



Saint Louis SQL Server Users Group SQL 2008 Launch Event

New Features For Administrators

Presented By

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Saint Louis SQL Server Users Group SQL 2008 Launch Event



Brian Flynn

- Saint Louis University Graduate
 - Computer Science / Mathematics
- Over 10 years of experience
- Developer : VBScript, VB.NET, ASP.NET
- Administrator : SQL, IIS, ISA, EXG, SBS

Brian Flynn

New Administrator Features

- Policy Based Management
- Multiple Server Interaction
- Data Collector
- Compression
- Resource Governor
- Lock Management @ Partition Level
- Hot Add CPU
- Repairing corrupt pages with a mirror
- Extensible Key Management & Transparent Data Encryption
- Change Tracking
- Service Broker
- Clustering Changes (facts or rumors?)

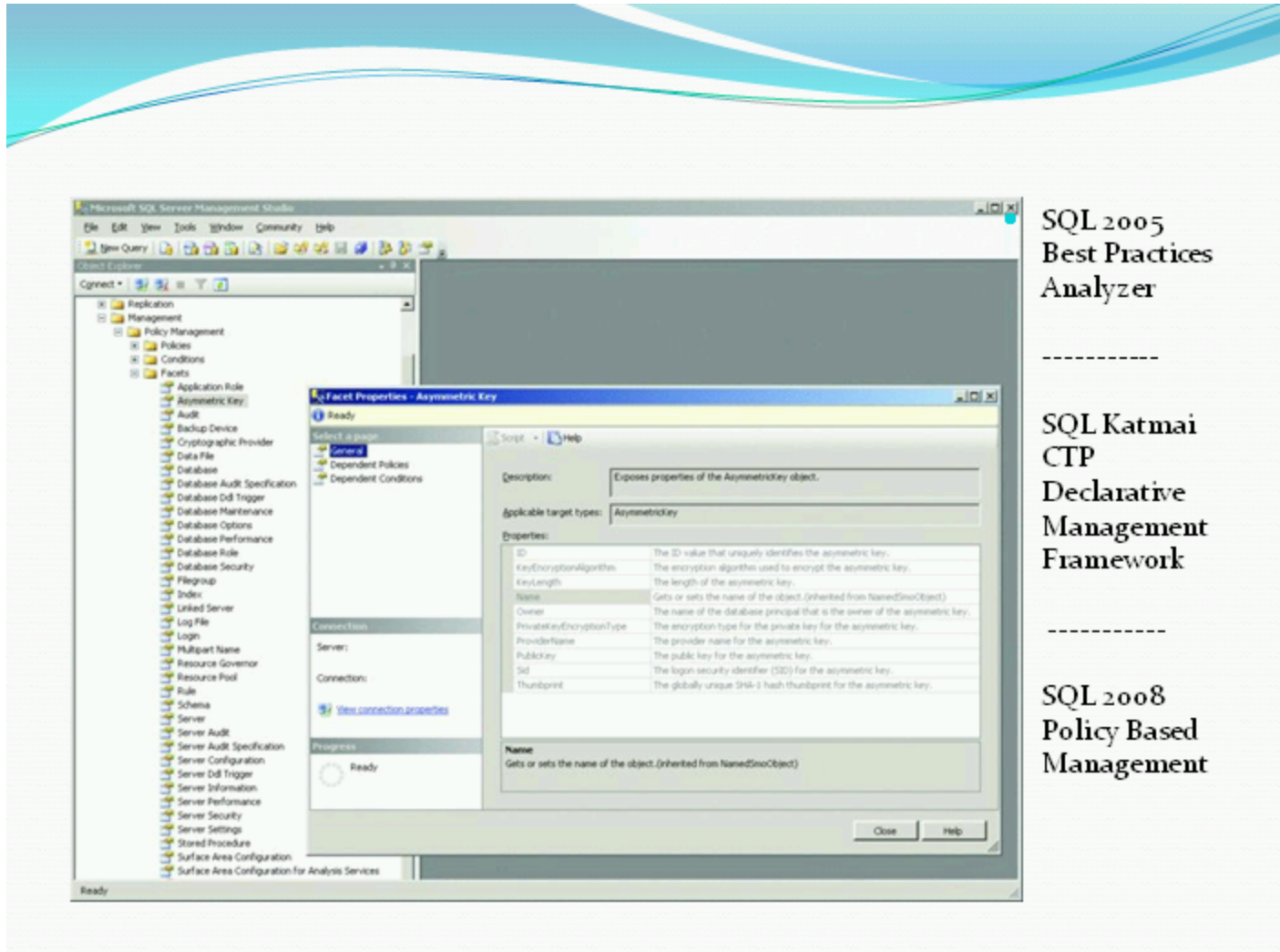
New Administrator Features



Policy Based Management

- Like Windows Group Policy
- Manage more servers with less staff.
- Proactive vs. reactive : always monitoring & enforcing.

Policy Based Management



SQL 2005
Best Practices
Analyzer

SQL Katmai
CTP
Declarative
Management
Framework

SQL 2008
Policy Based
Management

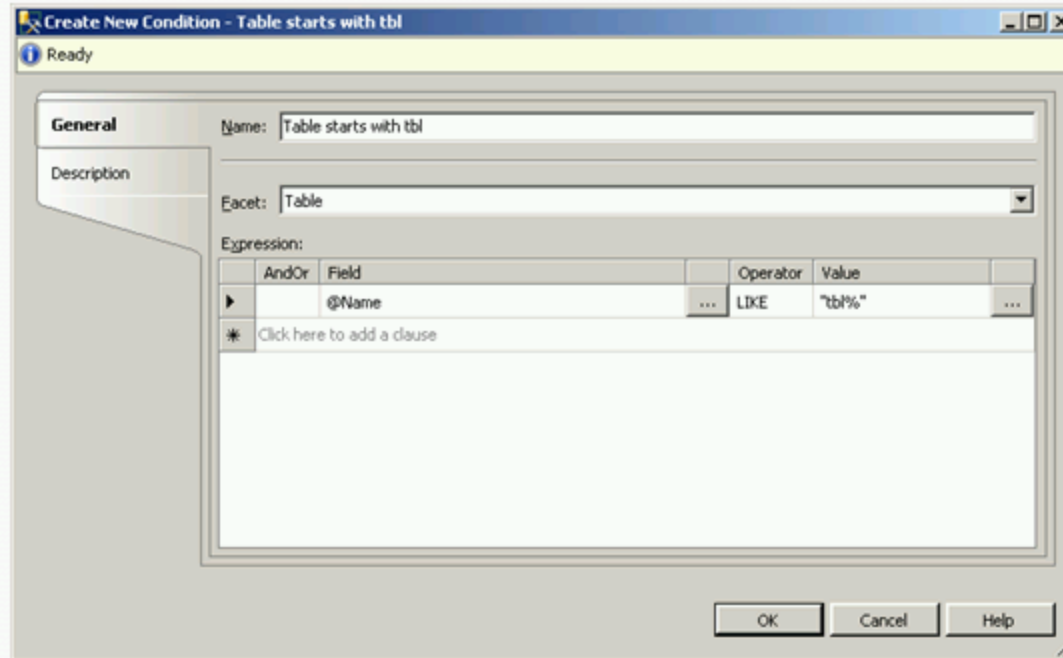
Slide 5

Terminology

- Policy – a condition to be checked and/or enforced
- Condition – a property expression that evaluates to True or False; i.e. the state of a Facet
- Facet - a predefined set of properties that can be managed
- Target – an entity that is managed by Policy-Based management; e.g. a database, a table, an index, etc.
- Category – Used to group policies for management

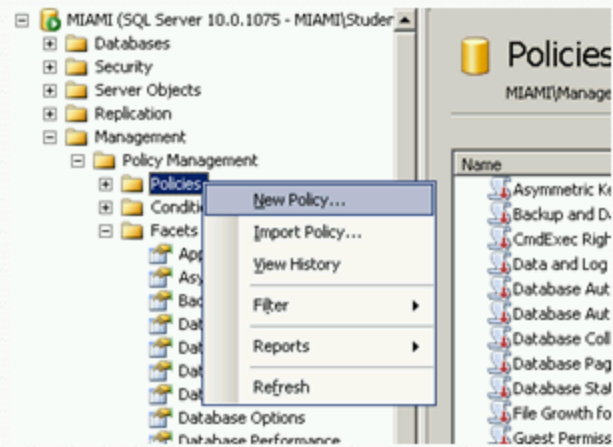
Terminology

Creating Conditions



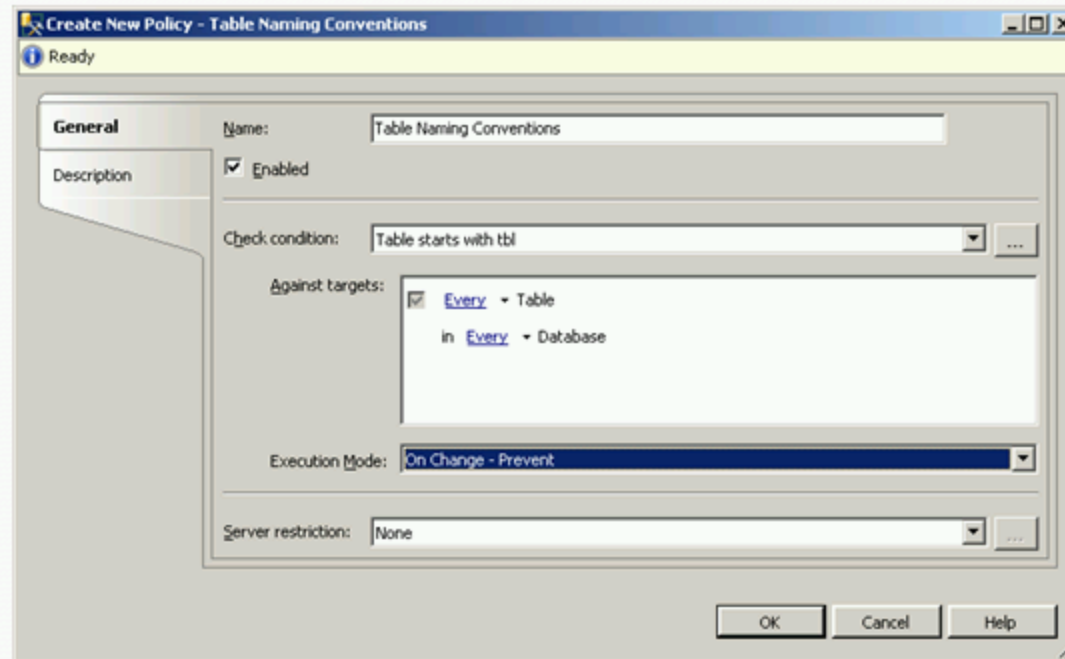
Creating Conditions

Creating a Policy



Creating a Policy

Linking a Policy with a Condition



Linking a Policy with a Condition

Execution Mode

- **On Demand.** This mode evaluates the policy only on demand of the user.
- **On Change - Prevent.** This automated mode uses DDL triggers to prevent policy violations.
- **On Change - Log Only.** This automated mode uses event notification to evaluate a policy when a relevant change occurs and logs policy violations.
- **On Schedule.** This automated mode uses a SQL Server Agent job to periodically evaluate a policy. The mode logs policy violations.

Execution Mode

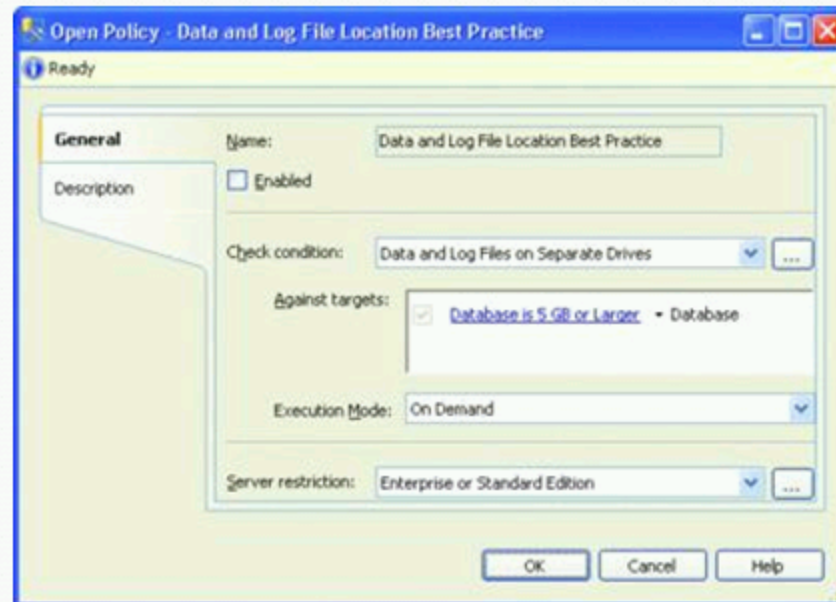
Testing The Policy

```
use adventureworks
go
create table failedpolicy (policyid int)
-----
MIAMI(MIAMI\Student):
Policy 'Table Naming Conventions' has been violated by
  'Server/Database[@Name='AdventureWorks']/Table[@Name='failedpolicy' and
  @Schema='dbo']'.
This transaction will be rolled back.
Policy description: ''
Additional help: '' : ''.
MIAMI(MIAMI\Student): Msg 3609, Level 16, State 1, Procedure
  sp_syspolicy_dispatch_event, Line 50
The transaction ended in the trigger. The batch has been aborted.
```

Testing The Policy

Practical Policy Example

- Data and Log File Location Best Practice policy.



Practical Policy Example

Disabling a Policy

- `exec msdb.dbo.sp_syspolicy_update_policy
@name = 'Table Naming Conventions' ,
@is_enabled = 0`

Disabling a Policy

Compliance Policy Ideas

- Industry Regulations e.g.
 - SEC
 - HIPPA
- SLA e.g. recoverability to 5 minutes
- Any ideas?.. Quick discussion

Compliance Policy Ideas

Multiple Server Interaction

- Single (merged) adding server and database name

or

- Multiple result sets.
- Sounds like SQL Farms Combine feature.

Multiple Server Interaction

Data Collector

- Use SQL Agent & SSIS to collect and store management data.
- Many DBAs have home grown scripts to monitor
 - Process Performance
 - Disk Space
 - Locks
- Management Warehouse => SSRS & SSAS

Data Collector

Compression

- SQL 2005 could compress read-only files w/ NTFS.
- SQL 2008 offers Row & Page level compression!
- Reduce space used on disk & in memory = performance & scalability boost!
- Backup compression... LiteSpeed?
- Compressed mirror stream = faster syncs

Compression

Compression Details

Storage cost savings

Shrink large tables such as DW fact tables

Improves query performance

Results in less I/O but with some CPU cost

Higher buffer hit rates

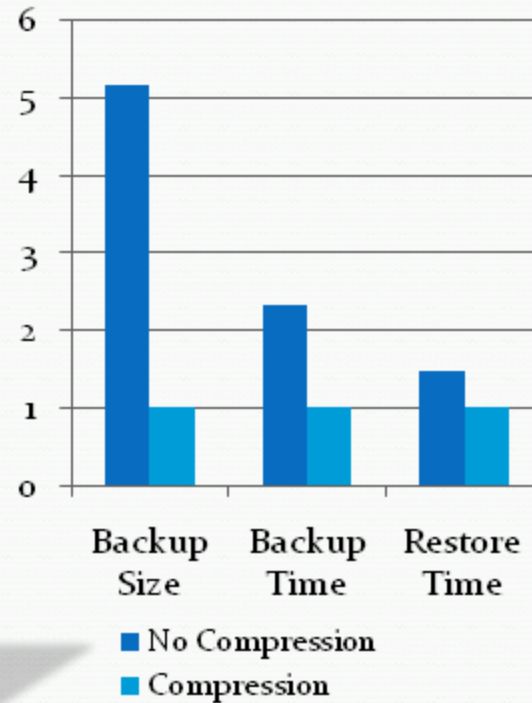
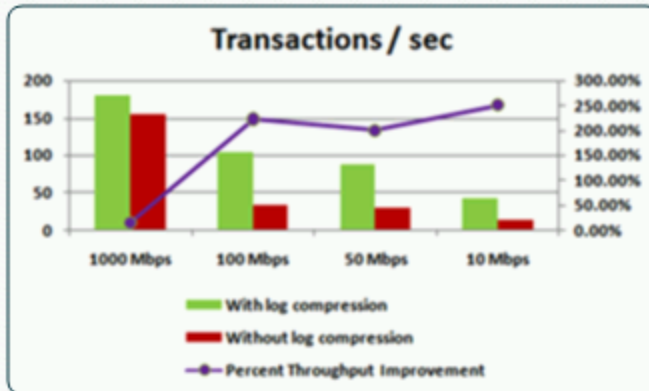
Achieves a 2x to 7x compression ratio

Row-level, variable-width

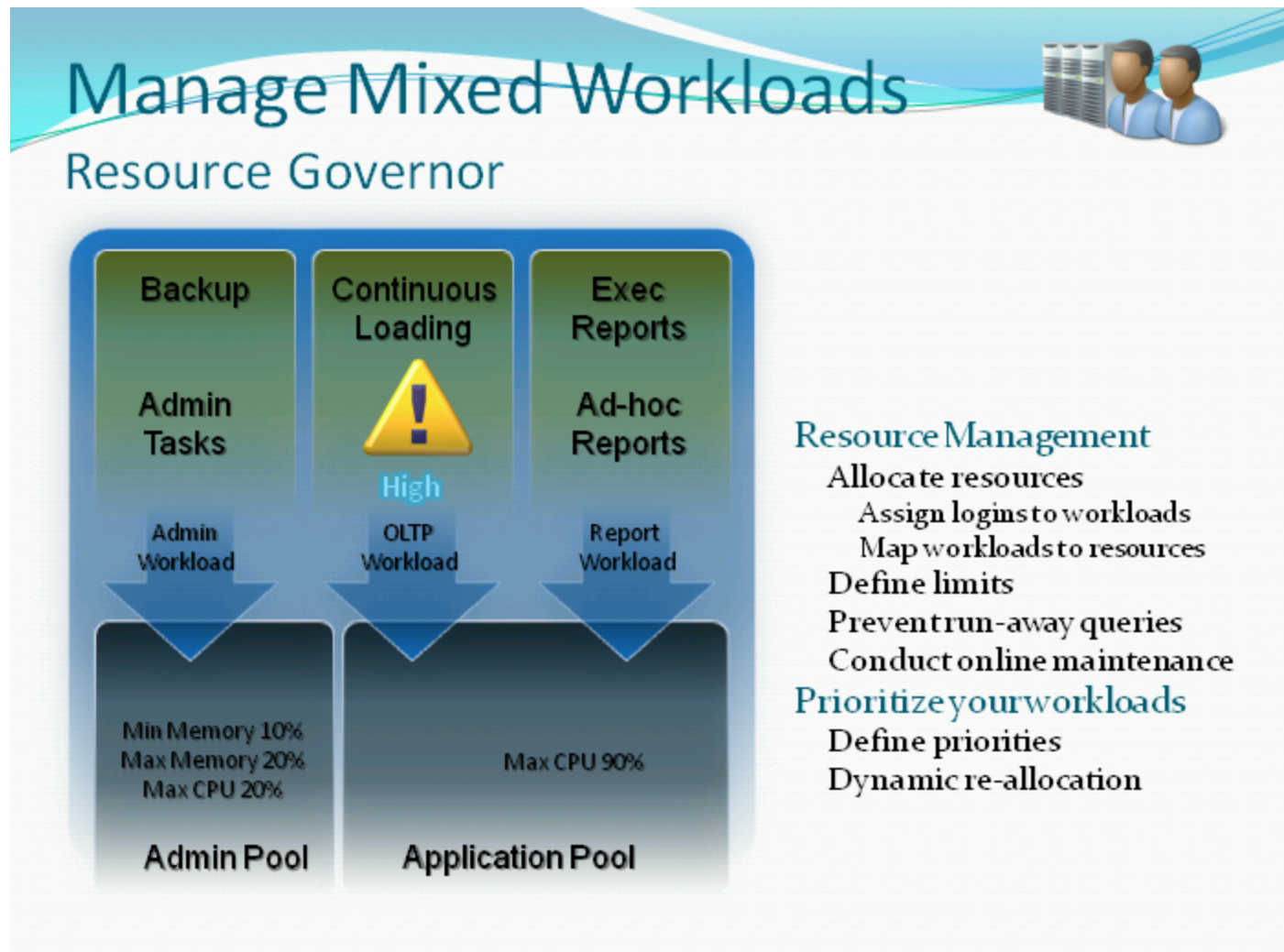
Page-level dictionary

Differential encoding between rows

Log Stream compression



Compression Details



Manage Mixed Workloads Resource Governor

Resource Governor

- Prioritize or limit resources by :
 - Application
 - User
 - Host
 - Etc.
- By individual request or all requests.
- Discussion on applying this???

Resource Governor

Lock Management

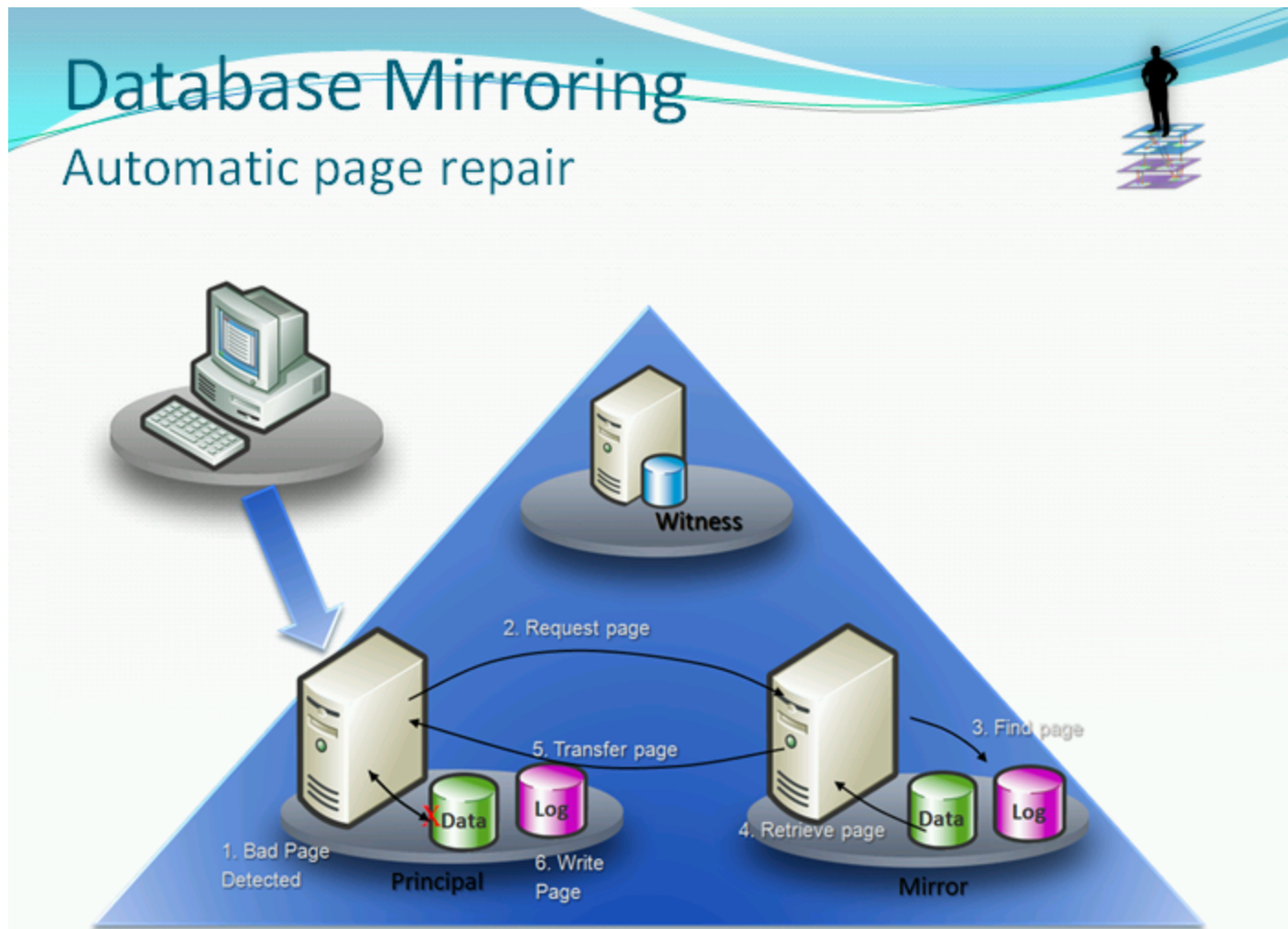
- Partition level lock before Table level lock.
- Reduce effects of lock escalation.
- Discussion on applying this???

Lock Management

Hot Add CPU

- Requires :
 - 64-bit Itanium-based
 - Windows Server 2008 (Enterprise or Datacenter Edition)
 - SQL 2008 Enterprise.

Hot Add CPU



Database Mirroring Automatic page repair

Extensible Key Management

- Store encryption keys safely
- Not just for the database's purposes but also 3rd party hardware & software.
- Available in Enterprise & Developer editions.

Extensible Key Management

Transparent Data Encryption

- Property of the database
- No code modification required
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- Page level

Transparent Data Encryption

Change Tracking

- Built in auditing to track data changes e.g. insert, update, delete
- Example use : Data Warehouse & BI management
- Audit log?
- Discussion

Change Tracking

Service Broker

- New UI and Tools for working with (add/drop/edit functionality within SSMS, Diag tools,)
- Conversation Priority (set message ordering, send/receive impact, 1-10 levels)

Service Broker

Clustering Changes (facts or rumors??)

- Guts largely unchanged.
- Many enhancements require Windows Server 2008
- More than 1 drive letter per clustered SQL Server instance
- Nodes need not be on the same subnet
- Geographically Dispersed Failover Clustering
- Supports OR relationship between dependencies
- Support for up to 16 nodes. At one point talk of 64...???
- iSCSI support???
- The "Virtual Server" nomenclature will go away???
The new term is "Clustered SQL Instance"???
- Setup changes: Installer divided into 2 pieces, mirroring Windows cluster install???
 - Setup - Install components.
 - Configuration - Define clustered instance.
 - Goal: System builder can sysprep cluster nodes and ship them pre-configured.

Clustering Changes (facts or rumors??)

Resource Links

- <http://edge.technet.com/Media/SQL-Server-2008-Policy-Based-Management-Interview/>
- <http://www.databasejournal.com/features/mssql/article.php/3730386>
- <http://www.mssqltips.com/tip.asp?tip=1492>
- [http://technet.microsoft.com/en-us/magazine/cc434690\(TechNet.10\).aspx](http://technet.microsoft.com/en-us/magazine/cc434690(TechNet.10).aspx)
- [http://technet.microsoft.com/en-us/magazine/cc434691\(TechNet.10\).aspx](http://technet.microsoft.com/en-us/magazine/cc434691(TechNet.10).aspx)
- <http://weblogs.sqlteam.com/geoffh/archive/2007/09/26/SQL2008-Clustering-Changes.aspx>
- <http://www.databasejournal.com/features/mssql/article.php/3691821>
- <http://blogs.mssqltips.com/blogs/chadboyd/archive/2007/10/15/katmai-sql-2008-the-list-of-new-features.aspx>
- <http://www.mssqltips.com/tip.asp?tip=1313>
- <http://download.microsoft.com/download/a/c/d/acd8e043-d69b-4f09-bc9e-4168b65aaa71/SQL2008HA.docx>

Resource Links