MS-DP3001: MIGRATE SQL SERVER WORKLOADS TO AZURE SQL DATABASE

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
1 Day	Intermediate	Azure Data	Instructor-led	NA

INTRODUCTION

This learning path prepares you for the task of migrating SQL Server workloads to Azure SQL Database.

You'll learn how to assess SQL Server components and compatibility for migration using the Azure SQL Migration Extension and Database Migration Assistant. This training guides you through the process of provisioning and configuring Azure SQL Database resources. You gain hands-on experience in choosing the best migration option to meet business requirements for downtime, handling migration state, and monitoring database migration.

Additionally, you'll also learn to perform post-migration tasks like disaster recovery and monitoring for Azure SQL Database. These skills are essential for ensuring a smooth, efficient transition to Azure SQL Database, and maintaining its operation post-migration.

AUDIENCE PROFILE

The primary audience includes:
- Database Administrators: Those who manage and maintain SQL Server databases.
- Data Engineers: Professionals responsible for designing and implementing data solutions and pipelines.
- Solution Architects: Individuals who design and oversee the implementation of complex data solutions.
- DevOps Engineers: Engineers involved in the deployment and management of applications and databases.
- Support Engineers: Technical support providers for database systems.
- Developers: Software developers working with SQL Server databases who need to understand migration processes.

PREREQUISITES

Before attending this course, delegates must have:
- Experience with SQL Server databases.
- Knowledge of SQL Server editions and versions.
- Basic knowledge of security concepts like identities and permissions.
- Experience using the Azure portal to create resources and set permissions.

COURSE OBJECTIVES

After completion of this course, you will be able to:
- Design a SQL Server Migration Strategy: Learn to plan and design an effective migration strategy tailored to specific business needs1.
- Assess SQL Server Databases for Migration: Evaluate existing SQL Server databases to determine their readiness for migration1.
- Deploy PaaS Solutions with Azure SQL: Understand how to deploy Platform as a Service (PaaS) solutions using Azure SQL1.
- Configure Database Authentication and Authorization: Set up and manage authentication and authorization for databases in Azure1.
- Perform Post-Migration Configuration: Configure databases after migration to ensure optimal performance and security2.
- Configure Disaster Recovery: Implement disaster recovery solutions to protect data and ensure business continuity2.
- Use Migration Tools: Utilize various tools and methods for migrating databases, including Azure Data Studio and transactional replication3.
- Optimize Performance: Learn techniques to optimize database performance and application connections post-migration.

COURSE CONTENT

Module 1: Design a SQL Server migration strategy
In this module, you'll learn the phases of a migration and the steps involved to ensure your migration project is executed smoothly. You'll also learn the purpose of data platform modernization and see the benefits it can bring to your organization.

Lessons

– Introduction.
– Examine data platform modernization.
– Plan a data migration.
– Explore the available data migration technologies.
– Exercise: Compare on-premises Azure costs.
– Knowledge check.
– Summary.

By the end of this module, you'll be able to:

– Explain what data platform modernization is.
– Review the stages of a data migration.
– Recommend when to use an Azure data platform technology.
– Explore the cost savings of moving your SQL workloads to Azure.

Module 2: Assess SQL Server databases for migration to Azure SQL
Assessment tools such as Azure SQL Migration extension for Azure Data Studio, Azure Migrate, and Data Migration Assistant facilitate the migration of SQL Server databases to Azure.

Lessons

– Introduction.
– Review database for compatibility.
– Explore assessment options for database migration.
– Assess a database with Azure Migration extension.
– Assess a database with Azure Migrate.
– Assess a database with Data Migration Assistant.
– Exercise: Identify compatibility issues.
– Knowledge check.
– Summary.

By the end of this module, you'll be able to:

– Understand common compatibility issues and blockers that may prevent a migration to Azure SQL.
– Discover the various tools and options available for assessing SQL Server databases for migration purposes.
– Use the Azure migration extension for Azure Data Studio to assess SQL Server databases.
– Use the Azure Migrate to assess SQL Server databases.
– Use Data Migration Assistant (DMA) to assess SQL Server databases.

Module 3: Deploy IaaS solutions with Azure SQL
Configure virtual machine sizing, storage, and networking options to ensure adequate performance for your database workloads. Choose and configure appropriate high availability options.

Lessons

– Introduction
– Explain IaaS options to deploy SQL Server in Azure
– Understand hybrid scenarios
– Explore performance and security
– Explain high availability and disaster recovery options
– Exercise: Provision a SQL Server on an Azure Virtual Machine
– Knowledge check
– Summary

By the end of this module, you'll be able to:

– Explore the basics of SQL Server in an Infrastructure as a Service (IaaS) offering
– Learn the available options for provisioning and deployment
– Deploy SQL Server into an Azure Virtual Machine

Module 4: Deploy PaaS solutions with Azure SQL
Provision and deploy Azure SQL Database and Azure SQL managed instance. Select the appropriate options when performing a migration to the SQL PaaS platform.

Lessons

– Introduction.
– Explain PaaS options for deploying SQL Server in Azure.
– Explore single SQL database.
– Deploy SQL database elastic pool.
– Understand SQL database hyperscale.
– Examine SQL managed instance.
– Describe SQL Edge.
– Exercise: Deploy an Azure SQL Database.
– Knowledge check.
– Summary.

By the end of this module, you'll be able to:

– Gain an understanding SQL Server in a Platform as a Service (PaaS) offering.
– Understand PaaS provisioning and deployment options
– Understand elastic pools.
– Examine Azure SQL Managed Instances.
– Explore Azure SQL Edge.
– Configure a template for PaaS deployment.

Module 5: Migrate SQL Server workloads to Azure Virtual Machine
You explore different migration tools and migrate SQL Server databases to Azure Virtual Machine.

Lessons

– Introduction.
– Review migrations strategies and tools.
– Explore Azure SQL Migration extension for Azure Data Studio.
– Understand Data Migration Assistant.
– Understand distributed availability group for migration.
– Migrate databases using native backup and restore.
– Compare additional migration methods.
– Exercise: Migrate SQL Server databases to SQL Server on Azure Virtual Machine.
– Knowledge check.
– Summary.

By the end of this module, you'll be able to:

– Understand the importance of careful planning for a successful migration of SQL Server workloads to Azure Virtual Machines.
– Migrate databases using Azure SQL Migration extension for Azure Data Studio and tracking database migration activities to SQL Server on Azure Virtual Machines.
– Explore several other methods for migrating SQL Server databases to Azure Virtual Machines.

Module 6: Migrate SQL Server workloads to Azure SQL Database
You will explore different migration tools and migrate SQL Server databases to Azure SQL Database.
Lessons

- Introduction.
- Choose the right Azure SQL Database feature.
- Use Azure SQL migration extension to migrate to Azure SQL Database.
- Explore Data Migration Assistant to migrate to Azure SQL Database.
- Migrate to Azure SQL Database using BACPAC.
- Use an online method to migrate to Azure SQL Database.
- Move data to Azure SQL Database.
- Exercise - Migrate a SQL Server database to Azure SQL Database.
- Knowledge check.
- Summary.

By the end of this module, you'll be able to:
- Explore the advantages, capabilities, and migration possibilities offered by Azure SQL Database.
- Migrate databases using Azure SQL Migration extension for Azure Data Studio and tracking database migration activities.
- Use the Data Migration Assistant (DMA) tool to facilitate SQL Server migrations to Azure SQL Database.
- Use transactional replication as an online method to migrate to Azure SQL Database.
- Explore several other methods for migrating SQL Server databases to Azure SQL Database.

Module 7: Migrate SQL Server workloads to Azure SQL Managed Instance
You'll explore different migration tools and migrate SQL Server databases to Azure SQL Managed Instance.
Lessons

- Introduction.
- Describe Active Directory and Microsoft Entra ID.
- Describe authentication and identities.
- Describe Security Principals.
- Describe database and object permissions.
- Identify authentication and authorization failures.
- Exercise: Authorize Access to Azure SQL Database with Microsoft Entra ID.
- Knowledge check.
- Summary.

By the end of this module, you'll be able to:
- Learn about authentication options for Azure SQL Database.
- Create various security principals.
- Configure permissions within a SQL database.
- Identify authentication and authorization failures.

Module 8: Perform post-migration tasks on Azure SQL
You'll explore different features and tools to help you maintain Azure SQL environments.
Lessons

- Introduction.
- Migrate SQL logins and groups.
- Implement security to protect Azure SQL.
- Implement compliance controls for sensitive data.
- Monitor database performance.
- Configure high availability and disaster recovery.
- Automate database tasks for scalability.
- Exercise: Configure geo-replication for Azure SQL Database.
- Knowledge check.
- Summary.

In this module, you'll practice how to:
- Implement compliance controls for sensitive data.
- Monitor database performance in Azure SQL.
- Configure high availability and disaster recovery in Azure SQL.
- Automate database tasks for scalability.

ASSOCIATED CERTIFICATIONS & EXAM

There is no Associated certification & Exam for this course, however, there is an assessment to achieve your Applied Skills credential. (Assessment Link)