

KOENIG SOLUTIONS • COURSE OUTLINE

DP-300T00-A: Implement Scalable Database Solutions Using Azure SQL

Learn to deploy, secure, monitor, optimise and automate database solutions on Azure SQL, including high availability and disaster recovery.

4 Days

DURATION

6

MODULES

91

TOPICS

COURSE OVERVIEW

This course provides students with the knowledge and skills to create a SQL Server database infrastructure for cloud, on-premises and hybrid relational databases and who work with the Microsoft PaaS relational database offerings. Additionally, it will be of use to individuals who develop applications that deliver content from SQL-based relational databases.

WHO THIS COURSE IS FOR

The audience for this course is data professionals managing data and databases who want to learn about administering the data platform technologies that are available on Microsoft Azure

This course is also valuable for data architects and application developers who need to understand what technologies are available for the data platform with Azure and how to work with those technologies through applications

LEARNING OBJECTIVES

- Plan and implement IaaS and PaaS data platform resources in Azure
- Migrate SQL Server workloads to Azure SQL Database and Managed Instance
- Configure database authentication, authorisation and encryption
- Implement compliance controls such as data classification and auditing
- Monitor and optimise SQL Server and database performance
- Optimise query performance through indexing and query design
- Automate database deployment using templates and PowerShell
- Plan high availability and disaster recovery strategies for Azure SQL

6 Modules, 91 Topics

01

Plan and Implement Data Platform Resources

PREPARE TO MAINTAIN SQL SERVER-BASED DATABASES ON AZURE

- Describe Microsoft Intelligent Data Platform roles
- Understand SQL Server in an Azure virtual machine
- Design Azure SQL Database for cloud-native applications
- Explore Azure SQL Managed Instance

DEPLOY IAAS SOLUTIONS WITH AZURE SQL

- Explain IaaS options to deploy SQL Server in Azure
- Understand hybrid scenarios
- Explore performance and security
- Explain high availability and disaster recovery options

DEPLOY PAAS SOLUTIONS WITH AZURE SQL

- 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

MIGRATE SQL SERVER WORKLOADS TO AZURE SQL DATABASE

- Choose the right Azure SQL Database feature
- Use Azure SQL migration extension 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

MIGRATE SQL SERVER WORKLOADS TO AZURE SQL MANAGED INSTANCE

- Evaluate migration scenarios
- Use Log Replay Service LRS to migrate
- Migrate using Managed Instance link
- Move data to SQL Managed Instance

02

Implement a Secure Environment for a Database Service

CONFIGURE DATABASE AUTHENTICATION AND AUTHORIZATION

- Describe authentication and identities
- Describe Security Principals
- Describe database and object permissions
- Identify authentication and authorization failures

PROTECT DATA IN-TRANSIT AND AT REST

- Explore Transparent Data Encryption
- Configure server and database firewall rules
- Explain object encryption and secure enclaves
- Enable encrypted connections
- Describe SQL injection
- Understand Azure Key Vault

Implement a Secure Environment for a Database Service (continued)

IMPLEMENT COMPLIANCE CONTROLS FOR SENSITIVE DATA

- Explore data classification
- Explore server and database audit
- Implement Dynamic Data Masking
- Implement Row Level security
- Understand Microsoft Defender for SQL
- Explore Ledger
- Implement Microsoft Purview

03

Monitor and Optimize Operational Resources in Azure SQL

DESCRIBE PERFORMANCE MONITORING

- Describe performance monitoring tools
- Describe critical performance metrics
- Establish baseline metrics
- Explore extended events
- Describe database watcher preview
- Explore Query Performance Insight

CONFIGURE SQL SERVER RESOURCES FOR OPTIMAL PERFORMANCE

- Explain how to optimize Azure storage for SQL Server virtual machines
- Describe virtual machine resizing
- Optimize database storage
- Control SQL Server resources

CONFIGURE DATABASES FOR OPTIMAL PERFORMANCE

- Explore database maintenance checks
- Describe database scoped configuration options
- Describe automatic tuning
- Describe intelligent query processing

04

Optimize Query Performance in Azure SQL

EXPLORE QUERY PERFORMANCE OPTIMIZATION

- Understand query plans
- Explain estimated and actual query plans
- Describe dynamic management views and functions
- Explore Query Store
- Identify problematic query plans
- Describe blocking and locking

EXPLORE PERFORMANCE-BASED DATABASE DESIGN

- Describe normalization
- Choose appropriate data types
- Design indexes

EVALUATE PERFORMANCE IMPROVEMENTS

- Describe wait statistics
- Tune and maintain indexes
- Understand query hints
- Explore performance scenarios

05**Automate Database Tasks for Azure SQL****AUTOMATE DATABASE DEPLOYMENT**

- Describe deployment models in Azure
- Automate deployment by using Azure Resource Manager templates and Bicep
- Automate deployment by using PowerShell
- Automate deployment by using Azure CLI

CREATE AND MANAGE SQL AGENT JOBS

- Create a SQL Server maintenance plan
- Describe task status notifications

MANAGE AZURE PAAS TASKS USING AUTOMATION

- Explore Elastic jobs
- Understand Azure Automation
- Build an automation runbook
- Automate database workflows by using Logic Apps
- Monitor automated tasks

06**Plan and Implement a High Availability and Disaster Recovery Environment****DESCRIBE HIGH AVAILABILITY AND DISASTER RECOVERY STRATEGIES**

- Describe recovery time objective and recovery point objective
- Explore high availability and disaster recovery options
- Describe Azure high availability and disaster recovery features for Azure Virtual Machines
- Describe high availability and disaster recovery for PaaS deployments
- Explore high availability and disaster recovery solution for IaaS
- Describe hybrid solutions

EXPLORE IAAS AND PAAS SOLUTIONS FOR HIGH AVAILABILITY AND DISASTER RECOVERY

- Describe failover clusters in Windows Server
- Configure Always-on availability groups
- Describe active geo-replication for Azure SQL Database
- Explore auto-failover groups for Azure SQL Database and Azure SQL Managed Instance
- Monitor availability

BACK UP AND RESTORE DATABASES

- Back up and restore SQL Server running on Azure virtual machines
- Back up a SQL Server virtual machine
- Back up and restore a database for SQL Database and SQL Managed Instance

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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✉ info@koenig-solutions.com