Einfuehrung in den System Center Data Protection Manager 2016
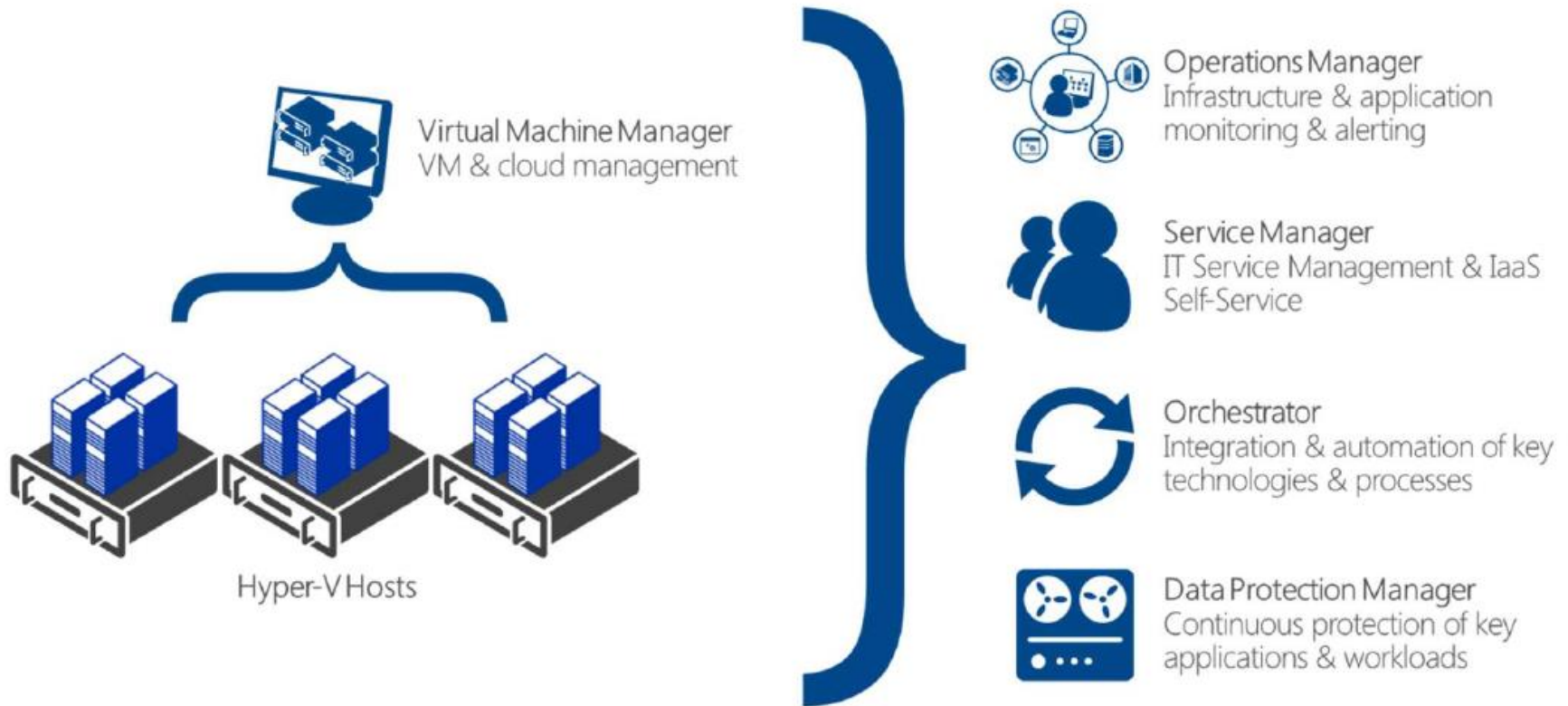
Marc Grote

Wer bin ich?

- Marc Grote
- Seit 1989 hauptberuflich ITler / Seit 1995 Selbststaendig
- Microsoft MVP fuer Hyper-V 2014, seit 2015 MVP Cloud and Datacenter (MVP Forefront von 2004-2014)
- Microsoft MCT/MCSE Messaging/Security/Server/MCLC /MCITP*/MCTS*/MCSA*/MC*
  MCSE Private Cloud, Productivity, Cloud Platform and Infrastructure, Server Infrastructure, Exchange
  MCS Server Virtualization Hyper-V / System Center/ Azure
  MCITP Virtualization Administrator
- Buchautor und Autor fuer Fachzeitschriften
- Schwerpunkte:
  - Windows Server Clustering/Virtualisierung/PKI
  - System Center SCVMM/SCEP/DPM
  - Exchange Server seit Version 5.0
  - von *.Forefront reden wir nicht mehr ☹

Agenda

- Einfuehrung in die Funktionsweise von DPM
- Was ist neu in DPM 2016
- DPM-Installationsanforderungen
- Administration von DPM
- Backup von Microsoft Exchange, Hyper-V und Fileserver
- Wiederherstellung von Daten mit DPM
- DPM Reporting
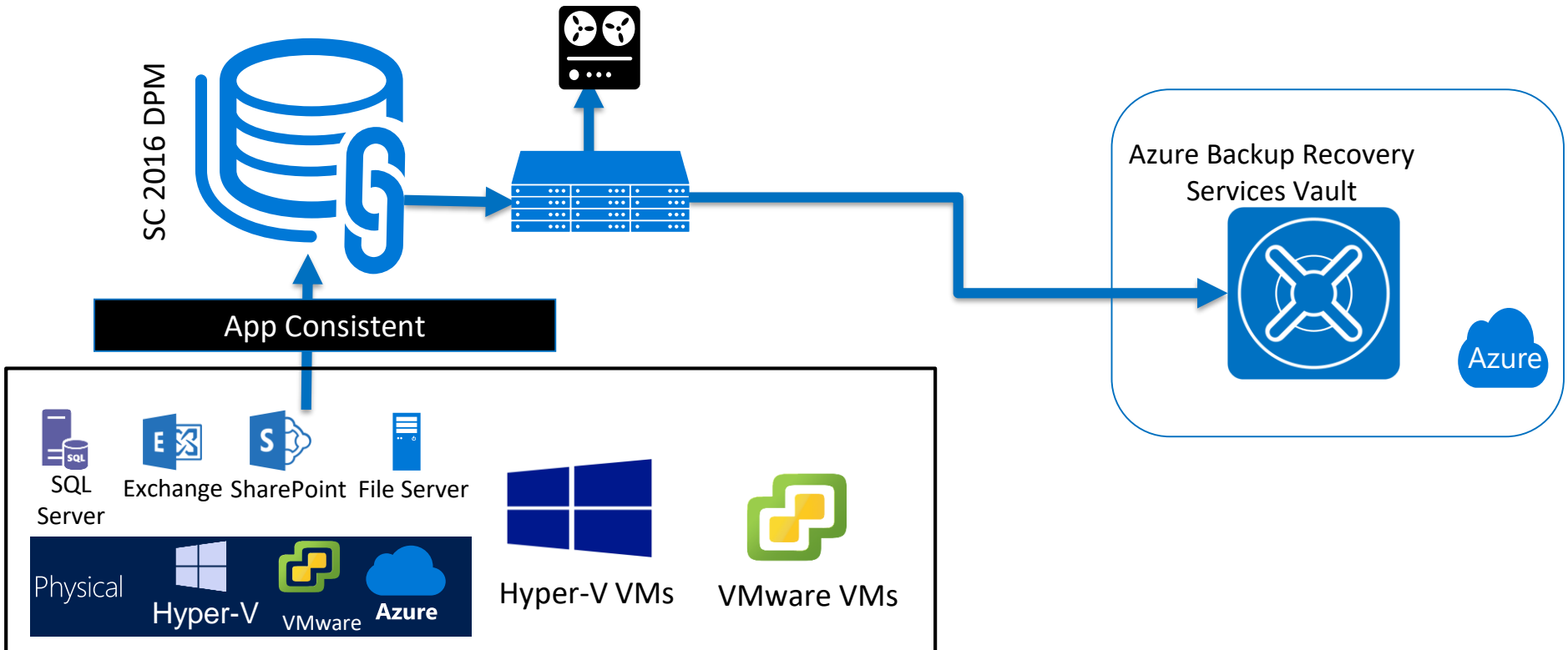- DPM Troubleshooting
- DPM und Microsoft Azure

System Center 2016

Virtual Machine Manager
VM & cloud management

Hyper-V Hosts

Operations Manager
Infrastructure & application
monitoring & alerting

Service Manager
IT Service Management & IaaS
Self-Service

Orchestrator
Integration & automation of key
technologies & processes

Data Protection Manager
Continuous protection of key
applications & workloads

Funktionsweise von DPM

- Sicherung und Wiederherstellung von Windows Clients und Servern
- Sicherung und Wiederherstellung von …
  - SQL Server
  - Exchange
  - Hyper-V
  - Dateiserver
- Festplatten- und Bandsicherung
- Cloud Backup
- Self Service Funktionen zur Wiederherstellung von Daten durch Endanwender

Funktionsweise von DPM

SC 2016 DPM

App Consistent

Azure Backup Recovery Services Vault

Azure

SQL Server

Exchange

SharePoint

File Server

Physical

Hyper-V

VMware

Azure

Hyper-V VMs

VMware VMs

Private Cloud protection at scale

Cloud Integrated Backup

Application Aware Backup

Central monitoring and Reporting

Automation

- A DPM can protect 100 production servers
- A DPM can protect 120 TB of production data
- 1.000 VMs, 600 Volumes, 9.024 Shadow Copies, 2.000 SQL DBs, 3.000 Clients
- A single Central Console can manage as many as 100 DPM servers.

- Auto protect new databases/files/clients within SQL/SharePoint instances/clients
- Auto job re-run and improved self-healing
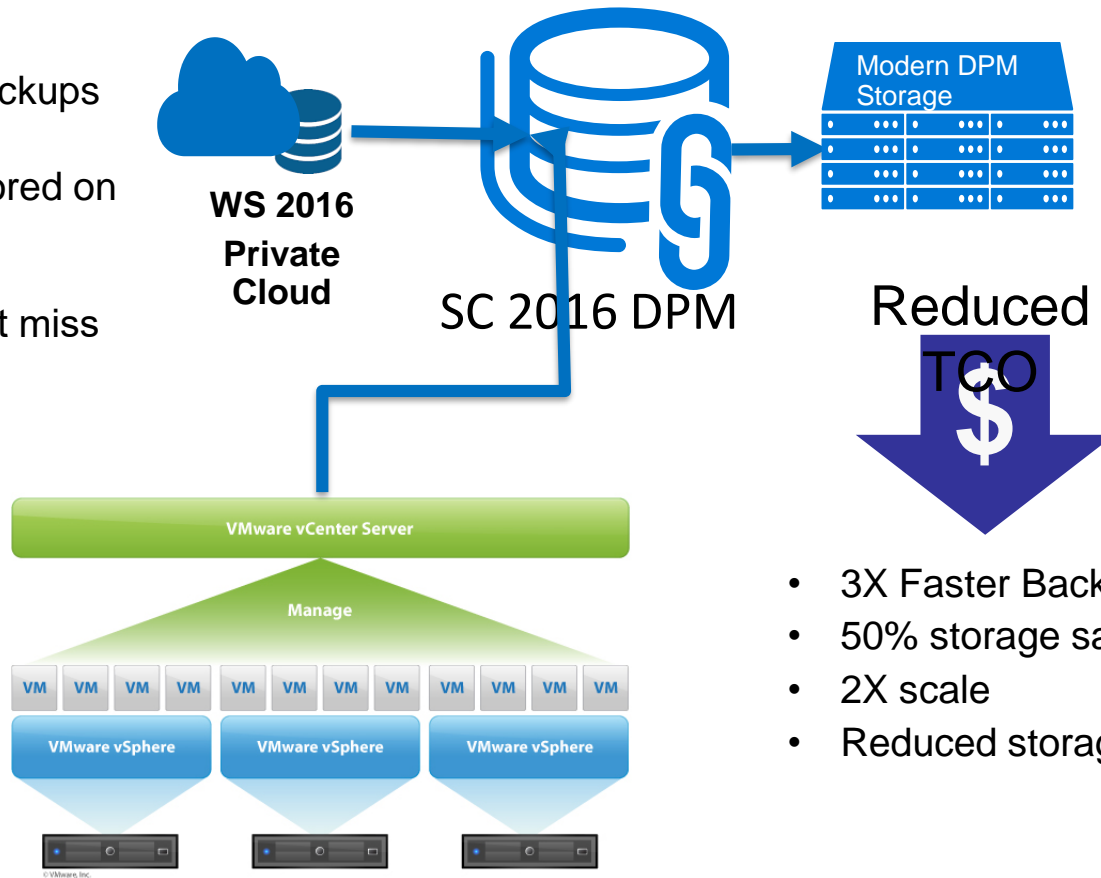- Auto grow storage on need basis

- Faster backups of **_all_** data sources using Express Full Technology
- Backup full content only once and only changes after that

- Single Central Console can manage 100 DPM servers
- 90% of actions can be taken from Central console itself
- SLA based alert mechanism and alert resolution

- Disk to Tape
- Disk to Disk to Azure using DPM to Azure
- Disk to Disk to Disk/Tape using DPM 2 DPM 4 DR

Was ist neu in DPM 2016

- Resilient VM backups with RCT
- Backup VMs stored on S2D
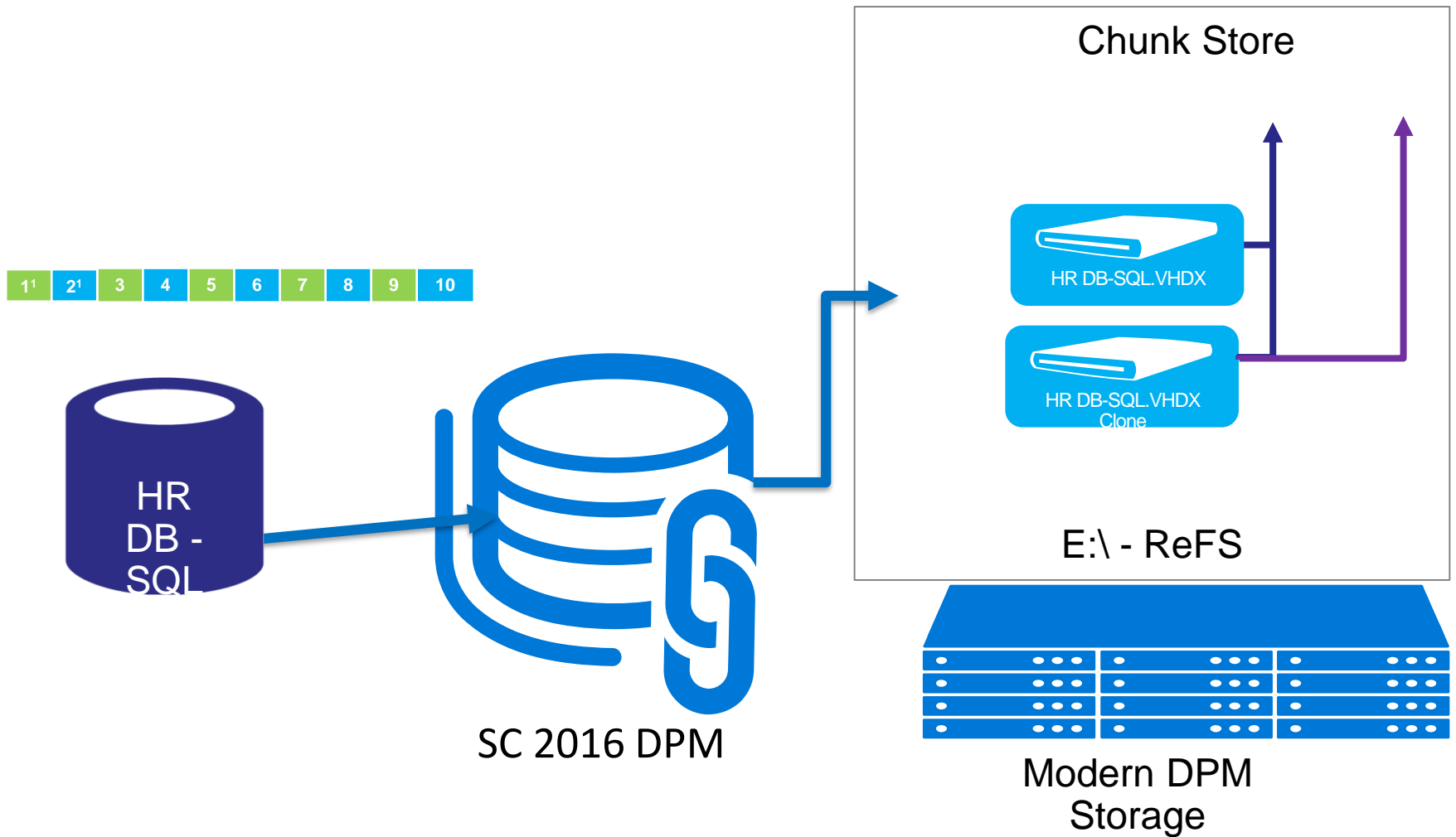- Rolling Cluster Upgrade – Don't miss backup SLA

WS 2016 Private Cloud

SC 2016 DPM

Modern DPM Storage

- ReFS Cloning
- Deduplication
- VHDX
- Workload-Volume Affinity

Reduced TCO

VMware vCenter Server

Manage

| VM | VM | VM | VM | VM | VM | VM | VM | VM | VM | VM | VM |

VMware vSphere **VMware vSphere** **VMware vSphere**

© VMware, Inc.

- 3X Faster Backups
- 50% storage savings
- 2X scale
- Reduced storage costs

DPM Systemanforderungen

- Physik / VM / Azure VM
- SQL Server 2012 SP2 oder hoeher
- Windows Server 2012 R2 oder hoeher
- Details: https://docs.microsoft.com/en-us/system-center/dpm/prepare-environment-for-dpm?view=sc-dpm-1711

DPM Modern Storage

| 1[1] | 2[1] | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

HR DB - SQL

SC 2016 DPM

Chunk Store

HR DB-SQL.VHDX

HR DB-SQL.VHDX
Clone

E:\ - ReFS

Modern DPM Storage

Administration von DPM

- Disk Storage und Tape Library hinzufuegen
- Protection Agents installieren
- DPM-Schutzgruppen einrichten
- Backup – und Wiederherstellungsplaene erstellen
- Reporting und allgemeine Einstellungen konfigurieren

Demo

Backup von Microsoft Exchange, Hyper-V und Fileserver

DPM Backup Konzepte

Concept	Definition
storage pool	The *storage pool* is a set of disks on which the DPM server stores replicas, shadow copies, and transfer logs for protected data sources.
protection group	A *protection group* is a collection of data sources, such as volumes or shares, that have a common protection configuration and schedule. Data sources within a protection group are referred to as "protection group members" or simply "members."
replica	When a protection group is created, a replica is created for each volume that is included in the group. A *replica* is a complete copy of the protected data on a single volume. Stored in the storage pool on the DPM server, each replica contains all the properties of the volume, including security settings and sharing.
shadow copy	A *shadow copy*, also referred to as a "snapshot," is a point-in-time copy of a replica stored on the DPM server. DPM creates shadow copies of each replica in a protection group according to a specified schedule. Users can access the shadow copies to recover previous versions of files in the event of data loss or corruption.
replica creation	*Replica creation* is the process of creating the initial replica of protected data in the storage pool on the DPM server. You can either prompt DPM to copy the data from the file server over the network, or you can manually create a replica from a tape backup or other removable storage medium.
synchronization	*Synchronization* is the process by which DPM transfers data changes from a protected file server to a DPM server, and then applies the changes to the replica of the protected data. DPM relies on synchronization to keep replicas consistent with the protected data on the file servers.
synchronization with consistency check	*Synchronization with consistency check*, also referred to as a "consistency check," is the process by which DPM checks for and corrects inconsistencies between a protected volume and its replica. As part of the synchronization process, a consistency check performs block-by-block verification to ensure that all the data on the replica is consistent with the protected data.

Demo

Wiederherstellen von Daten mit DPM

Demo

DPM Reporting

- Status Reports
- Disk utilization Reports
- Recovery Reports
- Tape Management Reports
- Tape Utilization Reports
- Recovery Point Status Reports
- Benutzerdefinierte Reports mit Report Builder

Demo

DPM Troubleshooting

- Troubleshooten von Setup und Server Problemen
- Troubleshooten von Datenbank-Problemen
- Troubleshooten des DPM Protection Agent
- Troubleshoot von allgemeinen Schutzproblemen
- Troubleshooten des Anwendungsschutz
- Troubleshoot von Workgroup und Untrusted Domain Problemen
- Troubleshooten von Datenwiederherstellungs-Problemen
- Troubleshooten des Monitoring und Reporting
- DPM Fehler Codes

Demo

DPM und Microsoft Azure

- Azure Backup Agent (MARS) auf zu sichernden Systemen
- Standalone Backup von Windows Servern und Anwendungen
  - Hybrid
  - Azure
  - Private
- DPM als Azure Virtual Machine moeglich
- Azure Backup Server fuer on premises Umgebung verfuegbar → DPM Server mit einigen Einschraenkungen
- On premises DPM Integration in Azure Backup moeglich

Demo

DPM und Microsoft Azure

Component	Benefits	Limits	What is protected?	Where are backups stored?
Azure Backup (MARS) agent	• Back up files and folders on physical or virtual Windows OS (VMs can be on-premises or in Azure) • No separate backup server required.	• Backup 3x per day • Not application aware; file, folder, and volume-level restore only, • No support for Linux.	• Files, • Folders	Recovery Services vault
System Center DPM	• Application-aware snapshots (VSS) • Full flexibility for when to take backups • Recovery granularity (all) • Can use Recovery Services vault • Linux support on Hyper-V and VMware VMs • Back up and restore VMware VMs using DPM 2012 R2	Cannot back up Oracle workload.	• Files, • Folders, • Volumes, • VMs, • Applications, • Workloads	• Recovery Services vault, • Locally attached disk, • Tape (on-premises only)
Azure Backup Server	• App aware snapshots (VSS) • Full flexibility for when to take backups • Recovery granularity (all) • Can use Recovery Services vault • Linux support on Hyper-V and VMware VMs • Back up and restore VMware VMs • Does not require a System Center license	• Cannot back up Oracle workload. • Always requires live Azure subscription • No support for tape backup	• Files, • Folders, • Volumes, • VMs, • Applications, • Workloads	• Recovery Services vault, • Locally attached disk
Azure IaaS VM Backup	• Native backups for Windows/Linux • No specific agent installation required • Fabric-level backup with no backup infrastructure needed	• Back up VMs once-a-day • Restore VMs only at disk level • Cannot back up on-premises	• VMs, • All disks (using PowerShell)	Recovery Services vault

Azure Backup Server

- System Center DPM Server mit einigen Einschraenkungen (kein Tape Support)
- Unterstuetzt Hyper-V VMs, Microsoft SQL Server, SharePoint Server, Microsoft Exchange, und Windows Clients
- Vmware wird unterstuetzt
- Windows Server 2012 und R2 werden unterstuetzt
- Data Deduplication ist moeglich
- Keine Unterstuetzung fuer:
  - Domain Controller
  - Application Server
  - OpsMgr Server
  - Exchange Server
  - Cluster Node

Demo

Speziell

- DPM Kapazitaets Planung
- Central DPM Management
- DPM und SCOM

DPM Kapazitaets-Planung

1	**Workload Details**		Your Tags	VM
			Total Size of the Workload (GB)*	500
			Workload Type *	Hyper-V VMs
			Average Daily Churn (%) *	3
2	**Short Term Policy**		Number of Daily Recovery Points *	1
	(Daily Disk Backups)		Retention Period (Days) *	5
Storage for Disk Backups		DPM Storage (GB)	**Total: 603,75**	603,75

			Compression savings with Azure Backup (%)	30
			Number of Daily Recovery Points	0
		Daily	Retention Period (Days)	0
			Average Churn the recovery points (%)	3
			Number of Weekly Recovery Points	0
		Weekly	Retention Period (Weeks)	0
3	**Long Term Policy**		Average Churn the recovery points (%)	6
	(Backup to Azure)		Number of Monthly Recovery Points	0
		Monthly	Retention Period (Months)	0
			Average Churn the recovery points (%)	9
			Number of Yearly Recovery Points	0
		Yearly	Retention Period (Years)	0
			Average Churn the recovery points (%)	15
Storage for Azure Backups		Azure Storage (GB)	**Total: 0**	0,00
		Additional DPM Storage for Scratch Space (GB)	**Total: 0**	0,00

Total Requirements	
Default DPMDB Storage (GB)	2
DPM Storage for Disk Backups (GB)	604
Suggested PageFile Size	60
DPM Storage for Cloud Backups (Scratch Space) (GB	0
Total DPM Storage Needed (GB)	**666**
Azure Storage for Cloud Backups (GB)	**0**
Bandwidth Between DPM and Workloads (Mbps)	**5**
WAN Bandwidth for Azure Backup (Mbps)	**0**

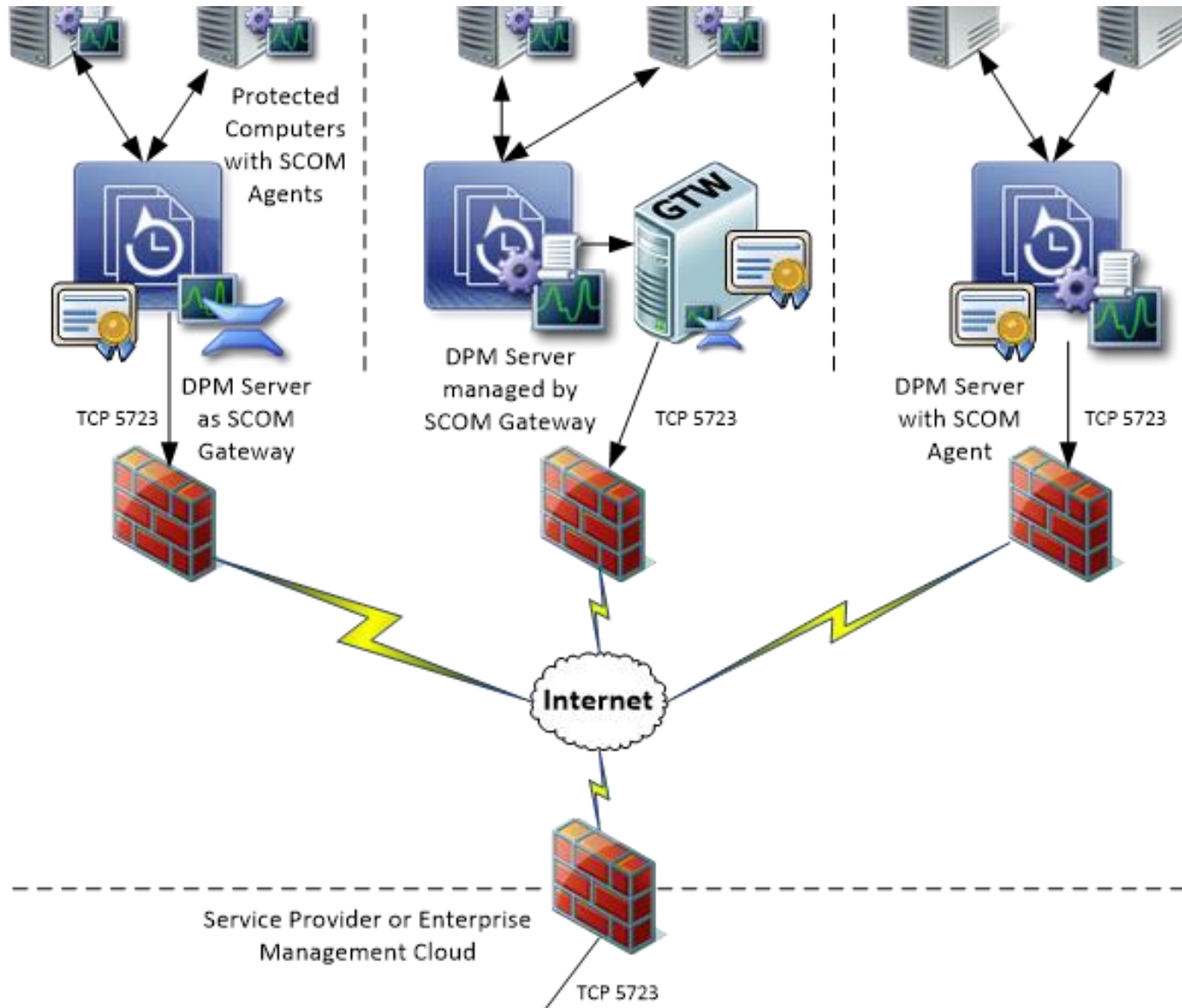https://www.microsoft.com/en-us/download/details.aspx?id=54301

Demo

Central DPM Management

- Zentrale Ueberwachung von DPM Servern von einer zentralen Stelle

- Role-Based Access Control (RBAC)

- Remote Wiederherstellung

- Ausfuehrung von Remote-Aktionen

- Service Level Agreement (SLA) Alarmierung

- Alarm-Zusammenfassung
  - Wiederkehrende Alarme
  - Alarme aus gleicher Quelle
  - Ticket Generierung
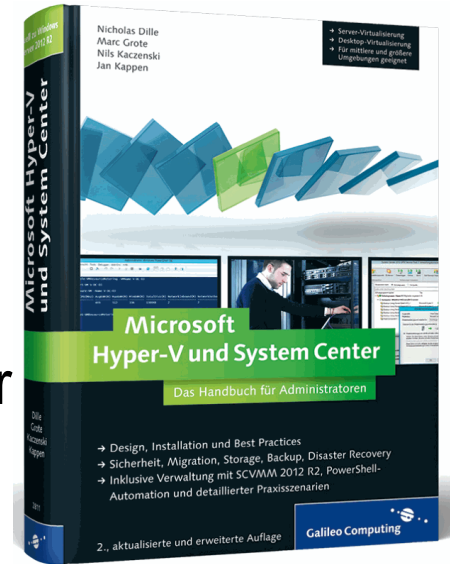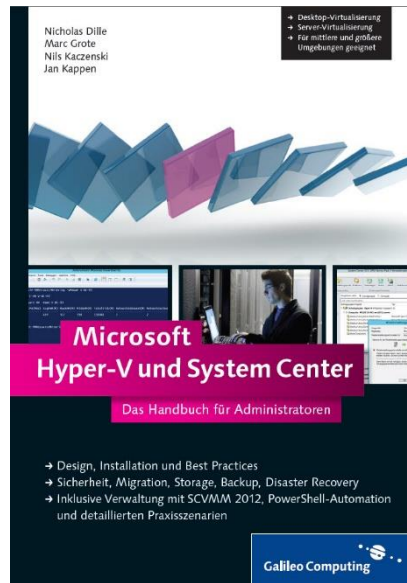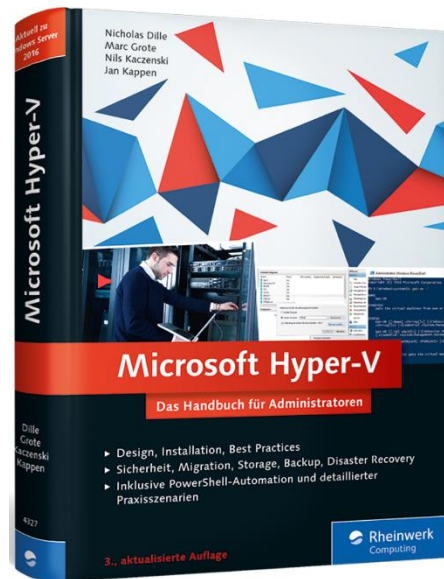
- Verschachtelte Gruppen

DPM und SCOM

Fragen??

Die Buecher

Hyper-V und
System Center
2012 R2

Hyper-V und
System Center
2012

Hyper-V
2016

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