

# I am a DBA – Why should I care about SQL Server 2008 R2?

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- What's new
- What's under the hood
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# What's New...





# What is new

- SQL Server Utility
- Data-Tier Application
- Connectivity to SQL Azure
- SQL Server PowerShell Provider
- Unicode Compression

# What is new

- SQL Server Utility
- Data-Tier Application
- Connectivity to SQL Azure
- SQL Server PowerShell Provider
- Unicode Compression







# Management Challenges

- Ever-increasing number of servers and applications
  - Lack of enterprise-wide view of SQL Server health
  - Server/instance
  - Application
- Difficult resource planning

# Deployment Challenges

- Difficult deployment
  - Need to package applications with databases
  - Need to record deployment intent
  - Handing off T-SQL scripts is error-prone
  - Upgrades are challenging

# SQL Server Utility

- Provides unified view of an organization's SQL Server usage
- Shows health of
  - SQL Server instances
  - Data-tier applications
  - Database files, filegroups and volumes
- Provides resource monitoring
  - CPU utilization
  - Storage space

# Using a Utility Control Point

Create Utility Control Point (UCP)

Enroll SQL Server instances

Data-tier applications auto-enrolled

Monitor apps and instances using SSMS

Customize policies to suit

# Data Tier Applications (DAC)

- Simplifies the development, deployment, and management of the data-tier
- Defines all of the Database Engine schema and instance objects
- A single unit of management through the development, deployment, and management lifecycle
- Contains policies that define the deployment prerequisite

# UCP & DAC Demo



# Unicode Compression

- SQL Server stores Unicode as 2 bytes - UCS-2
- Save up to 50% of storage
- nvarchar(n) and nchar(n) columns compressed using Standard Compression Scheme for Unicode (SCSU)
- nvarchar(max) data is never compressed
- To take full advantage the object must be rebuilt with page or row compression



# Unicode Compression Demo





# My top 3

# 3

- Merging Partitions
- Minimizing lockhash key collisions
- `sp_estimate_data_compression_savings`

If I have a table consisting of five partitions and the middle partition needs to be dropped what are the steps?



# Partition Steps

- 1) Create a non-partitioned target table with the same structure and indexes as the partitioned table
- 2) Use the switch command to move the data from the middle partition to the new target table
- 3) Alter the partition function by merging the empty partition



# Merging Partitions

- The partition switch command is a metadata-only operation
- Work around – temporarily removes data
- 2008 SP 1 CU 6 fix only works with the same filegroup

# Minimizing lockhash key Collisions

- SQL Server uses a lockhash value to represent a lock on the lock structure - introduced in SQL Server 7.0
- lockhash = 6 byte value made up of the key of the row and a hash algorithm to it
- A calculated lockhash value can lock more than one row within a B-Tree
- Algorithm re-written in SQL Server 2008 R2



# Lockhash Key Demo



# sp\_estimate\_data\_compression

- Using Compression (index or table or partition), there are two components of space savings
  - Fragmentation
  - Compression
- What savings do I get from each?
- In SQL Server 2008 R2  
sp\_estimate\_data\_compression can show space savings by defragmenting

# Defragmentation Demo



# Questions

