

- COURSE CODE:** SQSPTI
- COURSE TITLE:** Data Warehousing: Table Partitioning for SQL Server 2005/2008/2008 R2
- AUDIENCE:** Database architects, developers and administrators of OLTP and/or data warehouse solutions.
- PREREQUISITES:** At least one year's experience with SQL Server.
- DURATION:** 2.5 days
- SUMMARY:** This course is designed to address complexities inherent in Very Large Databases (VLDBs), e.g., 100GB+, as these relate to manageability, maintainability and performance. Although mainly suited for data warehousing and business intelligence scenarios, large OLTP systems have been known to benefit. Particular emphasis is placed on SQL Server options with regards:
- Table partitioning
 - Index partitioning
 - Indexed views
 - Table maintenance
 - Performance
 - Sliding windows
 - Partitioning parallelism
 - Data archiving
 - Partition movement
 - Partition consolidation
 - Best practices and performance
- OBJECTIVES:** Upon completion of this presentation, the delegate should be able to:
- Partition a relational data warehouse
 - Appreciate the variables that influence table/index partitioning
 - Design sliding window scenarios
 - Optimise query performance.
- FORMAT:** Lecture and hands-on (about 45%)

1. DATA WAREHOUSING CONCEPTS

- Data Warehousing vs. OLTP
- Operational vs. historical data
- Data warehouse vs. data mart
- ER vs. Dimensional modelling
- Extract Transform Load (ETL)
- Metadata
- OLAP and cubes
- Data mining
- Massive size implementation
- Logical design vs. physical design
- Normalization vs. denormalization

2. RECOUNT OF SQL'S DB ARCHITECTURE AND COMPONENTS

- DB engine
- Paged and extents
- Tables and indexes
- File and file groups
- Transaction log
- Threads and tasks
- Parallelism
- OLTP vs. data warehousing vs. OLAP
- Table vs. index partitioning concepts

3. WHY CONSIDER TABLE/INDEX PARTITIONING

- Very Large Database (VLDB) considerations
- Indexing
- Locking and concurrency
- Availability
- Maintenance (e.g., backup, restore)
- Query optimisation
- Parallelism
- Horizontal vs. vertical partitioning

4. TABLE/INDEX PARTITION PLANNING

- Which tables/indexes?
- Which columns?
- Which column boundaries?
- Filegroups

5. TABLE PARTITIONING COMPONENTS

- Partition functions
- Partition schemas
- Partition table/index

6. ALTERING PARTITION FUNCTIONS

- SPLIT
- MERGE

7. ALTERING PARTITION SCHEMAS

- Filegroups
- Using SPLIT with partition schemas
- Using MERGE with partition schemas

8. HOW TO CREATE PARTITION TABLES/INDEXES

- Partitioned table
- Partitioned index
- Clustered index
- Partition Wizard
- Index and constraints

9. ALTER TABLE USING SWITCH OPTION

- When to consider
- SWITCH requisites
- How to SWITCH data out
- How to SWITCH data in
- How to use the Manage Partition Wizard

10. PARTITION-ALIGNED VIEWS

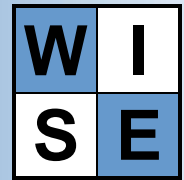
- Definition
- When to consider
- SWITCH, MERGE and SPLIT considerations

11. PARTITION ELIMINATION & QUERY PERFORMANCE

- Definition
- Query performance
- Using SHOWPLAN to evaluate
- Join collocation
- Bitmap filtering
- Data compression
- Parallelism

12. SLIDING WINDOW

- Definition
- The Manage Partition Wizard
- Two partitioned tables



13. ADDITIONAL PARTITION MAINTENANCE FACILITIES

- Rotating window
- Data loading
- Consolidating partitions
- Moving infrequently accessed partitions to cheaper disks

14. BEST PRACTICES