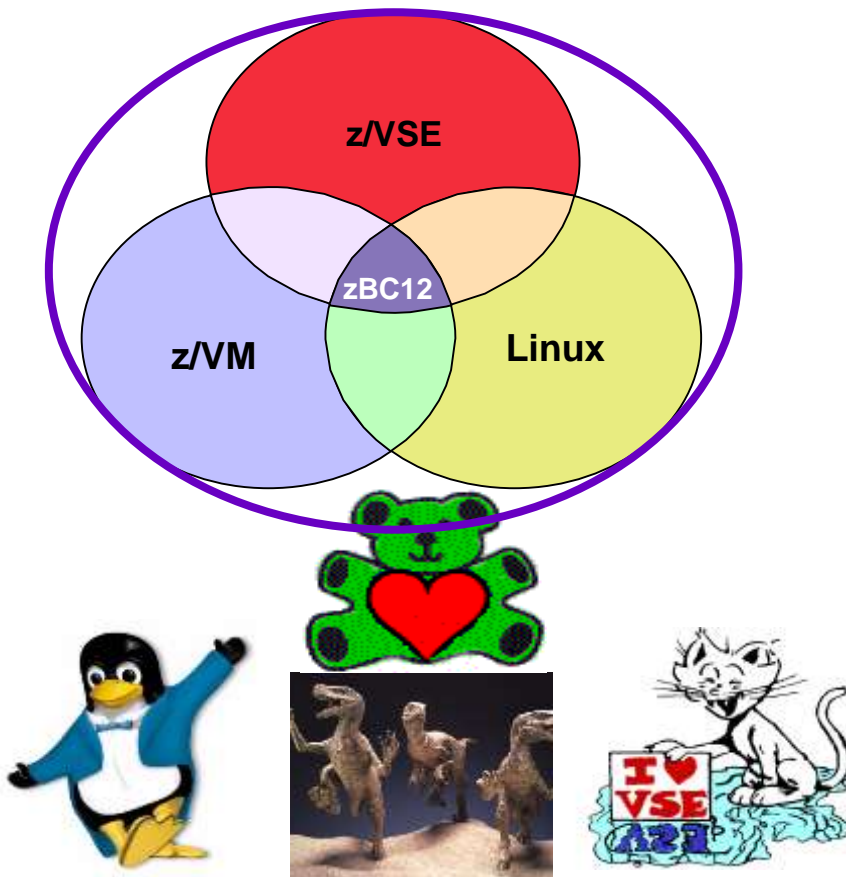# Customer solutions with zVSE Connectors

Wilhelm Mild
Executive IT Architect
Integration solutions for
Mobile, System z and Linux
IBM Germany

# Exploiting the Symbiosis with all Worlds on System z

**Symbiosis** – *is an interaction of systems where the relationship is beneficial to all partners !*



- z/VSE
    - **Protect core IT investments**
    - **Cost-effective solutions**
    - **Interoperability with other servers**
- Linux on System z
    - **Large portfolio of new applications**
    - **Platform for IBM middleware**
    - **Infrastructure Simplification**
    - **Massive scalability**
- z/VM
    - **Highly flexible, advanced virtualization**
    - **Multiple images of z/VSE and Linux**
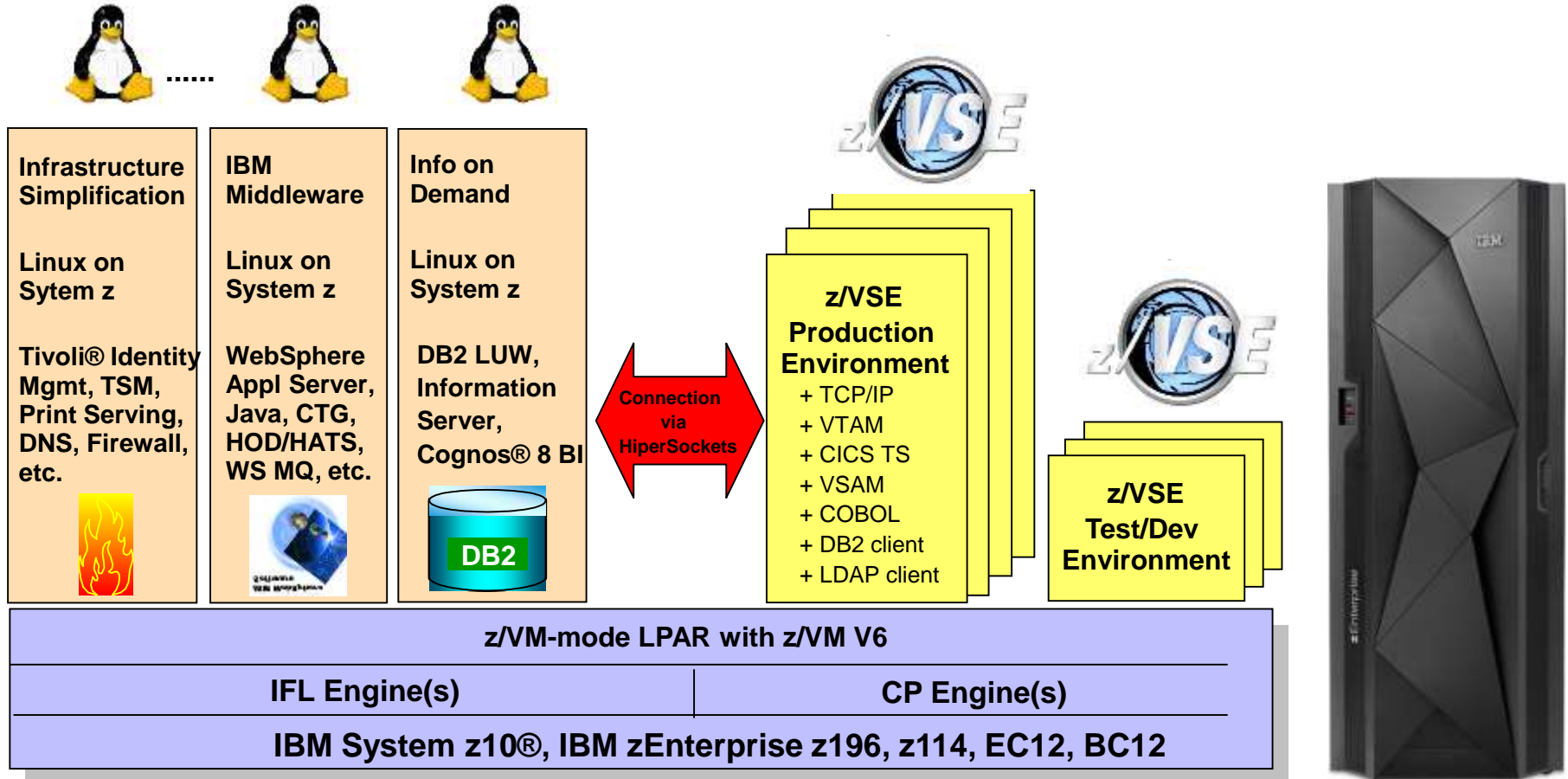    - **Designed to exploit z Systems**

IBM

# The role of  Linux on System z for z/VSE customer

3 © 2015 IBM Corporation

# z/VSE Strategy with Linux on System z

*Hybrid Environment leveraging z/VSE, z/VM, and Linux on System z*

| Infrastructure Simplification | IBM Middleware | Info on Demand |
|---|---|---|
| Linux on Sytem z | Linux on System z | Linux on System z |
| Tivoli® Identity Mgmt, TSM, Print Serving, DNS, Firewall, etc. | WebSphere Appl Server, Java, CTG, HOD/HATS, WS MQ, etc. | DB2 LUW, Information Server, Cognos® 8 BI |

**Connection via HiperSockets**

**z/VSE Production Environment**
+ TCP/IP
+ VTAM
+ CICS TS
+ VSAM
+ COBOL
+ DB2 client
+ LDAP client

**z/VSE Test/Dev Environment**

**z/VM-mode LPAR with z/VM V6**

**IFL Engine(s)** | **CP Engine(s)**

**IBM System z10®, IBM zEnterprise z196, z114, EC12, BC12**
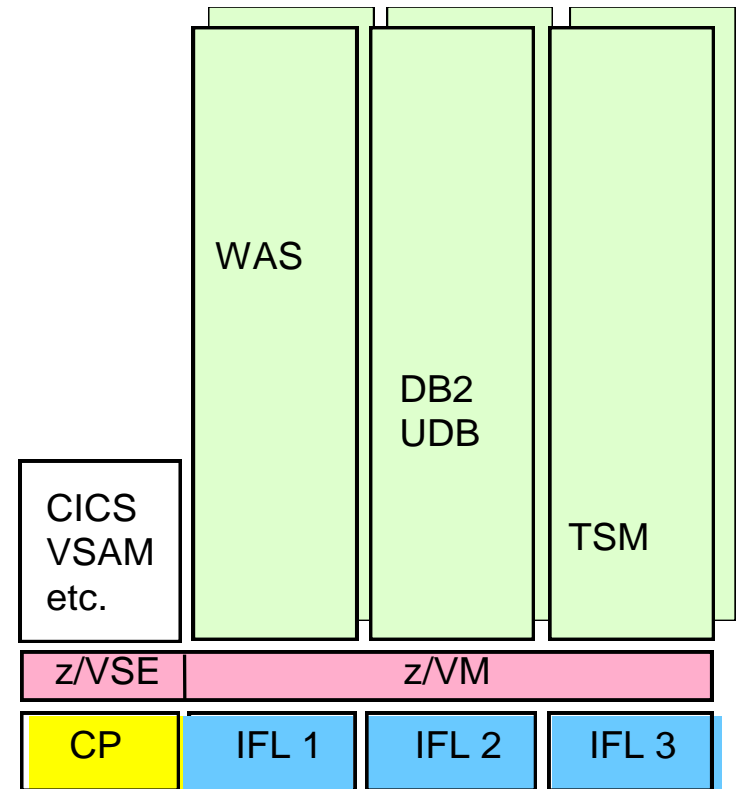
# Options with a z Systems machine

❖ Traditional Processor (CP) size is dependent on customer needs

❖ An IFL processor is always full speed

❖ No traditional operating system running on IFL - only z/VM and Linux on System z

❖ It's easy to upgrade or downgrade

**HiperSockets – The network in the box**

System z

z/VM

z/VSE

CP | IFL Proc | IFL Proc | IFL Proc

Processor

System z

z/VM | Linux | z/VSE

VSE

HiperSockets  HiperSockets
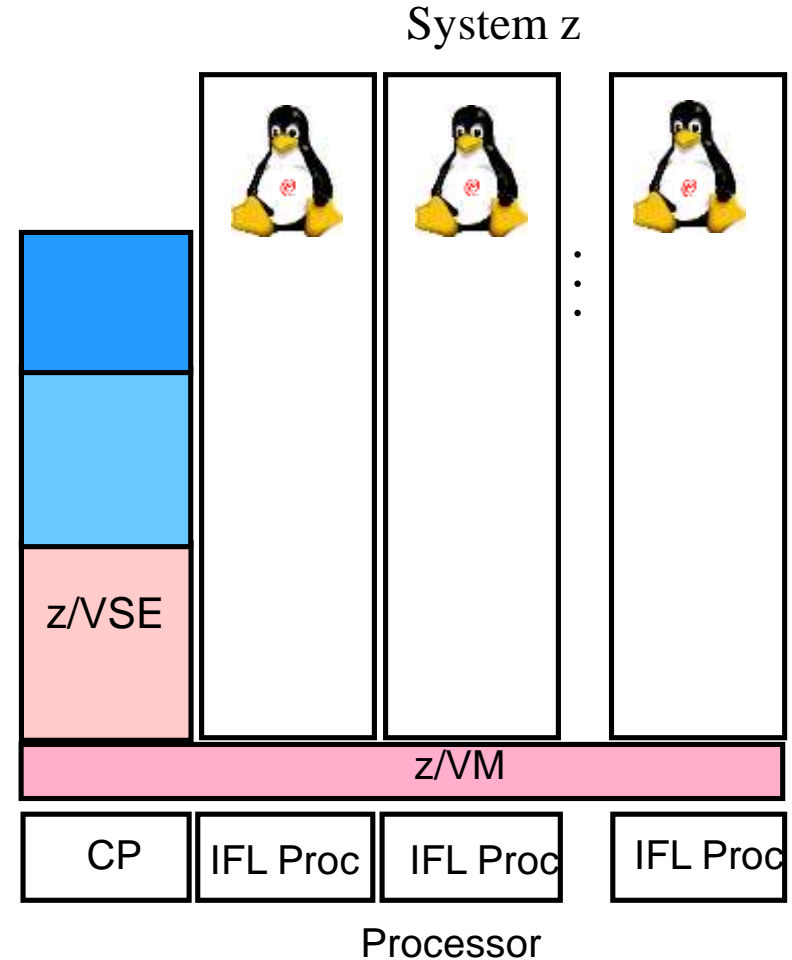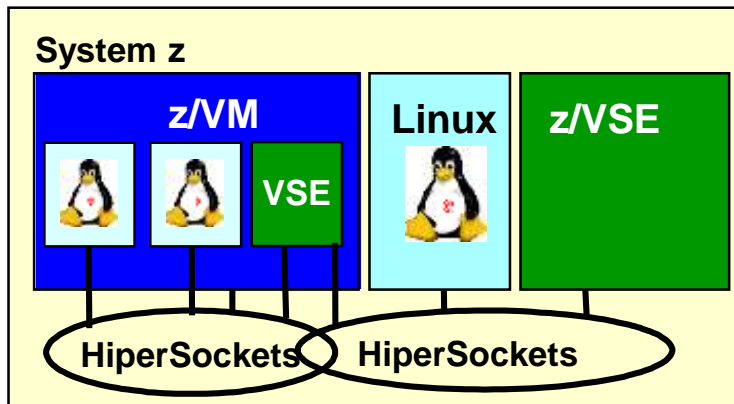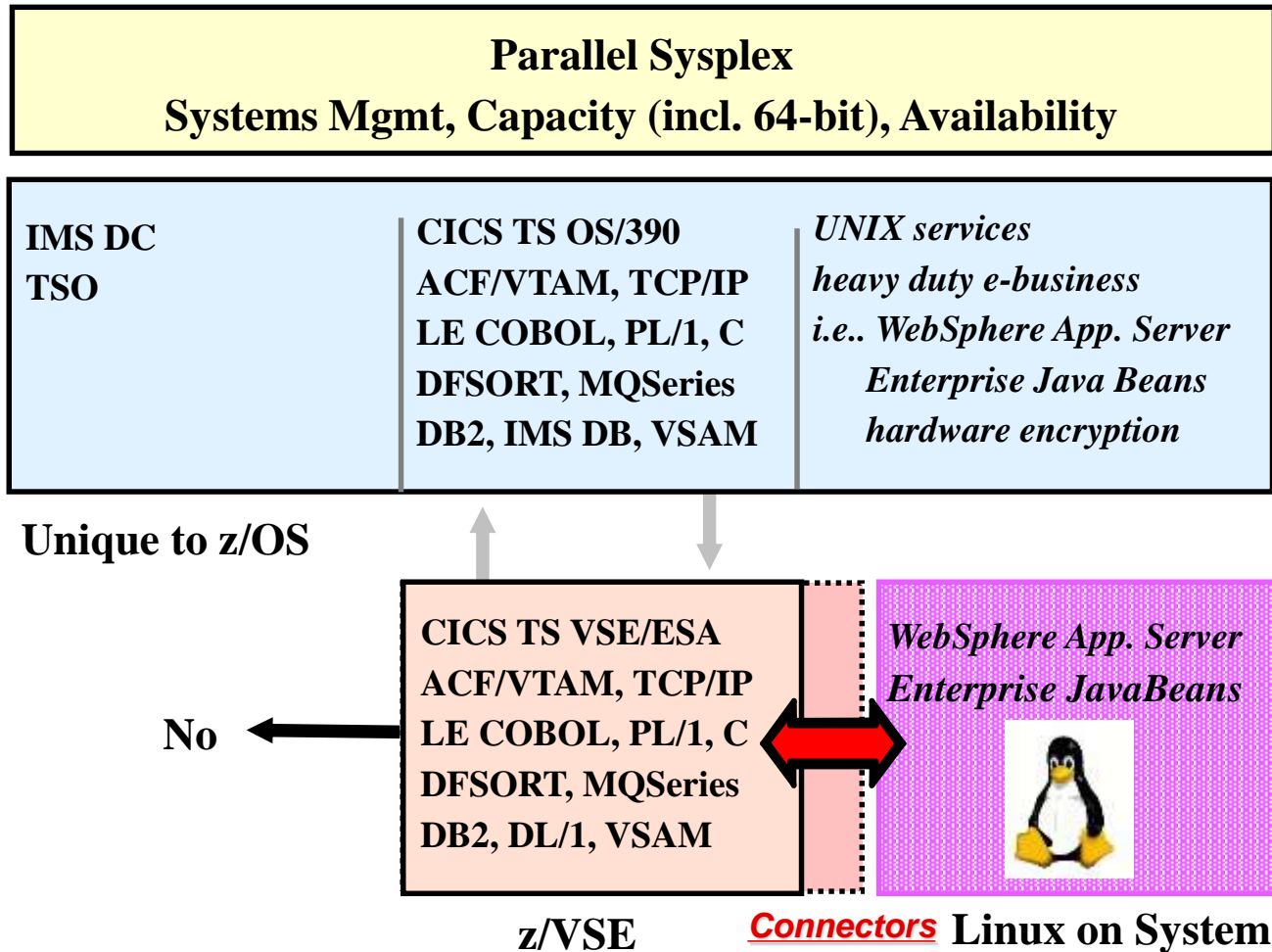
# Linux on System z – Advantages for VSE Customers

- **New Linux applications** from Vendors (ISV) and open source
  - Linux on system z to exploit 64-bit capabilities
  - Complement 31-bit core VSE applications
- **New solutions with IBM Middleware** based on Linux on System z
  - WebSphere Application Server
  - Modern Data management (i.e. DB2 UDB )
  - Mailing system with Lotus® Domino™
  - Network simplification with Communications Server
  - Advanced application development tools
- **Integrate Linux technology and VSE solutions**
  - Use Linux to access VSE applications and data
- **Infrastructure simplification** to help reduce cost
  - Possible TCO benefits with Linux
    - NO increase in VSE License Costs
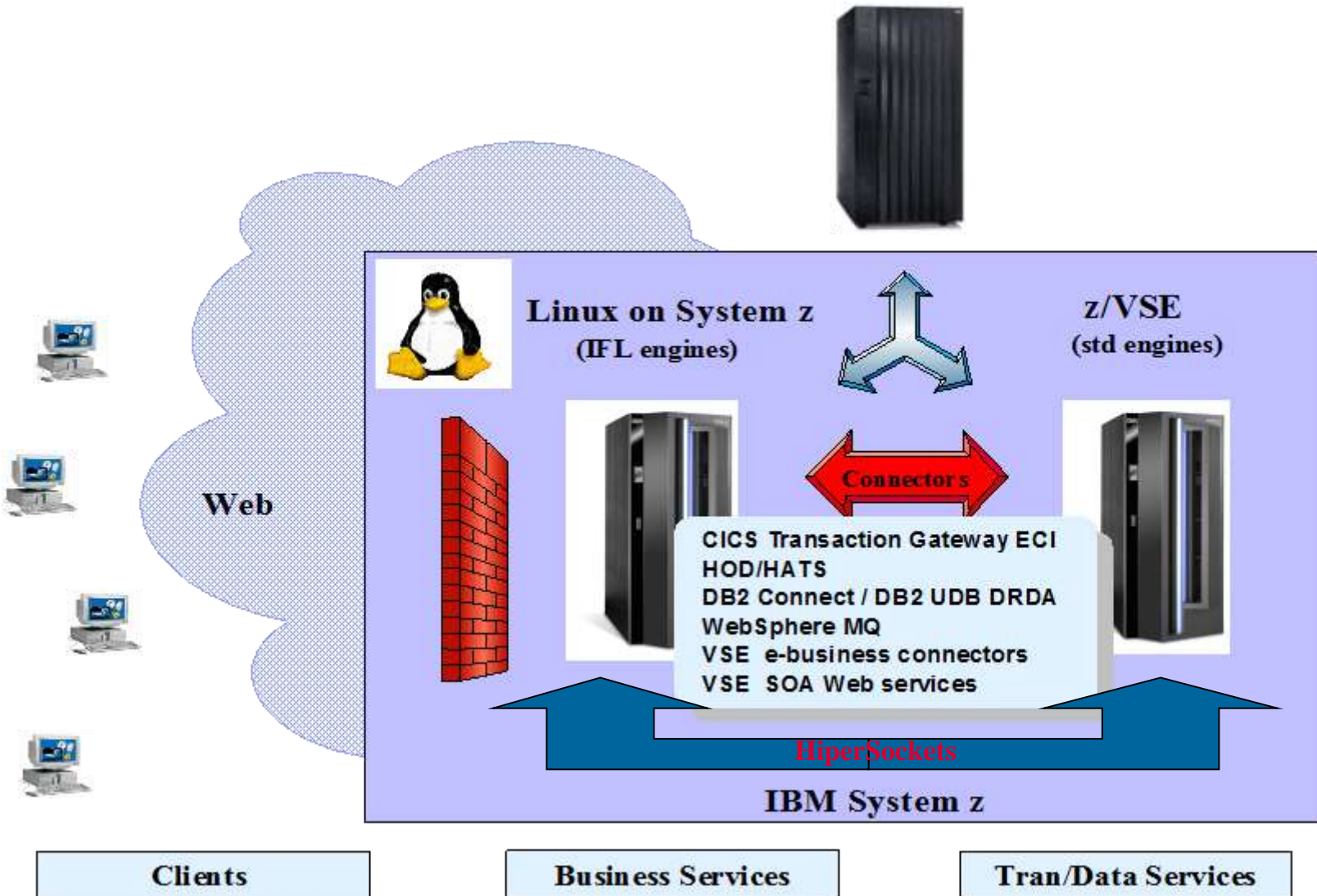  - Consolidation of existing distributed servers to Linux on System z

| WAS | DB2 UDB | TSM |
| CICS VSAM etc. | | |

| z/VSE | z/VM |
| CP | IFL 1 | IFL 2 | IFL 3 |

System z

# *Extending z/VSE with Linux on System z*

**z/OS**

**Parallel Sysplex**
**Systems Mgmt, Capacity (incl. 64-bit), Availability**

| | | |
|---|---|---|
| IMS DC<br>TSO | CICS TS OS/390<br>ACF/VTAM, TCP/IP<br>LE COBOL, PL/1, C<br>DFSORT, MQSeries<br>DB2, IMS DB, VSAM | *UNIX services*<br>*heavy duty e-business*<br>*i.e.. WebSphere App. Server*<br>*Enterprise Java Beans*<br>*hardware encryption* |

**Unique to z/OS**

**CICS TS VSE/ESA**
**ACF/VTAM, TCP/IP**
**No** ← **LE COBOL, PL/1, C**
**DFSORT, MQSeries**
**DB2, DL/1, VSAM**

*WebSphere App. Server*
*Enterprise JavaBeans*

**z/VSE**          *Connectors* **Linux on System z**

# Think *inside* the box – with Linux on System z



**Linux on System z**
(IFL engines)

**z/VSE**
(std engines)

**Web**

**Connectors**

CICS Transaction Gateway ECI
HOD/HATS
DB2 Connect / DB2 UDB DRDA
WebSphere MQ
VSE e-business connectors
VSE SOA Web services

**HiperSockets**

**IBM System z**

**Clients**

**Business Services**

**Tran/Data Services**

# Infrastructure matters

**End User Services**

**Web - Business Appl. Services**

**Data / Transaction Services**

*Extranets*

*Intranets*

*Internet*

*Edge Servers*

*Directory & Security Services*

**Portal** *Web Presentation Servers*

**Mobile environment**

*Web Application Servers*

*Storage*

*Transaction Servers*

*Data Servers*

**Responsive**

**Dynamic & Flexible**

**Reliable & Robust**
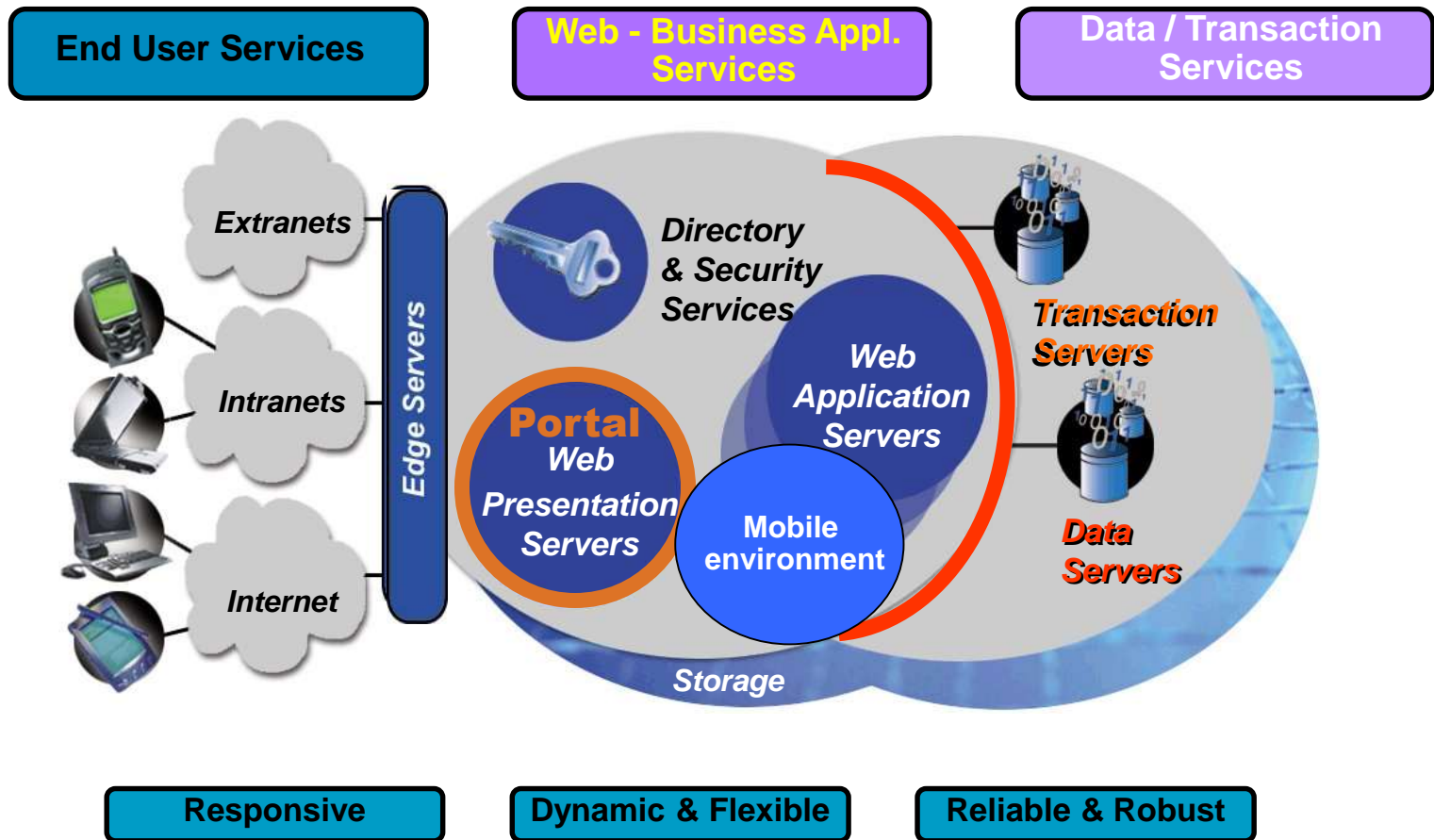
# Global Virtualization – with System z and z/VSE

**IBM System z / zEnterprise**

**z/VM**

z/VSE

**Linux**

**z/VSE**

**HiperSockets**   **HiperSockets**
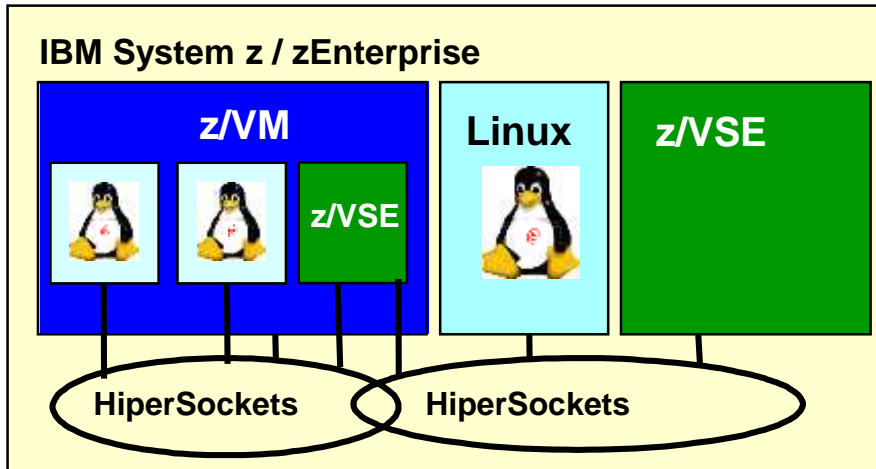
- Network Virtualization

- Memory Virtualization

- Processor Virtualization

- System Virtualization

- Disk Virtualization

Production / Dev /Test and Optional Failover

z/VSE | z/VSE | z/VM | CMS | Linux | Linux

z/VM

LPAR

CP | CP | IFL | IFL | IFL | IFL | IFL

**IBM System z**

**SAN with 8 Gbps Fabric**

**SAN Volume Controller**

**Multi-vendor SCSI disk systems**

© 2015 IBM Corporation
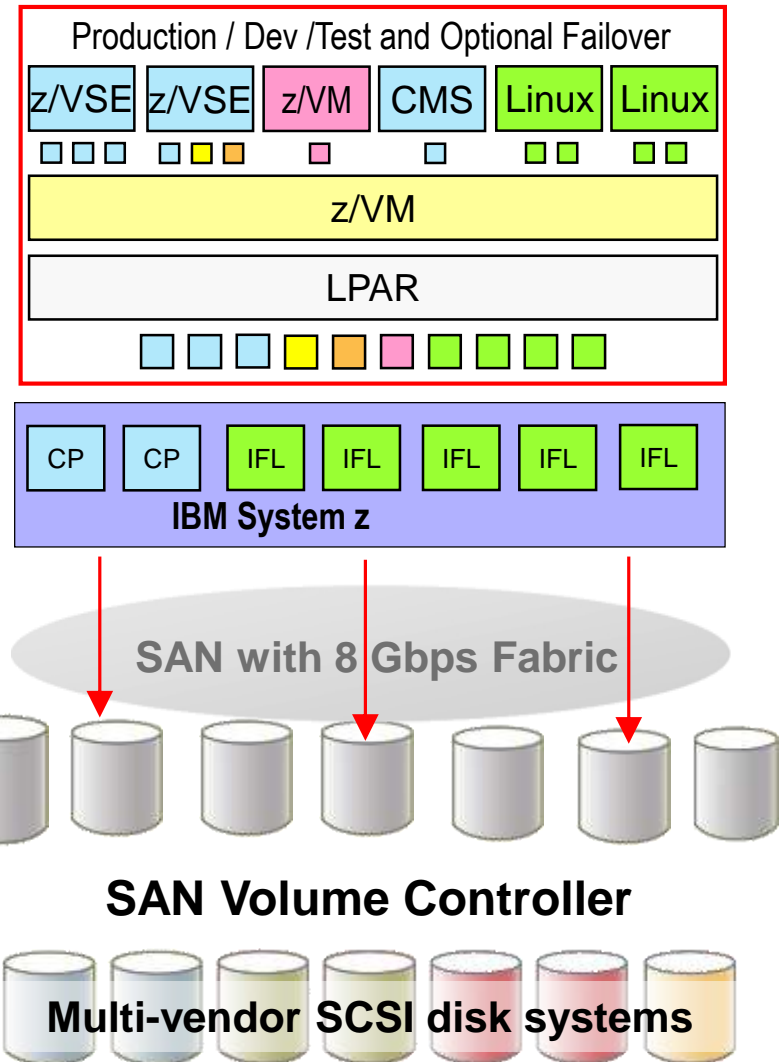
# Linux Fast Path in a z/VM-mode LPAR - Supported by z/VSE V4.3 +

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



Without LFP

With LFP

**Details on Saturday 10:15 by I. Franzki**
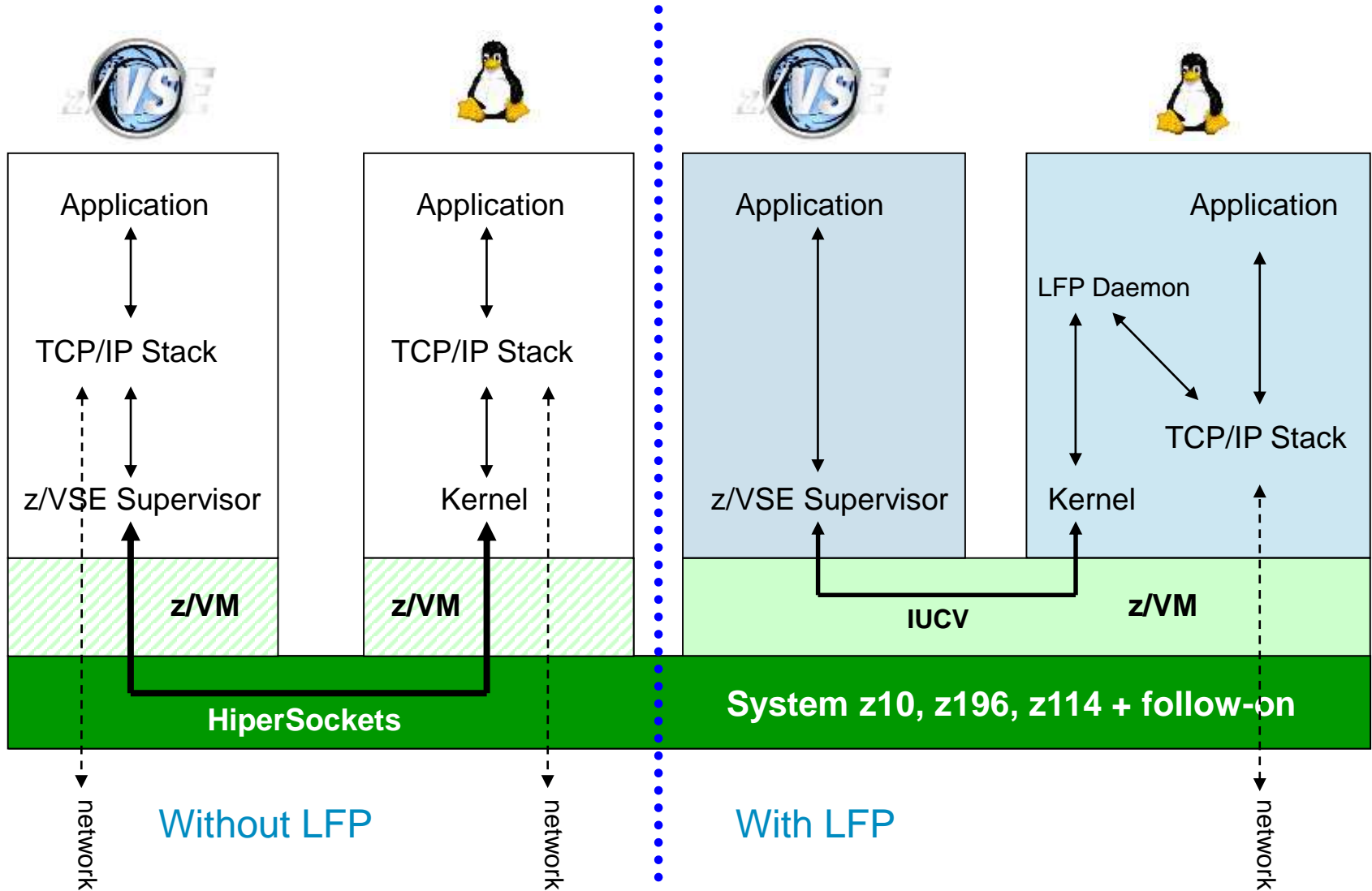
# Integration of z/VSE using IBM Middleware & Connectors

IBM

| | |
|---|---|
| **VSE ScriptServer** | **VSE Connector Client** |
| **VSE Navigator** | |
| **Maptool** | **VSAM / JDBC** |
| **VSE Health Checker** | |

**Java**

**VSAM Redirector Server** — DB2

**VSE Print**

**TCP/IP Config Tool**

**Keyman VSE**

**Virtual Tape Server**

**CICS Transaction Gateway**

**Web Service**

**DB2 Connect** — DB2

**MQ Series**

**JDBC** — Oracle, MS SQL

**DBCLI Server**

TCP/IP → **VSE Connector Server** → VSAM, DL/I, LIBR, ICCF, POWER, Console

TCP/IP ← **VSAM Redirector Client**

TCP/IP ← **Auto FTP** ← POWER

TCP/IP → **Auto email Auto LPR** ← POWER

TCP/IP → **TCP/IP for VSE**

TCP/IP ← **Virtual Tape**

TCP/IP + SNA → **CICS Web Support** (CICS Transaction Server)

TCP/IP (SOAP) ← **Web Service** (CICS Transaction Server)

TCP/IP (DRDA) ← **DB2 Server** → DB2, DL/I, VSAM

TCP/IP ← **MQ Server**

TCP/IP ← **DBCLI API**

z/VSE

**The graphical interface
to z/VSE**

# Real time access to VSE resources using the Java–Based Connector (feature included in z/VSE)

z/VSE

Linux on z Systems

**Web Application Server**

VSEScript

**Java Program**

web client

**Connector Client**

JDBC

TCP/IP

**TCP/IP**

**Connector Server**

**LIBR**

**Power**

**ICCF**

**Console DL/I VSAM**

mapped files

**VSAM**
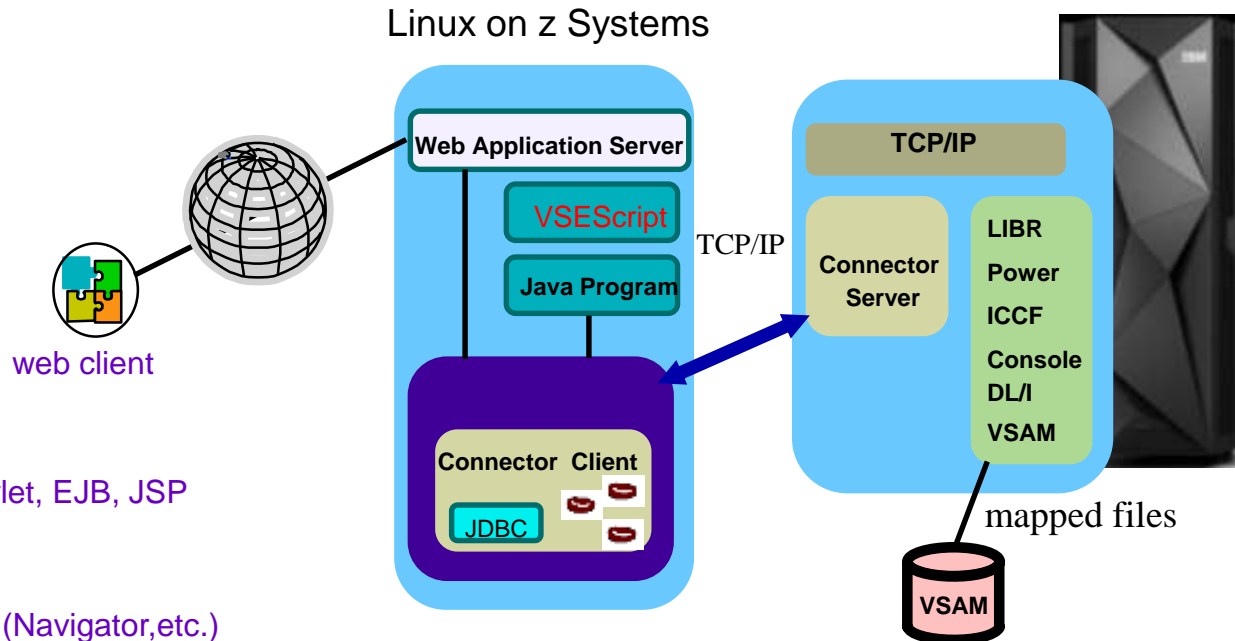
➤ HTML
➤ Java applet, servlet, EJB, JSP
➤ JDBC
➤ VSEScript
➤ specialized tools (Navigator,etc.)

▪ real time access to VSE resources from remote systems
▪ new possibilities for leveraging the VSE investment

# z/VSE Navigator: Windows-like VSE Interface



© 2015 IBM Corporation

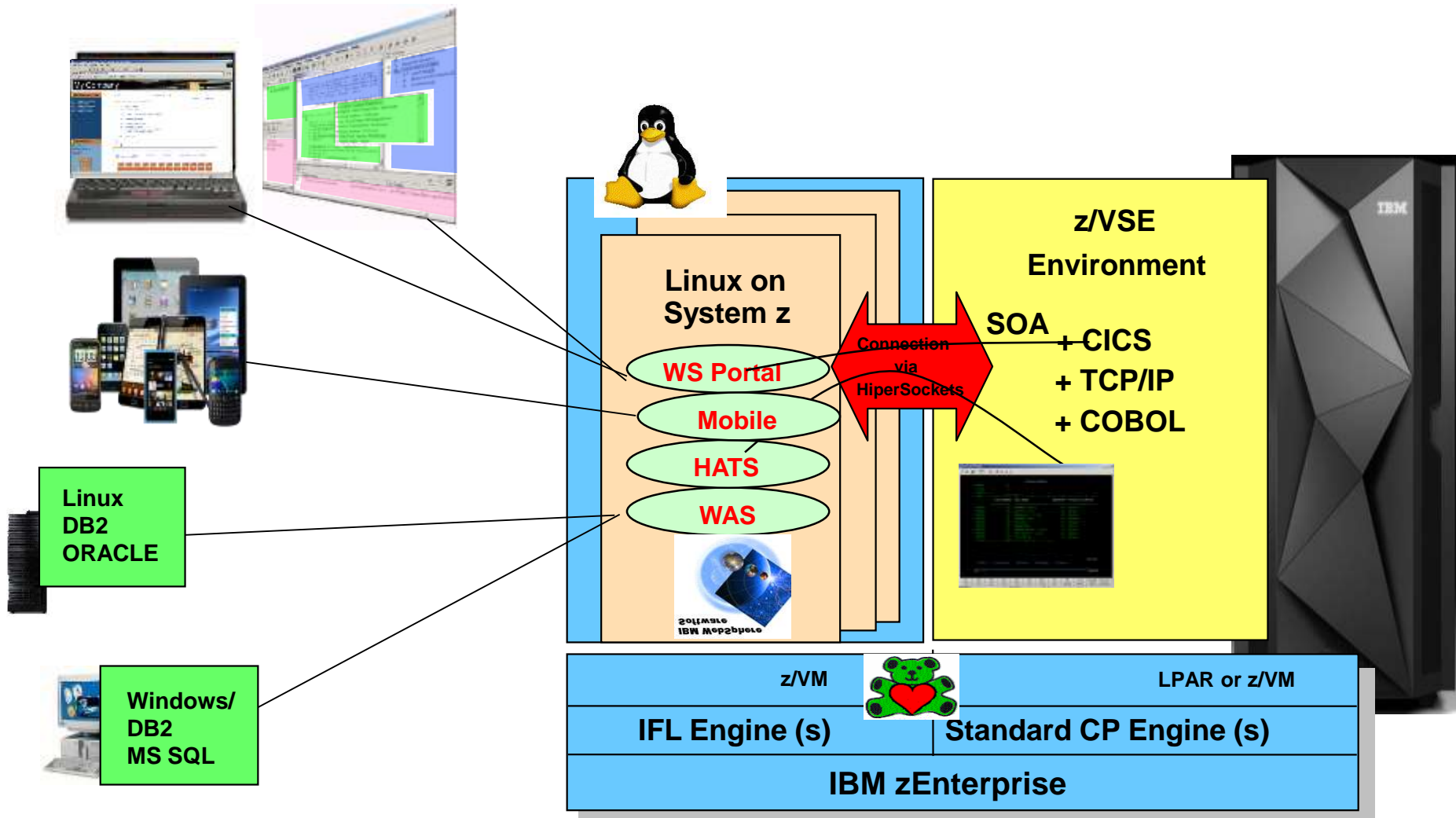# z/VSE Navigator: Windows-like VSE Interface



© 2015 IBM Corporation

**Linux on z Systems
the enterprise access server
to z/VSE services**

# Linux on System z as Central Access Point

## Web enable, improve interface, simplify, extend existing applications

**Linux on System z**

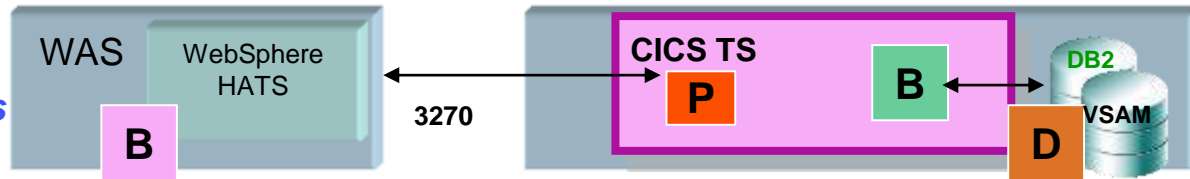- WS Portal
- Mobile
- HATS
- WAS

**Connection via HiperSockets**

**z/VSE Environment**

**SOA**
+ CICS
+ TCP/IP
+ COBOL

Software IBM WebSphere

Linux DB2 ORACLE

Windows/ DB2 MS SQL

z/VM

LPAR or z/VM

**IFL Engine (s)**

**Standard CP Engine (s)**

**IBM zEnterprise**

# Connectivity to CICS transactions

**HTTP Access:**
**CICS Web Interface/Services (CWI/CWS) within CICS**

WAS — **B** — HTTP → CICS TS — **B** ↔ DB2 / **D** VSAM
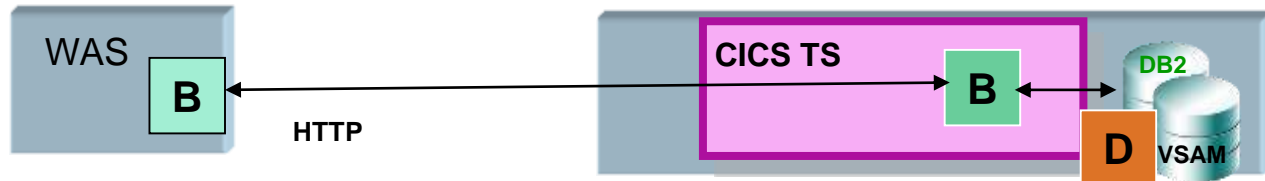
**WebSphere**
**Host Access Transformation Services (HATS)**

WAS — WebSphere HATS — **B** — 3270 ↔ CICS TS — **P** — **B** ↔ DB2 / **D** VSAM

**J2C Connector:**
**CICS Transaction Gateway (CTG)**

WAS — **B** — CICS TG — ECI ← CICS TS — **B** ↔ DB2 / **D** VSAM
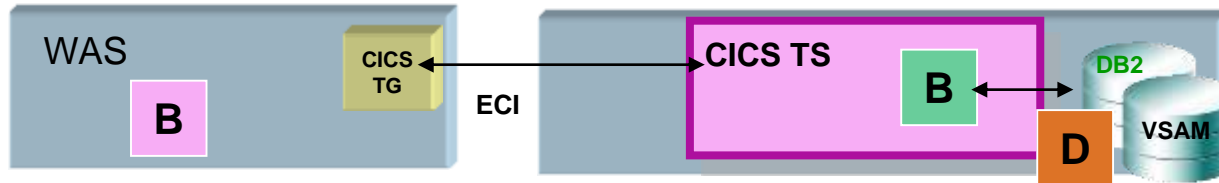
**JMS Connector:**
**MQ to CICS Bridge**

WAS — **B** — JMS to MQ — MQ — Queues ↔ MQ — MQ-CICS ↔ CICS TS — **A** — **B** ↔ DB2 / **D** DL/I
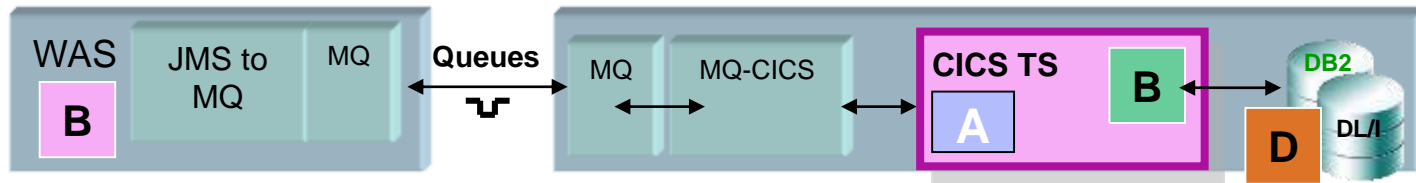
**SOA Integration:**
**Web Services access to CICS**

**B** — SOAP ← CICS TS — **A** — **B** ↔ DB2 / **D** VSAM
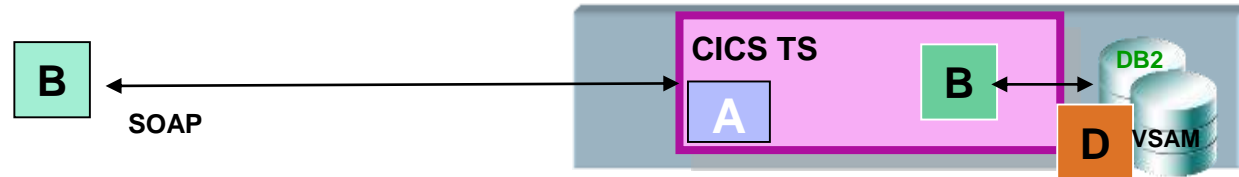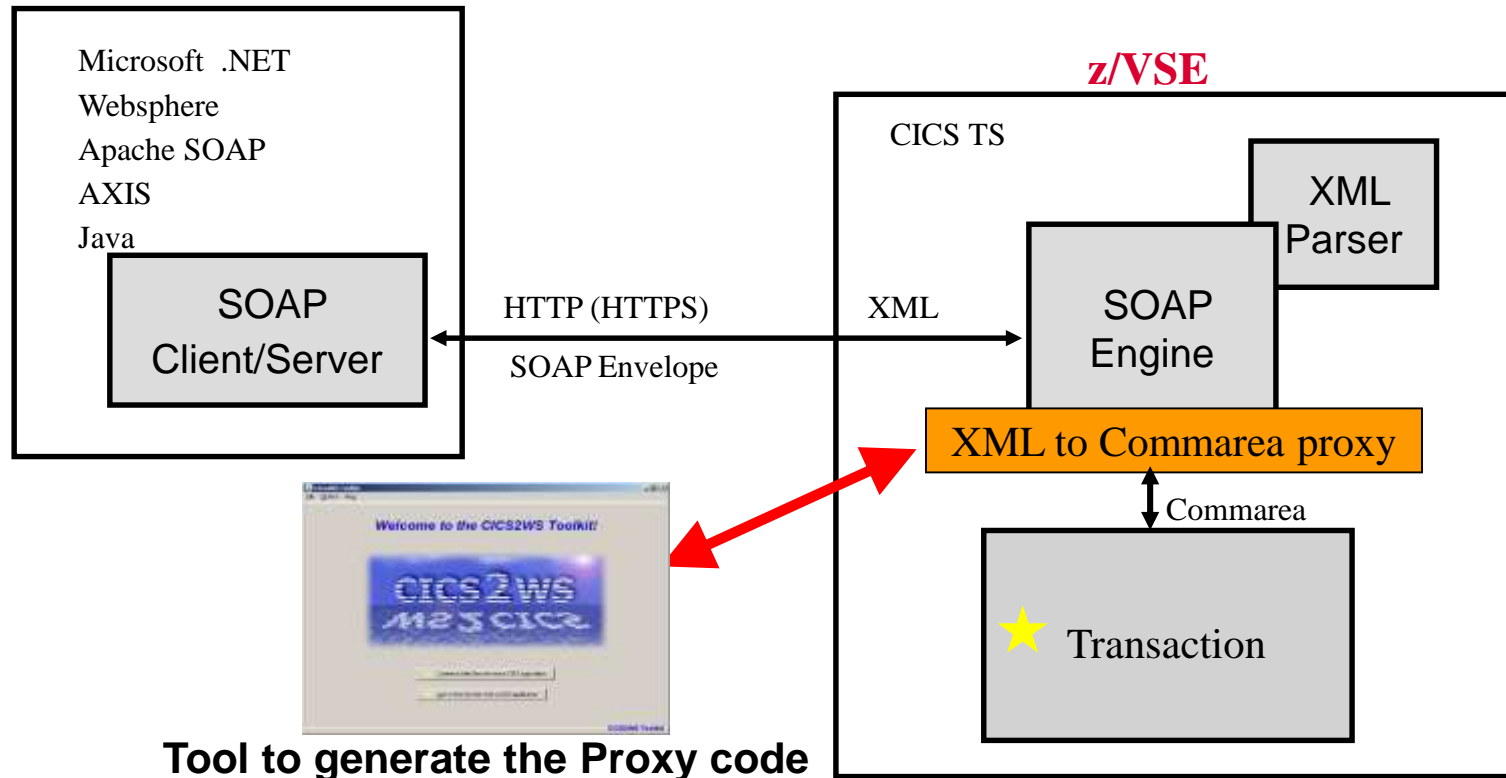
*WAS can be on Linux on z or on zBX in an zEnterprise Ensemble. Qualities of Services will vary.*

# Web Services with z/VSE

### SOA and XML data interchange with CICS transactions in VSE

Microsoft .NET
Websphere
Apache SOAP
AXIS
Java

**z/VSE**

CICS TS

XML Parser

SOAP Client/Server

HTTP (HTTPS)

SOAP Envelope

XML

SOAP Engine

XML to Commarea proxy

Commarea

Welcome to the CICS2WS Toolkit!

cics2ws
M2 5 CICS

★ Transaction

**Tool to generate the Proxy code**

★ Existing VSE Transactions as Web Service
★ Existing Transactions can call a remote Web Service

# z/VSE 5.2: CICS2WS Tool

# z/VSE 5.2: Web Services (SOAP) enhancements

- **z/VSE V5.2 is designed support the literal encoding style, in addition to the already supported SOAP-encoding style**
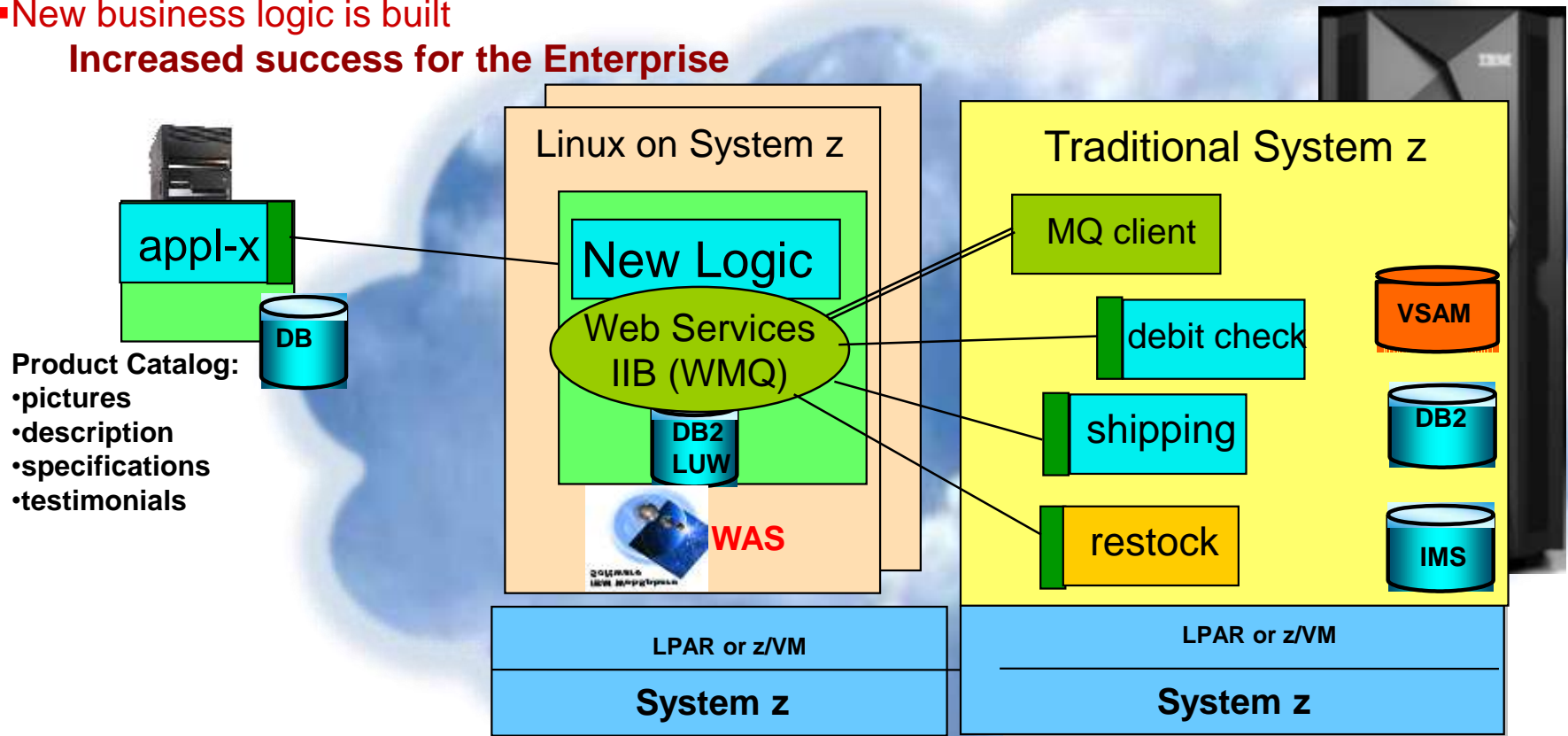  - RPC-type Web Services using encoded style
  - New: RPC-type Web Services using literal style
    - Arrays/Lists support
    - Better support for data types conversion



NEW!
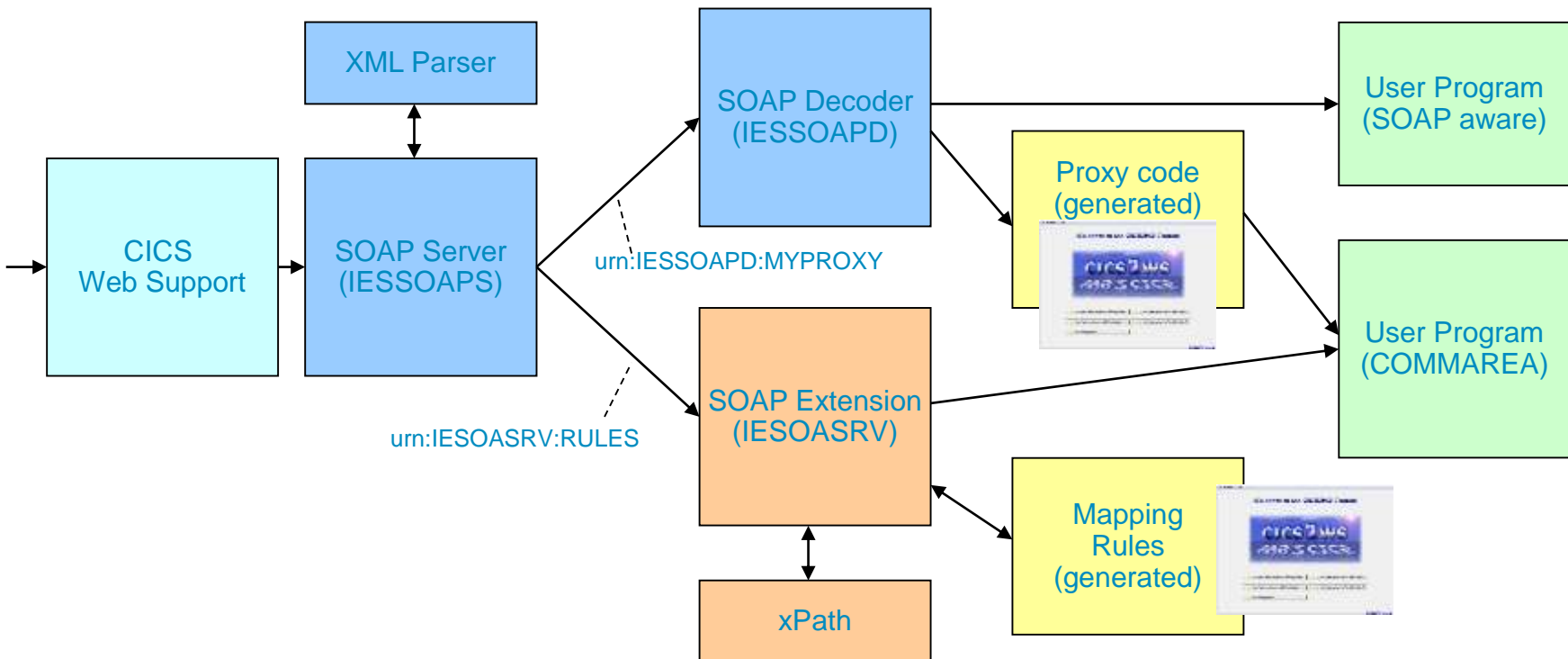
# Service Oriented Architecture (SOA) – the way to new solutions

- Applications look the same for all users
- Existing core applications can become a Web service
  (independent of their language, COBOL, ASM, PL/I, Java, C#)
- New business logic is built

**Increased success for the Enterprise**

**Product Catalog:**
- pictures
- description
- specifications
- testimonials

appl-x

DB

Linux on System z

New Logic

Web Services
IIB (WMQ)

DB2
LUW

**WAS**

Traditional System z

MQ client

debit check

shipping

restock

VSAM

DB2

IMS

**LPAR or z/VM**

**System z**

**LPAR or z/VM**

**System z**

**Integration of Processes**

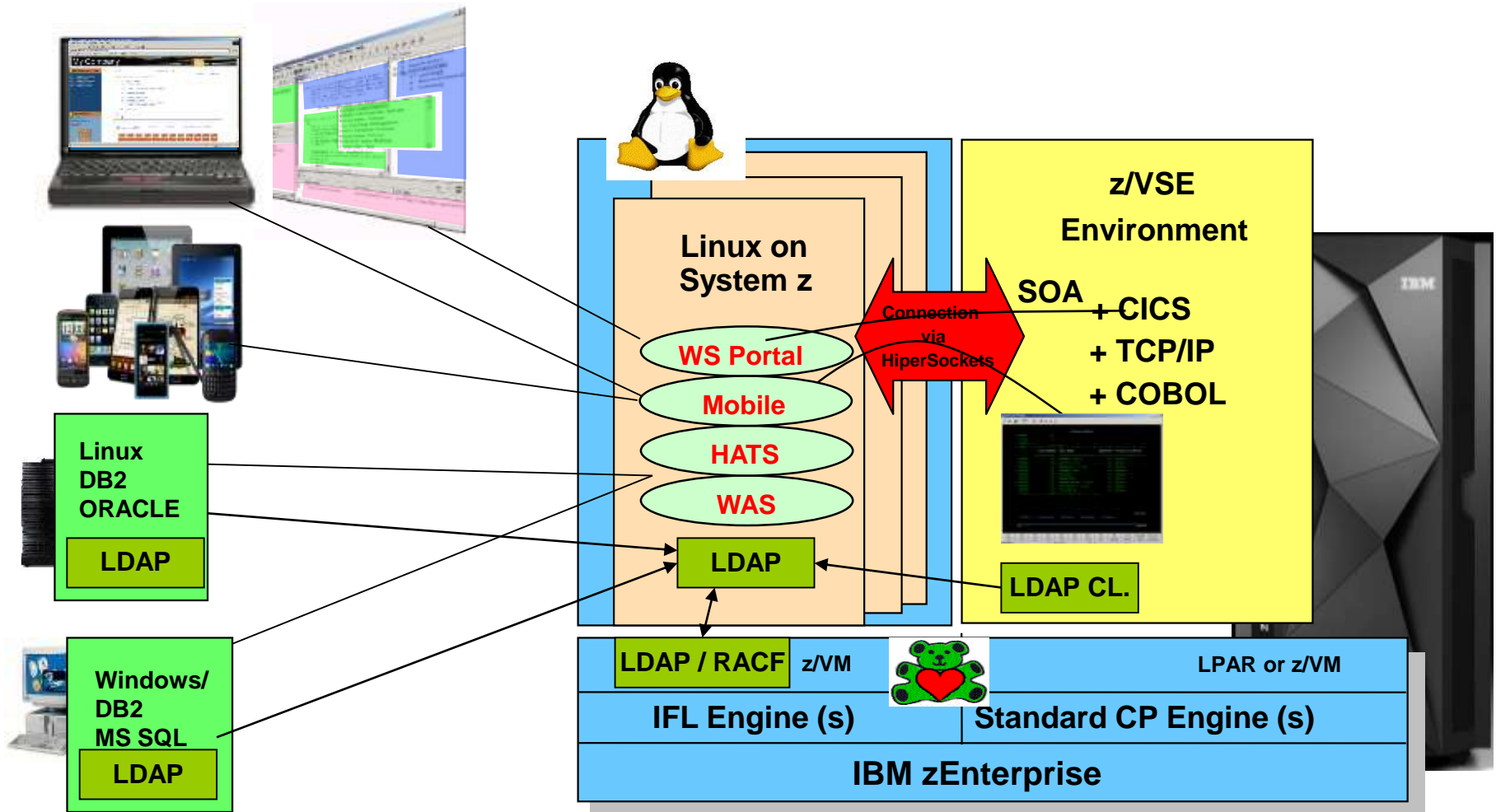# Integrate through IBM Integration Bus

- IBM's strategic enterprise integration technology
    - Single engineered product for .NET, Java and fully heterogeneous integration scenarios
    - DataPower continues to evolve for integration gateway use-cases
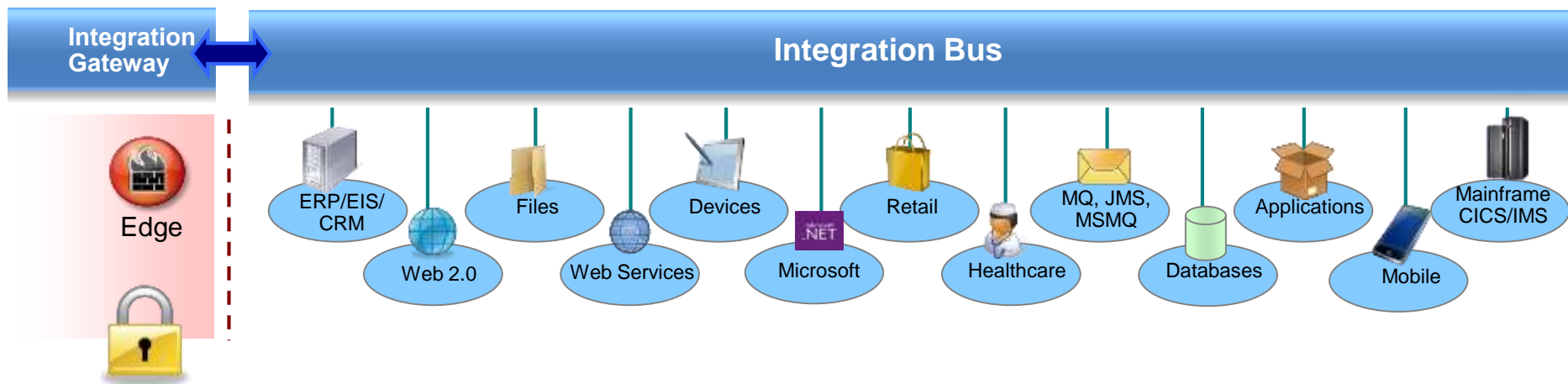


- IBM Integration Bus is the new name for WebSphere Message Broker
    - Technology progression over 15 years, installed at 2500+ customers worldwide across all industries
    - Fully supported worldwide by IBM global support network, standard 5 + 3 years support policy
    - Version to version migration is key design consideration
    - Global skills availability  - SME's available globally via IBM and partners
    - Close interaction with growing and loyal customer base: beta and lab advocacy programs
    - Also incorporates WebSphere ESB use-cases

# Central Authentication Options – LDAP in Linux or LDAP/RACF in z/VM

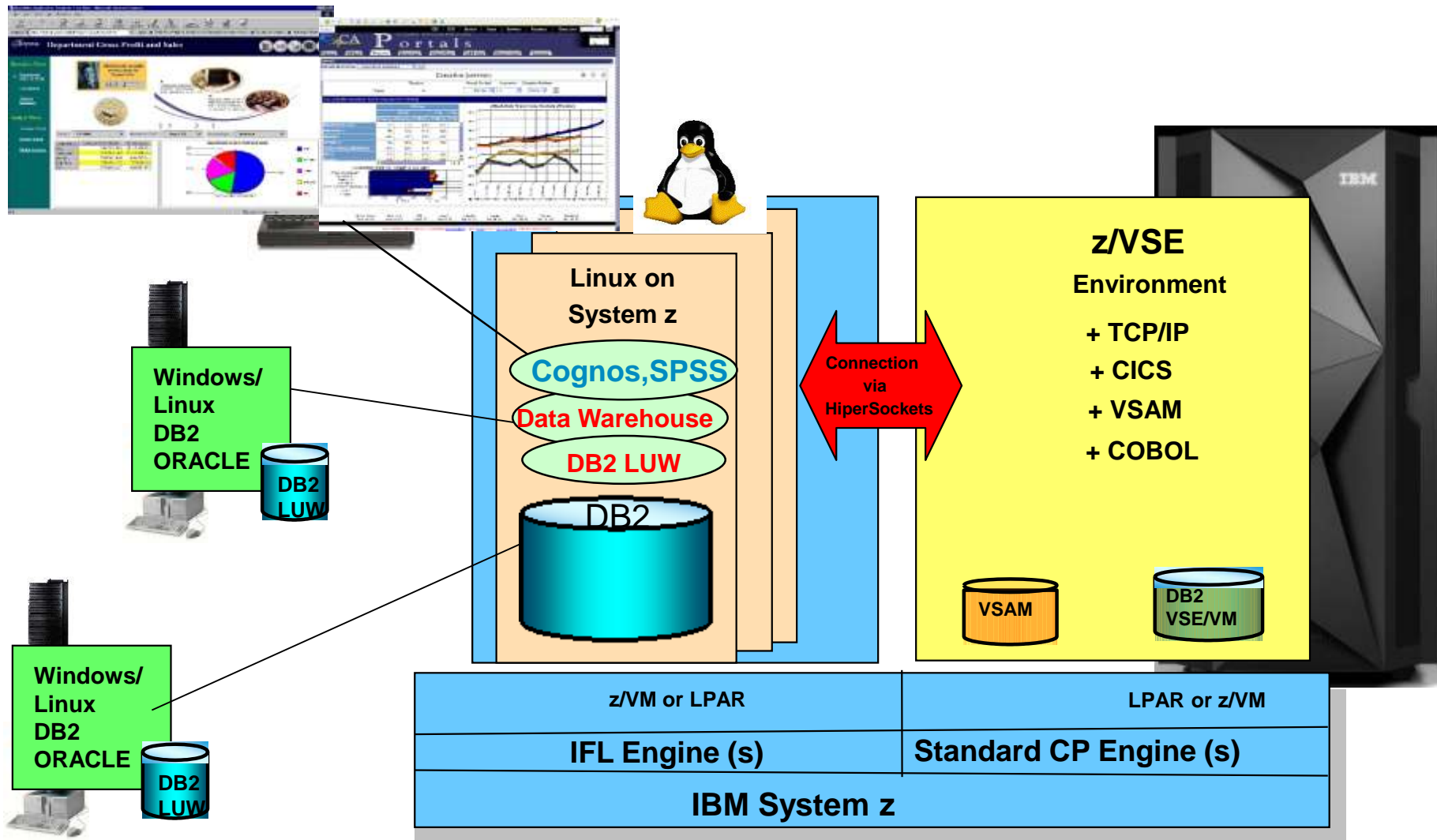**Single sign on**, Web enable, improve interface, simplify, extend existing applications

**Linux on System z**

- WS Portal
- Mobile
- HATS
- WAS

LDAP

**z/VSE Environment**

SOA
+ CICS
+ TCP/IP
+ COBOL

LDAP CL.

Connection via HiperSockets

Linux DB2 ORACLE

LDAP

Windows/ DB2 MS SQL

LDAP

LDAP / RACF   z/VM                 LPAR or z/VM

IFL Engine (s)          Standard CP Engine (s)

IBM zEnterprise

IBM

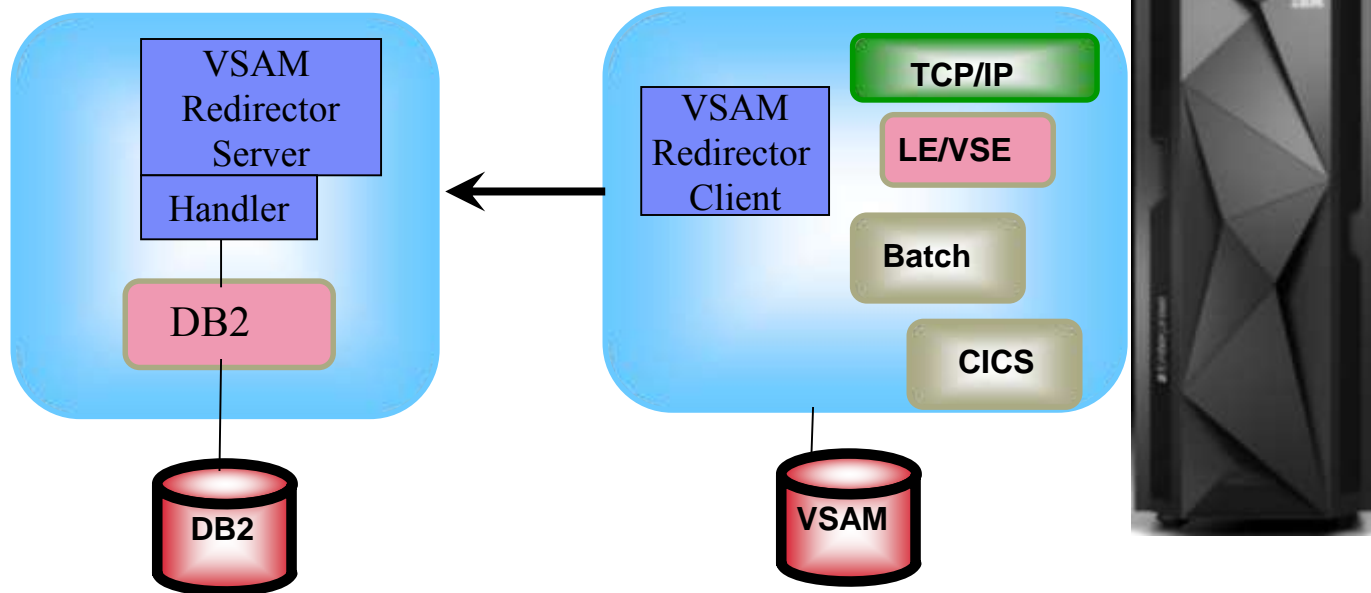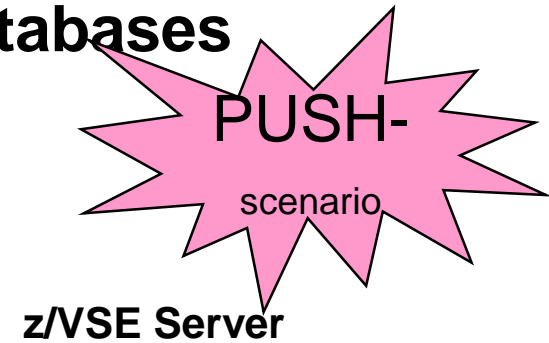**Linux on z Systems
the enterprise data server
for z/VSE data services**

# Analytics, Data Warehouse and BI with Linux on System z

## Consolidate, Integrate, Evaluate - DB2 Client, VSAM Redirector



**Linux on System z**
- Cognos,SPSS
- Data Warehouse
- DB2 LUW

DB2

**Windows/ Linux DB2 ORACLE**
DB2 LUW

**Windows/ Linux DB2 ORACLE**
DB2 LUW

**Connection via HiperSockets**

**z/VSE**
**Environment**
+ TCP/IP
+ CICS
+ VSAM
+ COBOL

VSAM

DB2 VSE/VM

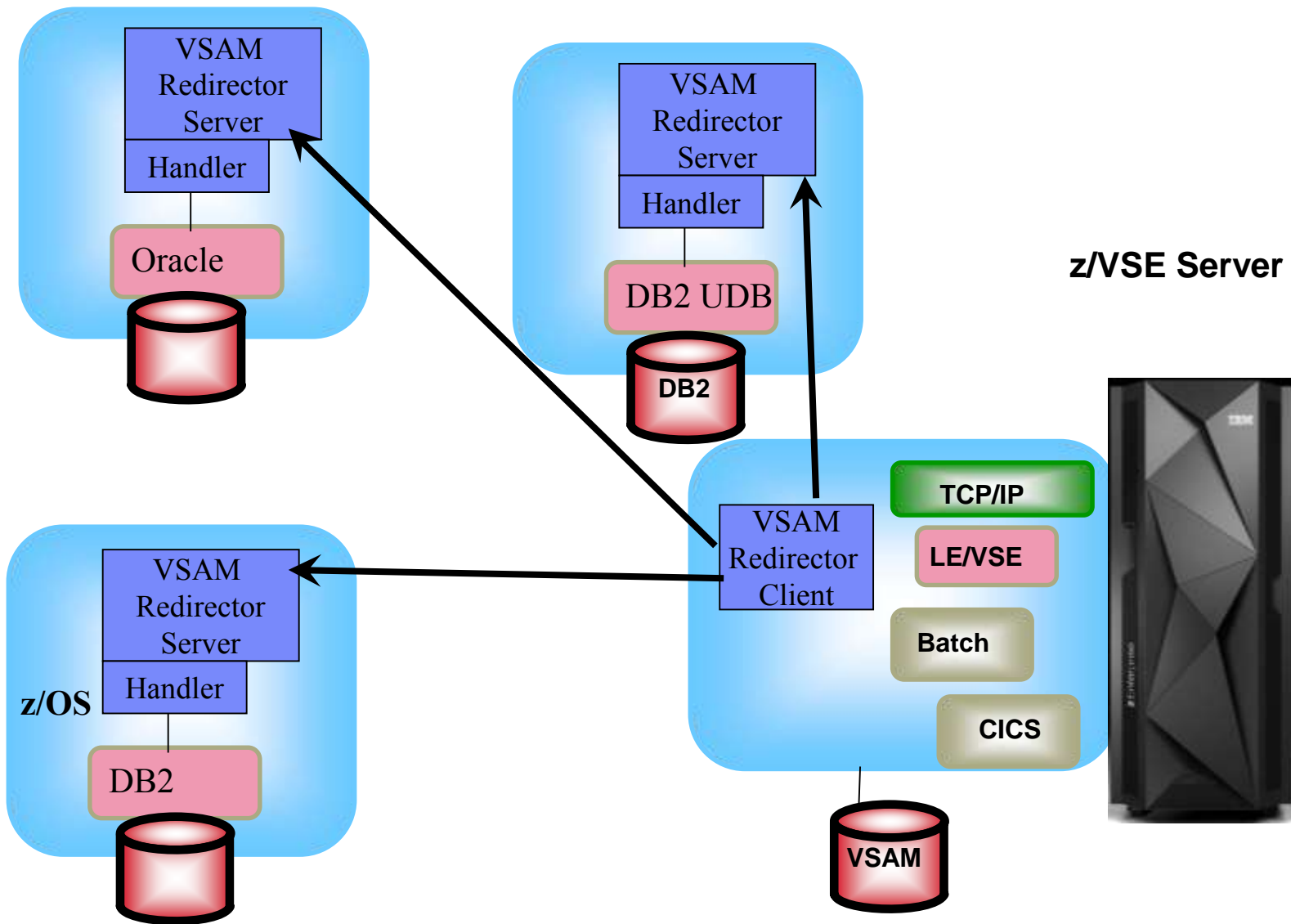| z/VM or LPAR | LPAR or z/VM |
|---|---|
| IFL Engine (s) | Standard CP Engine (s) |
| IBM System z | |

# (B)PUSH scenario: VSE/VSAM applications, push / access remote relational databases

(1)  Real time access VSAM to relational databases

    a)  synchronization (two phase commit of VSAM and DB2)

    b)  Real time access to DB2 (no VSAM access anymore)

(2)  VSE local data collection for VSAM

    a)  Capture Exit and Incremental Apply processing

    b)  MQ Exit and MQ Series solutions

**PUSH-** scenario

**z/VSE Server**

VSAM Redirector Server

Handler

DB2

VSAM Redirector Client

**TCP/IP**

**LE/VSE**

**Batch**

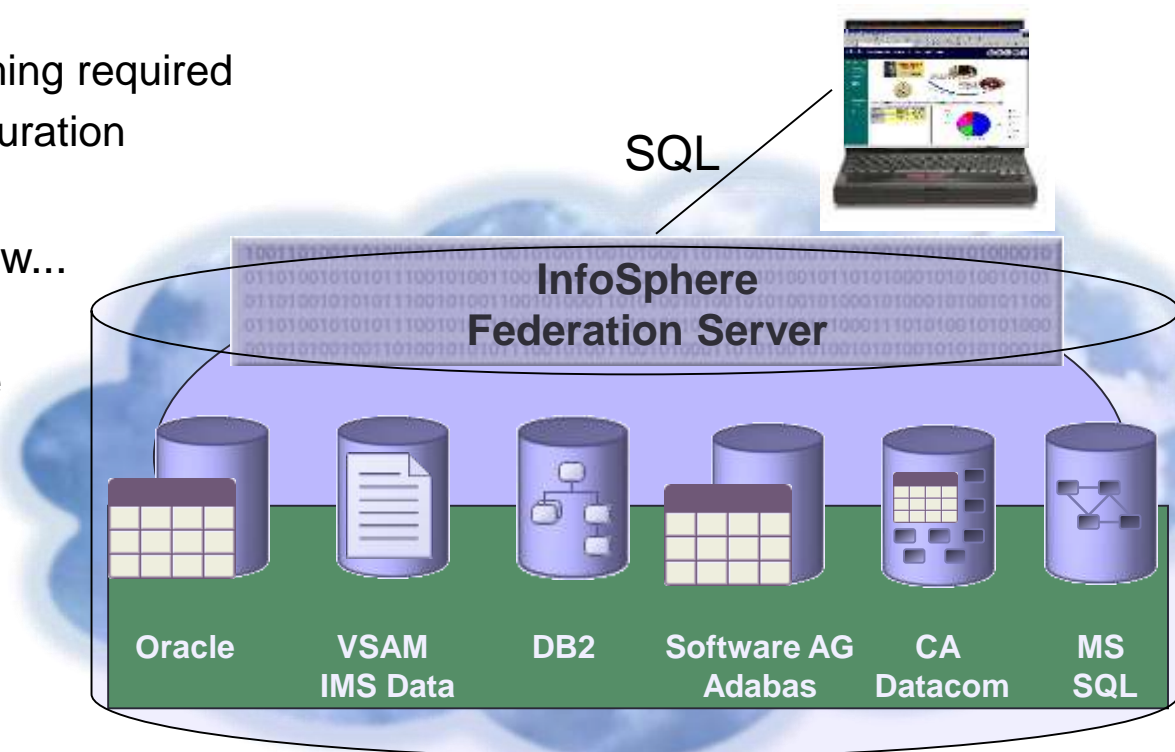**CICS**

**DB2**

**VSAM**

# VSE/VSAM applications, access remote relational databases

# InfoSphere Federation Server on Linux on System z

- 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 mainframe VSAM data and flat files
  - 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

SQL

**InfoSphere Federation Server**

| Oracle | VSAM IMS Data | DB2 | Software AG Adabas | CA Datacom | MS SQL |

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# 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



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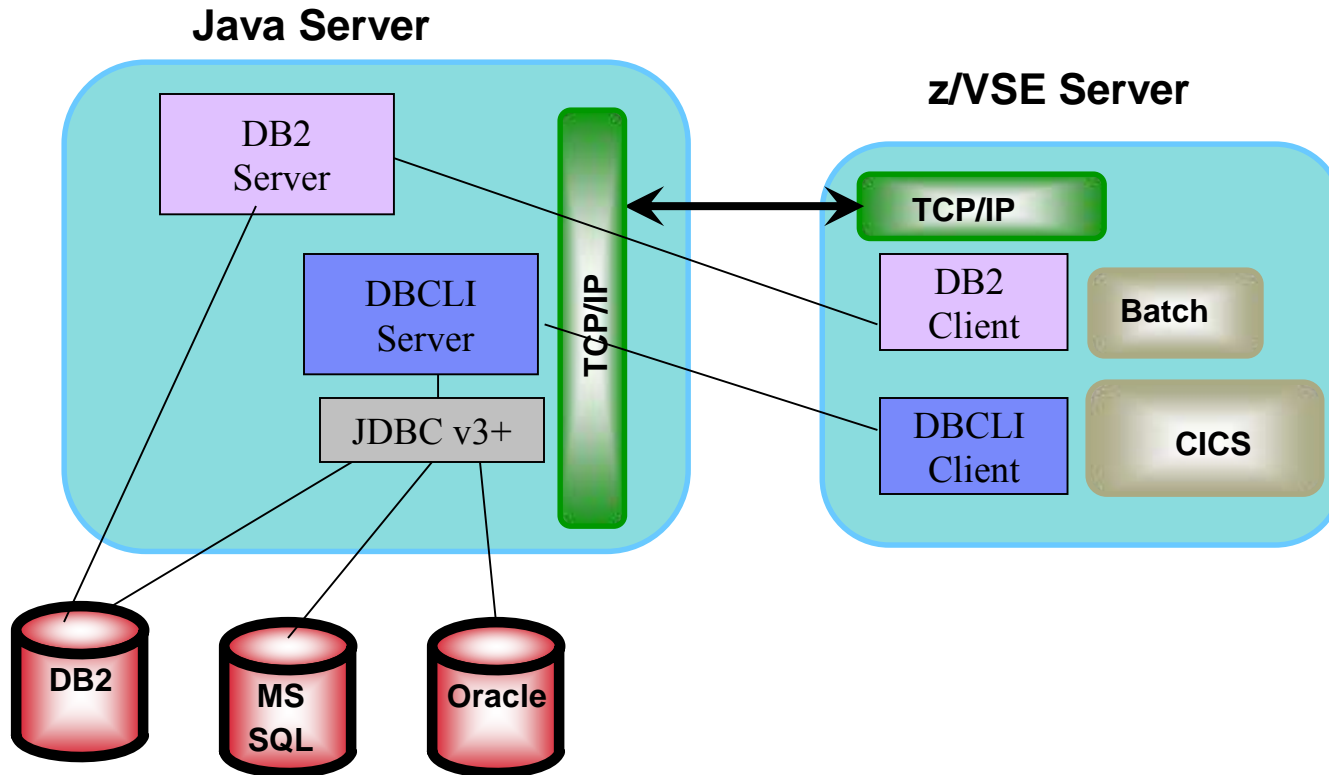
# **Hadoop technology** with z/VSE data:
# IBM InfoSphere BigInsights for Linux on z Systems
*New ways of thinking, transformative economics*

- Leverage the power of Hadoop on z Systems

- Drag-and-drop extracts from z Systems sources

- Protect sensitive data

- Faster application delivery
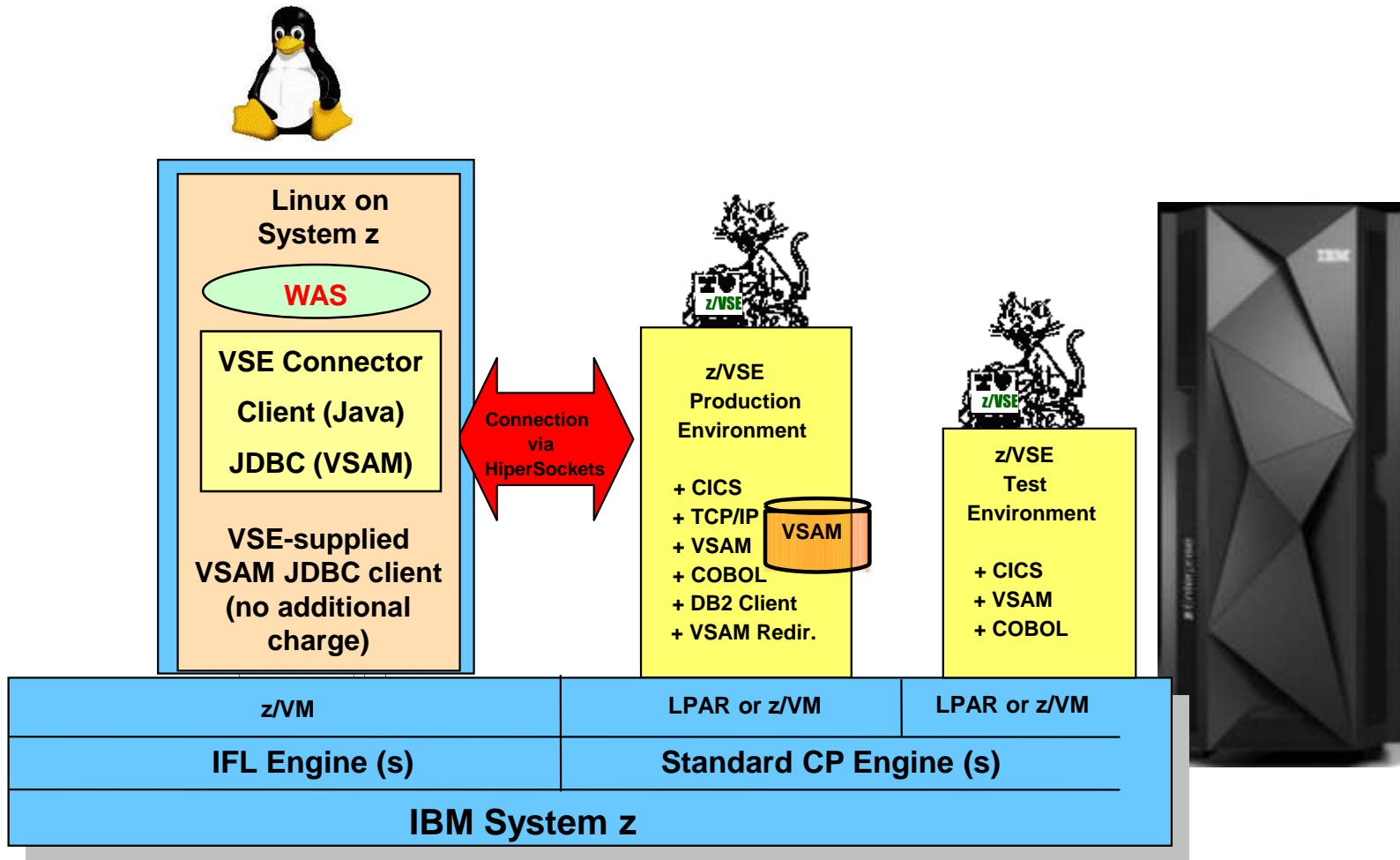
- Seamless interoperability

**New**

## IBM InfoSphere® System z Connector for Hadoop

*Fast and seamless data connectivity between a variety of mainframe data sources and IBM InfoSphere BigInsights*



z Systems server

IBM InfoSphere BigInsights for z Systems Linux cluster

DB2  VSAM
QSAM  IMS

SMF  RMF
Logs
z/OS

CP(s)

Linux  Linux  Linux  Linux  Linux

z/VM

IFL  IFL  IFL

Virtualized storage

IBM InfoSphere BigInsights commodity x86 or Power cluster
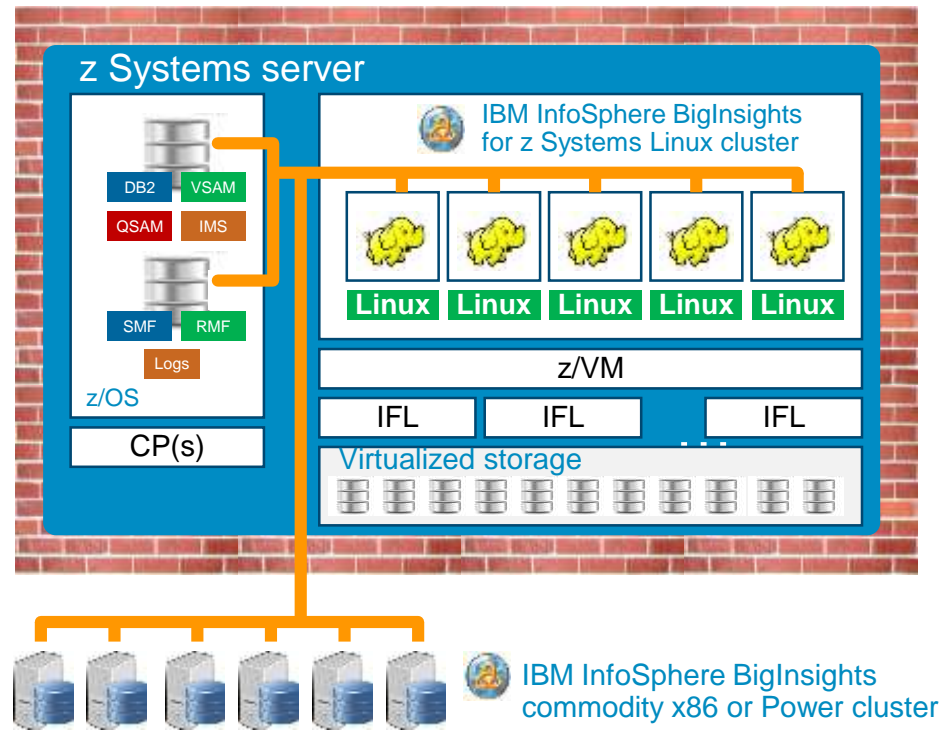
# Leverage z/VSE data and resources from Java

**Leverage VSE/VSAM data using VSAM Connectors on Linux on System z**



**Linux on System z**

WAS

VSE Connector
Client (Java)
JDBC (VSAM)

Connection via HiperSockets

VSE-supplied VSAM JDBC client (no additional charge)

z/VSE Production Environment

+ CICS
+ TCP/IP
+ VSAM
+ COBOL
+ DB2 Client
+ VSAM Redir.

VSAM

z/VSE Test Environment

+ CICS
+ VSAM
+ COBOL

| z/VM | LPAR or z/VM | LPAR or z/VM |
|---|---|---|
| IFL Engine (s) | Standard CP Engine (s) | |
| IBM System z | | |

# Multi-tier Mobile Apps – THE Trend in Industry



**Client Tier Devices**

**Middle Tier Server**

**Back-end Data & Services**

Mobile-specific challenges:
- ✓ Lots of device targets
- ✓ Provisioning rules and artifacts
- ✓ Curated App Stores
- ✓ Dependent upon backend service versions

The Mobile-specific challenges are mainly:
1. Dealing with the **specific issues in the Mobile Client tier**
2. And subsequently **coordinating separate pipelines** for each tier:

- ▪ **Mobile Client**
- ▪ Middleware
- ▪ Back-end data and services

# IBM Worklight Server - Architecture on Linux on System z



**Device**

PhoneGap

**Worklight**

- Security and Authentication
- Back-end Data Integration

Application Code

Linux on z

**Worklight Server on WAS**

| | |
|---|---|
| Server-side Java App Code -- WAS | **Application Center Enterprise App Store** |
| Worklight Console | JSON Translation |
| Push Notifications | Authentication |
| Analytics | Adapter Library |

SAP
SQL
WMB
SOAP
HTTP/REST
Java

z/OS or z/VSE
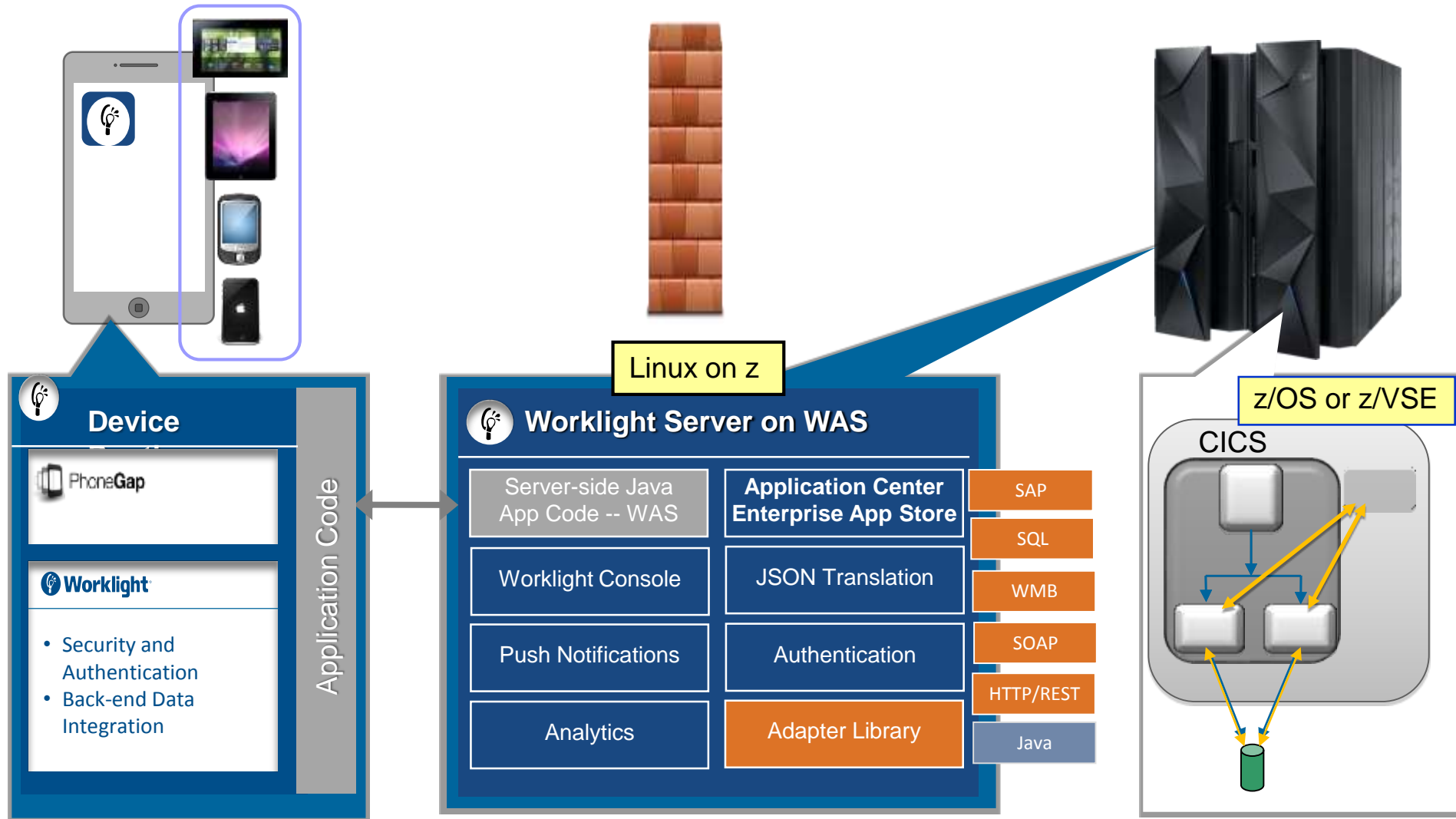
CICS

Worklight Video:  http://www.youtube.com/watch?feature=player_embedded&v=zHnFw70XXXo

Implementation of a Mobile environment on System z
- Functional diagram with WAS and Worklight Adapters
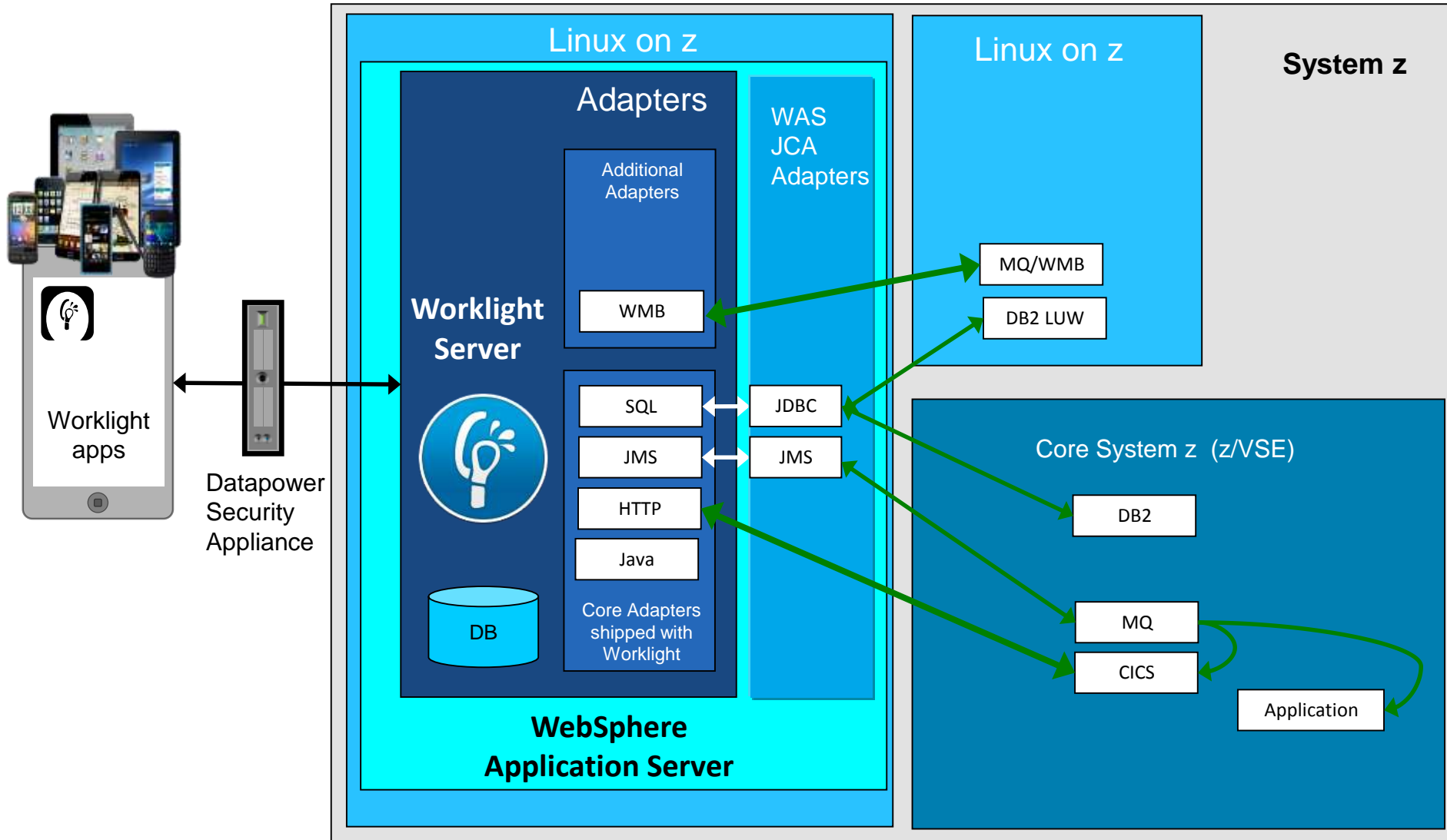
# IBM MobileFirst modernizes CICS Service with Mobile App

Mobile Client

3270 Client

Mobilefirst server

Linux on z

Web Services

CICS Web Service

CICS

Main

Browse

Place Order
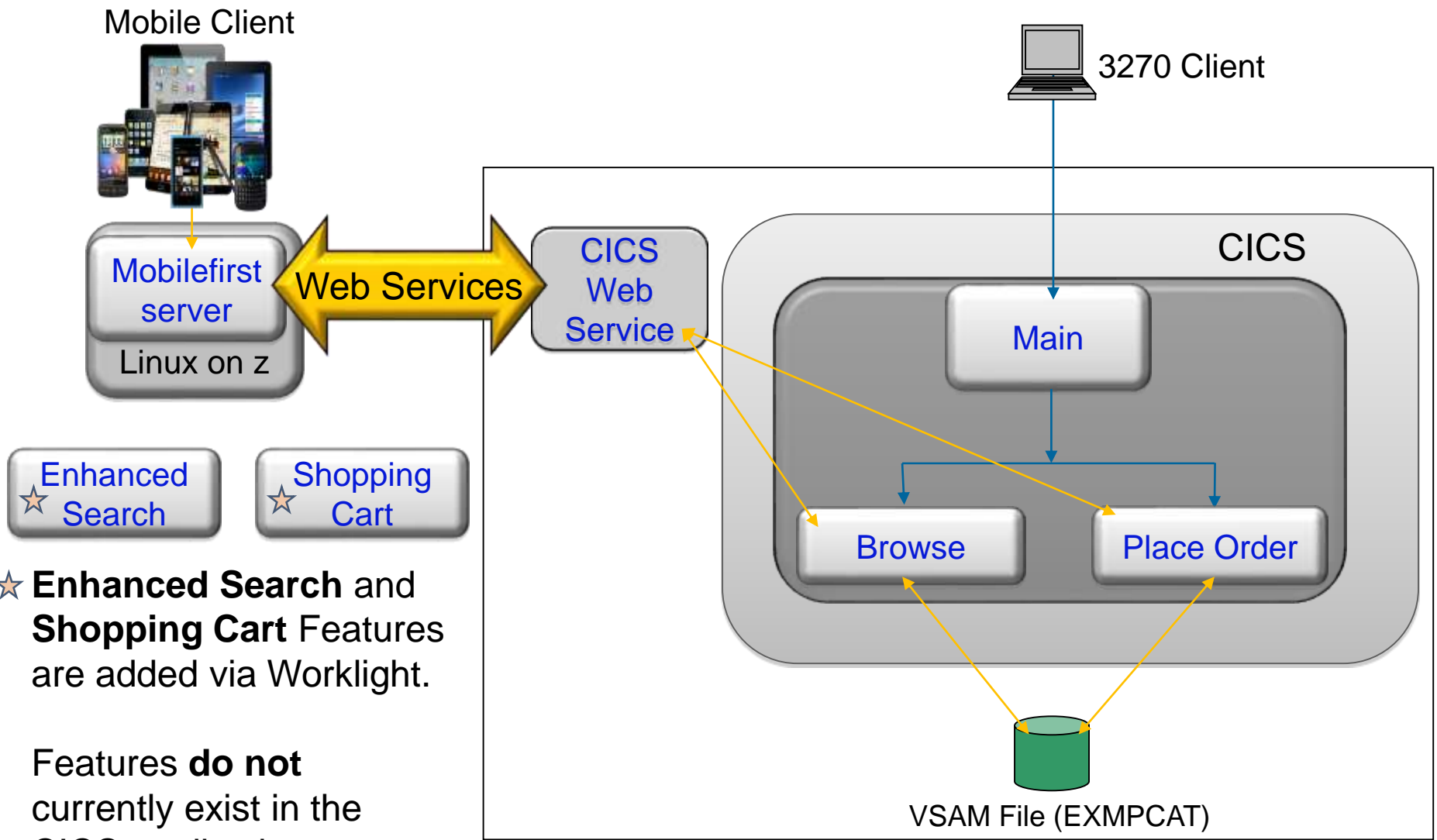
Enhanced Search

Shopping Cart

☆ **Enhanced Search** and **Shopping Cart** Features are added via Worklight.

Features **do not** currently exist in the CICS application.

VSAM File (EXMPCAT)

# Universal Backup and High Availability

# High Availability with
## IBM GDPS appliance for Linux on z Systems

- **The IBM GDPS appliance for Linux on z Systems will provide high availability in case of system, application or network failure**

- In the first half of 2015, IBM intends to deliver a GDPS/Peer to Peer Remote Copy (GDPS/PPRC) multiplatform resiliency capability for customers who do not run the IBM z/OS operating system in their environment.

- This solution is intended to provide IBM z Systems clients who run IBM z/VM and their associated guests, for instance, Linux on z Systems, with similar high availability and disaster recovery benefits to those who run on z/OS.

- **The implementation of the new GDPS Appliance for Linux will offer business continuity for Linux-only environments**.



Quality of Service
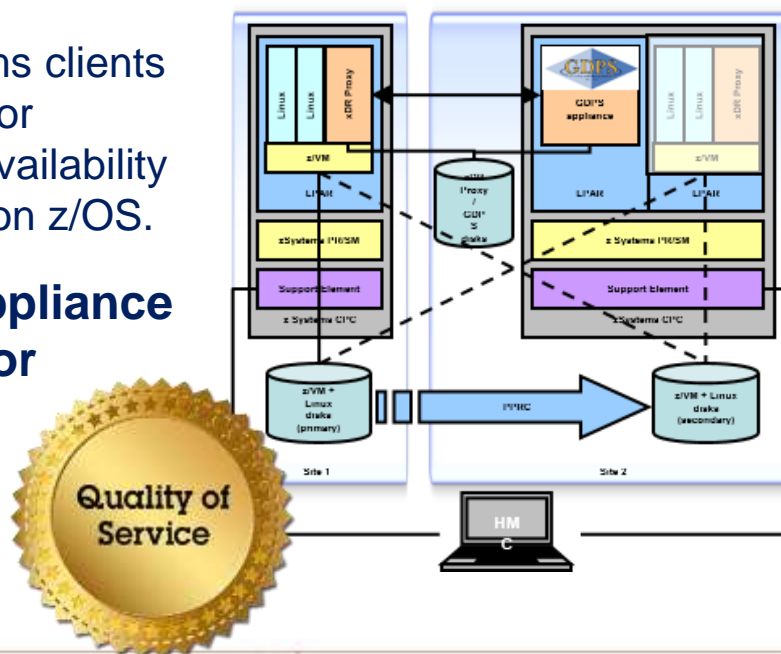
# xDR Support for z/VSE as active guest under z/VM – with GDPS

© 2015 IBM Corporation
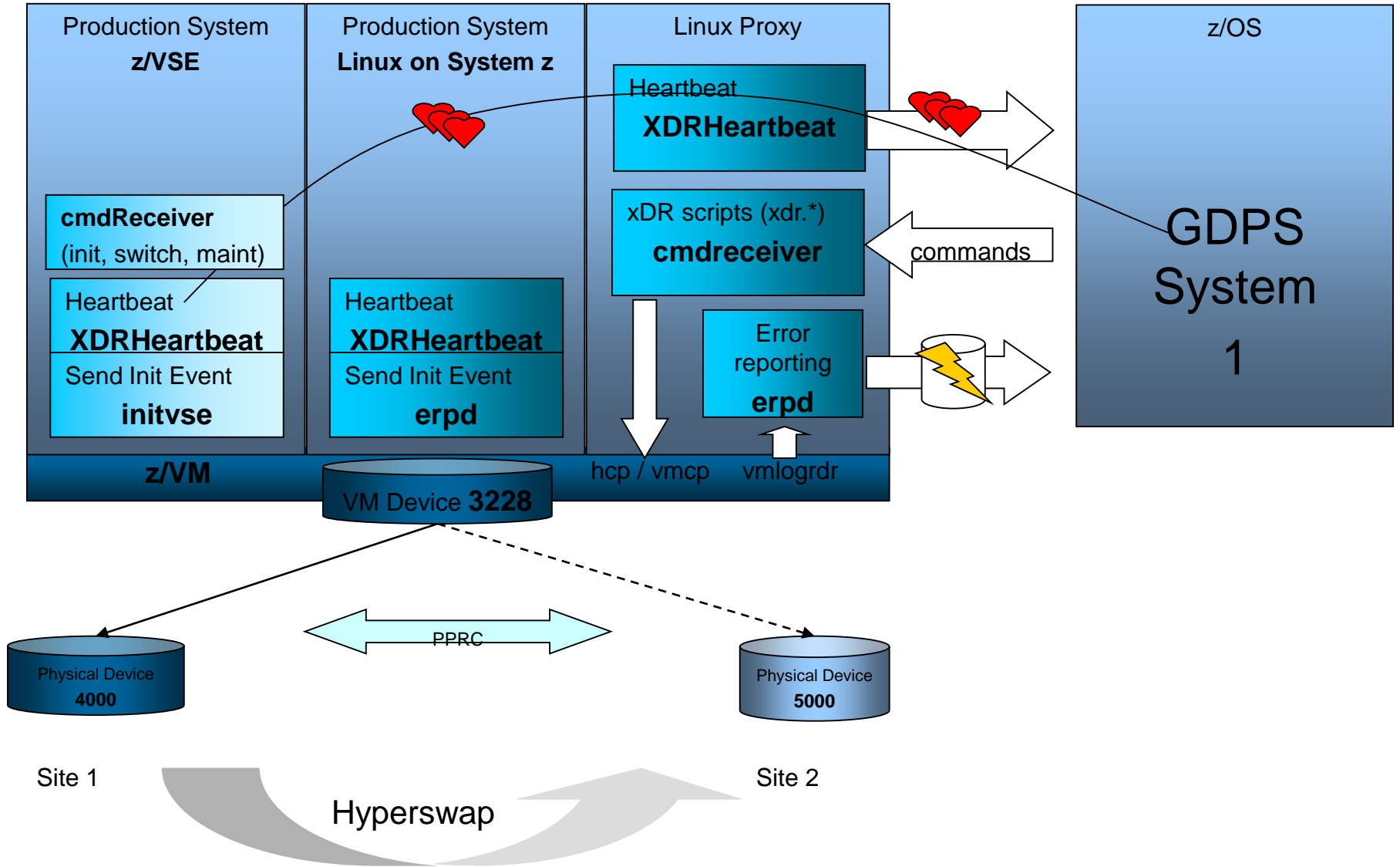
# Implement TSM on Linux on System z as central Backup Hub for the enterprise

**Linux DB2 ORACLE**

**Windows DB2 MS SQL**

**Linux on System z**

**Linux on System z**

**z/VSE Production Environment**

**TSM Server (Tivoli Storage Manager)**

**Tivoli**

**DB2 LUW Data Warehouse**

**DB2 LUW**

**Connection via HiperSockets**

**+ VTAPE**
+ TCP/IP
+ VTAM
+ CICS TS
+ VSAM
+ COBOL
+ DB2

## Storage Pools

DASD

Tapes / VTS

z/VM

**z/VM or LPAR**

**z/VM or LPAR**

**IFL Engine(s)**

**CP Engine(s)**

**IBM System z**
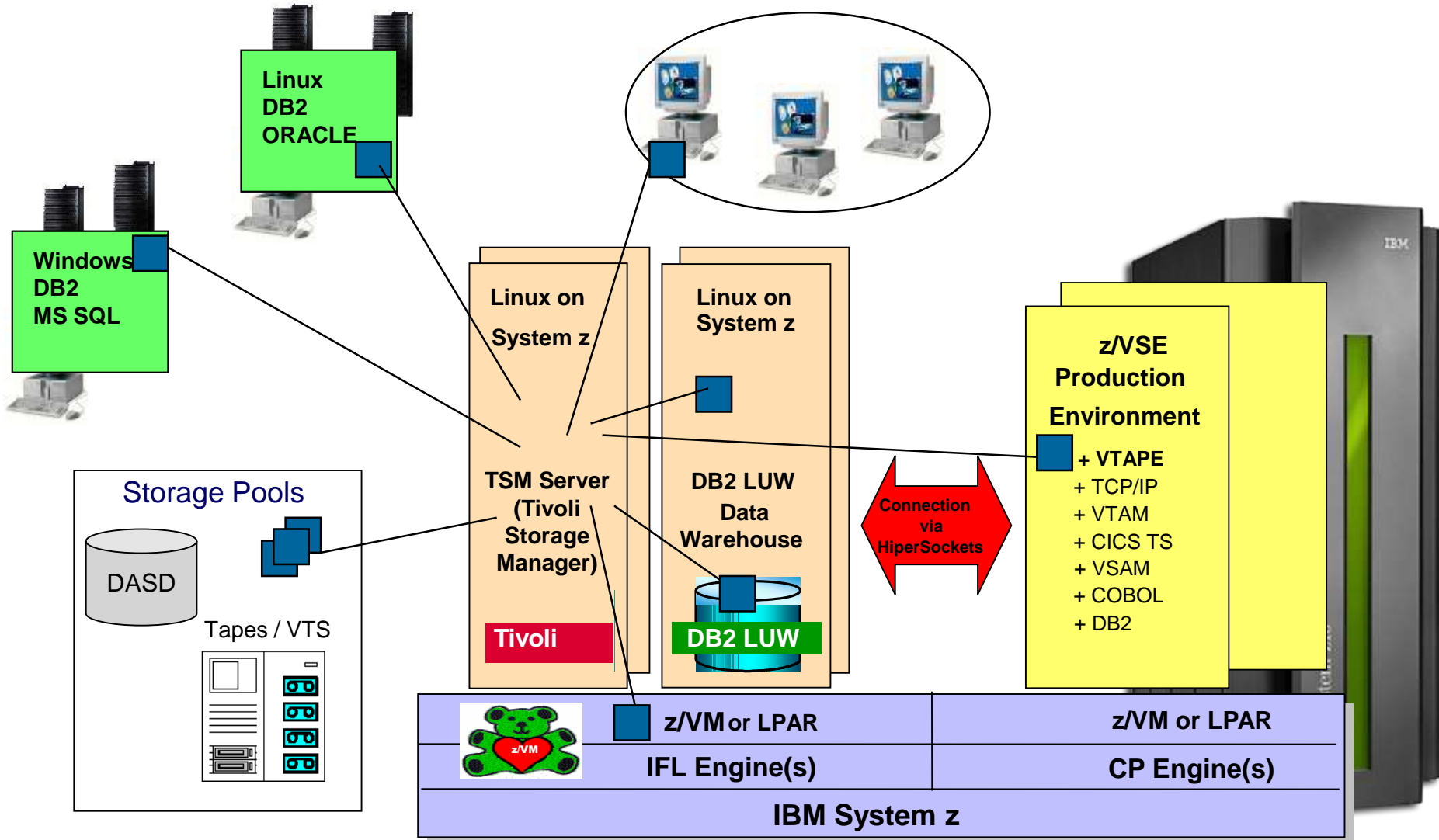
# SA Bank with Linux on System z as a Backup Hup



**Distributed Servers UNIX, Windows**
Application Data, Data Bases, Mail Servers, etc.

TSM Agents

FAST BACK

System z Host

ESB

Linux on System z

Linux on System z

z/VSE

TSM Server

TSM Agent

Virtual Tape

Back-Up & Restore Mgr

z/VM

**TSM for VE servers FASTBACK Server**

DS3500 – 35TB

SAN

VTL

TS7650G
2 x DS3500 – 100TB

IBM 3592-E07
12 drives

IBM 3592-E06
4 drives

TS3500
1020 Cartridges

Tape Library

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# z/VSE Graphical
# Development tools

# 'Common' development Environment…

Java
C++
Mobile …

COBOL
PL/I
Assembler

Rational
Developer
Tools

Internet

Central
Code Repository

## Eclipse helps !

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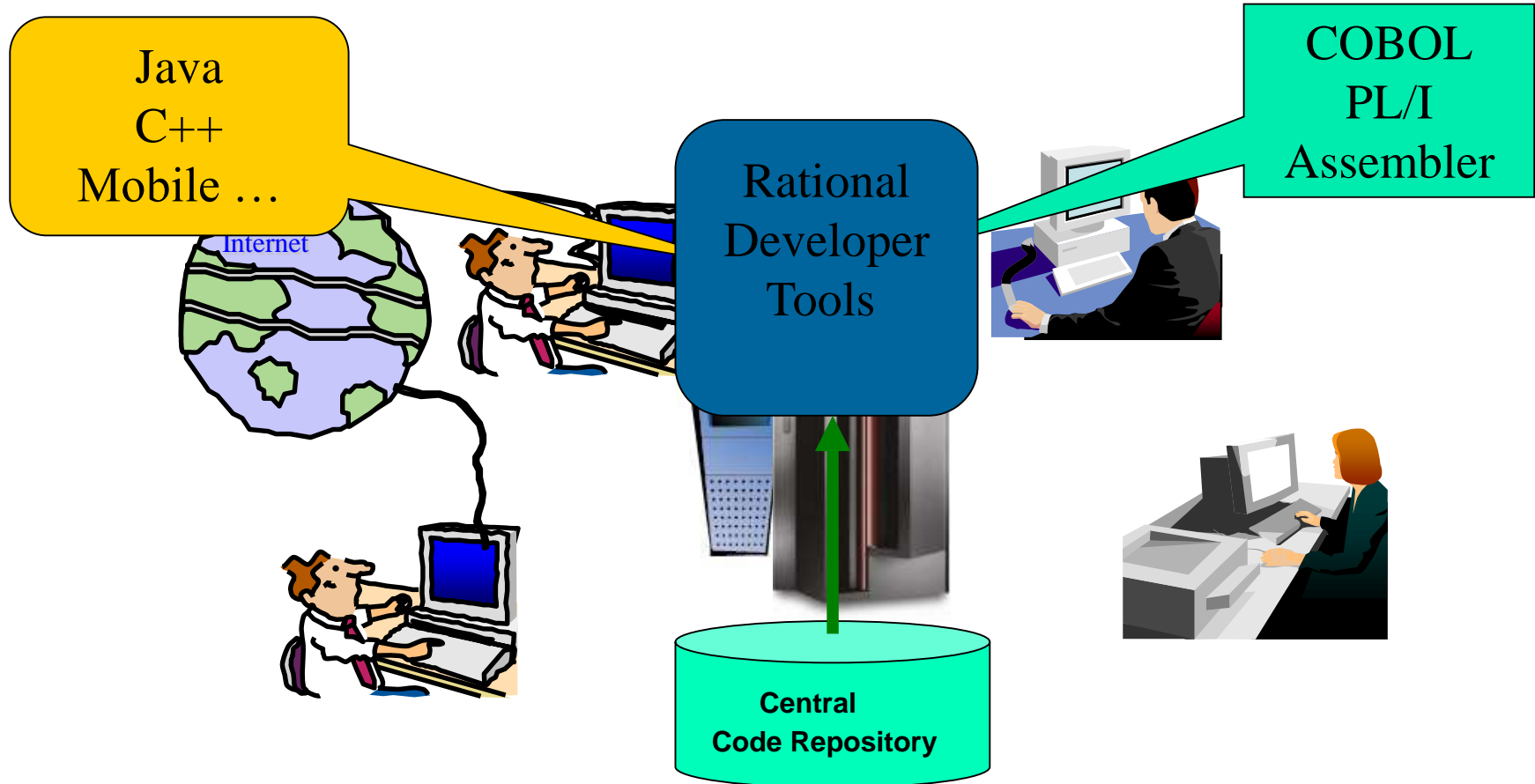
# Eclipse based Development Environments for z/VSE

Eclipse – the open Standard for application development

**RBD**

**HATS**

**RDz**

| Rapid AD Tools | Web Tooling | IDE | Modeling Tool |

**Standalone Tool**

**Desktop**

**Platform APIs / Extension Points**

**Common Services**
- Resource Management
- Project Model
- Team Programming Model
- Debugging
- Extensibility framework

**Common Frameworks**
- Widget Toolkit
- UI Frameworks
- Editing Frameworks
- Builders, Markers, Help

| CCLT Interface | Repository Interface | Other Interfaces |

**Repository (CVS, Subversion, IBM ClearCase*)**

●—●—● **Extension points**

**ISV plug-in**    **functional extensions to Eclipse**

**www.eclipse.org**

**What is Eclipse about:**

- Open source development framework
  - with modern Editors
  - syntax help & check
  - semantic check
- Centralized source code maintenance
  - entire source code in central Repository
  - cross platform project administration
- Versioning software interface
  - CVS, Subversion, or IBM ClearCase
  - automatic Workgroup-control
- Open for ISVs development Plug-Ins

  1) Integrated Development Environment (IDE)
     - Rational Developer for System z (RDz)
     - for Java, COBOL, PL/I, ASM,C

  2) IBM HATS Development Plug-In
     - develop new front-ends to 3270 applications

  3) IBM EGL development for z/VSE
  - Rational Business Developer (RBD)
  - EGL Plug-In for z/VSE
  - follow-on to Visual Age GeneratorIBM HATS

# IBM Rational Developer for system z - the z/VSE Perspective



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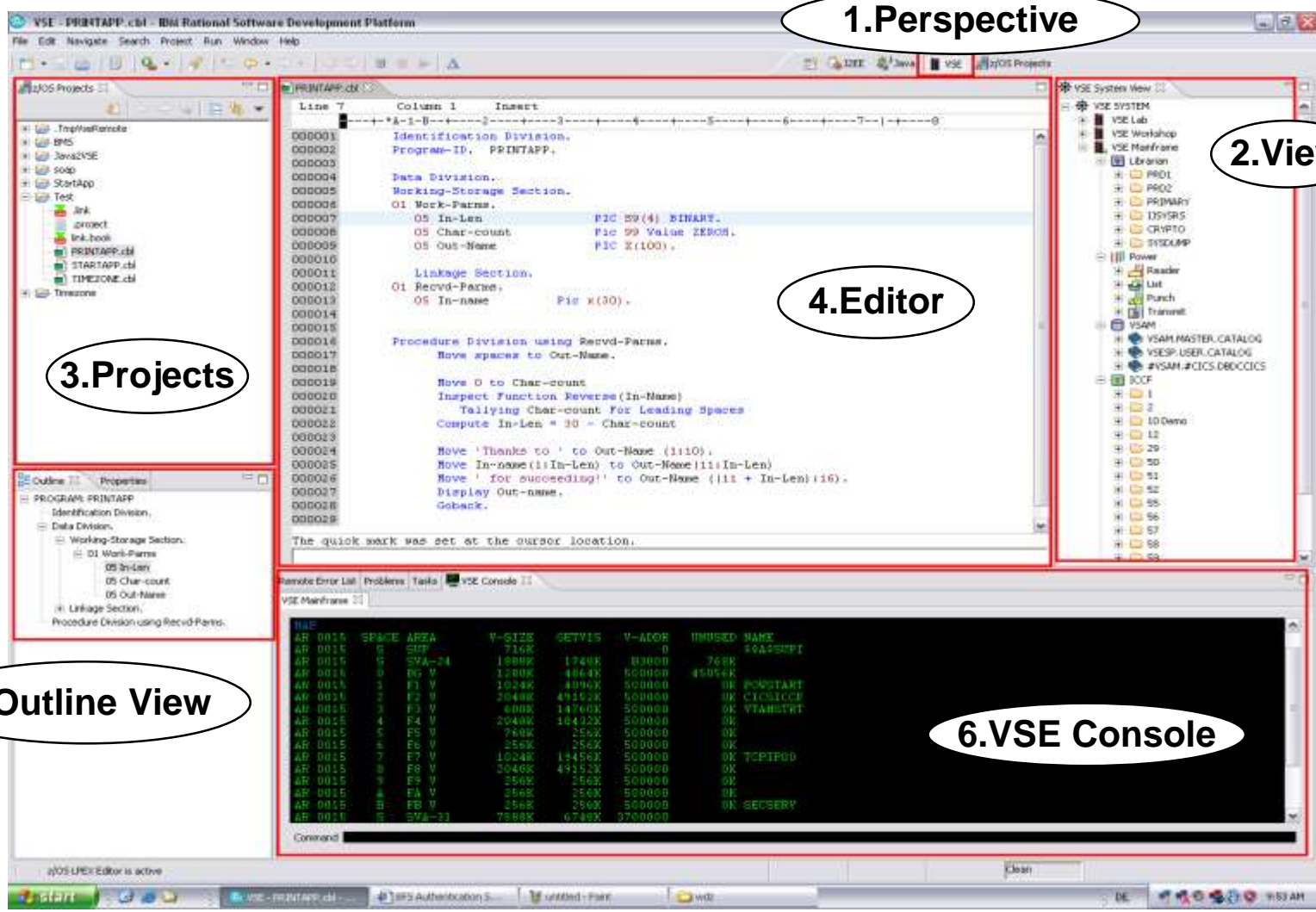
# Development for IBM Worklight on System z

**IBM Worklight Studio with Rational Developer for zEnterprise**

Business ⟷ Development

| Design | Code | Test | Deploy |

COBOL

WL Adapters

Java

Native App with HTML, JS, CSS

**System z**

**WebSphere Application Server with IBM Worklight Server**

**Worklight**
An IBM® company
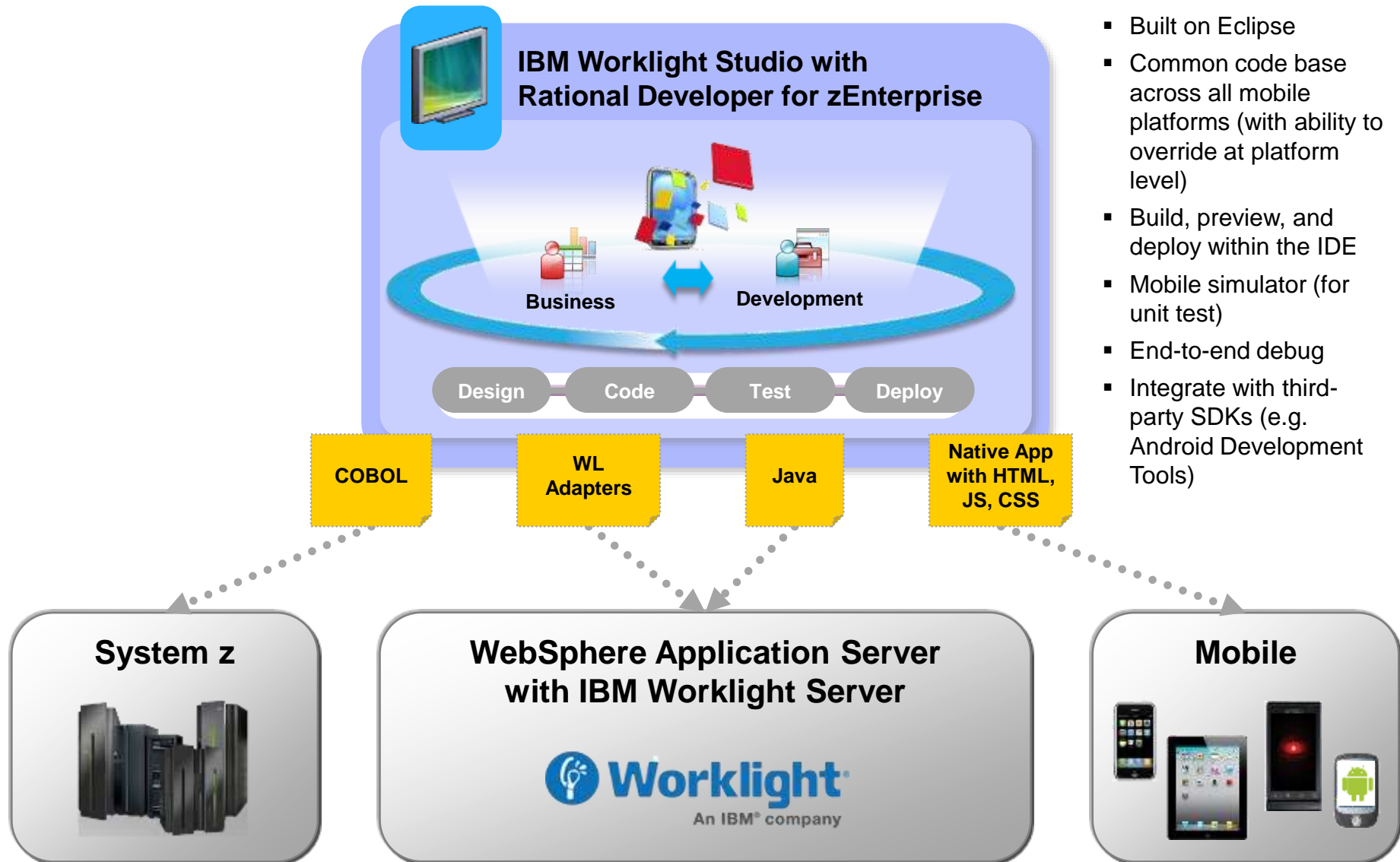
**Mobile**

- Built on Eclipse
- Common code base across all mobile platforms (with ability to override at platform level)
- Build, preview, and deploy within the IDE
- Mobile simulator (for unit test)
- End-to-end debug
- Integrate with third-party SDKs (e.g. Android Development Tools)

# z/VSE process control

# z/VSE controls processes in a heterogeneous IT environment



**HTTP**

**Application Server (e.g. WAS)**

**Web Services (SOAP) WebSphere MQ**

**Database**

**Intranet Internet**

**HTTP**

**File system**

**Conclusion:**

→ **z/VSE can trigger processes on distributed systems.**

→ **z/VSE Job scheduler can be used to trigger z/VSE job as well as distributed processes.**

→ **z/VSE has full control of the remote process.**

→ **Output and feedback is passed back to z/VSE.**

→ **z/VSE can react on failing distributed processes.**

# VSE Script Connector

**z/VSE**

VSE Script Client (Batch or CICS)

**Linux System (Java)**

VSE Script Server

VSE Conn. Client

**z/VSE**

VSE Connector Server

MS Office (Non-Java App)

VSE Script Client (Windows DLL)

execute script

Script Repository

Script

call/execute

External Process (running on distributed system)

LIBR

POWER

VSAM

VSE Script Client (Java)

**VSE Script Connector can be used to:**
- Access VSE resources from distributed non-Java applications
- Call/Execute processes on distributed systems from z/VSE applications or Jobs

# z/VSE Monitoring interface enhancements
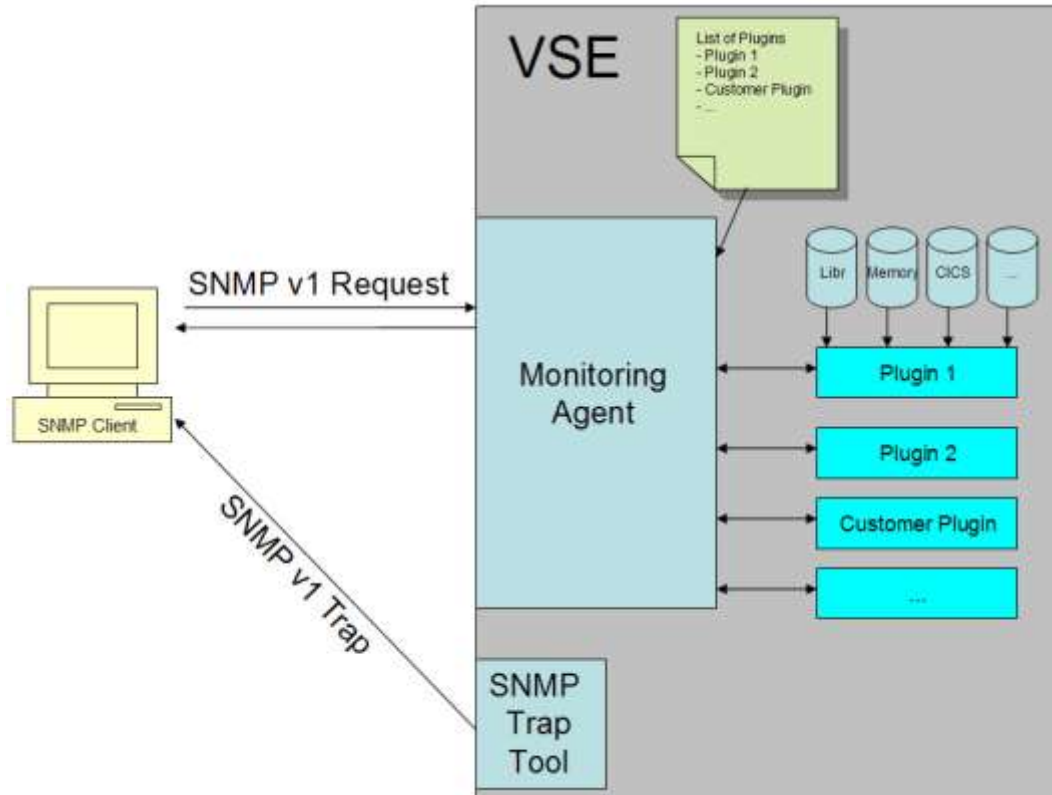


- Monitoring Agent based on SNMP V1
  - Real time monitoring
    - retrieve z/VSE specific system and performance data
  - Event driven monitoring using SNMP Traps
    - In z/VSE 5.1 a Trap API was introduced to the Trap Tool
    - Helps to automate processes in z/VSE with SNMP traps

# z/VSE 5.2: z/VSE SNMP Monitoring Agent enhancements

- **With z/VSE 4.3 we introduced the z/VSE Monitroing Agent**
  - It responds to all SNMP Version 1 requests

- **SNMP Security:**
  - The community string acts as a 'password'
  - The community string is part of each SNMP packet
  - Agents only accept SNMP requests if the community string matches
  - SNMP protocol is not encrypted, the community string visible each packet
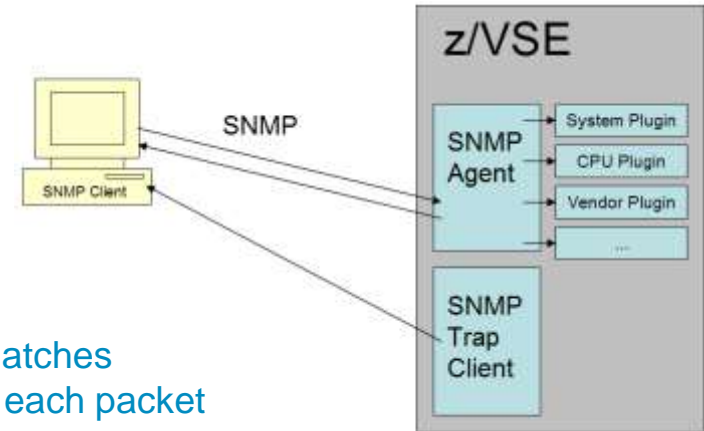
- **To enhance the security of the z/VSE Monitoring Agent, an IP filter has been added:**
  - Only if the source IP of an incoming packet matches a rule set the packet will be processed

- **Example:**

```
* ALLOWED IPS (IP FILTER)
* WHEN AT LEAST ONE IP IS SPECIFIED HERE, THE MONITORING AGENT WILL
* ONLY ALLOW CONNECTIONS FROM THE ALLOWED IPS AND DISCARD CONNECTIONS
* FROM IPS, WHICH ARE NOT SPECIFIED HERE
* (ATTENTION: IF YOU SPECIFY IPV6 ADDRESSES, YOU HAVE TO USE THE LONG
*             FORM)
ALLOWEDIP = '192.168.1.5'
ALLOWEDIP = '192.168.?.9'
ALLOWEDIP = '10.0.0.*'
ALLOWEDIP = '2001:0db8:0000:09d3:0000:8a2e:0070:7342'
ALLOWEDIP = '2001:0db8:0000:0000:0000:8a2e:*'
```

NEW!

# z/VSE Linux Growth Offering – CAMS Solution Examples

**Analytics**  **Mobile**
**Cloud**  **Security**

**Cloud**

zBC12

| CP | IFL |
|---|---|
| z/VSE V5 | Linux on System z |
| | IBM Wave for z/VM |
| VSE Connectors | |
| LPAR z/VM | z/VM V6.3 xCAT |
| LPAR | |

**Cloud**

**Analytics**

zBC12

| CP | IFL |
|---|---|
| z/VSE V5 | Linux on System z |
| | Cognos |
| DB2/VSE (Client) | InfoSphere Warehouse |
| | DB2 LUW |
| VSE Connectors | |
| LPAR z/VM | z/VM V6.3 |
| LPAR | |

**XIV, DS8000**

**Mobile**

zBC12

| CP | IFL |
|---|---|
| z/VSE V5 | Linux on System z |
| | Worklight in |
| Web Service (SOAP Server) | WebSphere Liberty |
| | DB2 LUW |
| VSE Connectors | |
| LPAR z/VM | z/VM V6.3 |
| LPAR | |

**Mobile**

**Security**

zBC12

| CP | IFL |
|---|---|
| z/VSE V5 | Linux on System z |
| Encryption Facility | Firewall |
| OpenSSL | |
| LDAP (Client) | LDAP Server |
| VSE Connectors | |
| LPAR z/VM | z/VM V6.3 RACF |
| LPAR | |

**Crypto**

**and many more ....**

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# z/VSE customers with Linux on System z,
##                                                      - in a variety of industries

- Fashion
- Financial Institutes / Banks / Insurance
- Hotel chain / Vacation clubs
- Health institutes/ Hospitals
- Public Sector / County
- Payroll accounting
- Whole Sale – Home Articles, Pharma, Car parts
- Grocery
- Furniture manufacturing
- Horse Racing – Bets
- Church administration
- Bakery
- National Sport clubs

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# America First Credit Union
*Building a thriving member base on next-generation infrastructure*

**25% cost saving**
by consolidating Linux environment

**Simplifies licensing**
to provide a transparent cost structure for software

**More processing power**
within smaller footprint, supporting growth

**Solution components**

**Software**
- IBM z/VSE®
- IBM DB2® for Linux, UNIX and Windows
- IBM Tivoli®
- IBM WebSphere®

**Hardware**
- IBM® zEnterprise® EC12
- IBM Power Systems™
- IBM XIV® and IBM System Storage®

**The transformation:** AFCU wanted to tackle escalating transaction volumes before they ran the risk of limiting its growth. By dramatically increasing processing power within a higher-density footprint, the organization gained headroom for future expansion without sending costs spiraling.

*"IBM is helping us stay ahead of the curve."*
*—Scott Ellis, Senior IS Manager of Information Systems and Data Services, America First Credit Union*

**AMERICA FIRST**
CREDIT UNION

ZSP03883-USEN-00

# Supreme Court of Virginia

**Legacy LPAR** TCPIP

z/VSE 4.3

TCPIP **LINUX LPAR**

**TCPIP (BSI)**

OSA Ports

**VTAM**

VSWITCH 1 & VSWITCH 2

**CICS**

z V M 6.3

DB2 Servers

Oracle Servers

Files Servers

DB2

WAS

*Clones*

z V M 6.3

SLES 11

D B 2

D L I

V S A M

DB 2 9.5

WAS 8.5

DB 2 9.5

WAS 8.5

DB 2 9.5

WAS 8.5

VSE Connectors VSAM Redirector

**PROD**

**Demo/Training (QA)**

**Testing**
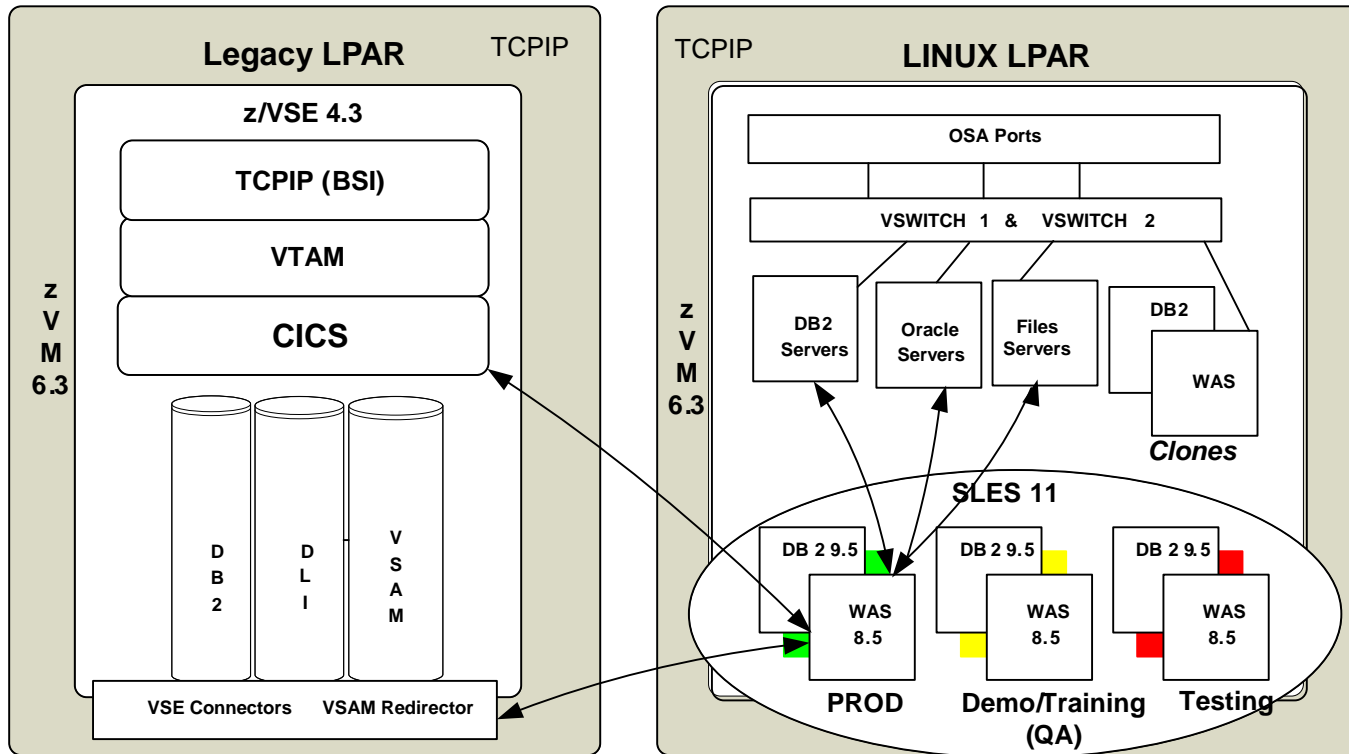
– 1 + 1 zBC12 (M01/M02)
– 2 + 1 CPs
– 8 + 8 IFLs
– 240 + 240 GB memory
– 4 z/VM V6.3 LPARs
– 12 z/VSE V4.3 guests
– 156+ SLES 11 guests
– WAS V8.5
– DB2 V9.5
– Oracle on z (10g)

- **2x zBC12 (M01/M02), 1x production, 1x development**
  - Serves 325 courts, 5.000+ users (3.8 million new cases in 2013)
  - Integrating z/VSE, DB2/UDB and WebSphere applications
  - eMagistrate system serves 125 locations, 3100 trans per day
  - eCommerce* applications integrating z/VSE and WebSphere appls
  - *VJEFS- Virginia Judicial Electronic Filing System*
  - *Winner of the Governor's 2013 Commonwealth Technology Award*

# Internal Connections

| z/VM for CP engine | | | | | | | | z/VM for IFL engine | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Tcp/ip VM Vswitch Contr 1 | Tcp/ip VM Vswitch Contr 2 | Tcp/ip VM | Test | Hist | Prod | Remo | Tcp/ip VM Vswitch Contr 1 | Tcp/ip VM Vswitch Contr 2 | Tcp/ip VM | Test DB2 Viper | Prod DB2 Viper | Test DB2 Viper | Prod DB2 Viper |

**HiperSocket Connection**

the leading producers of premium olive oil sold directly to consumers
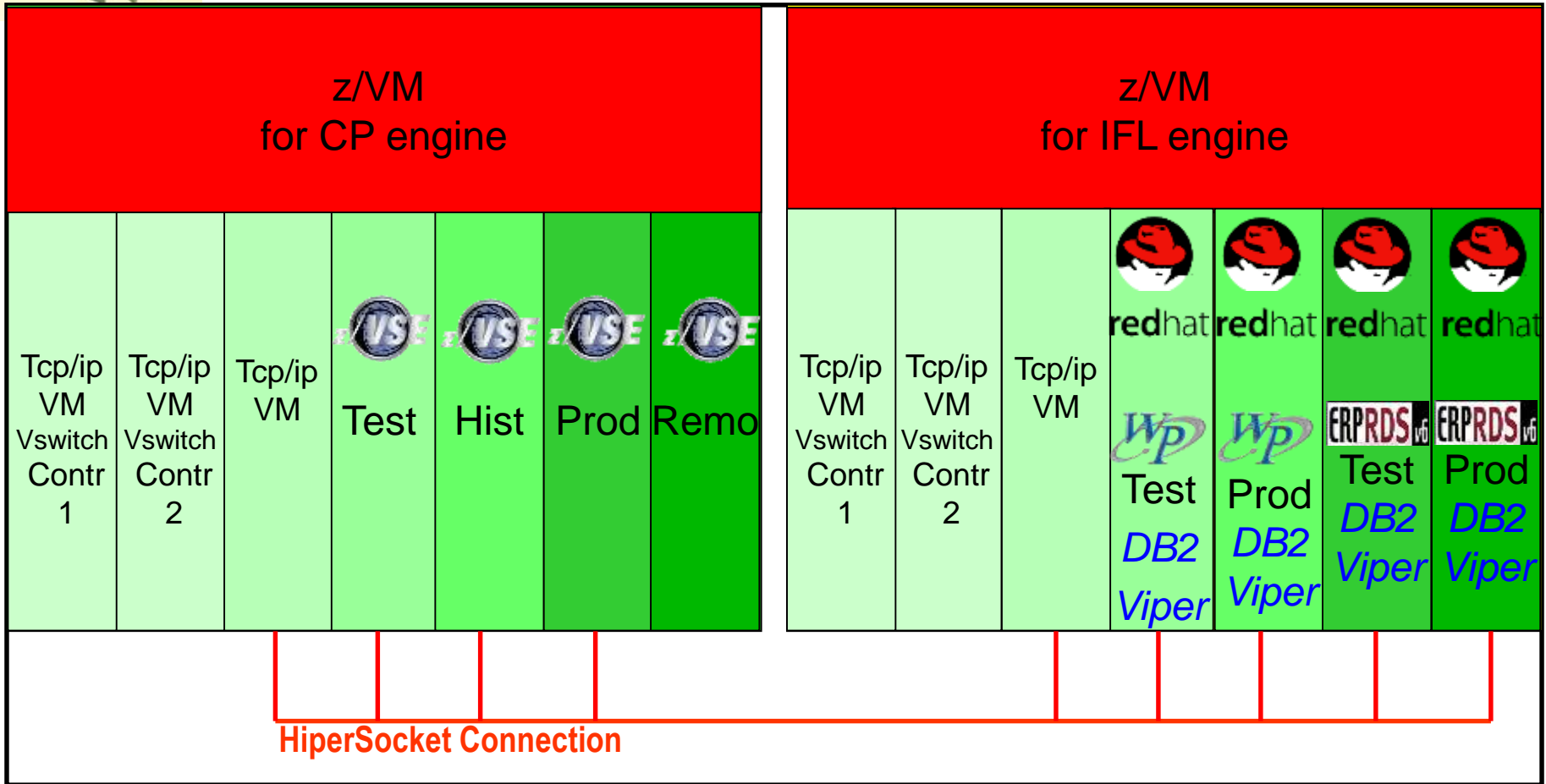
Email from batch or CICS

AFP / PSF via IPaddress

IPM

300 files every day transfered to different operating systems (zLinux, Linux, Microsoft)
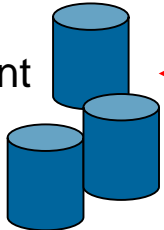
FTP

DB2 client to Linux DB2 LUW on IFL
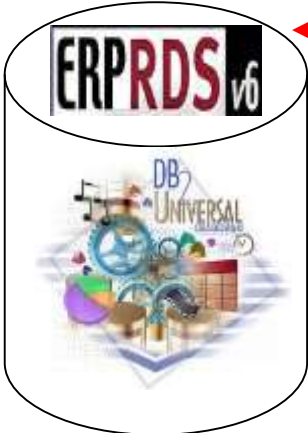
VSAM Redirector Server via HiperSockets to zLinux DB2 and via Vswitch OSA QDIO to SQL Server

**Microsoft SQL server**

**Production Environment**

z/VSE V5

TCP/IP for Telnet

Virtual Tape

CICS TS SOAP via HiperSocket

zLinux Java application running on Tomcat

CICS TS web

**VSE Navigator**

z/VSE Health Checker

400,000 CICS transactions every 14 hours from 400 Telnet connections

the leading producer of premium olive oil sold directly to consumers

# AutoData Norge AS

**Success Story**

AutoData Norge AS

AutoData Norge AS runs SUSE® Linux Enterprise Server for System z* alongside z/VSE on an IBM* zEnterprise* z114 mainframe. The SUSE operating system provides a lower-cost and more flexible platform for creating new web-based applications, helping AutoData to expand its offerings in an efficient manner.

Automotive Spare Parts Distributor AutoData Norge AS added SUSE® Linux Enterprise Server to existing IBM® mainframe running z/VSE® for IBM System z®

Reliable and flexible environment for serving customers

Reduced software maintenance cost by running new workloads on an **I**ntegrated **F**acility for **L**inux while keeping all licensed MIPS available for z/VSE

**Combined**
Reliability and long standing experience on z/VSE with Simplicity, support and agility of Linux on System z

"Everything we do is driven by our customers, and SUSE Linux Enterprise Server for System z allows us to be much more responsive to their needs.„ Stein Sandvold Chief Operating Officer AutoData Norge AS

www.suse.com/success/stories/autodata-norge-as.html

# Is Cloud on System z Reality? – Yes It Is! – See

alcloud

Reports & analytics

Mobile Business Intelligence

Data mining

Risk Management

Business Intelligence

E-business

Secure Document Storage

Business reports and analysis

Mobile business reporting

Legacy e-business

**Alcad**
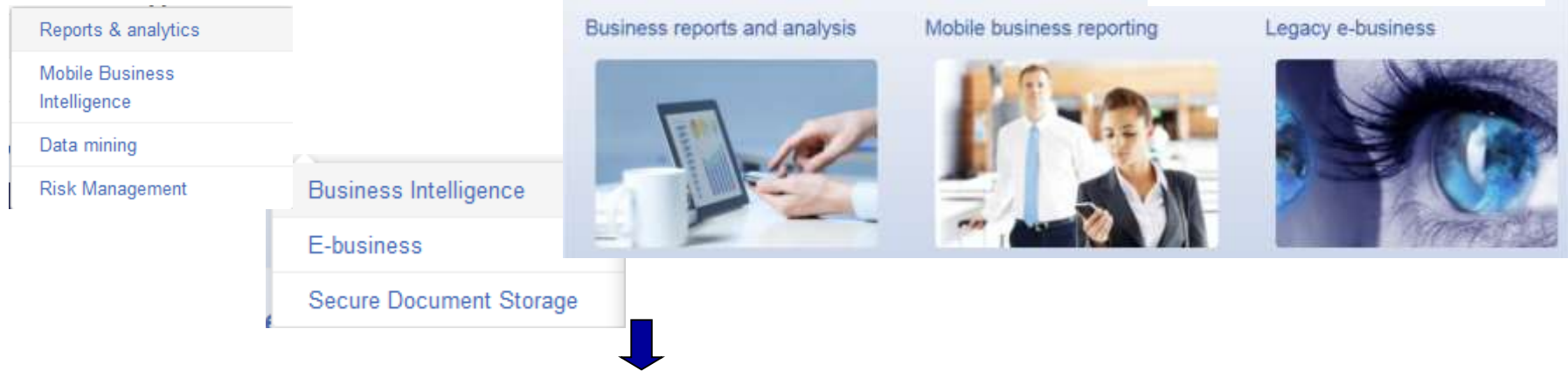
alcloud   Rešitve   Storitve   Razvoj   O podjetju ▾

## Zgodovina

" Že več kot 17 let smo specializirani za ponudbo kakovostnih storitev informacijskih tehnologij.

Začetki našega delovanja segajo v računalniški center podjetja Impol in opravljanje računalniških storitev obdelave podatkov. Alcad d .o. o. smo ustanovili leta 1995 z željo zaposlenih, da bi poslovanje preseglo takratni okvir in omogočilo trženje čim bolj celovite ponudbe poslovnih aplikacij in računalniške opreme v slovenskem in širšem prostoru.

V podjetju je danes zaposlenih 26 sodelavcev, od tega se jih 17 ukvarja v razvojem aplikacij. Kadrovska sestava je dobra mešanica izkušenosti, znanja in prodorne mladosti, ki podjetju omogoča uspešno, učinkovito in smiselno uvajanje najnovejših tehnologij v poslovni proces stranke.

Mejniki:

- 2001 – Linux na System z
- 2007 – SOA projekt "Upravljanje s tveganji"
- 2010 – Cognos
- 2012 – Alcloud

http://www3.alcad.si/index.php/sl/o-podjetju/zgodovina

# Peter Hahn - Fashion



**Modische Twinsets**
In attraktiven Formen und Farben

# Decision Summary

**The demands placed on the data center have never been greater.**

IBM System zEnterprise and z/VSE:

1. Enables **mixed workload Business Processes** to be deployed, and centrally managed

2. Allows z/VSE **optimized integration** of data, applications, and web serving with

3. Delivers **dynamically responsive IT** with **lower acquisition and operating costs**

4. **Meets the need** of **heterogeneous data centers**

**CICS Transaction Gateway ECI**
**HOD/HATS**
**DB2 Connect / DB2 UDB DRDA**
**WebSphere MQ**
**VSE  e-business connectors**
**VSE  SOA Web services**

**WebSphere Adapters, Portal, WebSphere Application Server**

**DB2**

**CICS**

**VSAM**
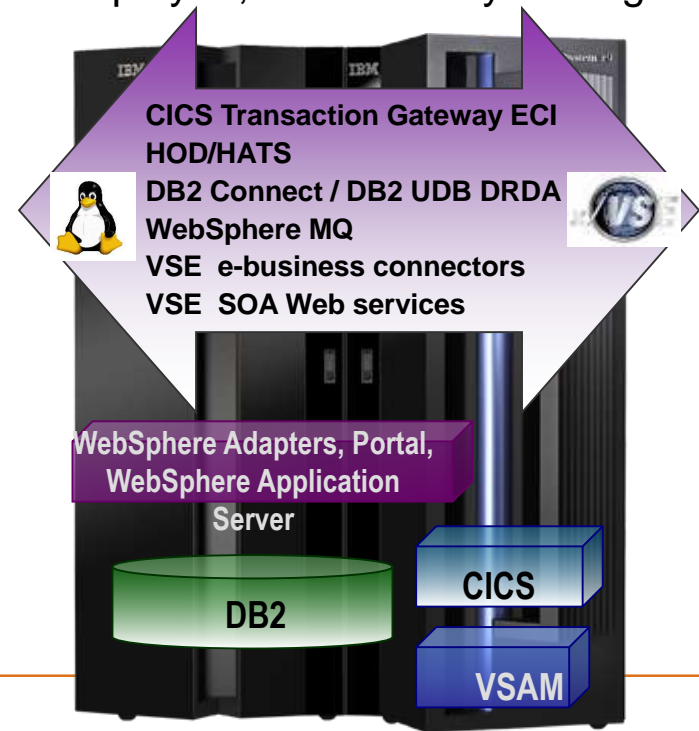
A strategic systems platform….
Helping to effective run business critical applications and build a base for the future

ZSP03505-USEN-00

# z/VSE Tools & Connector - Downloads

- IBM offers are a huge set of tools available on the z/VSE Homepage

  http://ibm.com/zvse/downloads

- Most tools are 'as is', at no additional charge.

- Connector components (part of z/VSE and officially supported) are also available here

- Information about the Connector Components can be found here:

  http://ibm.com/zvse/products/connectors.html
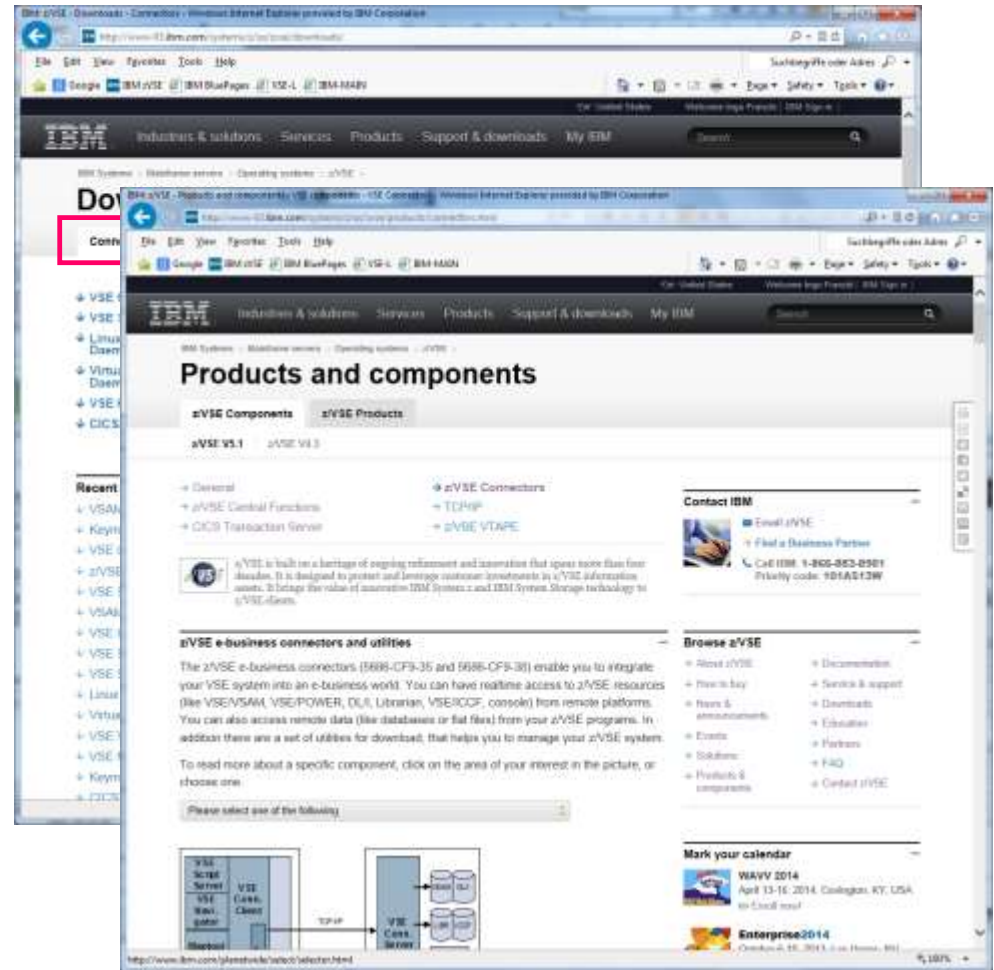
# More than a decade
# Linux on System z and z/VSE

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# Be current:  http://www.twitter.com/IBMzVSE
**Subscribe to be get on the distribution list for latest news for z/VSE**

# Be Social with System z

Join **System z Advocates** (Subgroup **z/VSE**)
www.linkedin.com

Read **at the IBMs System z Blog**
www-304.ibm.com/connections/blogs/systemz/

Connect **at Facebook**
www.facebook.com/IBMsystemz

Watch **on YouTube**
www.youtube.com/user/IBMSystemZ

**z/VSE Homepage:**
www.ibm.com/zVSE

**Twitter**
www.twitter.com/IBMzVSE

**Ingolf's z/VSE Blog**
www.ibm.com/developerworks/mydeveloperworks/blogs/vse/

# Overview - All Tools

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# Questions?

IBM

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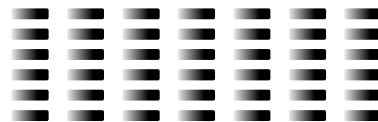
# For more information, please see the z/VSE web site:
http://www.ibm.com/zvse/