SQL Server: AlwaysOn Availability Groups and Failover Cluster Instances - Setup and Configuration

WorkshopPLUS

Duration: 3 days

Focus Area: Availability and Business Continuity

Difficulty: 300 - Advanced

Overview

Learn how to setup and configure a High Availability (HA) and Disaster Recovery (DR) solution using Availability Groups and Failover Cluster Instances. Provides in-depth technical and architecture details of implementing SQL Server AlwaysOn Availability Groups (AG) and Failover Cluster Instances (FCI).

Objectives

After completing this training, students will be able to:

- Compare and understand HA and DR concepts
- Plan and implement Windows Server Failover Cluster
- Build AlwaysOn FCIs and AGs on the Windows Server Failover Cluster
- Deploy AGs to provide HA and DR for application databases
- Understand supported AG topologies
- Understand data synchronization internals
- Understand post installation tasks
- Configure active secondary replicas
- Maximize hardware utilization by offloading read-only workloads to the secondary replicas
- Understand considerations for a multi-subnet AlwaysOn environment

Key Takeaways

Course Material
- Understand HA and DR concepts
- Gain the practical experience and confidence required to manage SQL Server AlwaysOn HA and DR solutions
- Learn the tips, tricks and best practices for deploying SQL Server AlwaysOn AGs and FCIs
- Administer and maintain SQL Server AlwaysOn HA and DR solutions.

Hands-on Labs
- Most of the concepts covered above will be supported by hands-on labs and demos.
- Attendees have access to resources and labs for up to 6 months after workshop completion.

Agenda

Day 1
- Understanding High Availability and Disaster Recovery
- Implementing Windows Server Failover Cluster

Day 2
- Deploying Availability Groups
- Post Installation Tasks
- Secondary Replicas

Day 3
- Failover Cluster Instances
- Multi-Subnet Environments

Plan for three full days. Early departure on any day is not recommended.

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Course Details

Module 1: Understanding High Availability and Disaster Recovery

- Overview of High Availability and Disaster Recovery
- Introduction to AlwaysOn

Module 2: Implementing Windows Server Failover Cluster

- Overview of Windows Server Failover Cluster
- Creating Windows Failover Cluster
- Configuring Cluster Quorum

Module 3: Deploying Availability Groups

- Availability Groups Concept
- Availability Groups Topology
- What are the SQL Server prerequisites
- Creating Availability Groups using Wizards
- Automatically Initialize Availability Groups
- Creating Domain Independent Availability Groups
- Understanding Data Synchronization Internals
- Creating Distributed Availability Groups

Module 4: Post Installation Tasks

- Connecting to an Availability Group
- Configuring Flexible Failover Policy
- Replicating Logins and Jobs
- Maintaining Availability Groups

Module 5: Secondary Replicas

- Readable Secondary Considerations
- Routing a Read Only Workload
- Adding Azure Secondary Replicas to an On-Premises Availability Group

Module 6: Failover Cluster Instances

- Introduction to Failover Cluster Instances
- Creating Failover Cluster Instances
- Post Installation Tasks
- Configuring Flexible Failover Policy
- Maintaining Failover Cluster Instances

Module 7: Multi-Subnet Environments

- Considerations for Multi-Subnet Environments

Recommended Qualifications

This workshop is targeted at SQL Server Architects, Database Administrators, IT professionals, and SQL Server support staff. This is not a beginner's workshop or training targeted at SQL Server developers. We recommend the following qualifications:

- Basic knowledge of high availability and disaster recovery
- Experience in SQL Server
- Basic knowledge off windows failover cluster

The basic concepts of the product will not be covered in this course. It is expected that the attendees will already possess this knowledge.

Hardware Requirements

- An Intel Core-i5-based PC
- USB port
- Microsoft/Windows Live ID to connect to the virtual environment
- 4 GB RAM
- 128 GB HDD
- Windows 7 SP1 or later
- Office 2013 Professional Plus
- Internet access with at least 1 Mbps bandwidth per student.

For more information

Contact your Microsoft Account Representative for further details.

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