SQL Server: Myths and Misconceptions

Module 7: Backup

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Introduction

- **Backups are critical for protecting your data**
  - You cannot just rely on high-availability technologies
  - Understanding how backups work is key to creating a proper strategy

- **In this module:**
  - Seven myths around using backups

Backup Myth #1

UNTRUE!!

- **Myth: Concurrent data and log backups are not possible**

- **This was true in SQL Server 2000 and before**
  - The log backup would block, waiting for data backup completion
- **No longer true for SQL Server 2005 onwards**
  - Log backups can run concurrently with data backups
  - Log truncation/clearing is deferred until the data backup completes

- **This behavior gives rise to Backup Myth #2…**

Backup Myth #2

UNTRUE!!

- **Myth: A full backup allows the log to clear/truncate**

- **In the FULL or BULK_LOGGED recovery models, the only thing that clears the log is a log backup**
- **In the SIMPLE recovery model, the only thing that clears the log is a checkpoint**
- **There are no exceptions**

- **Special case when a log backup occurs while a concurrent data backup is running**
  - Log clearing is deferred until the end of the data backup
  - This behavior helps perpetuate this myth

Backup Myth #3

UNTRUE!!

- **Myth: As long as backup completes, the restore will always succeed**

- **The backup could be corrupted before it is restored**
- **The I/O subsystem is what I call an 'equal opportunity corruptor'**
  - Just because a file is a backup, does not make it immune from corruption
- **Ensure you use WITH CHECKSUM when backing up**
- **Verify integrity of backups after taking them**
- **Verify integrity of backups regularly**
  - Best option is restore the backup and run DBCC CHECKDB on it
  - This also offloads the consistency checking workload

Backup Myth #4

UNTRUE!!

- **Myth: Differential backups are incremental**

- **Differential backups in SQL Server are cumulative**
  - A differential backup backs up all data extents changed since the most recent full backup
  - Successive differential backups get bigger and bigger until the next full backup occurs, as more and more data in the database changes

- **Log backups are incremental**
- **Differential backups in other RDBMS products are incremental**

Backup Myth #5

UNTRUE!!

- **Myth: You should always plan a backup strategy**

- **Always plan a *restore* strategy**
- **Then plan what backups you need to take**
- **The other way can result in disaster**
  - Having the wrong backups can lead to the restore failing or taking too long
  - Make sure you test your restore strategy to make sure it works!

Backup Myth #6

UNTRUE!!

- **Myth: A full backup is required to restart a log backup chain**

- **A log backup chain can be restarted using a differential or full backup**
  - It just takes a backup that spans the gap of 'missing' log records
  - Using a differential backup can be much faster than using a full backup
- **A log backup chain cannot be *started* using a differential backup**
  - The start of a log backup chain always requires a full backup

Backup Myth #7

UNTRUE!!

- **Myth: Log backups can be replaced by database snapshots**

- **Log backups cannot be replaced by anything else**
- **A database snapshot is only valid while the source database is available and not corrupt**
  - A database snapshot cannot be moved or restored somewhere else
- **Multiple database snapshots add a performance overhead to database operations**
- **Database snapshots do not allow point-in-time recovery and do not take care of log clearing**
- **Database snapshots are incompatible with features like FILESTREAM**