# Data Federation concepts and options

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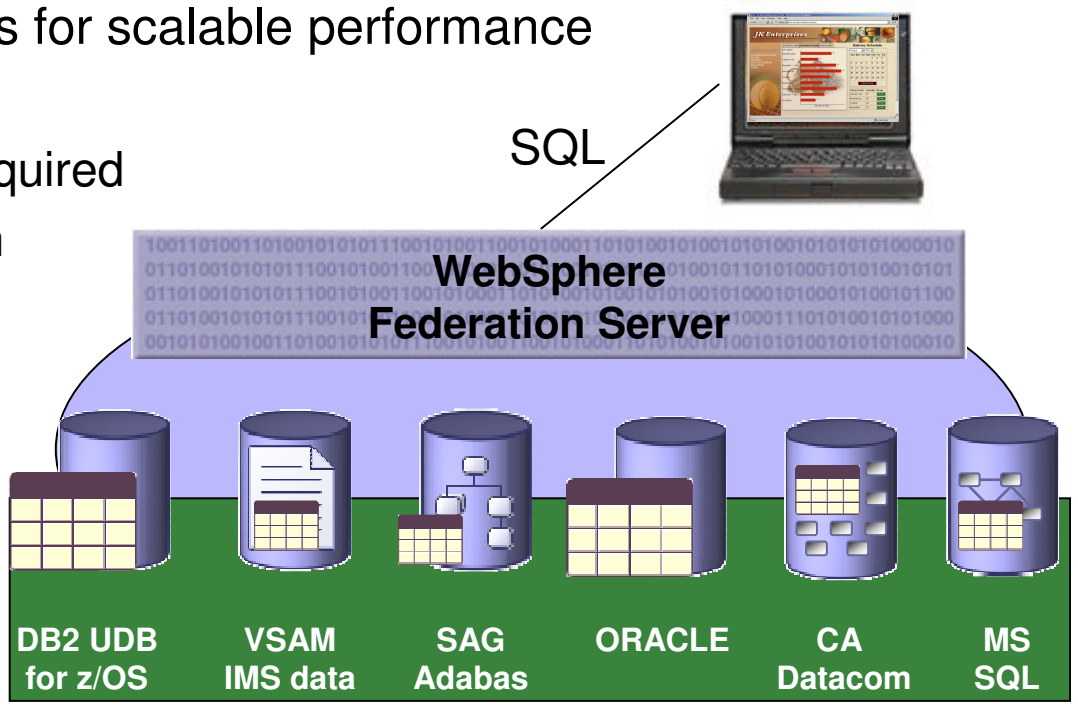
# InfoSphere Federation Server for Linux on System z
# InfoSphere Classic Federation Server for z/OS

- Integrating at the data layer – Federation of data
  - Read from and write to federated data sources using a single SQL
  - Standards-based access via JDBC, ODBC, or Call Level Interface
    - Including for VSAM and foreign databases!
  - 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

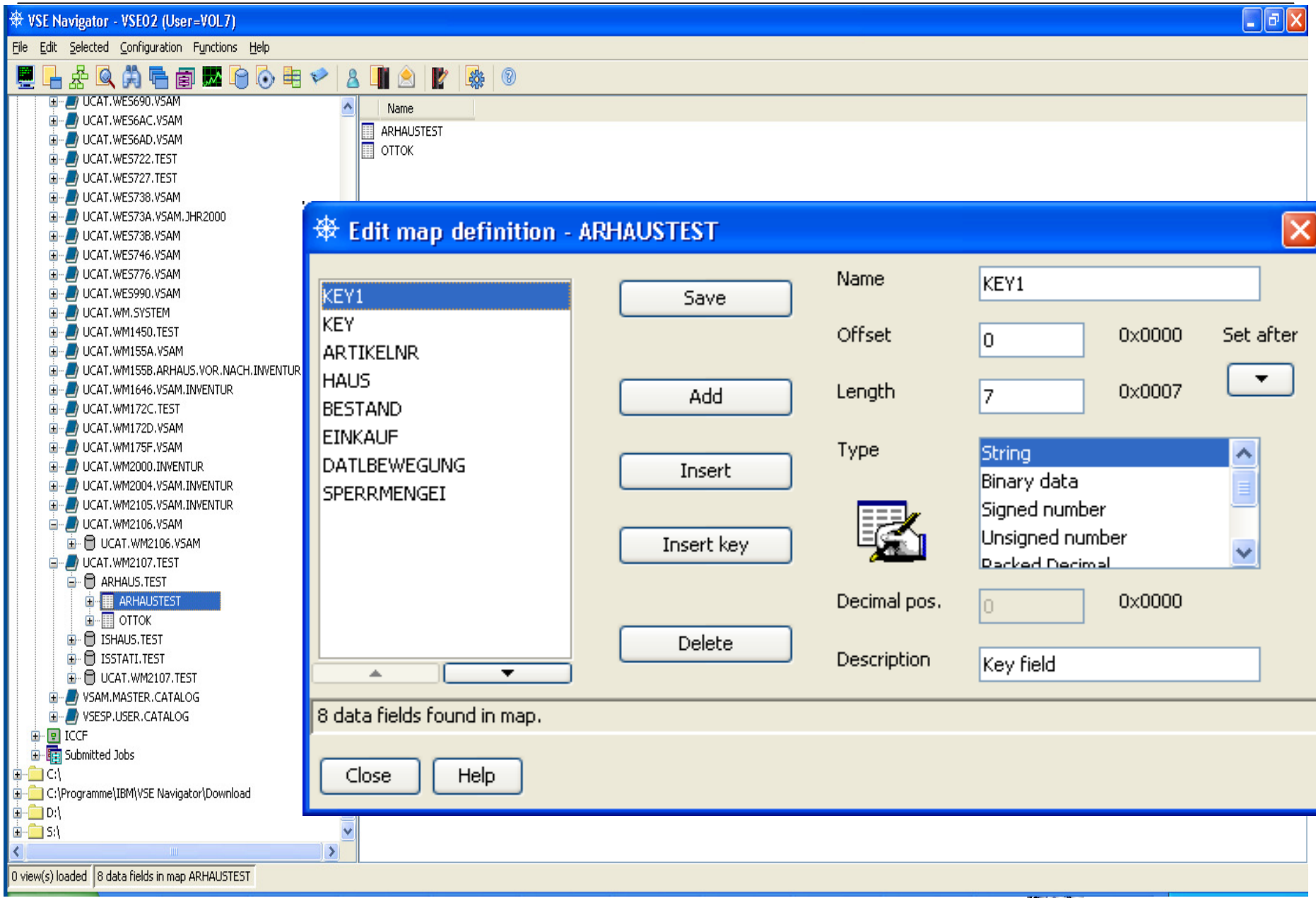


# Federation Server Definitionen

- **Wrapper**
  - –ORACLE, DRDA, JDBC
- **Server**
  - –ORACLE, DB2, VSAM (JDBC Driver)
- **User Mapping**
  - –Local USER to Remote USER/Password
- **Nickname**
  - –Remote Table (Remote Resource)

# Federation Server Definitionen außerhalb DB2

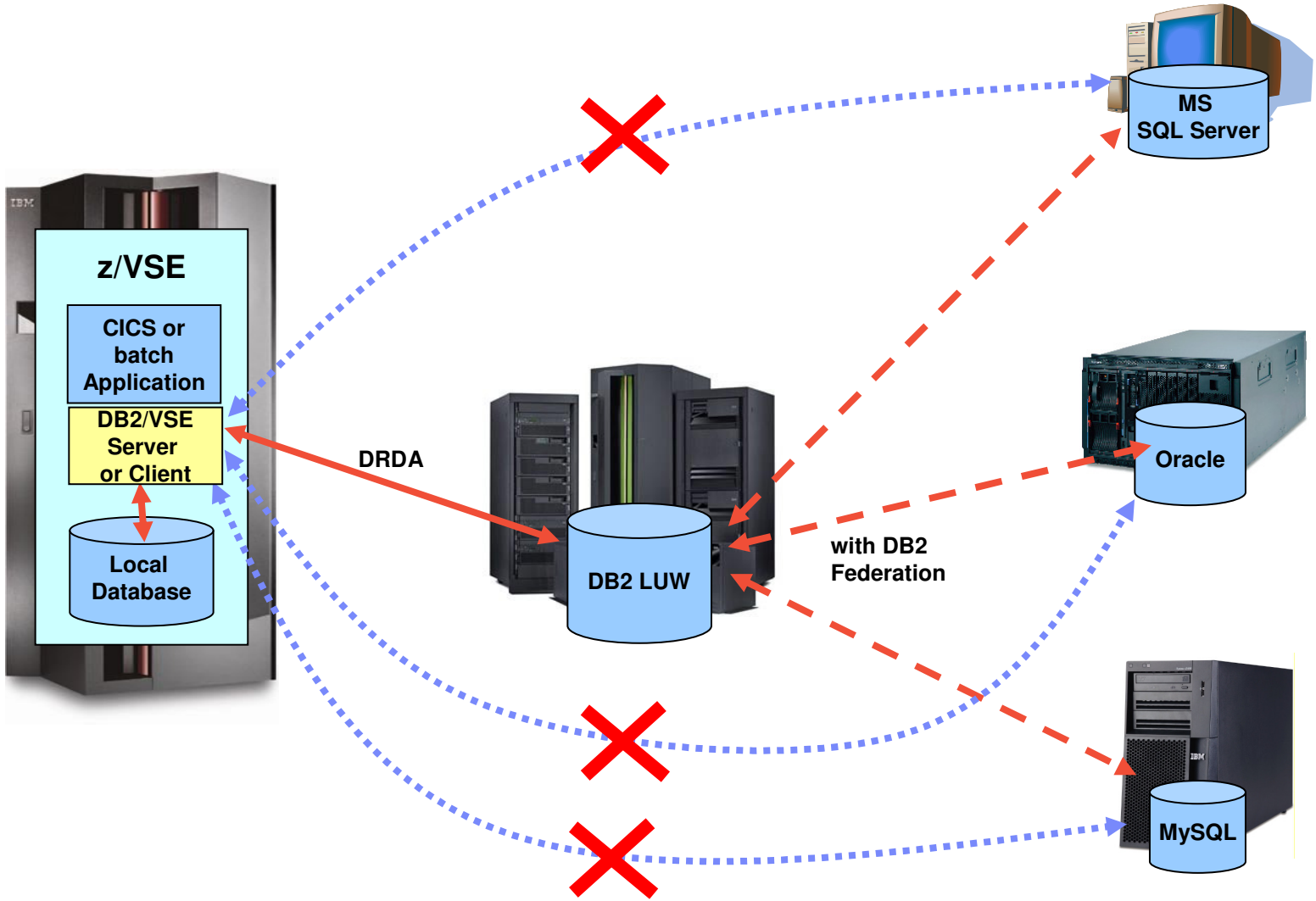
- **Oracle**
  - Installation des NET8-Client
- **DB2**
  - Katalogisierung der entfernten DBs
- **VSAM**
  - Installation des VSAM JDBC Drivers (Classpath)
    - z/OS Cross Access
    - Installation des VSE Connector Clients
  - Mapping der VSAM Daten (z.B. VSE Navigator)



# Federation Server Summary

- **Wrapper**
  - Viele weitere (Classic Federation für z/OS)
  - JDBC (offen für weitere Datenquellen)
  - Eigene (Vendor) Wrapper möglich
- **Anpassungsfähig**
  - Diverse Parameter zur Optimierung
  - Paththru (direkter Durchgriff)
- **VSAM**
  - Möglichst nur über Schlüssel auf begrenzte Satzanzahl zugreifen!
  - VSAM Abfrage wie W&M AG
    - VSAM datei mit 40 Mill. Datensätzen
    - Reduzierung mit 3 Schlüssel Felder auf 40000
    - Datenfeld filtert auf ca 30 Sätze
    - Abfragedauer VSAM mit DB2 Join - ca. 30 sec

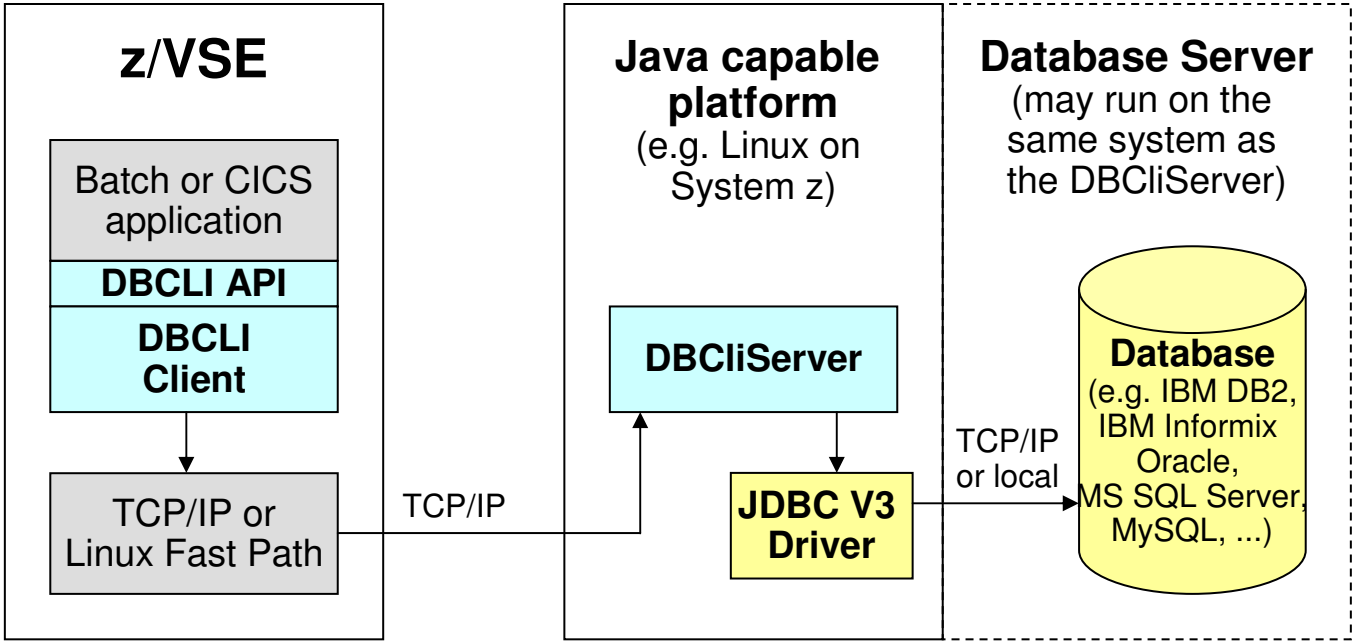
# z/VSE applications accessing Databases



# z/VSE V5.1 + PTFs: z/VSE Database Call Level Interface (DBCLI)

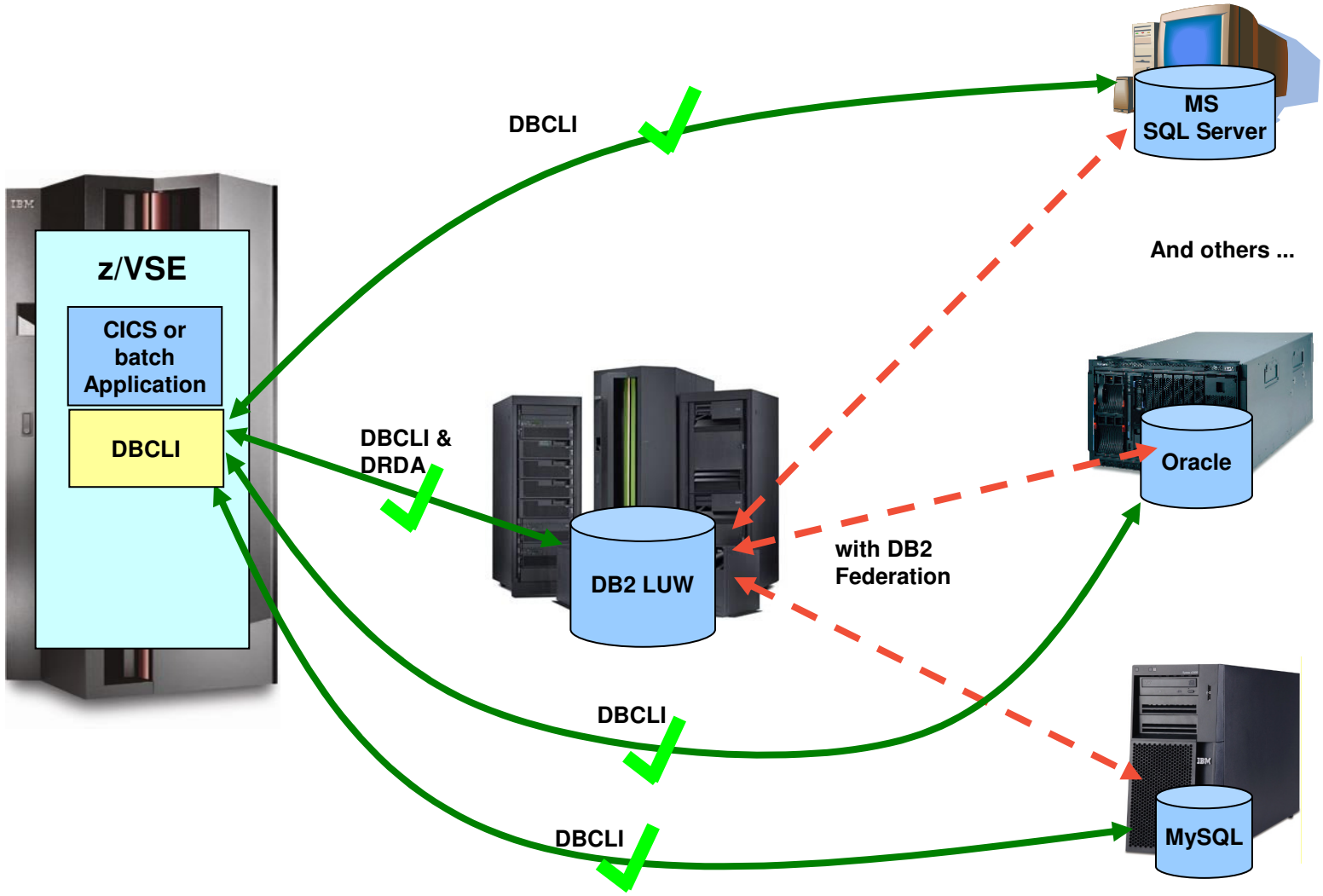

- **Allows z/VSE applications to access a relational database on any suitable database server**
  - IBM DB2, IBM Informix, Oracle, MS SQL Server, MySQL, etc.
    - →The database product must provide a JDBC driver that supports JDBC V3.0 or later

→**Utilize advanced database functions and use SQL statements provided by modern database products**




Requires z/VSE 5.1 plus PTFs (UK78892 and UK78893)

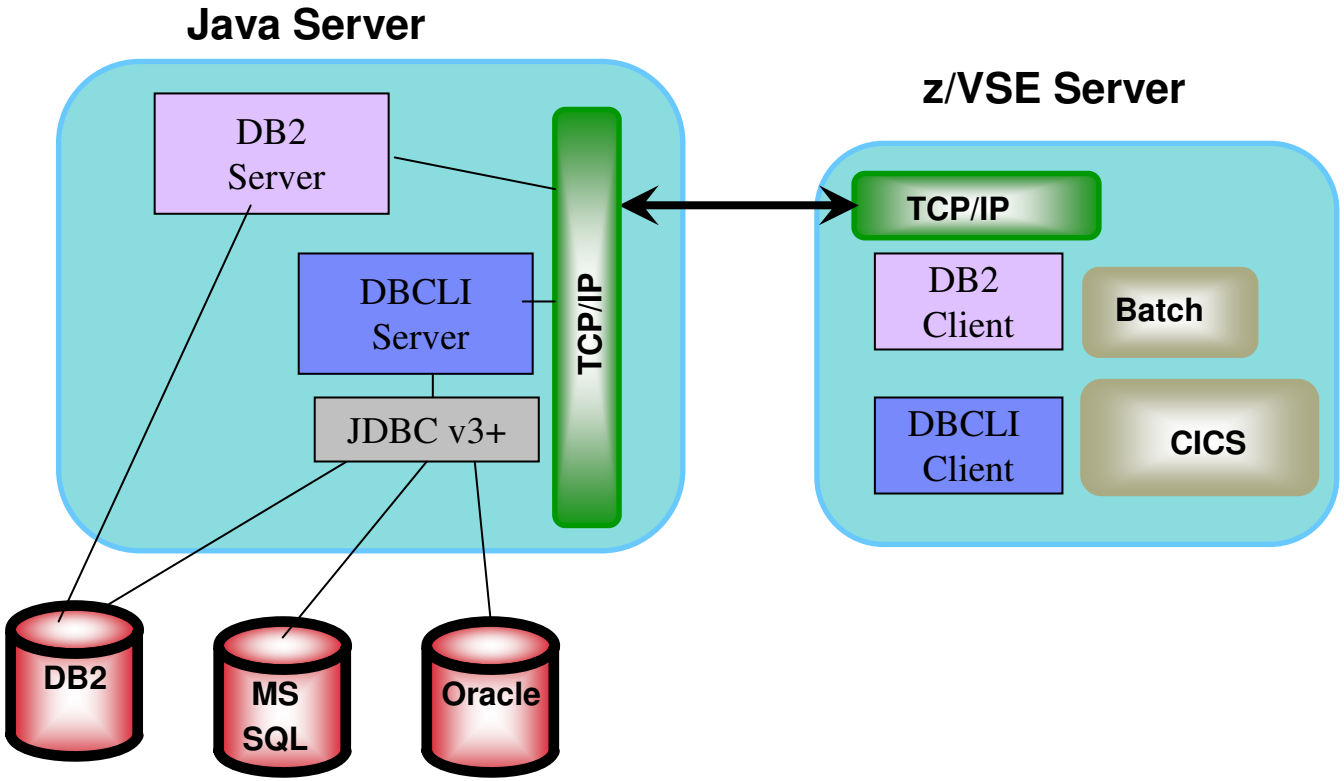
# z/VSE applications accessing Databases



# Applications on z/VSE access 'any' remote relational databases

New in z/VSE 5.11

- Real time access to Relational databases
  - two different ways from batch and CICS
  - Access based on z/VSE DBCLI interface **AND / OR** DB2 Client



# IBM InfoSphere Federation Server - Single Database Image

- 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 scalable performance
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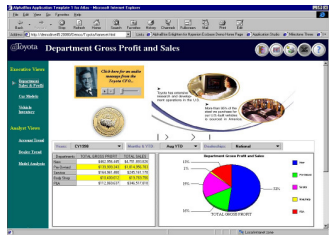
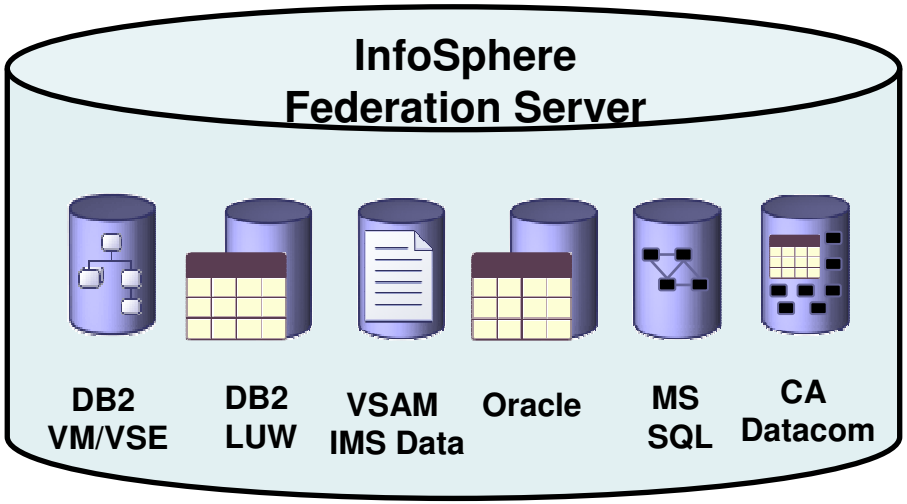
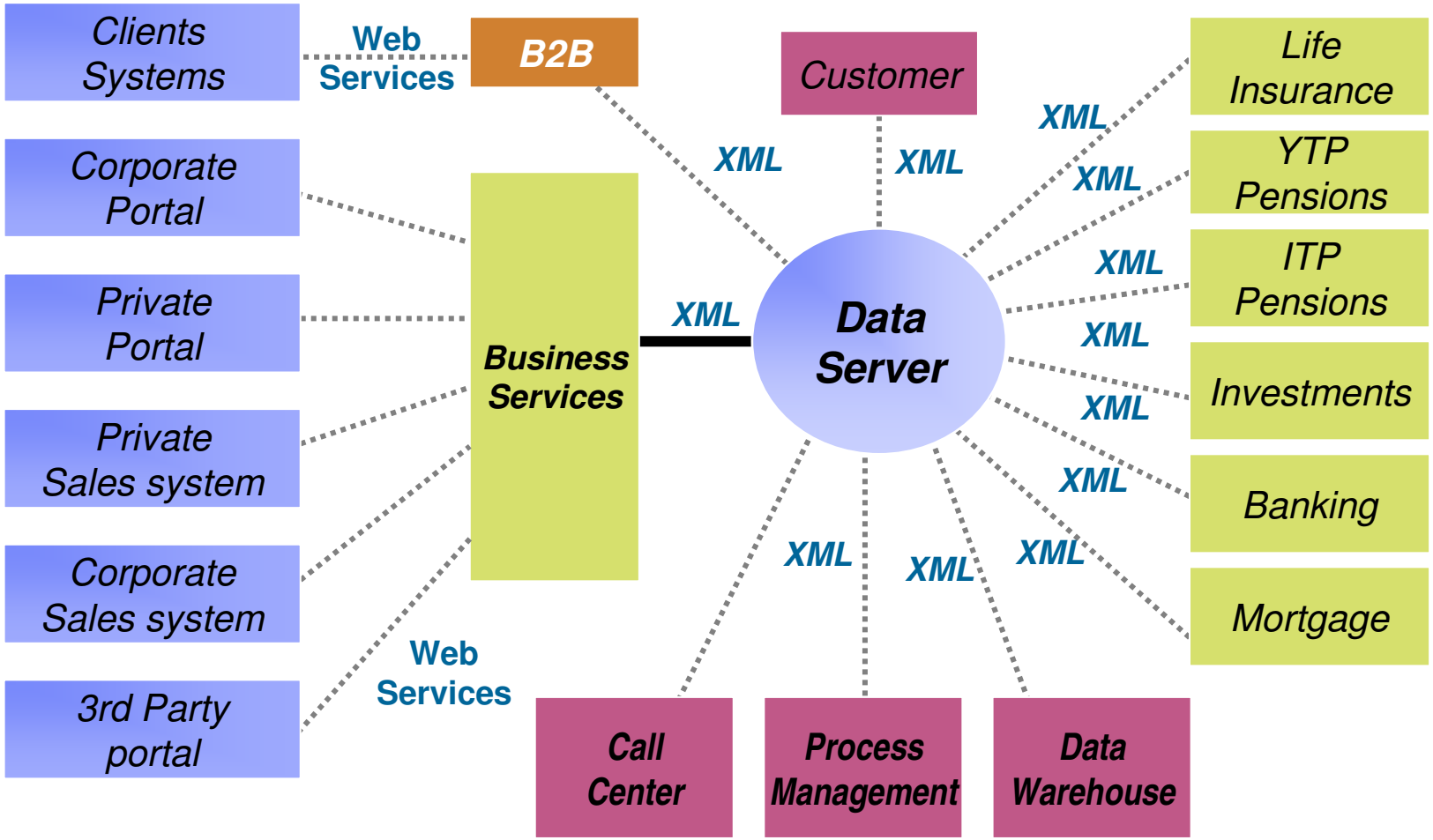



SQL



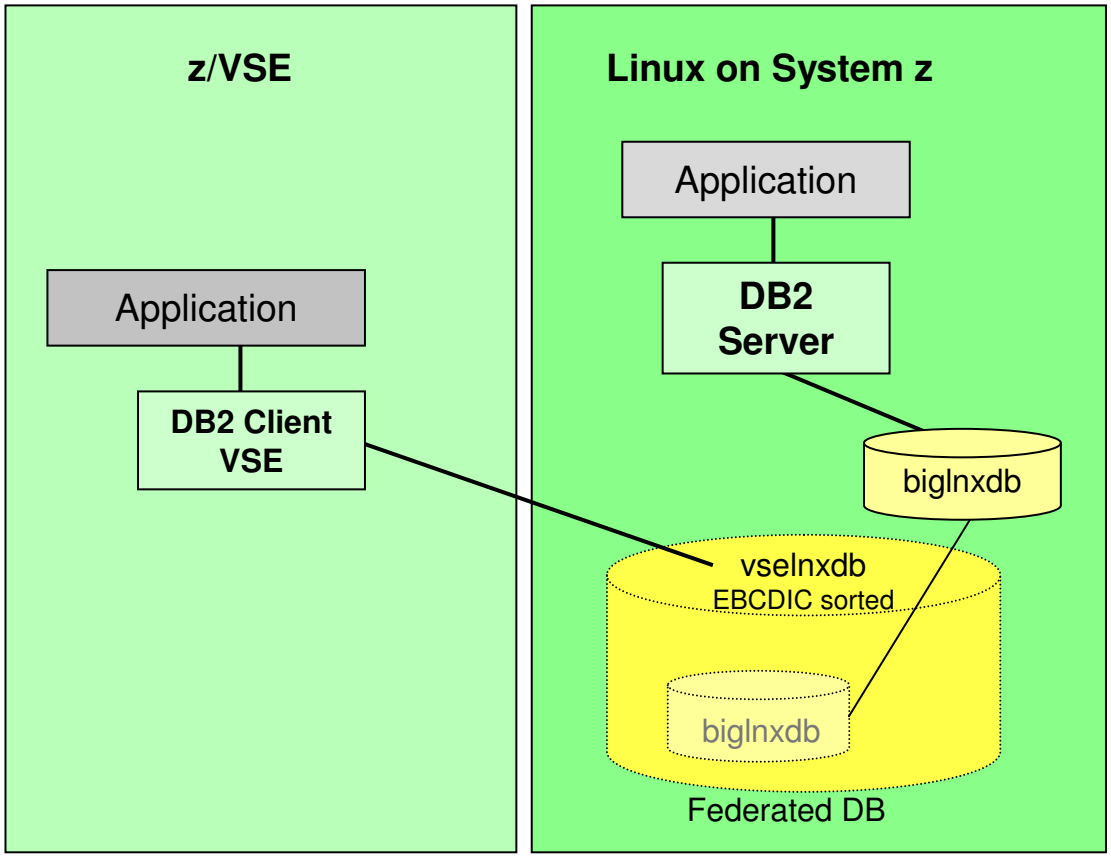
# Powering a Flexible Approach

*XML and SOA are the Keys*



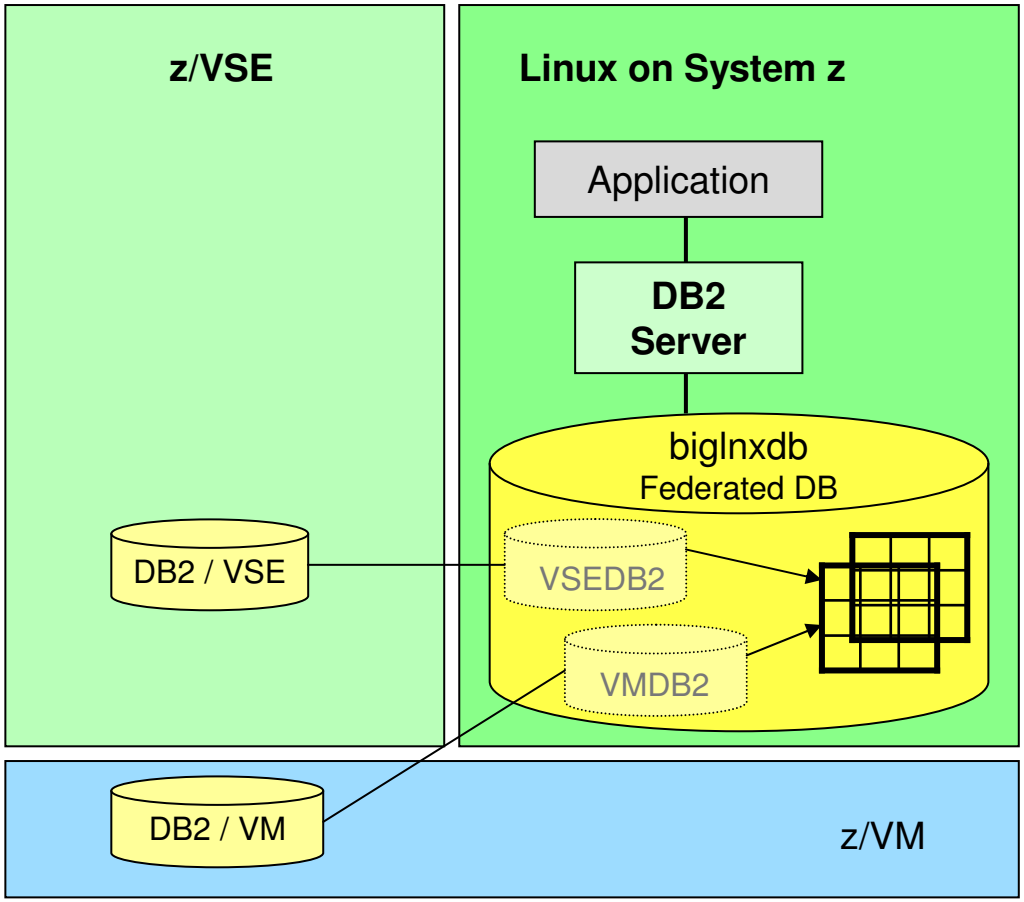
# Federated access for EBCDIC considerations

1) Linux applications can access the database as ASCII database
2) z/VSE applications access the database via vselnxdb as EBCDIC collated database



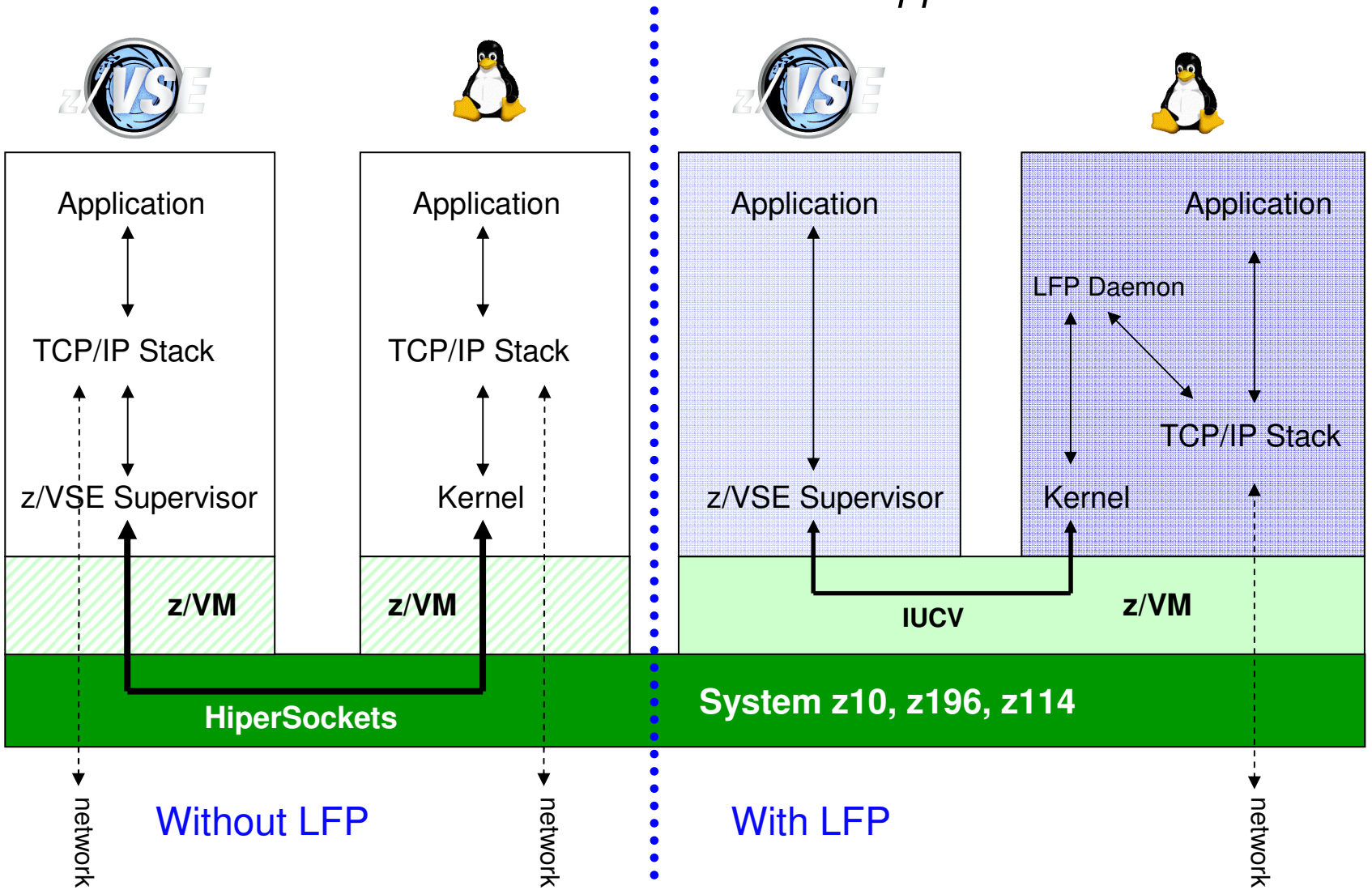
# Data migration to DB2 Linux with DB2 federation feature

1) Linux applications can access the databases using Federation feature
2) z/VSE applications access the database in z/VM or Z/VSE local



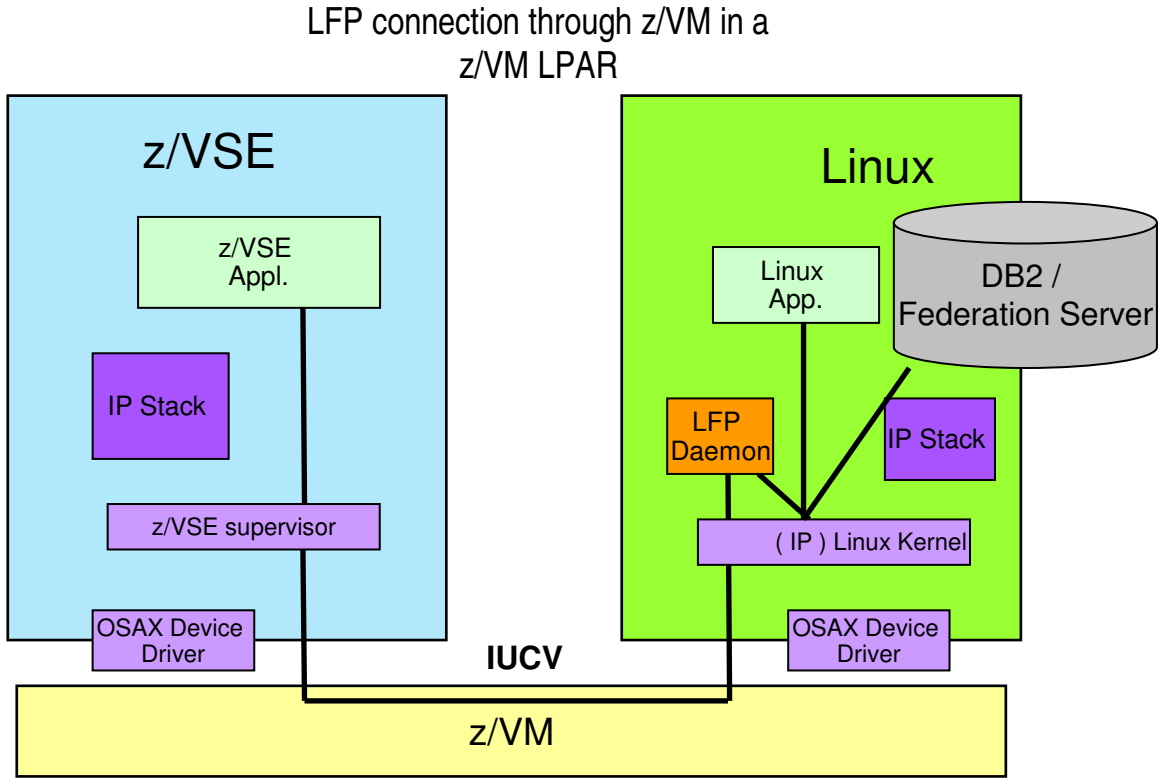
# Linux Fast Path in a z/VM-mode LPAR

*Faster communication between z/VSE and Linux applications under z/VM*



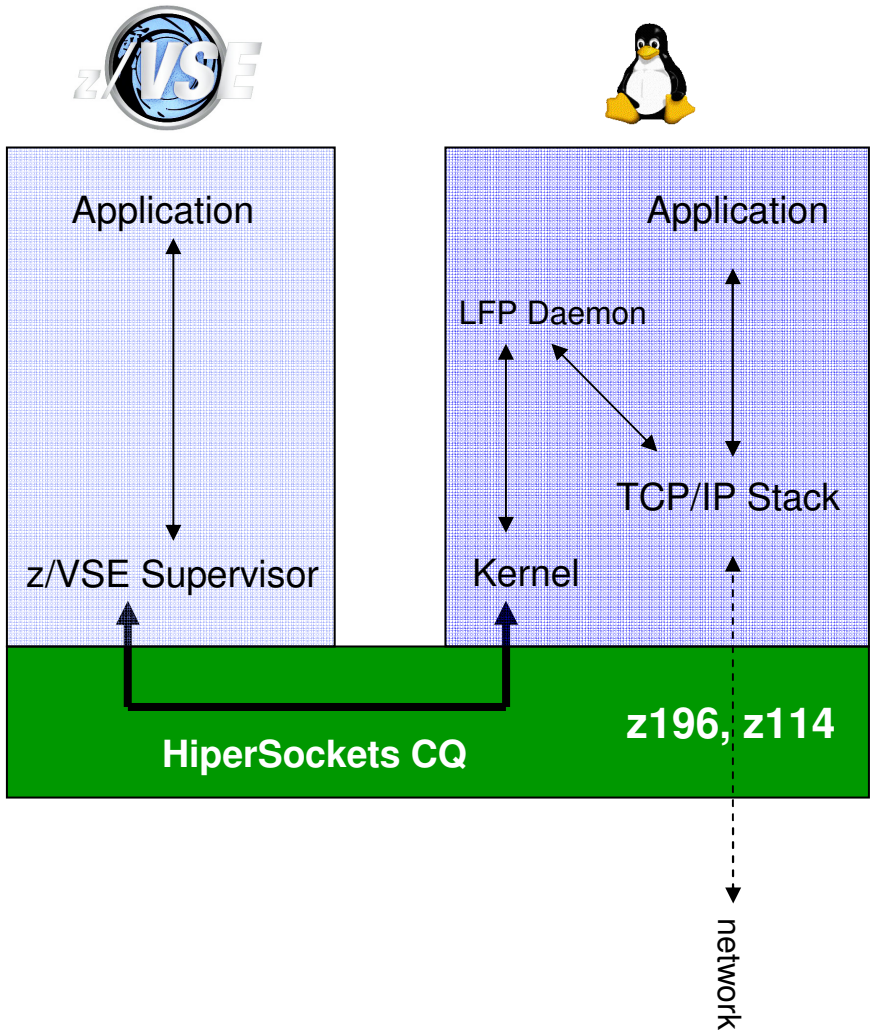
# z/VSE 4.3: z/VM-Mode LPAR and Linux Fast Path communication from z/VSE

- LFP is a new function within z/VSE 4.3 ( since 4Q 2010)
- It enables for a **short access path** with Linux on System z
  - Reduces the IP stack path length and uses the Linux IP only
  - Transparent to socket applications



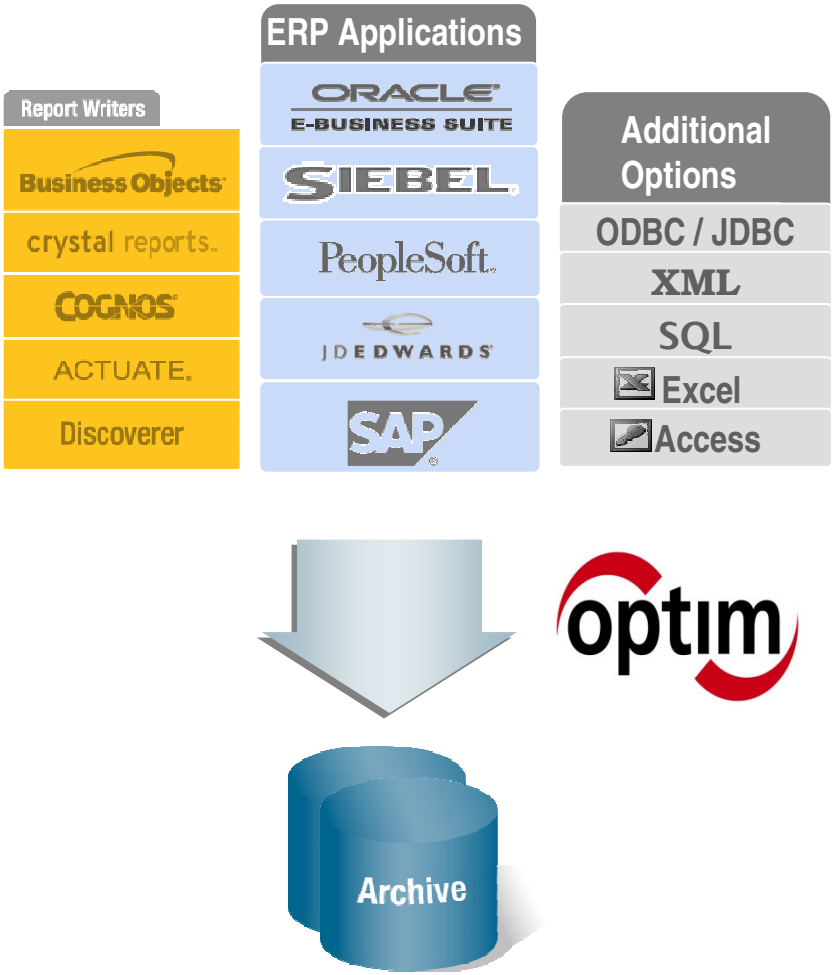
# Fast Path to Linux on System z (LFP) in LPAR

- Allows TCP/IP applications to communicate with TCP/IP stack on Linux w/o using a TCP/IP stack on z/VSE
- Provides (for example) fast access to a data base server on Linux
- LFP in a z/VM guest environment available since z/VSE V4.3 – now LPAR support is added with z/VSE V5.1 + PTFs
- LFP in LPAR requires HiperSockets Completion Queue function of zEnterprise



# Optim - Universal Access

- Access any record, any time, anywhere!
- Native application access
- Application independent access
  - Industry standard methods (e.g. SQL, ODBC/JDBC, XML)
  - Portals
  - Report writers (e.g. Cognos)
  - Desktop formats (e.g. Excel, CSV, MS Access)
  - Database formats



# More than 1400 New and Upgraded Applications added for z/OS and Linux

*Added over 90 New ISV Partners in 2012*

- **z/OS**
  - Over 1,080 New or Upgraded applications
  - More than 4,400 total z/OS applications
- **Linux**
  - **Over 400 New or Upgraded applications**
  - **More than 3,000 total Linux applications**