

Hyper-V to Azure Migration - Lessons learned und ein Blick hinter die Kulissen



Eric Berg

Global Lead Cloud Platform @SoftwareONE

MVP Azure | MVP Cloud & Datacenter Mgmt

About me

-  Global Lead - Cloud Platform at SoftwareONE
-  Azure, Datacenter and Hybrid Cloud Management
-  Azure, System Center, Windows Server and Client
-  info@ericberg.de
-  [@ericberg_de](https://twitter.com/ericberg_de) | [@GeekZeugs](https://twitter.com/GeekZeugs)
-  www.ericberg.de | www.geekzeugs.de



Agenda

- Hyper-V Ausgangslage
- Azure Ausgangslage
- Migration - Möglichkeiten
- Migration - Tools
- Migration - Stolpersteine und Lösungen
- Fazit

Hyper-V Ausgangslage

Hyper-V Ausgangslage

- Hyper-V auf Windows Server 2012 R2 / 2016 / 2019
- Cluster
- SAN / S2D / ???
- Gen 2 VMs
- Windows / Linux VMs



Hyper-V Ausgangslage

- Konsolen-Sitzung
- Host-based Backup
- Hyper-V Manager
- Failover-Cluster Manager
- SCVMM
- WAC



Azure Ausgangslage

Azure Ausgangslage

- Hyper-V
- Keine Cluster → Single Hosts
- Kein SAN → JBODs
- Gen 1 VMs → Gen 2 VMs (Preview)
- Windows / Linux VMs

Generation 2 feature	On-premises Hyper-V	Azure
Secure Boot	✓	✗
Shielded VM	✓	✗
vTPM	✓	✗
Virtualization-Based Security (VBS)	✓	✗
VHDX format	✓	✗

Azure Ausgangslage

- Keine Konsolen-Sitzung → Serielle Notfall-Konsole
- Kein Host-Zugriff (VM-Backup)
- Management über Azure Portal
- SCVMM
- PowerShell
- REST















Virtual machines
Mountain IT

+ Add ⌚ Reservations ≡ Edit columns ↻ Refresh | ♦ Assign tags ▶ Start ↺ Re

Subscriptions: All 6 selected – Don't see a subscription? [Open Directory](#) + [Subscription settings](#)

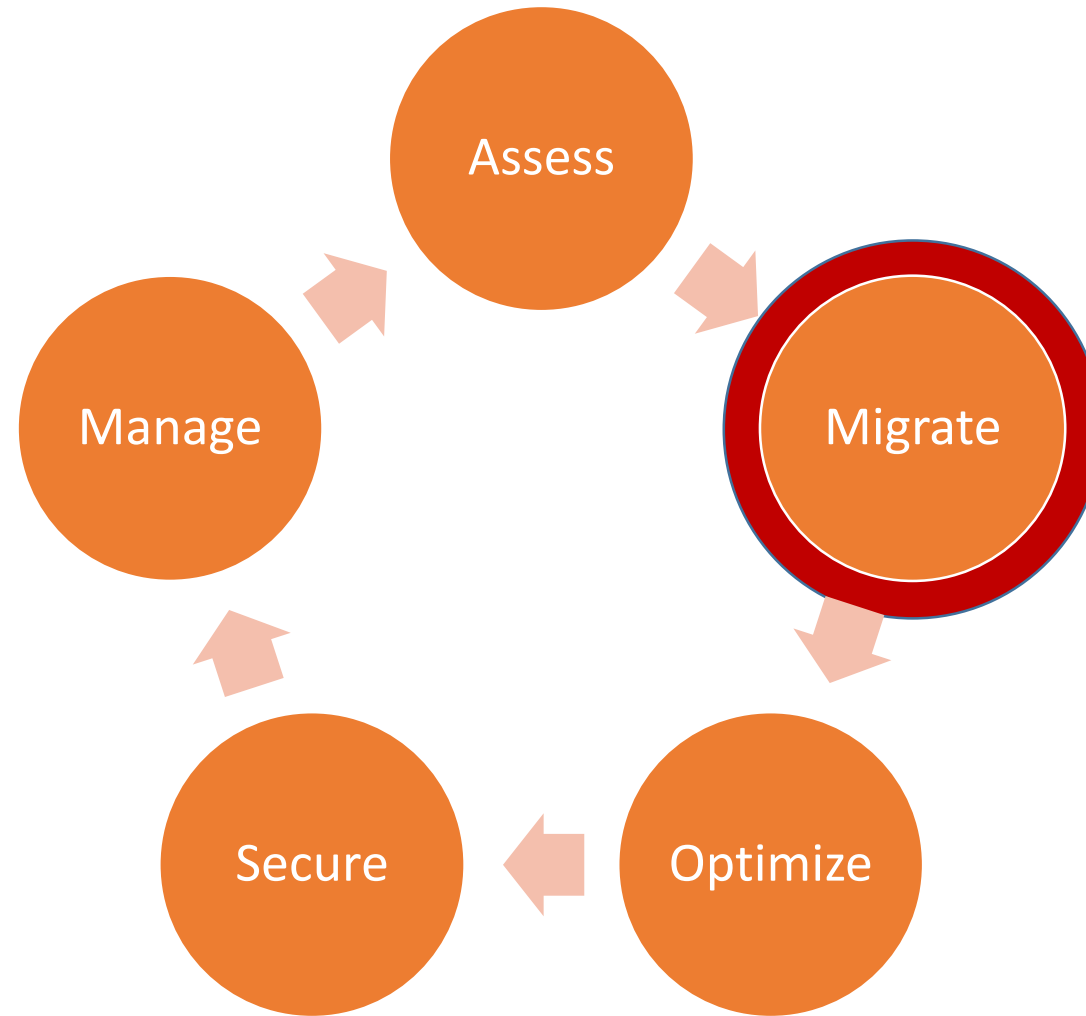
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<input checked="" type="checkbox"/>	NAME ↑↓	TAGS ↑↓	TYPE ↑↓	STATUS
<input type="checkbox"/>	 HONOLULU-CL01	1 	Virtual machine	Stopped (deallocate)
<input type="checkbox"/>	 HONOLULU-CL02		Virtual machine	Stopped (deallocate)
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<input type="checkbox"/>	 HONOLULU-SAC01	1 	Virtual machine	Stopped (deallocate)
<input type="checkbox"/>	 HONOLULU-SRV01	1 	Virtual machine	Stopped (deallocate)

Migration – Möglichkeiten

Migration - Möglichkeiten



Migration – Möglichkeiten

- Upload von VHDs (Offline-Transfer)

- hohe Downtime
- viel Aufwand

```
$rgName = "myResourceGroup"
$urlOfUploadedImageVhd = "https://r
Add-AzVhd -ResourceGroupName $rgName
    -LocalFilePath "C:\Users\Public
```

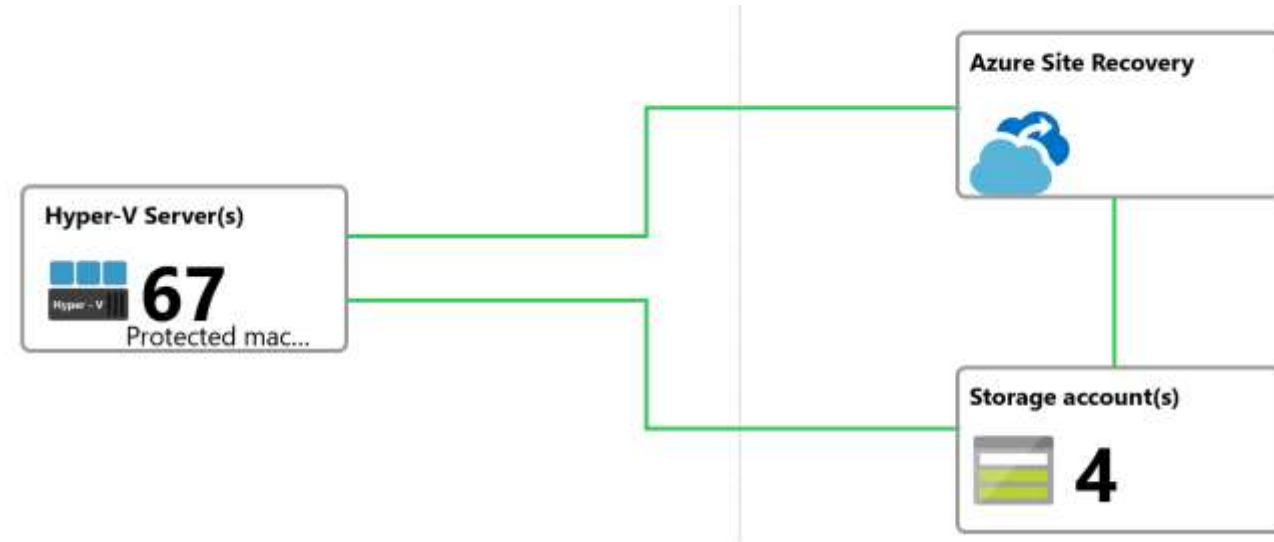
```
$imageConfig = New-AzImageConfig `
    -Location $location
$imageConfig = Set-AzImageOsDisk `
    -Image $imageConfig `
    -OsType Windows `
    -OsState Generalized `
    -BlobUri $urlOfUploadedImageVhd
    -DiskSizeGB 20
New-AzImage `
    -ImageName $imageName `
    -ResourceGroupName $rgName `
    -Image $imageConfig
```

- Neuinstallation und Workload-Migration

- mäßige Downtime
- viel Aufwand

Migration - Möglichkeiten

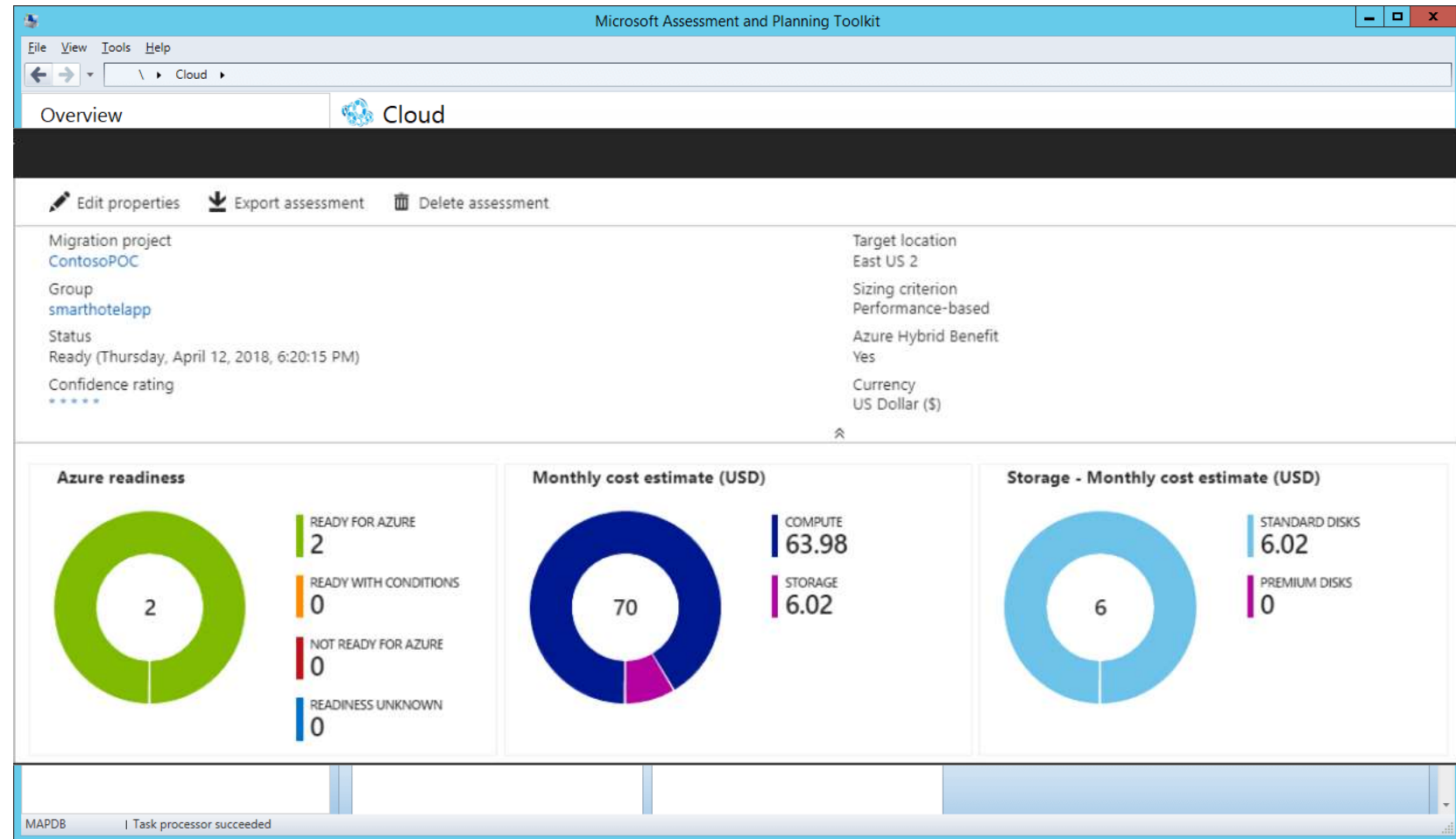
- Azure Site Recovery
 - Geringe Downtime
 - Mäßiger Aufwand
 - Sehr guter VMware Support
 - Guter Hyper-V Support



Migration - Tools

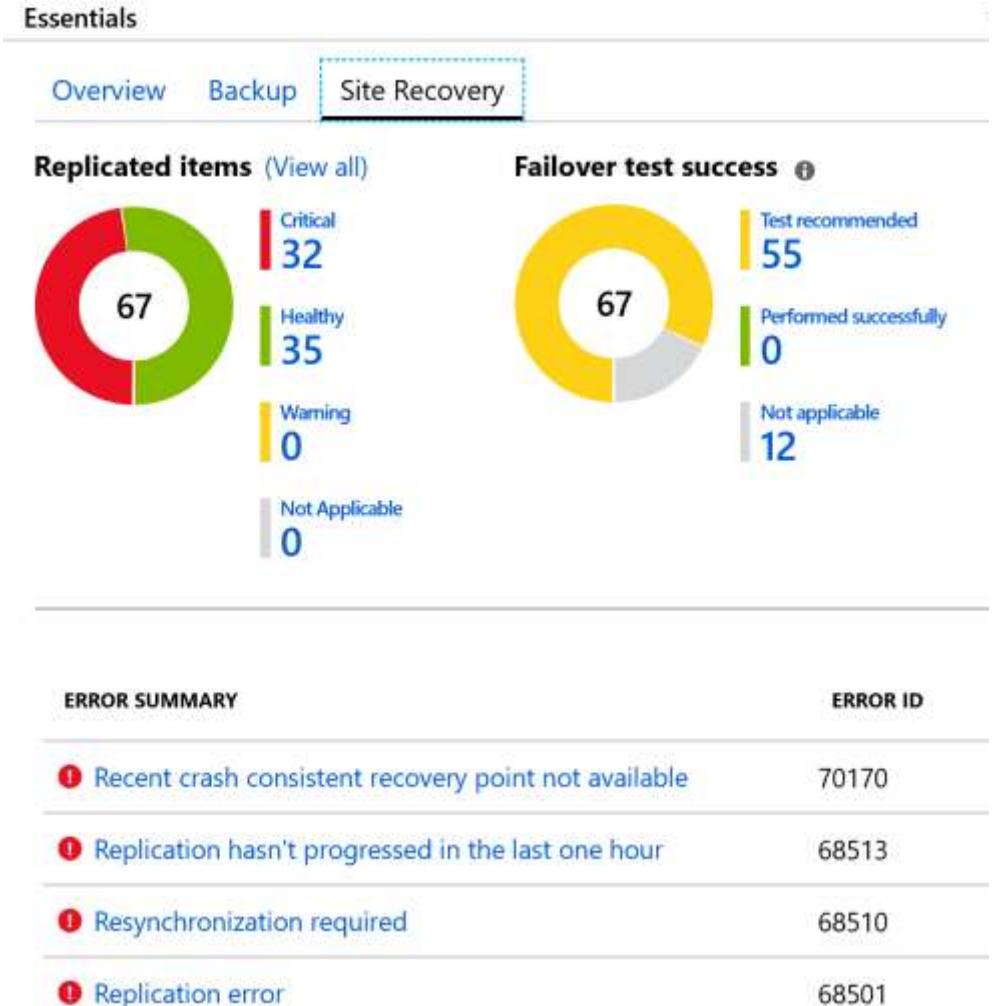
Migration - Tools

- Assessment
 - MAP Toolkit
 - Azure Migrate
 - Cloudamize
 - CloudScape
 - Movere
 - ...



Migration - Tools

- Migrate
 - Azure Site Recovery
 - Cloudamize
 - Movere
 - Zerto
 - ...



Migration - Stolpersteine und Lösungen

Migration - Stolpersteine

- Azure Site Recovery - Hyper-V Support:
 - Kein Disk-Resizing während Replikation
 - Keine statischen IPs für Linux supportet
 - Keine verschlüsselten Disks
 - Kein Import / Export Service
 - Kein Failback mit Managed Disks
 - Nur 64 Bit

Migration - Stolpersteine

- Azure Site Recovery - Hyper-V Support:
 - Maximal 300 GB OS-Disk bei Gen 2
 - Keine Shared VHDs
 - Keine Linux Gen 2
- OS-Konfiguration
 - san policy=onlineall
 - RDP enabled
 - Firewall konfiguriert

Migration - Stolpersteine

- Azure Migrate Hyper-V Support not GA
- Premium Storage max size (35 TB per Account)

```
Type: SrsServiceException
Error Message: Failover for the virtual machine failed because its storage account is full. Azure error message: 'FMException: [ErrorCo
[SourceBlobUri = https://asresrimigstor01.blob.core.windows.net/4817017157034096454-952675-35186122173689/vhd/12b33d5d-e636-4bc4-9
Stack trace:   at Microsoft.HyperV.Replica.Hrl.Utils.BlobOperations.<>c__DisplayClass38_0.<StartCopyBlob>b__0()
               at Microsoft.Internal.Common.FailureModeling.FMComponent`3.FMBlock(String fileName, Int32 lineNumber, FMBlockArgs args, Action fmPre
```

- Bandbreite / Firewall
- Churn

ASR Replication Storage Target	Source Disk I/O Size	Source Disk write churn that than can be handled by ASR Service per disk
Standard storage	8K	2 MB/sec per disk
Premium P10 disk	8K	2 MB/sec per disk
Premium P10 disk	16K	4 MB/sec per disk
Premium P10 disk	32K	8 MB/sec per disk
Premium P20/P30 disk	8k	5 MB/sec per disk
Premium P20/P30 disk	16K	10 MB/sec per disk
Premium P20/P30 disk	32K	20MB/sec per disk

Fazit

Fazit

- Vollständiges und umfängliches Assessment
- Abgleich mit allen Einschränkungen und Support-Matrixen
- Puffer planen
- Nicht migrierbare Systeme neu bereitstellen
- Limits beachten
- “Keep calm - it’s an evolution”

Fragen!?

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