SQL 2016 AlwaysOn High Availability

Description

This course is designed for database administrators and Windows engineers to familiarize them with the concepts in SQL AlwaysOn and High Availability. The course utilizes SQL 2016, but explains the differences from SQL 2012- SQL 2014.

Course Content
Module 01: Introduction

- Course introduction

Module 02: Alwayson and high availability concepts and terminology

- Concepts and Terminology
- Table of Availability
- High Availability
- Causes of Downtime
- Planned downtime
- Unplanned downtime
- Disaster Recovery
- Recovery Time Objective (RTO)
- Recovery Point Objective (RPO)
- Recovery Level Objective (RLO)
- Storage Area Networks (SAN)
- Edition Changes from SQL 2012
- SQL Server 2014 Changes
- SQL Server 2016 Changes
- Legacy Solutions prior to Always On
- Failover Cluster Instances
- Log Shipping
- A Typical Log Shipping Configuration
- Monitor Server
- Replication
- Database Mirroring
- Database Mirroring Terminology
- Principle
- Mirror
- Witness (red box in image above)
- Database Snapshots
- Limitations of legacy solutions:
- What do we mean by Always On?
- Table of Always On Comparison

Module 03: Windows server 2016 failover clustering

- Understanding Failover Clustering in Server 2016
- Statefull High Availability Solution

- Supported in both Standard and Datacenter
- Servers should run similar hardware
- Should run same edition
- Hyper-V best with datacenter
- Certified for Windows server logo
- Shared Storage
- Quorums
- Node Majority
- Node and Disk Majority configuration:
- Node and File Share Majority
- No Majority
- Configuration
- Cluster Networks Best Practices
- Connection to nodes to shared storage
- Private network for internal cluster
- Public network for client connections
- Cluster Aware Updating
- Virtual Machine Failover Clustering
- Preferred Owners
- Failover Failback
- Resources
- Dependences
- Heartbeat

Module 04: SQL 2016 failover cluster instances

- Failover Cluster Instance
- As A FCI Appears To A Client

Module 05: SQL 2016 alwayson availability groups

- Availability Groups and Replicas
- Primary Replica
- Secondary Replicas
- Availability Group Listener
- Availability Mode
- Synchronous Commit Mode
- Asynchronous Commit Mode
- Failover Modes
- Automatic Failover Without Data Loss
- Automatic Failover Requirements:
- Manual
- Manual Failover Requirements
- Common Topologies

Module 06: The Dasboard

- The Dashboard
- How to view logs
- Using replication with Logins
- Using partially contained databases

Module 07: Active Secondary Availability Group Actions

- Reporting with Secondary Replicas
- Configuring a Readable secondary
- Read-Only Routing
- Load Balancing
- Lab : Configure a Read-Only Secondary
- Database Backups with Secondary
- Steps of Backup Using secondary
- Backup Preference Options

Module 08: Maintenance

- DBCC Checks
- Database Adding and Removing

Module 09: Monitoring and troubleshooting availibility groups

- The Dashboard in Depth
- Events
- Policy Based Managemnt for Availability Groups

Lab / Exercises

- Online Labs

Documentation

- Digital courseware included

Participant profiles

- Experienced DBAs
- Windows Server Pros
- Team leaders

Prerequisites

- Experience as SQL DBA
- Experience as Windows IT PRO

Objectives

- Understand AlwaysOn High Availability
- Employ Server 2016 Failover Clustering
- Deploy SQL Failover Clusters
- Work with Availability Groups
- Perform maintenance
- Monitor and Troubleshoot Availability Groups

Niveau
Intermédiaire
Classroom Registration Price (CHF)
2500
Virtual Classroom Registration Price (CHF)
2350
Duration (in Days)

3
Reference
55246AC