professional workforce work remotely at least once a week, and 50% work remotely at least half the week.
prnewswire

With the need to work remotely and connect to corporate resources from any device, WVD on Microsoft's Azure cloud becomes the premiere platform for delivering Windows 10 virtual desktops and windows applications to these users. Microsoft provides the same great virtual desktop experience across all major platforms including iOS and Android devices either through a native application or HTML5 capable browser.

Secure desktops on a secure cloud environment

"A new organization will fall victim to ransomware every 14 seconds in 2019, and every 11 seconds by 2021."

Cyber Security Ventures

As with any virtual desktop solution, the virtual desktop session provided by WVD is completely independent from the user's device/computer. This means that you don't need to worry about personal applications and activity on the user's device compromising data on the virtualized desktop or the corporate resources accessed from the virtualized desktop. This also means that data is not stored in any way on the user's device. In this case the user also has the best of both worlds, you can lock down the virtual desktop for maximum security, while the user still retains complete freedom on their personal device that is being used for access. What is even better about a Windows Virtual Desktop solution specifically is that the VM and hardware itself is safe and secure inside one of Microsoft's major cloud datacenters and can be used with cloud security features like Azure multifactor authentication, conditional access policies, and identity risk assessment policies to ensure even greater layers of protection in regards to user access.

What does a WVD setup look like?

Windows Virtual Desktop (WVD) consists of a **WVD Tenant** (think of this like the container inside your azure tenant that contains all your WVD components and settings) that is associated with the cloud directory of user accounts, known as Azure Active Directory, containing the users who need access to the virtual desktops.
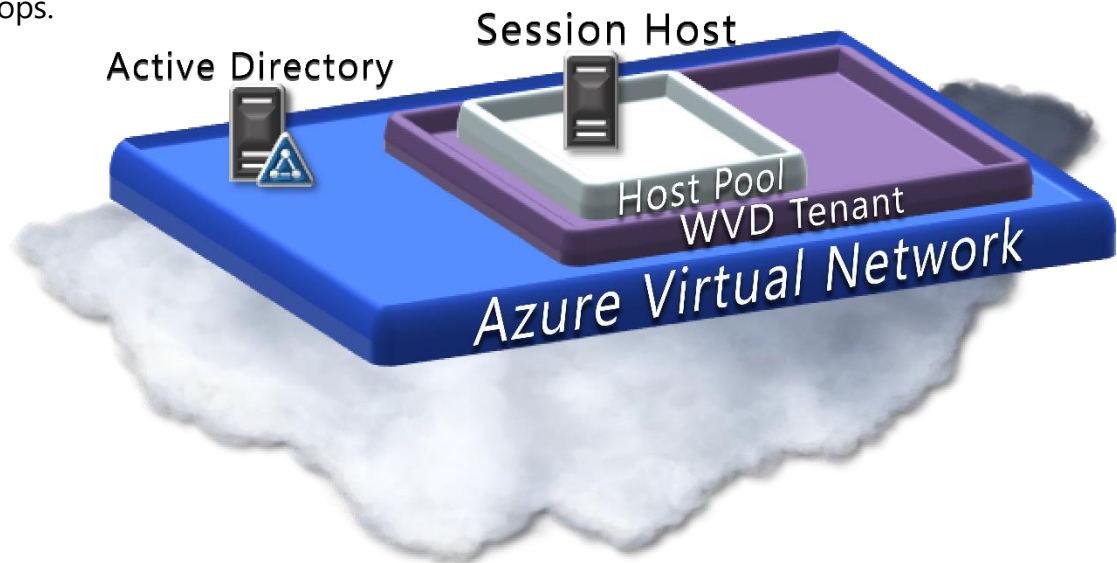

Within that WVD Tenant there are **host pools**, these are collections of virtual machines registered to Windows Virtual Desktop as **session hosts** (the virtual machines that users will connect to for their virtual desktop experience).
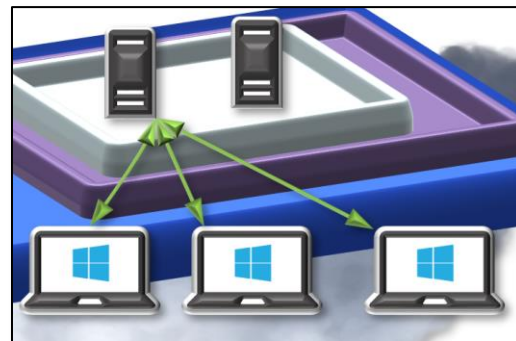
These session hosts can be configured as:
Personal: One session host virtual machine is assigned to a single user.
Pooled: Where session hosts can accept multiple connections, making use of Windows 10 multisession.
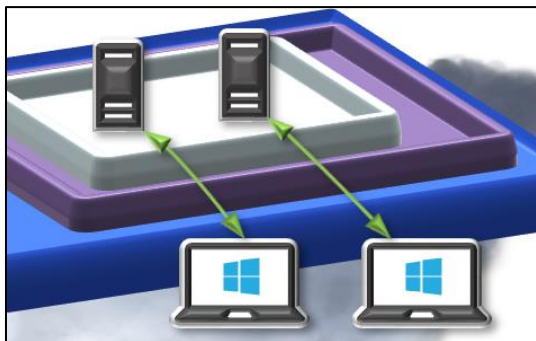

Personal Desktops   *Pooled Desktops*

In these host pools are also groupings of applications on the session host virtual machines, appropriately called **app groups**. App groups can be either of the following types:

RemoteApp: Users access the individual applications assigned to the app group.

Desktop: Users access the full virtualized desktop experience.

Users are then assigned to these app groups for access to the corresponding virtual applications and virtual desktops.
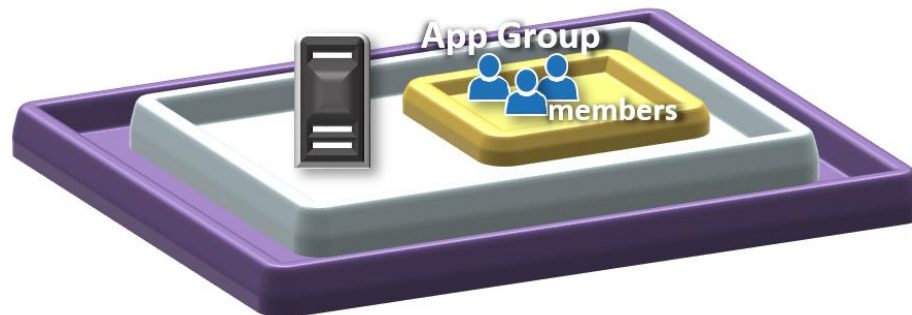
Once assigned to the desired app groups, users can connect to the Windows Virtual Desktop deployment containing these applications and/or virtual desktops using either the native WVD client for Windows, Android, and iOS, or through any HTML5 capable internet browser.
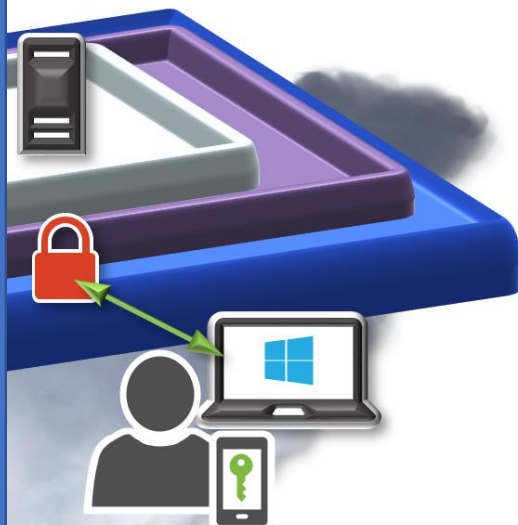
Security features like Multifactor Authentication (MFA/2FA) provide an increased layer of access security to these virtual desktops and virtual applications by making the user verify their identity by means of the Microsoft authenticator app on their mobile device or through a security code sent by text message or phone call. Any data and applications within the virtual desktop session and virtual applications do not transmit or store data on the user device, keeping data secure from the vulnerabilities of the user device.

As more and more users connect to their virtual desktops on a single virtual machine and the utilization of resources such as CPU and memory begin to reach the specified limits of that virtual machine, an automated task can perform an autoscaling action and turn on additional virtual machine session hosts in the host pool to accommodate for the increased demand for computing resources. As that demand begins to decrease and users disconnect from their virtual desktops, the same automated process can shutdown the excess virtual machines. This saves money in operating costs as resources are only running while needed and are shut off when they are not.

User profiles are stored on FSLogix Profile Containers, these profile containers are located on a file share virtual machine in the host pool. It is on these profile containers that all of a user's personal profile data is stored. This enables their profile data to fluidly move with the user between session host virtual machines, which provides the user with the same virtual desktop experience and the same stored data each time they log in, even though it might be (and likely is) a completely different virtual machine (session host).
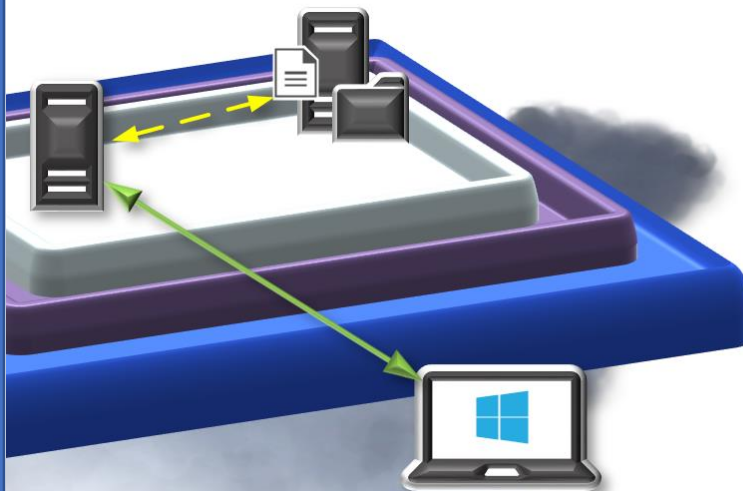
With support for migrating existing Remote Desktop Services (RDS) environments and extended value options from supporting partners like Cisco, Windows Virtual Desktop should be seriously considered when looking for VDI or DaaS (Desktop as a Service) solutions. With Windows 10 multisession, Office 365 ProPlus optimization, instant cloud scalability, computing efficiency, secure virtualization, and mobile access across practically any modern device – WVD makes for an exciting answer to today's workforce demands.

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