

SPR301
Designing for
Performance and Scalability
Links and Drawings

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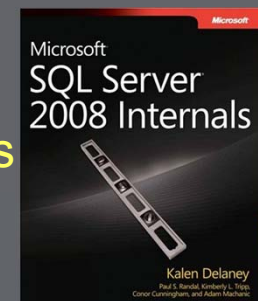
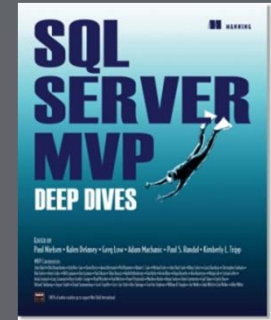
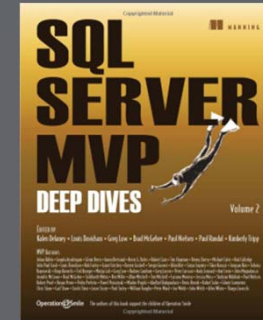
Author/Instructor: Kimberly L. Tripp



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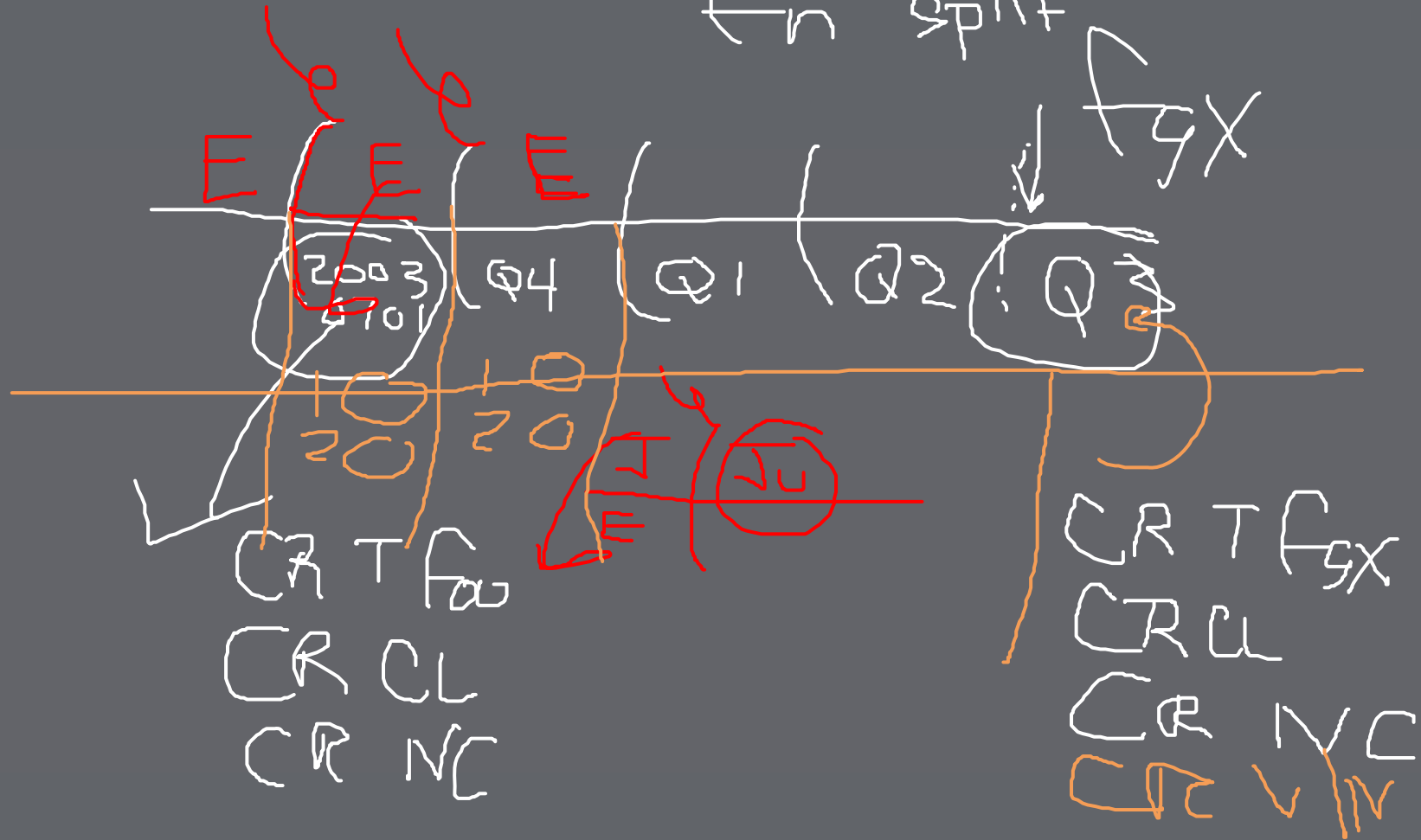
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- Writer/Editor for SQL Magazine www.sqlmag.com
- Author/Instructor for SQL Server Immersion Events
- Instructor for multiple rotations of both the SQL MCM and Sharepoint MCM
- Author/Manager of SQL Server 2005 Launch Content, co-author/Manager for SQL Server 2008 Jumpstart Content, Author/Speaker at TechEd, SQL Connections, SQLPASS, ITForum, Conference Co-chair for SQL Connections
- Author of several SQL Server Whitepapers on MSDN/TechNet: Partitioning, Snapshot Isolation, Manageability, SQLCLR for DBAs
- Author/Presenter for more than 25 online webcasts on MSDN and TechNet (two series and other individual webcasts)
- Co-author MSPress Title: SQL Server 2008 Internals, the SQL Server MVP Project (1 & 2), and SQL Server 2000 High Availability
- Presenter/Technical Manager for SQL Server HOL DVDs
- We love this stuff... feel free to ask questions!



Partitioning Resources

- Start with the course slides
- Review the CreditPV and CreditPT sample scripts from class
- Go through the Partitioning Lab (see [Partitioning Lab.pdf](#) and the [Partitioning Lab Scripts.zip](#))
- Read/review both partitioning Whitepapers
 - 2005 whitepaper: <http://msdn2.microsoft.com/en-us/library/ms345146.aspx> (Don't forget the updated RIGHT-based sample scripts in your Partitioning Lab solution files)
 - 2008 whitepaper: <http://msdn.microsoft.com/en-us/library/dd578580.aspx>

Scheme f_{gx}
 f_n split

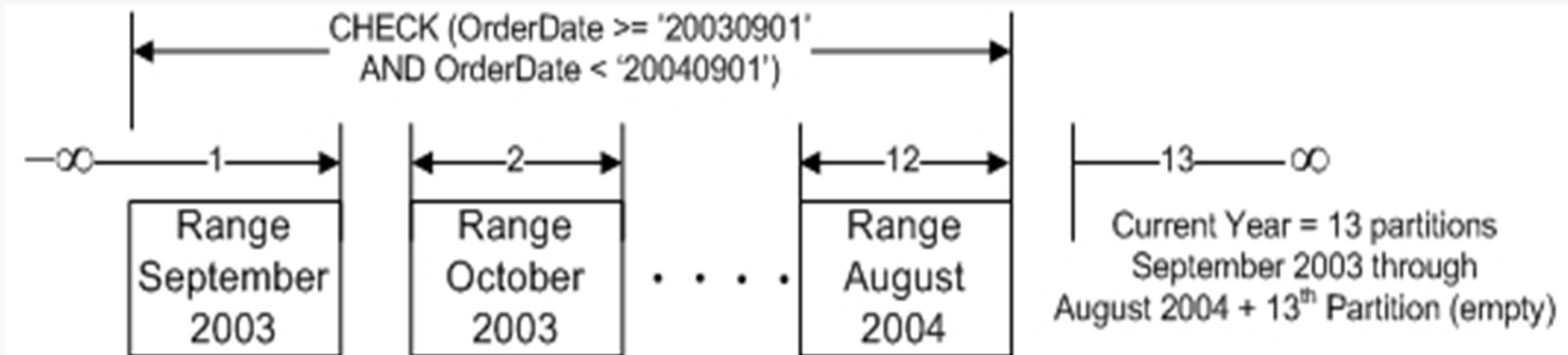


The Sliding Window – Switch

 *hidden slide
w/extra details*

*See whitepaper for complete
text for these diagrams*

- Whiteboard discussion...
- For speed the rolling range should always be a metadata ONLY “switch”



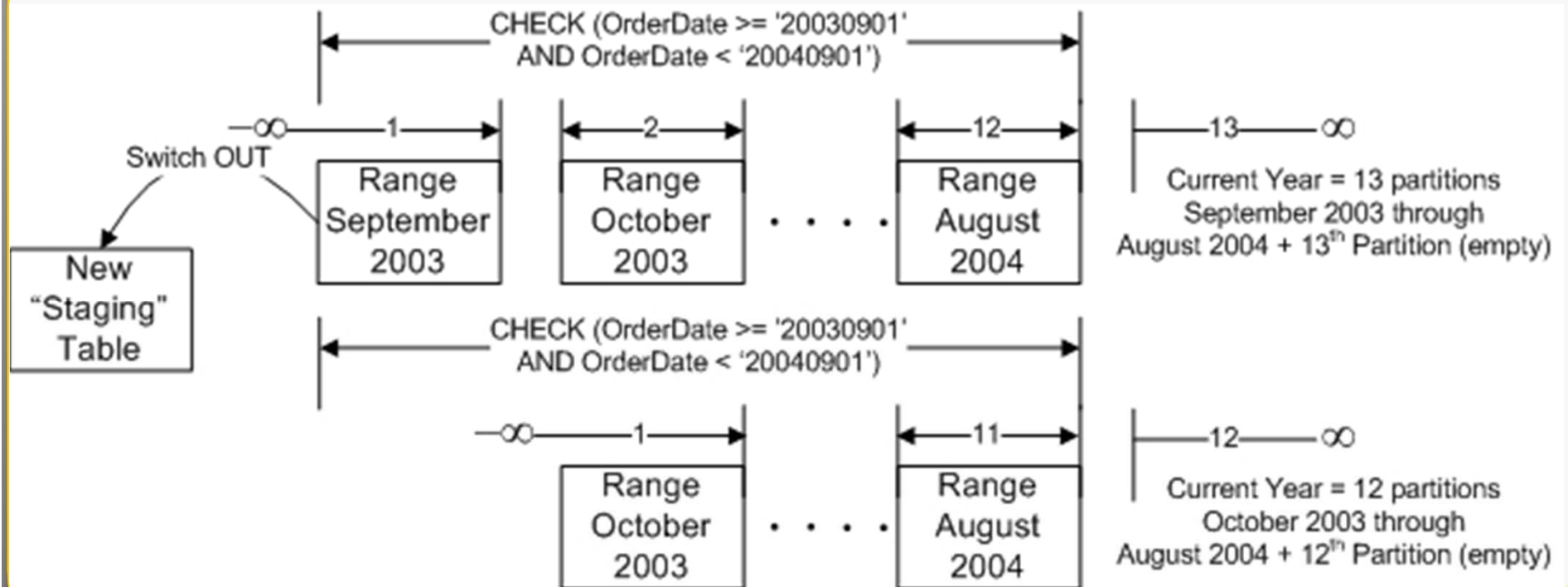
- Make sure to create new table on the same physical filegroup as the partition you are switching IN or OUT.

The Sliding Window – Switch

- Create new table (same structure/indexes)
- Switch OUT the old data

 hidden slide
w/extra details

See whitepaper for complete
text for these diagrams

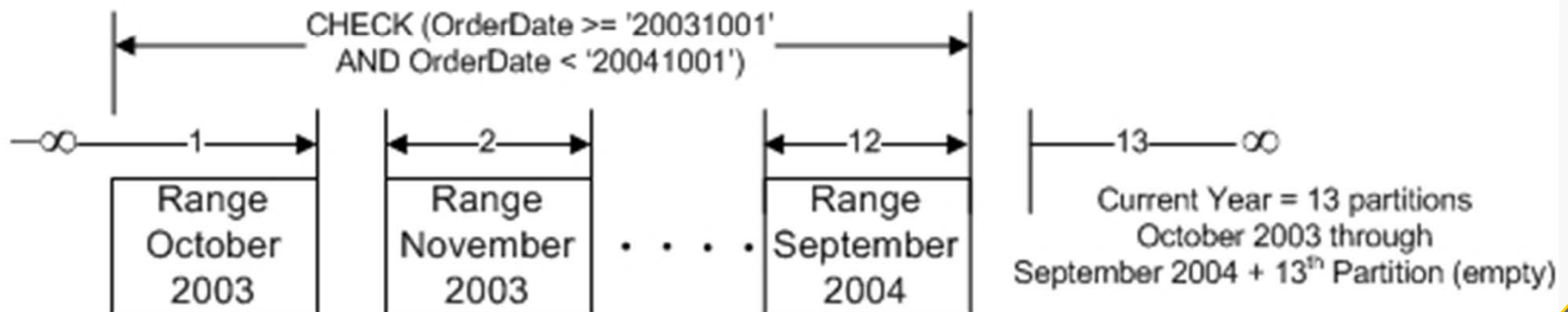
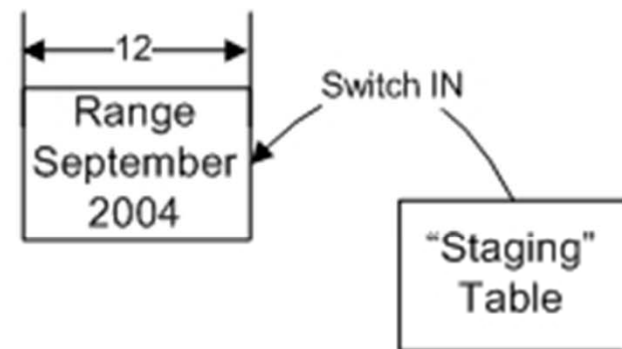
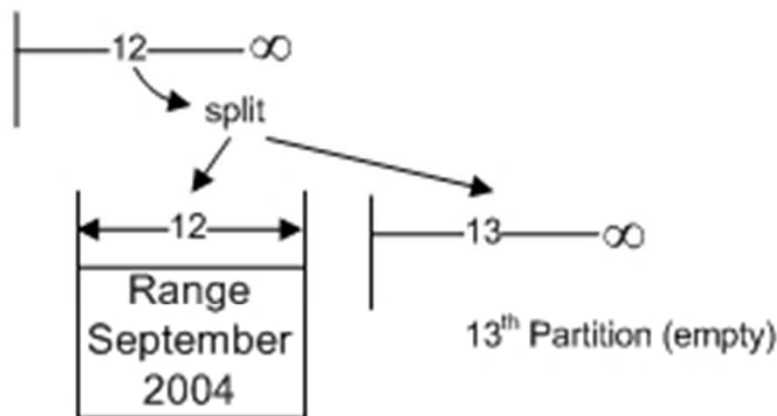


The Sliding Window – Switch

- Create new table as a heap, load data, build indexes, then switch IN the current data

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w/extra details

See whitepaper for complete
text for these diagrams



For more info

- Check out our website (no advertising! It's only free content and links to more!)
 - www.SQLskills.com
- Check out our links to whitepapers:
 - www.SQLskills.com/whitepapers.asp
- Check out our blogs:
 - www.SQLskills.com/blogs/Kimberly
 - www.SQLskills.com/blogs/Paul
- Check out our online webcasts (6 individual webcasts, MCM webcasts, and 2 multi-part series for a total of 27 webcasts – over 1000 hours of FREE online/downloadable content):
 - www.SQLskills.com/webcasts.asp

For more info

- Blog posts on internals:
 - [Inside the Storage Engine: Anatomy of a record](http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-a-record.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-a-record.aspx>)
 - [Inside the Storage Engine: Anatomy of a page](http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-a-page.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-a-page.aspx>)
 - [Inside the Storage Engine: Anatomy of an extent](http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-an-extent.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-Anatomy-of-an-extent.aspx>)
 - [Inside the Storage Engine: GAM, SGAM, PFS, and Other Allocation Maps](http://www.sqlskills.com/BLOGS/PAUL/post/Inside-The-Storage-Engine-GAM-SGAM-PFS-and-other-allocation-maps.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/post/Inside-The-Storage-Engine-GAM-SGAM-PFS-and-other-allocation-maps.aspx>)
 - [Inside the Storage Engine: IAM pages, IAM chains, and allocation units](http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-IAM-pages-IAM-chains-and-allocation-units.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/post/Inside-the-Storage-Engine-IAM-pages-IAM-chains-and-allocation-units.aspx>)

For more info

- Blog posts on statistics:

- [Auto update statistics and auto create statistics - should you leave them on and/or turn them on??](http://www.sqlskills.com/blogs/kimberly/post/Auto-update-statistics-and-auto-create-statistics-should-you-leave-them-on-and-or-turn-them-on??)

(<http://www.sqlskills.com/blogs/kimberly/post/Auto-update-statistics-and-auto-create-statistics-should-you-leave-them-on-and-or-turn-them-on.aspx>)

- [Index rebuilds depend on stats, which are updated by index rebuilds?!?](http://www.sqlskills.com/blogs/paul/post/Index-rebuilds-depend-on-stats-which-are-updated-by-index-rebuilds?!?)

(<http://www.sqlskills.com/blogs/paul/post/Index-rebuilds-depend-on-stats-which-are-updated-by-index-rebuilds!.aspx>)

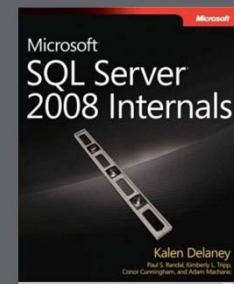
- Whitepaper on statistics:

- [Statistics Used by the Query Optimizer in Microsoft SQL Server 2005](http://www.microsoft.com/technet/prodtechnol/sql/2005/qrystats.mspx)

(<http://www.microsoft.com/technet/prodtechnol/sql/2005/qrystats.mspx>)

- Chapter of interest:

- Chapter 6: Index Internals and Management
(Microsoft® SQL Server® 2008 Internals)



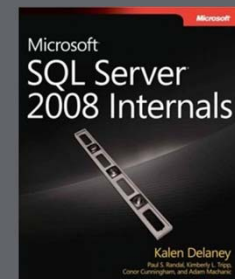
SQL Server
CONNECTIONS

For more info

- Blog categories (each with multiple posts):
 - [Indexes](http://www.sqlskills.com/blogs/kimberly/category/Indexes.aspx)
(<http://www.sqlskills.com/blogs/kimberly/category/Indexes.aspx>)
 - [Fillfactor](http://www.sqlskills.com/blogs/kimberly/category/FILLFACTOR.aspx)
(<http://www.sqlskills.com/blogs/kimberly/category/FILLFACTOR.aspx>)
 - [Indexes from Every Angle](http://www.sqlskills.com/blogs/paul/category/Indexes-From-Every-Angle.aspx)
(<http://www.sqlskills.com/blogs/paul/category/Indexes-From-Every-Angle.aspx>)
- Whitepapers on indexes:
 - [Online Indexing Operations in SQL Server 2005](http://www.microsoft.com/technet/prodtechnol/sql/2005/onlineindex.mspix)
(<http://www.microsoft.com/technet/prodtechnol/sql/2005/onlineindex.mspix>)
 - [Improving Performance with SQL Server 2005 Indexed Views](http://www.microsoft.com/technet/prodtechnol/sql/2005/impprfiv.mspix)
(<http://www.microsoft.com/technet/prodtechnol/sql/2005/impprfiv.mspix>)

For more info

- Blog categories of interest:
 - [Fragmentation](http://www.sqlskills.com/BLOGS/PAUL/category/Fragmentation.aspx)
(<http://www.sqlskills.com/BLOGS/PAUL/category/Fragmentation.aspx>)
- Webcasts on Index Fragmentation:
 - MSDN Webcast Series: [Part 5: New Features in Indexing and Index Maintenance Best Practices \(Level 200\)](http://msevents.microsoft.com/CUI/WebCastEventDetails.aspx?EventID=1032278599)
(<http://msevents.microsoft.com/CUI/WebCastEventDetails.aspx?EventID=1032278599>)
 - [TechEd 2005: Index Defragmentation with SQL Server 2005 \(Level 300\)](http://www.microsoft.com/emea/spotlight/sessionh.aspx?videoid=30)
(<http://www.microsoft.com/emea/spotlight/sessionh.aspx?videoid=30>)
- Whitepaper on Fragmentation (still relevant for concepts even though written for SQL Server 2000):
 - [Microsoft SQL Server 2000 Index Defragmentation Best Practices](http://www.microsoft.com/technet/prodtechnol/sql/2000/maintain/ss2kidbp.mspx)
(<http://www.microsoft.com/technet/prodtechnol/sql/2000/maintain/ss2kidbp.mspx>)
- Chapter of interest:
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