

SQLdays konferenz

2 Tage, 28 Sessions, 11 Speaker

SQL Server Best Practices

Install SQL Server like a boss

Andre Essing
Senior Consultant & Trainer



Veranstalter



ANDRE ESSING

Senior Consultant
Trainer



Microsoft
CERTIFIED

Solutions Expert

Data Platform

Microsoft
CERTIFIED

Trainer



Microsoft®
Most Valuable
Professional



Profile

**DBA and Senior Consultant, MVP,
Microsoft Certified Solutions Expert,
Trainer and SQL Server Enthusiast**

- Working in IT since 1998
- SQL Server since version 7.0
- Focus on SQL Server infrastructure and mission critical systems
- Microsoft Certified Trainer and MCSE: Data Platform
- Microsoft P-TSP Data Platform
- Microsoft Most Valuable Professional
- Friend of Redgate
- PASS Chapter Leader Bavaria and SQL Saturday Organizer

Contact

Web & Mail

www www.trivadis.com

E-Mail andre.essing@trivadis.com

Social

Twitter twitter.com/aessing

Xing xing.com/profile/Andre_Essing

LinkedIn linkedin.com/in/aessing

Publications

SlideShare slideshare.net/AndreEssing

Veranstalter





PASS Deutschland e.V. SQL Server Usergroup

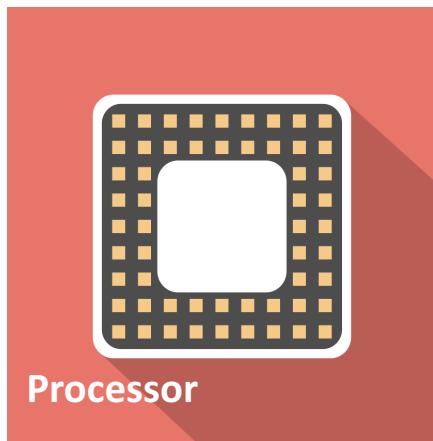
**sqlpass.de
meetup.com/pass-bayern**

Veranstalter

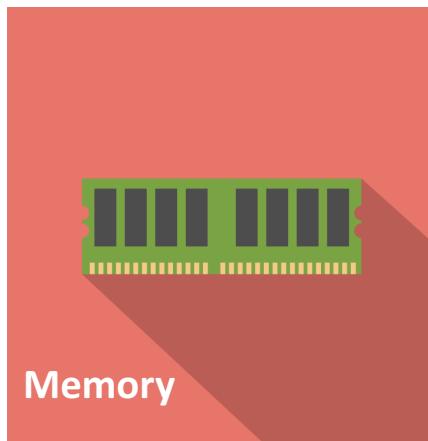


The Key for a Perfect System

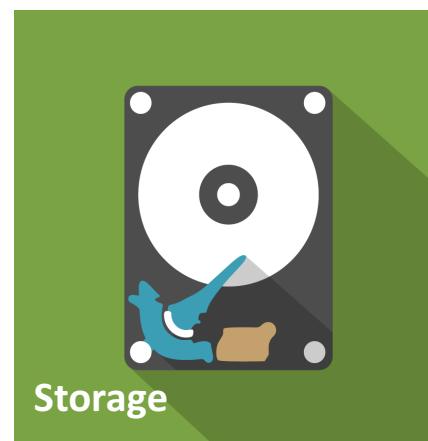
- The key is to build a balanced system without bottlenecks
- The SQL Server software is only a small part of the whole system



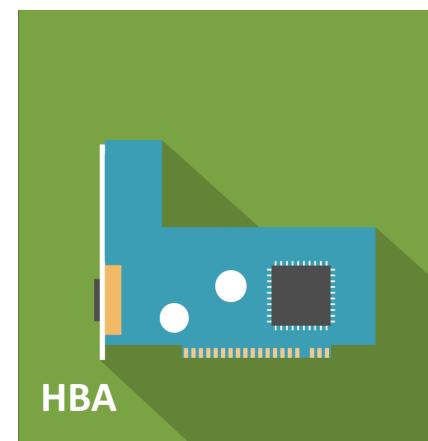
Processor



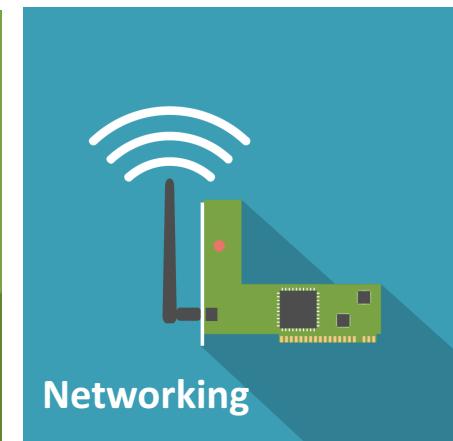
Memory



Storage



HBA



Networking

- Plan your system before you build it



Veranstalter



Pre Deployment



Veranstalter



Hardware

- Disable Hyper-Threading
- 1 scheduler per logical core
- Disable all power savings
- SQL Server licenses are expensive



Veranstalter



Storage

- Which kind of storage?
- Read caching isn't necessary
- Prefer small disks
- Low latency is important
- Don't use thin provisioning
- Most times virtual disks are slower than physical



Veranstalter

 ppedv

Filesystem

- Check partition alignment
<http://msdn.microsoft.com/en-us/library/dd758814.aspx>
- Format volumes the right way
- Disable file indexing and defrag
- Disk layout is important
- Consider a remote backup location
- Use mountpoints



Operating System

- Configure for high performance
- Use service accounts
- Local Security Policy
 - Lock Pages In Memory
 - Perform Volume Maintenance Tasks
- Antivirus software & exclusions
<https://support.microsoft.com/en-us/kb/309422>
- Windows Firewall & User Access Control



Veranstalter



Setup



Veranstalter

 ppedv

The logo for ppedv, featuring the company name in a bold, black, sans-serif font next to a blue square icon containing a white 'p' shape.

Installation

- Only install components you really need
- Choose the correct collation
- Install using a configuration file
- Don‘t forget to install updates
- BUILTIN\Administrators isn‘t a good idea
- SQL Server is not a workstation



Veranstalter



Post Setup Configuration



Veranstalter



Networking

- Same port for all instances
- Dedicated IP per instance
- Use DNS alias for easy access
- Set SPNs to use Kerberos authentication
- Don't use SQL Logins



Veranstalter



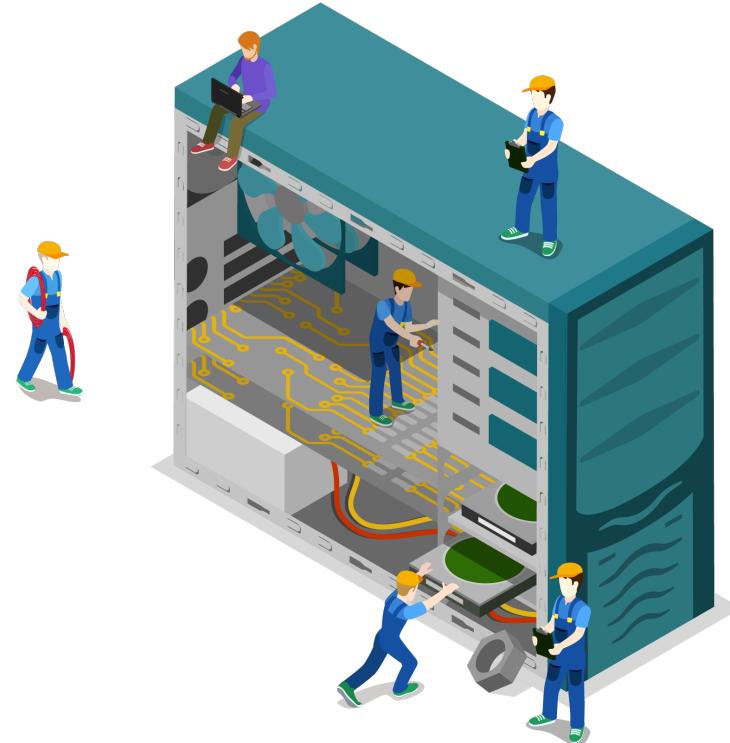
Trace Flags

- Trace Flag 1117
 - Equally grows all data files
 - Replaced in 2016 by filegroup option
(AUTOGROW_ALL_FILES - sys.filegroups)
 - Recommended for all filegroups and databases
- Trace Flag 1118
 - Force use of unified extents for objects
 - Replaced in 2016 by database option
(MIXED_PAGE_ALLOCATION - sys.databases)
 - Default in SQL Server 2016



Instance

- Configure memory limits
- Optimize for ad hoc workloads
- Max Degree of Parallelism
 - Not higher than cores per socket
 - Some apps need a value of 1
- Cost Threshold for Parallelism
 - 40 for OLTP workloads
 - 25 for DWH and mixed workloads



Database defaults

- Default fill factor
 - Our best practice is 80%
 - It is just for new objects
- Keep an eye on fragmentation
- Compress Backups
- Checksum default



TempDB

- Split into multiple files
- Size depends on usage
- Size and growth of the files
 - Start with 2-4GB per data file and 4-8GB log
 - Grow 256MB-1GB for data and 1GB for log
- Monitor TempDB usage
- Don't forget trace flag 1117 and 1118



Veranstalter



Databases – Physical design

- The physical design matters
- When possible, primary filegroup only for MDF
- Use multiple files per filegroup
- Set size and growth of files
- Estimate the size for the next year(s)
- Keep an eye on VLFs

`DBCC LOGININFO;`



Veranstalter



Databases – Options

- Don't assign DB_Owner role or DBO
- Always use Full Recovery Model
 - There could be some exceptions
- Never enable Auto_Close or Auto_Shrink
- Enable Auto_Create_Statistics
- Enable Auto_Update_Statistics



Maintenance

- There are more tasks than just backup
- Never shrink automatically
- Don't forget to clean the mess of SQL Server
- Don't use maintenance plans
- Use scripts
 - Trivadis Toolbox (<http://www.trivadis.com/>)
 - Ola Hallengren (<https://ola.hallengren.com/>)



Vielen Dank!

Ich freue mich auf Feedback! Euer Andre



Veranstalter

