

Microsoft Entwickler-Update 2016

Azure

Neues in der MS Cloud



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The logo for www.IT-Visions.at features the text "www.IT-Visions.at" in a bold, black, sans-serif font. A blue swoosh underline starts under the "w" and ends under the "t". A registered trademark symbol (®) is located to the upper right of the "s".

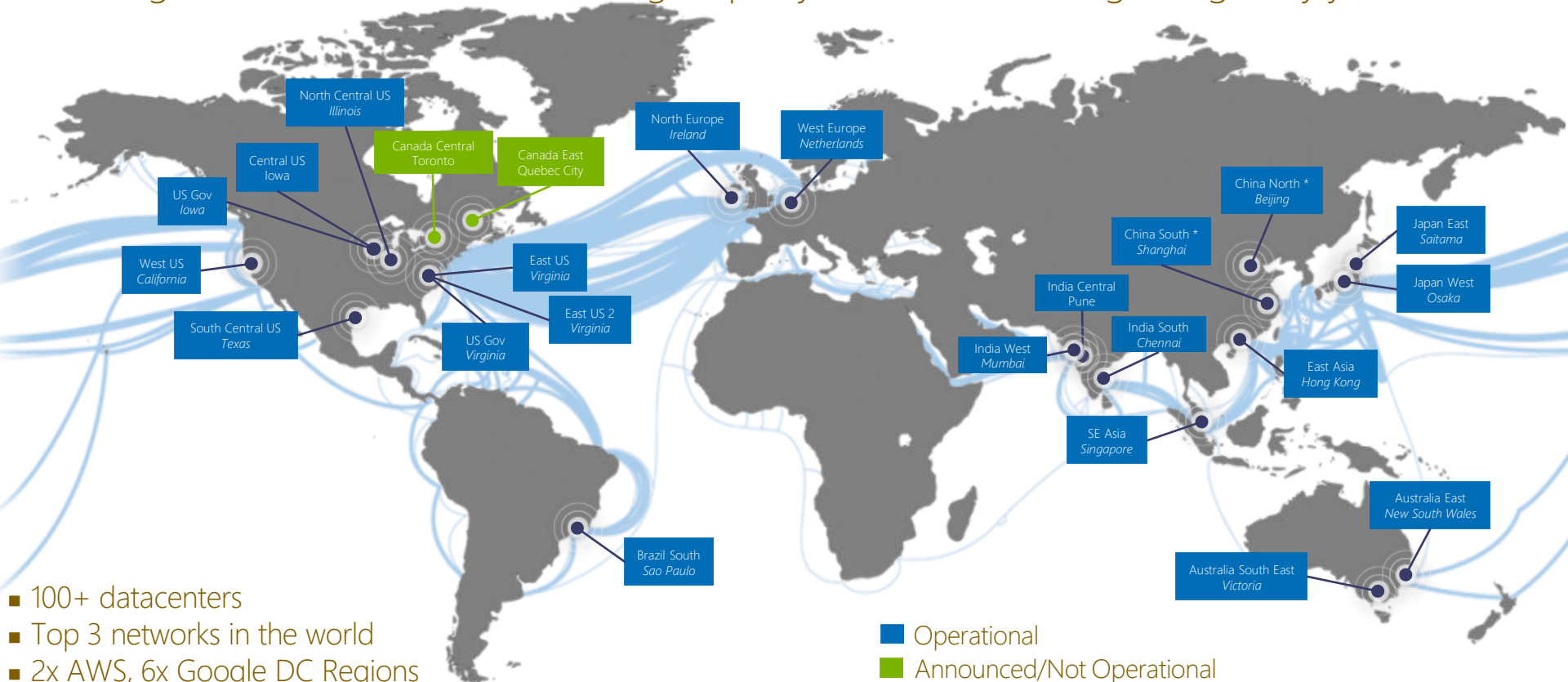
Agenda

- ▶ Azure State of the Union
- ▶ Azure Portal
- ▶ Azure Resource Manager
- ▶ DocumentDB
- ▶ Azure SQL Database News
- ▶ Azure App Services News

Azure 101

Hyper scale Infrastructure is the enabler

24 Regions Worldwide, 22 ONLINE...huge capacity around the world...growing every year



- 100+ datacenters
- Top 3 networks in the world
- 2x AWS, 6x Google DC Regions
- G Series – Largest VM in World, 32 cores, 448GB Ram, SSD...

■ Operational
■ Announced/Not Operational
* Operated by 21Vianet

Source: Microsoft, Oct. 2015

Platform Services

Security & Management

- Portal
- Azure Active Directory
- Azure AD B2C
- Multi-Factor Authentication
- Automation
- Scheduler
- Key Vault
- Store/Marketplace
- VM Image Gallery & VM Depot

Services Compute

- Cloud Services
- Service Fabric
- Batch
- RemoteApp

Integration

- Storage Queues
- BizTalk Services
- Hybrid Connections
- Service Bus

Media & CDN

- Media Services
- Content Delivery Network (CDN)

Web and Mobile

- Web Apps
- API Apps
- Mobile Apps
- Logic Apps
- API Management
- Notification Hubs

Developer Services

- Visual Studio
- Azure SDK
- VS Online
- App Insights

Data

- SQL Database
- Data Warehouse
- DocumentDB
- Redis Cache
- Azure Search
- Storage Tables

Analytics & IoT

- HDInsight
- Machine Learning
- Stream Analytics
- Data Lake
- Data Factory
- Event Hubs
- Data Catalog
- IoT Hub
- Mobile Engagement

Hybrid Operations

- Azure AD Health Monitoring
- AD Privileged Identity Management
- Domain Services
- Backup
- Operational Analytics
- Import/Export
- Azure Site Recovery
- StorSimple

Infrastructure Services

OS/Server Compute

- Virtual Machines
- Container Service

Storage

- BLOB Storage
- Azure Files
- Premium Storage

Networking

- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- App Gateway

Datacenter Infrastructure (24 Regions, 22 Online)



Azure momentum

> 90,000

New Azure customer
subscriptions/month

1.5 Million

SQL databases
in Azure

> 60 Trillion

Storage objects
in Azure

475 Million

Azure Active
Directory Users

3 Million

Developers registered
with Visual Studio Team Services

> 40%

Revenue from
Start-ups and ISVs

Azure Portal

Endlich RTM 😊

Neues Azure-Portal

- ▶ <https://portal.azure.com>
- ▶ Zentraler Einstiegspunkt für Azure-Management
 - Erweiterbar, skalierbar, konsistent
 - Ressourcen erstellen, verändern und überwachen
- ▶ Marktplatz
- ▶ Hochgradig personalisierbar

Demo

Azure Portal

The screenshot shows the Microsoft Azure Portal interface. At the top, the header includes the 'Microsoft Azure' logo, a search bar for resources, and the user profile 'Rainer Stropek' with the role 'SOFTWARE ARCHITECT@S.GMBH'. The main dashboard is divided into several sections:

- Service health MY RESOURCES:** A world map with green location markers indicating service health across different regions.
- Marketplace:** A section for discovering, purchasing, and managing add-ons and services from Microsoft partners.
- What's new:** A section for staying updated on the latest Azure features and announcements.
- Feedback:** A section for providing feedback on the Azure Portal.
- Azure classic portal:** A link to access the classic Azure management interface.
- All resources ALL SUBSCRIPTIONS:** A list of resources across all subscriptions, including:
 - timecockpitreporting
 - CSB.Web.AddressMa
 - DefaultServerFarm
 - AdventureWorks2012
 - bwuxg4eqdg
 - gab-austria-2016-cfp
 - gab2016
 - gab2016
 - aspnet5sample2
- Help + support:** A section for accessing help and support resources.
- gab2016:** A section for managing the 'gab2016' subscription.

The left-hand navigation pane includes options for 'New', 'Resource groups', 'All resources', 'Recent', 'SQL databases', 'Virtual machines (classic)', 'Virtual machines', 'Cloud services (classic)', 'Subscriptions', 'App Services', and 'App Service plans'. The Windows taskbar at the bottom shows the time as 08:41 on 24.01.2016.

Azure Resource Manager

Why do we need ARM?

Azure Service Management

- ▶ Azure Service Management API is the version 1 that provided programmatic access for functionality in the Azure platform.
Exposed as a REST API
- ▶ ASM was XML based and the scripts can be used via PowerShell, CLI
- ▶ ASM can be used to configure Cloud Services, Storage accounts, Virtual Networks.
- ▶ Security Certificates uploaded via Management portal and separated from the binary package required by the cloud app.

ASM: Challenges and Limitations

- ▶ There is no way to specify multi-region or multi-service in a single script.

Different scripts were used for targeting various services and the execution was orchestrated by the tool

- ▶ Used Affinity Groups concept for close proximity hints

- ▶ No consistency in the API exposed by services

XML, some used JSON

ASM: Challenges and Limitations

- ▶ Organizing 1000s of resources across the organization was hard.
- ▶ Limited access control exposed in the model.
Subscription co-administrator for providing user access
- ▶ Limited auditing available from the portal
The **List Subscription Operations** operation returns a list of create, update, and delete operations that were performed on a subscription during the specified timeframe.

Consistent Management Layer

Tools



Microsoft Azure



Command Line



Visual Studio

AZURE RESOURCE MANAGER API

RESOURCE MANAGER



Cloud + On-Premises



ADFS

AAD

RESOURCE PROVIDER CONTRACT

Provider Rest Points



Areas of Focus



Deploy



Organize



Control

Deploying with ARM

- ▶ template-driven
- ▶ declarative
- ▶ idempotent
- ▶ multi-service
- ▶ multi-region
- ▶ extensible

Demo

ARM

ARM Templates

<https://github.com/rstropek/Samples/tree/master/ArmWorkshop>

ARM in Visual Studio

DocumentDB

Dokumentenorientiertes NoSQL als PaaS Dienst

DocumentDB

▶ Dokumentenorientierte NoSQL Datenbank

JSON

▶ Besonderheiten

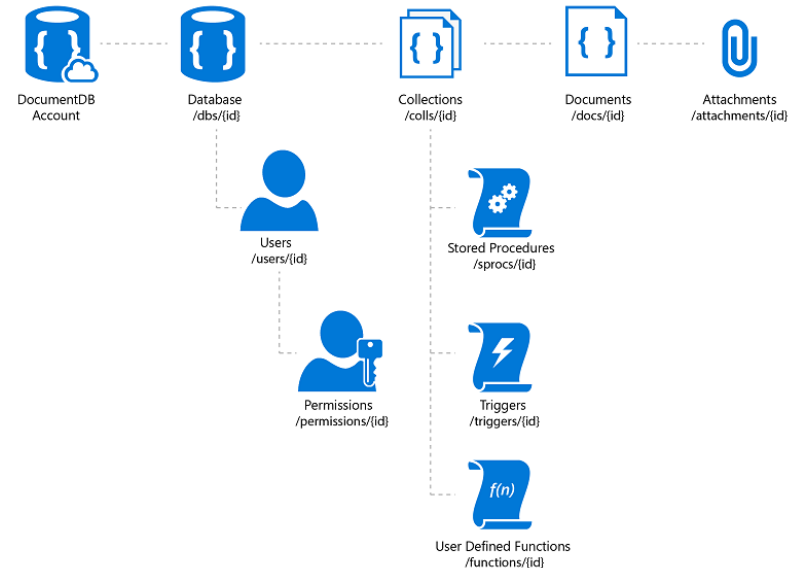
Schema-free, fully indexed
Ad hoc Abfragen mit "SQL"

JavaScript in der DB

PaaS, Skalierbarkeit

▶ SDKs

.NET, Node.js, Java, JavaScript, Python



DocumentDB

▶ Was ist neu?

General Availability (April 2015)

Neue Regionen, größere DBs, funktionale Erweiterungen

Mehr dazu: <https://azure.microsoft.com/de-de/blog/tag/documentdb/>

Demo

DocumentDB

Azure Portal

cloudportam.com

Azure SQL Database

Weitere Infos: <https://azure.microsoft.com/en-us/blog/tag/sql/>

SQL Database (v12)

- ▶ General Availability
- ▶ Neuerungen
 - Wesentlich höhere Kompatibilität mit on-premise SQL Server
 - Bessere Performance (mehr DTUs ohne Preiserhöhung)
- ▶ Elastic Database Pools
 - DTUs auf viele DBs verteilen, um Kosten zu sparen
 - Elastic DB Jobs

Microsoft Azure | SQL databases > SQL elastic pools

Search resources

Rainer Stropke
SOFTWARE ARCHITECTS GMBH

SQL elastic pools

Essentials

Resource group: Default-SQL-NorthEurope
Server version: V12
Status: Available
Location: North Europe

Server name: [\[redacted\].database.windows.net](#)
Server version: V12
Connection strings: [Show database connection strings](#)
Pricing tier: [\[redacted\]](#)
Geo-Replication role: Not configured

All settings →

NAME	PRICING TIER	POOL EDTU
[redacted]	Standard Pool	100

Usage

DTU quota: 0.9% (CURRENT: 200 DTU, QUOTA: 22500 DTU)

Database quota: Unlimited

Elastic pool monitoring

Resource utilization

DTU PERCENTAGE: 12.59%
STORAGE PERCENTAGE: 5.29%

Pool eDTU: 100 eDTU
Pool GB: 100 GB

Elastic database monitoring

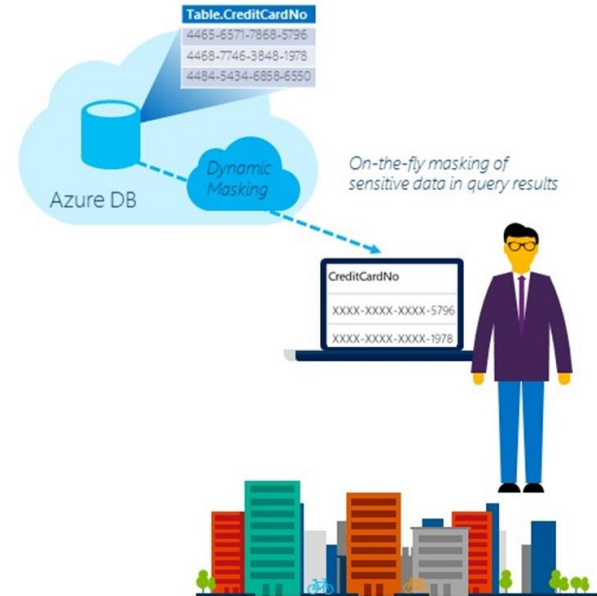
eDTU per database

Elastic databases

Elastic Database Pools

Security

- ▶ **Dynamic Data Masking**
Sicherheitskritische Daten maskieren
Keine Programmänderung notwendig
Konfigurierbar über Policies im Azure-Portal
- ▶ **Row-Level Security**
Sicherheit in Multi-Tenant Apps



Demo

SQL Data Masking

Settings
AdventureWorks2012

- Pricing tier (scale DTUs)
- Tags
- MONITORING
 - Alert rules
 - Database size
 - Events
- SECURITY
 - Auditing & Threat detection
 - Dynamic data masking**
 - Transparent data encryption
- FEATURES
 - Index Advisor
 - Query Performance Insight (preview)

Dynamic data masking
AdventureWorks2012

Save Discard **Add Mask** Feedback

Masking Rules

MASK NAME	MASK FUNCTION
Person_EmailAddress_EmailAddress	Email (aXXXX@XXXX.com)

SQL users excluded from masking (administrators are always excluded) ⓘ
SQL users excluded from masking (administrators are always excluded) ✓

Recommended fields to mask

SCHEMA	TABLE	COLUMN	
Person	Address	AddressID	ADD MASK
Person	Address	AddressLine1	ADD MASK
Person	Address	AddressLine2	ADD MASK
Person	AddressType	AddressTypeID	ADD MASK
Person	BusinessEntityAddress	AddressID	ADD MASK
Person	BusinessEntityAddress	AddressTypeID	ADD MASK
Person	EmailAddress	EmailAddressID	ADD MASK

Edit Masking Rule

Update Discard Delete

Mask Name
Person_EmailAddress_EmailAddress

Select what to mask

Schema
Person

Table
EmailAddress

Column
EmailAddress

Select how to mask

Masking Field Format
Email (aXXX@XXXX.com)

Security

▶ Contained Database Users

Kein Login in der *master* DB mehr 😊

Backup/Restore, Failovers etc.

```
CREATE USER user WITH PASSWORD='password';
```

▶ *Azure Active Directory Authentication* für SQL Databases

Ähnlich *Windows Authentication* in SQL Server

Benutzt *Contained Database Users*

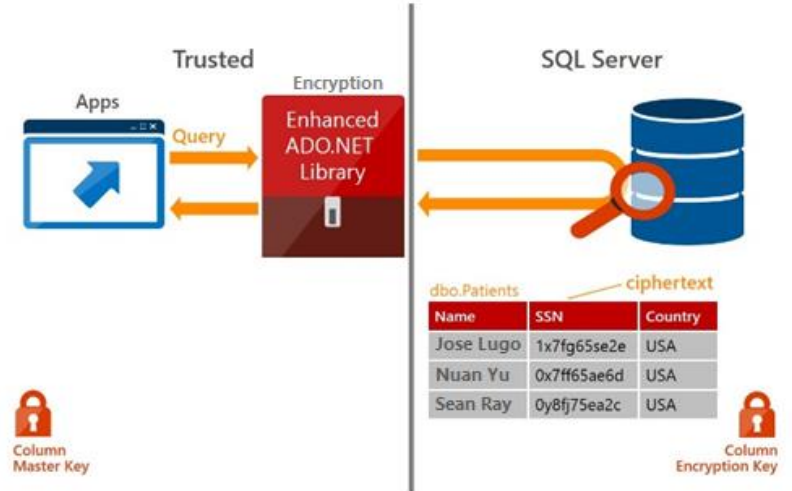
▶ *Transparent Data Encryption* (Preview)

Verschlüsselung aller gespeicherten Daten (DB, Log, Backup) zur Laufzeit

Keine Programmänderungen notwendig

Security

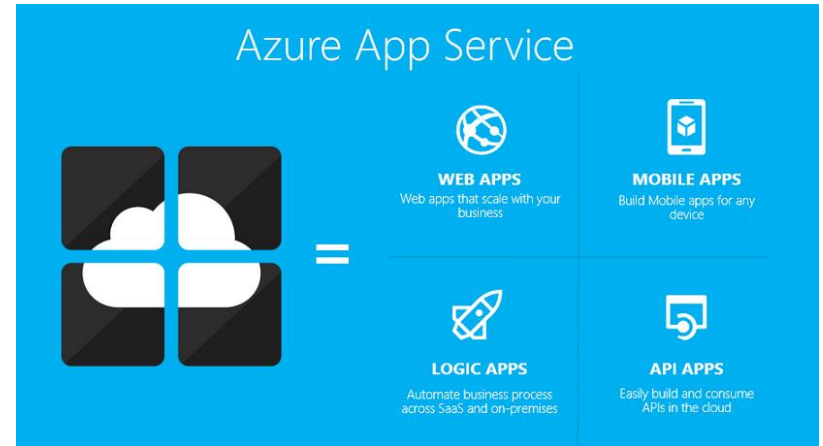
- ▶ *Always Encrypted*
Verschlüsselung der Daten auf Client-Seite



App Services

Azure App Services

- ▶ Web Apps + Mobile Services
Keine Trennung mehr
- ▶ Neu: Logic und API Apps



Demo

Logic und API Apps

Swagger

API App

Logic App

App Services

- ▶ Unterstützung von ASP.NET 5 (aka ASP.NET Core 1.0)
- ▶ Slot Settings
 - Settings, die beim Swap nicht übertragen werden
 - Für z.B. Testdatenbanken

Demo

App Services

Slot Settings

Microsoft Entwickler-Update 2016

Danke

für die Aufmerksamkeit



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 **www.IT-Visions.at**®