

SQL Server Database Maintenance

PL21627

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Class summary

If you are responsible or influential in ensuring that your business critical databases run both in a optimal manner as well as ensuring that a lifeline exists in the event of a disaster.

Then you're in the right place.

Your experts

Traci Peurasaari is a SQL/DBA specialist within Enterprise Priority Support. She has over 25 years of relational database experience in Microsoft SQL Server and Oracle. She is proficient in Database performance and tuning, backup and restore and replication.



The Brains behind this operation

Your experts

Stephen Porath is a Premium Support Specialist for the Data Management team. Prior to joining Autodesk in 2014, he spent 15 years supporting/implementing various enterprise software platforms. He has nearly 15 years experience with SQL Server, Microsoft.NET, and Windows IIS applications.



Additional Class Information

- Applicable to all recent versions of SQL Server
- Not necessarily specific to Autodesk Vault
- Using Ola Hallengren as the base plan
- See Links for supporting information
- Slides/Handout
- Questions

Key learning objectives

At the end of this class, you will:

- Know what a SQL Server Maintenance Plan is
- Why they're important
- Where can you get it
- How to implement

What is a maintenance plan...

Microsoft Definition:

Maintenance plans create a workflow of the tasks required to make sure that your database is optimized, regularly backed up, and free of inconsistencies. The SQL Maintenance Plan Wizard will create core maintenance plans, but *creating plans manually gives you much more flexibility*.

Oil Change



Insurance

Tire Rotations

Maintenance
plans are
not optional

Agenda – Your maintenance plan

- Overview and implementation
- Components
 - Backup
 - Integrity check
 - Index (Re-Index)
 - Statistics update
- Final considerations

Setup Tasks

- SQL Server Agent
 - Automatic
- Backup Location
 - Modify
 - Network location (manual and auto move)
- Backup hours – retention
- Redundancy

Demo – Implementation

Maintenance
plans are
not optional

Core Components

Backups

- Backups
 - Full
 - Differential
 - Transactional
- RPO – Recovery Point Objective
 - How much data can be lost
 - Measured in hours, not size
- RTO – Recovery Time Objective
 - How long until you are back up and running



Backups and user access

- Virtualization – Snapshot/Checkpoint
- Network Backup
 - DR recommendation
- Domain Account
 - SQL Server service
 - SQL Server Agent service
 - Full control over backup directory

Integrity Check

- Structural integrity
 - Allocation
- Indexes
- Replication note
 - Increases transactional complexity of database

Note: Output review



Index

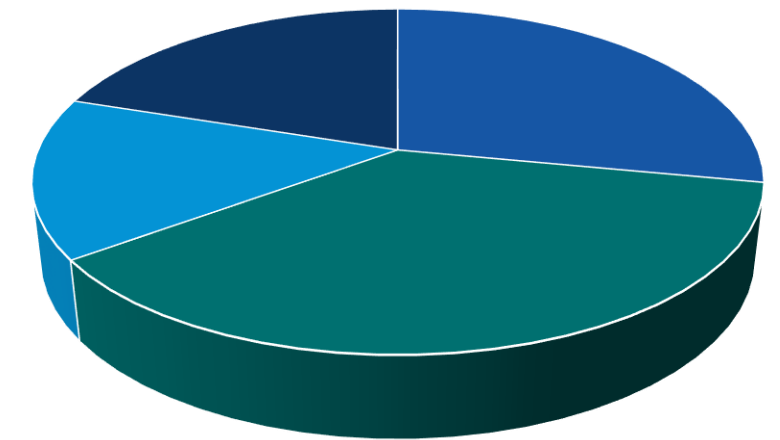
- Rebuild or Reorganize
 - Online vs Offline (versions)
 - Downtime
 - Table lock
 - Fragmentation Levels
 - Frequency
 - Considerations on performance
 - Statistics measure queries



Statistics

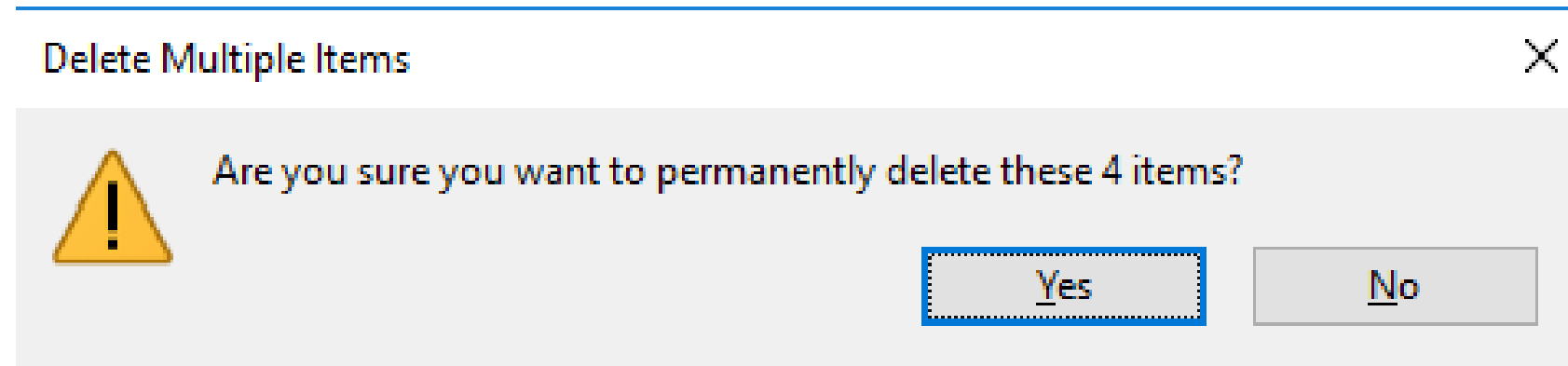
- All queries have execution plan
 - Determines order of operations
- Considerations on performance
 - Statistics measure queries
- Stale Statistics – Vault Story
 - Profiler ~ 1M reads 90ms
 - Profiler ~ 1M reads 3ms

Statistics are fun!



Purge Job

- Cleanup of Backups
- Cleanup of Logging



Scheduling

Scheduling Minimum

- Backups
 - Full Daily
 - Transaction hourly – Simple mode
- Integrity Check
 - Daily (before backup)
 - Backup w/Errors
- Index and Statistics
 - Volume dependent
 - Daily rebuild and Weekly reindex
- Purge/cleanup
 - Daily

Scheduling How

- Edit the Schedule Jobs to run on desired schedule

The screenshot shows the 'New Job Schedule' dialog box with the following configuration:

- Name:** Integrity Check
- Schedule type:** Recurring (Enabled)
- One-time occurrence:** Date: 11/15/2016, Time: 6:34:54 PM
- Frequency:** Occurs: Daily, Recurs every: 1 day(s)
- Daily frequency:** Occurs once at: 12:00:00 AM
- Duration:** Start date: 11/15/2016, No end date
- Summary:** Description: Occurs every day at 12:00:00 AM. Schedule will be used starting on 11/15/2016.

Demo – Scheduling

Plan execution

- Confirm that jobs are completing
- Frequency
 - Initial – all tasks
 - Monitor regularly for errors
- Notification
 - Backup and Integrity (Demo)

Additional Considerations

- Windows accounts
- Express and Enterprise
 - Caveats
- Autodesk Vault Specifics
 - Filestore location and Consideration



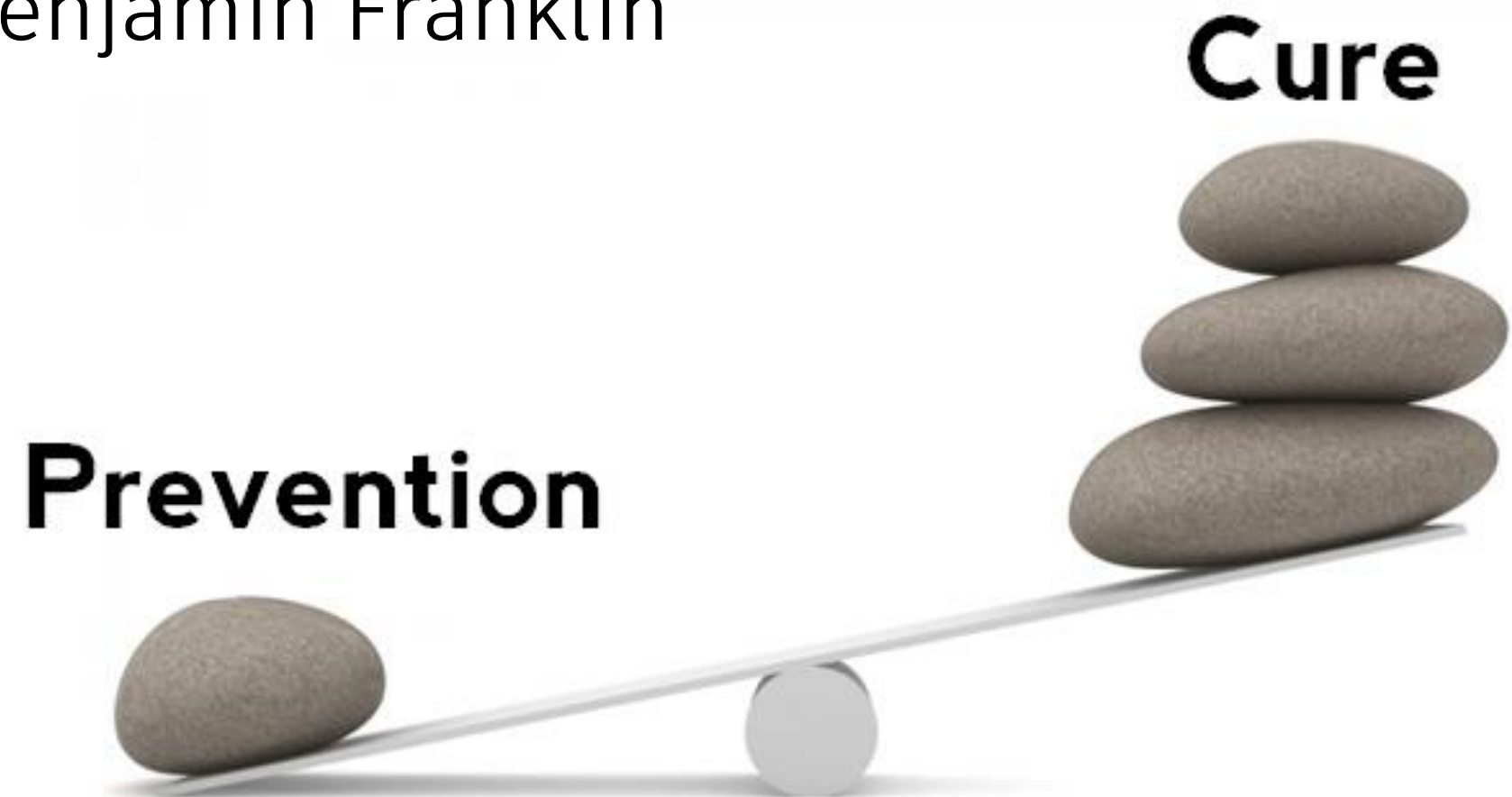
Maintenance
plans are
not optional

Task

When you return to your office

- Download the maintenance plan
- Modify and plan
- Implement
- Review

“An ounce of prevention
is worth a pound of
cure.”
-Benjamin Franklin



Links and References

- URL to materials
 - <https://goo.gl/DSOMqI>
- Ola Hallegren
 - [Maintenance Plan](#)
- Microsoft
 - [Different backup options](#)
- Brent Ozar
 - [Ozar Unlimited](#)
 - [Modifying this maintenance plan](#)

Ola Hallengren / Class Recommendation

- Voted “Best Free Tool”
 - SQL Server Magazine Awards
- Most Valuable Professional
 - Microsoft – Data Platform
- See site for list of companies that use

- Chris Bluhm/Traci Puerasaari
 - Backup and Restore of Vault – PL21030 (Thurs @ 1:00pm)

