WAVV 05/2009 Orlando,FL

Centralized data and Connectivity between DB2 VM/VSE and DB2 LUW Servers (Linux/UNIX/Windows)

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Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.
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Agenda

Data-consolidation – more important than ever

Decisions for a future oriented Data store

Experiences from last projects / Redbook

A good solution is not standard in detail

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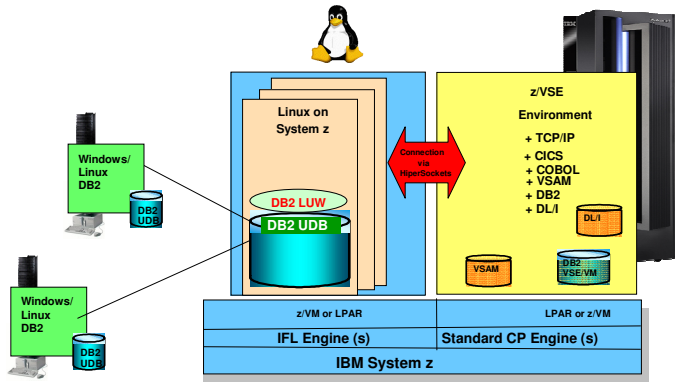
The big Data store

Data Integration – the Base for the future and BI



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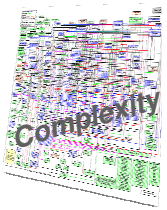
The road to information availability is filled with challenges

- What are the top business challenges?
  - Streamline and improve efficiency of business processes
  - Better understand and meet customer expectations
  - Increase employee productivity
- Key challenges to making information available:
  - **Volume**: Data & content are doubling each year
  - **Variety**: It's not just the transaction data, it's e-mails, document libraries, etc.
  - **Velocity**: The pace of business and business users who need information *now*, in real time
  - **Complexity**: The average $1B company has 40 financial systems; 78% of all companies have 2 or more repositories, 25% have more than 15 repositories.



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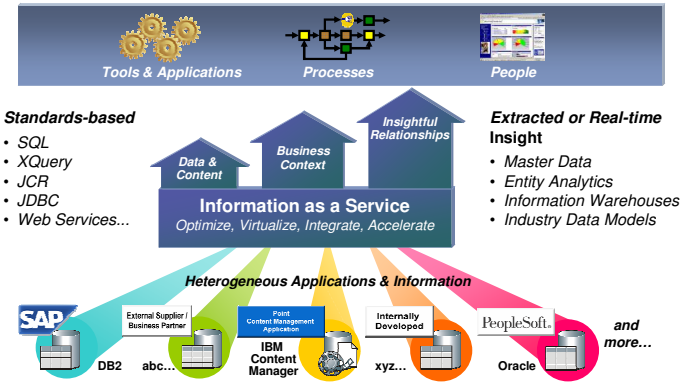
Information as a Service

From a project based approach to a Service Oriented Architecture based on business needs



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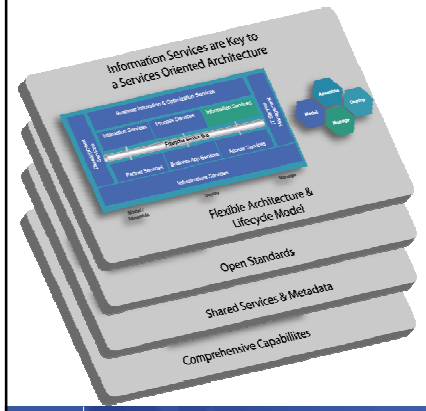
Ad-Hoc Information availability



- ***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

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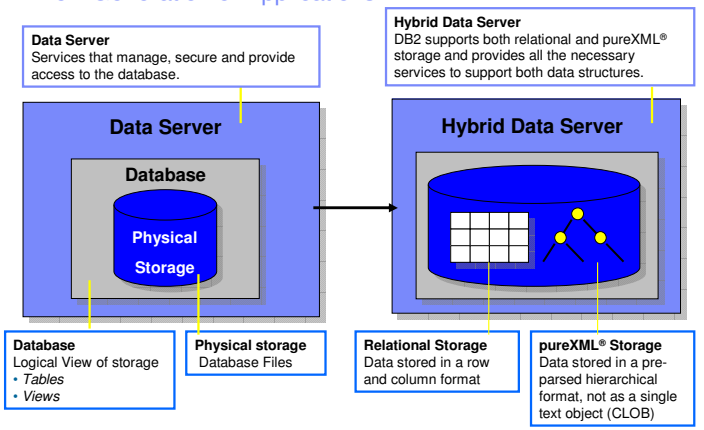
A New Generation Data Server for A New Generation of Applications



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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

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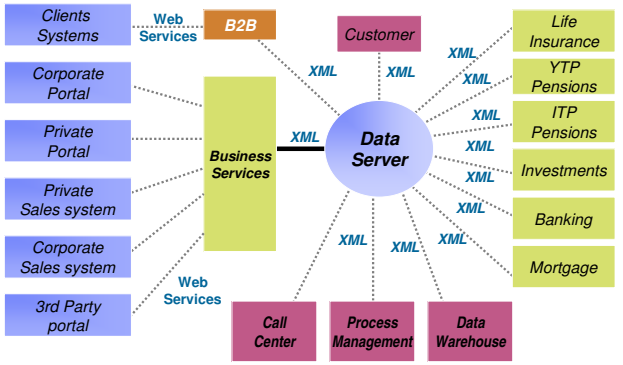
Powering a Flexible Approach

XML and SOA are the Keys



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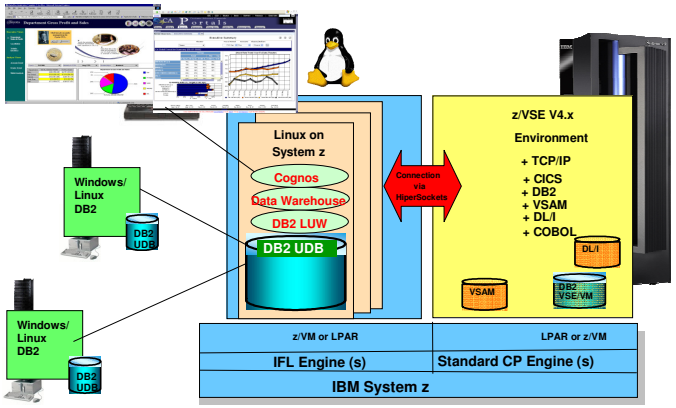
Top Scenario: Linux on System z as data hub

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



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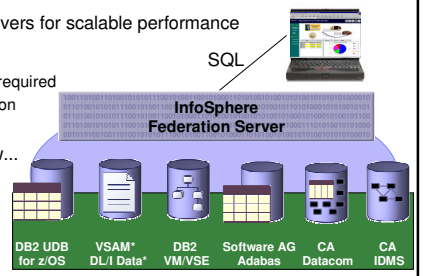
IBM InfoSphere Federation Server

- 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



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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

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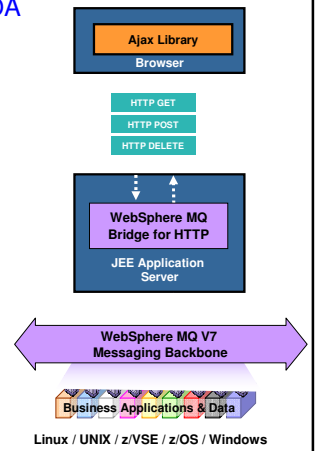
Web 2.0 Connectivity for IBM's SOA

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



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Experiences from last projects / Redbook

A good solution is not standard in detail

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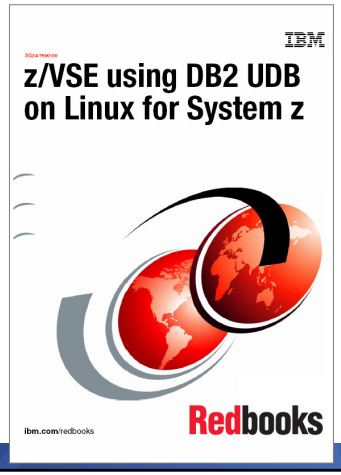
New Redbook planned: YOUR Experience is important !



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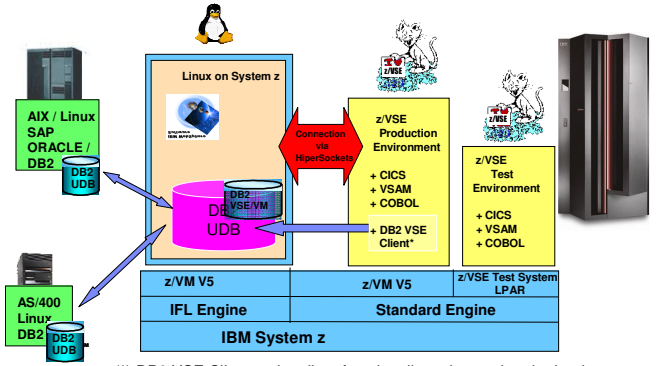
DB2 Szenarios – with DB2 LUW on Linux on System z



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

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DB2 Redbook

- **Overview-**
  - **Strategical Decision**
  - **Advantages (Business Requiremnts)**
  - **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**

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DB2 Redbook

- **Overview**
  - Strategical Decisions
    - The decision for a modern Data Management System can enhance your business value substantially
  - Advantages (Business Requirements)
    - Business processes can be simplified a lot
  - Possible architectures
    - Data stores can be homogenous or heterogeneous, if pro's and con's are known
  - Technical overview
    - DB2 Server for VM&VSE (Server & Client)
    - DB2 Server for VM&VSE Client Edition

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DB2 Redbook

- **Planning**
  - Capacity Planning
    - CPU load depends on many factors
  - Storage planning
    - The most advanced possibilities of the System z Architecture
      - LVM / ECKD / SCSI
    - High Availability
      - Mirroring / Redundant Connections
  - Database Planning
    - Parallel I/O / Container Striping / Direct I/O / PAV
  - Network
    - Hipersockets the fast communications
    - Shared OSA the alternative Communication
  - Transition Phase
    - ‚Big Bang' / ‚Step by Step' / ‚Fallback'

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- **Setup and Customization**
  - DB2 Linux on System z
    - Database-Definitions need to be adopted for the workload
      - Codepage (SBCS / Unicode)
      - EBCDIC versus ASCII Sort order 'Collating Sequence'
      - Federation to implement complex requirements
  - DB2 VSE (AR, AS)
    - Client Edition (AR only!) or Server & Client for VM/VSE ?
  - DRDA Communication
    - DRDA Performance is dependant on the application
    - Connection Pooling / Buffered Insert
    - TCP/IP Setup

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- **DBMS Migration**
  - Data Migration
    - Data Migration: small effort / repeatable solution
    - Federation is very effective
  - Package Migration
    - Bind Files build! (CICS or ‚Batch Binder')
    - Export of DB2/VM&VSE Packages and Import in DB2 Linux possible
  - Application Considerations
    - Applications may need adaptions (HEX-Sort)
    - Dynamic SQL uses functionality of the server
  - Transition / Coexistence Environment
    - with Replication or ‚Federation', a coexistence is possible

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- **Monitoring and Tuning**
  - Monitoring is prerequisite for Tuning
  - DB Monitoring
    - Status-quo of the DB2/VM or DB2/VSE Servers !!!
    - Monitor–Tools necessary
    - DB2/Linux - Snapshots
  - Application Monitoring (DB)
    - CICS Monitor is recommendable
  - Network Monitoring
    - Network monitors can help a lot
    - Troubleshooting / Debugging

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Aufruf

- Please help to finish this Redbook with your experience
- Contributions can be sent directly to me

mildw@de.ibm.com

- For an official work on the Redbook please notify me !

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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

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