



# 40441: Designing and Implementing Cloud Data Platform Solutions

## About this course

The focus of this three-day instructor-led Microsoft Training course is on designing and implementing cloud data platform solutions with the Microsoft Data Platform by using SQL Server on-premises, hybrid and cloud data platform solutions. It describes how to design and implement and optimize workloads in hybrid scenarios with both on-premises and Microsoft Azure cloud-based solutions, and how to implement high availability and disaster recovery solutions.

## Audience profile

The primary audience for this course are database professionals who want to enhance their existing SQL Server skills with hybrid solutions and cloud solution architecture using the Microsoft Data Platform.

## At course completion

### After completing this course, students will be able to:

- Position Microsoft Cloud Data Platform Solutions
- Design and implement solutions on Azure using SQL Server
- Design and implement solutions on Azure using SQL Database
- Design and implement security, access and auditing for cloud data platform solutions
- Design highly scalable mission critical solutions using the Microsoft Data Platform
- Design and implement cloud data platform solutions.



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## Course Outline

### Module 1: Microsoft Cloud Data Platform Overview

This module provides an overview of the Microsoft Data Platform Solutions in Hybrid and Cloud based scenarios. The module provides an overview of offerings and capabilities.

#### Lessons

Microsoft Cloud Data Platform

Microsoft SQL Server

Common Tools

Cloud Data Offerings

Data Visualizations

Cortana Analytics Suite

### Module 2: Implement SQL Server on Azure VM

This module with a hands-on-lab describes the core capabilities of running SQL Server in a virtual machine environment (IAAS) on Azure.

#### Lessons

Virtual machine components

Storage Architecture

Azure deployment models

Virtual machine tiers

Virtual machine deployments

Deployment scenarios

Move existing workloads

Connecting to Azure VMs



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Domain joining VMs

VM best practices

**Lab : SQL Server in Azure VMs**

## **Module 3: Implement SQL Database**

This module with a hands-on-lab describes the core capabilities of implementing data platform solutions using SQL Database on Azure. The module provides details in service tiers and offerings.

### **Lessons**

What is SQL Database

Data tiers/ Elastic data tiers

Scalability Options

Elastic Databases

Elastic Database Tools

SQL Database performance

Service Tier Advisor

**Lab : Implementing SQL Database**

## **Module 4: SQL Database High Availability and disaster recovery**

This module with a hands-on lab describes high availability and disaster recovery scenarios with SQL Database.

### **Lessons**

Business Continuity with SQL Database

SQL Database HA/DR

SQL Database Backup Solutions



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SQL Database Replication Scenarios

Lab : SQL Database HA/DR

## Module 5: Hybrid HA/DR scenarios with SQL Server

This module with a hands-on lab exercise describes the design of high available, scalable data platform solutions on-premises, in the cloud and in hybrid cloud scenarios using SQL Server on premises and with Azure VMs.

### Lessons

HA/DR deployment architectures

AlwaysOn availability groups

AlwaysOn Failover Clustering

Database Mirroring

Log Shipping

Backup to Azure

Managed Backups

SQL Server data files on Azure

**Lab : Implement HA/DR with SQL Server in Azure VMs**

## Module 6: Design and Implement Security

This module with a hands-on-lab describes the security features and capabilities in SQL Server in Azure VMs and SQL Database including firewalls and auditing.

### Lessons

SQL Database Security Approach

SQL Database Firewall Security



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SQL Database Active Directory Integration

Encryption

Row Level Security

Dynamic Data Masking

Auditing and Threat Detection

**Lab : Design and Implement SQL Database Security**

## **Module 7: Monitor and manage implementations on Azure**

This module with a hands-on-lab focuses on management and deployment, monitoring for performance of SQL Database and SQL Server in Azure VMs.

### **Lessons**

Azure Automation Capabilities

SQL Monitoring and Management

Operational Insights

**Lab : Monitoring and manage implementations**

## **Module 8: Design and implement database solutions for SQL Server and SQL Database**

This module covers design and architecture scenarios for implementation of database solutions using the Microsoft Cloud Data Platform. This module introduces key scenarios to discuss with classroom attendees in order to build out the right architecture and infrastructure based on architecture and business requirements.

### **Lessons**

Case Study – SQL Server Hybrid Scenario

Case Study – Lift and Shift



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## Prerequisites

Students must have a good understanding of SQL Server and pre-existing MCSE Data Platform certification or equivalent professional experience.