Tuning SQL Server for SharePoint

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About me

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

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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
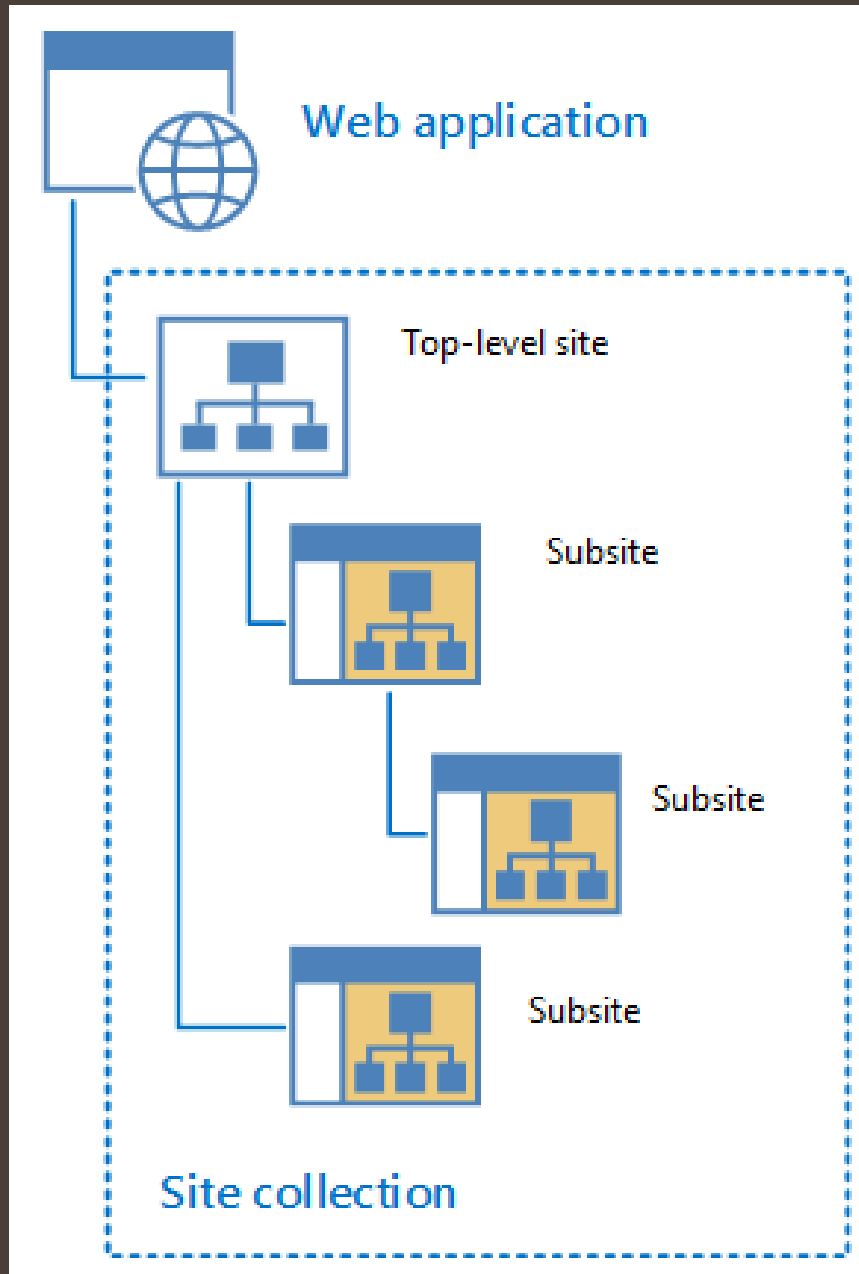
SharePoint Install Demo

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

Web application

Top-level site

Subsite

Subsite

Subsite

Site collection

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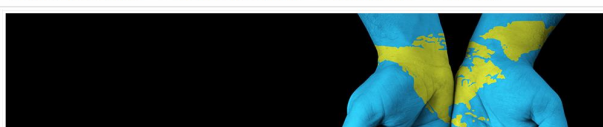
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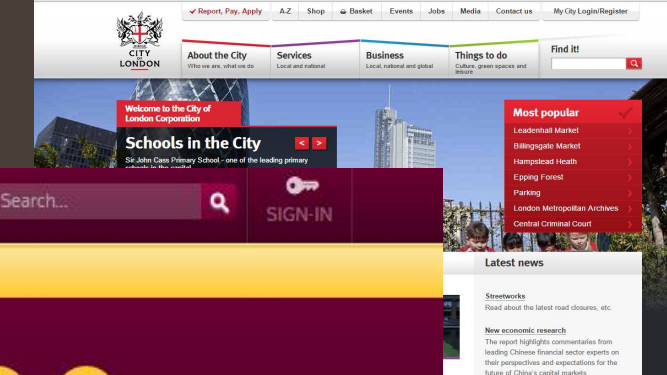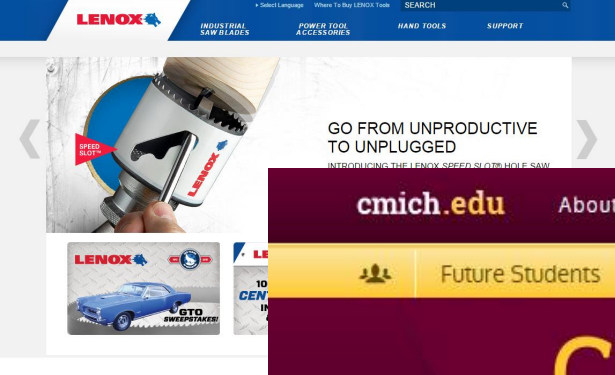INDUSTRIAL SAW BLADES   POWER TOOL ACCESSORIES   HAND TOOLS   SUPPORT

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SharePoint Databases

SharePoint Databases

- For a full install of SharePoint 2013 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 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

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

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!

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