Björn Peters

PASS SQLSATURDAY

Azure Automation - Deployment, Backup und Skalierung von SQL Servern

Sponsors help us to run this event! THX!

You Rock! Sponsor

Gold Sponsor

Silver Sponsor

Bronze Sponsor

You Rock! Sponsor Session

13:45 Track 1

„Das super nerdige Solisyon Film- und Serienquiz“

Save the date for exiting upcoming events

PASS Camp 2017

Main Camp **05.12. – 07.12.2017** (04.12. Kick-Off abends)
Lufthansa Training & Conference Center, Seeheim

SQL Konferenz 2018

PreCon: **26.02.2018**
MainCon: **27.02. – 28.02.2018**
Darmstadtium, Darmstadt

More information at PASS booth

About Me

Björn Peters

SQL Server Lead DBA
Atos Information Technologies GmbH
PASS Deutschland e.V. Member, Volunteer, Speaker
Azure Meetup Hamburg Leader
Father, Husband, Snowboarder, Cyclist, Geek
Cloud & Datacenter MVP

MVP
Microsoft®
Most Valuable
Professional

www.sql-aus-hamburg.de

info@sql-aus-hamburg.de

@SQL_aus_HH

SQL_aus_HH

NORD
DBA
- Hamburg -

Agenda

- Ursachen / Gründe für einen Wechsel nach Azure
- SQL Server Deployment
- Automated Backup
- Resize SQL Server VM
- Azure SQL Database Deployment
- Azure SQL Database Resize
- Azure SQL Database Backup/Restore
- Q&A

Ursachen und Gründe

Ursachen für Änderungsbedarf

1. Konstantes oder temporäres Datenwachstum

On-prem:

konstantes Datenwachstum: mit entsprechendem Vorlauf

Speichererweiterungen

neue Server …

temporäres Datenwachstum: Kaum Möglichkeiten, da Hardware für Maximalauslastung jederzeit kurzfristig verfügbar sein muss

Azure:

konstantes und temporäres Datenwachstum: gleichartige Möglichkeiten
Skalierung (up and down) innerhalb kürzester Zeit
Kein „Migrationsaufwand“

Gründe für einen Wechsel auf Azure

1. Flexibles Kostenmanagement:

Laufzeit nur zu Arbeitszeiten

Laufzeit nur an Arbeitstagen

Laufzeit nur an speziellen Lasttagen

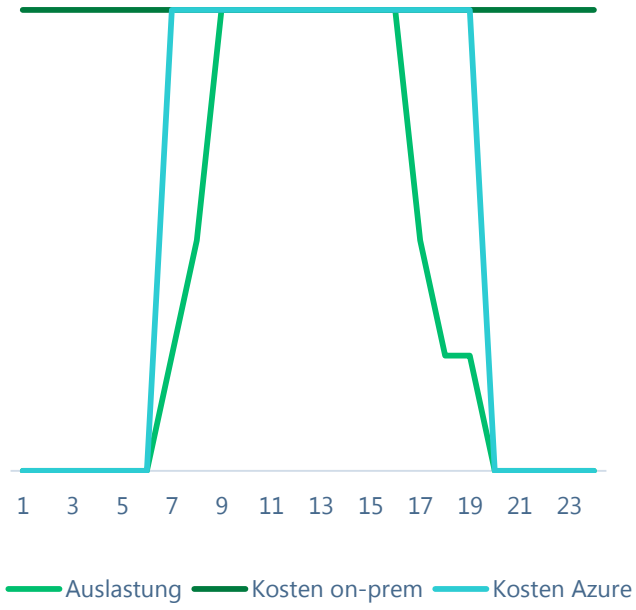
On-prem:

Im Prinzip nicht möglich

Azure:

Über Stop/Start jederzeit automatisierbar

Up-/Downscaling jederzeit möglich



Gründe für einen Wechsel auf Azure

2. Verringerung der Maintenanceaufwände:

Einspielen von Updates

Versionswechsel

Versionsgleichheit über alle Systeme

On-prem:

Konstanter manueller Aufwand erforderlich

Azure:

Vieles über Service Agreement abgedeckt

Azure Automation

mögl. Prozesse im Tagesgeschäft

neuen SQL Server / Azure SQL DBs deployen

vorhandenen SQL Server / Azure SQL DBs löschen

vorhandenen SQL Server / Azure SQL DBs skalieren

vorhandenen SQL Server / Azure SQL DBs stoppen

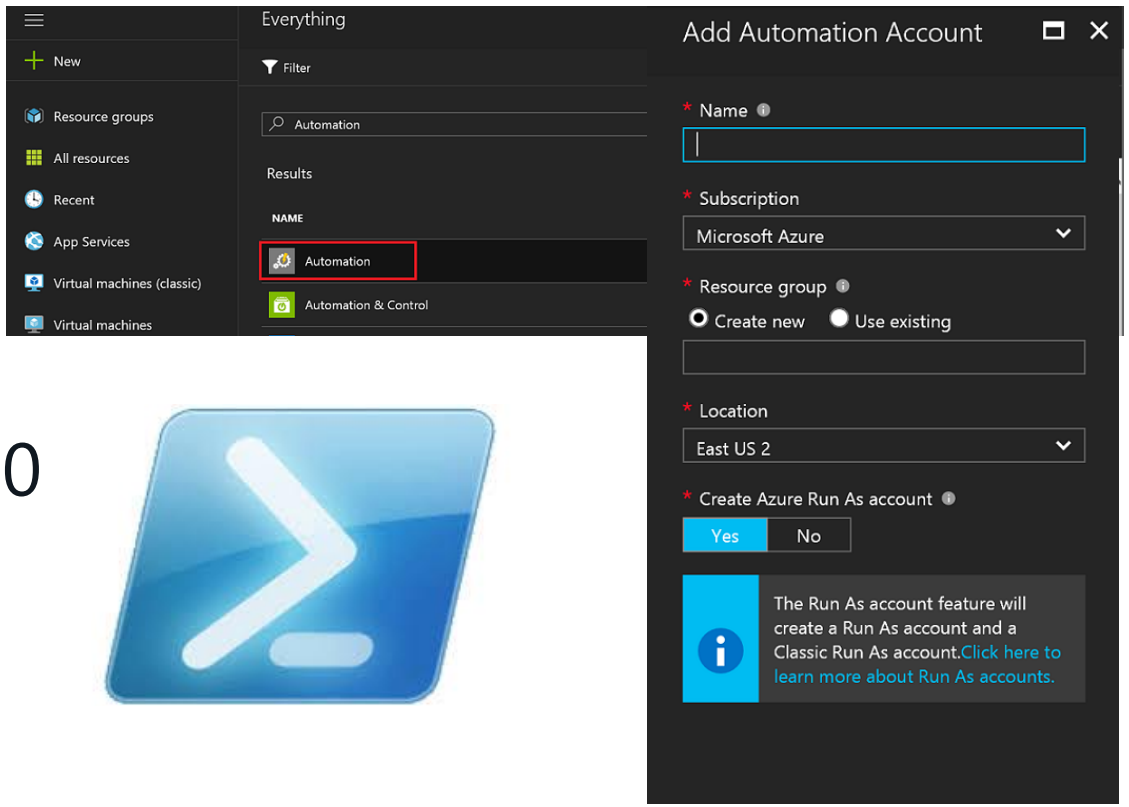
vorhandenen SQL Server / Azure SQL DBs wieder starten

Azure Automation - Tools

Azure Automation

Powershell

Azure Command Line Interface 2.0



Szenario erstellen / Tasks vorbereiten

SQL Server / SQL Database Deployment

- Wo deployen?
- Hochverfügbarkeit ?
- Backup?
- generelle Verfügbarkeit

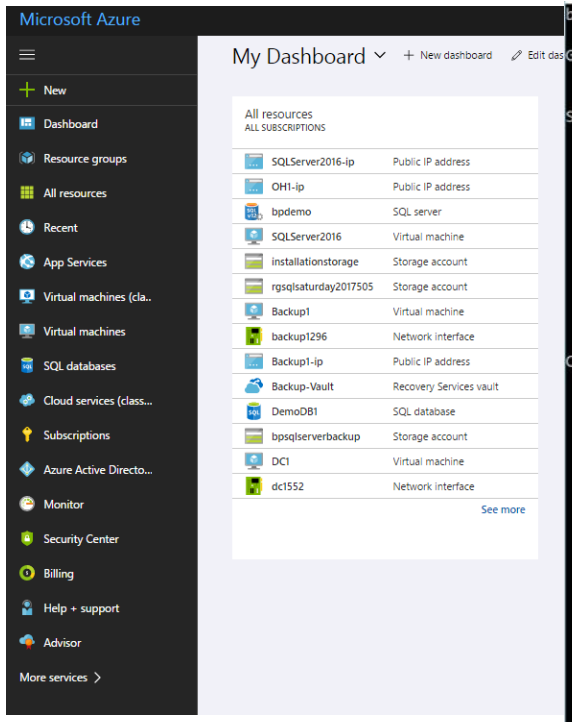
SQL Server deployen

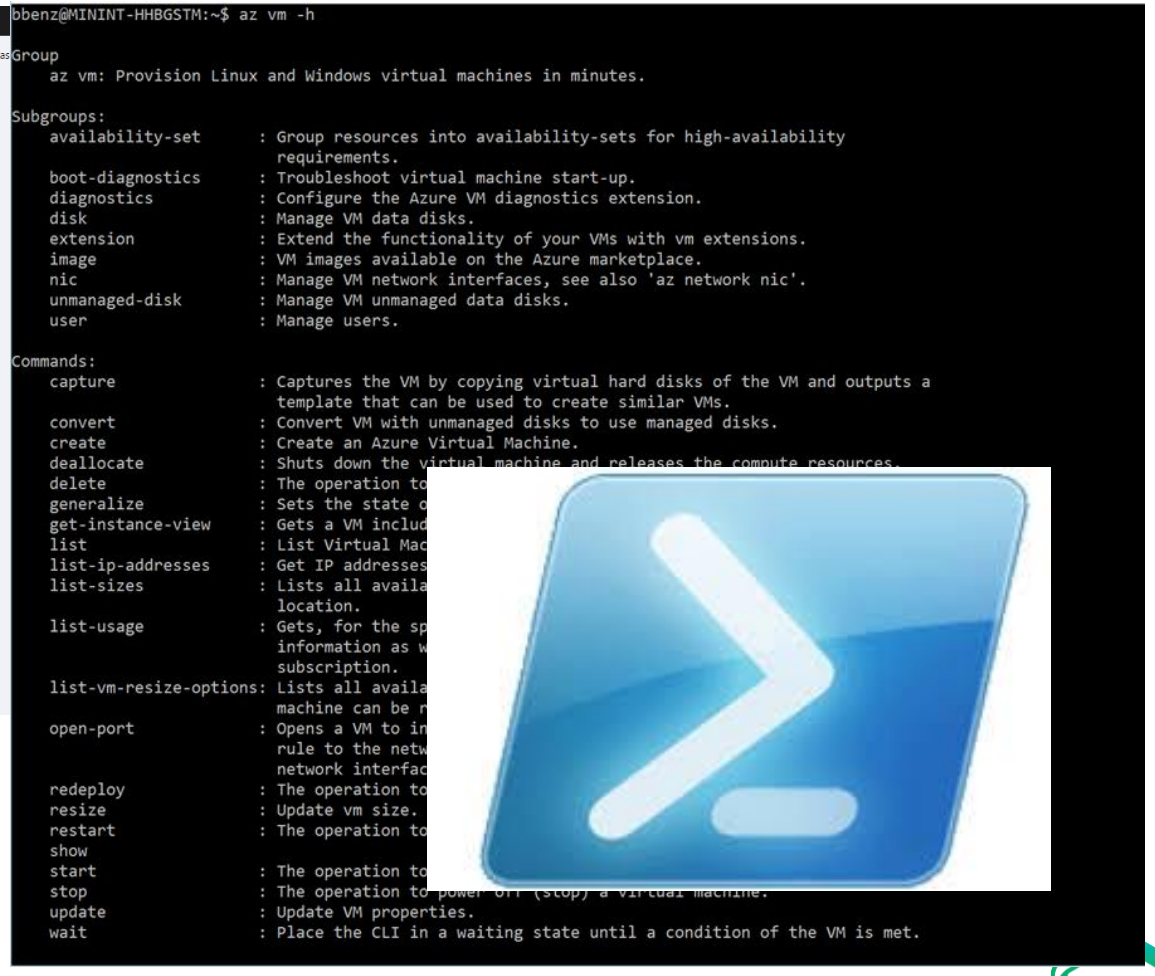
Deployment-Möglichkeiten

Azure-Portal

Powershell

Azure CLI 2.0





Was wird benötigt?

Powershell – Step-by-Step

- Location
- RessourceGruppen(Namen)
- Storage(Account)
- Network
- VM-Name / VM-Size
- Image / Template

VM Deployment

New-AzureRmResourceGroup	Creates a resource group in which all resources are stored.
New-AzureRmVirtualNetworkSubnetConfig	Creates a subnet configuration. This configuration is used with the virtual network creation process.
New-AzureRmVirtualNetwork	Creates a virtual network.
New-AzureRmPublicIpAddress	Creates a public IP address.
New-AzureRmNetworkSecurityRuleConfig	Creates a network security group rule configuration. This configuration is used to create an NSG rule when the NSG is created.
New-AzureRmNetworkSecurityGroup	Creates a network security group.
Get-AzureRmVirtualNetworkSubnetConfig	Gets subnet information. This information is used when creating a network interface.
New-AzureRmNetworkInterface	Creates a network interface.
New-AzureRmVMConfig	Creates a VM configuration. This configuration includes information such as VM name, operating system, and administrative credentials. The configuration is used during VM creation.
New-AzureRmVM	Create a virtual machine.
Remove-AzureRmResourceGroup	Removes a resource group and all resources contained within.

Demo

SQL Server Backup

Automated Backup

Notwendigkeit von SQL Server Backups

keine Notwendigkeit von SQL Server Backups um Plattenausfälle abzusichern

Backup-2-Disc reicht aus

Backup-2-URL sinnvoller

SQL Server 2014 - Automated Backup v1.0

Automated Backup - Enable/Disable (Disabled)

Retention Period - 1-30 days (30 days)

Storage Account - Azure storage account

Encryption - Enable/Disable (Disabled)

Password - Password text

SQL Server 2016 - Automated Backup v2.0

Automated Backup - Enable/Disable (Disabled)

Retention Period - 1-30 days (30 days)

Storage Account - Azure storage account

Encryption - Enable/Disable (Disabled)

Password - Password text

SQL Server 2016 - Automated Backup v2.0

System Database Backups - Enable/Disable (Disabled)

Backup Schedule - Manual/Automated (Automated)

Full backup frequency - Daily/Weekly

Full backup start time - 00:00 – 23:00 (01:00)

Full backup time window - 1 – 23 hours (1 hour)

Log backup frequency - 5 – 60 minutes (60 minutes)

Was wird benötigt?

Powershell – Step-by-Step

- Location
- RessourceGruppenNamen
- zusätzl. StorageAccount
- VM-Name
- Iaas-Agent-Extension
- Automated Backup / Retention-Zeiten

Deployment / Konfig. – Autom. Backup

Set-AzureRmVMSqlServerExtension	Sets the Azure SQL Server extension on a virtual machine.
Get-AzureRmStorageAccount	Gets a Storage account.
New-AzureRmStorageAccount	Creates a Storage account.
New-AzureRmVMSqlServerAutoBackupConfig	Creates a configuration object for SQL Server automatic backup.

Demo

Stoppen / Starten

WICHTIG – Kosten sparen

Herunterfahren <> Deallocate

SQL Server im Betriebssystem herunterfahren

Kosten (Pay-as-you-go) laufen weiter

System muss gestoppt werden !!!

Demo

SQL Server Resize

Notwendigkeit / Verfügbarkeit / Folgen

regelmäßige Lastspitzen
gestiegene Datenmengen => Laufzeiten

nicht alle Größen sind überall verfügbar

Konfiguration des SQL Servers muss angepasst werden

Was wird benötigt?

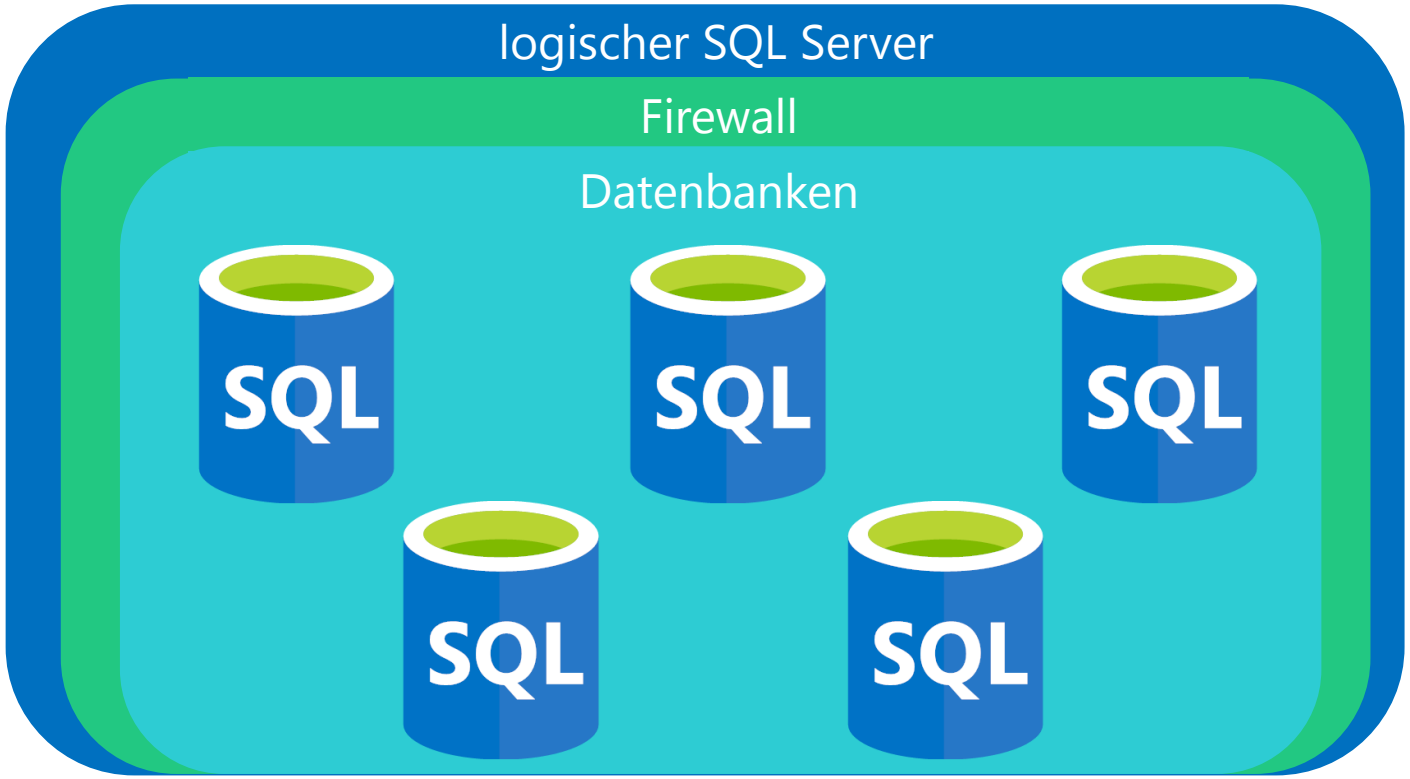
Powershell – Step-by-Step

- Location
- RessourceGruppenNamen
- VM-Name
- verfügbare VM-Größen

Demo

Azure SQL Database

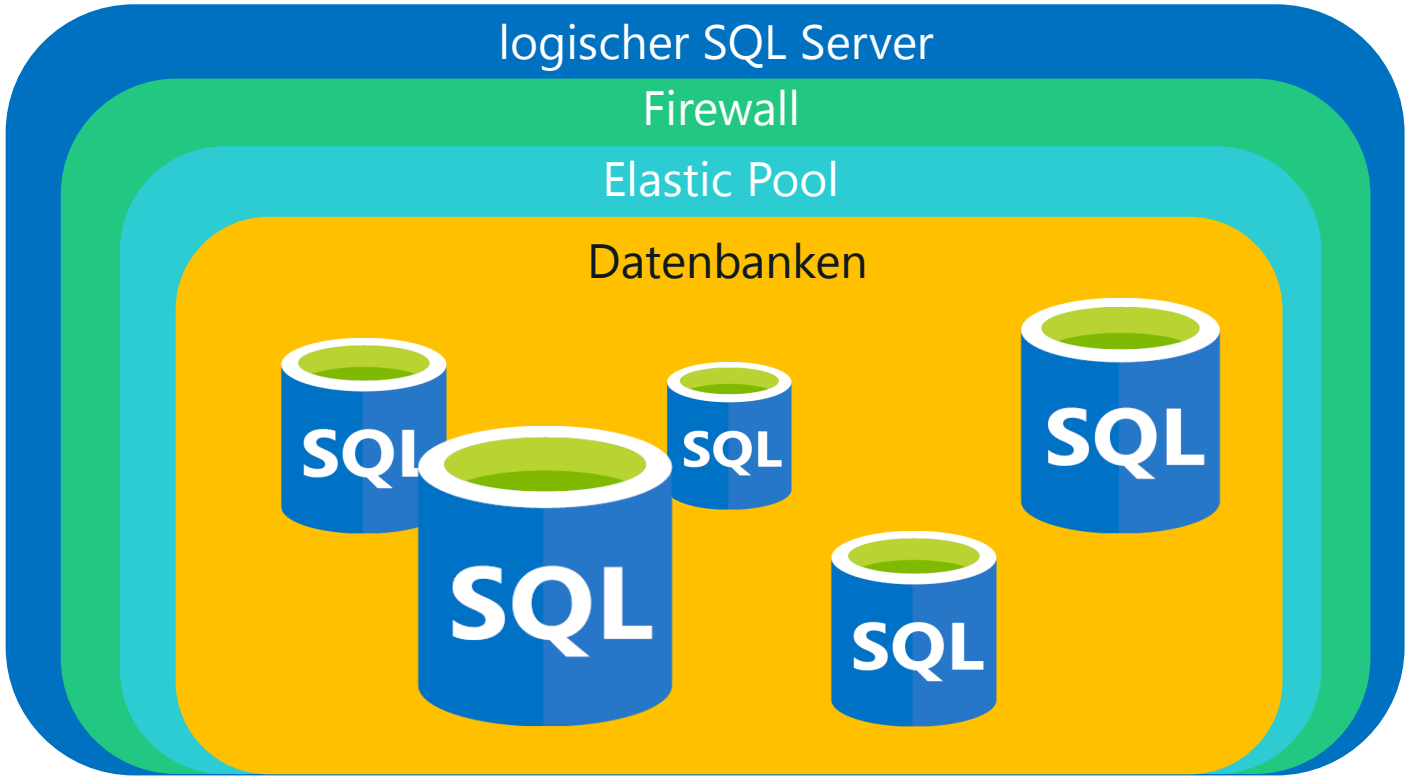
Allgemeines – Single Azure SQL Database



Default Backup Storage

LongTimeRetention Backup Storage

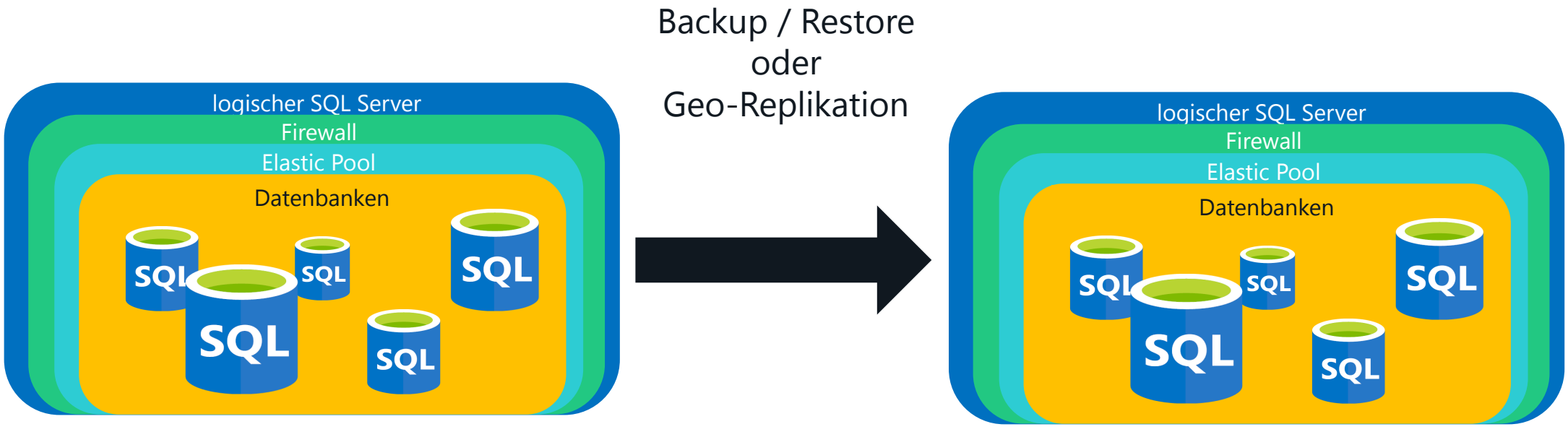
Allgemeines – SQL Database Elastic Pool



Default Backup Storage

LongTimeRetention Backup Storage

Beispiel-Szenario



Single SQL Database Deployment

New-AzureRmResourceGroup	Creates a resource group in which all resources are stored.
New-AzureRmSqlServer	Creates a logical server that hosts a database or elastic pool.
New-AzureRmSqlServerFirewallRule	Creates a firewall rule to allow access to all SQL Databases on the server from the entered IP address range.
New-AzureRmSqlDatabase	Creates a database in a logical server as a single or a pooled database.
Remove-AzureRmResourceGroup	Deletes a resource group including all nested resources.

GeoRed. Azure SQL Database Deployment

New-AzureRmResourceGroup	Creates a resource group in which all resources are stored.
New-AzureRmSqlServer	Creates a logical server that hosts a database or elastic pool.
New-AzureRmSqlElasticPool	Creates an elastic pool within a logical server.
Set-AzureRmSqlDatabase	Updates database properties or moves a database into, out of, or between elastic pools.
New-AzureRmSqlDatabaseSecondary	Creates a secondary database for an existing database and starts data replication.
Get-AzureRmSqlDatabase	Gets one or more databases.
Set-AzureRmSqlDatabaseSecondary	Switches a secondary database to be primary to initiate failover.
Get-AzureRmSqlDatabaseReplicationLink	Gets the geo-replication links between an Azure SQL Database and a resource group or SQL Server.
Remove-AzureRmSqlDatabaseSecondary	Terminates data replication between a SQL Database and the specified secondary database.
Remove-AzureRmResourceGroup	Deletes a resource group including all nested resources.

Automated Backup

automatische Backups

Full – initial direkt nach Create Database

einmal wöchentlich

Differential – mehrfach am Tage

TransaktionsLog – alle 5-10 Minuten (je nach Size)

Automated Backup

Backup Retention

- Basic service tier is 7 days.
- Standard service tier is 35 days.
- Premium service tier is 35 days

LongTimeRetention Backup Storage

Besonderheit – Azure SQL Database

Kein Pause/Resume

Kein Stop/Start

Löschen der Datenbank (nicht des Servers) hilft beim Kostensparen!

Beispiel

Abends löschen – morgens wieder herstellen

Drop DB – Recreate/Restore DB

Get-AzureRmSqlDatabase	Gets one or more databases.
Remove-AzureRmSqlDatabase	Removes an Azure SQL database.
Get-AzureRmSqlDeletedDatabaseBackup	Gets a deleted database that you can restore.
Restore-AzureRmSqlDatabase	Restores a SQL database.

Don’t forget … After-Show-Party!!!

5 Jahre SQL Saturday

an der Hochschule Bonn-Rhein-Sieg

SQLSat Bruzzler - Grillparty

Würstchen & Bier ab ca. **19.00 Uhr**

am Ende der Hochschulstraße

Sponsors

You Rock! Sponsor

SOLISYON

Gold Sponsor

Microsoft

Profisee®

Quest

Silver Sponsor

CLOUDDBA

GDS BUSINESS INTELLIGENCE GmbH

SQLDocKit by acceleratio

web tellisence IT consulting GmbH

ppedv

Bronze Sponsor

SQL4AUTOMATION The smart database connection

COZYROC™ Go to the next level

inovex