VSE Trends and Directions

Session E50
*z/VM, **VSE**, and Linux Technical Conference:*
October 7-10, 2002
Miami Beach, FL

G. M. (Jerry) Johnston
Senior Advisor
IBM Böblingen Laboratory
p798000@us.ibm.com

RETURN TO INDEX

Trademarks

IBM @server

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

CICS*
DB2*
DB2 Connect
DB2 Universal Database
DFSMS/MVS*
DFSMS/VM*
e-business logo*
Enterprise Storage Server
ESCON
FICON
GDDM
HiperSockets
IBM*
IBM logo
Language Environment*
MQSeries*
Multiprise*
MVS
NetRexx
OpenEdition*
OpenExtensions
OS/390*
Parallel Sysplex*
PR/SM
QMF
RACF*
RAMAC*
RISC
S/370
S/370
S/390*
S/390 Parallel Enterprise Server
Virtual Image Facility
VisualAge*
VisualGen*
VM/ESA*
VTAM*
VSE/ESA
WebSphere
z/Architecture
z/OS
zSeries
z/VM

* Registered trademarks of the IBM Corporation

The following are trademarks or registered trademarks of other companies.

Lotus, Notes, and Domino are trademarks or registered trademarks of Lotus Development Corporation.
Tivoli is a trademark of Tivoli Systems Inc.
LINUX is a registered trademark of Linus Torvalds.
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.
Penguin (Tux) compliments of Larry Ewing

Notes:

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.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

IBM considers a product “Year 2000 ready” if the product, when used in accordance with its associated documentation, is capable of correctly processing, providing and/or receiving date data within and between the 20th and 21st centuries, provided that all products (for example, hardware, software and firmware) used with the product properly exchange accurate date data with it. Any statements concerning the Year 2000 readiness of any IBM products contained in this presentation are Year 2000 Readiness Disclosures, subject to the Year 2000 Information and Readiness Disclosure Act of 1998.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Greetings from VSE Development

IBM @server

VSE Trends and Directions

IBM @server

Summary

VSE Update

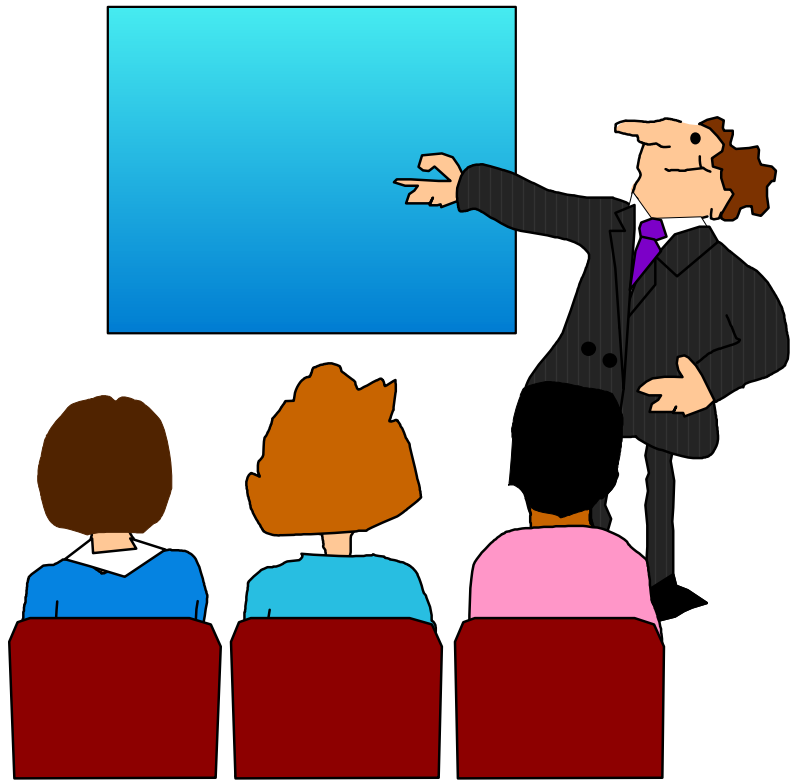
- V2.6
- V2.7 Preview
- Status

e-business Roadmap

Customer Choices

VSE Directions

Conclusion



Making the Most of VSE in Modern IT Solutions

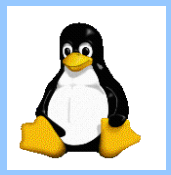
IBM @server

1. Leverage Your Core VSE Investments
   - protect existing programs, data, equipment, IT skills, business processes, end user training, etc.
   - extend VSE applications to the Web as appropriate
2. Exploit Linux on zSeries for New Growth Opportunities
   - create 'hybrid', or 3-tier, solutions that integrate new applications with your core VSE programs and data
     - 'traditional' line-of-business
     - world-class e-business
   - utilize zSeries Total Cost of Ownership advantages
     - add infrastructure applications
     - consolidation of servers

A Vision for Modern VSE Solutions

IBM @server

Web



Linux on zSeries
(IFL engines)

VSE/ESA V2.6+
(Standard engines)

FIREWALL

Connectors

CICS Transaction Gateway ECI
DB2 Connect / DB2 UDB DRDA
MQSeries
VSE e-business connectors

z/VM V4.2+
(IFL and Standard engines)

Multiprise 3000, S/390 G5/G6, zSeries 800 and 900

Clients

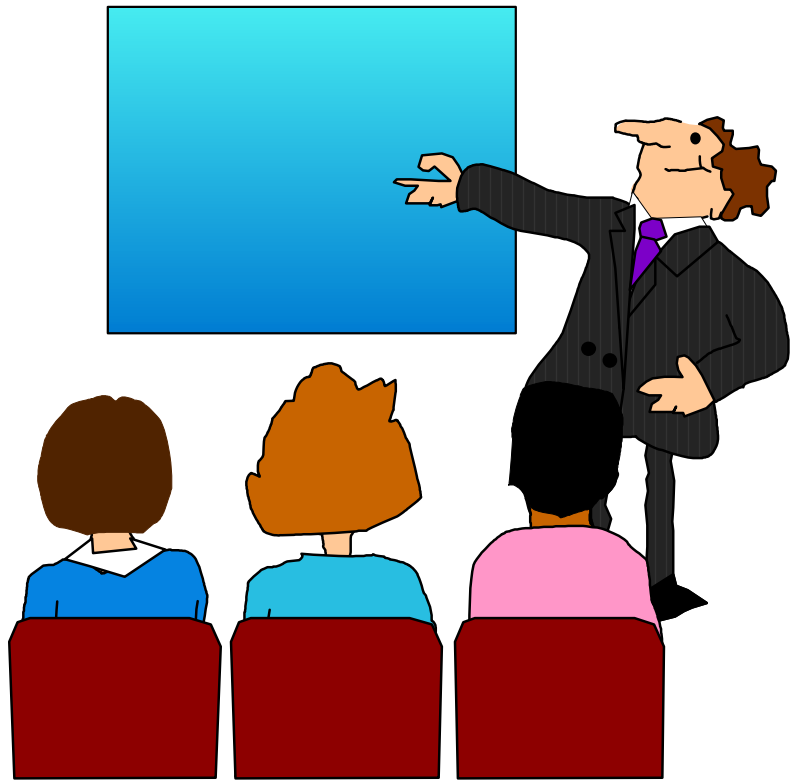
Business Services

Tran/Data Services

VSE Trends and Directions

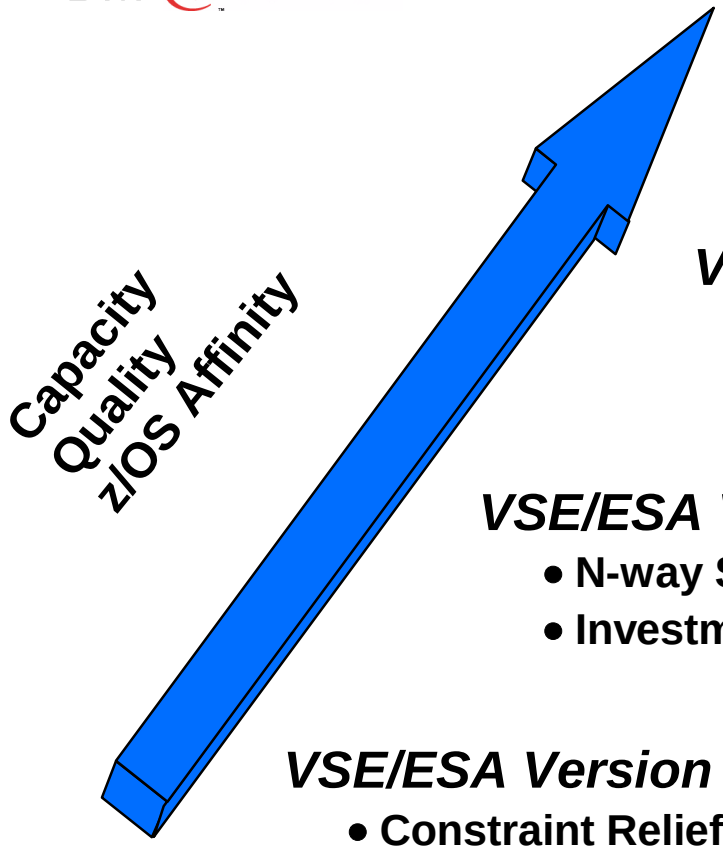
IBM @server

- Summary
- VSE Update
  - V2.6
  - V2.7 Preview
  - Status
- e-business Roadmap
- Customer Choices
- VSE Directions
- Conclusion



Responding to Customer Needs

IBM @server



VSE/ESA V2.6 Dec 2001

- **Enhanced Interoperability**

VSE/ESA V2.4 1999

- **CICS Transaction Server for VSE/ESA**
- ***e-business***

VSE/ESA Version 2 1994

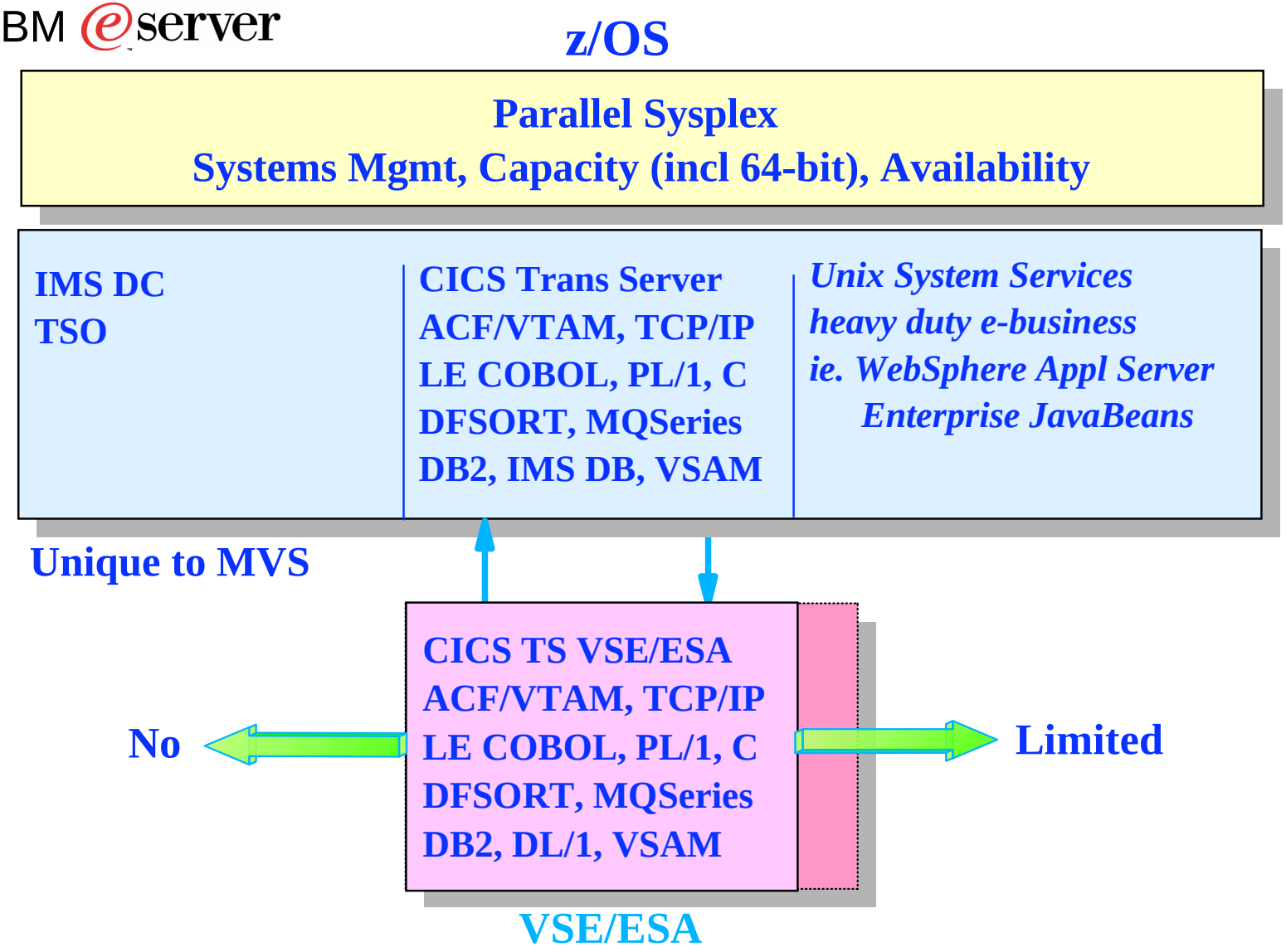
- **N-way S/390 Servers**
- **Investment Protection - Year 2000**

VSE/ESA Version 1 1990

- **Constraint Relief**
- **ESA exploitation**

z/OS Affinity

IBM @server



VSE/ESA Version 2 Release 6 - GA 12/2001

IBM @server

Secure Sockets Layer (SSL) added to TCP/IP for VSE/ESA

- native implementation
- including DES, triple DES, authentication using digital certificates
- secure connections to CICS using CWS

Currency of Existing Connectors (VSE as enterprise server)

- update to J2EE (JDK1.2/1.3 - known as 'JAVA2') standard

New Connectors (VSE as client)

- VSE/VSAM redirector
- Virtual Tape

TCP/IP support for CICS External Call Interface (ECI)

- used by CICS Transaction Gateway connector
- VSE <=> Linux

Hardware

- OSA Express (Gigabit ethernet, token ring)
- FICON
- VSAM support for large 3390-9 DASD

VSE/ESA e-business connectors (V2.5 and later)

IBM @server

VSE Connector (BSD sockets based)

- connectivity via TCP/IP
- implemented as long running server partition on VSE
- Java beans on Web Application Server
- access to VSAM, POWER, Librarian, ICCF, VSE console

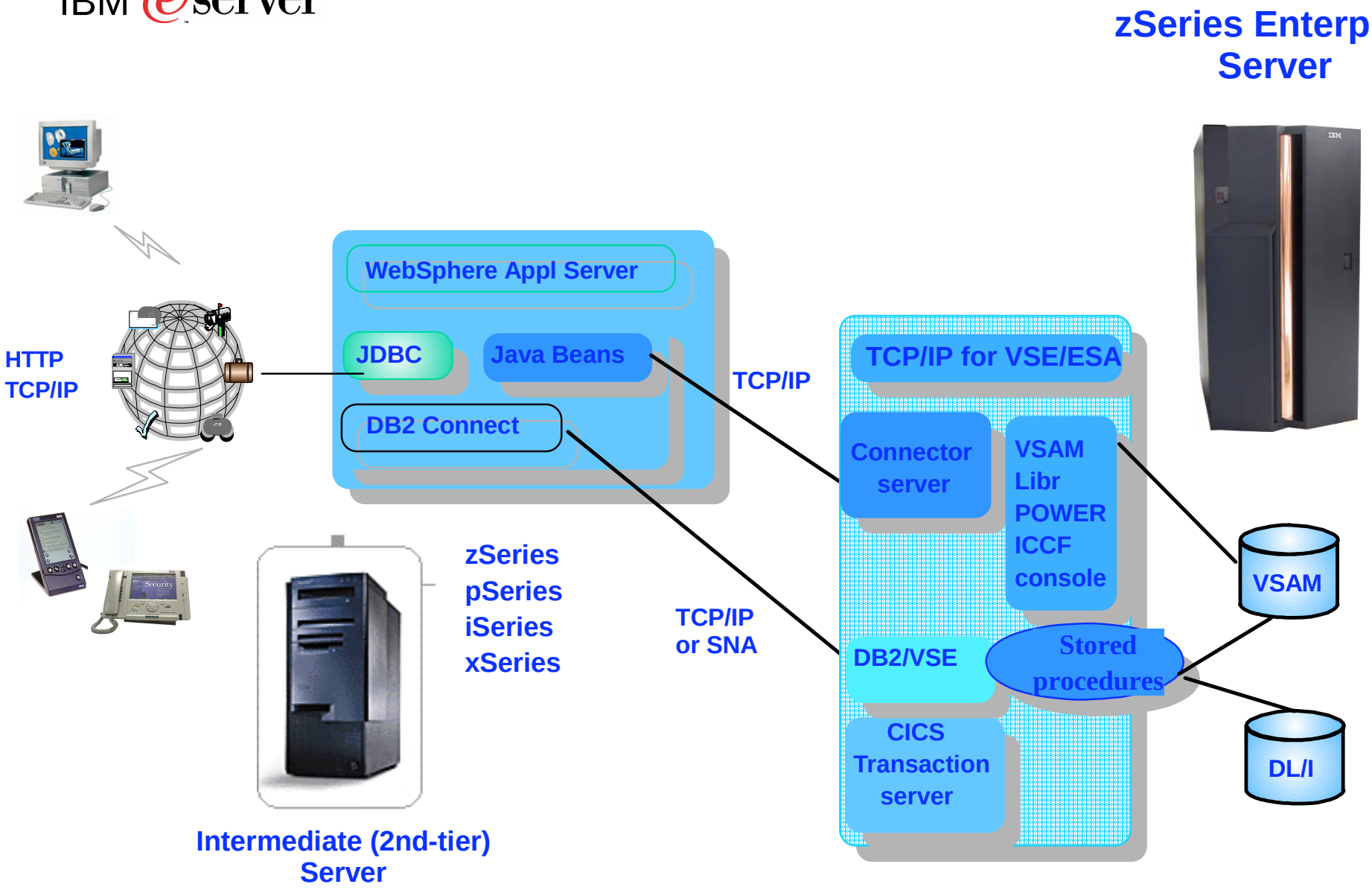
DB2-based Connector (uses DRDA)

- connectivity via TCP/IP or SNA
- implemented as DB2 stored procedures on VSE
- standard JDBC/ODBC calls on Web Application Server
  - using DB2 Connect or DB2 UDB
- access to VSAM and DL/I (and DB2 or course)

Complementary to existing IBM and ISV connectors

VSE e-business connectors

IBM @server



VSE/VSAM Redirector (*new* in V2.6)

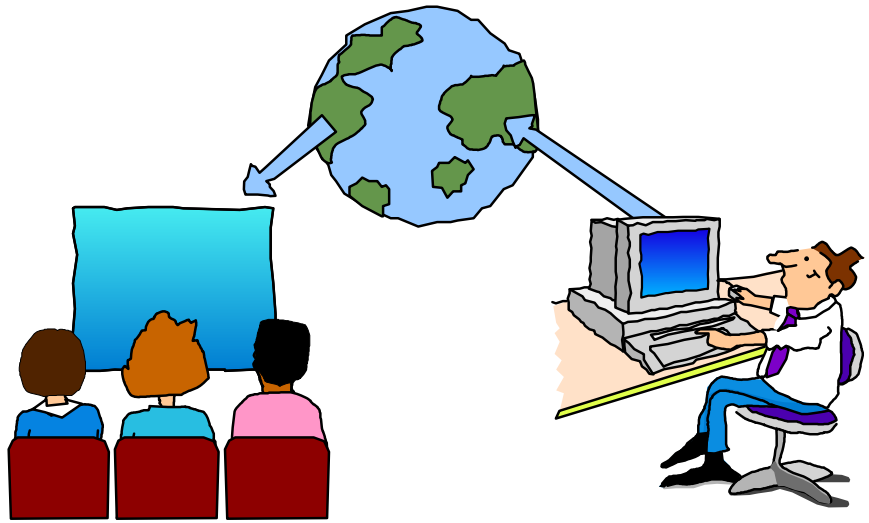
IBM @server

VSAM Redirector Client (runs on VSE)

- based on generic VSAM exit
- transparent (no changes) to VSE application
- intercepts VSAM request and routes to Redirector Server

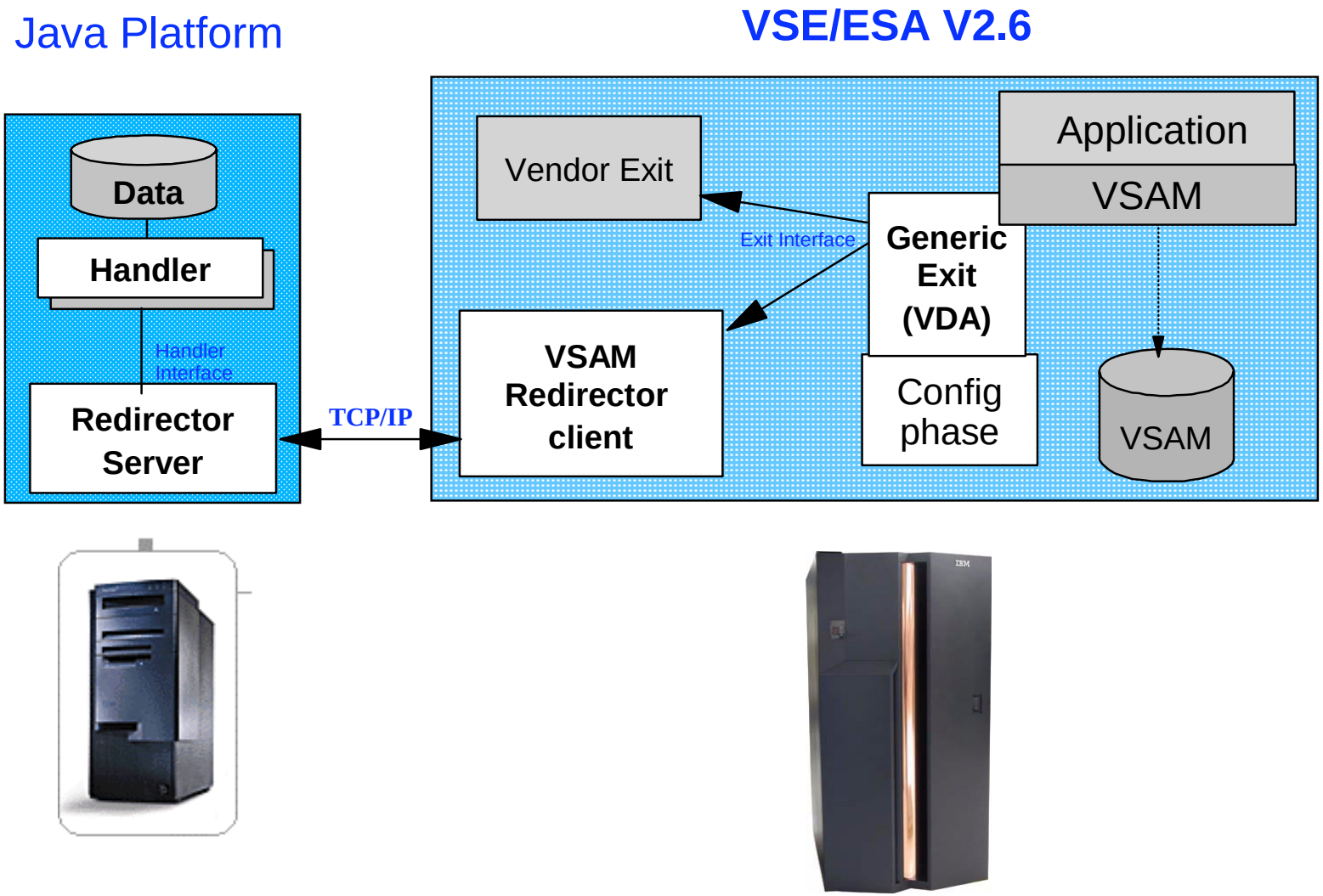
VSAM Redirector Server (runs on any Java Platform)

- implemented in Java
- fields request from VSE client
- calls file-specific handler
- returns result to VSE



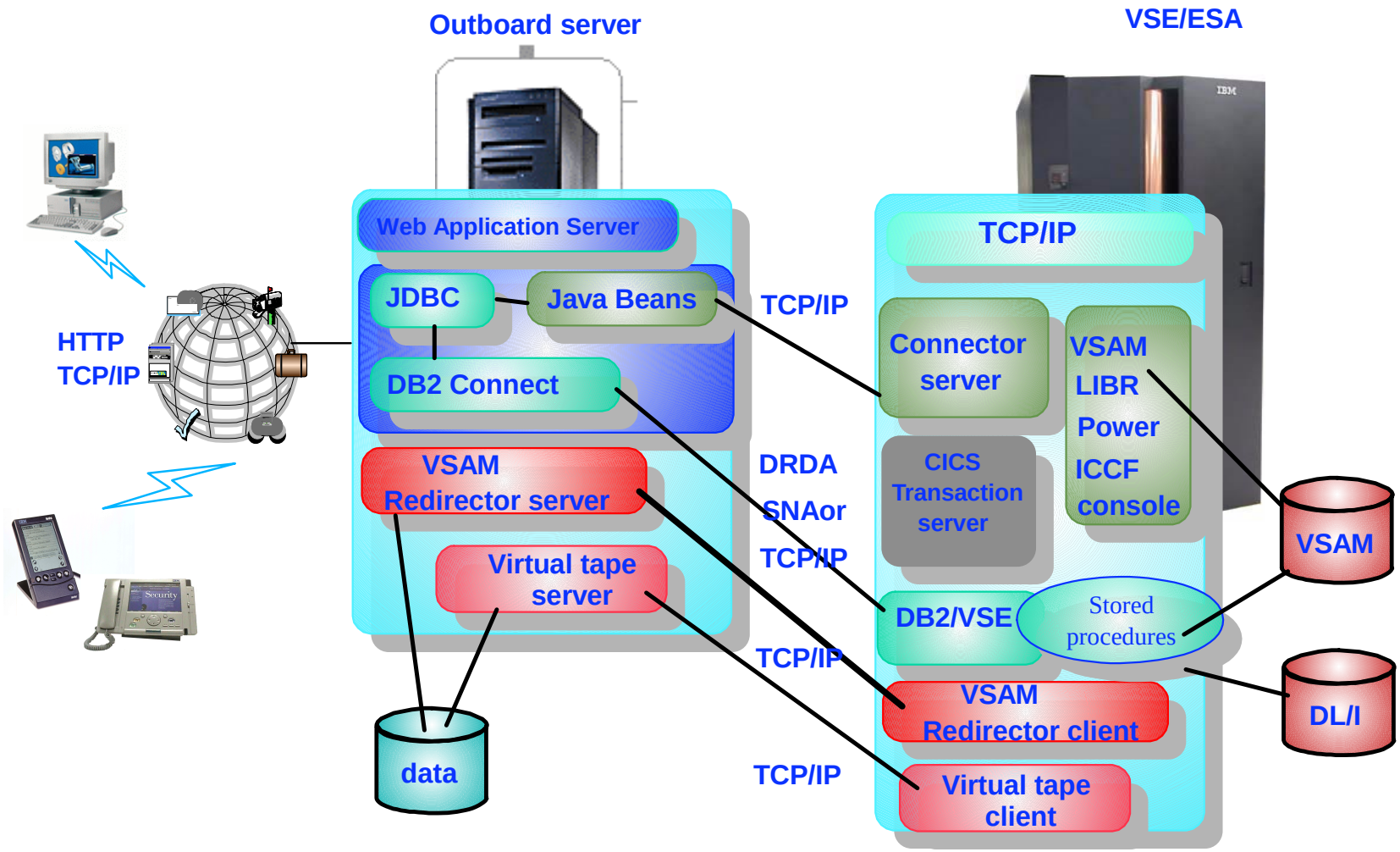
VSE/VSAM Redirector

IBM @server



VSE Connector Overview

IBM @server



VSE/ESA Version 2 Release 7 Preview

IBM @server

Hardware

- HiperSockets (for *very fast* memory-to-memory communication)
  - VSE interoperability with Linux on zSeries
- PCICA hardware encryption assist
  - enhances SSL
- Support for
  - zSeries 900 and zSeries 800 (in 31-bit mode)
  - S/390 G5 and G6
  - S/390 Multiprise 3000
  - equivalent

VSE/ESA Version 2 Hdwr/Sfwr Support

IBM @server

VSE/ESA Version 2 Release 3

- End of Support was effective 12/2001

VSE/ESA Version 2 Release 4

- End of Support was effective 06/2002

VSE/ESA Version 2 Release 5 - Letter 902-160, dtd 8/6/2002

- End of Support planned 12/2003

ES/9021 and 9121 - Letter 602-015, dtd 6/18/2002

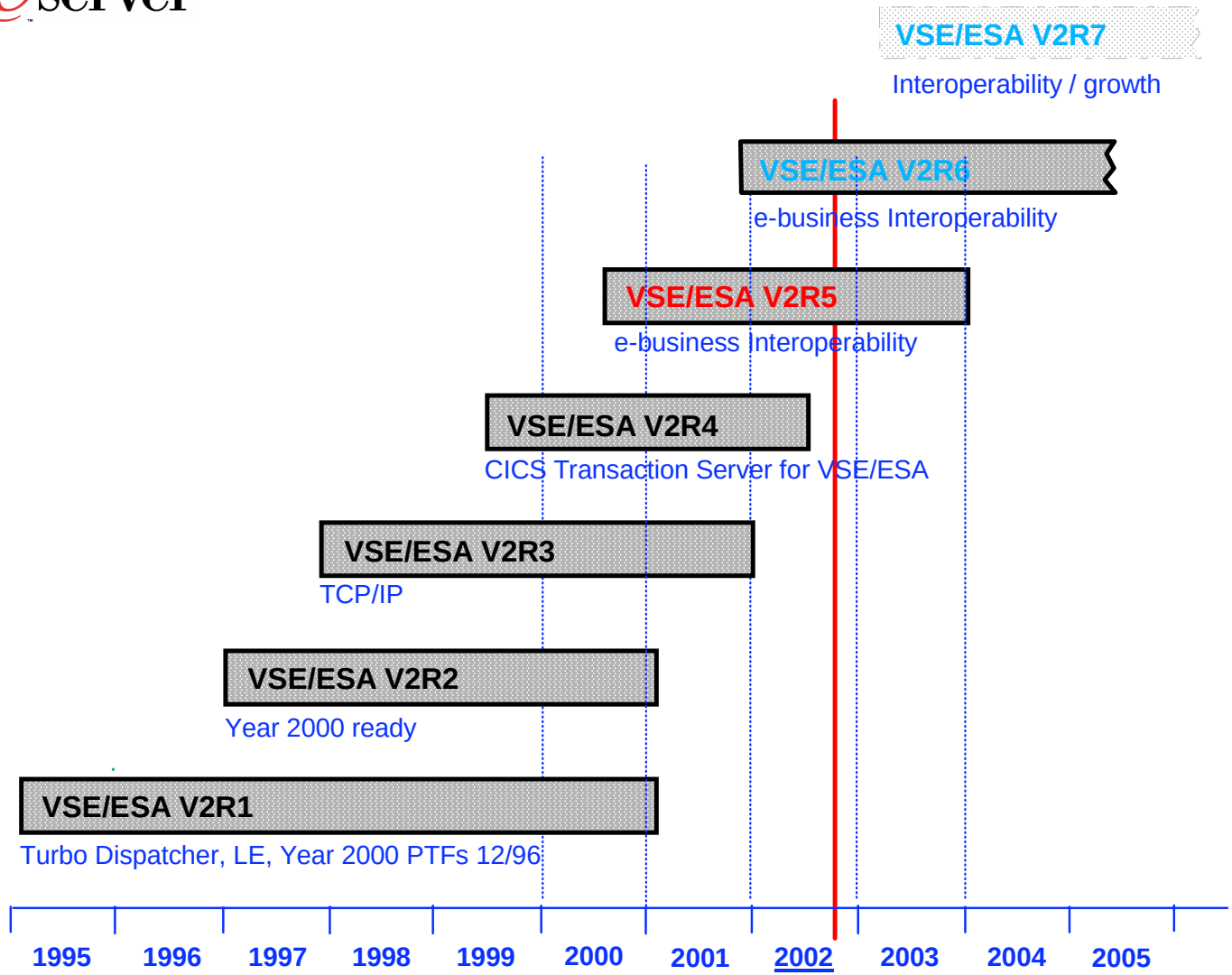
- End of Support planned 06/2003

ES/9221 and IBM 9672-Rx1 ('CMOS G1')- Letter 602-015

- End of Support planned 12/2003

VSE/ESA Version 2 Status Summary

IBM @server



VSE Trends and Directions

IBM @server

Summary

VSE Update

e-business Roadmap

- applications
- hybrid model

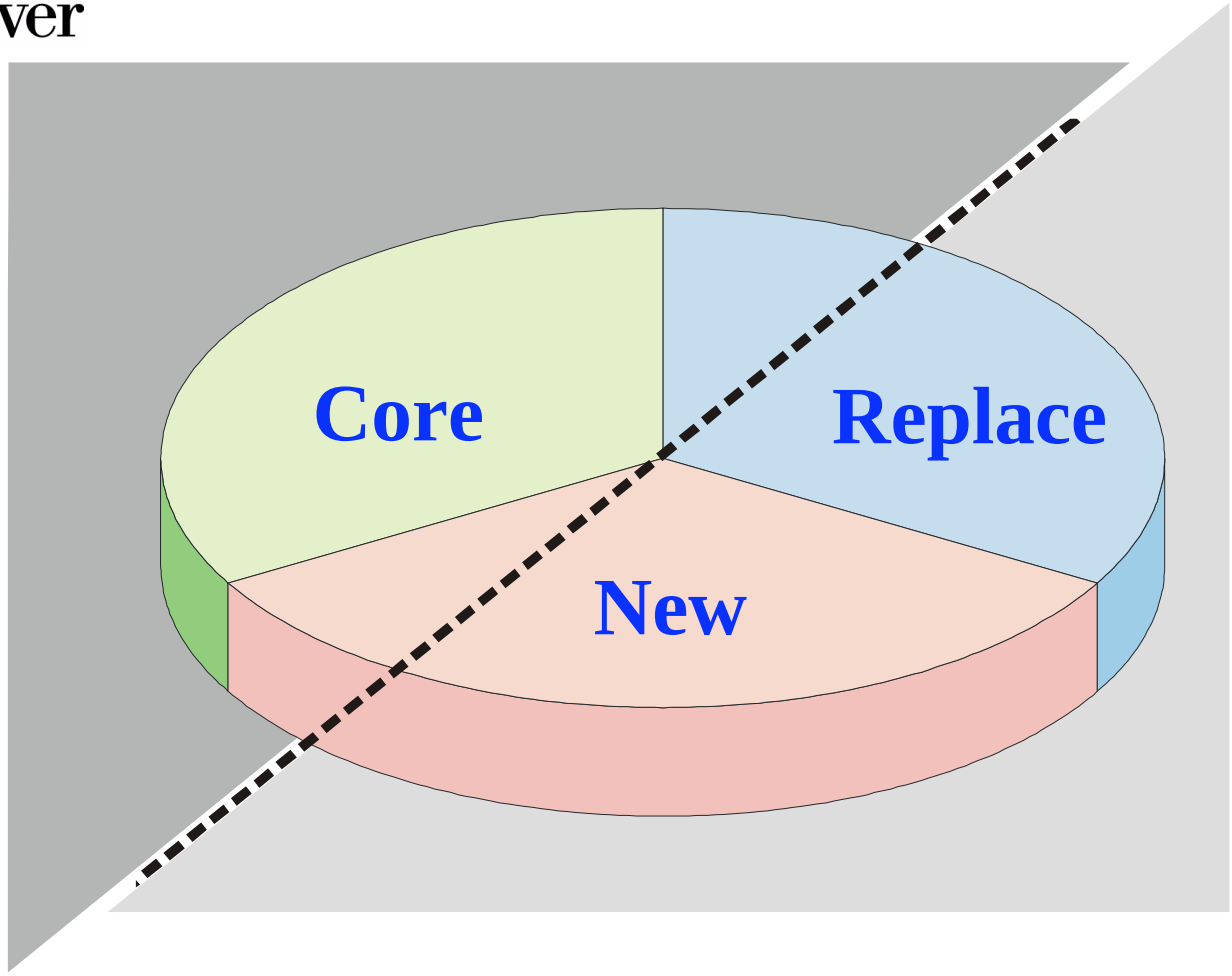
Customer Choices

VSE Directions

Conclusion

Application Portfolio

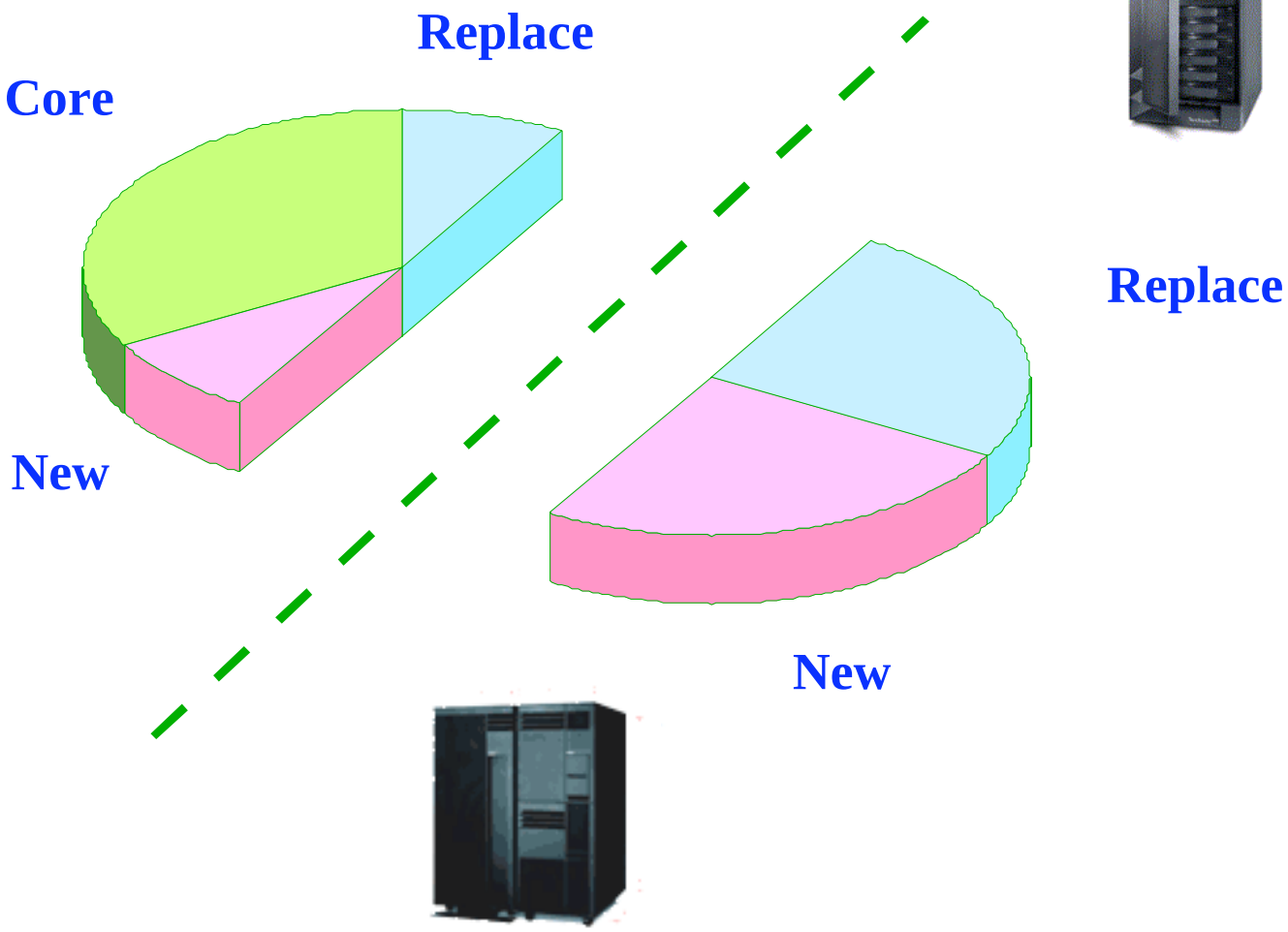
IBM @server



Note: Pie arbitrarily divided into thirds. Percent of applications in each category varies widely among individual customers

Hybrid Environment

IBM @server



'Typical' Customer Environment

IBM @server

It's a hybrid world

- average 3.5 unique platforms incl Windows and Unix dialects
- no single hardware/software platform is always best

Core VSE applications

- mostly alive, doing well, and growing

Replacement applications

- platform driven by application selection
- often customers have growing core applications *and* replacement

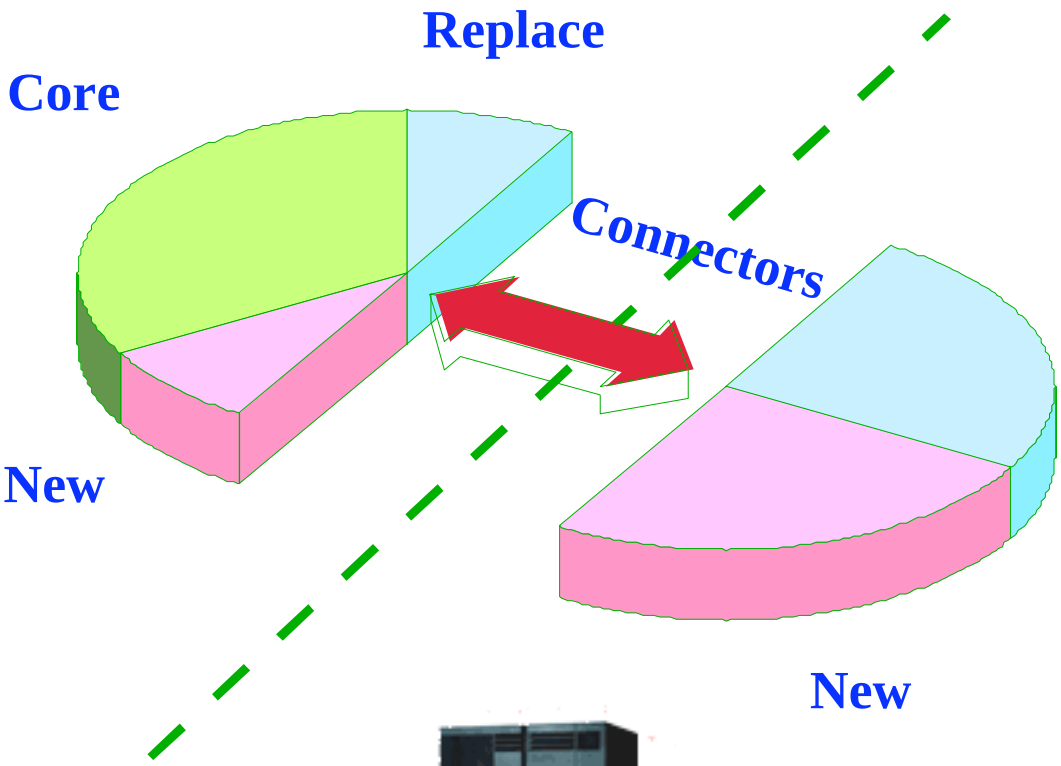
New infrastructure and e-business applications

- other platforms (not VSE) are often a better choice

Customers need an e-business model that's flexible and extendable, while protecting existing core investments

Integrating Hybrid Environments

IBM @server

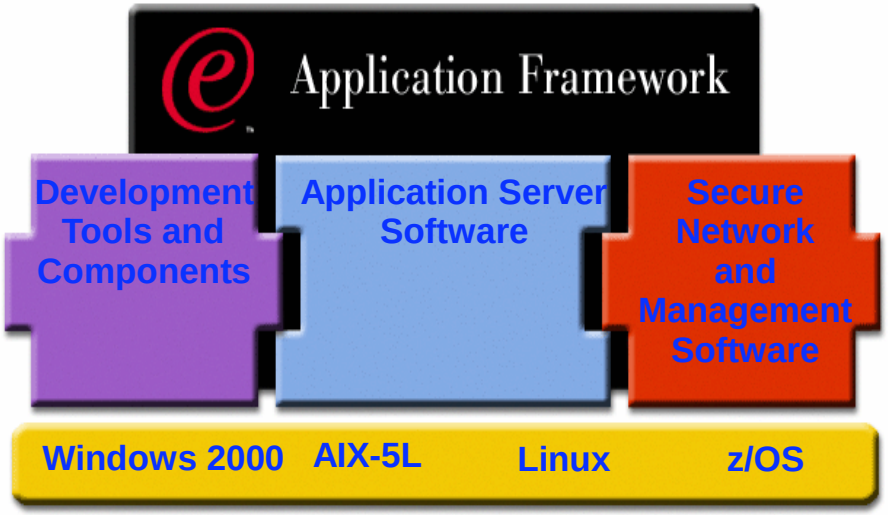


How?

IBM @server

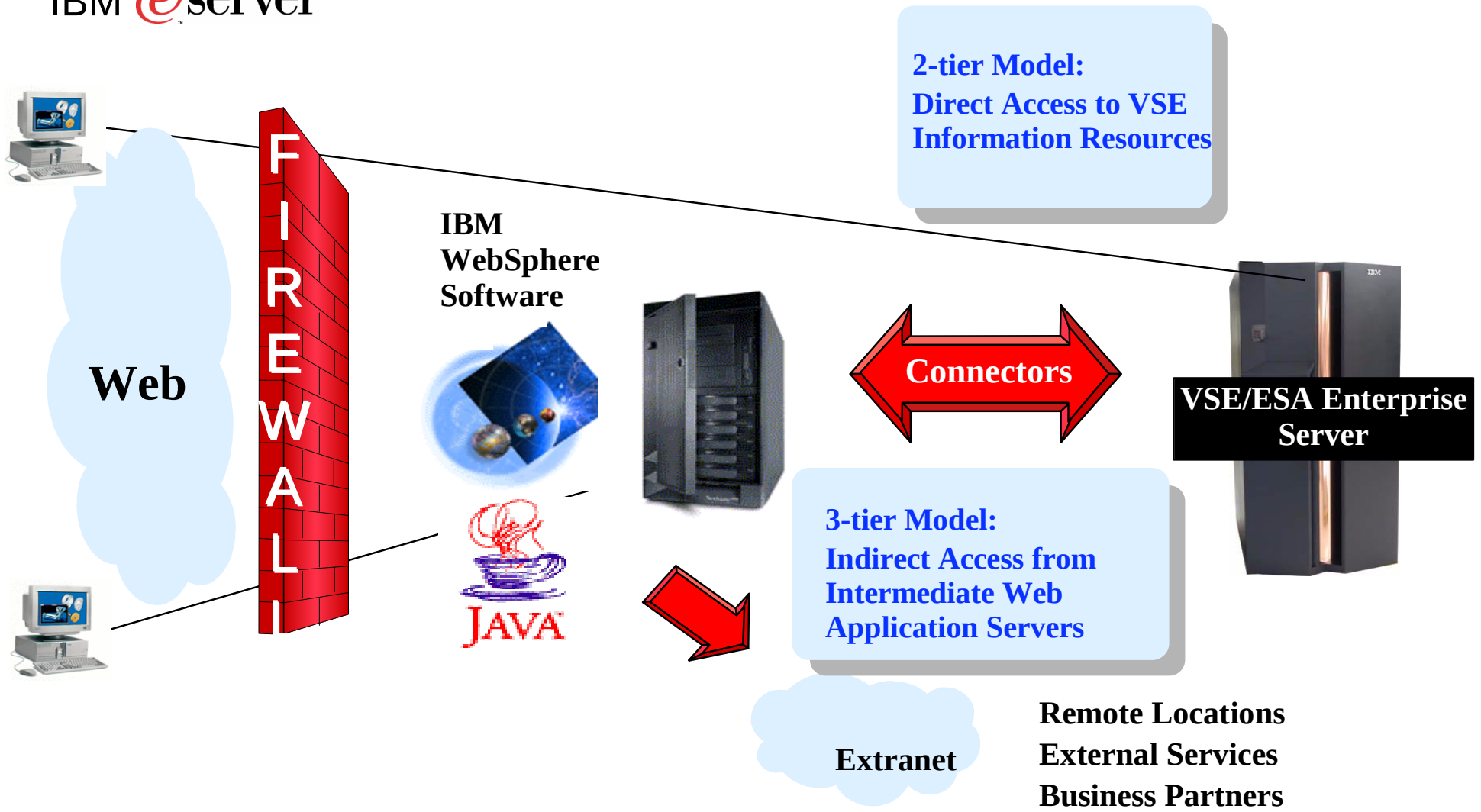
the IBM Application Framework for e-business

- provides a *comprehensive*, robust e-business model
- based on a set of open industry *standards*
- offers *leadership* products
- supports *key platforms*
- helps *protect core investments*



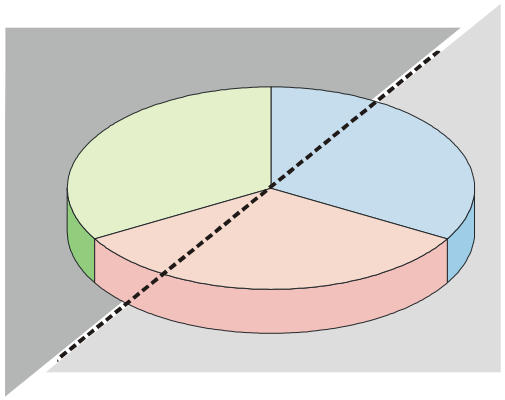
2-tier & 3-tier models

IBM @server



Preferred Application Models

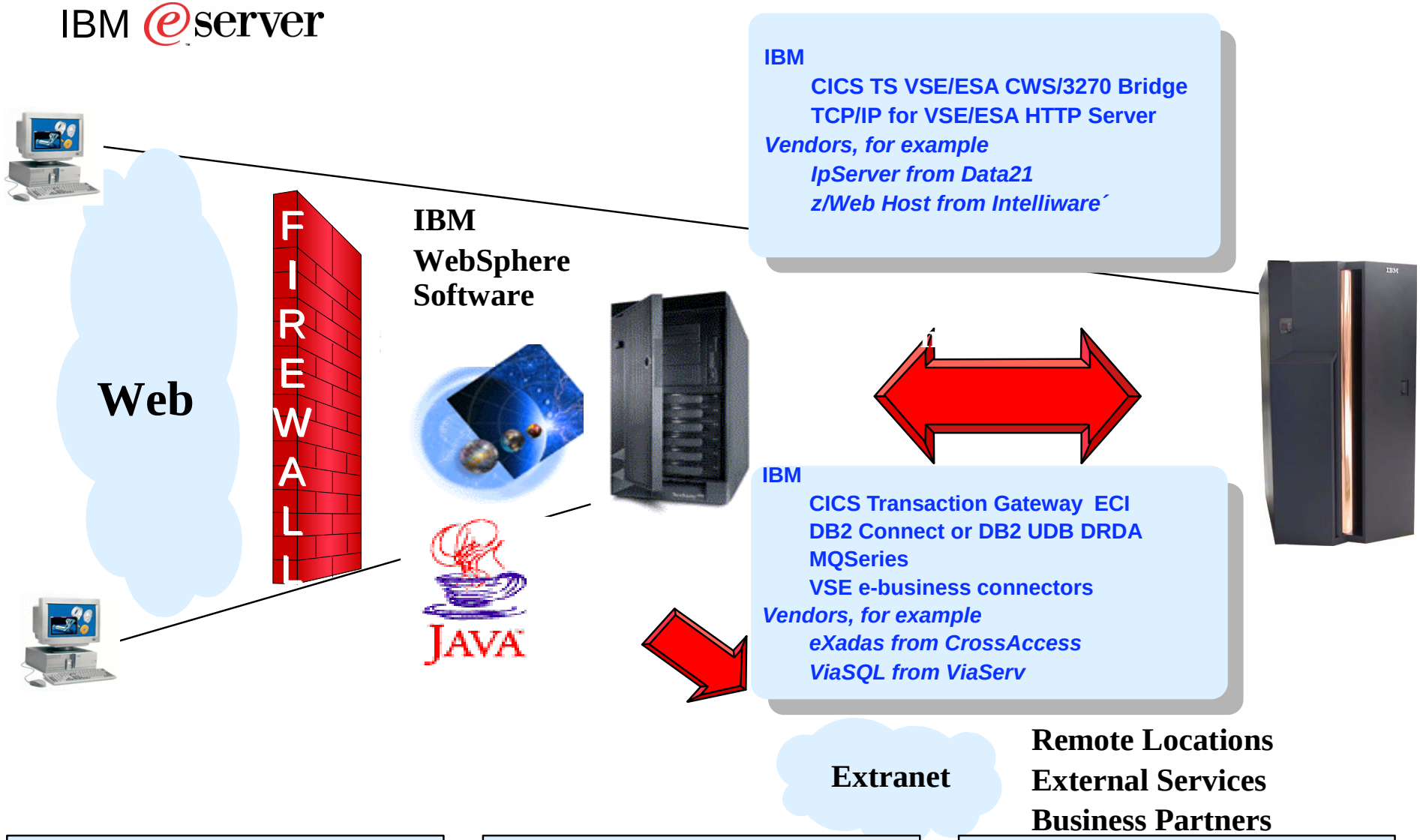
IBM @server



	2-tier	3-tier (logical)
Core	**Primary**	
Replacement	*Secondary*	**Primary**
New	*Secondary*	**Primary**

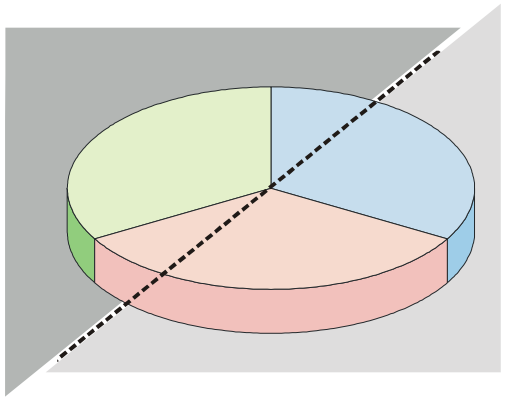
Middleware

IBM @server



Basic Enabling Technology

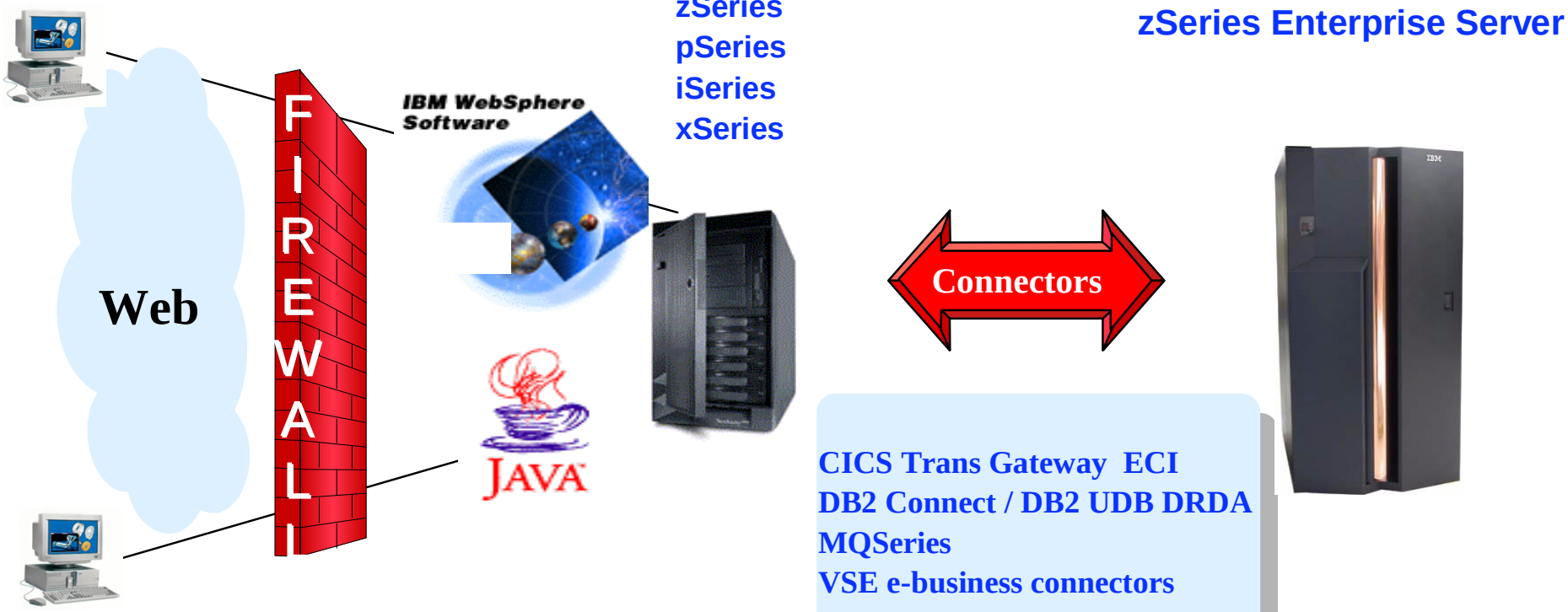
IBM @server



	2-tier	3-tier (logical)
Core	**CICS TS VSE/ESA**	
Replacement	*CICS TS VSE/ESA*	**WebSphere A S**
New	*CICS TS VSE/ESA*	**WebSphere A S**

Generic Hybrid (3-tier) Model

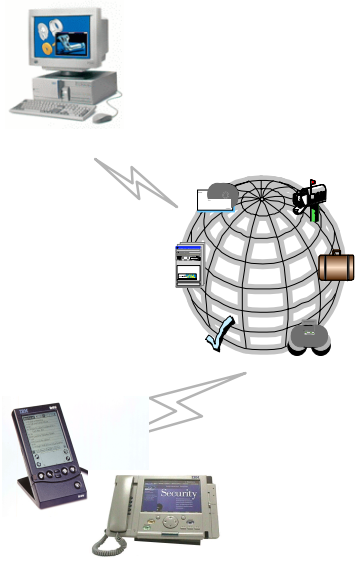
IBM @server



Client	Business Services	Tran/Data Services

Middleware for Hybrid (3-tier) Environment

IBM @server



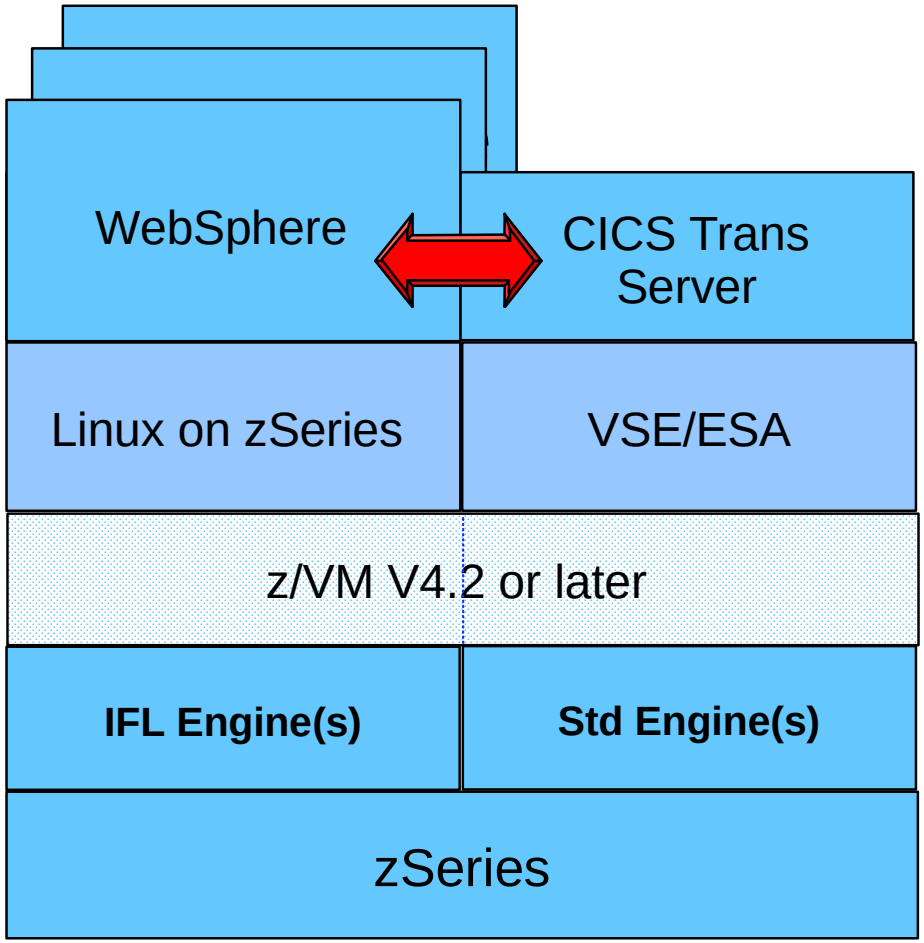
WebSphere AppServer
Apache or HTTP server
JDK1.2/1.3
CICS Trans Gateway
DB2 Connect
MQSeries Clients
VSE Connector Clients

VSE/ESA V2.6/2.7
TCP/IP for VSE/ESA

CICS TS for VSE/ESA
DB2 Server V7
MQSeries
VSE Connector Server

Preferred Hybrid Solution

IBM @server



ESS (Shark)

zSeries

Alternate 1: Linux (not zSeries) Solution

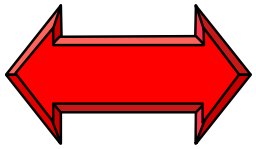
IBM @server

pSeries (RS/6000)

WebSphere

Linux or AIX/Linux

pSeries / xSeries



CICS Trans Server

VSE/ESA (+z/VM)

zSeries

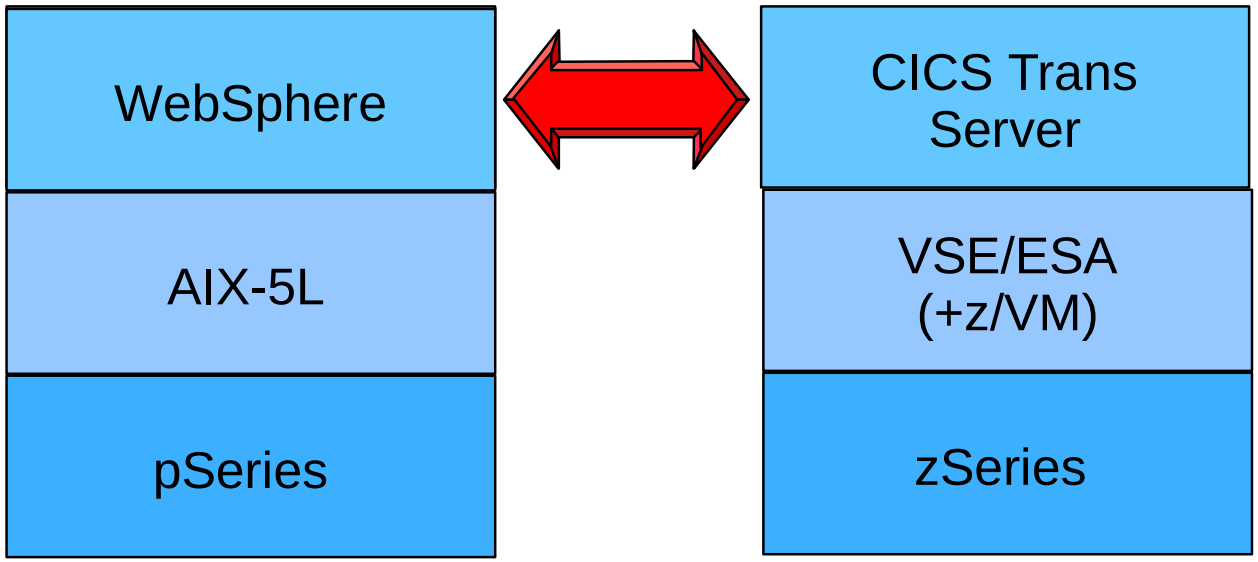
xSeries (Netfinity)

ESS (Shark)

zSeries (S/390)

Alternate 2: AIX-5L Solution

IBM @server



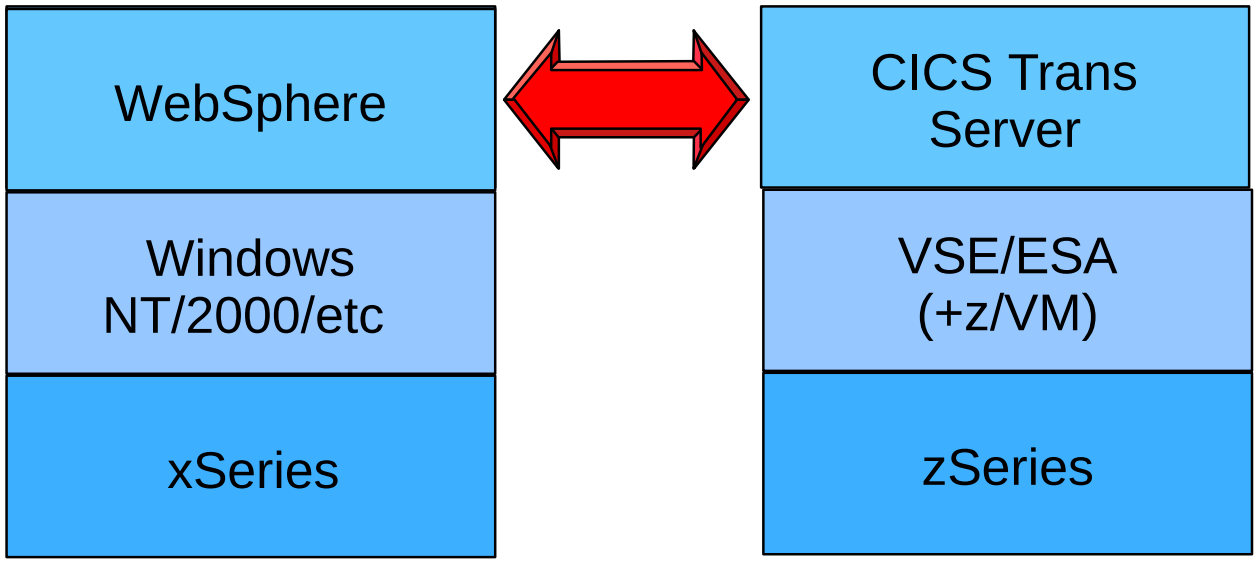
pSeries

Shark

zSeries

Alternate 3: Windows Solution

IBM @server



xSeries

Shark

zSeries

VSE Trends and Directions

IBM @server

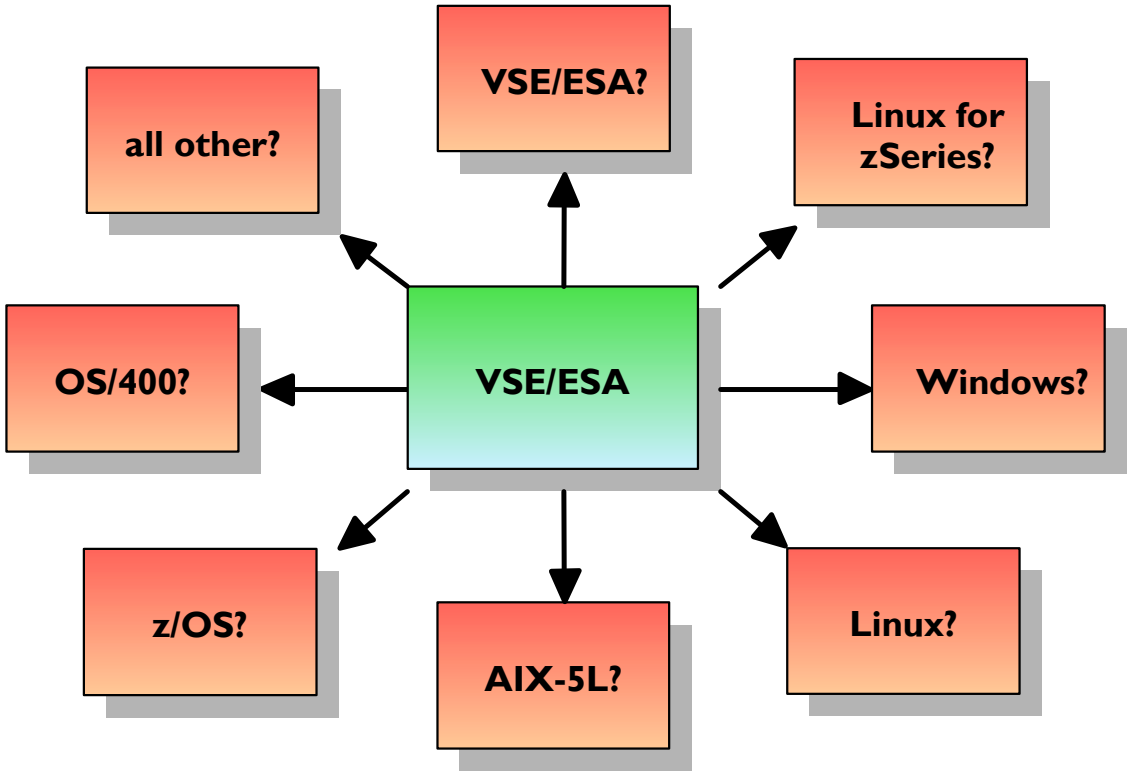
Summary
VSE Update
e-business Roadmap
Customer Choices
VSE Directions
Conclusion

What to do?

IBM @server

zSeries?

xSeries?

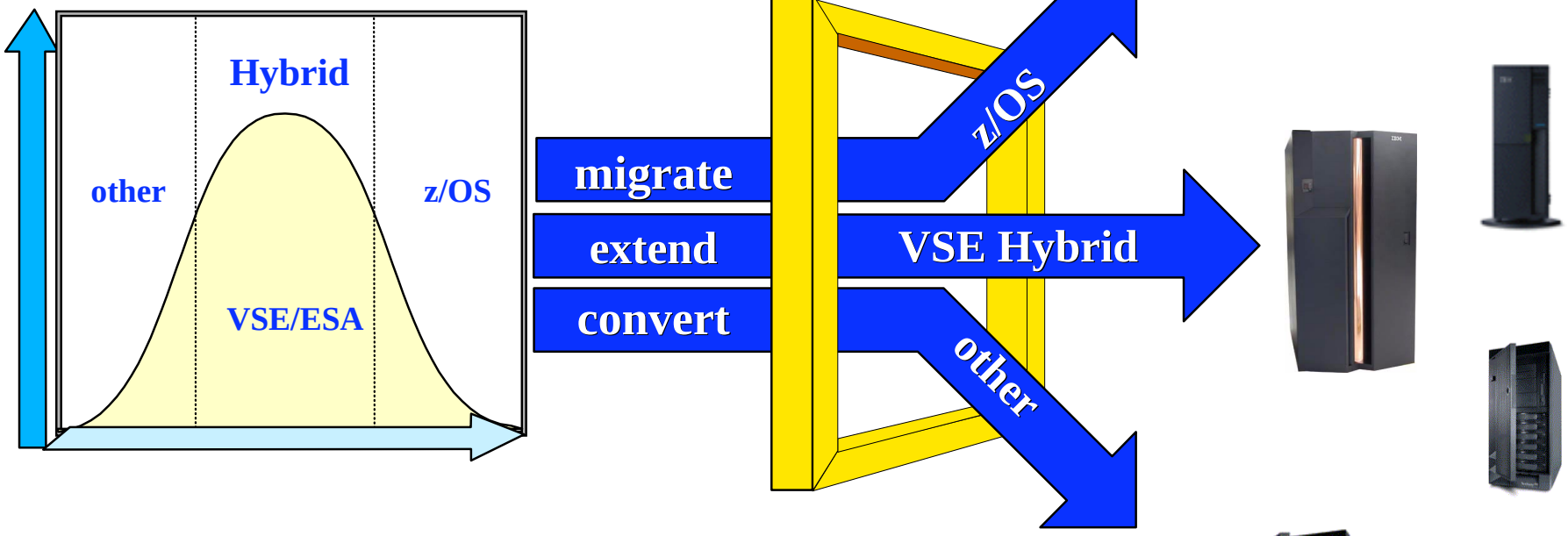


iSeries?

pSeries?

Customer Options

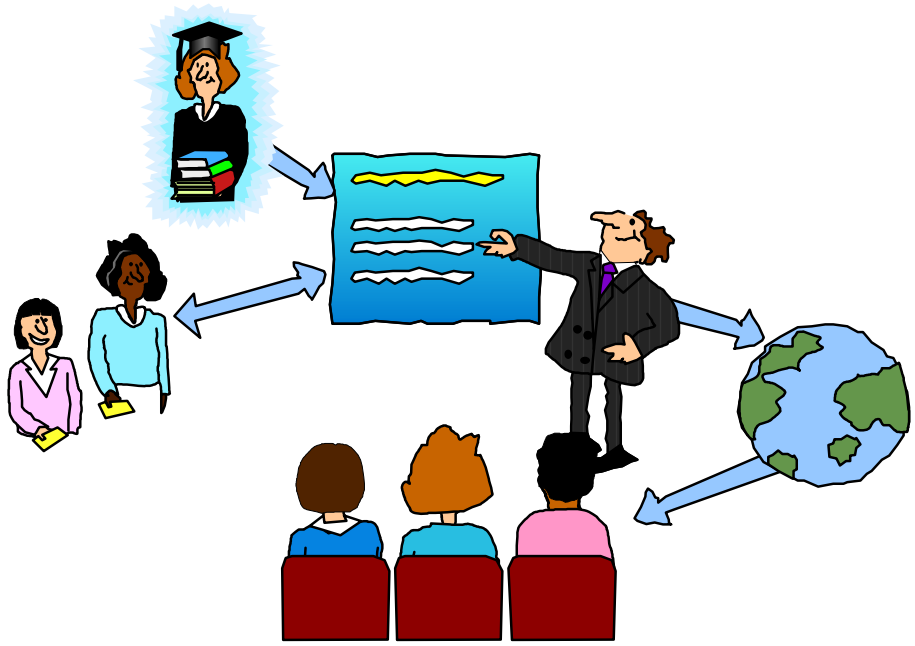
IBM @server



VSE Trends and Directions

IBM @server

Summary
VSE Update
e-business Roadmap
Customer Choices
VSE Directions
Conclusion



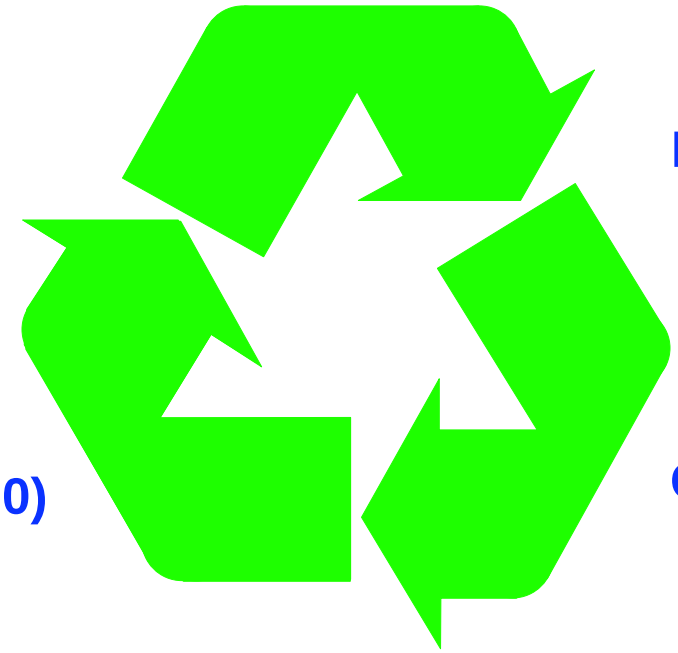
Recycle Traditional Strategies?

IBM @server

VSE Good Enough (80:20)

Must Migrate to z/OS

Must Migrate to z/OS



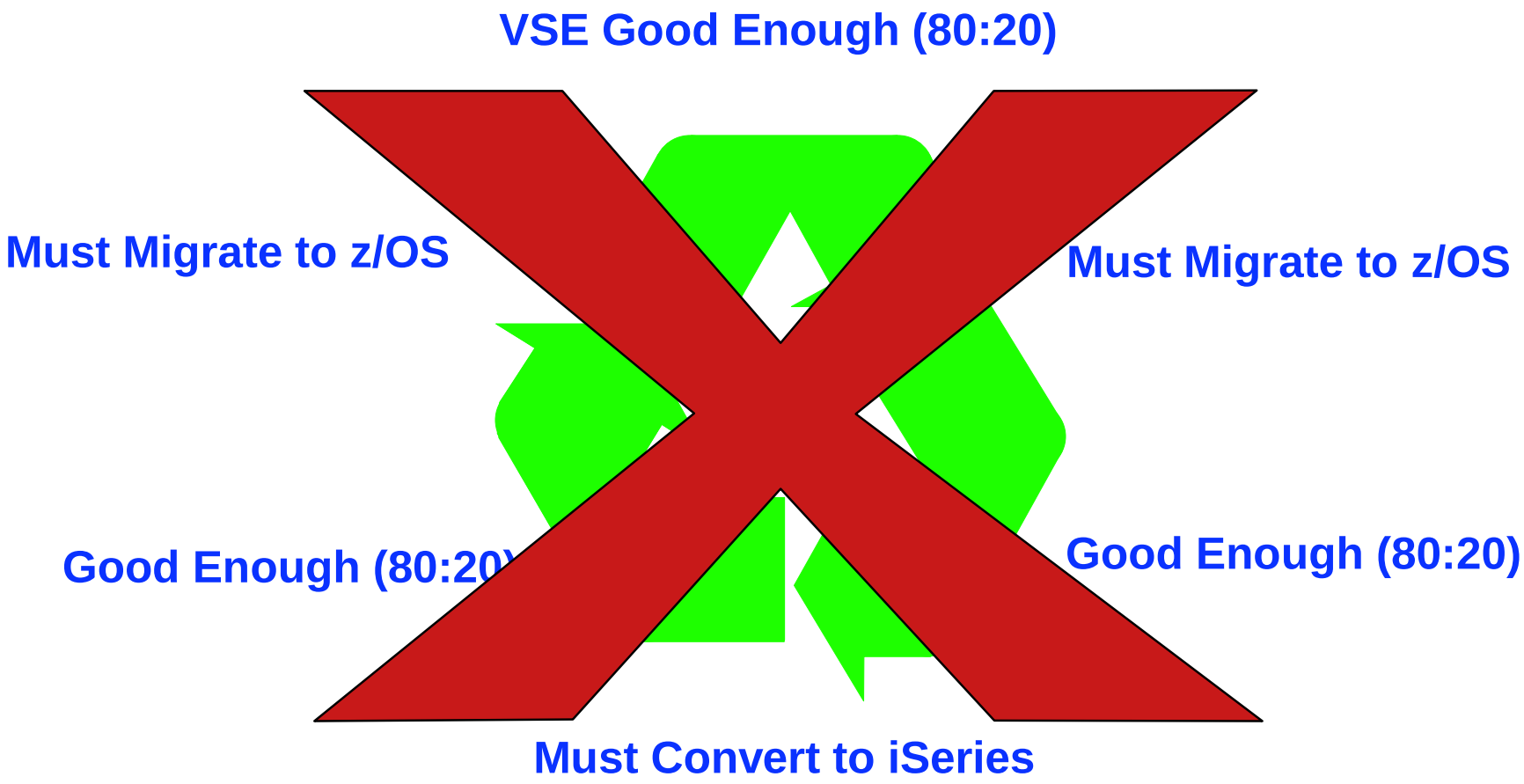
Good Enough (80:20)

Good Enough (80:20)

Must Convert to iSeries

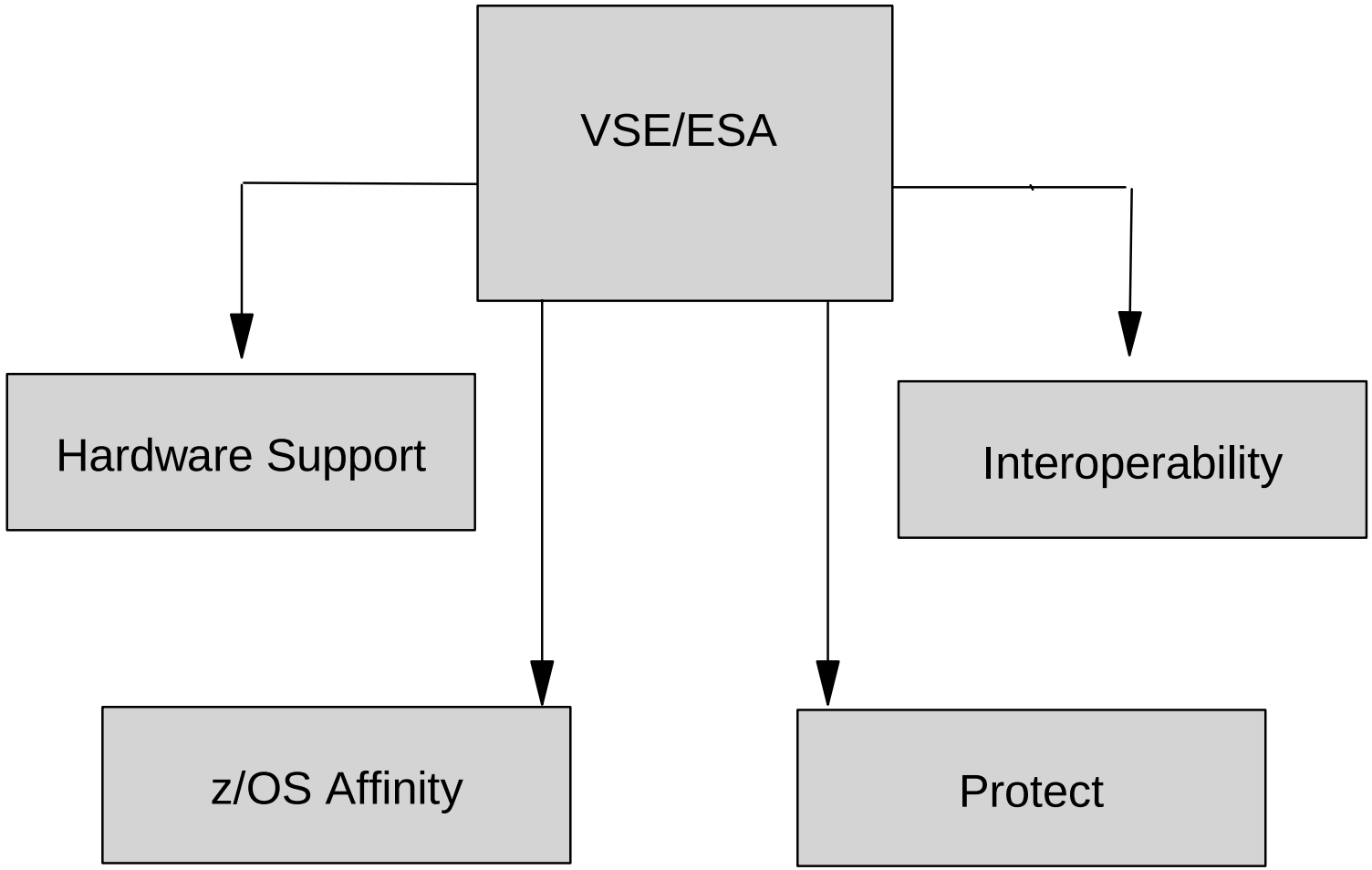
If Not, Where *is* VSE Going?

IBM @server



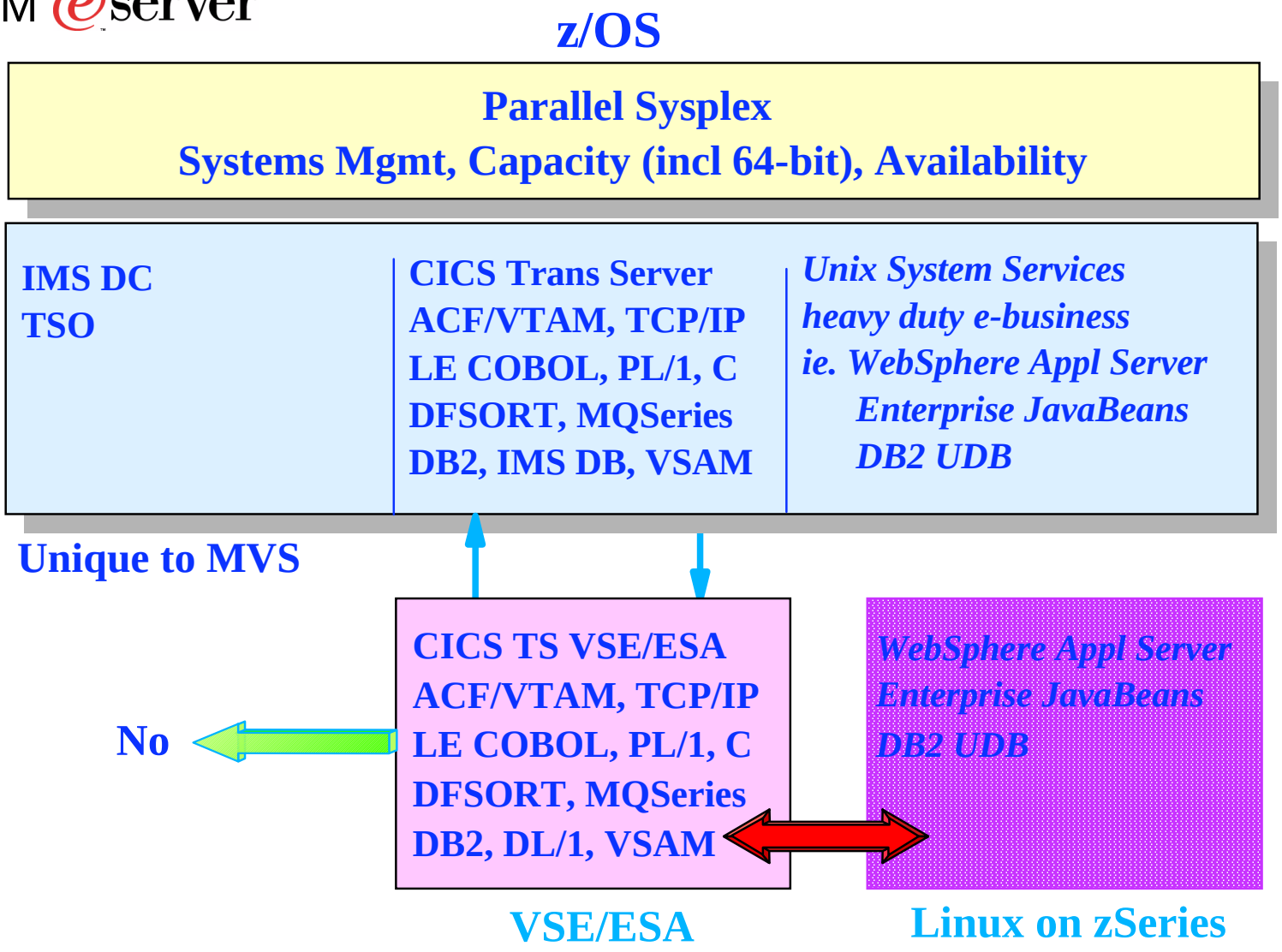
VSE Areas of Ongoing Emphasis

IBM @server



Hybrid Solution - the Best of Both Worlds

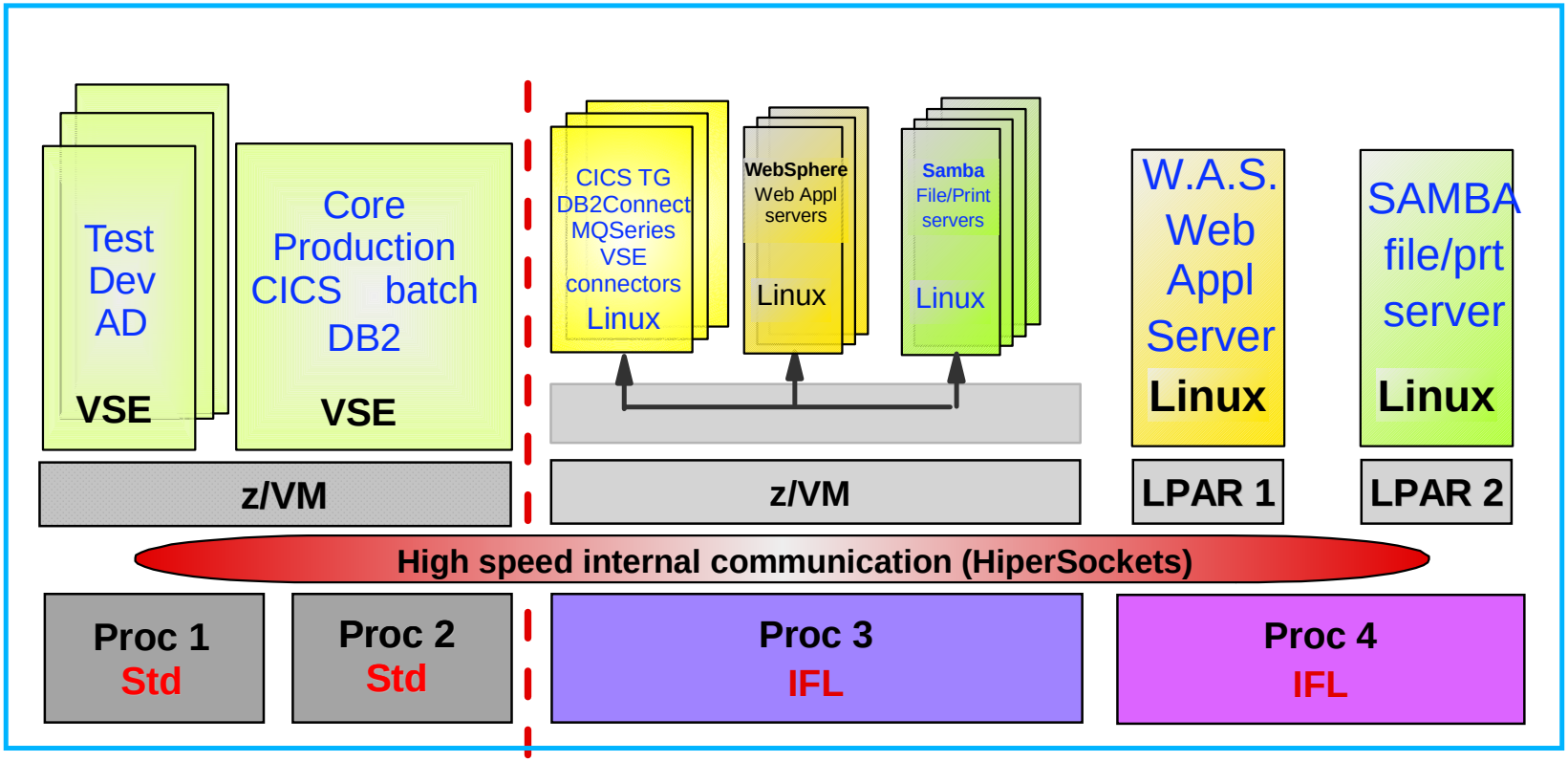
IBM @server



Exploiting Linux on zSeries

IBM @server

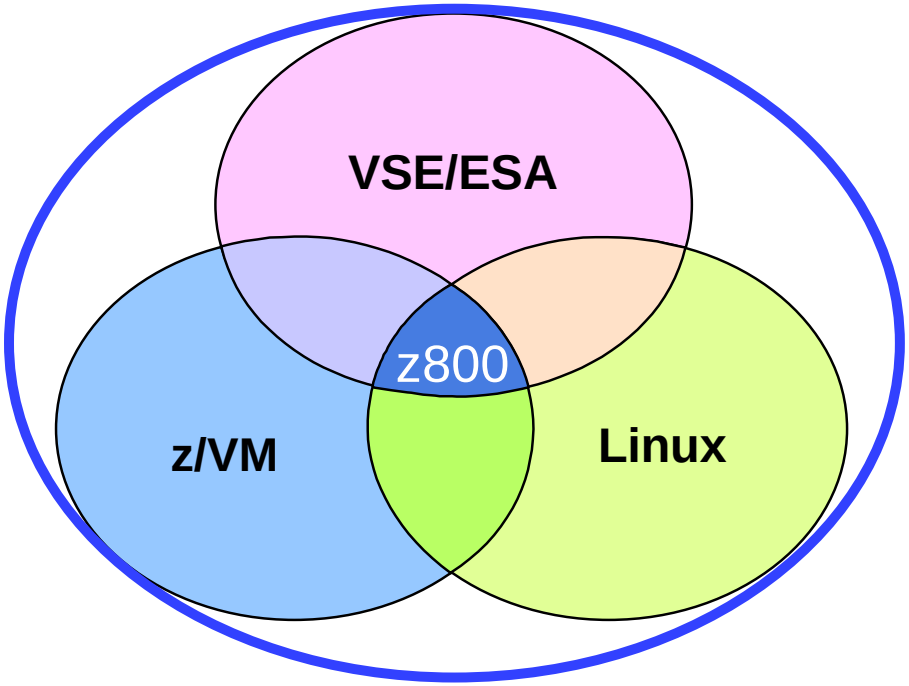
e.g. z800



- Integrated (ie WebSphere) and/or Independent (ie SAMBA) Solutions
- 3-tier architecture on 2-tier hardware
- z/VM (preferred) or LPAR
- High speed communication between virtual servers
- IFLs offer Total Cost of Ownership advantages

Exploiting zSeries Platform

IBM @server



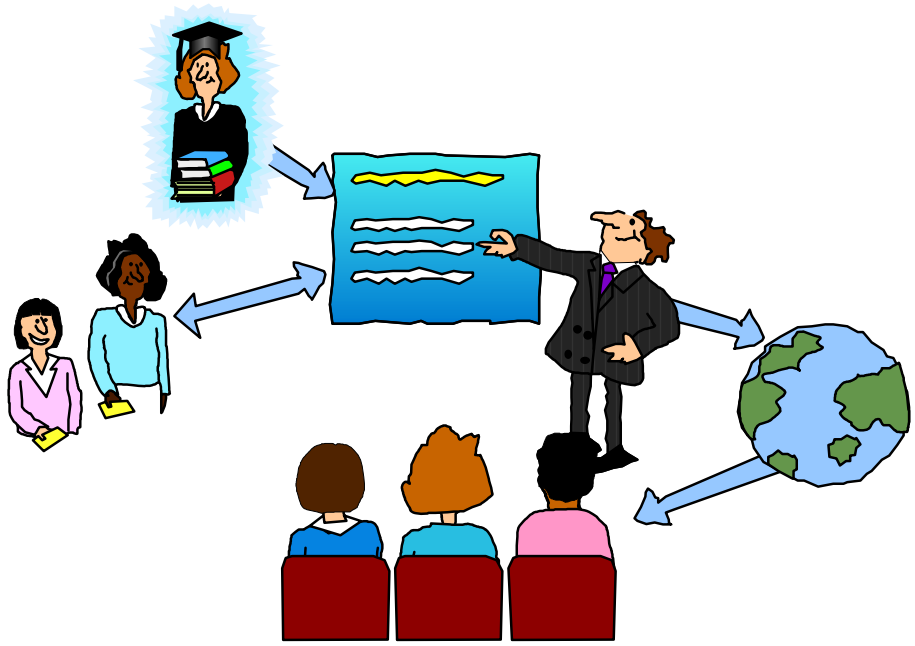
- **VSE/ESA**
  - Protect core IT investments
  - z/OS affinity
  - Robust, secure enterprise server
  - Cost-effective solutions
  - Open connectors to network/servers
- **Linux on zSeries**
  - Large portfolio of new applications
    - integrated
    - independent
  - Platform for web application server
  - IBM middleware
  - Massive scalability
  - Potential for consolidation of servers
- **z/VM**
  - Highly flexible, industrial strength
  - Host multiple VSE and Linux images
  - Comprehensive network connectivity
  - Designed to exploit zSeries

The choice and mix is up to you

VSE Trends and Directions

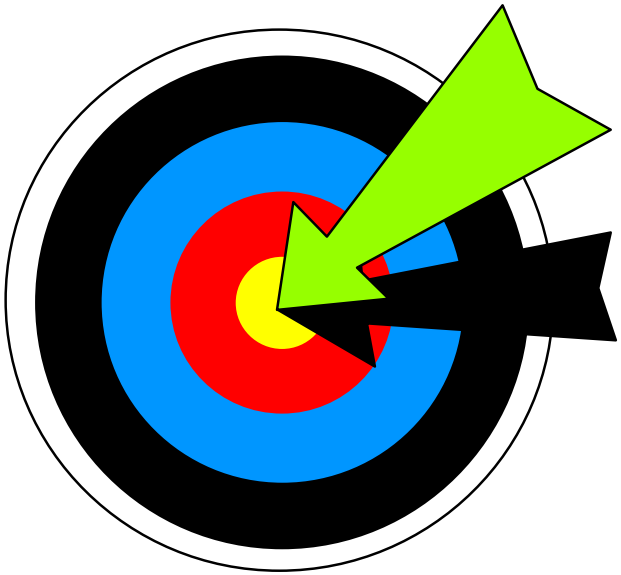
IBM @server

Summary
VSE Update
e-business Roadmap
Customer Choices
VSE Directions
Conclusion



Hybrid Strategy

IBM @server



Leverage Existing Core VSE Investments
- protect programs, data, skills, processes, etc.
- extend VSE enterprise server resources to web

Full Access to Best-of-Breed Applications
***regardless* of hardware / software platform**
- 'traditional' line-of-business
- e-business
- infrastructure

Based on Open Standards

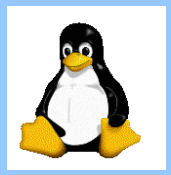
No Single Platform Best for Every Purpose

Reduce Total Cost of Computing

A Vision for Modern VSE Solutions

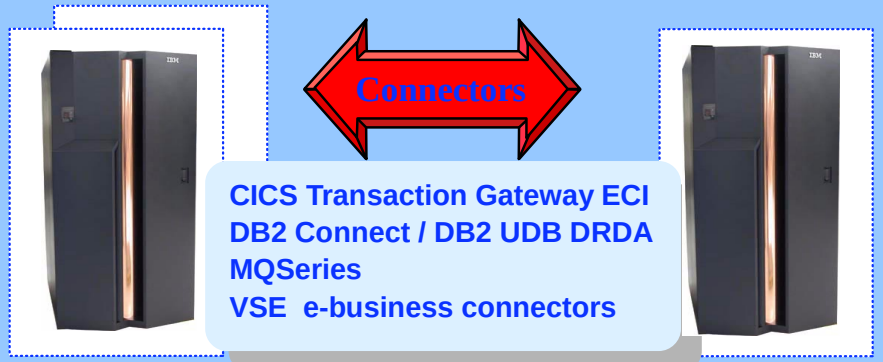
IBM @server

Web



Linux on zSeries
(IFL engines)

VSE/ESA V2.6+
(Standard engines)



z/VM V4.2+
(IFL and Standard engines)

Multiprise 3000, S/390 G5/G6, zSeries 800 and 900

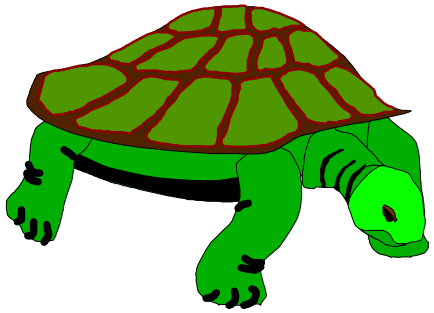
Clients	Business Services	Tran/Data Services

Most of All - have fun!

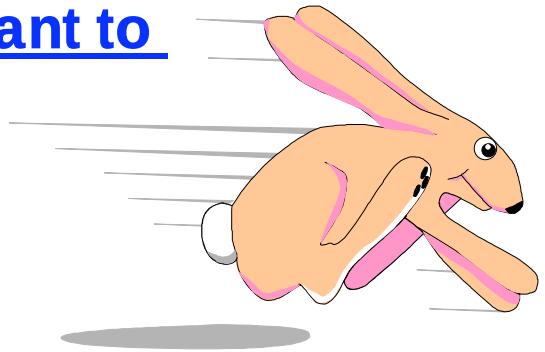
IBM @server

Conclusion

IBM @server



After more than 35 Years Providing Cost/Effective Solutions to IBM Customers the World Over, VSE Doesn't Get Older - It Gets Better. Now, with the hybrid model, **you can be as competitive as you want to be!**



RETURN TO INDEX