

Azure IaaS VM Types of Storage



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Module Overview



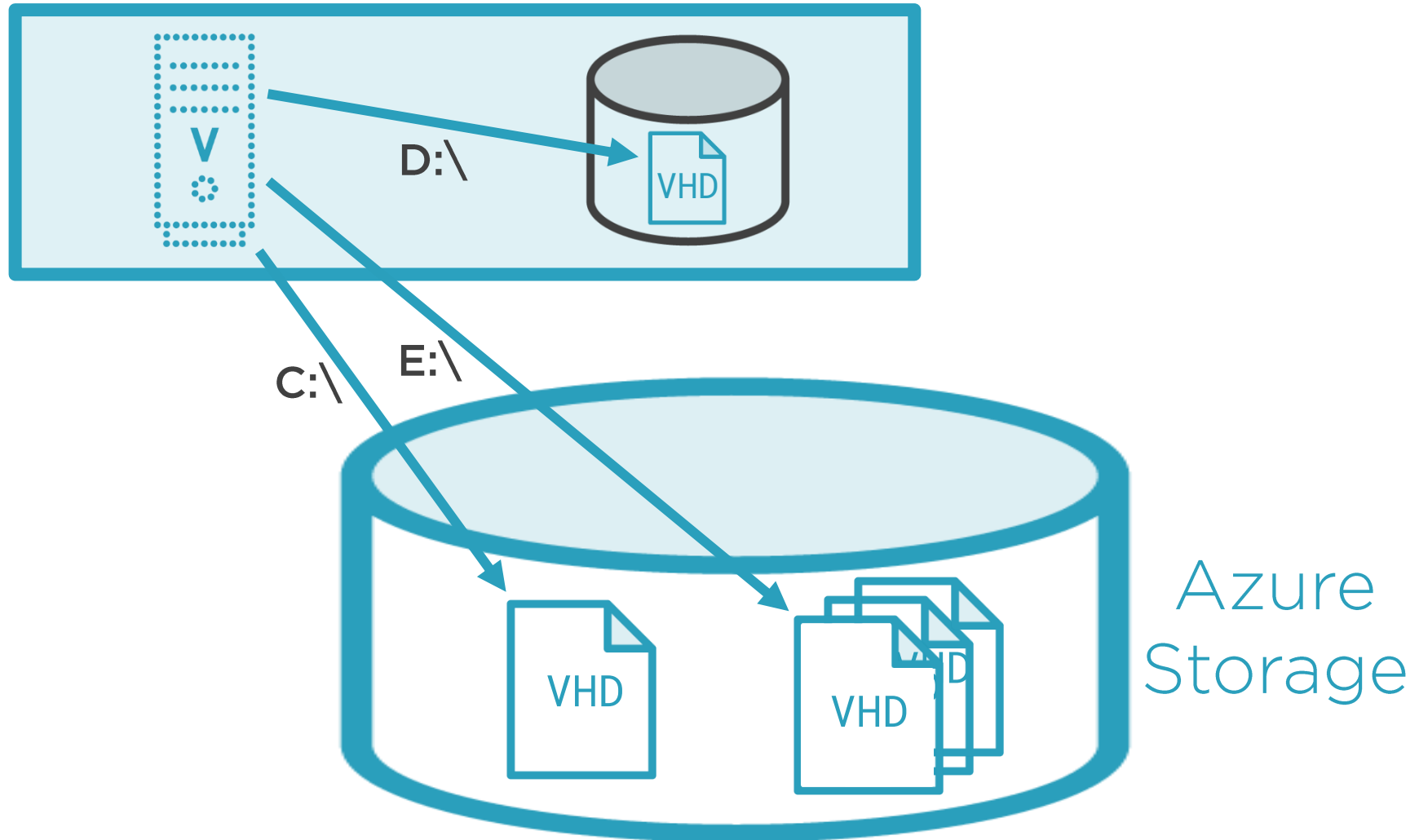
How IaaS VMs use storage

Configuring caching

Use Azure files

Encryption and other options

IaaS VMs and Storage



Caching

Three types:

No caching

Read caching

**Read and write
caching**

Caching

**OS Disk – [Read] and [write]
caching (ARM, ASM R or RW)**

**Data Disks – [Read] and [write]
caching**

**Many applications are sensitive to
caching**

**Application data should be stored
on data disks, never the OS disk**

```
$vm.StorageProfile.OsDisk.Caching = 'None' # or ReadOnly ReadWrite
Update-AzureRmVM -VM $VM -ResourceGroupName RG-SCUSA

Set-AzureOSDisk -HostCaching ReadOnly|ReadWrite #requires reboot
Set-AzureDataDisk -HostCaching ReadOnly|ReadWrite|None
```

Cache Configuration

Configured through the Azure Portal

Configured via PowerShell or REST

Temporary Drive

A series = HDD

D, DS, G, GS = SSD

Content is lost any time VM is
reprovisioned to fabric (stop, start, resize)

By default used for pagefile

Should be used as a scratch drive, e.g.
TempDB, Buffer Pool Extensions (SQL
Server 2014)

May need special steps to create content
on temp if needed by applications

Temporary Drive Letter

D:\ by default

**Can be changed through a
few leaps**

<https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-windows-classic-change-drive-letter/>

Azure Files

Provides an SMB 2.1 and 3.0 file share in Azure

Usable within the Azure and externally via SMB 3 and port 445 is open to the Internet

Provides a shared file storage in Azure

Can be mapped using standard SMB clients

Demo



Enabling Azure Files
Using Azure Files

Encryption

By default data is not encrypted at rest

Best option is for you to own the encryption either through the application (e.g. SQL) or the OS

Data at rest encryption possible

Third-party solutions exist for VM encryption

Azure has native Windows and Linux encryption using BitLocker and DM-Crypt respectively

Integrates with Azure Key Vault for key storage

Using Other Storage in Azure

Can use other types of virtual storage appliance in Azure
via iSCSI or other IP based protocols

It is not possible to place your own equipment at Azure datacenters

Using storage solutions on-premises from Azure would likely have latencies that were too high, even via ExpressRoute to be performant

There are certain partnerships with ExpressRoute service providers to host storage solutions at their locations that can be used in Azure with very low latencies

Summary



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Next Up:
Managing Azure Storage