

Azure SQL Data Warehouse - Performance Tuning and Optimization

Workshop

Overview

SQL Server Data Warehouse solutions offer significant performance benefits over SQL Server for large scale analytic workloads. The increased performance brings with it unique challenges for attaining the best performance possible. The Microsoft Services Performance Tuning and Optimization Triage service for SQL DW Solutions will provide your team with the hands-on experience required to properly design and troubleshoot D-SQL queries to ensure optimal performance

Key Features and Benefits

- Gain Competency in D-SQL Optimization
- Optimize Workload Queries During the Training
- Gain Immediate Hands on Troubleshooting Skills
- Reduce Support Costs
- Maximize the Value of Your IT Investment
- Improve Business Confidence

Technical Highlights

After completing this course, you will be able to:

- Understand the inner workings of the MPP Engine
- In-depth analysis of hand picked customer queries
- Learn the step-by-step process necessary for troubleshooting SQL DW performance issues
- Review of SQL DW Performance Tuning and Optimization Best Practices

Syllabus

This workshop runs for **2** full days. Students should anticipate consistent start and end times for each day. Early departure on any day is not recommended. The delivery is broken down into 3 distinct phases:

Phase 1: Data Gathering: A week prior to the engagement, the PTO accredited engineer will work with the customer to select 3 to 5 queries from the customer environment for the hands on review. Once selected, diagnostic data will then be captured and reviewed prior to the scheduled delivery. All issues will be reported with description, risks, and recommended mitigation. Queries that are found to be optimal will be reported as such.

Phase 2: Knowledge Transfer: The following modules will be covered in depth for the first day and a half of delivery.

Module 1: Overview: In this module, you will review MPP essential concepts, how to create a data warehouse, and how to connect to a data warehouse.

Module 2: Database Scaling: In this module, you will learn the concepts behind how database scaling works, how to scale, and how resource classes are affected by scaling

Module 3: Table Design: In this module, you will learn about table creation, the difference between rowstore and columnstore tables, table geometry, how to choose a distribution column, and best practices for table design.

Module 4: Statistics: In this module, you will learn how statistics objects work, as well as how to create and manage statistics

Module 5: Data Movement: In this module, you will learn the concepts behind data movement, how joins and aggregations work, how to read MPP plans, and how to tune DMS for best performance.

Module 6: Partitioning: In this module, you will learn the fundamentals of partitioning in an MPP system, how to manage partitions, and how to manage sizes and loading with partitions.

Module 7: Performance: In this module, you will learn how to tune for best performance using: statistics, clustered columnstore indexes, locking, table design, and avoiding resource contention.

Phase 3: Hands-On Troubleshooting: The latter half of day two will be spent reviewing the selected queries through an interactive troubleshooting session. A member of the customer team will navigate, and the PTO engineer will explain their reasoning as they work through the troubleshooting and optimization process.

This session is intended to be highly interactive, and customer team members are highly encouraged to ask questions or make suggestions during the optimization process.

Optional:

Customers that are familiar with the modules covered in Phase 2 may opt for a 1 day engagement fully devoted to the Phase 3 optimization session so that they may obtain the benefit of the Hands-On troubleshooting but without requiring the time investment to repeat the knowledge transfer session.