



Calculating The True Cost of Azure Virtual Desktop (AVD)

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With the upcoming general availability of Microsoft's Azure-only AzureVirtual Desktop (AVD) service later this year, the most common question we hear from MSPs is how to think through its pricing and the resulting impact on an MSPs' business.

To answer this question, it is important to **break AVD down into its sub-components and consider the costs of each as compared to other alternatives, such as utilizing Remote Desktop Services (RDS).**

First, it is important to point out that contrary to how some are portraying it in the market, AVD is not a packaged virtual desktop offer from Microsoft. When AVD releases into the market, you won't be able to purchase a virtual desktop from Microsoft. AVD is a set of Microsoft technologies available to IT departments and cloud service providers to build virtual desktop offers for customers and users. This is an important distinction.

When talking about the costs of AVD, it's important to consider these three primary building blocks:

- 1. Azure infrastructure to run the desktops and apps (i.e. AVD session hosts)**
- 2. AVD Management Services (i.e. Control Plane)**
- 3. Software licensing (i.e. Windows 10 Enterprise)**

Let's examine the costs associated with each of these while comparing them to the legacy RDS technology.

Azure infrastructure to run the desktops and apps (i.e. AVD session hosts)

AVD supports two types of desktops:

- Personal (1-to-1 assignment between a user and desktop VM)
- Pooled (many-to-1 assignment between users and desktop VM)

AVD can also be used to deliver individual apps instead of full published desktops. In all of these scenarios (personal, pooled, apps), there are VMs running Windows (typically Windows 10 Enterprise multi-session) that provide this functionality. These session host VMs run inside of a customer's Azure subscription and require the use of compute, networking and storage resources in Azure.

The consumption cost for Azure resources supporting AVD session hosts VMs will depend on many factors such as:

- Average number of users per vCPU (e.g. 3 users per vCPU)
- Average GB of RAM per user (e.g. 1GB RAM per user)
- Azure VM family (e.g. B, Dsv3, Esv3, NVv2)
- Type of storage used by each VM (e.g. Premium SSD, Standard SSD, Standard HDD)
- OS disk capacity of each VM (e.g. 128GB, 256GB, 1TB)
- Amount of data transferred out of Azure per user (e.g. 25GB/month)
- Other infrastructure services such as backup, replication, VPN, etc.
- Reserved Instance use (e.g. pay-as-you-go, 1-year or 3-year reservations)

You can use tools such as the [Azure Calculator](#) or the [Nerdio for Azure Cost Estimator](#) to better understand and estimate the exact costs and to model multiple “what-if” scenarios.

The cost of this Azure infrastructure is largely the same if you were using RDS to deliver Windows desktops using “desktop experience” rather than the native Windows 10 look and feel that you get with AVD. From a resource utilization and cost perspective, this component of AVD is very much similar to the cost of Azure infrastructure to run RDS session hosts, rather than AVD session hosts. (Note: this is assuming Windows Server 2016 VMs running RD Session Host roles have Azure Hybrid Usage enabled).

AVD Management Service (i.e. Control Plane)

The job of a control plane is to orchestrate the creation and management of desktop and app session hosts, authenticate users who are logging into their desktops and to determine where to “land” a user’s desktop connection (meaning what desktop VM to patch the user through to). In the RDS world, this was handled through a number of “RDS roles” namely: RD License Server, RD Web, RD Webclient, RD Connection Broker and RD Gateway. With AVD, it is no longer necessary to install and manage any of these roles as they are now part of the AVD Management Service, which is hosted in Azure and operated by Microsoft. It is a PaaS product that can be controlled via RestAPI, PowerShell and soon the Azure admin portal.

This is a key distinction between legacy RDS deployments and AVD. With RDS, IT departments and MSPs had to build one or more domain-joined Windows Server VMs, and then install and configure the RDS roles on those VMs. This meant that additional Azure infrastructure (i.e. cost) was needed to support the control plane. With AVD, Microsoft has taken over the responsibility for the control plane and there is not an incremental cost for this service. Not to say that it is free, but rather that it is included with a software license subscription.

Software licensing (i.e. Windows 10 Enterprise)

AVD Management Service that is hosted and managed by Microsoft in Azure is a benefit that comes at no additional charge with a subscription to Windows 10 Enterprise license. There are multiple ways to purchase a Windows 10 Enterprise subscription. Including:

1. Microsoft 365 (E3, E5, A3, A5, Business)
2. Windows (E3, E5, A3, A5, Business)
3. Windows 10 Enterprise VDA

In the legacy RDS world, you would need to purchase a Windows Server license and an RDS Subscriber Access License to create a desktop deployment in Azure and use additional VMs to run and manage the RDS roles.

Let's summarize the above with a table that compares RDS virtual desktops in Azure versus AVD using the Windows 10 Enterprise multi-session operating system.

	Azure Virtual Desktop	RDS Virtual Desktops in Azure
Azure infrastructure to support desktop virtual machines (session hosts)	Compute, storage and networking Roughly the same in both deployment scenarios (assuming AHU)	
Control Plane	AVD Management Services <ul style="list-style-type: none"> Hosted and managed by Microsoft in Azure No Azure VMs needed No additional cost beyond Windows 10 license 	RDS Roles (e.g. LS, Web, GW, etc.) <ul style="list-style-type: none"> Hosted and managed in Azure by customer or service provider Azure VMs needed for RDS roles Azure infrastructure costs for VMs hosting RDS roles
Microsoft Licensing	Windows 10 Enterprise subscription <ul style="list-style-type: none"> Microsoft 365 (E3, E5, A3, A5, Business) Windows (E3, E5, A3, A5, Business) Windows 10 Enterprise VDA Approximate licensing cost: \$7/user/month 	Windows Server and RDS subscription <ul style="list-style-type: none"> RDS CAL with Software Assurance RDS via CSP Software Subscription Server via CSP Software Subscription Server VL with Software Assurance Approximate licensing cost: \$6/user/month

How should an MSP decide on the right path forward?

AVD is a new, up-to-date and very exciting technology from Microsoft managed by Microsoft and the admin receives an Azure portal UI to manage file shares.

There are many technical reasons to choose AVD over legacy RDS. Among them are:

- AVD is a new, up-to-date and very exciting technology from Microsoft
- AVD allows for native Windows 10 desktop instead of a Windows 10 “desktop experience” with RDS
- AVD includes profile management technology from FSLogix
- AVD management service is managed by Microsoft and is a PaaS service
- AVD supports OneDrive and indexed search in pooled desktops

Some MSPs may choose to continue using RDS over AVD for the following reasons:

- RDS is a mature, well understood and market tested solution
- Applications that were written for RDS on Server OS may not work in Windows 10 Enterprise multi-session right away
- Customers and service providers may want to retain full ownership of not just the desktop VMs but also the control plane (i.e. RDS roles)
- RDS can be used both on-premise and in Azure while AVD is Azure only

Let's assume a customer feels indifferent between AVD and RDS based on the technical reasons above. If the primary decision factor is based on cost, then how would they decide? That depends on whether the customer already owns a subscription to Windows 10 Enterprise under any of the Microsoft licensing programs mentioned above.

How should an MSP decide on the right path forward?

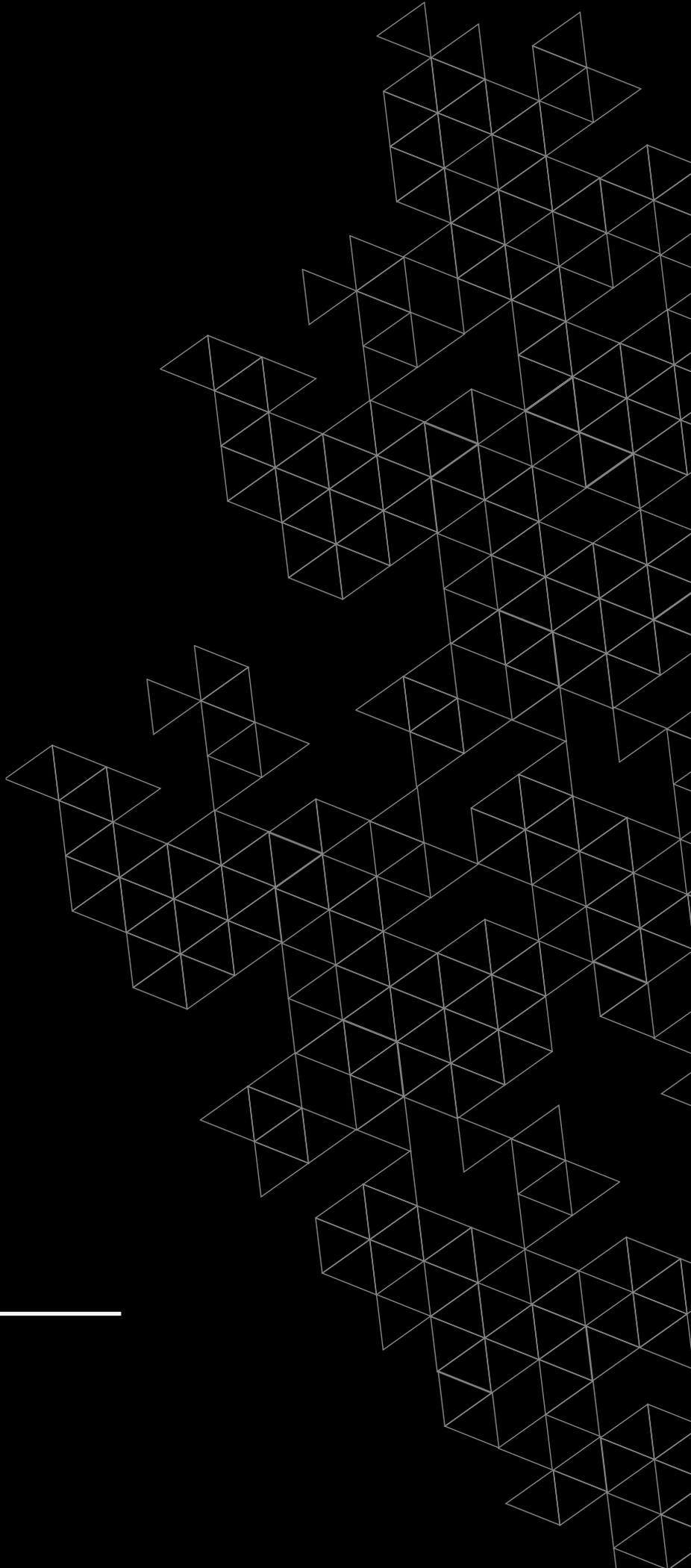
Customer already owns Windows 10 Enterprise subscription or is going to be licensing Microsoft 365 anyway

- AVD is the winner on cost
- There is no additional licensing cost for AVD Management Service
- There is no need for any additional Azure VMs to run the control plane

Customer does not own Windows 10 Enterprise subscription and is not planning on purchasing it for any reason other than potentially using AVD

- RDS and AVD tie on cost
- Incremental cost of a Windows 10 Enterprise subscription is \$7 per user/month and the incremental cost of RDS SAL & Server 2016 license is roughly \$6 per user/month (assuming CSP Software Subscriptions are used to license RDS and Server OS)
- For sizable deployments, the incremental cost of RDS infrastructure VMs will average out to \$1 to \$2 per user/month making the true cost AVD and RDS about the same. In small deployments (<25 users), where there aren't enough users to amortize the cost of RDS infrastructure VMs across, RDS will be slightly more expensive

AVD holds the promise to simplify the licensing and deployment of virtual desktops in Azure. With many organizations moving toward Microsoft 365 and Azure, it is a natural and relatively low-cost way to deploy desktops and applications in the cloud, unlike anything else that is available from other public cloud providers.



Contact Us:

Email: hello@getnerdio.com

Website: getnerdio.com