



E32

A Review of On Demand Solutions using z/VSE Connectors

Wilhelm Mild

IBM
SYSTEM z9 AND zSERIES EXPO
October 9 - 13, 2006

Orlando, FL

Trademarks

The following are trademarks of the International Business Machines Corporation in the United States and / or other countries.

CICS*	IBM*	Virtual Image Facility
DB2*	IBM logo*	VM/ESA*
DB2 Connect	IMS	VSE/ESA
DB2 Universal Database	Intelligent Miner	z/VSE
e-business logo*	Multiprise*	VisualAge*
Enterprise Storage Server	MQSeries*	VTAM*
HiperSockets	OS/390*	WebSphere*
	S/390*	xSeries
	SNAP/SHOT*	z/Architecture
		z/VM
		z/VSE
		zSeries
		System z

* Registered trademarks of IBM Corporation

The following are trademarks or registered trademarks of other companies.

LINUX is a registered trademark of Linus Torvalds

Tivoli is a trademark of Tivoli Systems Inc.

Java and all Java-related trademarks and logos are trademarks of Sun Microsystems, Inc., in the United States and other countries

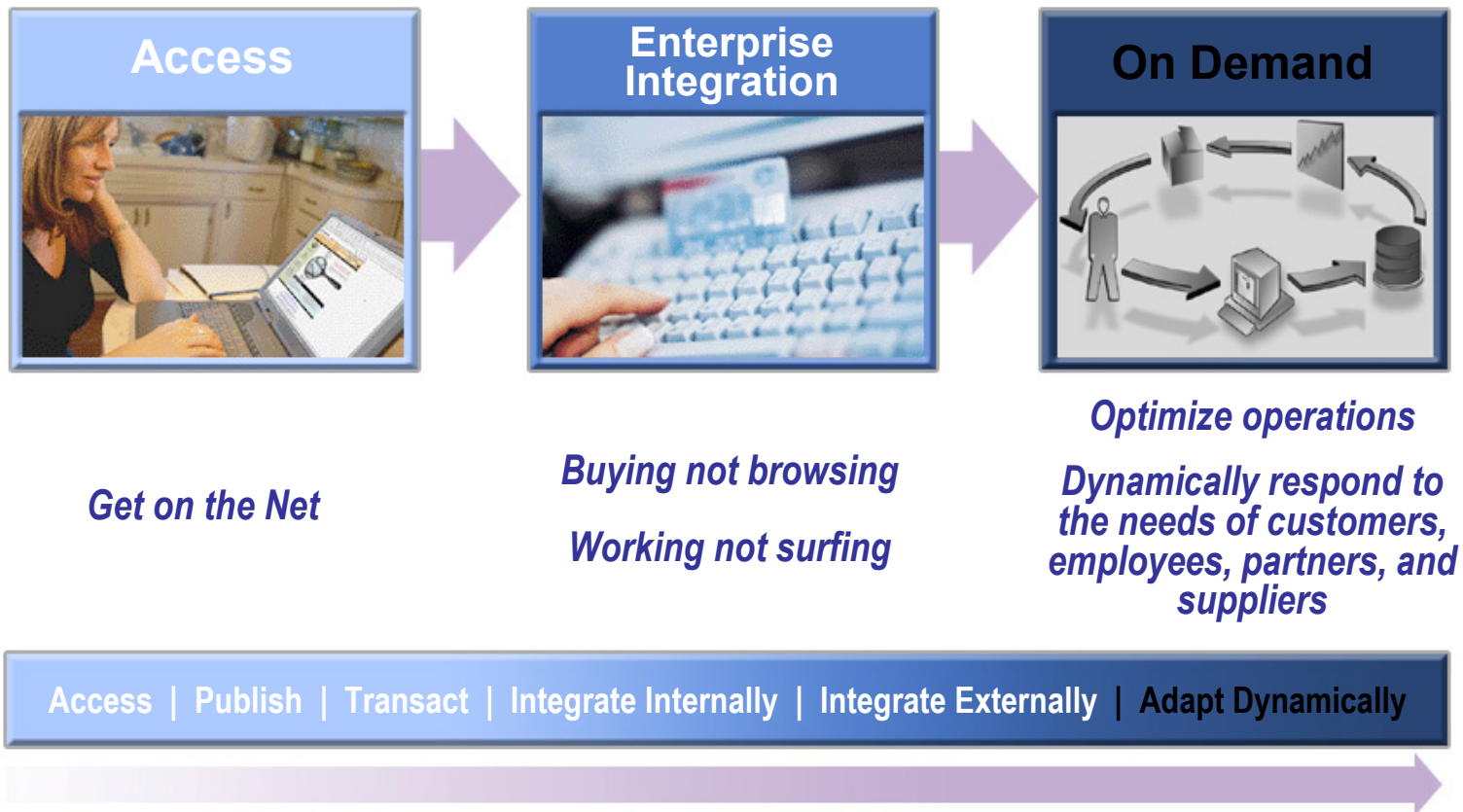
UNIX is a registered trademark of The Open Group in the United States and other countries.

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

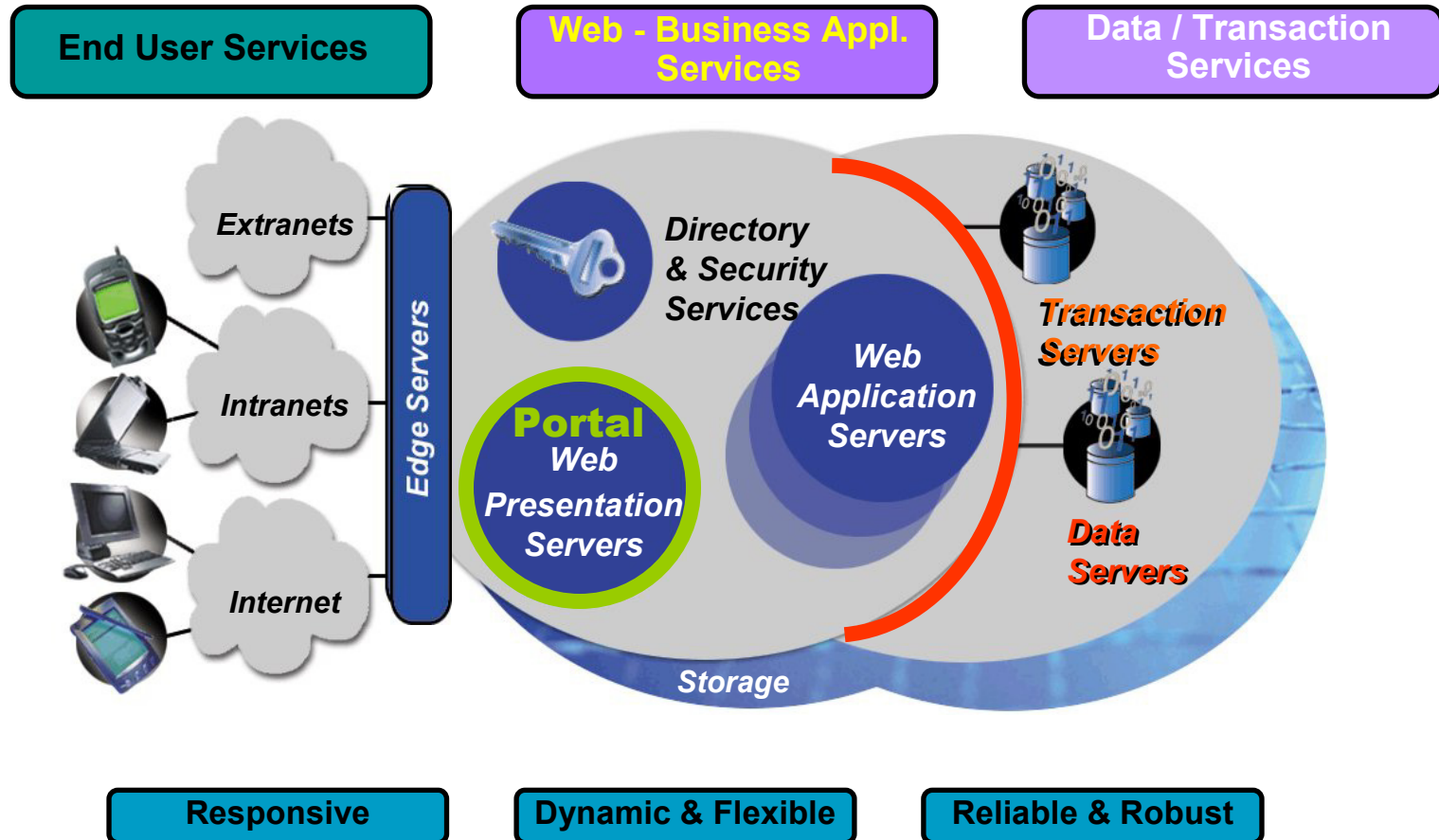
SET and Secure Electronic Transaction are trademarks owned by SET Secure Electronic Transaction LLC.

Intel is a registered trademark of Intel Corporation.

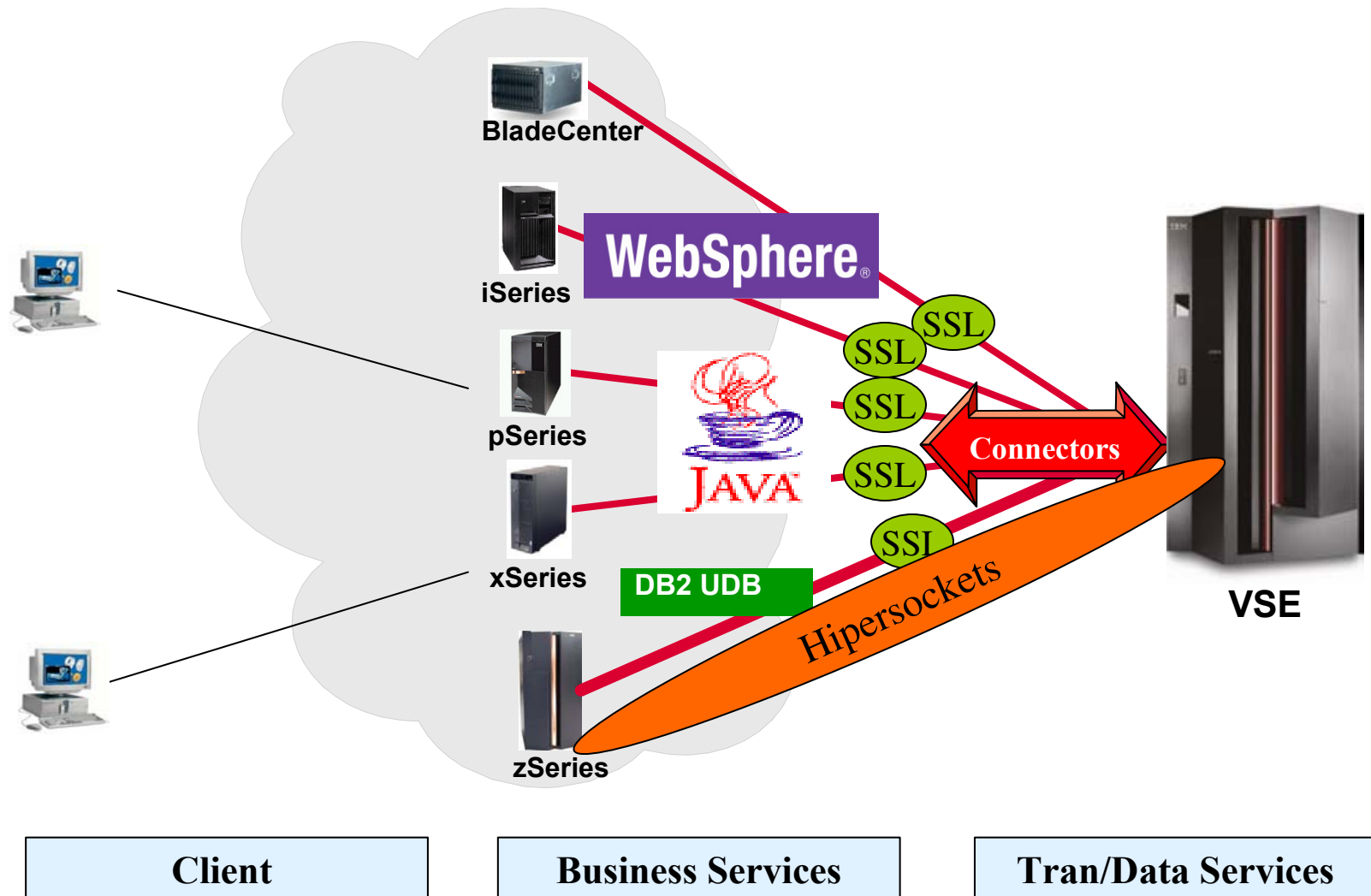
Evolution of Internet technologies



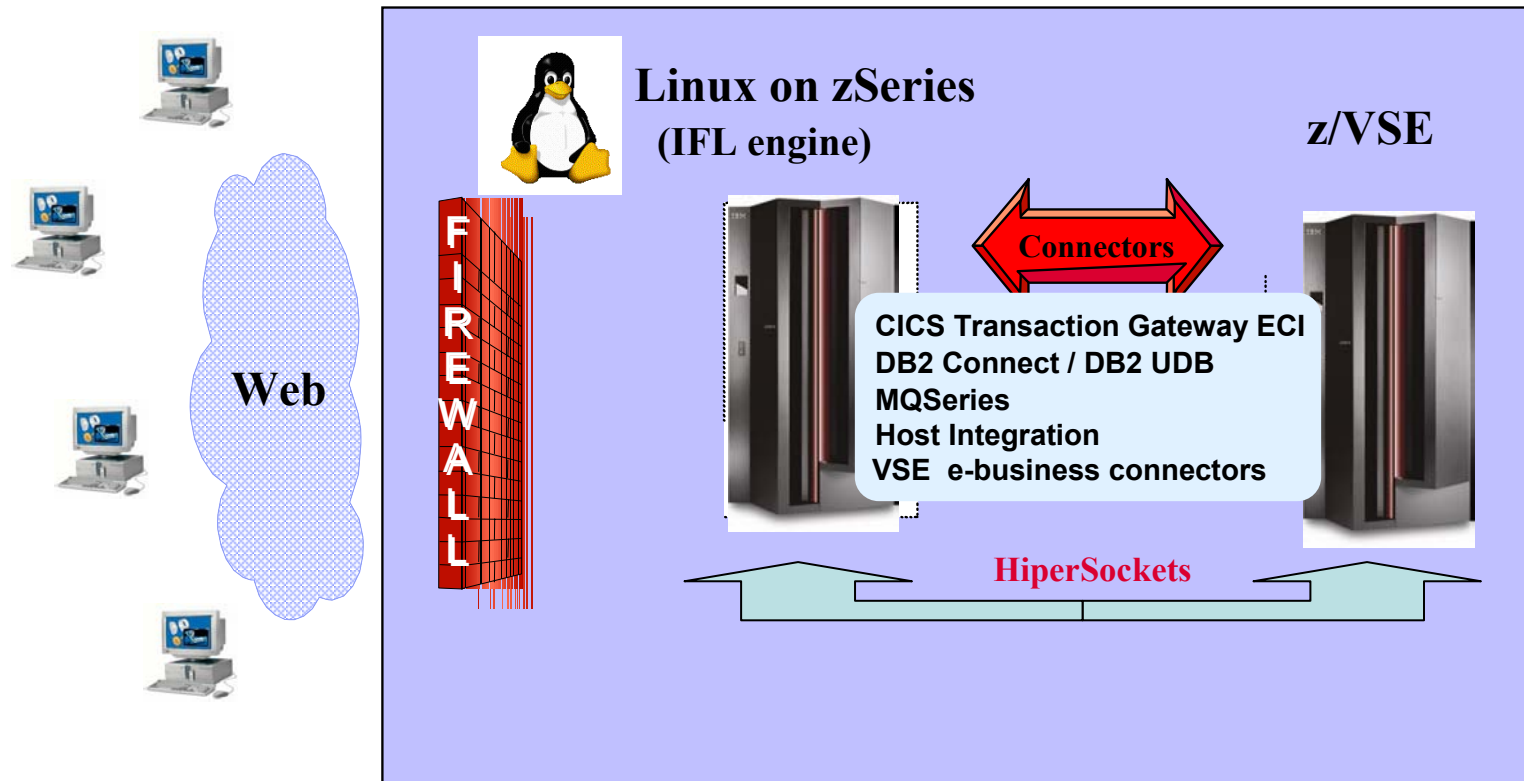
Infrastructure



Interoperability with VSE

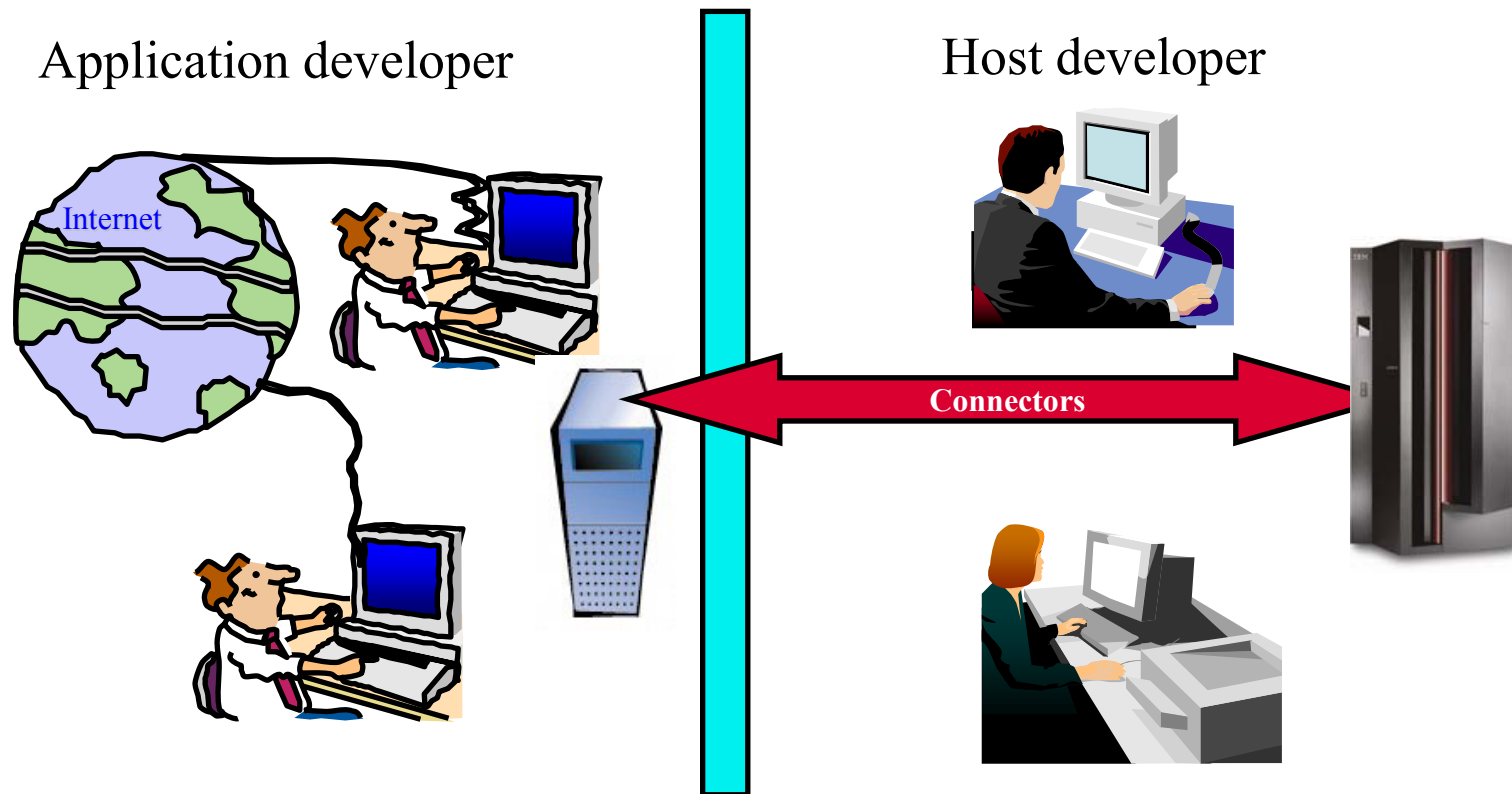


Integration of z/VSE with Linux on zSeries



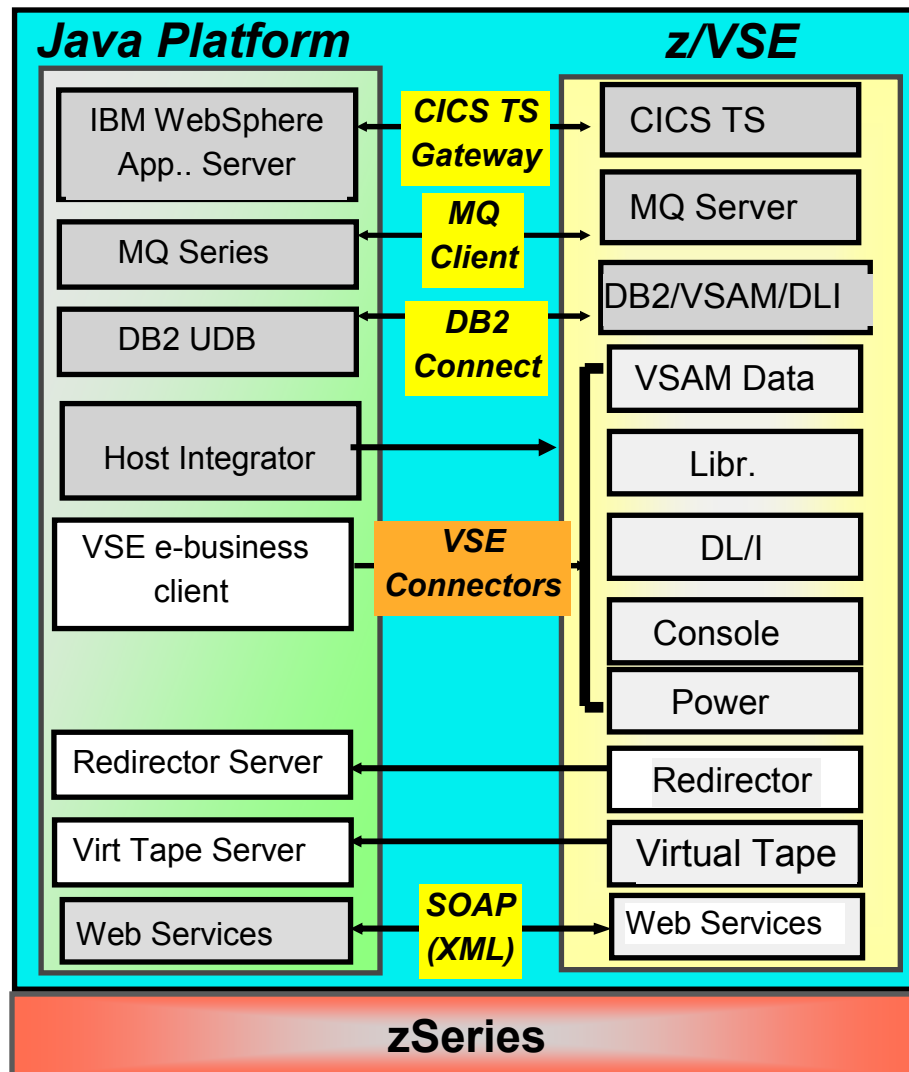
Challenges in today's IT

► Two Architectures, one solution



Middleware relations to z/VSE

- Modern applications with Linux for zSeries
- Most modern technologies interact with VSE services
- Modernisation using real time access to data



Agenda: Optimization of operations

(1) Common data store with distributed data

(2) Web transaction processing

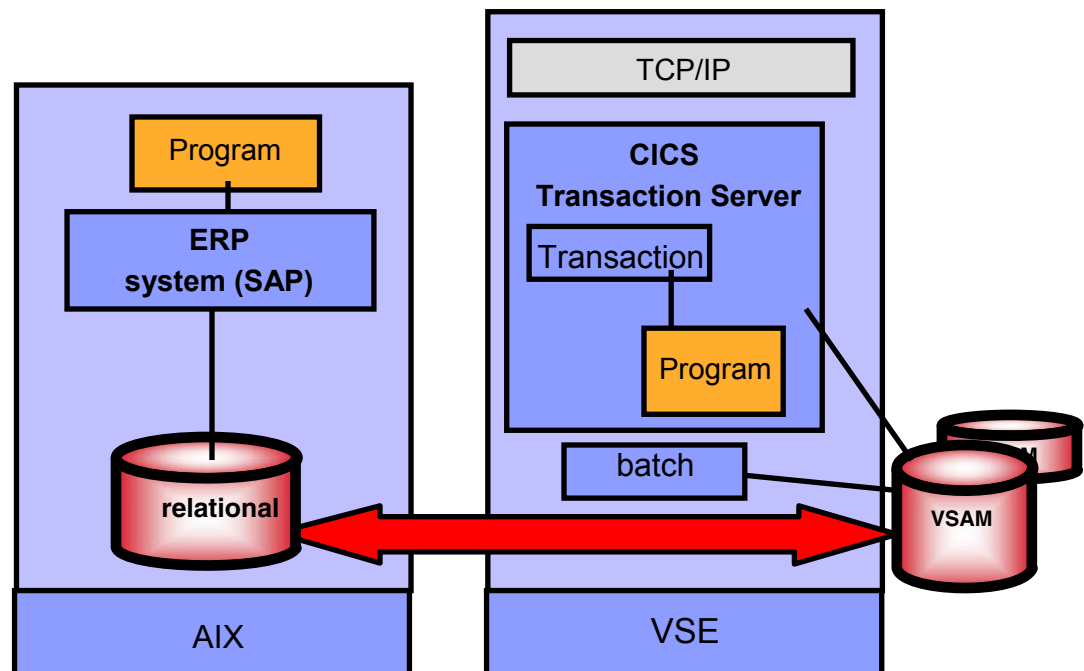
(3) Application integration

(4) Dynamic On demand business

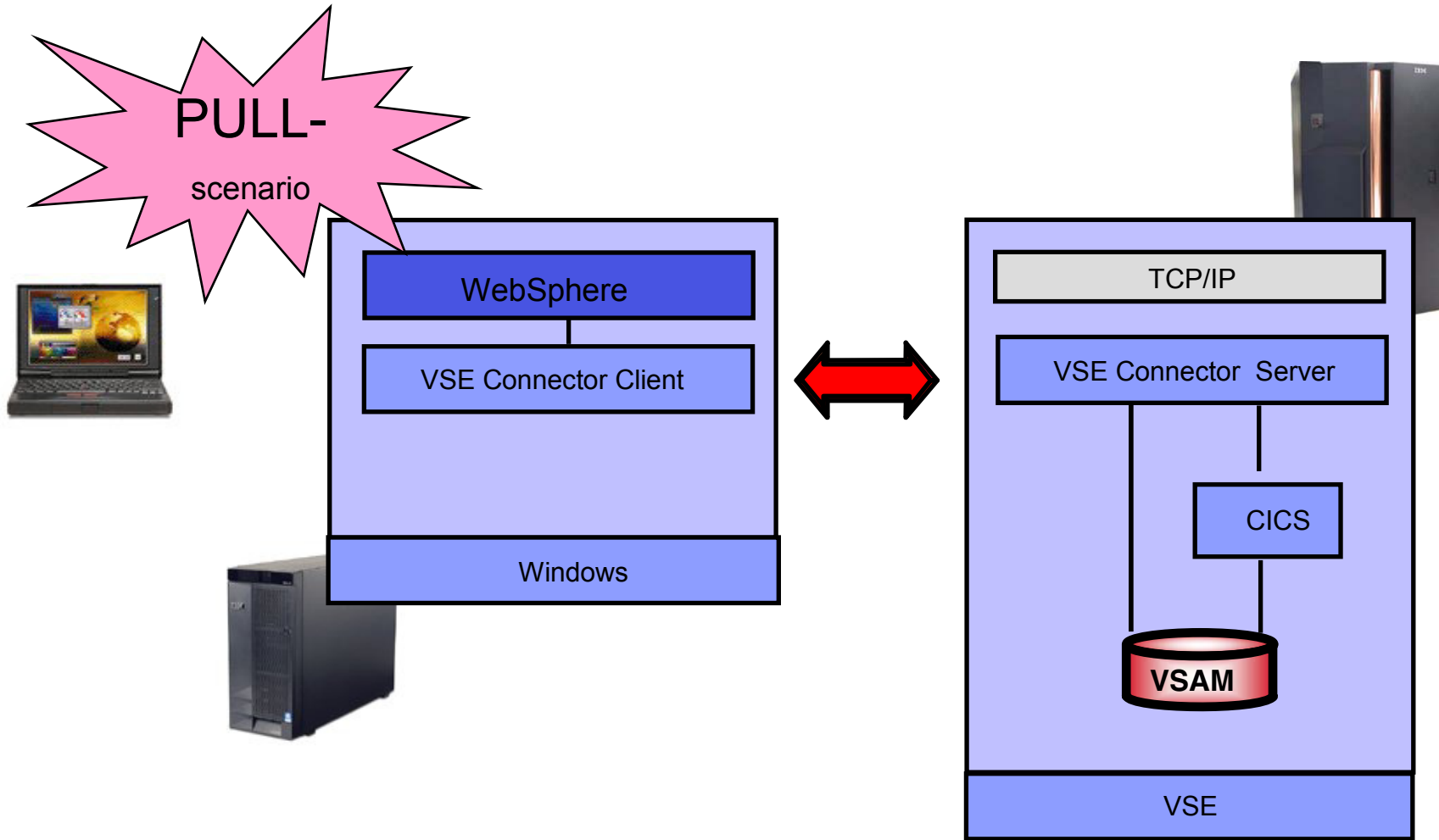
(5) DB2 VSE data on DB2 UDB Linux

Common data store in distributed environments (synchronous data propagation)

- ▶ customer data are redundant in both systems in different types of data stores (VSAM in VSE and relational in AIX)
- ▶ real time data synchronization is needed
- ▶ no change to VSE programs required

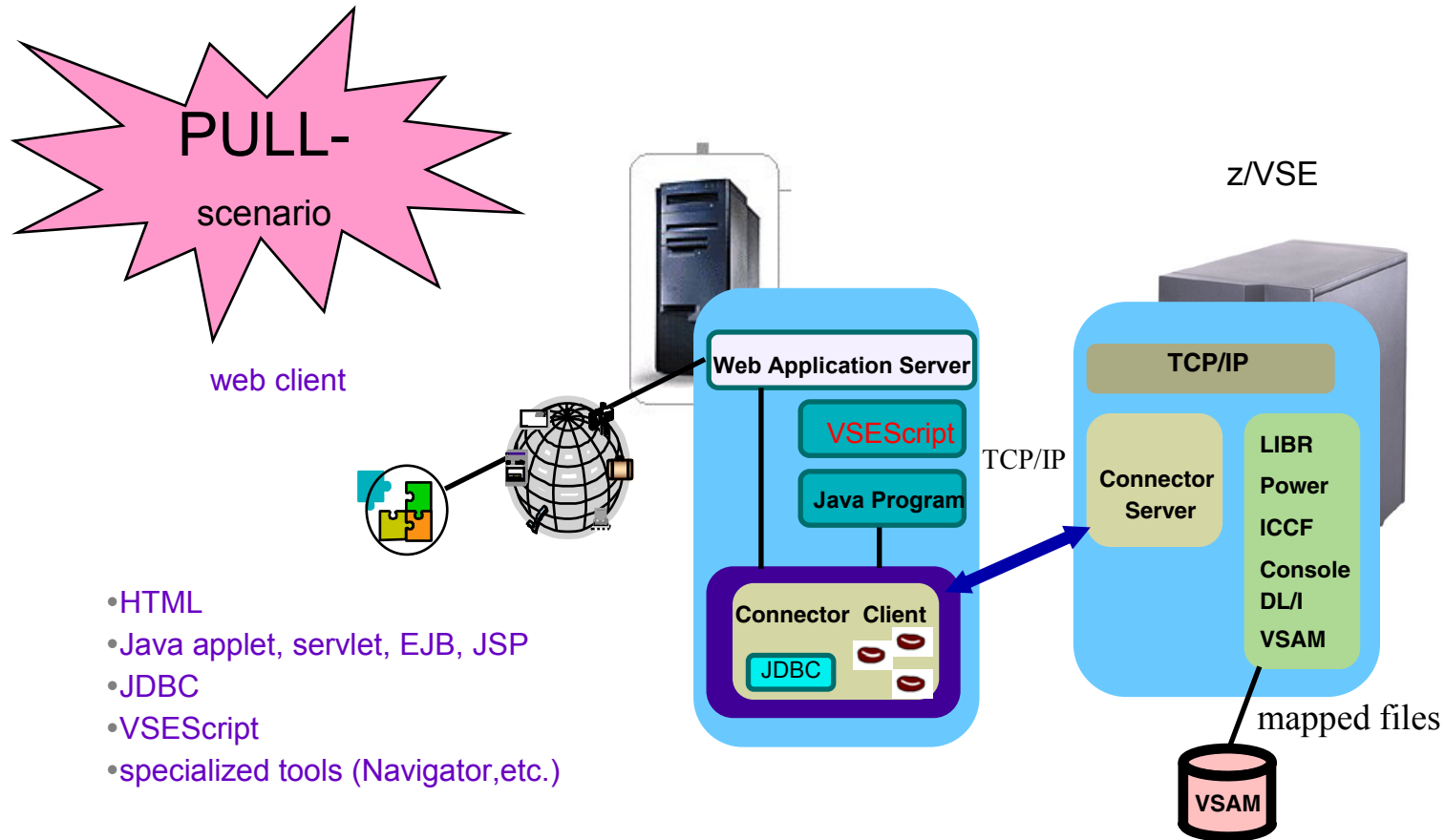


Pull out data from a VSE system from a remote site.



- Integrate VSAM data into new applications

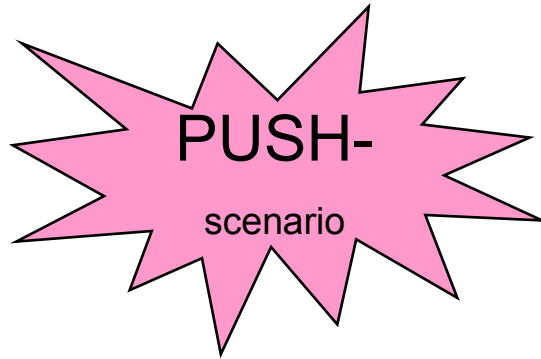
Real time access to z/VSE – Java –Based Connector



- ▶ real time access to VSE resources from remote systems
- ▶ new possibilities for leveraging z/VSE investment

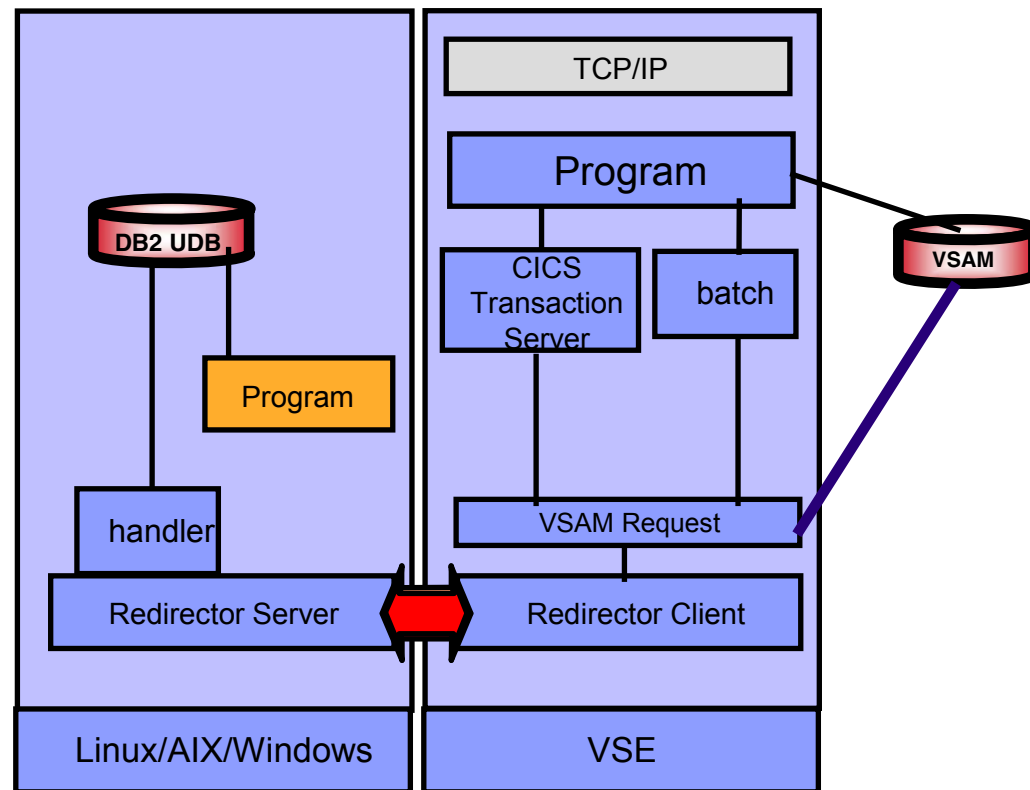
Data propagation / synchronization from VSE

VSE/VSAM Redirector



► Existing applications transparently access remote data

► No changes to the existing VSE applications

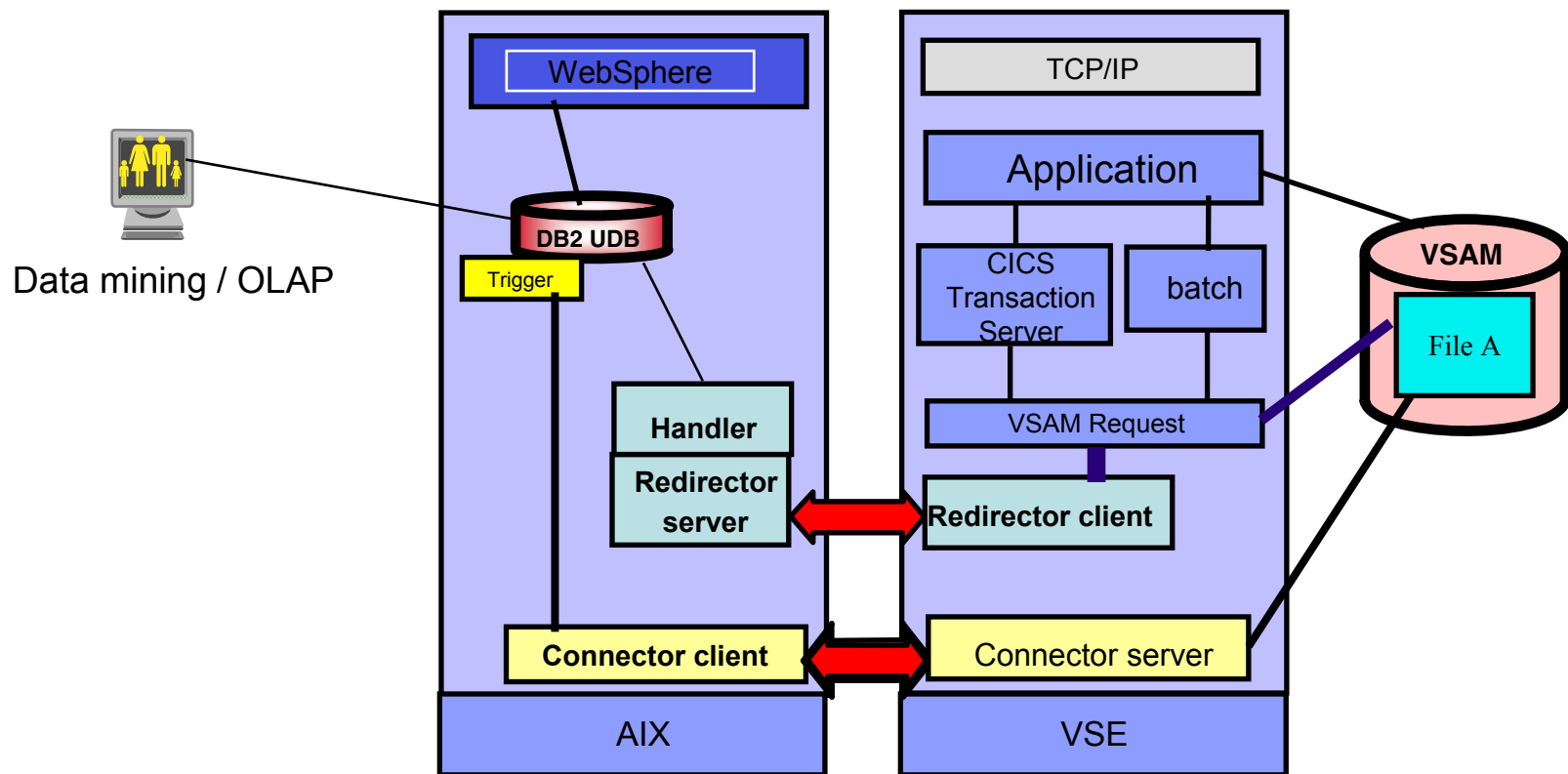


- Applications on VSE should be able to access DB2 data on Linux
- Synchronization of DB2 UDB on Linux with VSAM using VSAM Redirector.
(VSAM Redirector is part of VSE/ESA 2.6/2.7)

Final solution

common data store – Business intelligence

- ❑ Car manufacturer, paper manufacturer – Germany, insurance – US

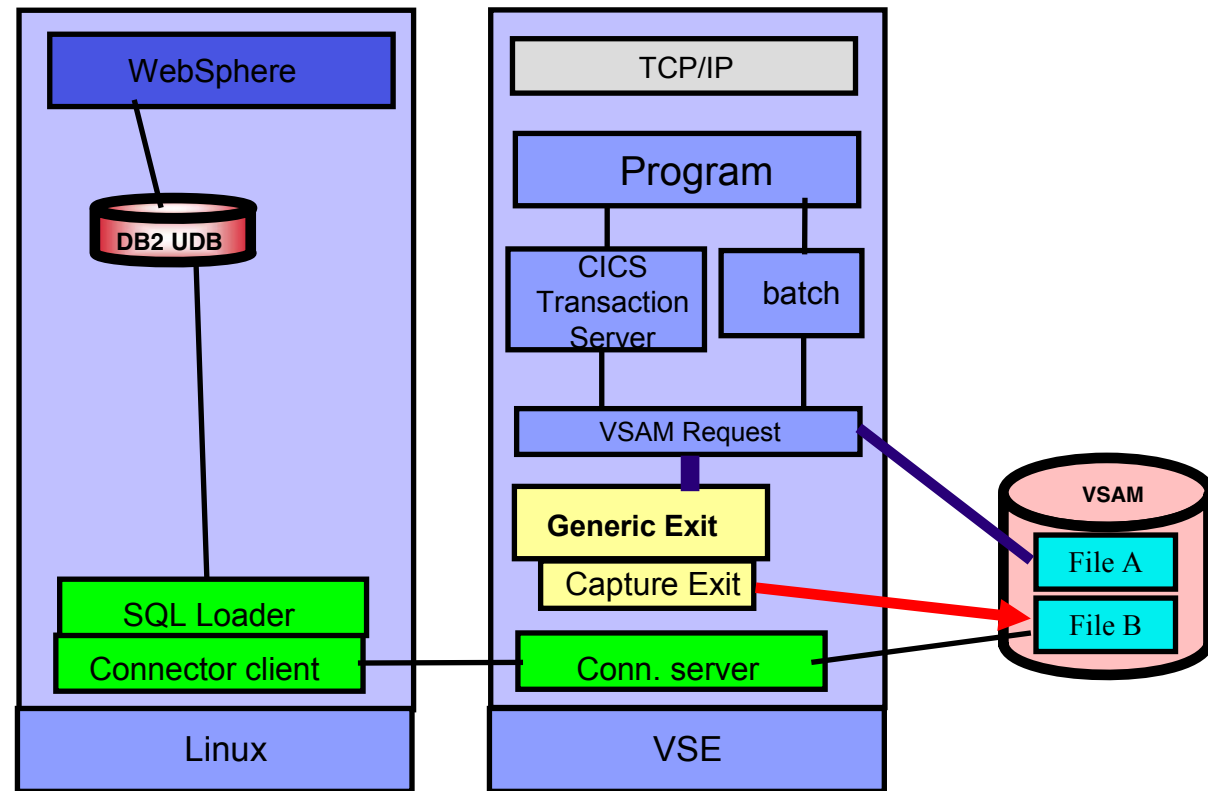


Final solution

Incremental, Linux driven updates

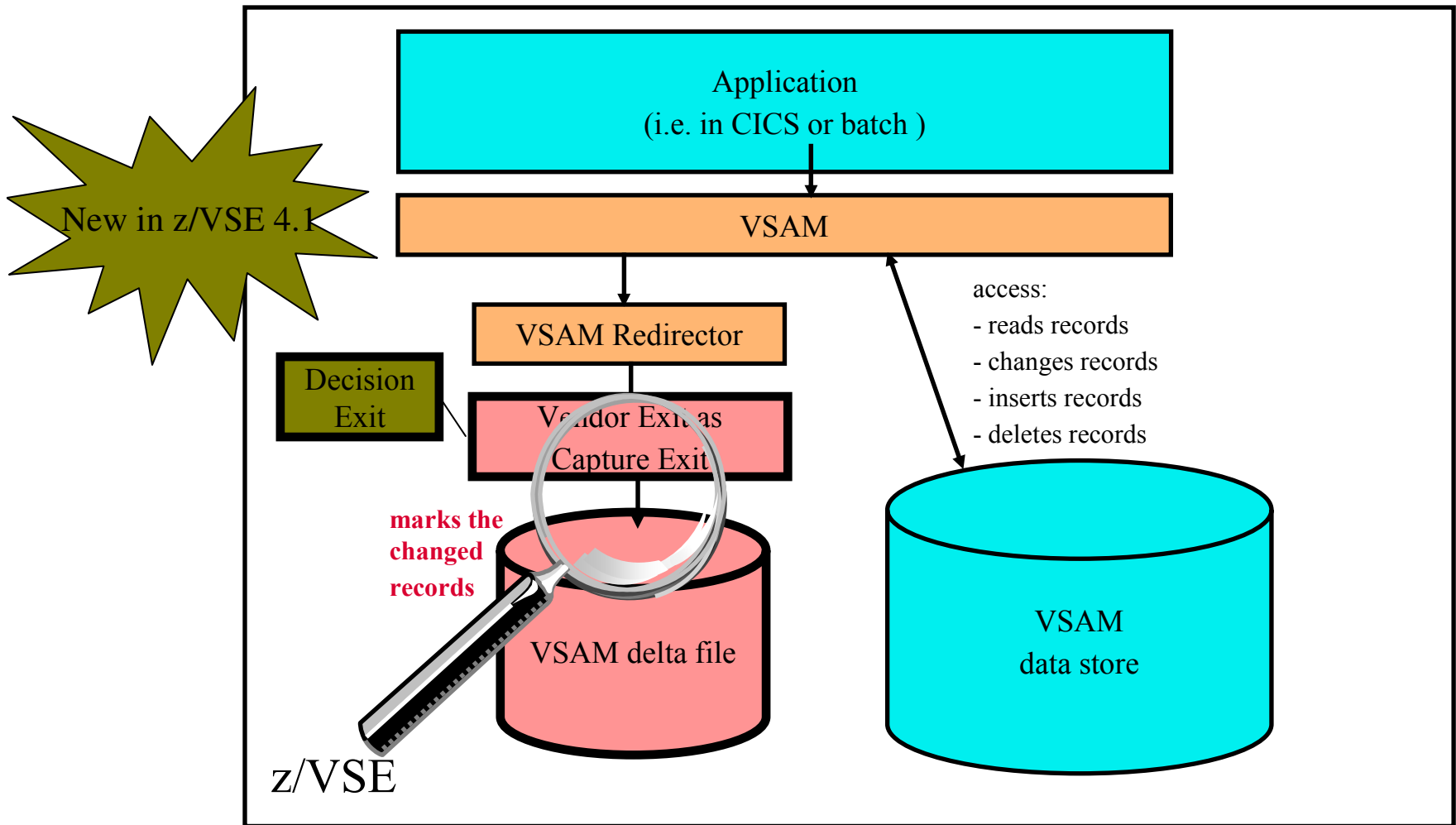
□ Energy supplier – Germany

- ▶ With VSAM Capture – the performance of the VSE production system protected
- ▶ The changes are processed asynchronously and not influencing the production system



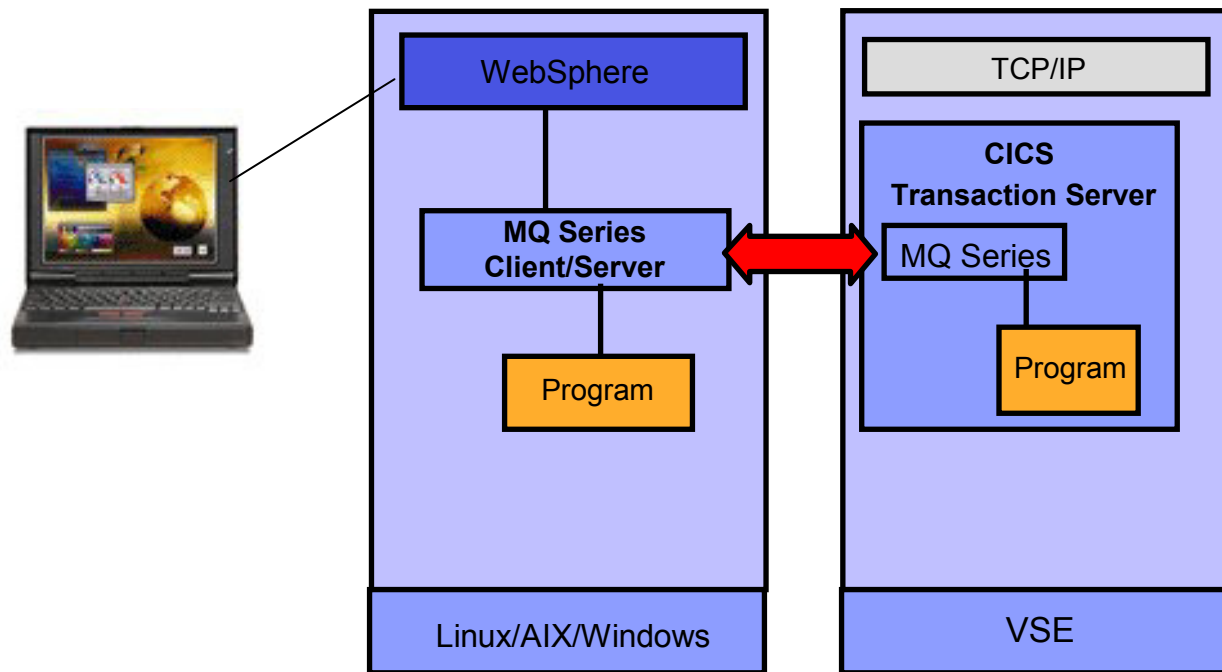
- ▶ Collect the changed records in a separate VSAM file
 - ▶ Possibility of cleansing
- ▶ Process them – with the VSE Connectors

Redirector Capture. Architectural View



Asynchronous data propagation

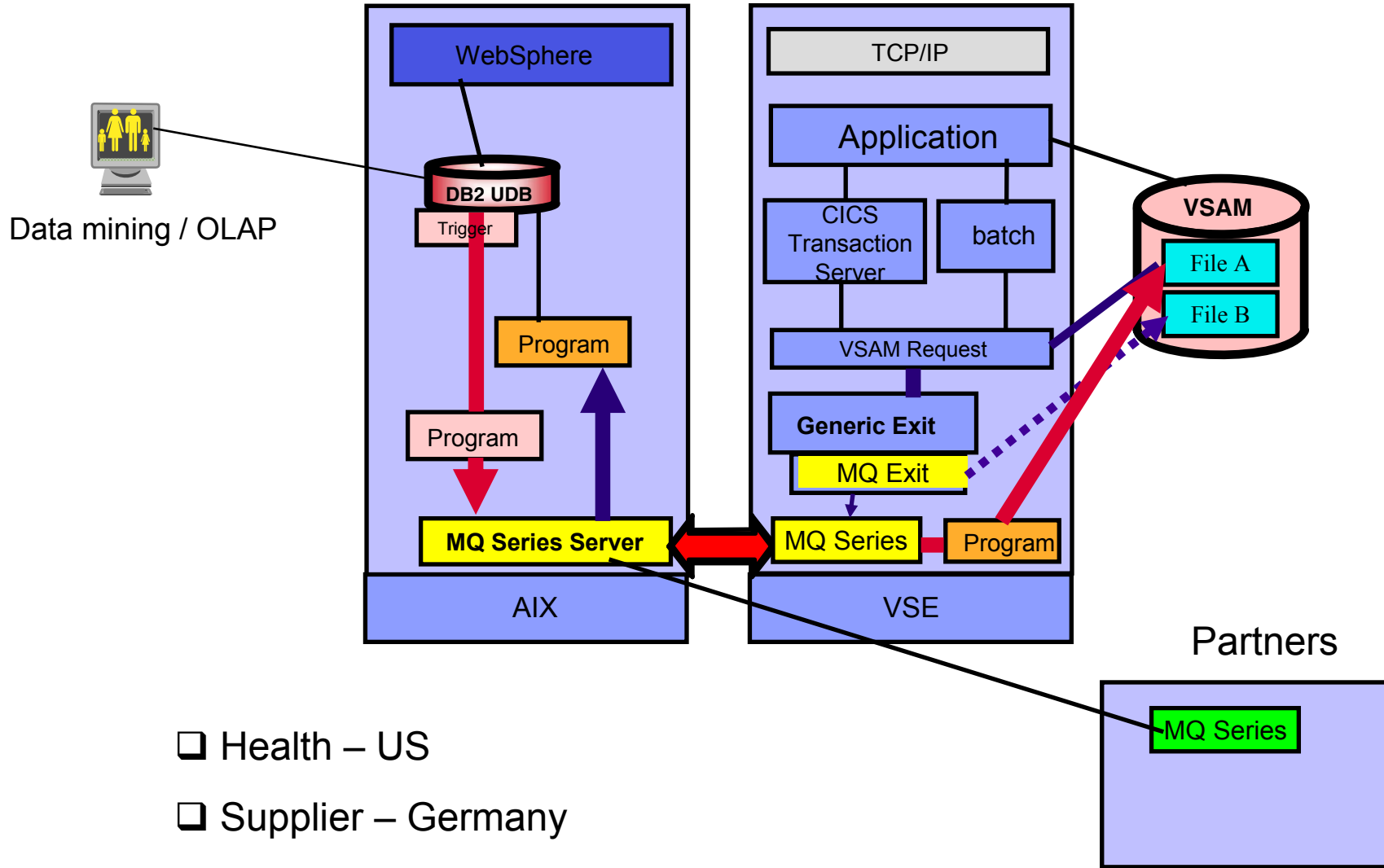
MQ Series - Implementation



- ▶ asynchronous data exchange using message queuing
- ▶ guaranteed and 'only once' delivery
- ▶ integration into Web Application servers (WebSphere)
- ▶ bidirectional data interchange – same interface on many platforms

Final solution

common data store – Business intelligence



- Health – US
- Supplier – Germany

Agenda: Optimization of operations

(1) Common data store with distributed data

(2) Web transaction processing

(3) Application integration

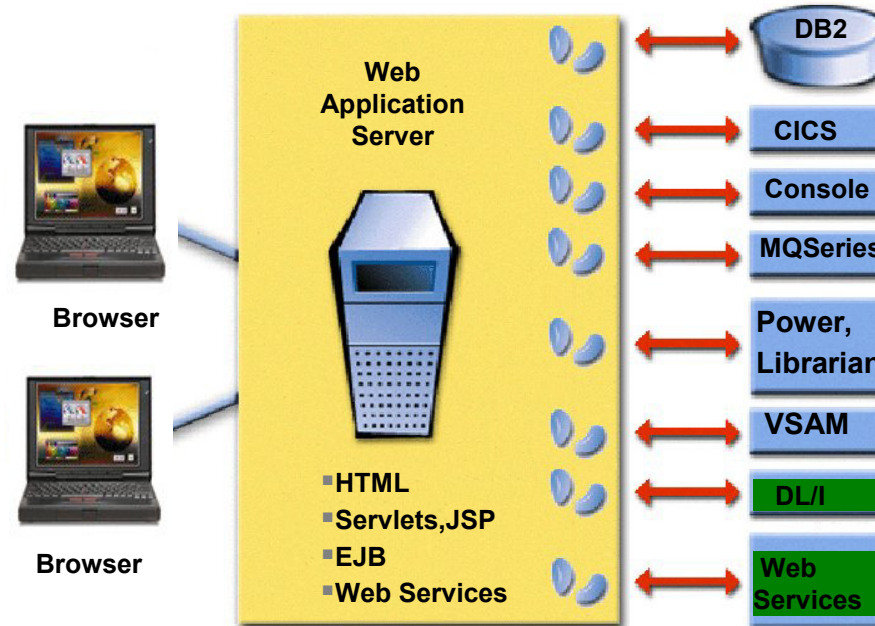
(4) Dynamic On demand business

(5) DB2 VSE data on DB2 UDB Linux

(2) Web Transaction processing

(using the Websphere Software Platform and Connectors for z/VSE)

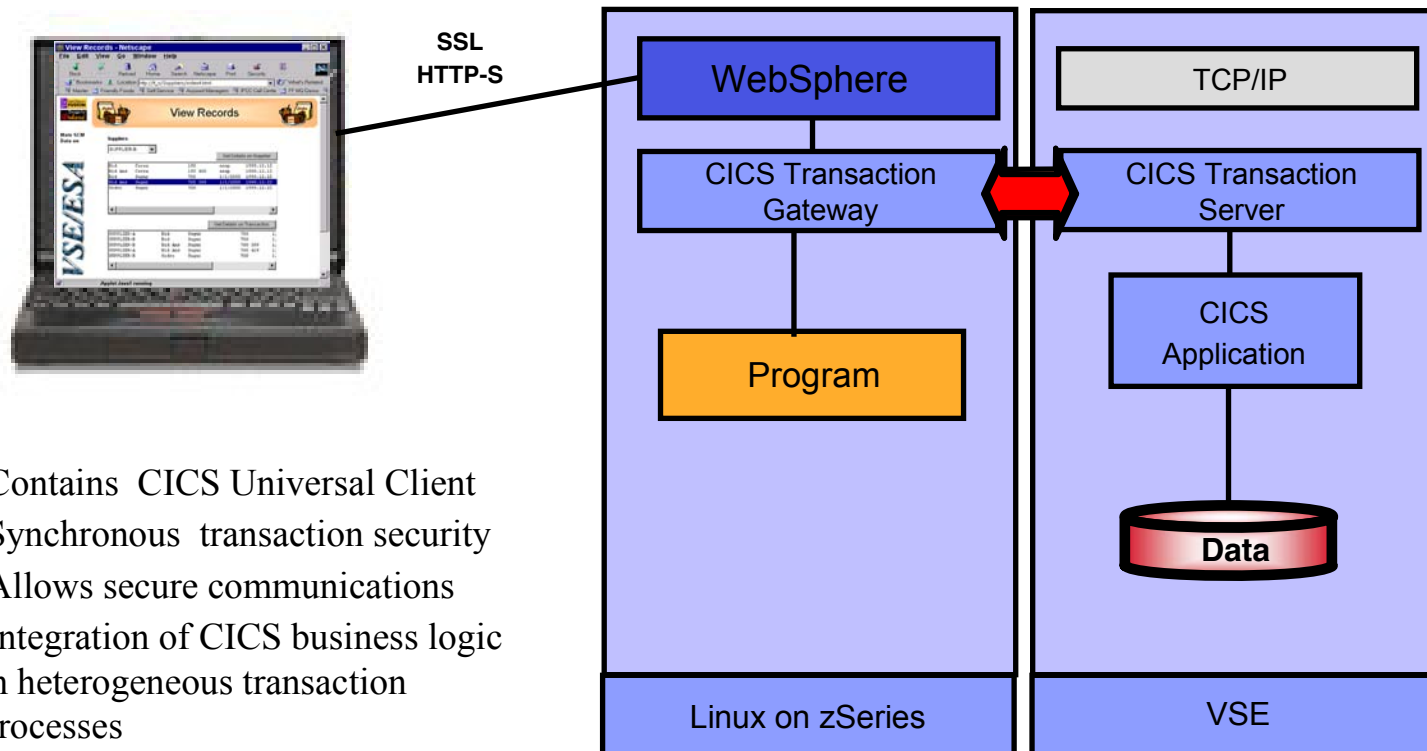
- ❑ Bank- Switzerland,
- ❑ Heating services - Germany



- ▶ Enable the access to core applications with web technologies
- ▶ No change to the core applications required
- ▶ Consistent development interfaces (Java based)

Integration of VSE/ESA transaction processes

IBM CICS Transaction Gateway

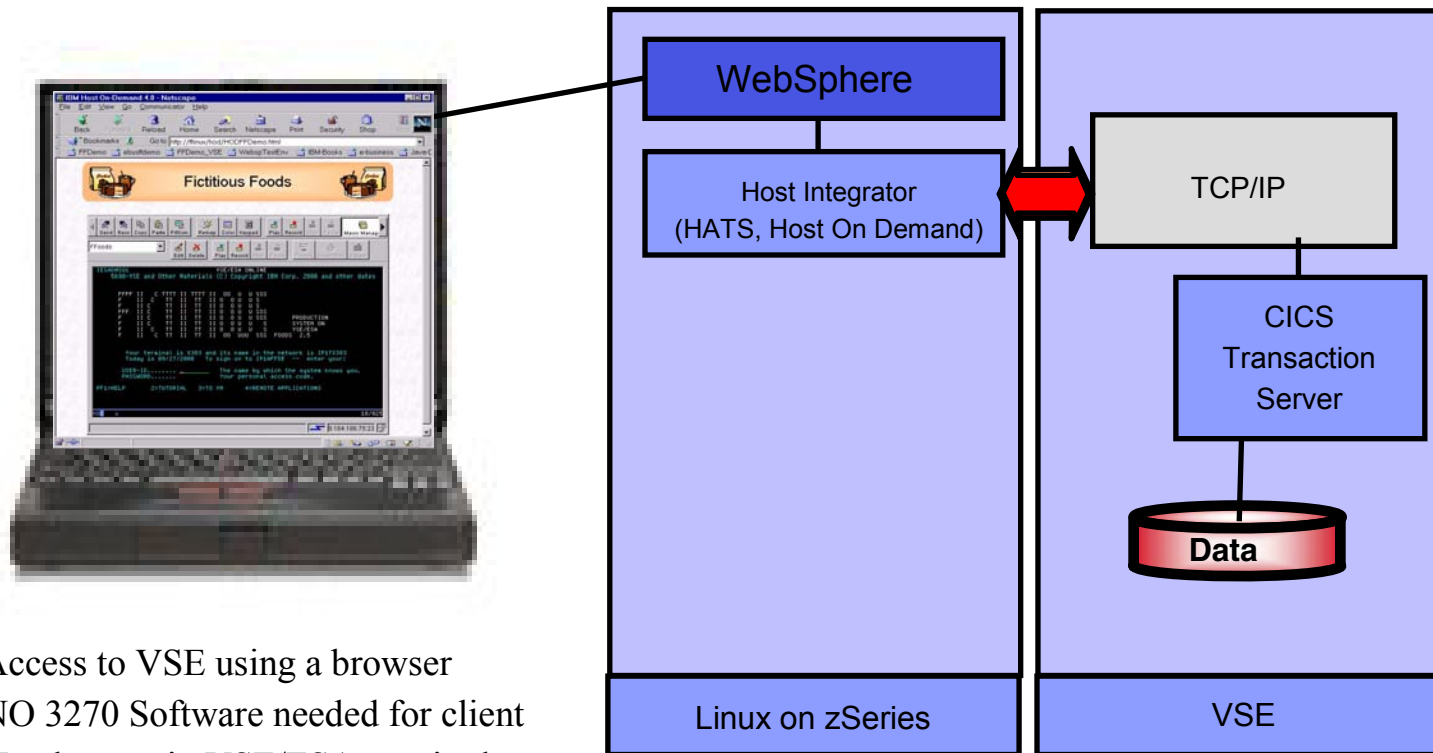


- ▶ Contains CICS Universal Client
- ▶ Synchronous transaction security
- ▶ Allows secure communications
- ▶ Integration of CICS business logic in heterogeneous transaction processes
- ▶ about 2.0 mill trans per day

General access to VSE/ESA via browser

Host Access transformation Server (HATS)
and Host on Demand

- ❑ Distributor – Finland – modernisation for z/VSE and z/OS



- ▶ Access to VSE using a browser
- ▶ NO 3270 Software needed for client
- ▶ No changes in VSE/ESA required

Interaction with VSE/ESA via browser using (HATS)

The screenshot displays two windows side-by-side. On the left is an 'iseriesd Terminal' window showing a list of menu items with their corresponding line numbers. On the right is a Microsoft Internet Explorer browser window displaying the 'JK Enterprises' website.

Terminal Window Content:

```

Width . . . :
Column . . . :
Control . . . :
Line . . . + . . . :
PART
-----
000001
000002
000003
000004
000005
000006
000007
000008
000009
***** * * * *
F3=Exit F12=C
MA* a
PF1 PF2 PF3
PF7 PF8 PF9
  
```

Browser Window Content:

The browser window shows the 'JK Enterprises' website. The main content area includes an 'Inventory Table' and an 'Inventory Graph'.

Description	Number in Stock
Baseball glove	35
Catcher's mit	20
Baseballs - 1 doz.	40
Baseball bat	46
Football	33
Basketball	25
Tennis balls - 1 doz.	41
Golf balls - 1 doz.	27
Ice Skates	17

Other elements on the website include a 'Delivery Schedule' for August 2002, a 'Submit Order' button, and a 'Current Order' table.

Current Order	Quantity	Image
Catcher's mit	10	
Baseball bat	20	
Football	10	
Basketball	10	

Agenda: Optimization of operations

(1) Common data store with distributed data

(2) Web transaction processing

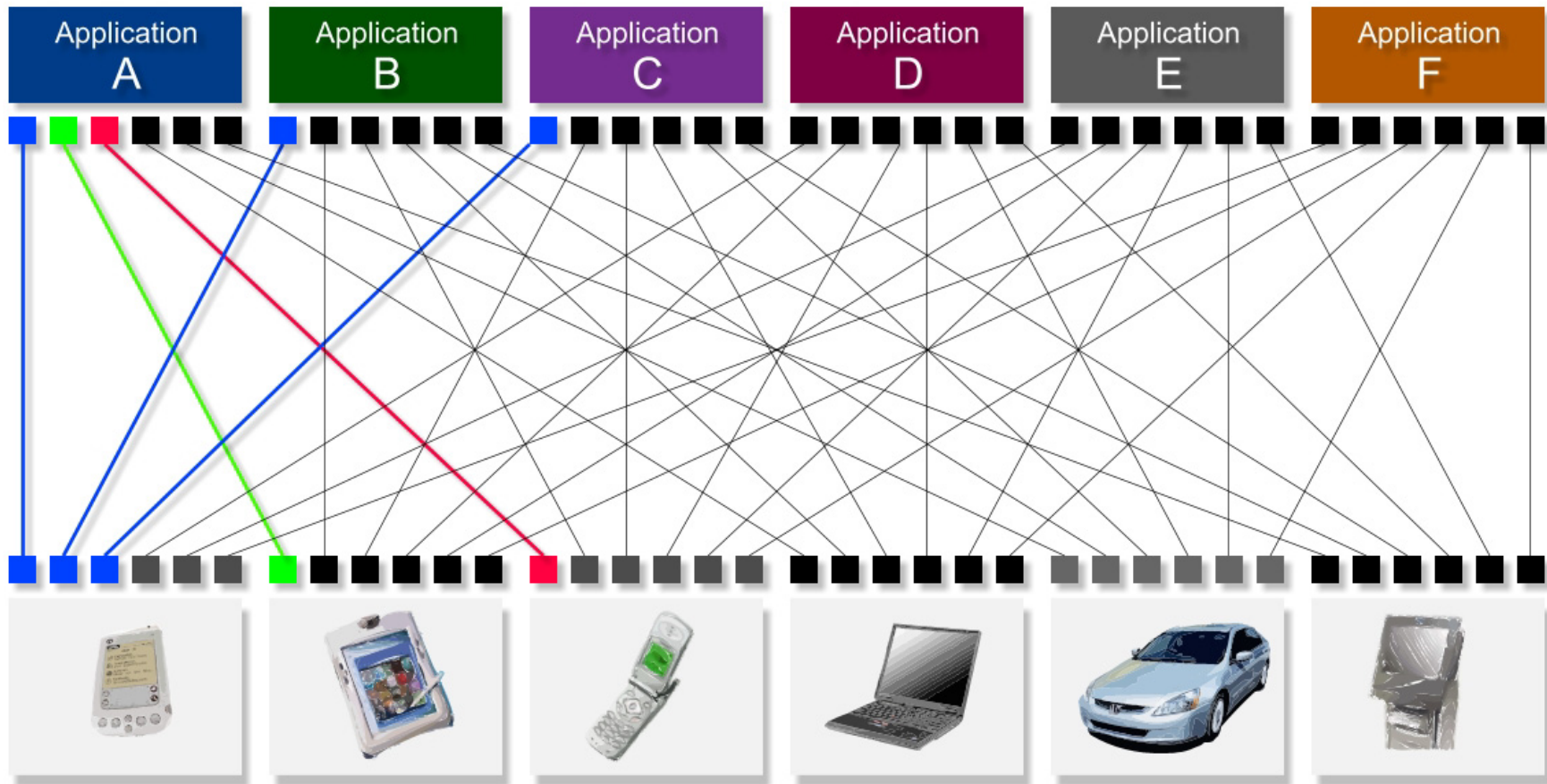
(3) Application integration

(4) Dynamic On demand business

(5) DB2 VSE data on DB2 UDB Linux

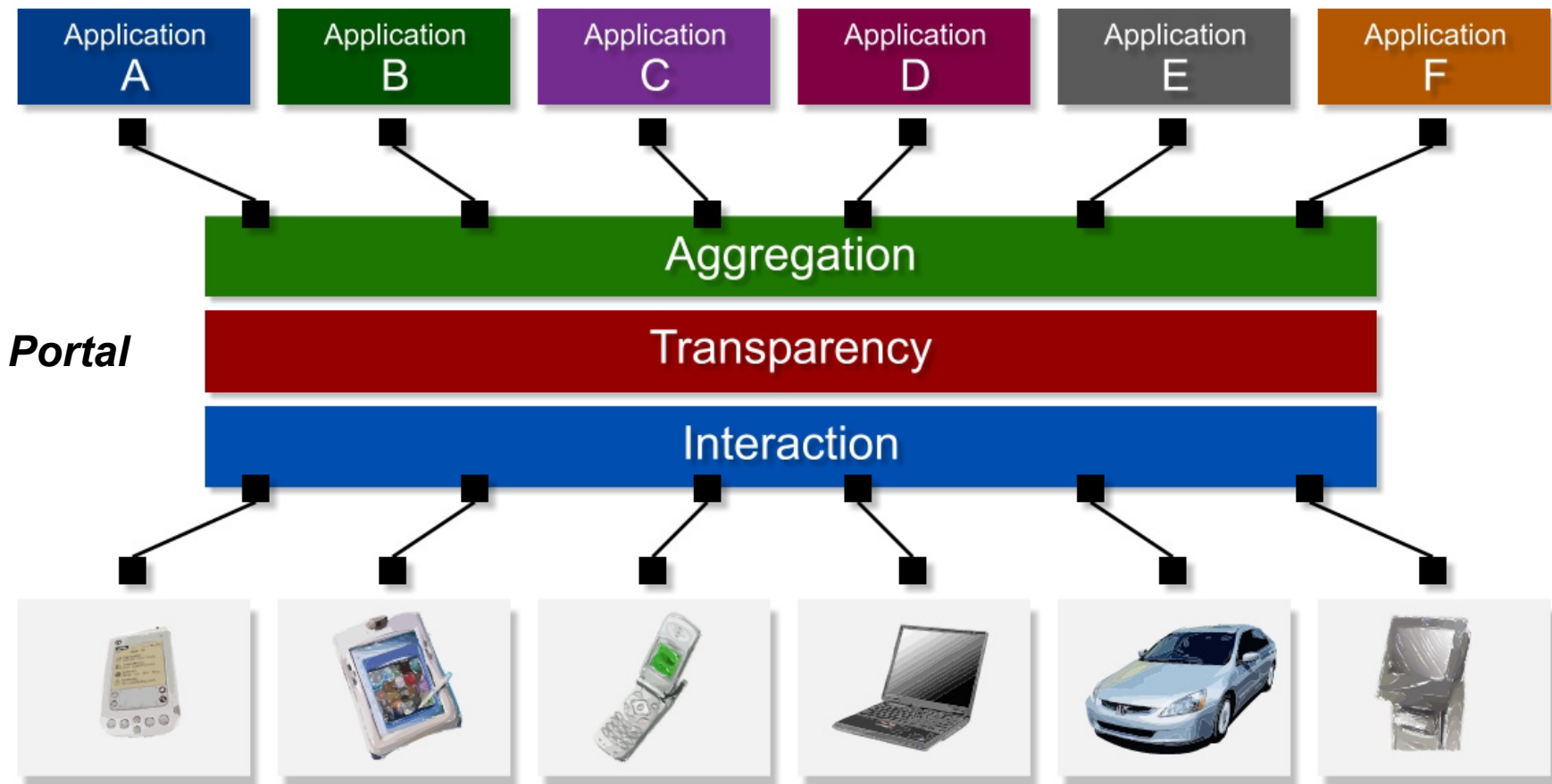
(3) Application integration and Enterprise Modernization

M applications...



N devices *How do you solve an expanding "M x N" matrix?*

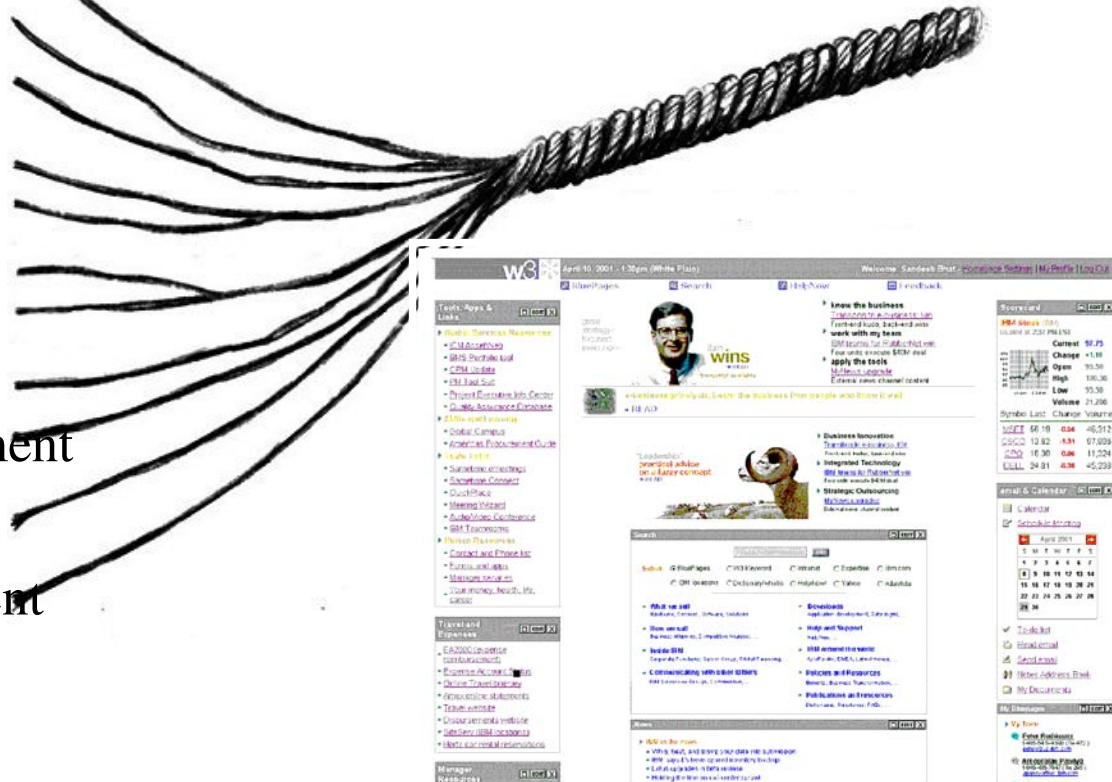
A Mobile Application Platform Defined



What is a Portal?

A single point of personalized interaction with applications, content, processes and people

- Enterprise Applications
- Messaging
- Search
- Collaboration
- E-meetings
- Web Content
- People Finder
- Knowledge Management
- Business Intelligence
- Document management
- Host systems

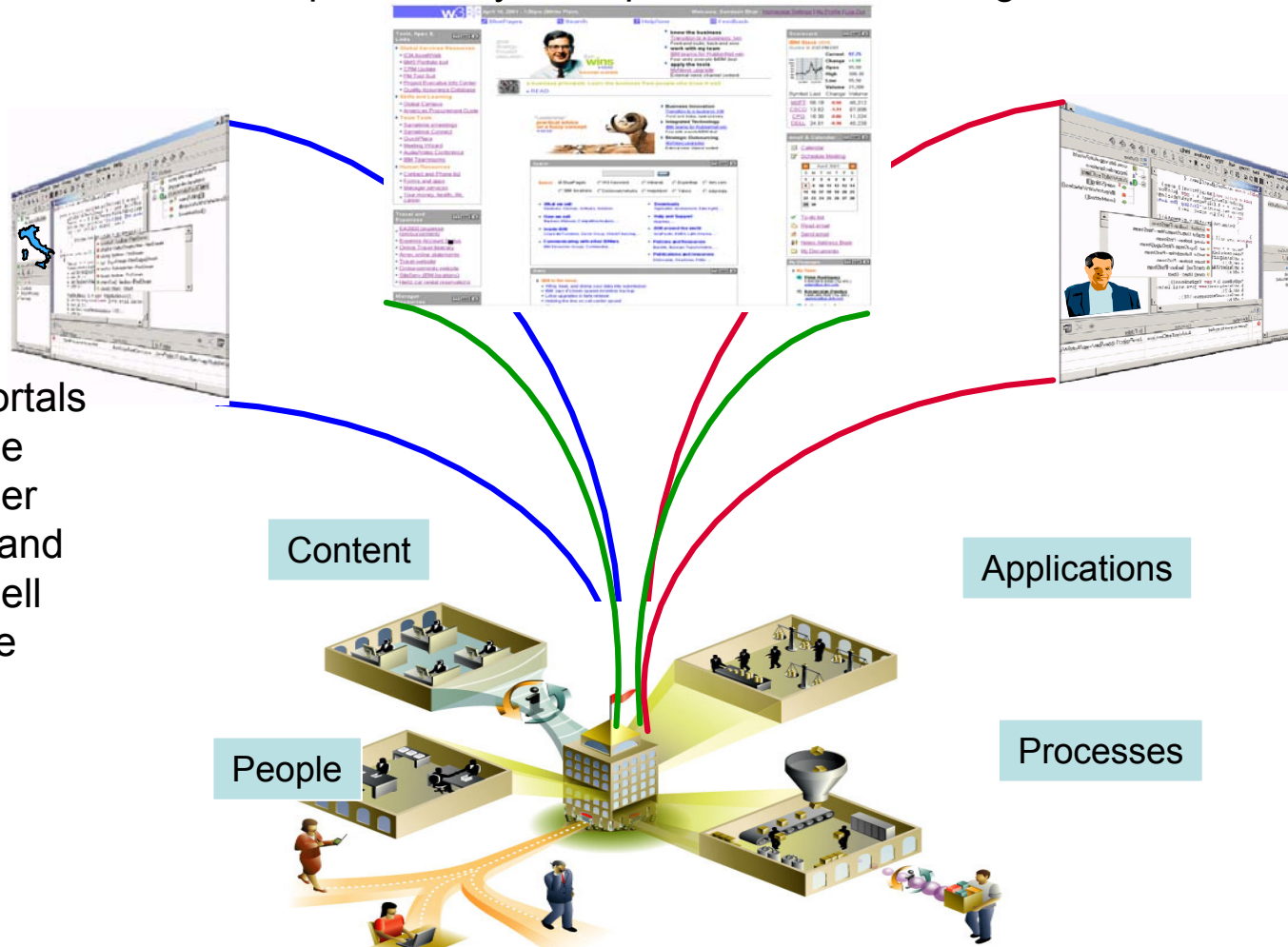


Where Portals are used in today's IT's

B2E Portals improve employee productivity and speed decision making

B2B Portals build partner relationships through integration with your business processes

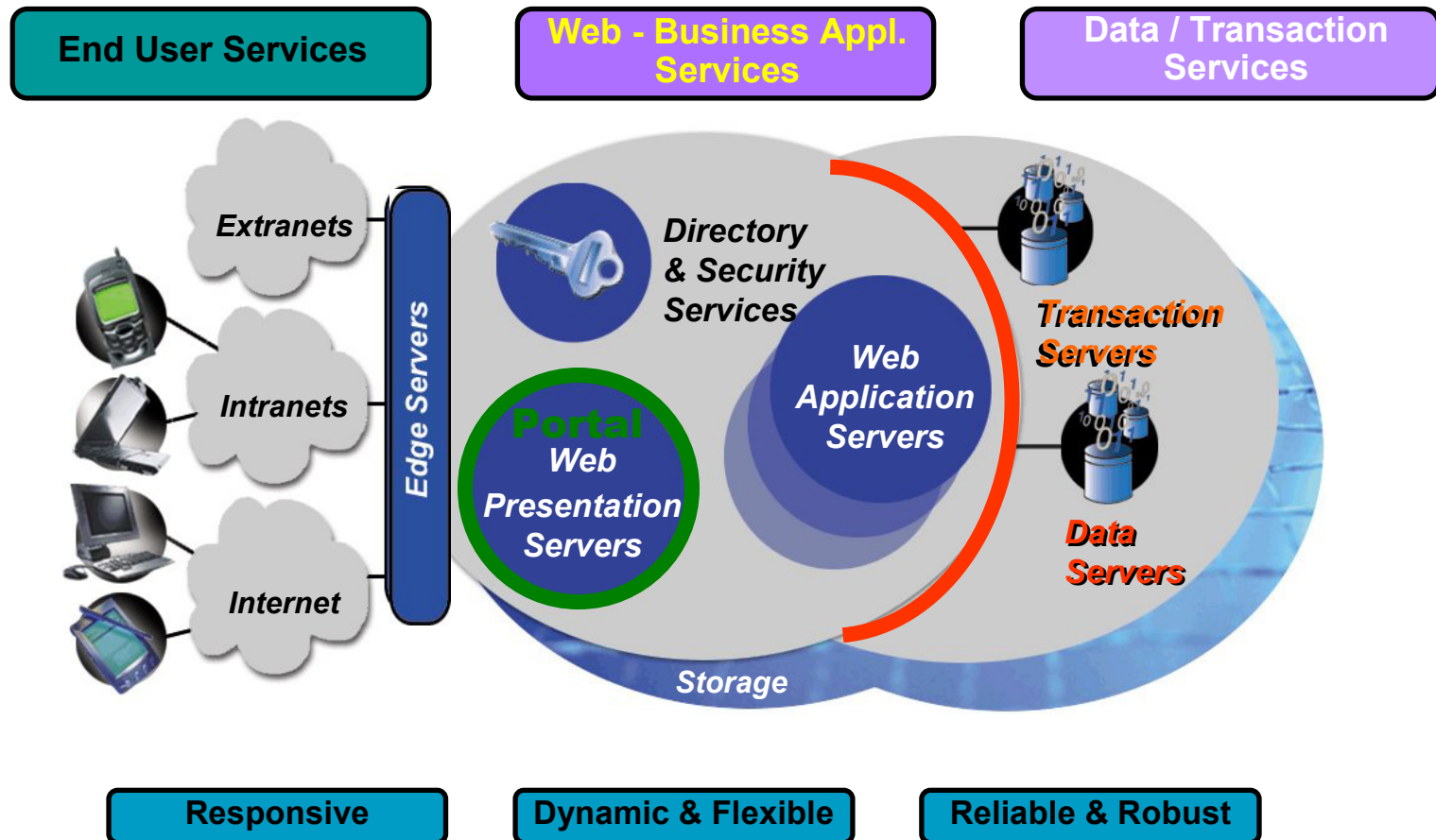
B2C Portals increase customer loyalty and cross-sell revenue



Common portal framework reduces costs and meets changing requirements

Infrastructure

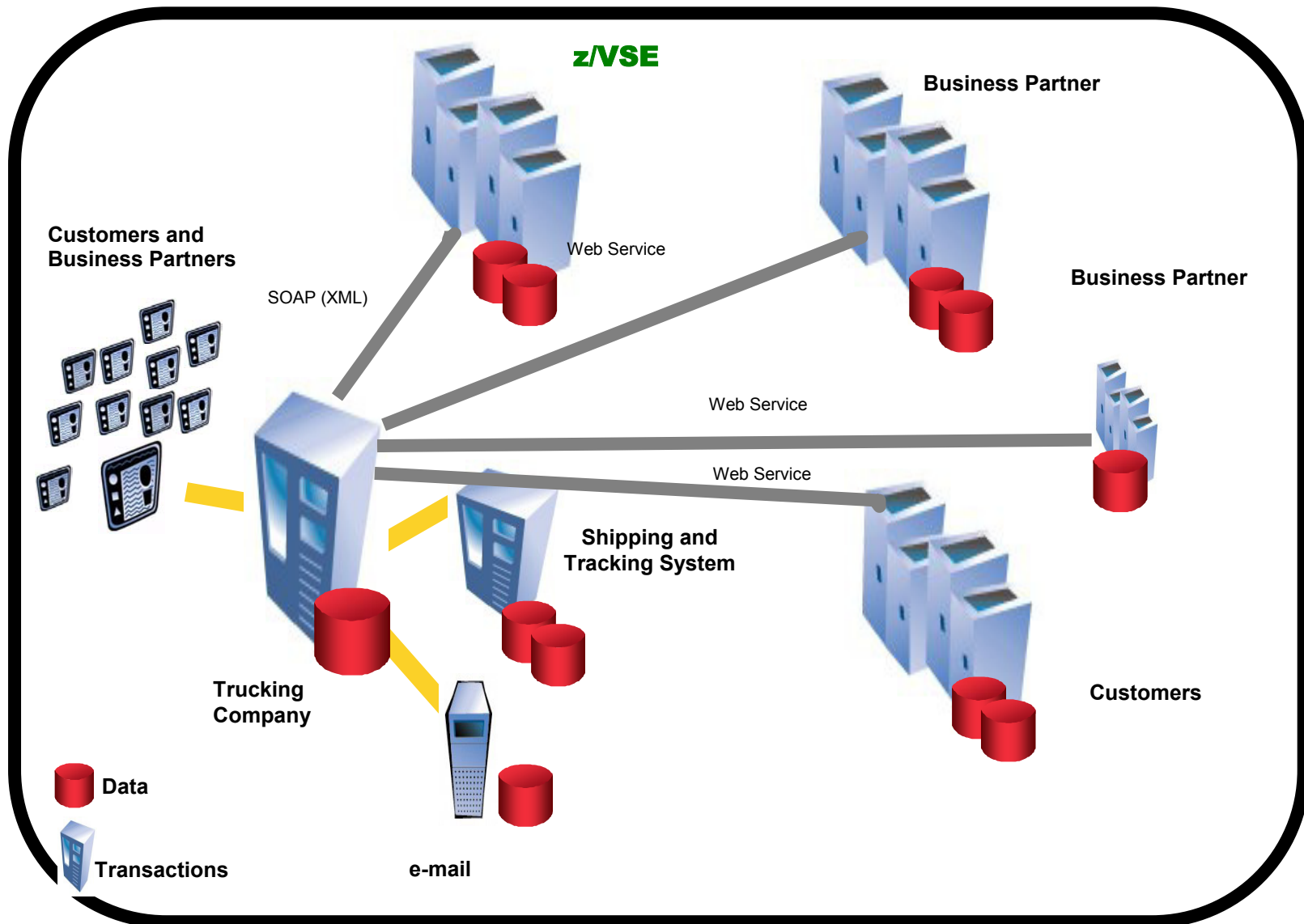
- ❑ Banks, internet distributor– Germany, Switzerland



Agenda: Optimization of operations

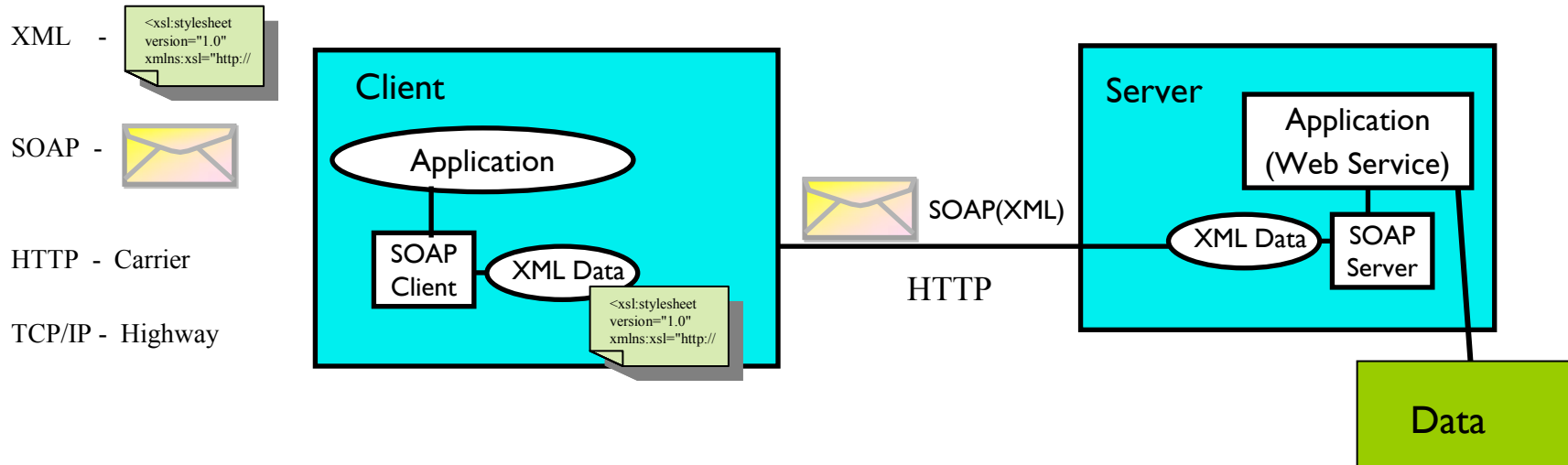
- (1) Common data store with distributed data
- (2) Web transaction processing
- (3) Application integration
- (4) Service Oriented Architecture (SOA)
- (5) DB2 VSE data on DB2 UDB Linux

(4) service oriented architecture with z/VSE using Web Services



Web Services

XML Document + SOAP Protocol = Web Services

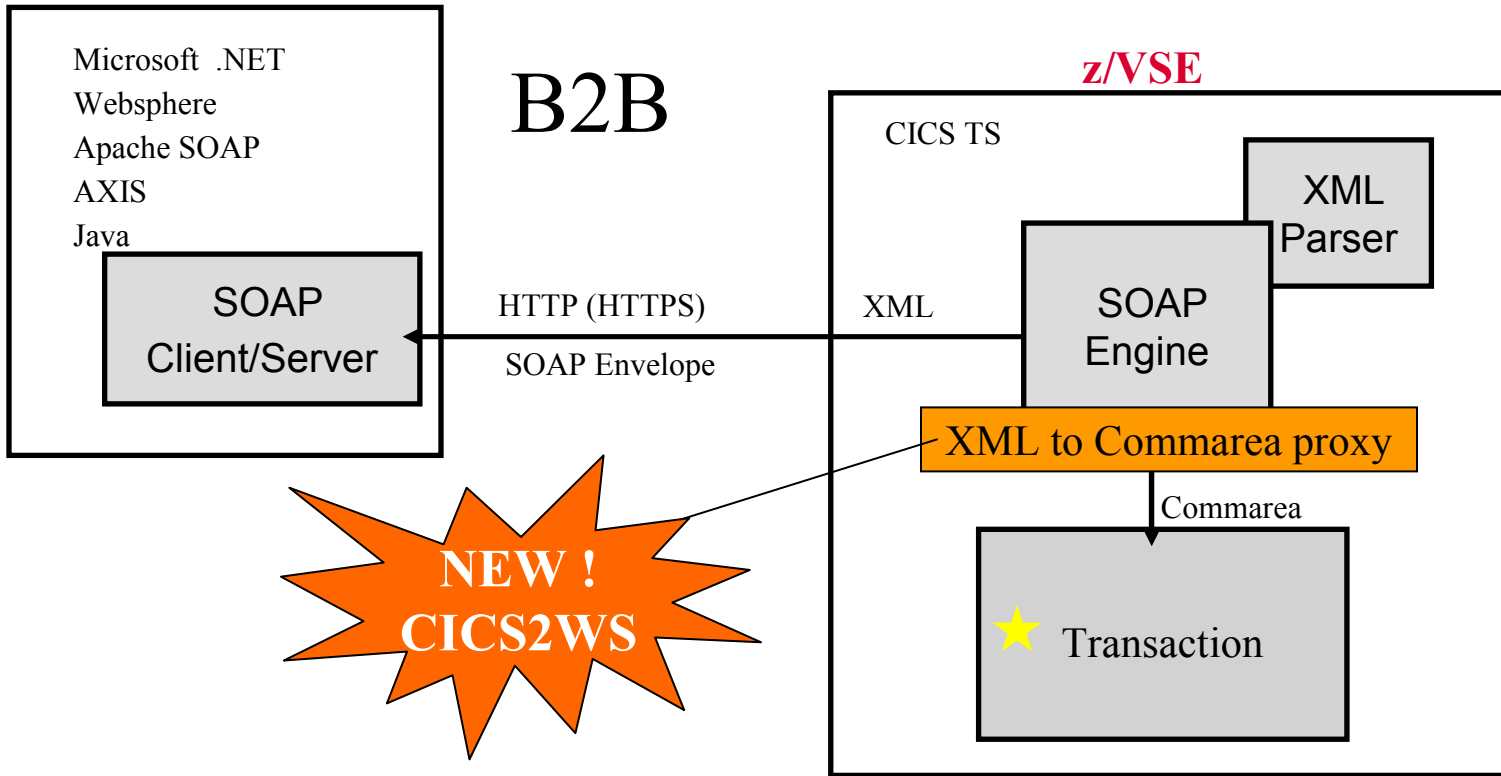


A web service

- ☞ implements a business, application or system functionality
- ☞ is intended for application communication
- ☞ is useable in internet, intranet, extranet
- ☞ is useable for browser-based solutions up to the B2B integration between companies
- ☞ uses only standard internet technologies

Web Services with z/VSE

XML data interchange with CICS transactions

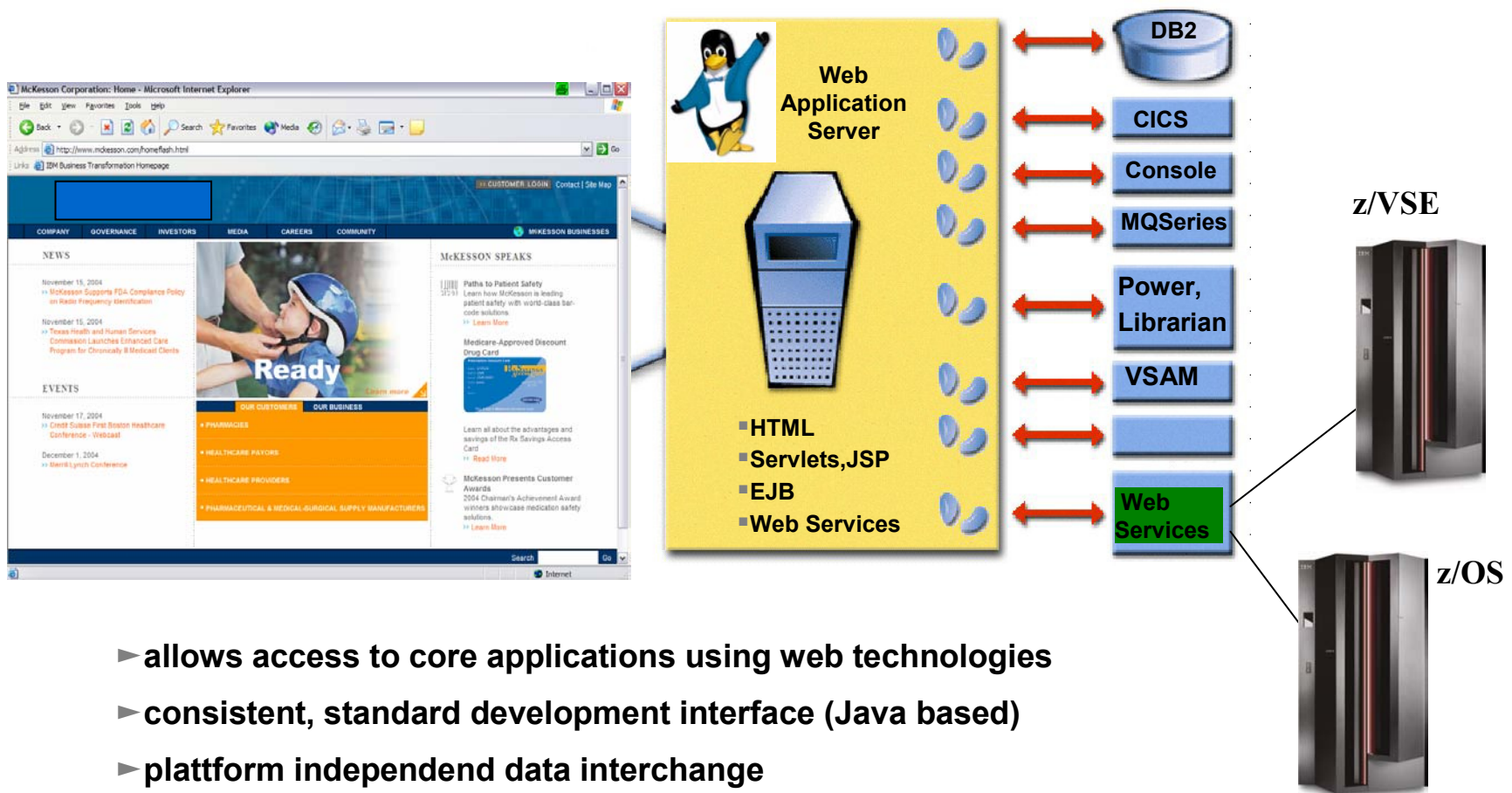


★ VSE Transactions as Web Service

Web Transactions with z/VSE using Web Services

(with the Websphere Software Plattform and VSE Connectors)

- VSE and XML, SOAP Web Services – France, Germany, US



- ▶ allows access to core applications using web technologies
- ▶ consistent, standard development interface (Java based)
- ▶ platform independent data interchange

Agenda: Optimization of operations

(1) Common data store with distributed data

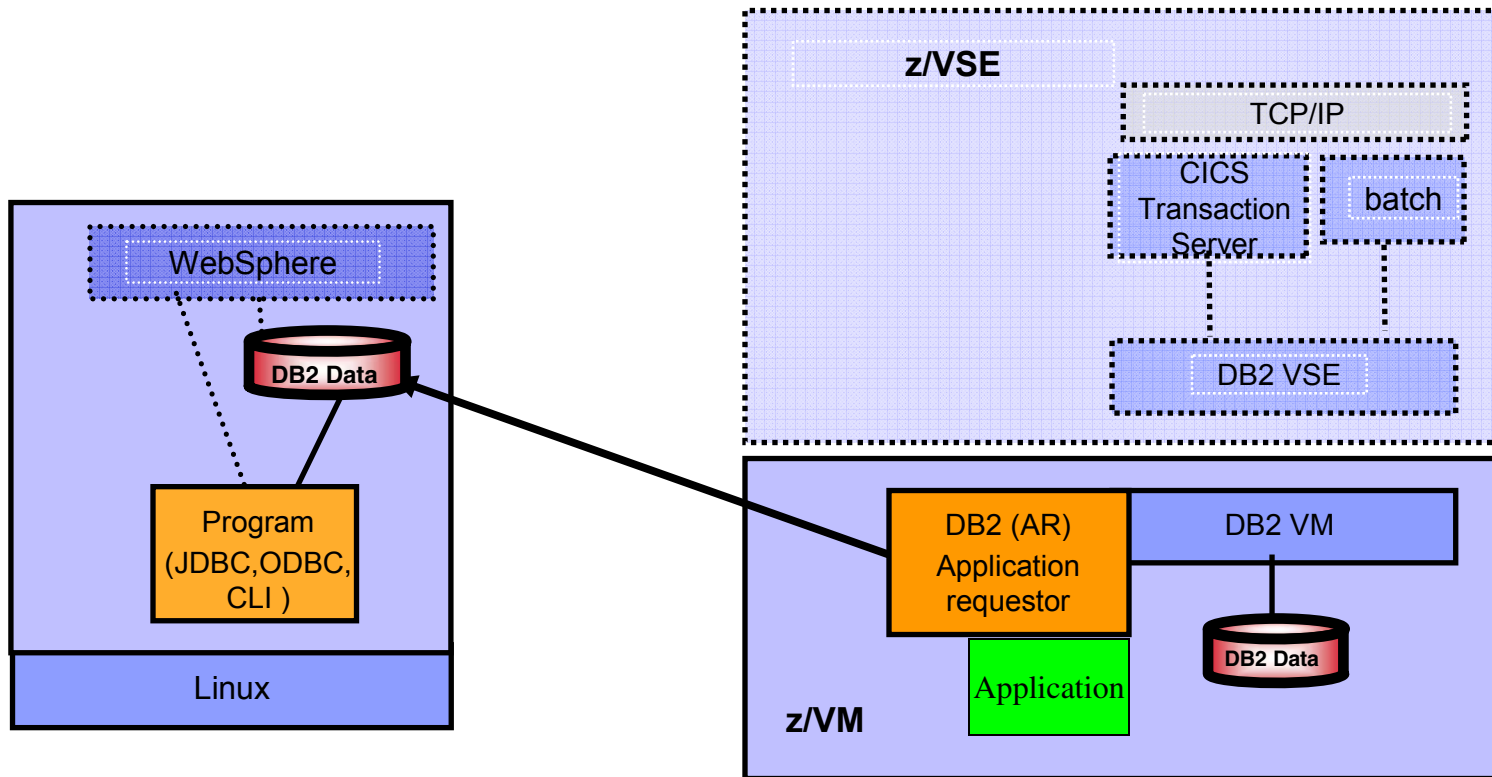
(2) Web transaction processing

(3) Application integration

(4) Service Oriented Architecture (SOA)

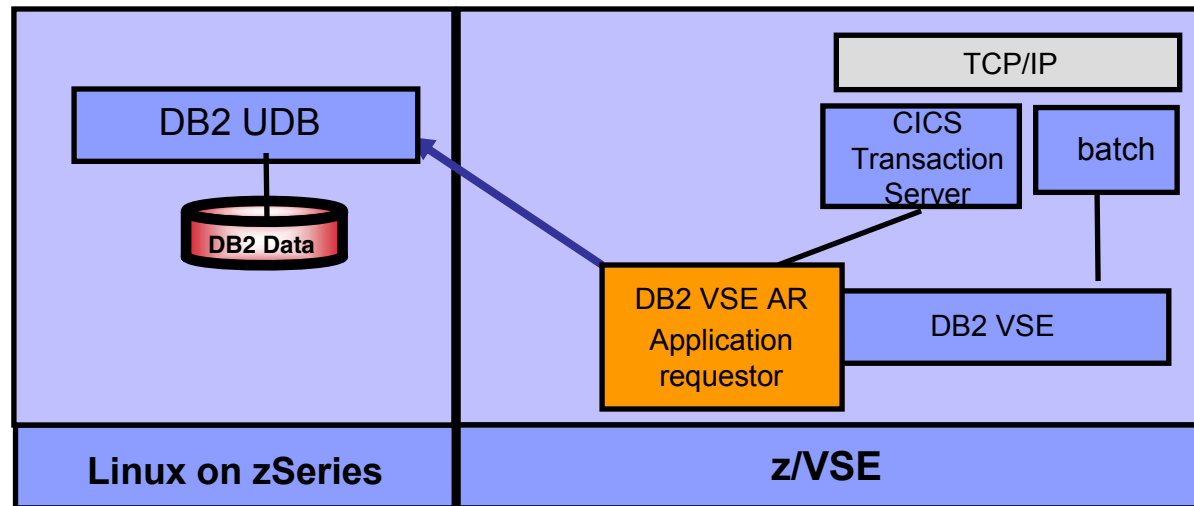
(5) DB2 VSE data on DB2 UDB Linux

DB2 VM applications to access, remote DB2 UDB on Linux



► VM application accesses DB2 UDB on Linux

DB2 VSE applications to access, remote DB2 UDB on Linux on zSeries - Special OFFERING



- ▶ Original Price Model: License for DB2 VM/VSE AND DB2 UDB for Linux
- ▶ PRPQ: P10154 (Ordering Nr: 5799-HAQ)
 - ▶ Reduced License for DB2 VSE Client only - if NO data on VSE
 - ▶ Full Price for DB2 UDB on Linux on zSeries
- ▶ Special Price for DB2 UDB for Linux on zSeries
- ▶ *Note:*
 - ▶ Both Products are needed because of the Programing interface and precompiler
 - ▶ On VSE the SQL language that can be used is the DB2 VSE SQL Language – because of precompiler

DB2 VSE and DB2 UDB on Linux on zSeries

Why use DB2 UDB on Linux on zSeries with VSE Core applications

- Modern environment in DB2 UDB on Linux on zSeries
- Existence of lots of tools for:
 - database management
 - Optimization and Tuning
 - Data analysis (Warehouse, Mining, OLAP)
- ASCII environment – easy integration with distributed DB2 UDBs
- Consolidation of DB2 UDB databases from distributed platforms
- **Note: DB2 CONNECT is not needed on Linux on zSeries**

DB2 VSE and DB2 UDB on Linux on zSeries

Why use DB2 UDB on Linux on zSeries with VSE Core applications

- VSE applications access to DB2 UDB on Linux via HiperSockets
 - reliable network – no wires
 - fast network (memory copy speed)
 - transparent

- Core applications on VSE (CICS and batch):
 - can be used unchanged with considerations of EBCDIC – ASCII code pages (i.e. sorts with low values)
 - can show performance degradations if mass single row processing is done – these applications might need adaptations

- **Note: DB2 CONNECT is not needed on Linux on zSeries**

Environment and Database design

Configuration for CICS applications and remote DB2 UDB database

■ VSE environment

- configure DB2 VSE database directory
 - configure ARISDIRD (IP, port, DBname of remote database)
- enable DRDA code (batch and online)
 - configure ARIS74LD (batch), ARIS745D (AR)
 - new transaction in CICS to bind packages (CBND) to remote AS (done during program preparation)

■ zLinux environment

- configure database manager on DB2 UDB zLinux
 - change some DBM parameters to allow implicit connect from within CICS
- configure VSE batch and ISQL options (create remote packages)
 - ARIISQL for ISQL and ARIDSQL for Batch

■ **Note: DB2 CONNECT is not needed on Linux on zSeries**

Environment and Database design

Configuration for CICS applications and remote DB2 UDB database

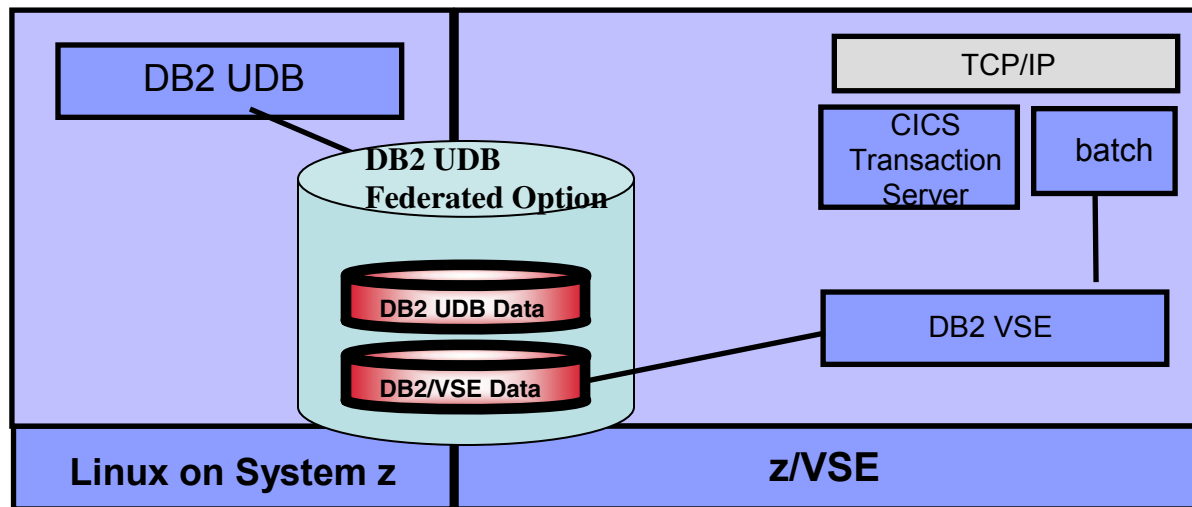
Application considerations:

- migrate tables from DB2 VSE to DB2 UDB zLinux
 - UDB export/import options
 - use of federated DB2 UDB options and a cursor application

- existing CICS/DB2 VSE applications
 - no changes to the source code required (except Code page issues)
 - the SQL precompile creates new packages on the remote DB2 UDB)

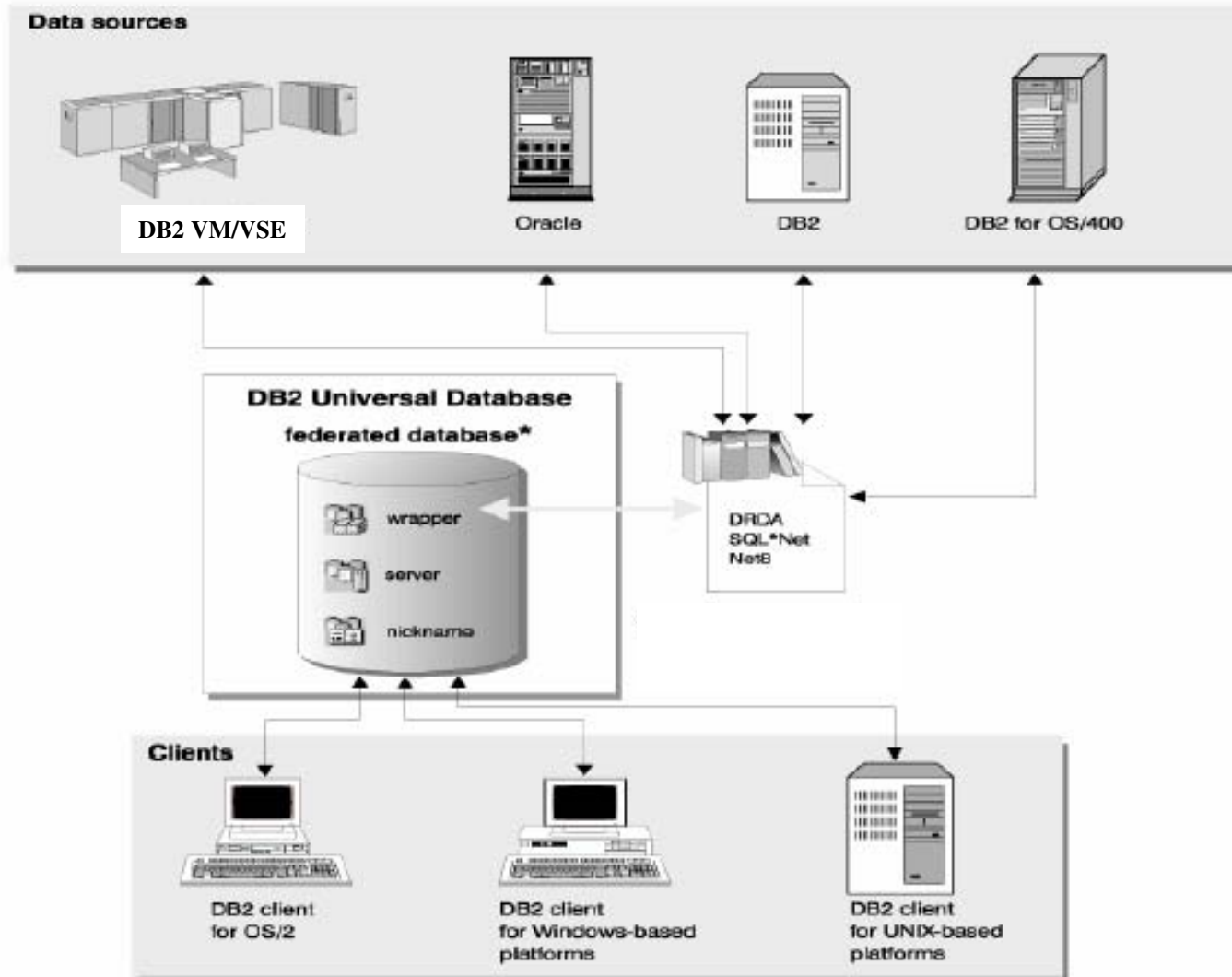
- existing VSE batch DB2 VSE applications
 - no changes to source code required
 - adapt CONNECT statements to access remote DB2 UDB

DB2 UDB on Linux on System z logical integrate DB2 VSE via Federated option in DB2 UDB



- ▶ Minimum changes – maximum combination
 - ▶ DB2 UDB for Linux on System z with Federated Option – includes DB2 VSE logically
 - ▶ DB2 UDB Applications have transparent access to DB2/VSE

Federated Database design



Summary

Solutions with DB2 UDB with Linux on zSeries enable modern possibilities with VSE:

- easy to configure environment
- easy migration from DB2 VSE to DB2 UDB zLinux
- in general, no source code change for existing VSE applications
- faster IBM development for DB2 UDB
- advanced SQL on DB2 UDB than DB2 VSE
- more option for DB2 UDB integration to other distributed environments and Development tools (Rational, WebSphere, ...)

More information about DB2 UDB and DB2/VSE

- **Summary of DB2 Planning and Customization Tasks (VSE)**
http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/iespie41/10.4.5
- **Enabling the DB2 Server for VSE**
http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/iespie41/10.4.4
- **Customizing Tasks for DB2 Server for VSE (DB2-Based Connector)**
http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/IESWUE41/HDRINDB2BC
- **DB2 - Resolve Frequent Problems**
<http://publib.boulder.ibm.com/infocenter/db2help/index.jsp?topic=/com.ibm.db2.udb.doc/conn/c0005607.htm>
- **DB2 Universal Database (UDB)**
<http://www.ibm.com/software/data/db2/udb/>
- **Moving Data from DB2/VSE&VM to DB2 UDB**
<http://www-306.ibm.com/software/data/db2/vse-vm/support.html>



z/VSE, the new web presence

The screenshot shows the IBM z/VSE website interface. At the top, there is an IBM logo, a search bar, and navigation links for 'Country/region [select]' and 'Terms of use'. Below this is a main navigation bar with 'Home', 'Products', 'Services & solutions', 'Support & downloads', and 'My account'. A breadcrumb trail indicates the current location: 'Servers > Mainframe servers > Operating systems > z/VSE'. On the left, a vertical menu lists various sections, with 'Solutions' circled in red. The main content area features a large 'z/VSE' heading and a paragraph describing the product's capabilities. To the right, there are several sidebars: 'We're here to help' with a 'E-mail us' link, 'Mark your calendar' for the 'Guide Share Europe' event, 'Spotlights' for IBM eServer zSeries, and 'Middleware' for WebSphere software. A central banner announces 'z/VSE V3.1' with a '40 YEARS' logo. Below this, a section titled 'Redesigned z/VSE homepage' explains the website's updates. Another section, 'z/VSE Version3 Release 1', lists supported hardware and software configurations.

Country/region [select] | Terms of use

IBM

Home | Products | Services & solutions | Support & downloads | My account

Servers > Mainframe servers > Operating systems >

z/VSE

About VSE

How to buy

News

Events

Solutions

Products & components

Documentation

Service & support

Downloads

Education

Partners

FAQ

Contact VSE

Related links

- Linux on zSeries
- z/OS
- z/VM
- IBM Storage
- IBM Printing Systems

z/VSE

z/VSE is designed to help provide robust, cost-effective solutions for customers with a wide range of capacity needs, in most industries, worldwide. z/VSE is built on a heritage of ongoing refinement and innovation that spans four decades. It brings the value of innovative IBM eServer zSeries and IBM TotalStorage technology to VSE clients.

Learn more

- [About VSE](#)
- [News](#)
- [History of VSE](#)

We're here to help

Easy ways to get the answers you need.

E-mail us

Mark your calendar

Guide Share Europe
April 18-20, 2005
Berlin, Germany

Register

VSE/VM-Linux
Splash
WAVV-World Alliance

WAVV conference
May 20-24, 2005
Colorado Springs, Colorado, USA

Catch the WAVV

Spotlights

- IBM eServer zSeries
- Infrastructure simplification
- VSE Recommended Service Level

Middleware

- WebSphere software
- Information management software

Announcing z/VSE V3.1

Built on a heritage of ongoing refinement and innovation that spans four decades

Redesigned z/VSE homepage

You may have already noticed that the z/VSE home page has changed. We've redesigned this entire web site and included additional information. The objective is to provide you with a more useful business tool, as well as to offer you a more enjoyable experience. We encourage you to use, or to simply explore, the enhanced z/VSE web site. If you have questions, suggestions, or comments, please contact the [VSE team](#).

z/VSE Version3 Release 1

[z/VSE Version 3 Release 1](#) (z/VSE V3.1) is designed to support:

- [IBM @server zSeries 890 and 990](#) (31-bit mode only)
- SCSI disks attached to zSeries FCP channels
- [OSA-Express2](#) and [FICON Express2](#) adapters
- [Crypto Express2](#) and CP Assist for Cryptographic Function (CPACF)
- IBM TotalStorage [3494 Virtual Tape Server](#)
- improved support for [IBM 3494 Tape Library](#)
- IBM TotalStorage [DS8000 and DS6000](#) series Storage Servers
- enhanced Advanced Copy support

z/VSE is designed to enable network integration and infrastructure simplification, as well as protect and leverage customer investments in VSE

<http://www.ibm.com/servers/eserver/zseries/zvse/>

Additional Information

- z/VSE/ESA Home Page
<http://www.ibm.com/servers/eserver/zseries/zvse/>
- z/VSE solutions
<http://www-1.ibm.com/servers/eserver/zseries/zvse/solutions>
- e-business Connectors User's Guide SC33-6719
<http://www-1.ibm.com/servers/eserver/zseries/zvse/documentation/#conn>



- e-business Solutions for VSE/ESA SG24-5662
- e-business Connectivity for VSE/ESA SG24-5950
- CICS Transaction Server for VSE/ESA
CICS Web Support *SG24-5997-00*
- WebSphere V5 for Linux on zSeries Connectivity Handbook SG24-7042



We appreciate your comments at : zvse@de.ibm.com