

# Implement Scalable Database Solutions using Azure SQL (DP-300)

## Der SQL Server in der Cloud

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Seminar	4 Termine verfügbar	Teilnahmebescheinigung
Präsenz / Virtual Classroom	32 Unterrichtseinheiten	Online durchführbar

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Dieses Training vermittelt Ihnen die Kenntnisse und Fähigkeiten zur Verwaltung einer SQL Server-Datenbankinfrastruktur für Cloud relationale Datenbanken, die mit den Datenbankangeboten von Microsoft Azure Plattform as a Service (PaaS) arbeiten. Darüber hinaus wird es für Lösungsentwickler von Nutzen sein, die Anwendungen entwickeln, welche Inhalte aus SQL-basierten Datenbanken liefern.

## Nutzen

In diesem Seminar liegen die Schwerpunkte auf folgenden Azure basierenden Datenbank-Themen:

- Planung, Bereitstellung und Konfiguration von Azure SQL-Angeboten in der Cloud.
- Überwachen der Datenbankperformance und Abstimmung einer Datenbank und Datenabfragen auf optimale Leistung.
- Planung und Konfiguration einer Hochverfügbarkeitslösung für Azure Datenbanken.

## Zielgruppe

Die Zielgruppe dieses Kurses sind Datenprofis, die Daten sowie Datenbanken verwalten und sich über die Verwaltung der auf Microsoft Azure verfügbaren Datenplattformtechnologien informieren möchten. Dieser Kurs ist auch sinnvoll für Datenarchitekten und Anwendungsentwickler, die verstehen müssen, welche Technologien für die Datenplattform mit Azure verfügbar sind und wie man mit diesen Technologien durch Applikationen arbeitet.

# Voraussetzungen

Sie sollten bereits über Azure und Cloud Grundkenntnisse verfügen, wie sie im Azure Fundamentals Seminar AZ-900 vermittelt werden. Erfahrungen mit relationellen Datenbanken wie dem SQL Server sind sehr zu empfehlen, um den optimalen Lernerfolg aus diesem Seminar zu ziehen.

## Inhalte des Seminars

### Module 1: The Role of the Azure Database Administrator

This module explores the role of a database administrator in the world of Azure. It also provides some foundational information relevant to the overall content. This includes a review of the various SQL Server-based options (SQL Server in a VM, Managed Instances, and Azure SQL Database.) Students will learn why compatibility level is a crucial concept when working with SQL databases in Azure. Students are also introduced to other database platforms available on Azure in addition to those based on SQL Server, in particular PostgreSQL and MySQL

- Azure Data Platform Roles
- Azure Database Platforms and Options
- SQL Server Compatibility Levels
- Azure Preview Features

### Module 2: Plan and Implement Data Platform Resources

This module introduces methods for deploying data platform resources in Azure. You will learn about options for both upgrading and migrating existing SQL databases to Azure. You will learn how to set up Azure resources to host SQL Server on a Virtual Machine, a Managed Instance, Azure SQL Database and either PostgreSQL or MySQL. You will learn how to determine which options are best based on specific requirements including the High Availability and Disaster Recovery (HADR) needs. They will learn to calculate resource requirements and create templates for their deployments.

- Deploying SQL Server using IaaS
- Deploying SQL Server using PaaS
- Deploying Open Source Database Solutions on Azure

## Module 3: Implement a Secure Environment

This module explores the practices of securing your SQL Server Database as well as an Azure SQL database. This includes a review of the various SQL Server-based options as well as the various Azure options for securing Azure SQL Database as well as the databases with reside within Azure SQL Database. Students will learn why security is crucial when working with databases. Students are also introduced to other database platforms available on Azure in addition to those based on SQL Server, in particular, Azure Database for MariaDB/MySQL/PostgreSQL

- Configure Database Authentication
- Configure Database Authorization
- Implement Security for Data at Rest
- Implement Security for Data in Transit
- Implement Compliance Controls for Sensitive Data

## Module 4: Monitor and Optimize Operational Resources

This module will teach you about resource optimization for your databases created using either IaaS or PaaS services. The module also covers monitoring server and hardware resources. It will familiarize you with the various tools available for monitoring performance and establishing a baseline. You will learn how to interpret performance metrics for the most critical resources. You will also learn how to troubleshoot database performance using Azure SQL Database Intelligent Insights.

- Baselines and Performance Monitoring
- Major Causes of Performance Issues
- Configuring Resources for Optimal Performance
- User Database Configuration

- Performance-related Maintenance Tasks

## Module 5: Optimize Query Performance

Query execution plans are potentially the most important aspect of database performance. Improving bad plans is certainly an area where a small amount of effort can bring huge improvements. While hardware issues can limit query performance, improving hardware usually yields performance improvements in the 10-20% range, at most. More commonly database administrators encounter queries that are not optimized, have stale or missing statistics, have missing indexes, or poor database design choices that lead to the database engine doing more work than is necessary to return results for a given query. Improving the plans can sometimes yield performance improvements in the 100-200% range or even more, meaning that after improving a plan with better indexes or statistics, a query could run twice or three times as fast! This module provides details on how to analyze individual query performance and determine where improvements can be made.

- Understanding SQL Server Query Plans
- Explore Performance-based Database Design
- Evaluate Performance Improvements

## Module 6: Automation of Tasks

A common goal for database administrators in many environments is to automate as many of their repetitive tasks. This can be as simple as using scripting to automate a backup process, and as complex as building a fully automated alerting system. This module provides details of automating tasks to simplify the DBAs job. Methods include scheduling tasks for regular maintenance jobs, as well as multi-instance administration and configuration of notifications for task success or failure or non-completion.

- Setting up Automatic Deployment
- Defining Scheduled Tasks
- Configuring Extended Events
- Managing Azure PaaS resources Using Automated Methods

## Module 7: Plan and Implement a High Availability and Disaster Recovery (HADR) Environment

Data must be available when the business needs it. That means the solutions hosting the data must be designed with availability and recoverability in mind. Suppose you work for a company that sells widgets both in stores and online. Your main application uses a highly transactional database for orders. What would happen if the server or platform hosting the transactional database had a problem that made it unavailable or inaccessible for some reason? What impact would it have on the business? If the right solution is put in place, the database would come online in a reasonable timeframe with minimal effort, thus allowing business to continue with little-to-no impact. This module and its associated lab cover configuring, testing, and managing a solution for high availability and disaster recovery (HADR) in Azure, for both Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) deployments. This module will not only cover basic requirements, but also the various options available to achieve HADR.

- High Availability and Disaster Recovery Strategies
- IaaS Platform and Database Tools for HADR
- PaaS Platform and Database Tools for HADR
- Database Backup and Recovery

## Wichtige Hinweise

Dieses Training bereitet auch auf das Examen DP-300 zum [Microsoft Certified: Azure Database Administrator Associate](#) Abschluss vor.

Damit Sie von einer möglichst hohen Durchführungschance profitieren, behalten wir uns vor, bei Bedarf mit dem autorisierten Microsoft Partner ETC – Enterprise Training Center GmbH zusammenzuarbeiten.

## Terminübersicht und Buchung

Buchen Sie Ihren Wunschtermin jetzt direkt online unter <https://akademie.tuv.com/s/29518> und profitieren Sie von diesen Vorteilen:

- Schneller Buchungsvorgang
- Persönliches Kundenkonto
- Gleichzeitige Buchung für mehrere Teilnehmer:innen

Alternativ können Sie das Bestellformular verwenden, um via Fax oder E-Mail zu bestellen.