


# Tuning SQL Server for SharePoint

Daniel Glenn



## About me



- Collaboration Practice leader at InfoWorks Inc.
- @DanielGlenn 
- DanielGlenn.com
- User Group leader x2
- Nashville SharePoint & SQL Saturdays



# Work Like a Network

Twitter

@DanielGlenn

#SPHelp

Yammer Networks

- SPYam (see me for an invite)
- Office 365 IT Pro

# InfoWorks

[www.InfoWorks-TN.com](http://www.InfoWorks-TN.com)



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# About you

- Database administrators
- Business users
- Developers
- SharePoint administrators

SharePoint experience?



# Agenda

- SharePoint install demo
- What is SharePoint?
- SharePoint Databases
- SQL Configuration
- SQL Server Maintenance
- SharePoint Configuration



# SharePoint Install Demo





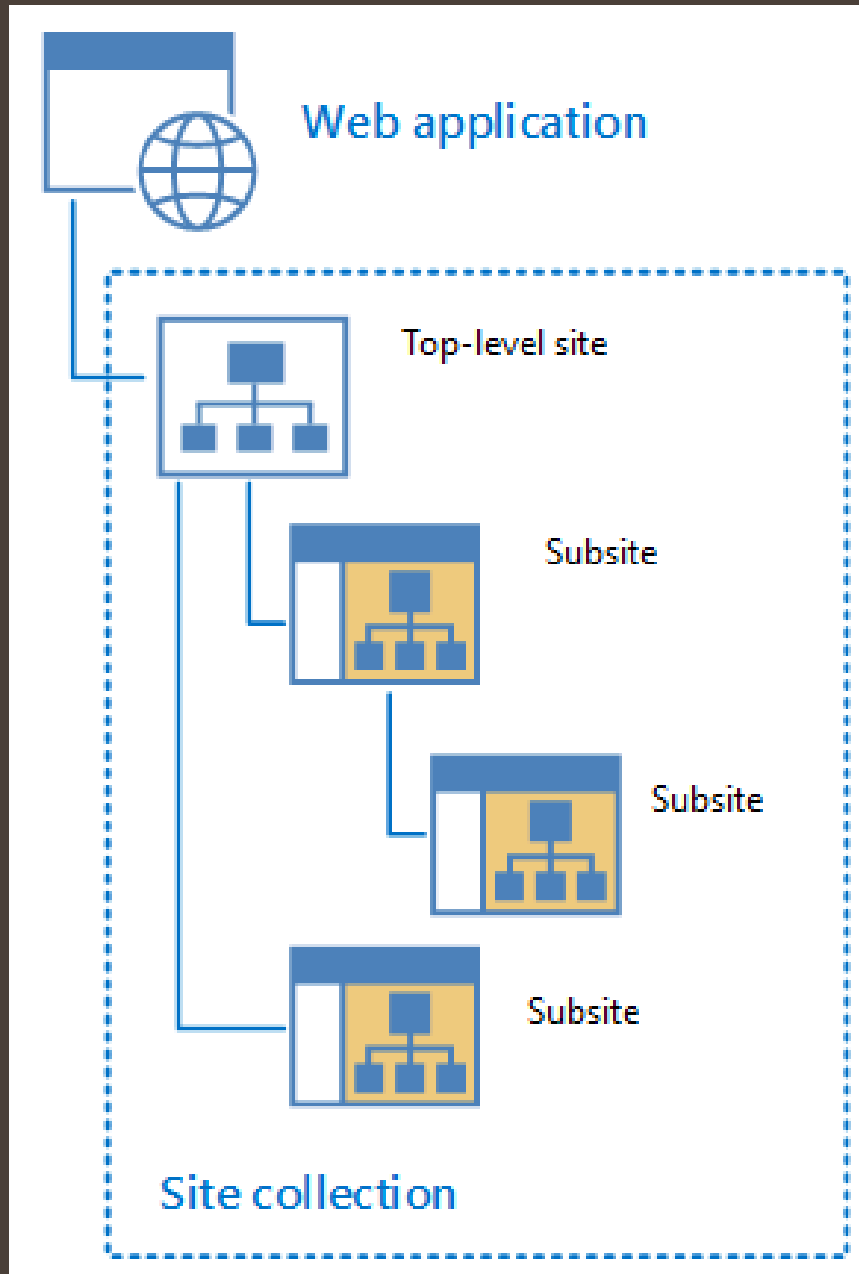
# What is SharePoint?



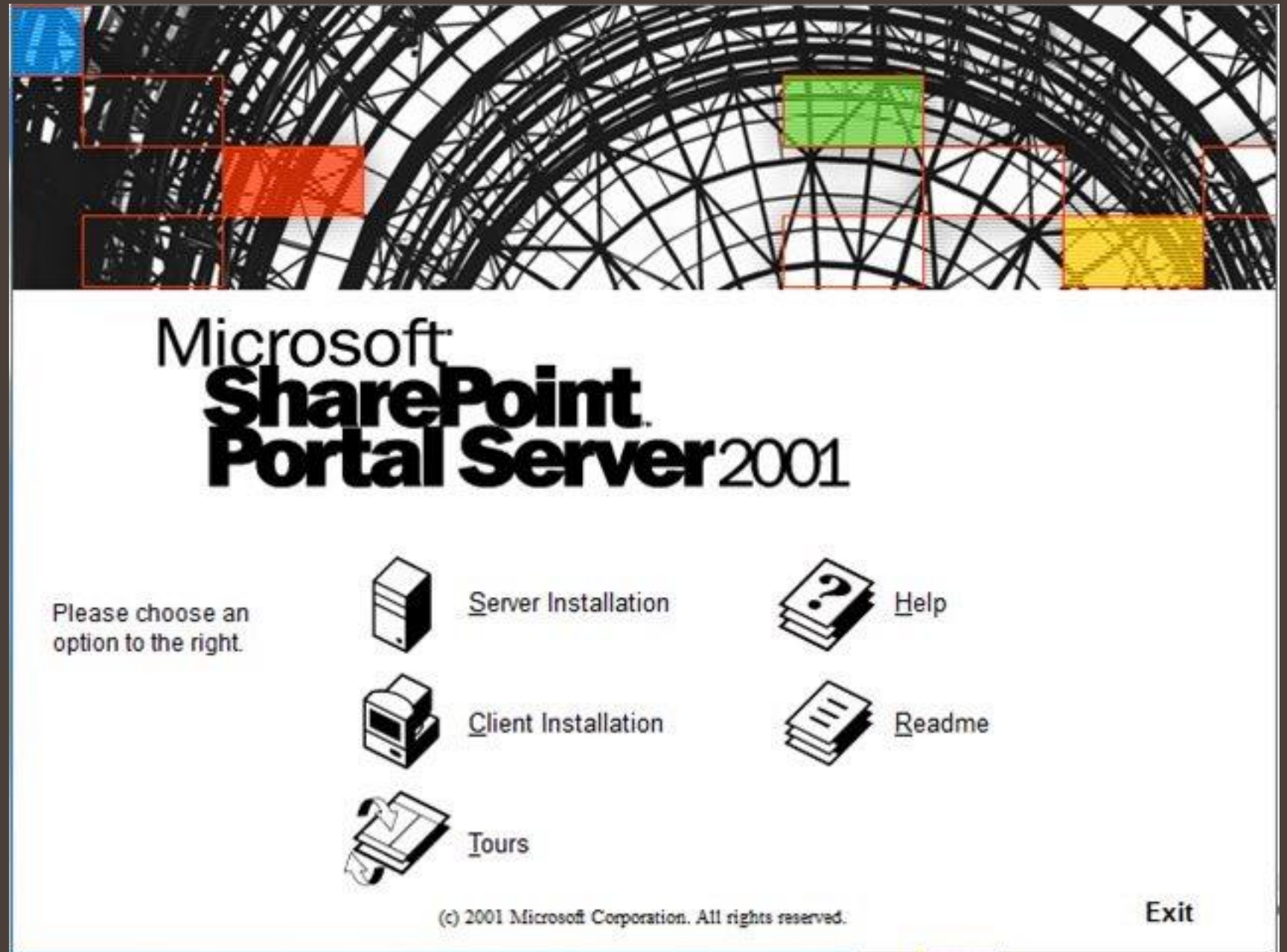
# SharePoint

- SharePoint is a valuable tool that delivers enterprise document management, business intelligence, web content management, search, and social capabilities
- There are different versions and deployment options
  - Foundation, Standard, Enterprise; on-premises, cloud, hybrid
- MS SQL is SharePoint's data store for almost all components
- What is a 'SharePoint farm?'
- A Site Collection?

# SharePoint



# SharePoint





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## Rudiments: Contoso Research

This set of small robotic like devices, called rudiments, investigate human-machine interactions.



Contoso: Bringing People Closer Together



Tools For Analysis



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Rudiments: Contoso Research



### Message from the President

From our beginnings as a two-person business in 1988, Contoso's core principles have been simple: do good work, treat people fairly, be



### Message From HR

Career development and continuous learning are key parts of what makes Contoso successful.



### Employee of the Month

Congratulations! This year marks a significant milestone in your service to Contoso.

## Yammer About Contoso

What are you working on?



### Robin Counts

To All Company, Daniel Glenn, and Katie Jordan

Daniel Glenn & Katie Jordan, recent growth in Europe indicates that there is more opportunities for store expansion, please investigate.

Like · Reply · View Conversation March 20 at 12:23pm



Write a reply...



### Daniel Glenn

To Sales Opportunities

Will the XT2000 be available for a demo in the next few weeks?

Like · Reply · View Conversation March 19 at 1:50pm

XT2000



### Sara Davis

cc: Robin Counts

Robin Counts, do you know if it will be available in the next few weeks?

Like · Reply · View Conversation March 19 at 1:50pm



### Robin Counts

cc: Daniel Glenn

Yes! Daniel Glenn, I'll put time on your calendar tomorrow.

Like · Reply · View Conversation March 19 at 1:50pm



Write a reply...



### Alex Darrow

To Sales Opportunities and Molly Dempsey

Molly Dempsey we will be presenting our European Expansion Dashboard to our marketing vendor (Kari) later this week.

## Engineering

Recent

Discussions

Documentation

FAQs and Product  
Issues

Product Design

Product Support

Quality Assurance

Finance

Legal

Operations

Research and Development

Sales and Marketing

Site Contents

Welcome to the Engineering Site. This site is where our Engineering Team collaborates on product designs, prototypes, documentation and other engineering tasks. Explore the site to find the latest in product design, product support, including product documentation and design drawings and much more!

## XT1000 Test Results

Test Number



Package 1

Package 2

Package 3

Success Percentage



18-25

26-35

36-45

46-55

55-65

Over 65

Workaround?

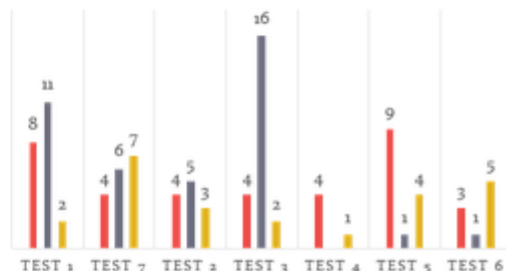


No Wo...

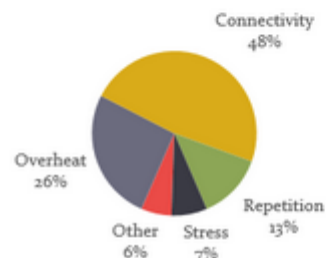
Worka...

TEST NUMBER

■ Package 1 ■ Package 2 ■ Package 3



Error Condition



14 4 1

XT1000 Test Results

## Engineering Team Calendar

May 2015

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27 2:00 am - 3:00 am Planning Meeting	28	29 7:00 am - 8:00 am Engineering Review Boar	30	1 8:00 am - 8:00 am Presentations	2
3	4 2:00 am - 3:00 am	5	6 7:00 am - 8:00 am	7	8	9

## Engineering Announcements

[+ new announcement](#) or [edit this list](#)

✓	Title	Modified
	Design Estimates for New QT Models	... March 19
	Troubleshooting Guide	... March 19
	Customer Specs	... March 19

# SharePoint Databases

# SharePoint Databases

- For a full install of SharePoint 2016 Enterprise on-premises, there are over 20 databases
- Types:
  - Configuration
  - Central Admin Content
  - Content
  - Service Apps (some have more than one DB)
- One content database per Site Collection
- Content databases can have many site collections, but a large (>100GB) site collection should have a dedicated database



# SharePoint Databases

- + AppMng\_Service\_DB\_90f674e3646f4d85aab0c23b9c38e860
- + Bdc\_Service\_DB\_bfc5c08e698a4f25ac95486e33506850
- + Managed Metadata Service\_564c0640e56147959f728dc6db8e6b0e
- + PerformancePoint Service Application\_1ed416f7799246859f145a4f645cfe67
- + Search\_Service\_Application\_AnalyticsReportingStoreDB\_1b6451de073449558b88f52c53ea41ad
- + Search\_Service\_Application\_CrawlStoreDB\_cd61ed2823f5409295d00336ffee7056
- + Search\_Service\_Application\_DB\_95259af374ba4796a816657039eb425f
- + Search\_Service\_Application\_LinksStoreDB\_fb244f8322a749a29bf6c21e3fa5c377
- + Secure\_Store\_Service\_DB\_12cacd1aadd54681a474dc9be6c814d3
- + SP13\_Admin\_Config
- + SP13\_Config
- + SP13\_MySite\_Content
- + StateService\_674490b7df264eee83e8ff6512a834ef
- + TranslationService\_0f810e79221d4b5db15d90b07a98c8ff
- + WordAutomationServices\_f4c1c1a13c3c49ed9150803919c1d82d



# SharePoint Configuration

# SharePoint Configuration

- Dedicated SQL instance
  - Watch those resources!
- DNS CNAME or SQL Alias for use with SharePoint
  - Before SharePoint install
- Keep your **collaboration** site content databases  
< 200GB
- Monitor SharePoint content database I/O

# SQL Configuration

# SQL Configuration

- New Instance
  - Not on the SharePoint server!
- Latin1\_General\_CI\_AS\_KS\_WS
- File placement
- Model database
  - Increase initial size, and set to do MB growth not %
  - Full recovery
- Tempdb
  - Data files = # of processor cores\*
  - Simple recovery
- Server memory (RAM) usage
- Max Degree of Parallelism

# SQL Configuration

Select a page

- General
- Memory
- Processors
- Security
- Connections
- Database Settings
- Advanced**
- Permissions

Connection

Server:  
dc1

Connection:  
SQLSAT\Administrator

Script ▼ Help

FILESTREAM

FILESTREAM Access Level	Disabled
FILESTREAM Share Name	MSSQLSERVER

Miscellaneous

Allow Triggers to Fire Others	True
Blocked Process Threshold	0
Cursor Threshold	-1
Default Full-Text Language	1033
Default Language	English
Full-Text Upgrade Option	Import
Max Text Replication Size	65536
Optimize for Ad hoc Workloads	False
Scan for Startup Procs	False
Two Digit Year Cutoff	2049

Network

Network Packet Size	4096
Remote Login Timeout	10

Parallelism

Cost Threshold for Parallelism	5
Locks	0
Max Degree of Parallelism	1
Query Wait	1

# SQL Configuration

## Permissions for SharePoint administrators & service accounts

- SharePoint admins themselves do NOT need permissions within SQL
- The **service account** used to install SharePoint needs:
  - **securityadmin** and **dbcreator** SQL Server roles during setup and configuration

# SQL Configuration

## Permissions for SharePoint administrators & service accounts (cont)

- The service account that is the Farm service account will be provisioned automatically during farm creation to have:
  - **dbcreator** and **securityadmin** fixed server roles.
  - It will also be the **db\_owner** for all SharePoint databases.
- Other service accounts will be added to new roles on SharePoint databases

To learn more: [http://technet.microsoft.com/en-us/library/cc678863\(v=office.15\).aspx](http://technet.microsoft.com/en-us/library/cc678863(v=office.15).aspx)





# SQL Server Maintenance



# SQL Server Maintenance

- Database growth
  - Plan and pre-grow
  - Quotas, # site collections per database
- Low vs. High I/O databases
  - Lower I/O databases can be larger without performance issues
- Backups
  - Location
  - Test them!
- Simple vs. full recovery

# SQL Server Maintenance

- KB841057 (et al.) For SharePoint production databases, don't:
  - Open
  - Edit
  - Query
  - Etc.
- Fragmentation
  - Database
    - Tables
    - Indexes
  - File system

# SQL Server Maintenance

Examples of unsupported database changes include, but are not limited to, the following:

- Adding database triggers
- Adding new indexes or changing existing indexes within tables
- Adding, changing, or deleting any primary or foreign key relationships
- Changing or deleting existing stored procedures
- Calling existing stored procedures directly, except as described in the [SharePoint Protocols documentation](#)
- Adding new stored procedures
- Adding, changing, or deleting any data in any table of any of the databases for the products that are listed in the "Applies to" section
- Adding, changing, or deleting any columns in any table of any of the databases for the products that are listed in the "Applies to" section
- Making any modification to the database schema
- Adding tables to any of the databases for the products that are listed in the "Applies to" section
- Changing the database collation
- Running DBCC\_CHECKDB WITH REPAIR\_ALLOW\_DATA\_LOSS (However, running DBCC\_CHECKDB WITH REPAIR\_FAST and REPAIR\_REBUILD is supported, as these commands only update the indexes of the associated database.)
- Enabling SQL Server change data capture (CDC)
- Enabling SQL Server transactional replication
- Enabling SQL Server merge replication



# Summary

## Best Practices & Summary

- Use SQL Server best practice guidance
- Use RAID disks and spread data and trans log files on multiple physical drives
- Auto growth and 'shrinking' causes fragmentation
- Defragment SQL drives that have SharePoint content databases
- Backup (with multiple copies) and test your backups
- Dedicated SQL Server or SQL Instance
- Create SQL Server alias or CNAME
- Content databases < ~200GB
- Monitor SharePoint content database I/O
- MaxDOP = 1
- Set dbcreator and securityadmin for SharePoint install account only



# SharePoint Install Demo



Questions?





# Thank you!

@Daniel Glenn 

Daniel.Glenn@InfoWorks-TN.com

DanielGlenn.com