



SAP DB

A review on 2 years of Open Source

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Content

- **Project History**
- **SAP DB Open Source Project Evolution**
- **SAP DB Case Examples**
- **Benchmarks**
- **Benefits of Version 7.4**

Project History

- **SAP DB and predecessors since 1978**
- **October 2000: SAP DB Open Source Project starts**
 - **Binaries, Documentation, News and Spotlights**
 - **Mailing Lists**
- **April 2001: Sources and Development Environment**
 - **Available as Recurring Packages**
 - **Proprietary Development Environment**
- **October 2002: Sources available through CVS**
- **Part of SuSE distribution since SuSE 7.2**
 - **since 8.x the make is done by SuSE themselves**

Evolution

- **Mailing Lists**
 - steadily increasing community
- **Releases**
 - 2 major releases (7.3, 7.4)
 - many minors
- **Documentation**
 - updated through 1 complete development cycle
 - HTML vs PDF
- **Spotlights**
 - on availability of topics
- **Installations**
 - outside SAP: no statistics
 - inside SAP: #installations more than doubled

Evolution

- **CD-Roms**
 - 4 CD Roms in irregular intervals

- **Benchmarks**
 - 3 new Benchmark results available

- **Public Sector**
 - increasing interest

- **Linux Distributors**
 - continuous part of SuSE editions

- **Support**
 - Idea of a Support Network to avoid expensive SAP contract
 - Mailing List works fine

Project vs Product

■ SAP DB is an Open Source Project

- Sources available
- Development environment available
- GPL/LGPL licensing
- CVS source control
- All patch proposals are checked and implemented if accepted

■ SAP DB is an Open Source Product

- Ready-to-run binaries
- SAP quality assured
- Identical sources – single source approach
- SAP drives development



Case Examples

Case: SAP DB on Linux with SAP solutions



Ventilation technology

Safety systems (Window security etc.)

Case: SAP DB on Linux with SAP solutions



- SAP DB since R/3 2.2D (1995/96)
- Started with Windows/NT 3.1
- Migration to Linux with 4.5B
- 1 ½ year test phase w/o problems
- Now Linux everywhere where it is possible
- Backupserver on Linux
 - Legato Networker (to DLT, LTO)

Siegenia Aubi Landscape

R/3-Core

CRM

APO

Test Systems: R3-Core, CRM, APO

SIEGENIA AUBI
SOLUTIONS INSIDE

Case: SAP DB on Linux with SAP solutions



■ R/3

- 800 users, 550 concurrent
- Database Size 200 GB
- 3 languages

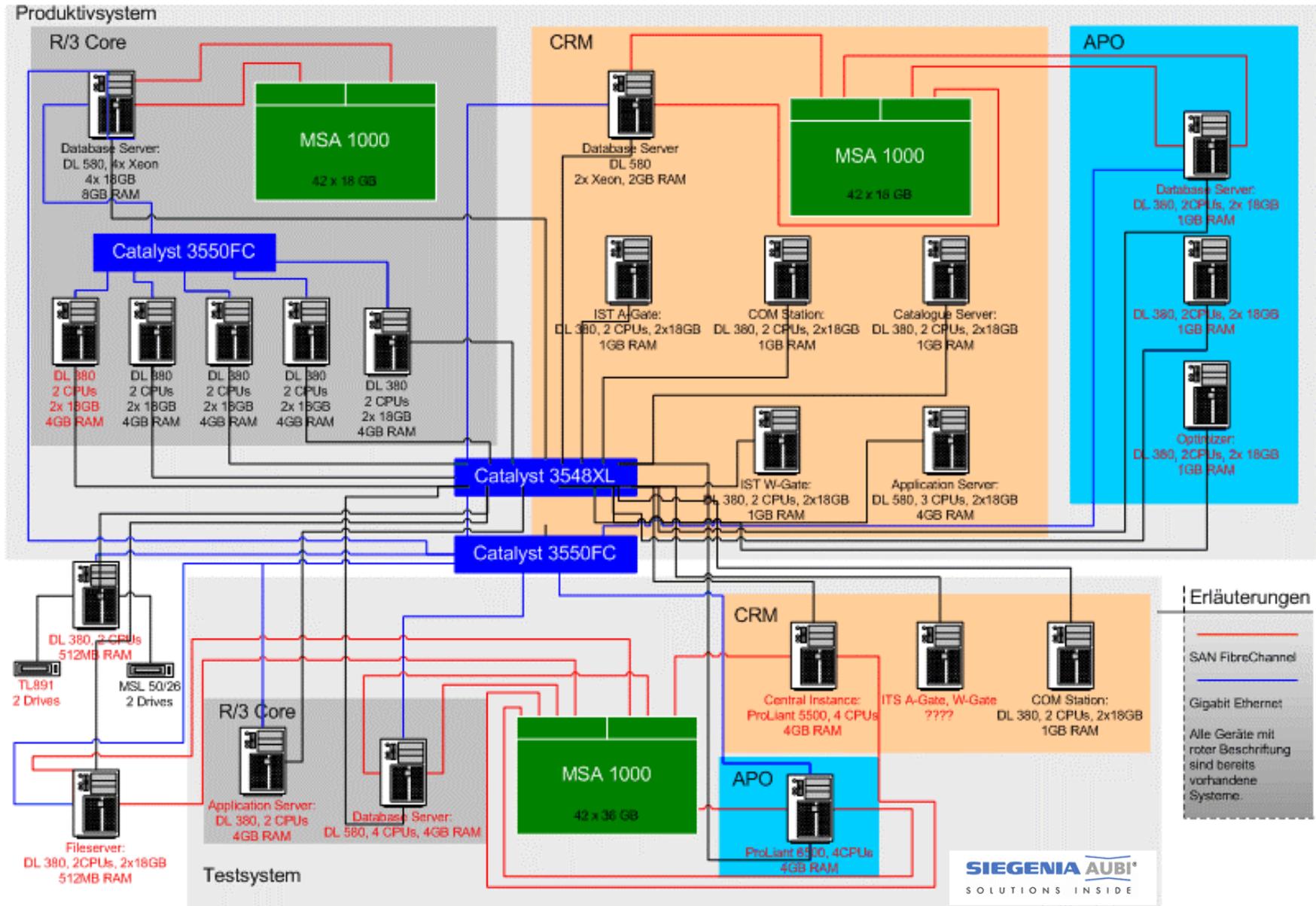
■ CRM

- 70 Laptops
- 170 workgroup server
- Database size 30 GB today (just started)
- ITS Linux internet sales planned to start in 2003

■ APO

- DB-Server Linux/SAP DB
- liveCache Windows (not yet available on Linux)

Siegenia Aubi Landscape (precise)





- **Equipment and Technology**
 - **Conveying**
 - **Packaging**
 - **Palletizing**
 - **Loading**
 - **Sortation & Distribution**



- **Non-SAP enterprise application migrated to SAP DB 7.3**
 - **formerly Adabas D**
 - **Beumer has used Adabas D and predecessors since 1988 !**
 - **Migration via vbs-scripts**
 - **Significant performance improvement**

- **2 Systems, each around 35 GB**

- **400- 450 Users**

- **SUN-Solaris and Win2000 on DELL, HP-Compaq, SUN**

- **ARCServe as backup software for Win2000**



- **SAP Solution with SAP DB**
 - R/3 for FI, CO, HR,
 - Sun Solaris
 - since 1995 (production)

- **Database Size**
 - 30 GB

- **50 Users**

■ Migration Project BKart

■ Migrate all servers from Windows to Linux

■ Migrate an MS-SQL application to an OS-DB

- ◆ migrate from MS-SQL 6.5 to an Open Source Database
- ◆ finally SAP DB was selected
- ◆ 42 Tables, 150 Stored Procedures, 6 Trigger, 12 Views
- ◆ 300 Users

■ Open Source software at BKart

- ◆ Debian GNU/Linux
- ◆ Open LDAP
- ◆ Samba
- ◆ Postnuke

Das Migrationsprojekt BkartA

- ◆ Projektlaufzeit 1.8.2002 bis 31.10.2002
- ◆ Umstellung aller Server von WinNT auf Linux
- ◆ Unter anderem auch Migration einer Visual Basic Fachanwendung von MS-SQL 6.5 zu OSS
- ◆ 42 Tabellen, 150 Stored Procedures, 6 Trigger, 12 Views
- ◆ OSS Backend für Access Datenbanken

Vom MS-SQL zu OSS RDBMS

Linux is our Business.

04.10.02
Seite 2

Linux Foundation Germany AG

- Client in Visual Basic 6.0 SP5
- Connection via OLE-DB
- Conditions
 - Minimize client changes
 - Chance to rollback

Die Vorgangsdatenbank

- Client in Visual Basic 6.0 SP5
- Anbindung über OLE-DB
- Vorgabe: minimale Änderungen am Client
- Vorgabe: Roll-Back Möglichkeit
- Parallele Weiterentwicklung des Clients V2.0

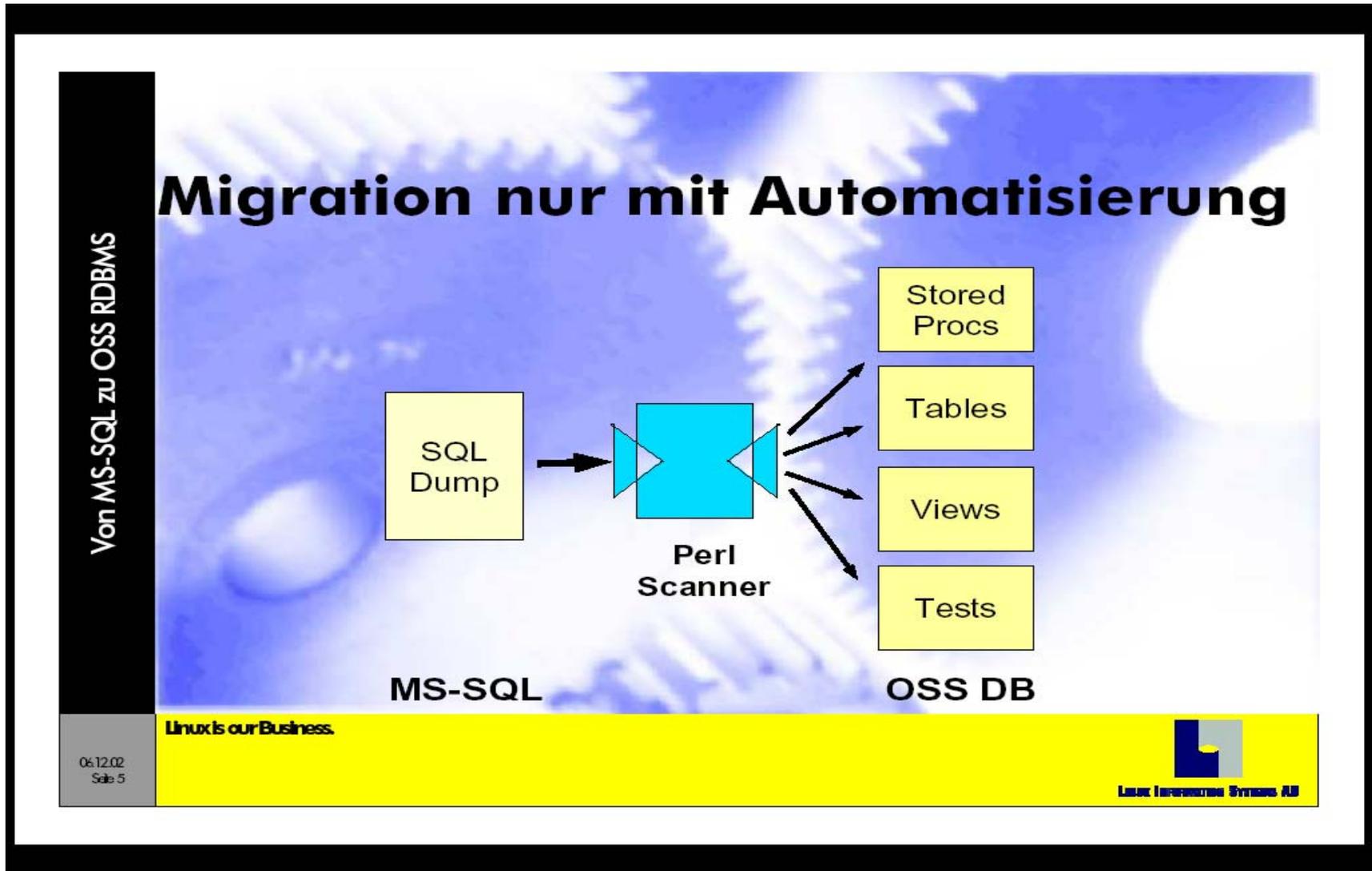
Von MS-SQL zu OSS RDBMS

Linux ourBusiness

09.11.02
SAP-4

Linux Information Systems AG

Bundeskartellamt: Automatic Migration



Bundeskartellamt: Why SAP DB ?

- Proven quality through multi-year use with SAP Solutions
- Fast and reliable
- Easy administration
- System Characteristics: Enterprise, even for terabyte database

Von MS-SQL zu OSS RDBMS

Charakterisierung SAPDB

- Als Datenbanksystem optimiert und mit gesichert für SAP R/3 (3 Tier Modell, Application Server)
- In diesem Kernbereich schnell und zuverlässig, darüber hinaus eventuell Anpassung der Anwendung und Entwicklerunterstützung nötig
- Administrationsfreundlich
- Systemsignatur: schwergewichtig, ein System für große Datenmengen (Terrabyte)

Unikarlsruhe
19.11.2002
14.11.2002

Learn SAP from the Source



Benchmarks

SAP DB Benchmark – Small Configuration

■ 1 Central Server

- 2-way SMP, Intel Xeon 3.06 GHz
- 512 KB L2 Cache, 3 GB main memory

■ 292 concurrent users in SAP's SD Benchmark Profile

- Average Dialog Response Time 1,96 sec
- CPU utilization on DB server 98 %
- SAP DB Version 7.3
- Operating System SuSE SLES 8
- Total Disk Space 108 GB
- Throughput 1.470 Benchmark Items (SAPS)

- www.sap.com/benchmark

SAP DB Benchmark – Small Configuration II

■ 1 Central Server

- 4-way SMP, Intel Itanium II, 1 GHz
- Caches: 32 KB L1, 256 KB L2, 3 MB L3
- 7 GB main memory

■ 470 concurrent users in SAP's SD Benchmark Profile

- | | |
|--------------------------------|------------------------------|
| ■ Average Dialog Response Time | 1,74 sec |
| ■ CPU utilization on DB server | 99% |
| ■ SAP DB Version | 7.3 |
| ■ Operating System | SuSE SLES 8 |
| ■ Total Disk Space | 51 GB |
| ■ Throughput | 2.400 Benchmark Items (SAPS) |

- www.sap.com/benchmark

SAP DB Benchmark – Medium Large Configuration

■ 1 Database Server

- 8-way SMP, Intel Xeon 2.0 GHz
- 2 MB L3 Cache, 8 GB main memory

■ 61 Application Servers

- 48 Dialog Servers, 2-way SMP
- 12 Update Servers, 2-way SMP
- 1 Message/Enqueue Server , 1-way

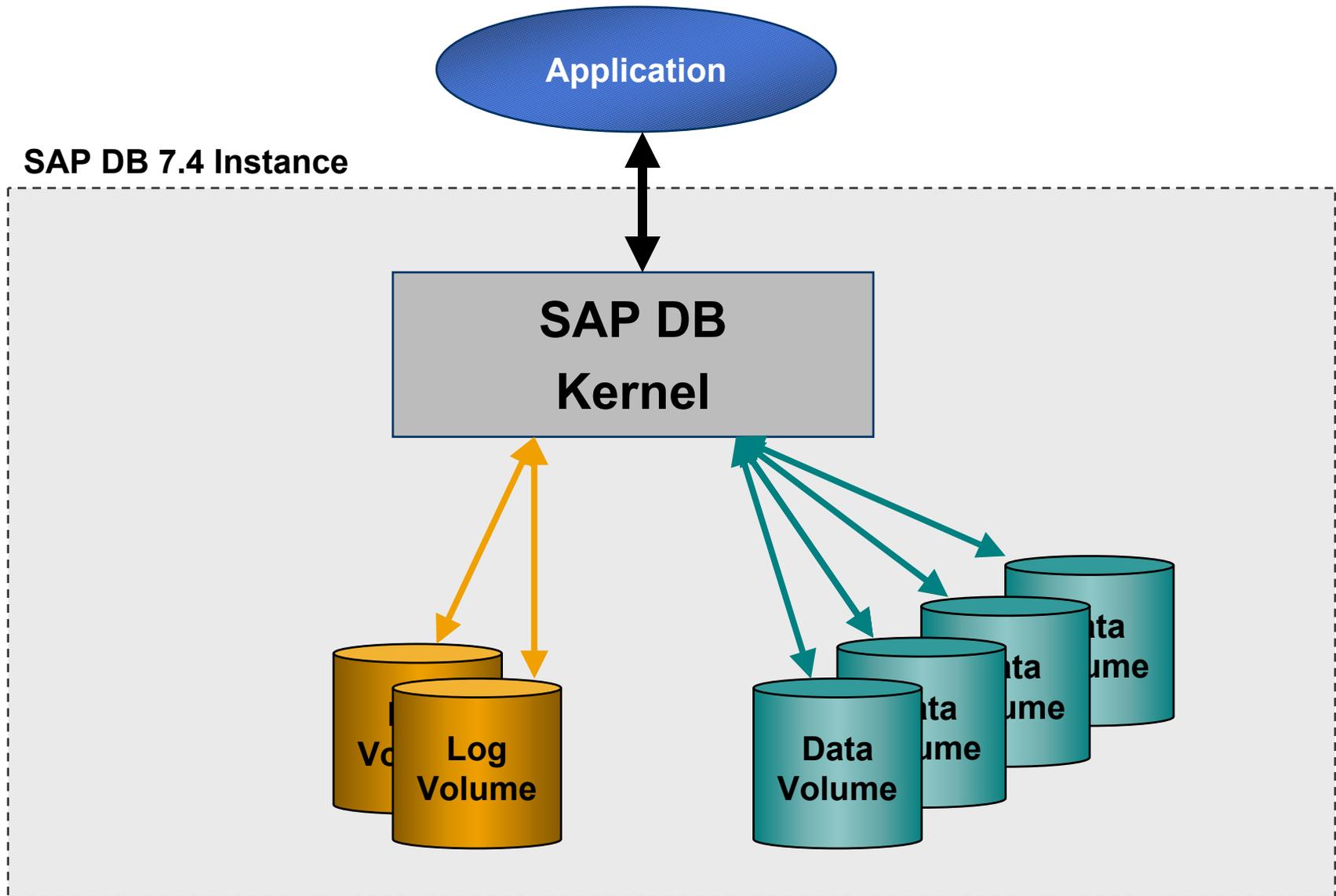
■ 5500 concurrent users in SAP's SD Benchmark Profile

- Average Dialog Response Time 1,96 sec
- CPU utilization on DB server 98 %
- SAP DB Version 7.3
- Operating System Database Server SuSE SLES 8
- Operation System Applic. Servers SuSE SLES 7
- Total Disk Space 2.500 GB
- Throughput 27.770 Benchmark Items (SAPS)

■ www.sap.com/benchmark

Spotlight on SAP DB 7.4

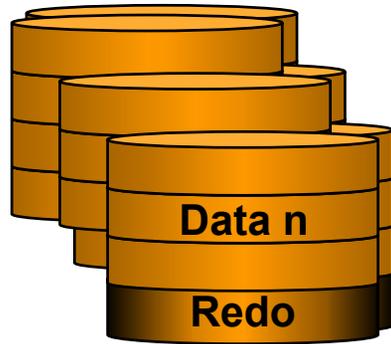
Inside SAP DB 7.4



Version 7.4

Version 7.3

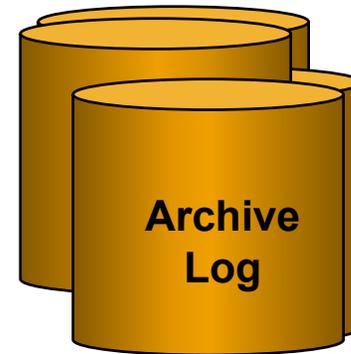
Data-Devspaces



System-Devspace

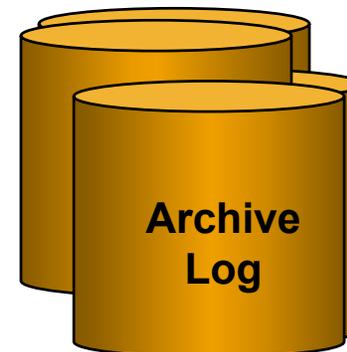
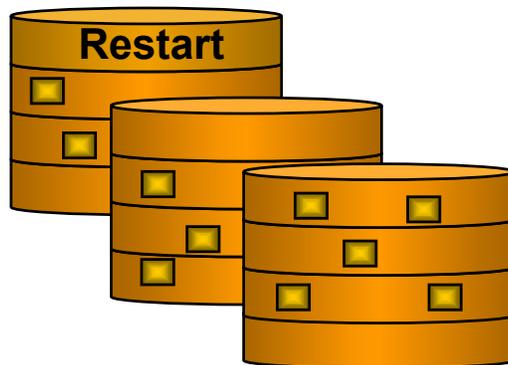


Log-Devspaces



NOW:

Data-Volumes



Log-Volumes

A new Converter

- **System devspace is removed. No hotspot when writing the Converter during Savepoint**
- **Increased concurrency on the converter**
 - ◆ **Converter is divided into several independent parts synchronized by latches**
- **No customizing of the Converter Cache
=> Single Configuration Parameter**
- **Converter can dynamically grow or shrink**
 - ◆ **Online Add Devspace without limits (MAXDATAPAGES, MAXDEVSPACES)**
 - ◆ **Drop Data Devspace (not yet implemented)**
- **Highest ever used data page number is independent from the number of converter pages**
 - ◆ **Oversized databases can easily be decreased by restoring the data into a smaller amount of data volumes**

A new Logging

- **Separate Before and After Images**
 - ◆ Before images are stored in transaction bound Undo-Containers
 - ◆ After images are stored in the archive log
- **Concurrent writing of Before Images**
 - ◆ Because of the transaction bound Undo-Containers
- **Checkpoints are Obsolete**
 - ◆ Database can be restarted when archive log is missing
 - ◆ Any database backup can be used for database copy

Document Repository and XML Indexing

WebDAV server

- Document repository with files and folders
- Accessible via HTTP (web folders)
- Checkout / checkin support
- The Internet file system

Indexing of XML data

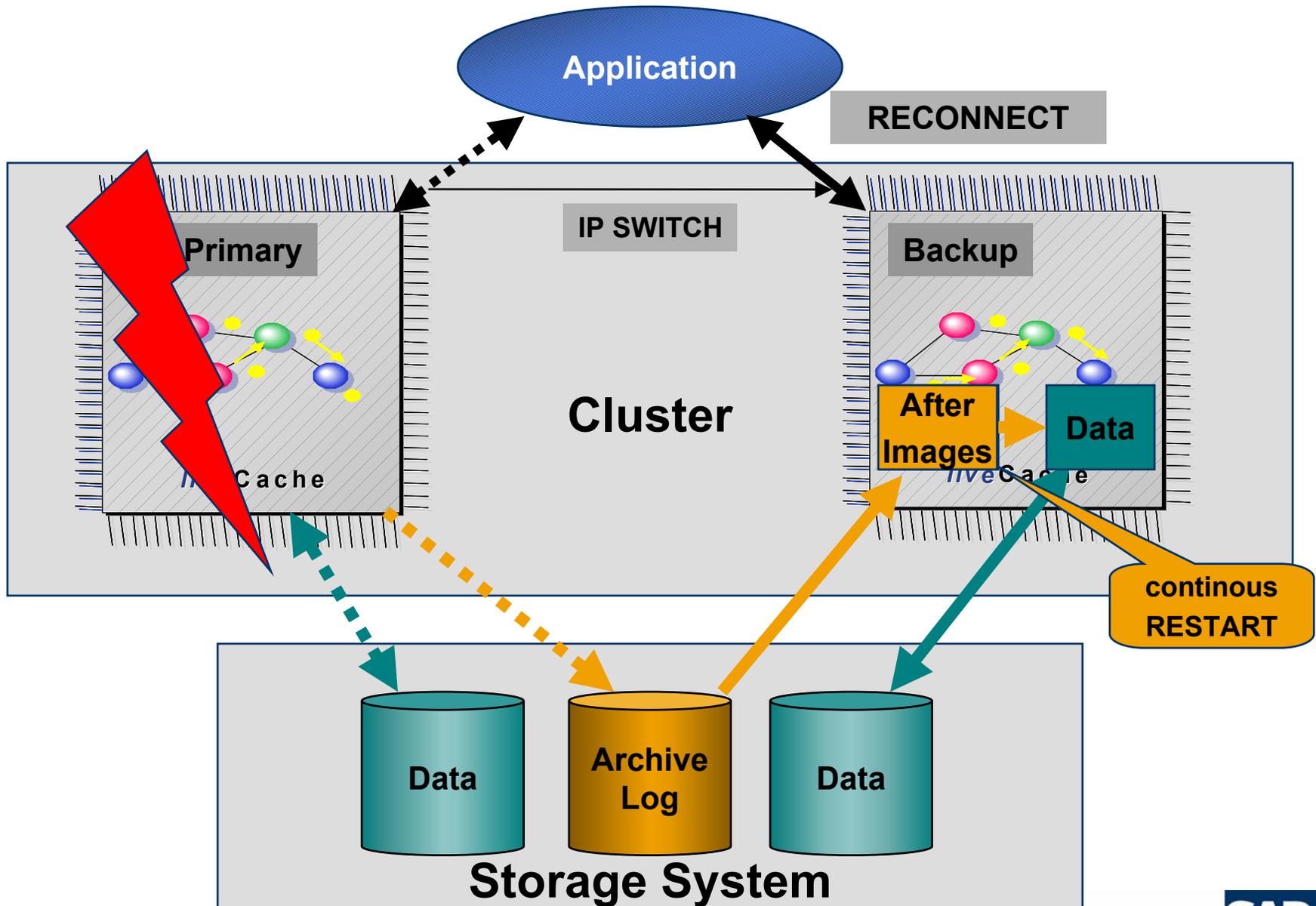
- XML data are stored as LOB
- XML indexes are defined by XPath expressions
- Synchronous or asynchronous index maintenance
- XML indexes are implemented by SQL tables
- Retrieval support for pre-defined XML indexes

Internet connectivity to (XML) documents

DBAnalyzer

- Rule-based expert system to watch SAP DB instances
- Collects statistical and monitoring data
- Collects system messages
- Supports remote access
- Detects and reports
 - Low cache hit rates
 - High I/O load
 - Low hit rates of DML commands (Select, Update, Delete)
 - Log queue overflows
 - User lock collisions
 - Command timings
 - Timings and frequencies of system locks

Hot-stand-by Configuration (Q3/2003)





www.sapdb.org

The Enterprise Open Source DBMS

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