



GSE Tagung Dortmund 04/2009

Datenhaltung mit DB2 Server for VSE & VM 7.5 und DB2 LUW Connectivity

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Agenda

Datenhaltung – wichtiger denn je

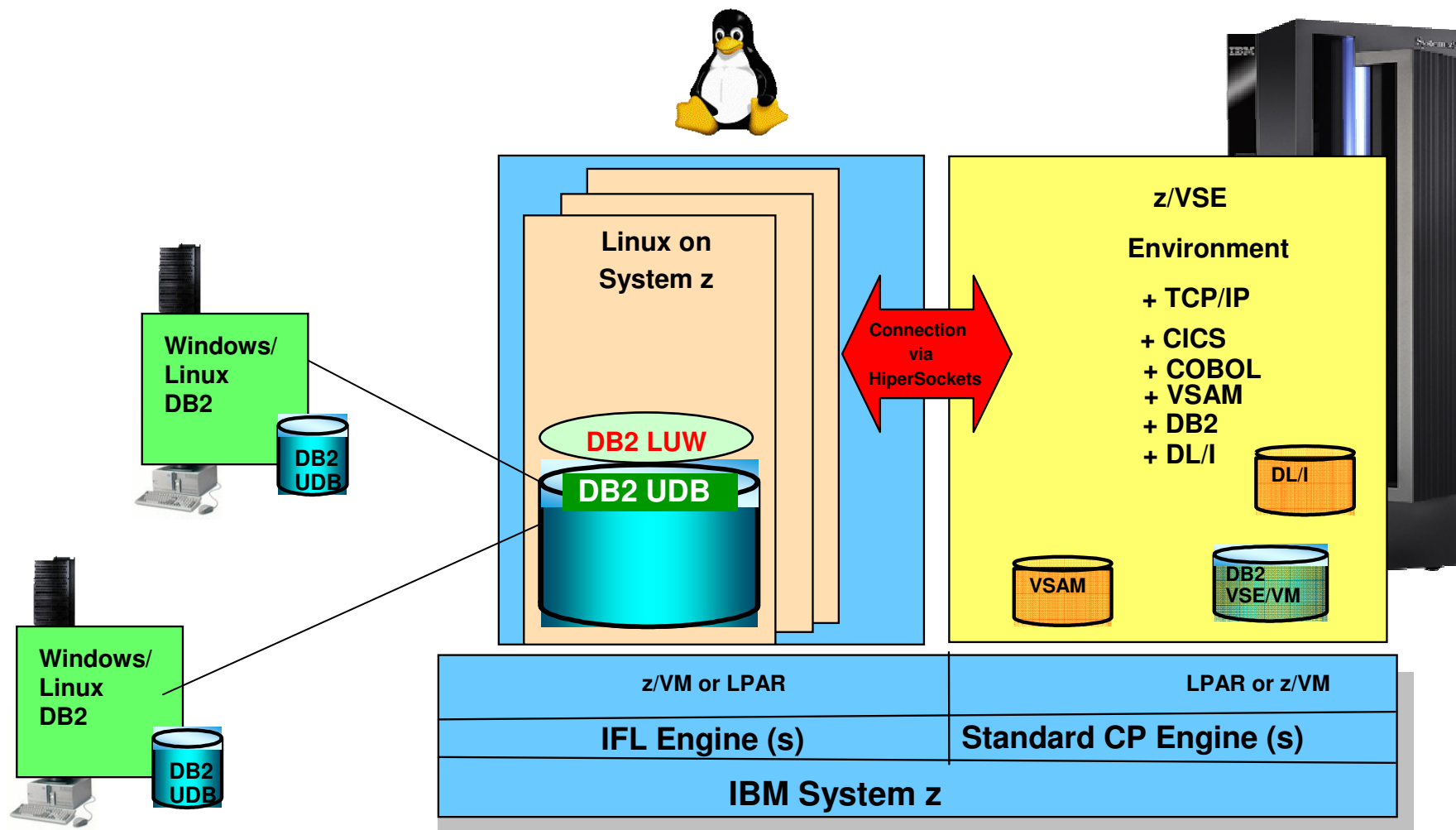
Entscheidungen für eine Zukunftsorientierte
Datenhaltung

Projekt-Erfahrungen / Redbook

Eine gute Lösung steckt im Detail

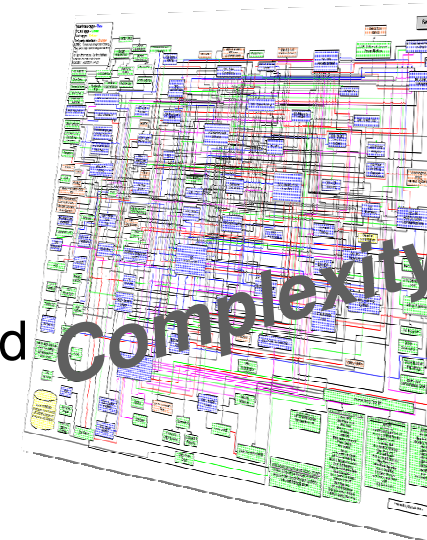
Der grosse Datentopf

Daten Integration – die Basis für die Zukunft und (BI)



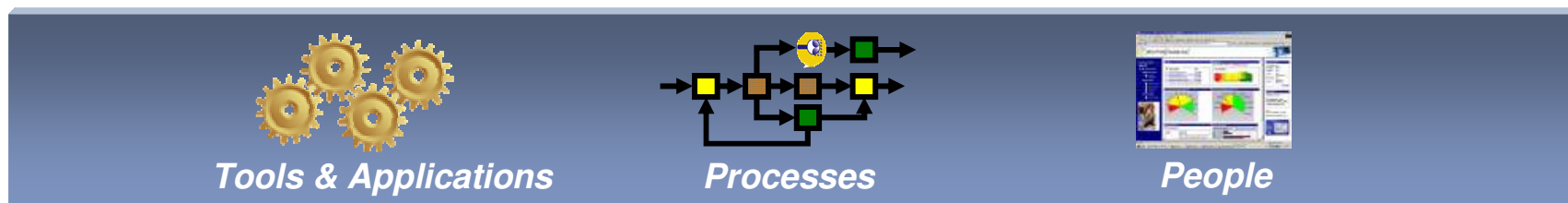
Die Verfügbarkeit von Informationen ist gefüllt mit Herausforderungen

- Was sind die top Geschäfts Herausforderungen?
 - Geschäfts Prozesse bereinigen und optimieren
 - Besser Antworten auf Kunden Anforderungen
 - ‚Time to Market‘ Steigerung
- Herausforderungen um Informationen bereitzustellen und bereithalten:
 - **Volumina:** Daten & Inhalte verdoppeln sich jedes Jahr
 - **Heterogenität der Daten:** Nicht nur transaktions Daten, es sind E-Mails, Dokument Bibliotheken, etc.
 - **Notwendigkeiten:** Die Anforderung der Geschäfte und Benutzer, die die Daten *jetzt*, brauchen ‚real time‘
 - **Complexität:** Durchschnittlich gibt es in 78% der companies mindestens 2 oder mehr unterschiedliche Repositories, 25% haben über 15 Repositories.



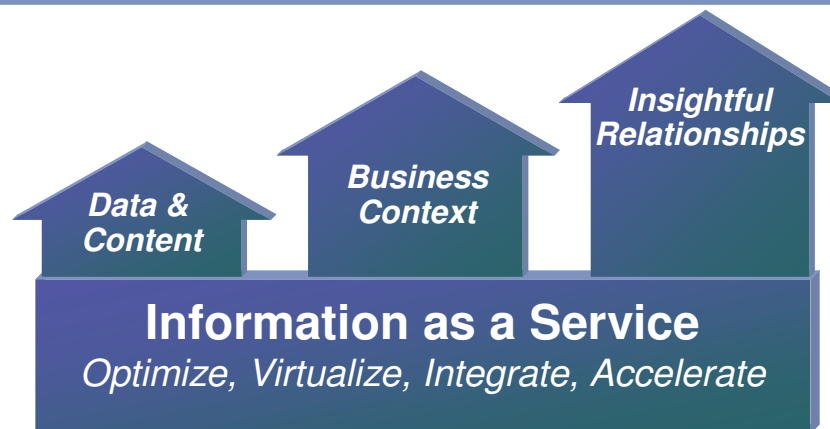
Information als Service

Von einem Projekt bezogenen Ansatz zu einer Service Basierten Architektur basierend auf Geschäfts Notwendigkeiten



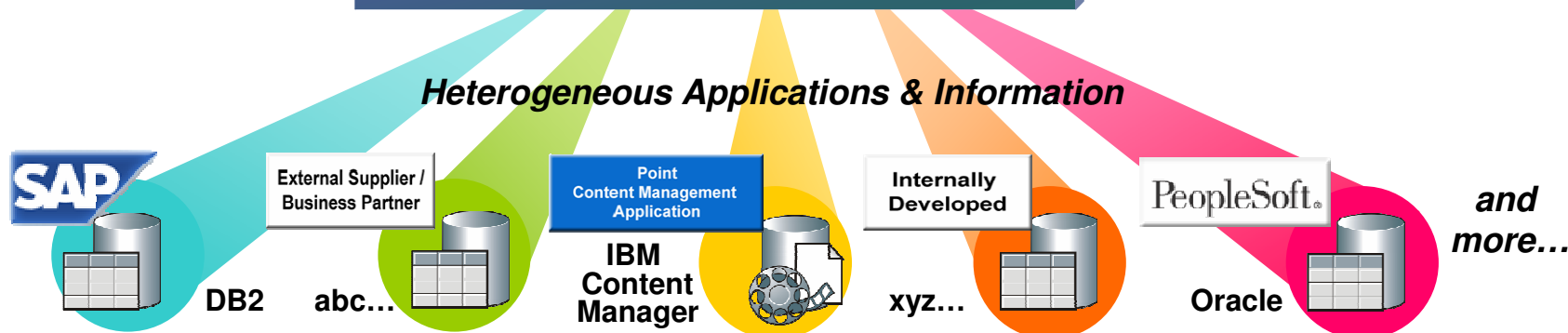
Standards-based

- SQL
- XQuery
- JCR
- JDBC
- Web Services...

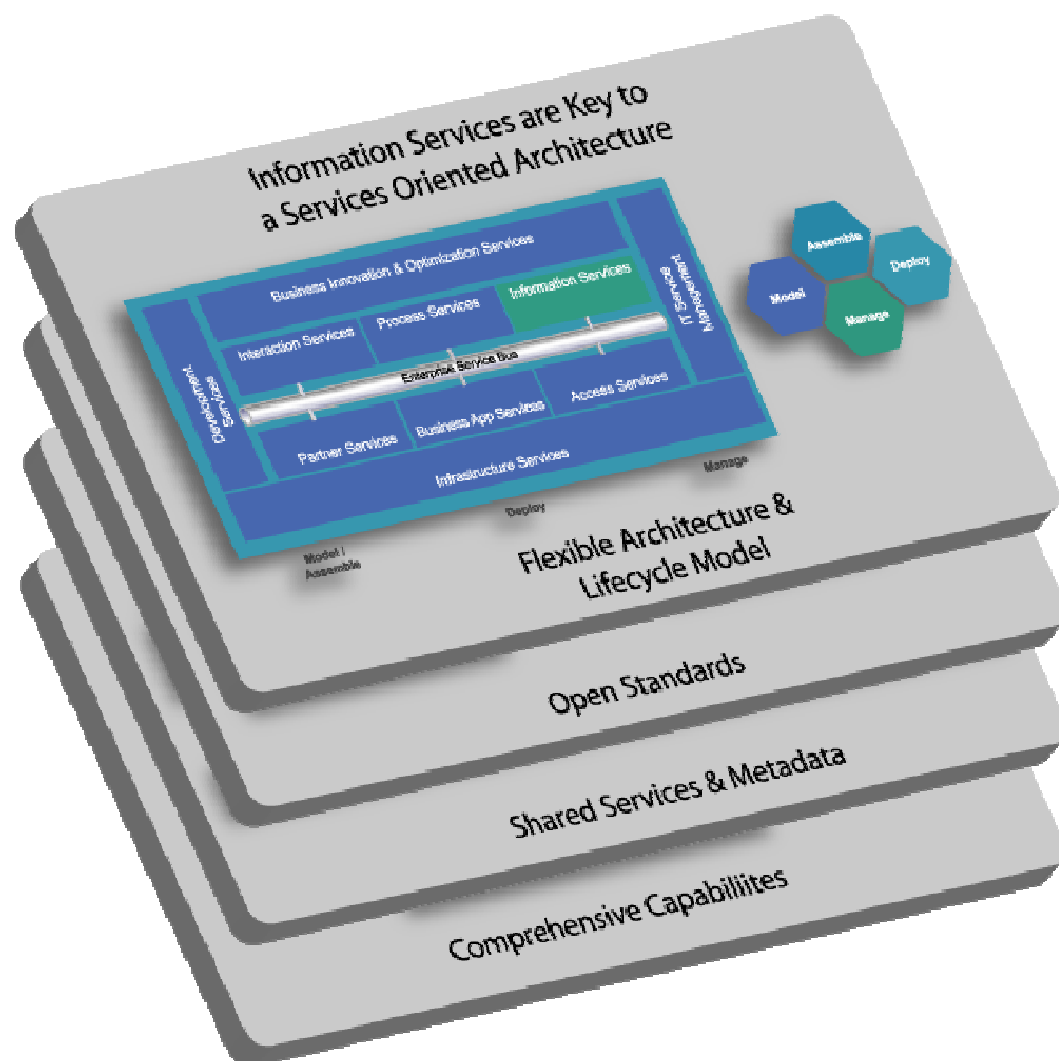


Extracted or Real-time Insight

- Master Data
- Entity Analytics
- Information Warehouses
- Industry Data Models



Bereitstellen von Ad-Hoc Informationen

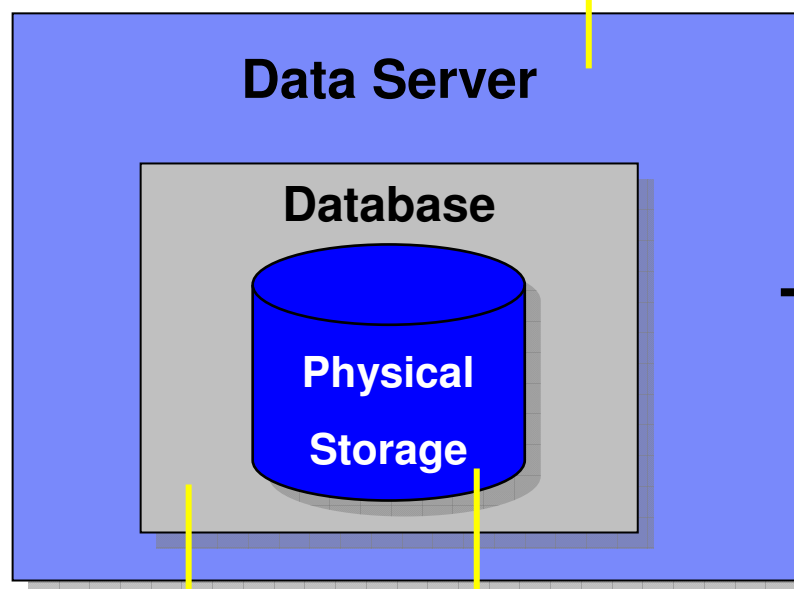


- **Flexible Architecture**
 - Service orientation provides base for responsive, flexible business and improved asset utilization
- **Open Standards**
 - Use, Contribute, Lead, Support
- **Shared Services & Metadata**
 - Simplify Infrastructure
 - Provide Consistency & Control
 - Speed Development and Deployment
- **Comprehensive Capabilities**
 - Add Value to Information
 - Ease Integration
 - Enhance Manageability
 - Reduce Cost

A New Generation Data Server for A New Generation of Applications

Data Server

Services that manage, secure and provide access to the database.



Database

Logical View of storage

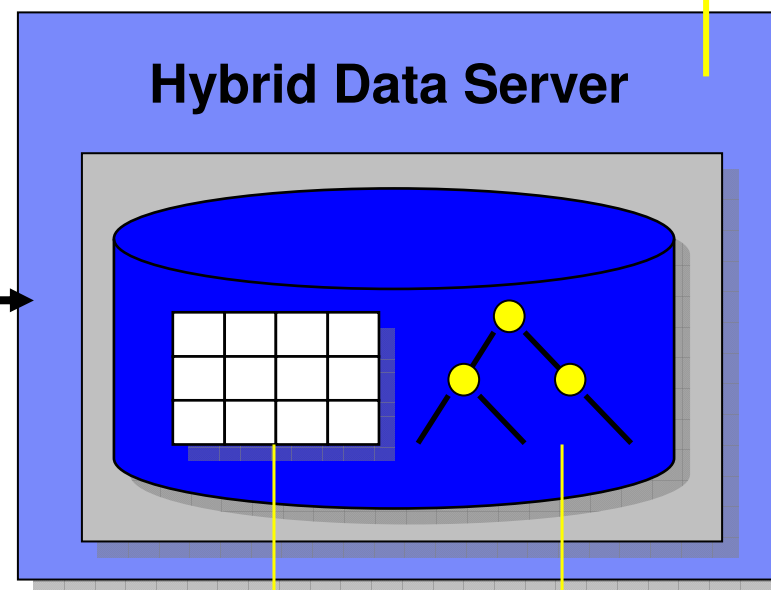
- *Tables*
- *Views*

Physical storage

Database Files

Hybrid Data Server

DB2 supports both relational and pureXML[®] storage and provides all the necessary services to support both data structures.



Relational Storage

Data stored in a row and column format

pureXML[®] Storage

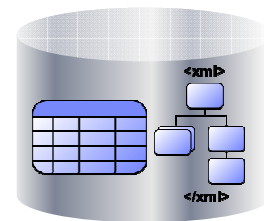
Data stored in a pre-parsed hierarchical format, not as a single text object (CLOB)

DB2 9 XML integration is seamless

Offers the Best to Both SQL and XML Worlds



SQL Person "I see a world class RDBMS that also supports XML"



DB2 with XML Support



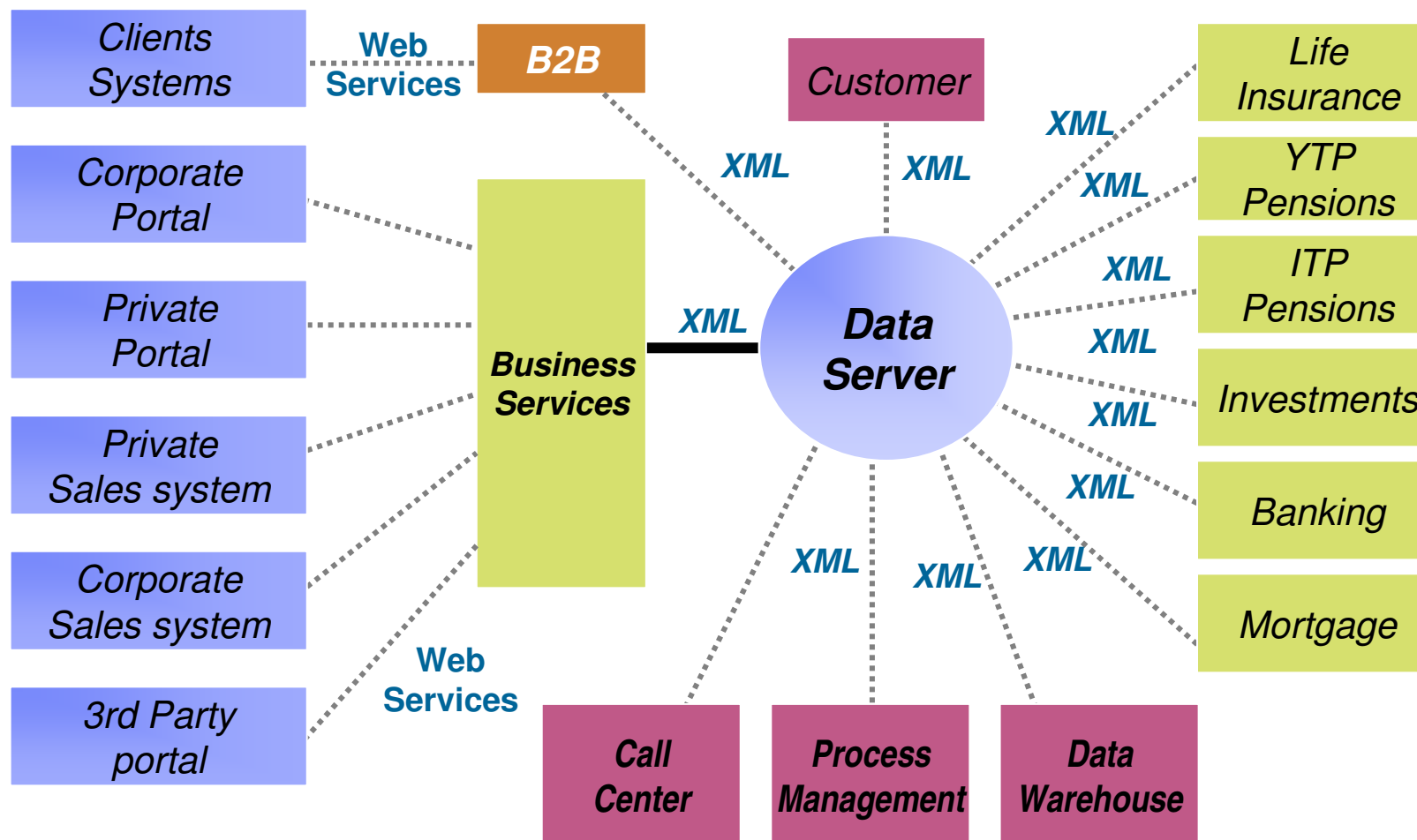
XML Person... "I see a world class XML repository that also supports SQL"

New XML applications benefit from:

- Ability to seamlessly leverage relational investment
- Proven Infrastructure that provides enterprise-class capabilities

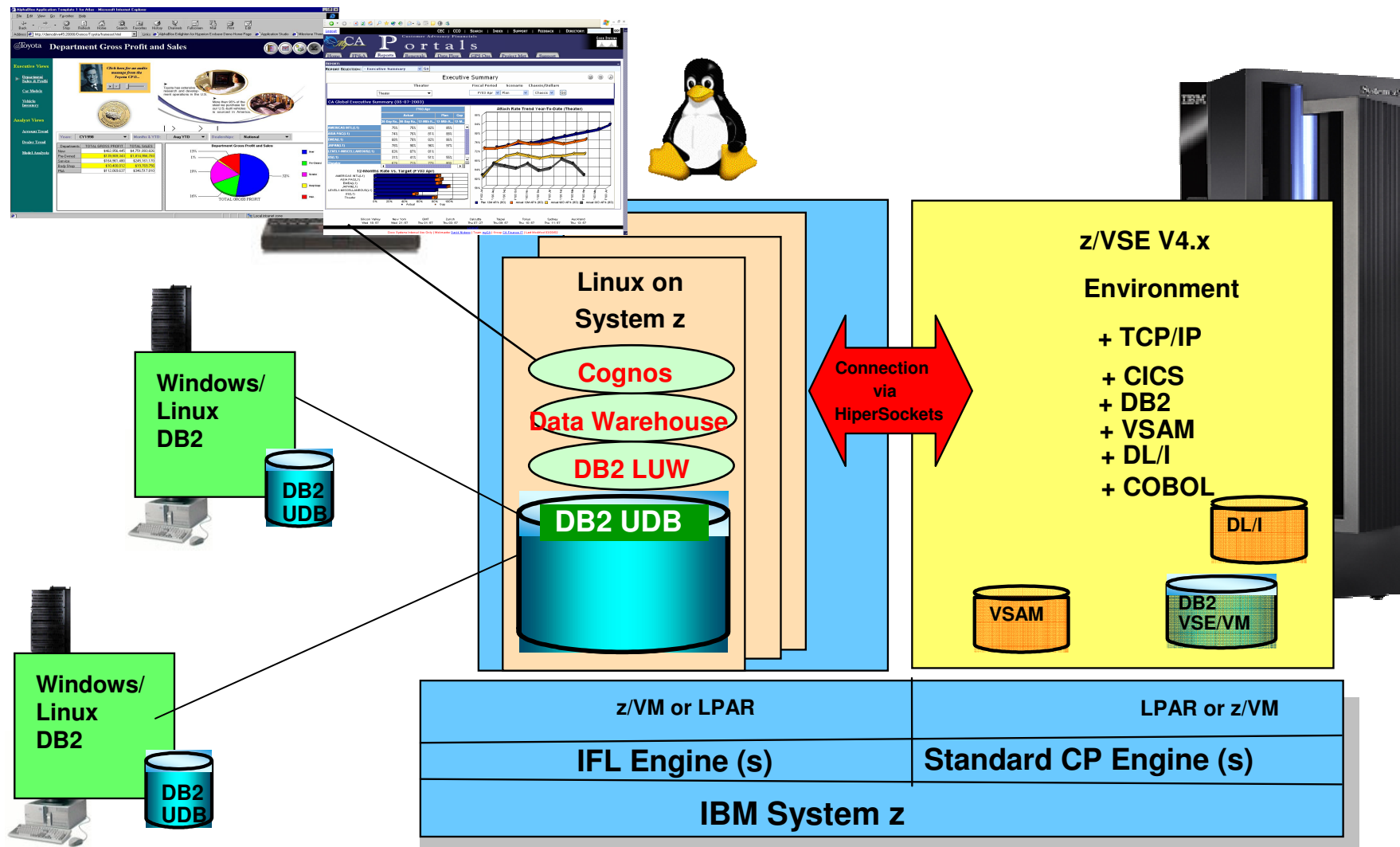
Powering a Flexible Approach

XML and SOA are the Keys



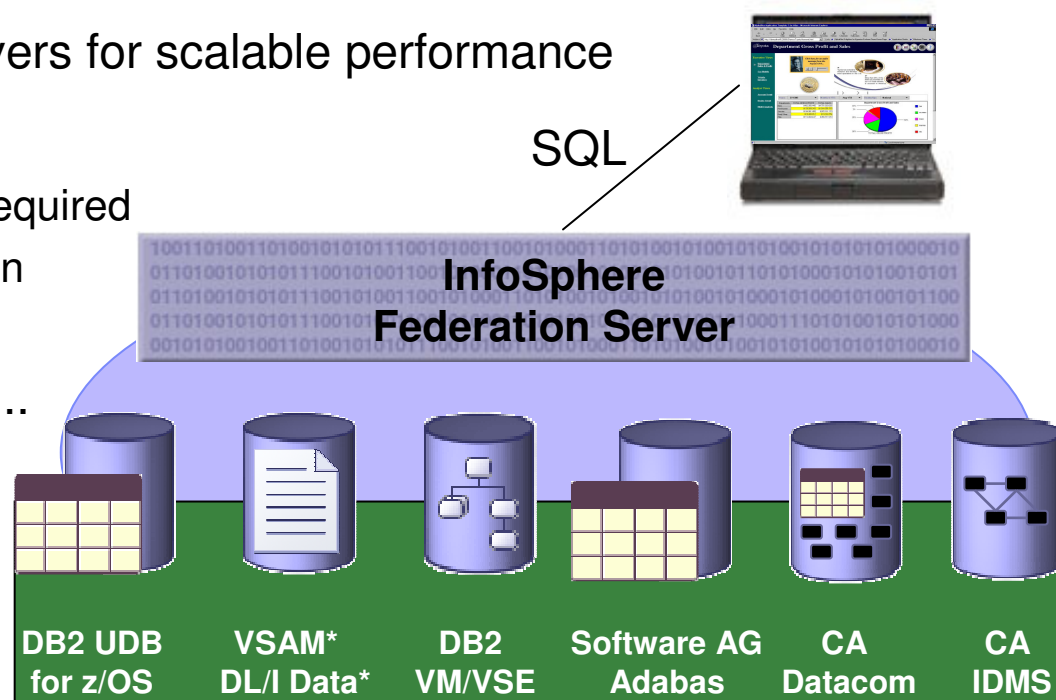
Top Szenario: Linux on System z als Daten Server

Consolidate, Integrate, Evaluate, Decide,
Base for Business Intelligence (BI)



IBM InfoSphere Federation Server

- Integrating at the data layer – Federation of data
 - Read from and write to federated mainframe data sources using SQL
 - Standards-based access via JDBC, ODBC, or Call Level Interface
 - Including for VSAM
 - Multithreaded with native drivers for scalable performance
 - Metadata-driven means...
 - No mainframe programming required
 - Fast installation & configuration
 - Ease of maintenance
 - Works with existing and new...
 - Mainframe infrastructure
 - Application infrastructure
 - Toolsets



Focused performance boost *Hardware Decimal Floating Point*

*Up to 10X improvement
in decimal floating point
instructions**

- Decimal arithmetic widely used in commercial and financial applications
- Integrated on **every z10 core to deliver a performance boost** to execution of decimal arithmetic
- Growing industry support for hardware decimal floating point standardization
 - Java BigDecimal, C#, XML, C/C++, GCC, **DB2® V9**, Enterprise PL/1, Assembler
 - Open standard definition led by IBM



***Bringing high performance computing benefits
to commercial workloads***



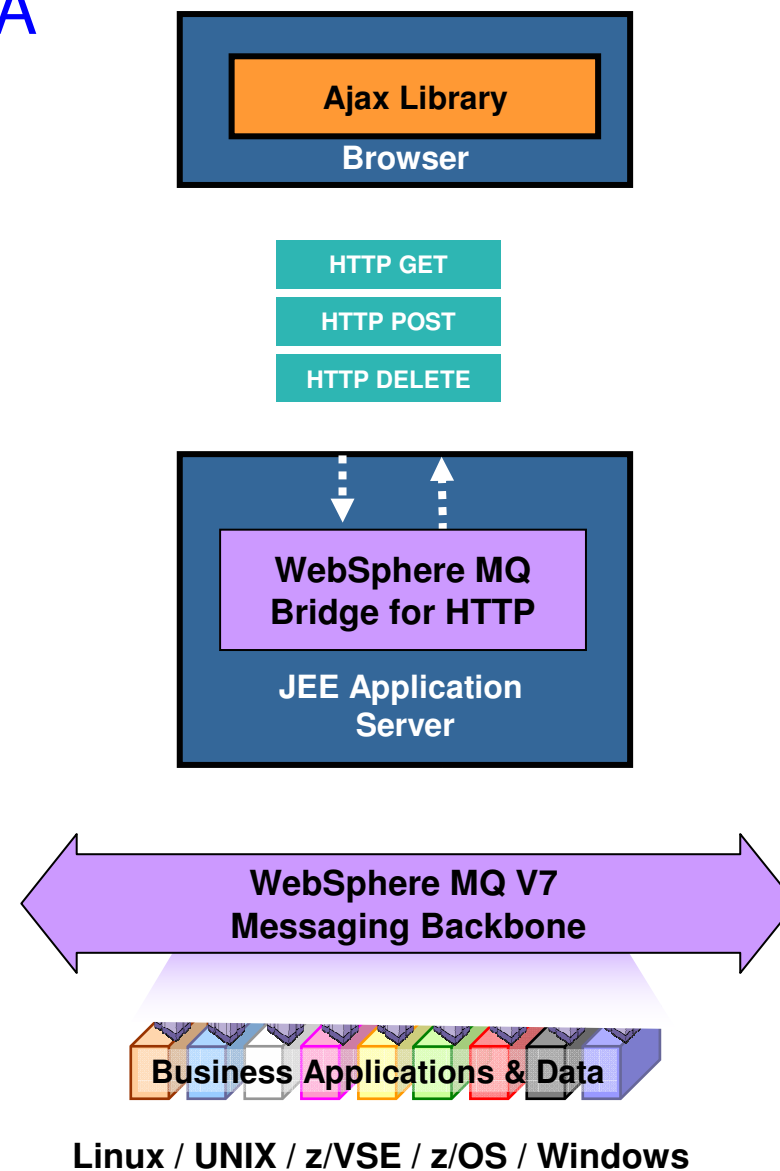
Web 2.0 Connectivity for IBM's SOA

WebSphere MQ goes Web 2.0!

- Helps enrich Web 2.0 applications with real business data
 - Distributed and z/VSE platforms

- Developer needs no MQ skills
 - Uses Ajax and simple interface to access data by URIs

- Helps simplify deployment and maintenance of large scale distributed applications
 - Enables simple access to MQ without need to install MQ clients



Agenda

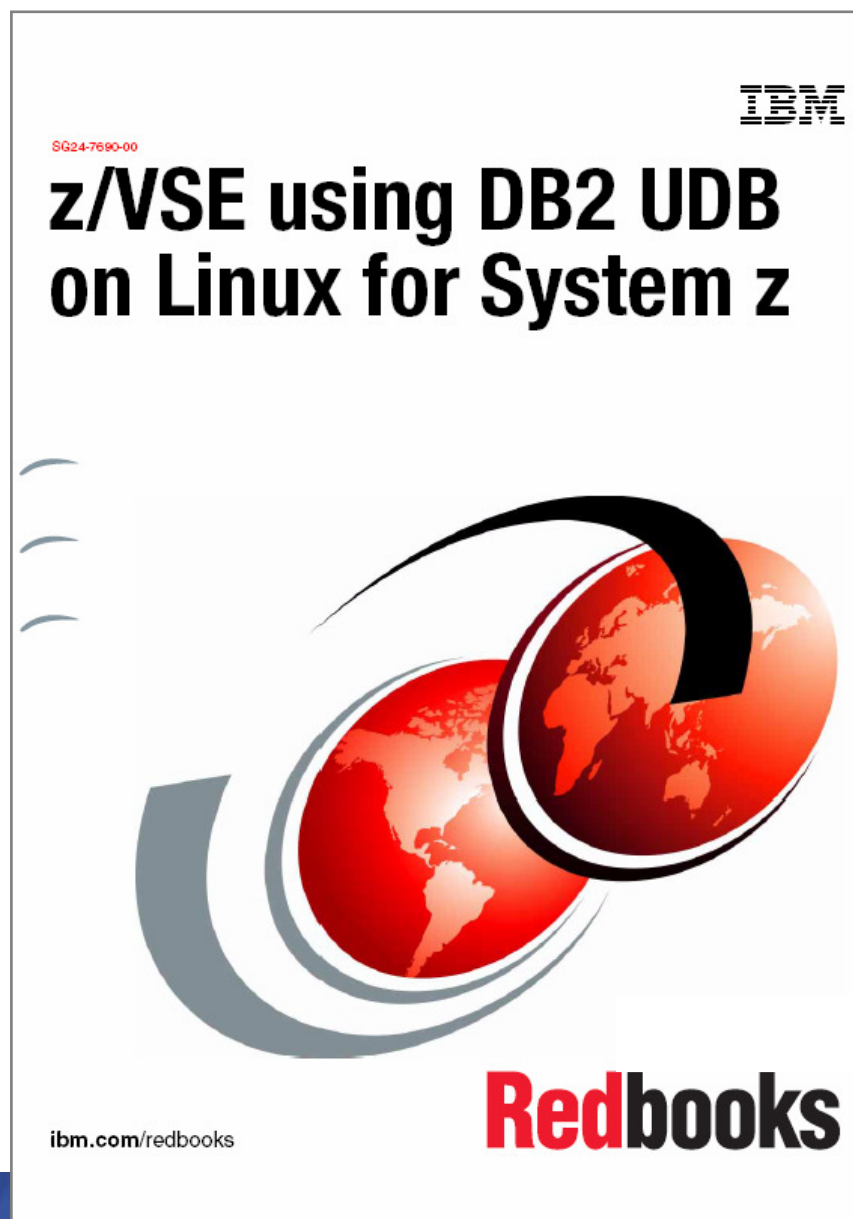
Datenhaltung – wichtiger denn je

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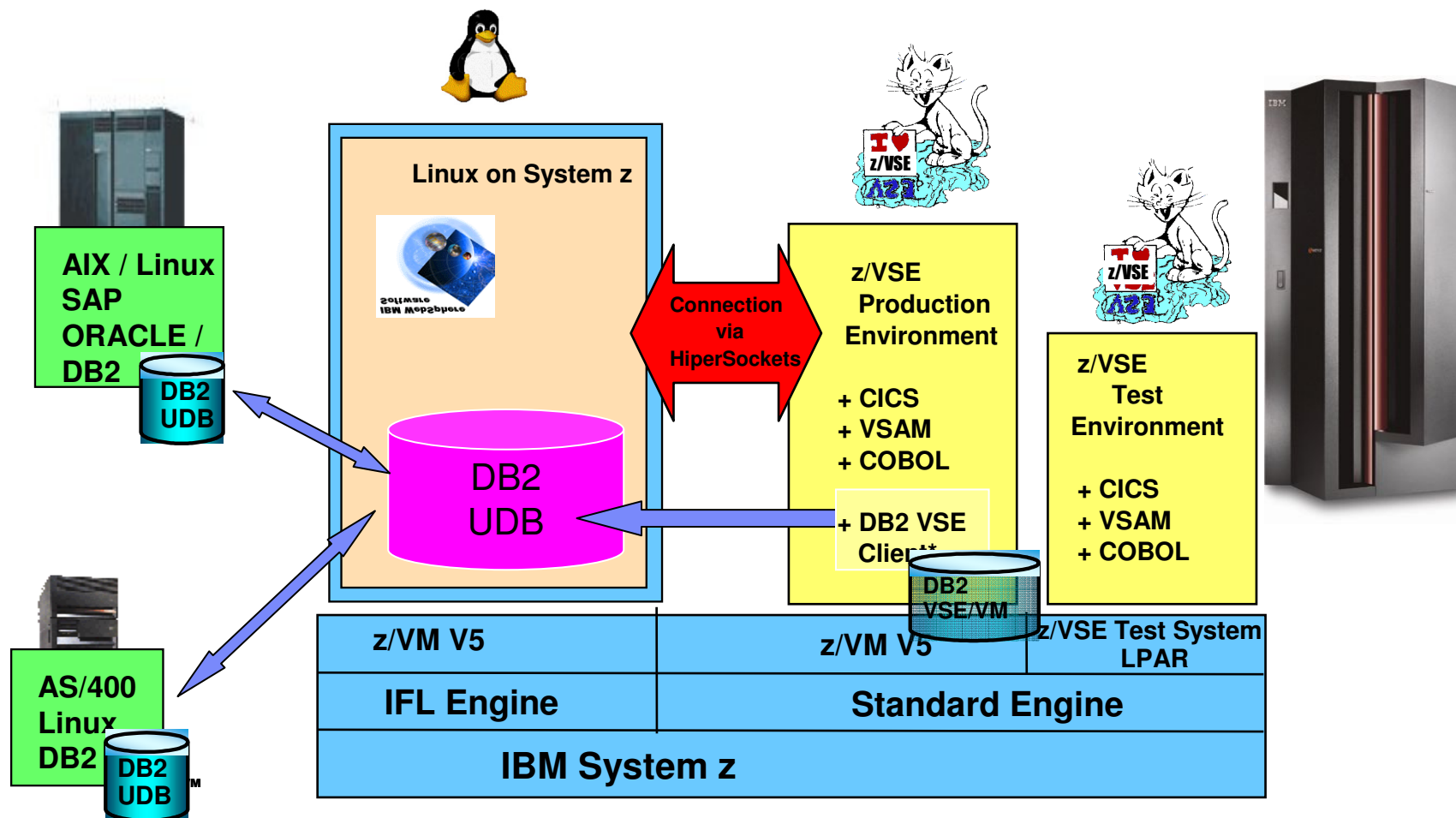
Projekt-Erfahrungen / Redbook

Eine gute Lösung steckt im Detail

Neues Redbook: Ihre Erfahrungen sind uns wichtig !



DB2 Szenarios – mit DB2 LUW on Linux on System z



(*) DB2 VSE Client – the client functionality only, can be obtained with **DB2 for VSE & VM 7.5 Server Client Edition**

DB2 Redbook

- **Overview-**

- **Strategical Decision**
- **Advantages (Business Requirements)**
- **Possible architectures**
- **Technical overview(DB2 VM&VSE)**

- **Planning**

- **Capacity Planning**
- **Storage planning**
- **Network**
- **Database- DB2 Linux (LVM)- DB2 VM/VSE**
- **The Transition phase**

- **Setup and Customization**

- **DB2 Linux on System z**
- **DB2 VSE (AR, AS)**
- **DRDA Communication**

- **DBMS Migration**

- **Data Migration**
- **Packages Migration**
- **Application considerations**
- **Transition / Coexistence environment**

- **Monitoring and tuning**

- **DB Monitoring**
- **AR VSE**
- **Appl. Monitoring (DB)**
- **Connections / Interfaces**
- **Network monitoring**
- **System monitoring/tuning**
- **Tuning considerations**

DB2 Redbook

■ Overview

- Strategic Decision
 - Die Entscheidung für eine moderne Datenhaltung kann Ihr Geschäft erheblich voranbringen
- Advantages (Business Requirements)
 - Geschäfts Prozesse können erheblich vereinfacht werden
- Possible architectures
 - Datenhaltungen können zentral oder heterogen sein wenn man die Vor- und Nachteile kennt
- Technical overview
 - DB2 Server for VM&VSE (Server & Client)
 - DB2 Server for VM&VSE Client Edition

DB2 Redbook

■ Planning

- Capacity Planning
 - CPU Belastung ist abhängig von vielen Faktoren
- Storage planning
 - Die Möglichkeiten der Architektur optimal Nutzen
 - LVM / ECKD / SCSI
 - Hochverfügbarkeit
 - Mirroring / Redundante Verbindungen
- Database Planning
 - Parallel I/O / Container Striping / Direct I/O / PAV
- Network
 - Hipersockets die schnelle Kommunikation
 - Shared OSA die alternative Kommunikation
- Transition Phase
 - ‚Big Bang‘ / ‚Step by Step‘ / ‚Fallback‘

DB2 Redbook

■ Setup and Customization

- DB2 Linux on System z
 - Datenbank-Definitionen sind auf die Nutzung abzustimmen.
 - Codepage (SBCS / Unicode)
 - EBCDIC versus ASCII Sortierreihenfolge 'Collating Sequence'
 - Federation zur Realisierung komplexer Anforderungen
- DB2 VSE (AR, AS)
 - Client Edition (AR only!) oder Server & Client im VM/VSE ?
- DRDA Communication
 - DRDA Performance ist abhängig von der Applikation
 - Connection Pooling / Buffered Insert
 - TCP/IP Setup

DB2 Redbook

■ **DBMS Migration**

– Data Migration

- Daten Migration: wenig Aufwand / Wiederholbarkeit
- Federation ist hier sehr effektiv

– Package Migration

- Bind Files erstellen! (CICS oder ‚Batch Binder‘)
- Exportieren von DB2/VM&VSE Packages und Importieren in DB2 Linux möglich

– Application Considerations

- Anwendungen müssen ggf. angepasst werden (HEX-Sortierung)
- Dynamisches SQL erschließt Funktionalität des Servers

– Transition / Coexistence Environment

- Über Replikation oder ‚Federation‘ ist eine Koexistenz möglich

DB2 Redbook

■ **Monitoring and Tuning**

- Monitoring ist die Voraussetzung für Tuning
- DB Monitoring
 - IST-Zustand des DB2/VM oder DB2/VSE Servers !!!
 - Monitor-Tools erforderlich
 - DB2/Linux - Snapshots
- Application Monitoring (DB)
 - CICS Monitor ist empfehlenswert
- Network Monitoring
 - Netzwerk Monitore können hier sehr gute Dienste Leisten
 - Troubleshooting / Debugging

Aufruf

- Bitte helfen Sie dieses Redbook zu vollenden mit Ihren Erfahrungen
- Beiträge können direkt an mich geschickt werden

mildw@de.ibm.com

- Für eine offizielle Mitarbeit am Redbook bitte melden !

More information

- DB2/Linux on System z

http://www.ibm.com/developerworks/linux/linux390/perf/tuning_rec_database.html

<http://www.ibm.com/developerworks/data/library/techarticle/dm-0509wright/>

- DB2 Server for VM and VSE

<http://www-01.ibm.com/software/data/db2/vse-vm/>

- Documentation

<http://www-01.ibm.com/software/data/db2/vse-vm/directory.html#VSE7.5>

<http://www-01.ibm.com/support/docview.wss?rs=71&uid=swg27009727>

- Redbookbeiträge an:

mildw@de.ibm.com oder roeber@de.ibm.com