

## SQL Server High Availability

3 Days SQ-HAV2012-401-EN

### 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.

### Target 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

### Course Objectives

Upon completion of this course, the student 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

## Course Summary Outline

### Module 00: Course Overview and Introduction

### Module 01: High Availability Overview

- Defining High Availability
- Achieving High Availability

### Module 02: Overview of Windows Server Failover Clustering

- Failover Clustering Concepts
- Cluster Resources
- Setting up a Windows Failover Cluster
- MSDTC Clustering

*LAB: Creating Your Windows Server Failover Cluster*

### Module 03: SQL Server 2012 High Availability Overview

- SQL Server 2012 High Availability (HA) Technologies
- High-level Considerations on Technology Choices
- Common Combinations

### Module 04: AlwaysOn Failover Clustering

- SQL Server Failover Clustering – Definitions and History
- SQL Server 2012 Failover Clustering Instance (FCI)
- Maintaining a SQL Server 2012 FCI
- Multi-Site Failover Clustering

*LAB: Installing a Two-Node Failover Clustered SQL Server and Analysis Services Installation*

## Module 05: AlwaysOn Availability Groups

- Availability Group Concepts
- Partners and Secondary Servers

*LAB A: Creating an Availability Group Hosted on Three Servers: Primary, Synchronous Secondary, and Asynchronous Secondary*

*LAB B: Database Backups for Secondary Replicas: Creating Automated Database Backups on All Secondary Replicas*

## Module 06: Legacy Database Mirroring

- Database Mirroring Overview
- Database Mirroring Architecture
- Enabling Database Mirroring
- Database Mirroring Operations

*LAB: Enabling Database Mirroring Between Two Servers*

## Module 07: Legacy Log Shipping

- Log Shipping Overview
- Log Shipping Architecture
- Configuring Log Shipping
- Log Shipping Internals
- Administering Log Shipping

*LAB: Enabling Log Shipping Between Two Servers*

## Module 08: Using Replication for High Availability

- Replication Overview
- Replication Types
- Replication Architecture
- Configuring Replication
- Replication Monitoring

*LAB: Enabling Transactional Replication with Three Servers*

## Module 09: High Availability Solutions Interoperability

- AlwaysOn Failover Cluster Instances with AlwaysOn Availability Groups
- AlwaysOn Failover Cluster Instances with Legacy Database Mirroring
- AlwaysOn Availability Groups with Replication

*LAB: Creating AlwaysOn Availability Groups Running a Primary Replica on an AlwaysOn Failover Cluster Instance*

## Module 10: High Availability with Virtualization

- Hyper-V in Windows Server 2008 R2
- Improvements in Windows Server 2012
- SQL Server Hyper-V Support
- Hyper-V HA Considerations
  - Using Cluster Shared Volumes for High Availability
  - Live Migration
  - Using Guest Clustering

## Module 11: Meeting Your Availability Goals

- Technology Choices
- Servicing for Availability
- Ongoing Maintenance
  - Indexing
  - Partitioning
- Processes and Procedures for Availability
  - Rule No.1
  - Understanding the Technologies Used
  - Understanding the Procedures and Escalation Paths
  - Planned Downtime