

Track: Enterprise Data Management

Designing for Performance

General Database Optimizations,
Optimizing Procedural Code and
Query Optimizations through Indexing

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- Presenter/Technical Manager for SQL Server 2000 High Availability Overview DVD (MS Part# 098-96661)
- Very approachable. Ask questions!

Agenda

Introduction

- **M1: Understanding Databases**
- **M2: Understanding Tables**
- **M3: Writing Optimal Queries**
- **M4: Optimizing Procedural Code**
- **M6: Indexing for Performance**

Wrap-up

M1: Databases

- **Creating Databases**
- **Database Structures**
- **The Anatomy of a Data Modification**
 - **From Data Access**
 - **Locking**
 - **Write-ahead Logging**
- **Data and Log File Placement**
- **How the Transaction Log Works**
- **Optimizing Log Activity**

M2: Tables

- **Entities**
- **Attributes**
 - Data types
 - Nullability
- **Relationships**
- **Table Creation and Design**
 - Internals
 - The Data Row
 - Rows on a Page
- **Partitioning**
 - Vertical Partitioning
 - Horizontal Partitioning
- **Table Relationships**

M3: Writing Effective Queries

- **The Anatomy of a SELECT statement**
- **The Consistency List**
- **Data Retrieval**
- **Search Arguments**
- **Function “Top 10” List**
- **Inner/Outer Joins with Search Arguments**
- **Extra Info:**
 - Comparison Operators
 - Related Table Info
 - Database Diagramming
 - Inner/Outer Joins

M4: Optimizing Procedural Code

- **Initial Processing - Review**
 - Resolution
 - Compilation/Optimization
 - Execution/Recompilation
- **Recompilation Issues**
 - When do you want to Recompile?
 - Options for Recompilation?
 - What to Recompile?
- **User-defined Functions**
 - Functions v. Stored Procedures
 - Scalar functions for simple expressions
- **Extra Info: Stored Procedure Best Practices**

M5: Indexing for Performance

- **Table Structure**
- **Index Concepts**
- **Index Architecture**
- **The Query Optimizer**
- **Using Showplan**
- **Isolated Query Tuning**
- **Finding the Right Balance with Workload Tuning**
- **Manually Tuning Queries**
 - SARGs: AND/OR
 - JOINS
- **Fragmentation/Maintenance**