

SQL Server High Availability

Course Summary

Description

This course provides an in-depth review of SQL Server 2012 High Availability, including concepts for HA, drill-through of the various technologies available with SQL Server 2012, and how to implement high availability using those technologies. Troubleshooting and operational guidance will also be provided.

Objectives

At the end of this course, students will be able to:

- Design a SQL Server 2012 availability solution to meet their availability goals
- Implement that design using the available technologies in SQL Server 2012
- Implement system maintenance while understanding the availability implications
- Troubleshoot problems with High Availability in SQL Server 2012

Topics

- Course Overview and Introduction
- High Availability Overview
- Overview of Windows Server Failover Clustering
- AlwaysOn Failover Clustering
- AlwaysOn Availability Groups
- Legacy Database Mirroring
- Legacy Log Shipping
- Using Replication for High Availability
- High Availability Solutions Interoperability
- High Availability with Virtualization
- Meeting Your Availability Goals

Audience

This course is intended for those responsible for designing and implementing high availability solutions for SQL Server 2012.

Prerequisites

Before attending this course, it is recommended that students have the following skills:

- 1 year of SQL Server experience (not necessarily SQL Server 2012)
- 1 year of Windows Server 2008 (or later) experience

Recommendations:

- 1 year of Hyper-V experience
- 1 year of Windows Failover Clustering experience

Duration

Three days

SQL Server High Availability

Course Outline

- I. Course Overview and Introduction**
- II. High Availability Overview**
 - A. Defining High Availability
 - B. Achieving High Availability
- III. Overview of Windows Server Failover Clustering**
 - A. Failover Clustering Concepts
 - B. Cluster Resources
 - C. Setting up a Windows Failover Cluster
 - D. MSDTC Clustering
 - E. LAB: Creating Your Windows Server Failover Cluster
 - F. Module 03: SQL Server 2012 High Availability Overview
 - G. SQL Server 2012 High Availability (HA) Technologies
 - H. High-level Considerations on Technology Choices
 - I. Common Combinations
- IV. AlwaysOn Failover Clustering**
 - A. SQL Server Failover Clustering – Definitions and History
 - B. SQL Server 2012 Failover Clustering Instance (FCI)
 - C. Maintaining a SQL Server 2012 FCI
 - D. Multi-Site Failover Clustering
 - E. LAB: Installing a Two-Node Failover Clustered SQL Server and Analysis Services Installation
- V. AlwaysOn Availability Groups**
 - A. Availability Group Concepts
 - B. Partners and Secondary Servers
 - C. LAB A: Creating an Availability Group Hosted on Three Servers: Primary, Synchronous Secondary, and Asynchronous Secondary
 - D. LAB B: Database Backups for Secondary Replicas: Creating Automated Database Backups on All Secondary Replicas
- VI. Legacy Database Mirroring**
 - A. Database Mirroring Overview
 - B. Database Mirroring Architecture
 - C. Enabling Database Mirroring
 - D. Database Mirroring Operations
 - E. LAB: Enabling Database Mirroring Between Two Servers
- VII. Legacy Log Shipping**
 - A. Log Shipping Overview
 - B. Log Shipping Architecture
 - C. Configuring Log Shipping
 - D. Log Shipping Internals
 - E. Administering Log Shipping
 - F. LAB: Enabling Log Shipping Between Two Servers
- VIII. Using Replication for High Availability**
 - A. Replication Overview
 - B. Replication Types
 - C. Replication Architecture
 - D. Configuring Replication
 - E. Replication Monitoring
 - F. LAB: Enabling Transactional Replication with Three Servers
- IX. High Availability Solutions Interoperability**
 - A. AlwaysOn Failover Cluster Instances with AlwaysOn Availability Groups
 - B. AlwaysOn Failover Cluster Instances with Legacy Database Mirroring
 - C. AlwaysOn Availability Groups with Replication
 - D. LAB: Creating AlwaysOn Availability Groups Running a Primary Replica on an AlwaysOn Failover Cluster Instance
- X. High Availability with Virtualization**
 - A. Hyper-V in Windows Server 2008 R2
 - B. Improvements in Windows Server 2012
 - C. SQL Server Hyper-V Support
 - D. Hyper-V HA Considerations
 - E. Using Cluster Shared Volumes for High Availability
 - F. Live Migration
 - G. Using Guest Clustering
- XI. Meeting Your Availability Goals**
 - A. Technology Choices
 - B. Servicing for Availability
 - C. Ongoing Maintenance
 - D. Indexing
 - E. Partitioning
 - F. Processes and Procedures for Availability
 - G. Rule No.1
 - H. Understanding the Technologies Used
 - I. Understanding the Procedures and Escalation Paths
 - J. Planned Downtime