Willkommen beim #GWAB 2014!

2014 Global Windows Azure BOOTCAMP

Windows Azure SQL Database deep-dive

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Lokale Sponsoren:

Compuware APM

Microsoft

www.IT-Visions.at

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Vorstellung

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SQL Server 2005, 2008 & 2008 R2

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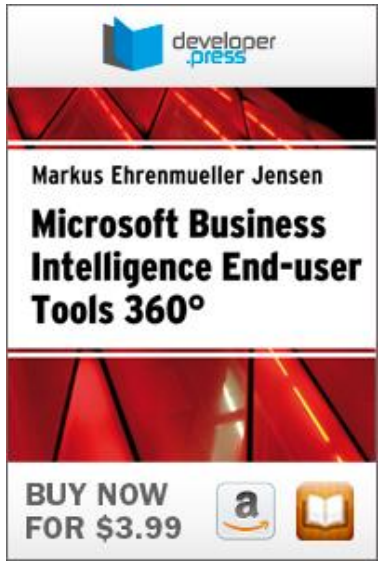
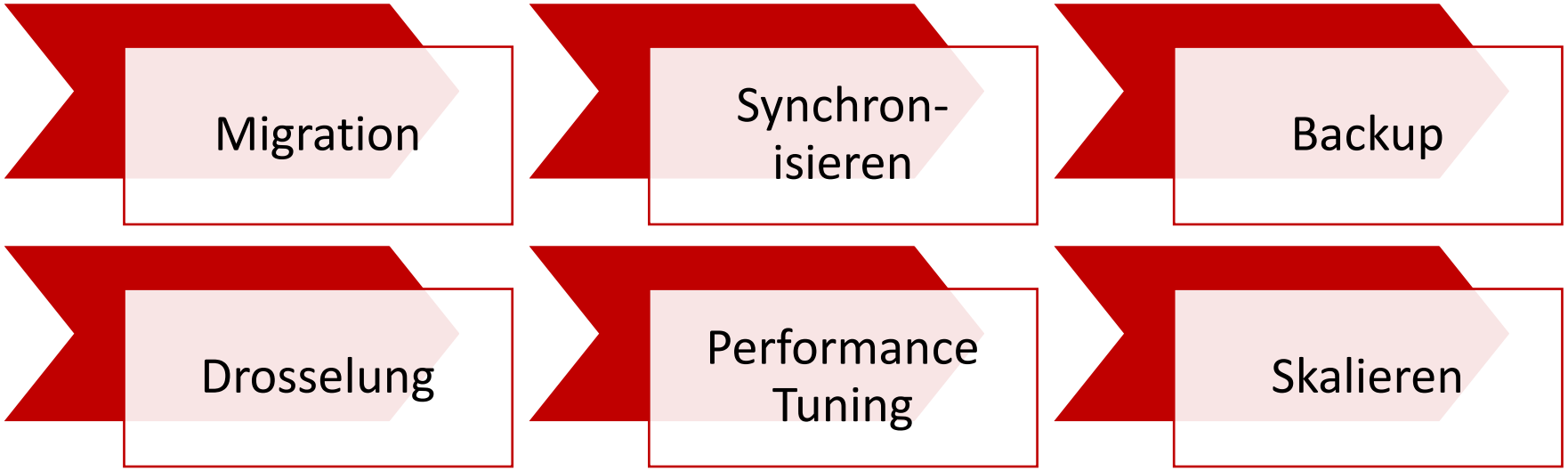
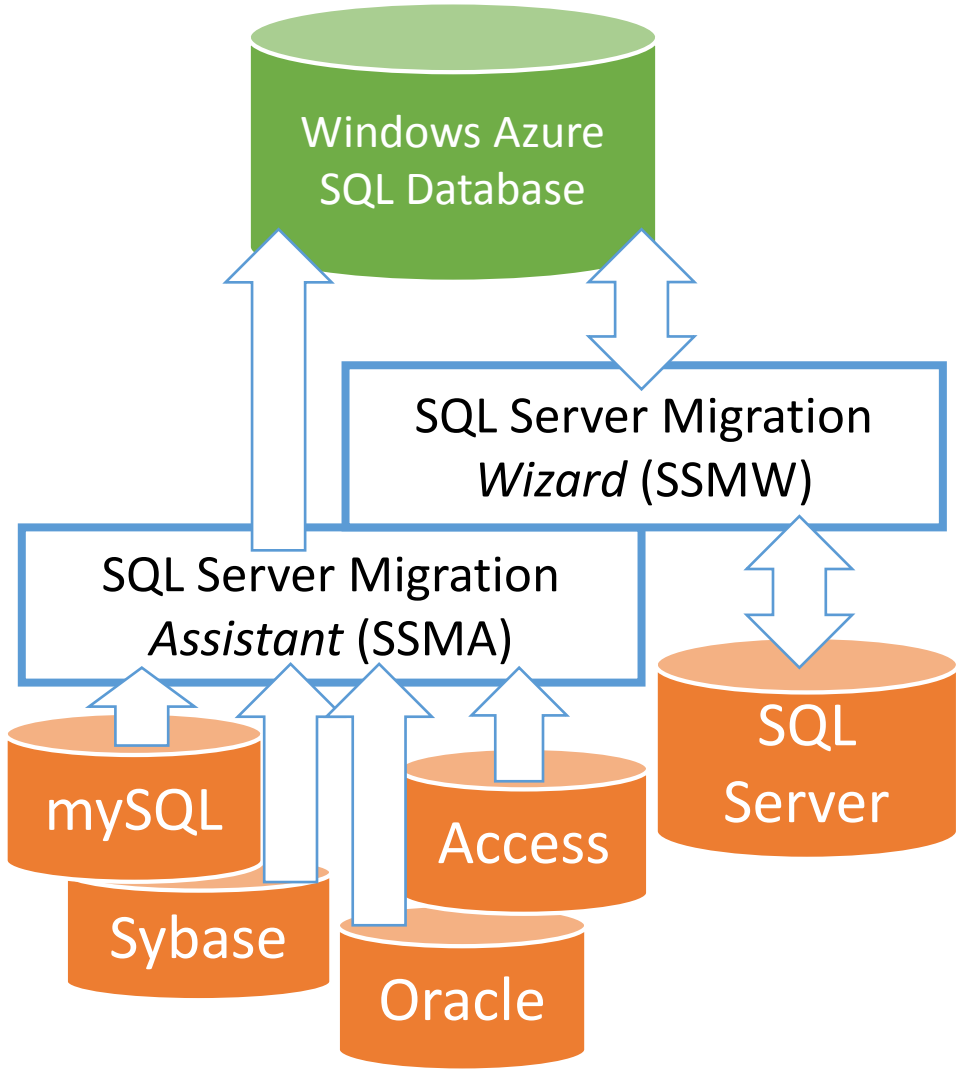


Der rote Faden



Vorgehensweise für Migration



- Analyse (Assessment) der Quell-Datenbank
- Migration des Schemas und der Daten
- Tabellen, Stored Procedures, Trigger usw.

Windows Azure SQL Database != SQL Server

- Missing platform components
- Non supported T-SQL DDL constructs
- Non supported T-SQL DML commands
- Other gremlins

- Unlikely that anything but the most trivial on-premises DB will be migrated without at least some changes
- http://msdn.microsoft.com/en-us/library/windowsazure/ff394102.aspx

Missing platform features/components

Easier to Resolve

- SQL Server Integration Services
- SQL Server Reporting Services
- SQL Server Analysis Services
- SQL Server Agent & Jobs

Harder to Resolve

- Distributed Transactions & Cross Database Transactions
- SQL Server Management Objects
- Certain system procs/views
- Full text indexing
- Transparent Data Encryption
- Windows Authentication
- Master Data Services
- Data Auditing and CDC

Non-supported DDL
Easy to identify

- Tables without a clustered index and/or primary key
- XML Schema on XML columns, XML indexing
- User defined CLR types
- FILESTREAM type
- Etc. …

http://msdn.microsoft.com/en-us/library/windowsazure/ee336281.aspx

Non-supported DML and other T-SQL Harder to identify as could be in code

- BULK INSERT
- OPENROWSET, OPENQUERY, OPENXML
- Several of the Database Console Commands (DBCC)
- EXECUTE AS LOGIN
- Etc. …

http://msdn.microsoft.com/en-us/library/windowsazure/ee336253.aspx

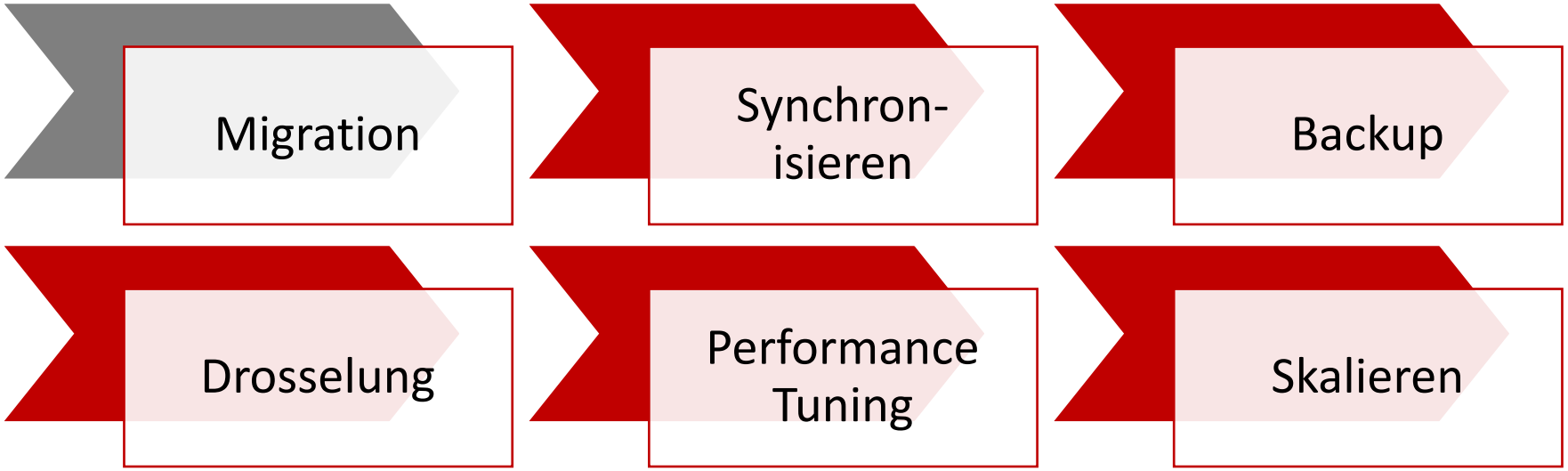
Other gremlins
Stuff that might bite at an inconvenient time

- Limitations on certain user names (sa, admin, root etc…)
- USE {database} is not supported for DB context switching on a single connection
- Must specify the database name in the connection string
- ALTER INDEX REORGANIZE (Must REBUILD)
- Etc. …

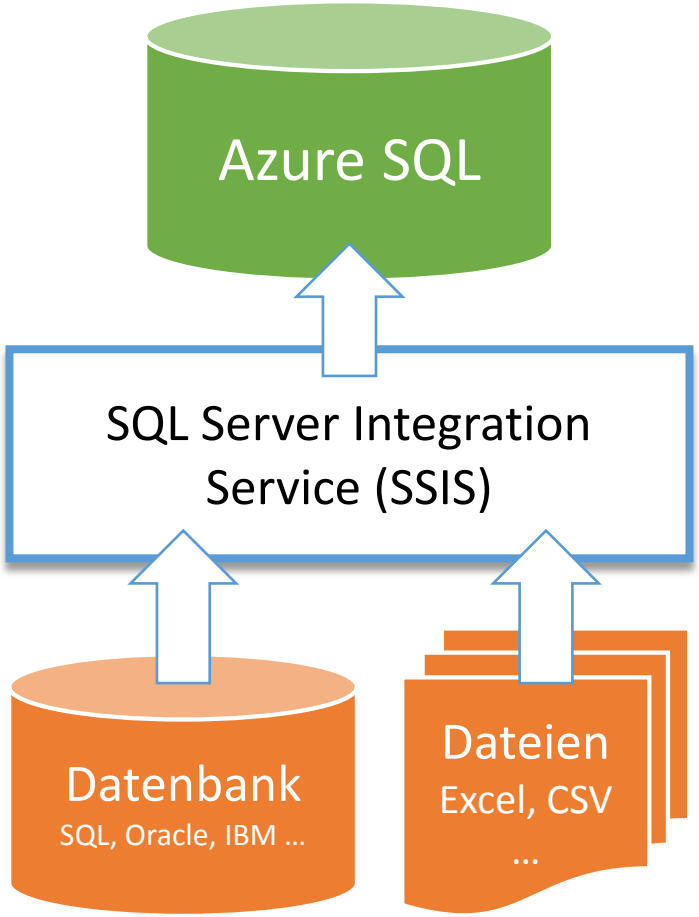
DEMO

Migrating to Windows Azure SQL Database

Der rote Faden

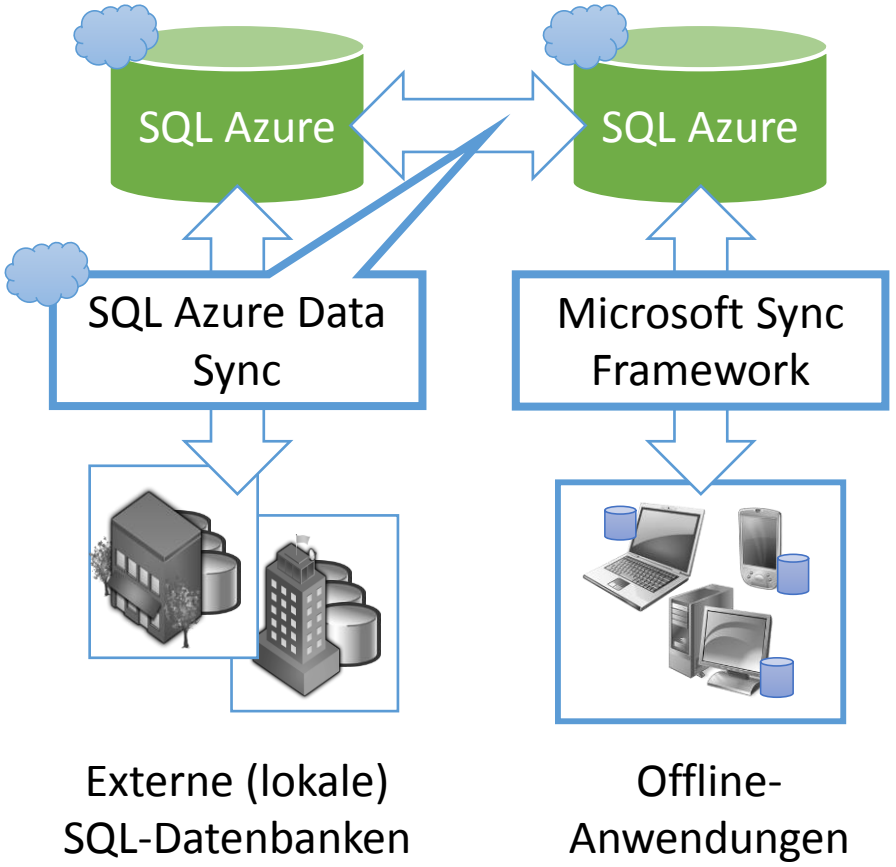


Vorgehensweise für Laden von Massendaten (ETL)



- Bulk-Operation (z. B. zeitgesteuert)
- Daten filtern, anreichern, transformieren
- Nachladen der Daten
- ETL, Migration, Import/Export …

Vorgehensweise für (bidirektionale) Synchronisation



- Synchronisierung in Echtzeit
- Bidirektional
- Datenkonfliktlösung
- Georedundanz, Filialen, Remote Office, mobile Geräte …

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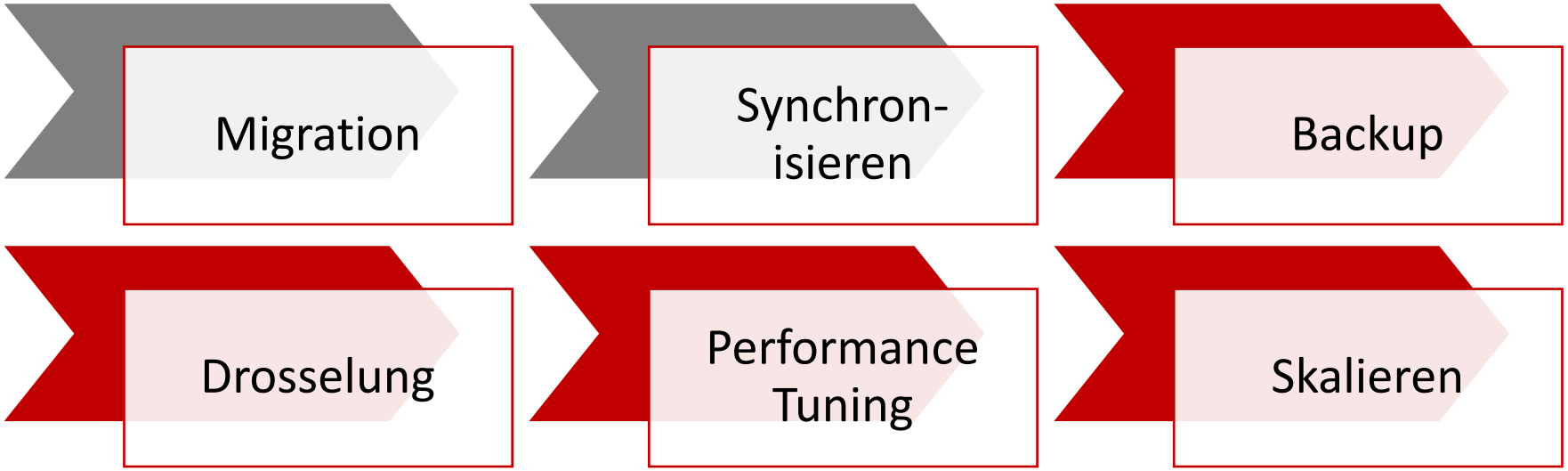
Data Sync

Der rote Faden



Backup

Why We Backup

Loss of the datacenter/drives/hardware

Application errors

Stupid mistakes while logged in as SA

Backup Options

Currently no standard point-in-time backup

Use CREATE DATABASE … AS COPY OF

Export copy as BACPAC to Azure Blob Storage

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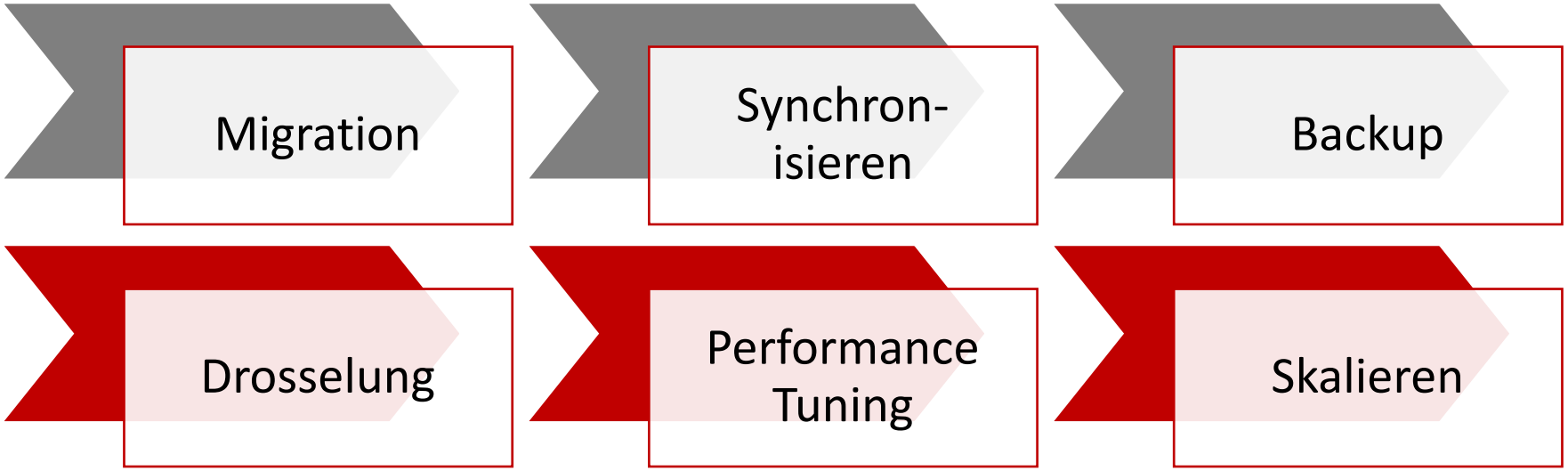
CREATE DATABASE … AS COPY OF …
Import/Export BACPAC

Der rote Faden



Checking on Throttling

Master Database

- Sys.event_log
- Sys.database_connection_stats

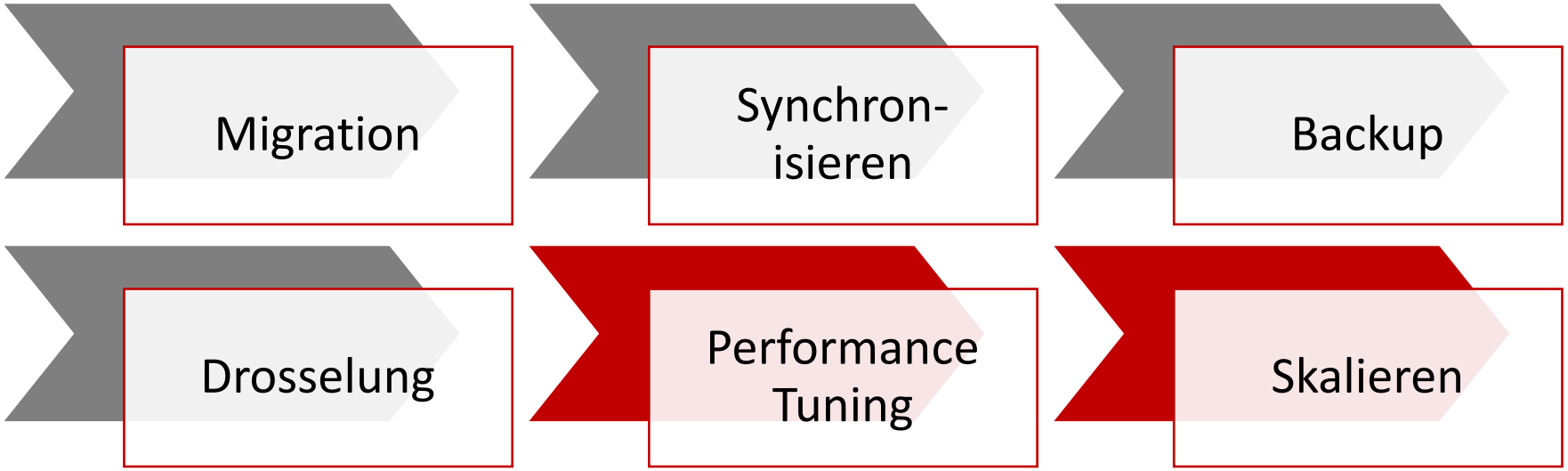
Throttling Type

Type	Soft Throttling	Hard Throttling
Festplattenplatz	0x01	0x02
Log space	0x04	0x08
Transaction activity	0x10	0x20
IO	0x40	0x80
CPU	0x100	0x200
Database quota	0x400	0x800
Too many requests	0x4000	0x8000

Throttling Mode

Modus	Beschreibung	Abgewiesen
0x00	AllowAll	nichts
0x01	RejectUpsert	INSERT, UPDATE, CREATE TABLE | INDEX
0x02	RejectAllWrites	INSERT, UPDATE, CREATE, DROP
0x03	RejectAll	alles

Der rote Faden

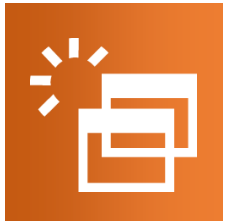


What's Old is New

Transactions as **short** as possible

Only move the data you **need** to move

Only move the data **when** you need to move it



Tune the queries

Database Monitoring

Large Range of Monitoring Options

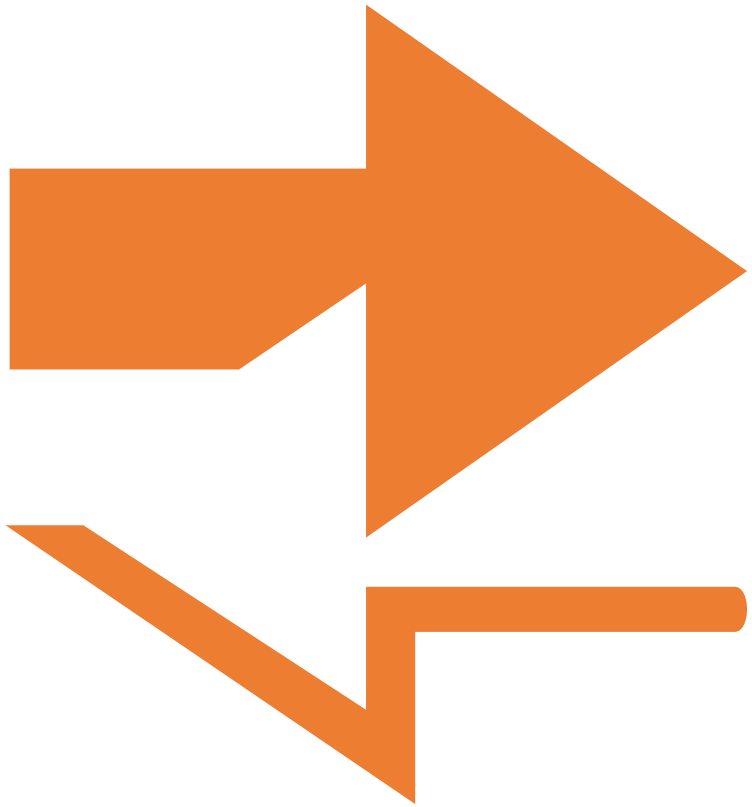
Query Plans

Extended Events

DMVs

Event Table

There is no SQL Profiler – Use DMVs



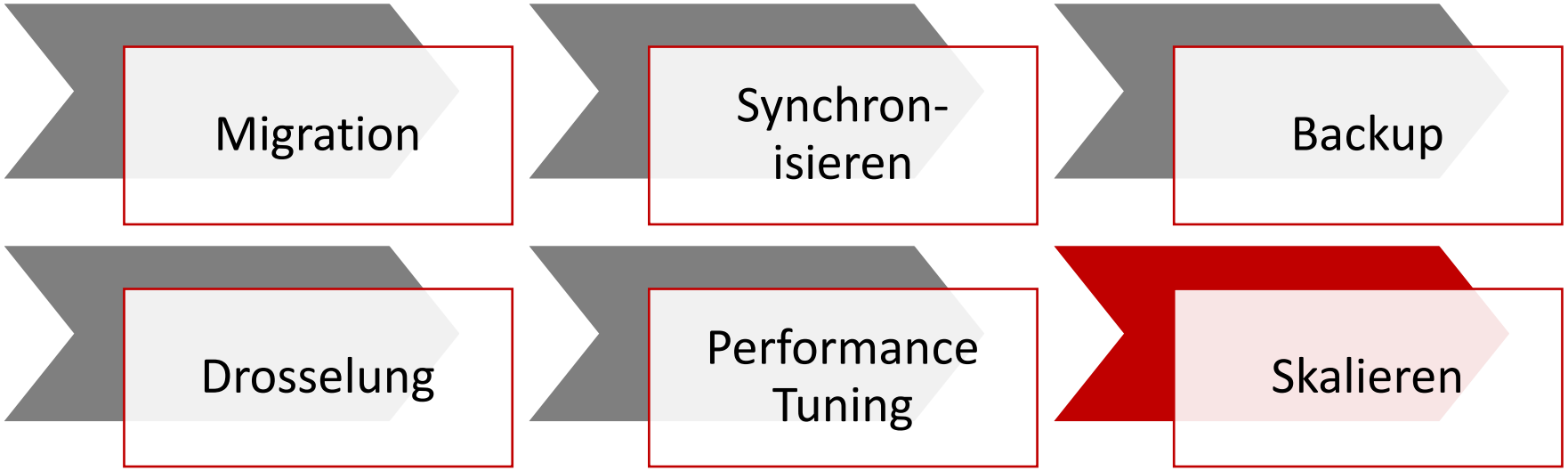
DMVs for Performance Monitoring

Sys.dm_exec_requests	Currently running queries
Sys.dm_exec_query_stats	Aggregate query performance
Sys.dm_exec_query_plan	Execution plan
Sys.dm_db_wait_stats	Database level wait stats
“missing index” DMOs	Possible indexes for performance

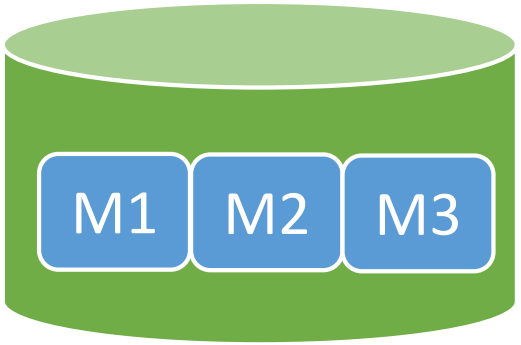
DEMO

Database Management Objects

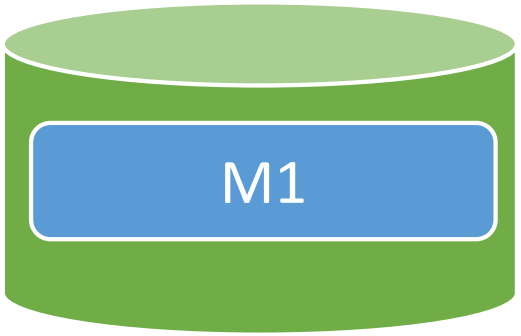
Der rote Faden



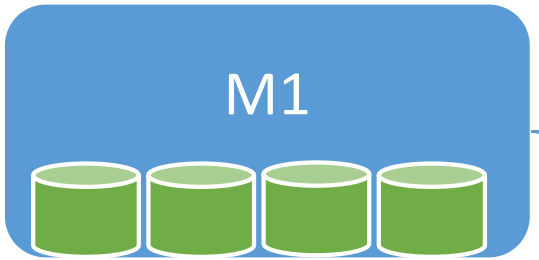
Multi-Tenancy



Mehrere Mandanten in einer Datenbank (long tail)



Eine Datenbank pro Mandant



Mehrere Datenbanken pro Mandant (große Mandanten)

SQL Azure Federation – How to

Schema (Name der Federation)

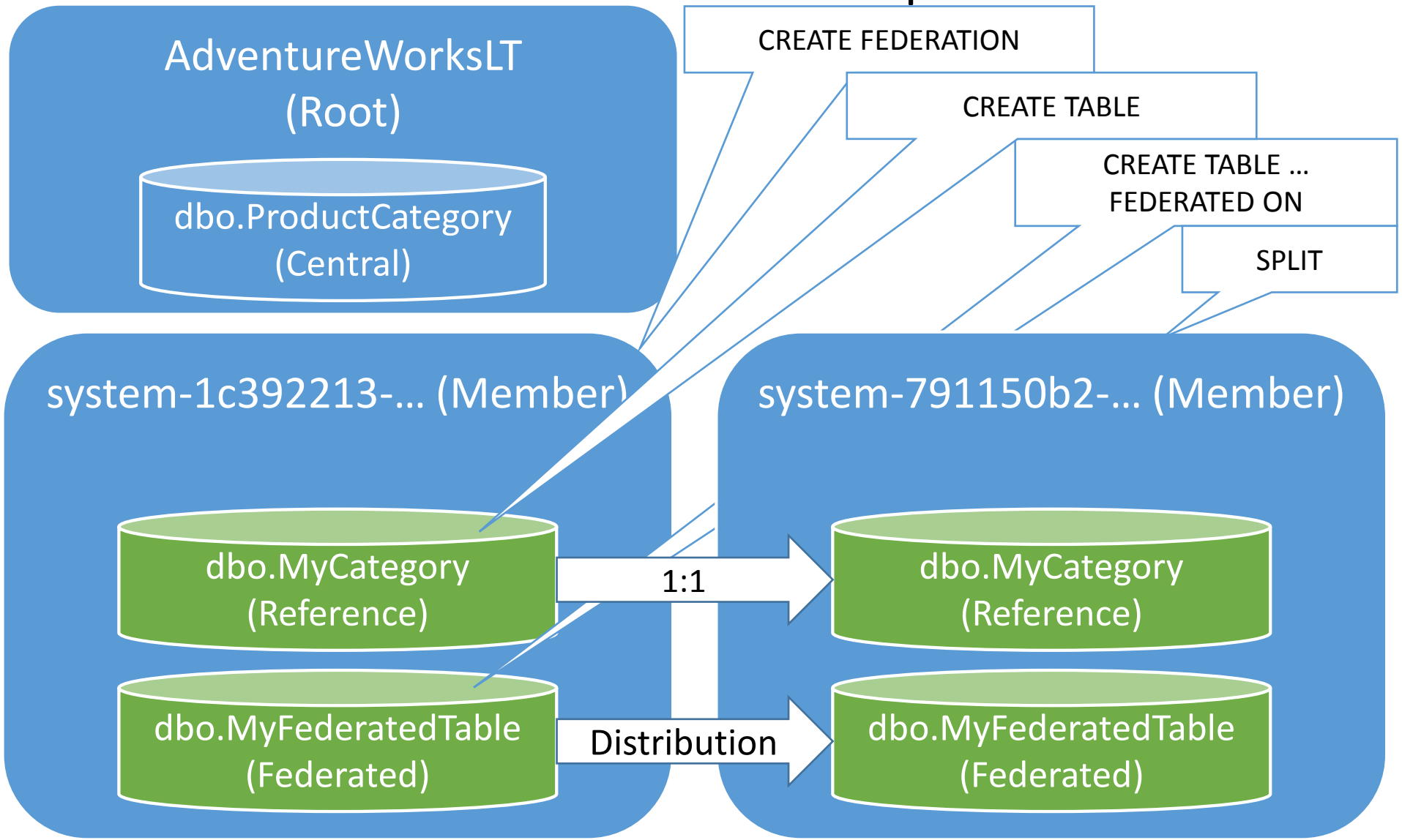
Distribution key

- Int, bigint, uniqueidentifier, varbinary
- Range value

Members (Datenbanken)

Federated vs. Reference vs. Central table

SQL Azure Federation – Sample



DEMO

Scale-up and scale-down
Scale-out and scale-in

SPLIT

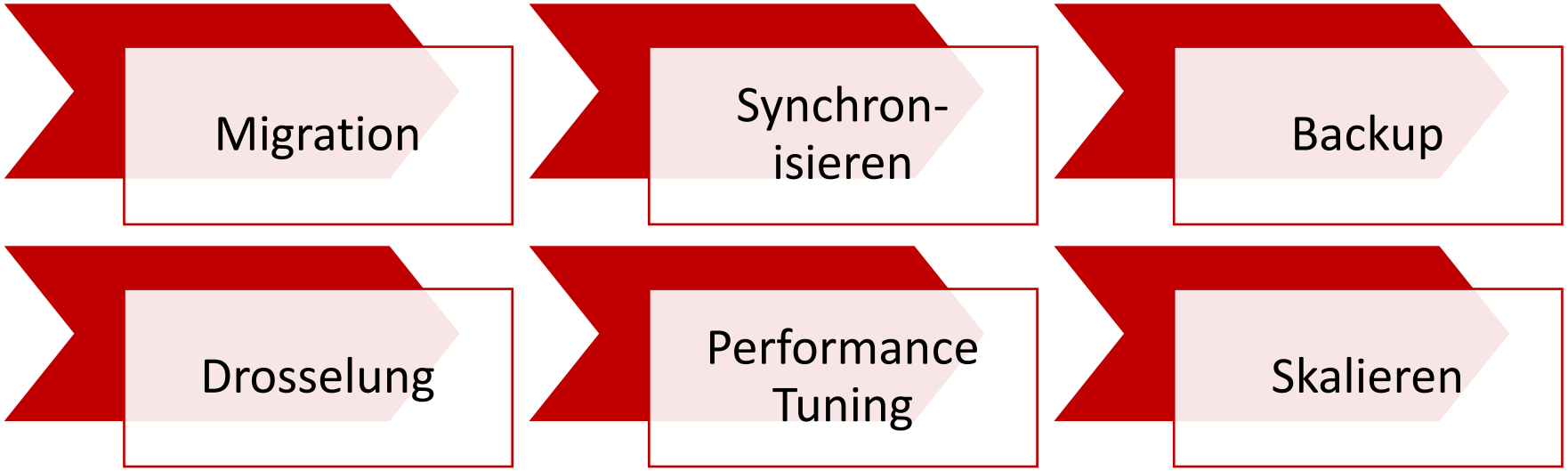
CREATE DATABASE <newmember>

CREATE TABLE <federatedtable>

INSERT INTO <newmember>.<federatedtable>

DELETE <oldmember>.<federatedtable>

Zusammenfassung



Probieren Sie es aus!

Windows Azure Offers

Tools (kostenfrei)

- Microsoft Web-Plattform
- Windows Azure SDKs

Windows Azure Portal

Windows Azure Traing Kit

Windows Azure Feature Voting

SQL PASS Austria

- SQL Server Usergroup - austria.sqlpass.org
- Kostenlos – aber nicht umsonst
- 1x monatlich 2 Vorträge (nächstes Treffen: Do 24. April 2014)
  - Administration
  - Business Intelligence
  - Cloud
  - Development
- SQL Saturday Vienna

Fragen?

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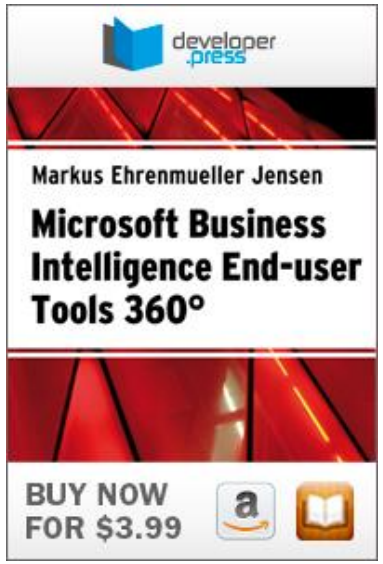
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