

VSE/ESA 2.4 / 2.5 Update

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Basics

- Limited Availability: since 12/1998
General Availability: since 6/1999
VSE/ESA 2.4.1: since 11/1999
VSE/ESA 2.4.2: since 6/2000
- VSE/ESA 2.4 runs on ESA/390 hardware only
 - ▶ Subsystem Storage Protection (SSP) in ESA/390
 - ▶ New cross address space services
- Turbo Dispatcher only
 - ▶ Standard dispatcher dropped
 - ▶ On all uni- and multiprocessors
 - ▶ Native, as VM/ESA guest or in LPAR
- New CICS code base:
 - ▶ [CICS Transaction Server for VSE/ESA Release 1 \(CICS TS\)](#)

CICS Transaction Server For VSE/ESA

- Includes
 - ▶ CICS Server (CICS TS)
 - ▶ CICS Universal Client
 - ▶ CICS Transaction Gateway
 - ▶ CICS Web Support (generally available with VSE/ESA 2.5)
 - ▶ 3270 Bridge (generally available with VSE/ESA 2.5)
 - ▶ Report Controller
 - ▶ Data Management Facility (DMF)
 - ▶ CICS/VSE 2.3

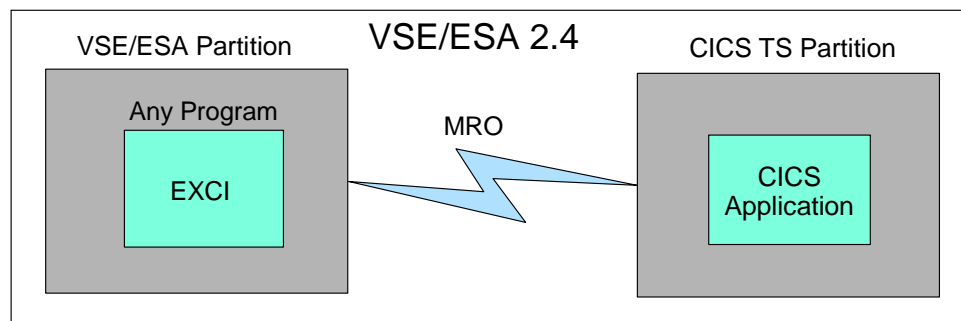
 - ▶ CICS Distributed Data Management (CICS/DDM)
 - ▶ REXX for CICS (available via PTF)

CICS TS Highlights

- Extensive Virtual Storage Constraint Relief
 - ▶ 24-, 31-bit CICS, read-only, shared and user DSAs
- CICS TS programming interfaces
 - ▶ Extended Application Programming Interfaces (APIs)
 - ▶ Extended System Programming Interfaces (SPIs)
 - ▶ Front-end programming interface (FEPI)
- System Management enhancements
 - ▶ Resource definition online (RDO) for files
- Improved Reliability
 - ▶ Subsystem Storage Protection (SSP)
- Performance
 - ▶ (Shared) Data Tables

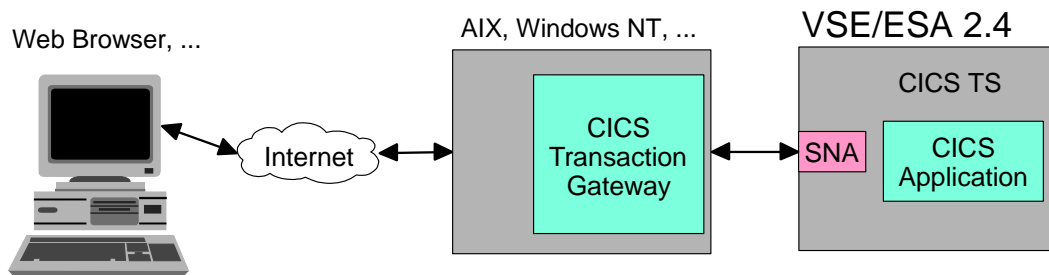
External Call Interface (EXCI)

- Invoke a program running under CICS TS from any VSE/ESA partition
- EXCI is the S/390 equivalent of the ECI (External Call Interface) function provided by the CICS clients
- Linkage via a CICS MRO link

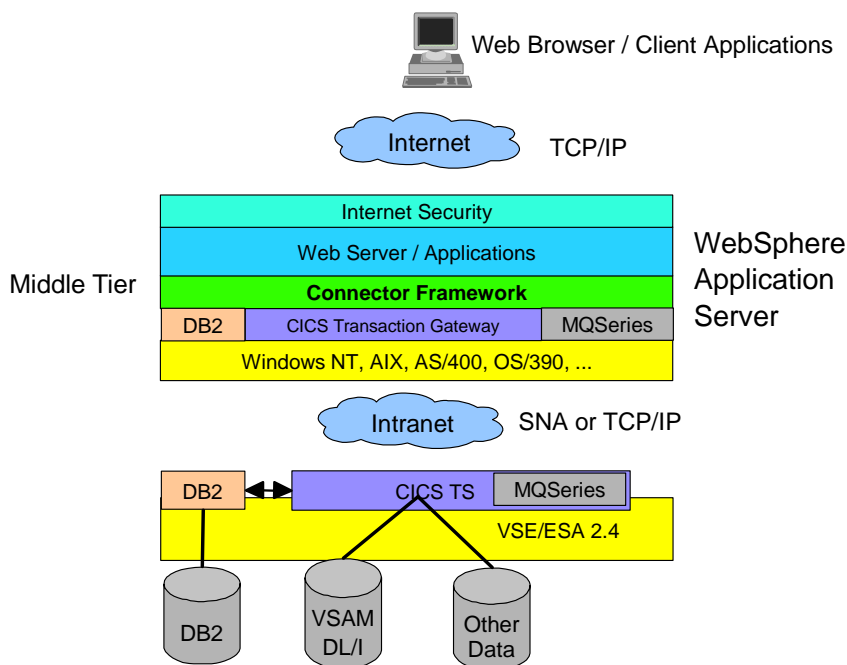


CICS Transaction Gateway

- Access to VSE/ESA resources from /390 and non-390 platforms (AIX, Windows NT, OS/2, OS/390, ...)
- Provides Java, C++, C, Cobol, Visual Basic interfaces for access of CICS transactions from any middle tier program
- Advantages
 - ▶ Access from e-business/internet/intranet/middle tier solutions (e.g. WebSphere Application Server)



WebSphere - VSE Scenario



VSE/ESA 2.4 Highlights

- CICS TS 1.1 does not provide CICS internal security
- Therefore CICS TS 1.1 requires a security manager
 - ▶ Customer has following options:
 - **Basic Security Manager (BSM)**
 - for no additional charge
 - ◆ Provides sign-on and transaction security
 - External Security Manager (ESM) licensed from IBM
 - CA-Top Secret for VSE/ESA 1.3.0
 - External Security Manager from any vendor

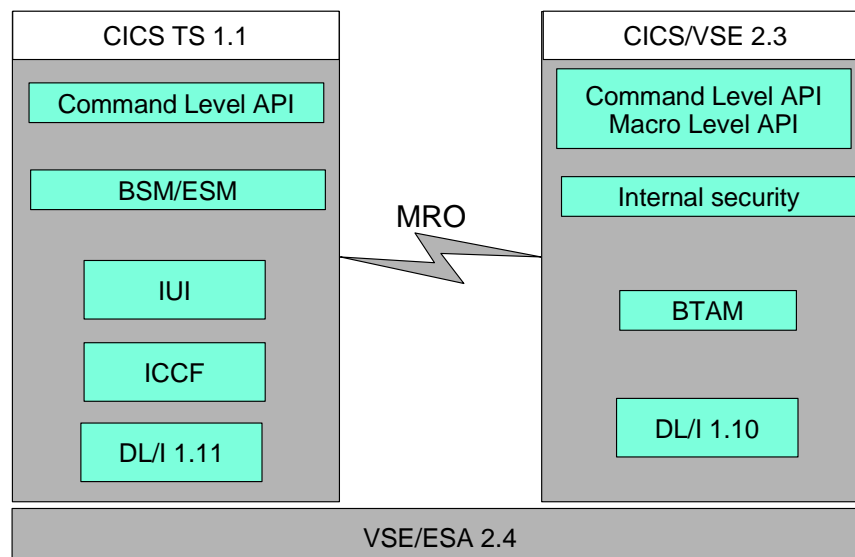
VSE/ESA 2.4 Highlights ...

- New High Level Assembler release
- New DL/I VSE release
- MQSeries 2.1.0 (TCP/IP support, client support)
- DB2 6.1 (stored procedures, DRDA1)
- New DITTO/ESA for VSE/ESA release
- VSE/POWER storage constraint relief
- REXX/VSE Socket API (VSE/ESA 2.4.1)

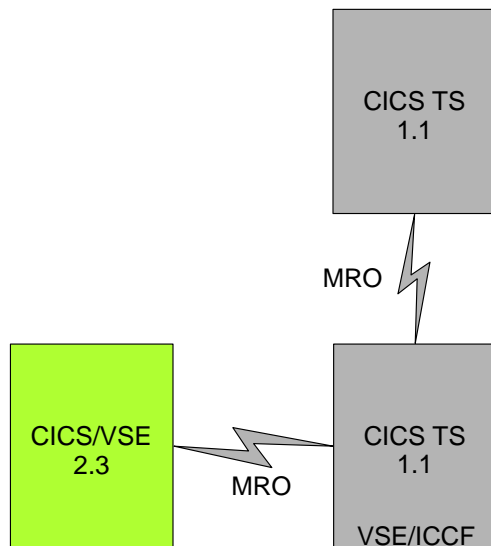
VSE/ESA 2.4 Highlights ...

- VSE/ICCF in CICS TS 1.1 only
- Interactive Interface runs on CICS TS 1.1
- CICS TS 1.1 does not support
 - ▶ BTAM/ES, RPG II, DOS PL/I and C/370
 - ▶ Macro level API
- Therefore we provide **Coexistence Environments**
 - ▶ 2 CICS and DL/I release levels may be concurrently active
 - ▶ Customer may run
 - CICS TS 1.1 and CICS/VSE 2.3 independent
 - CICS TS 1.1 and CICS/VSE 2.3 connected via MRO

CICS Coexistence Environment



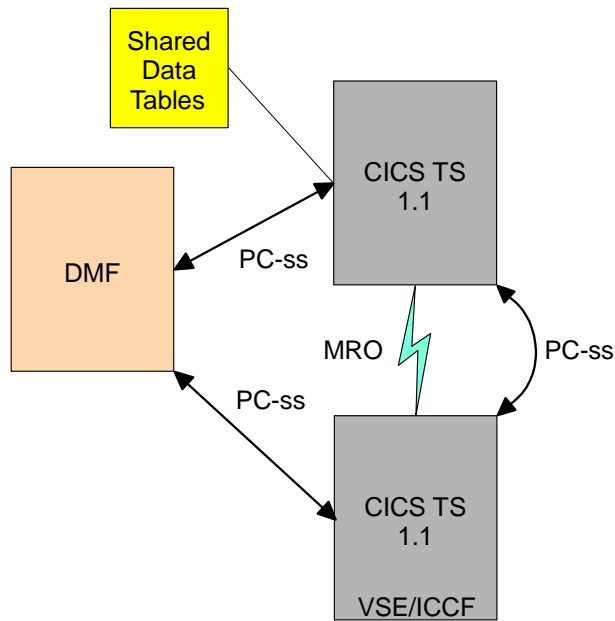
Coexistence Summary



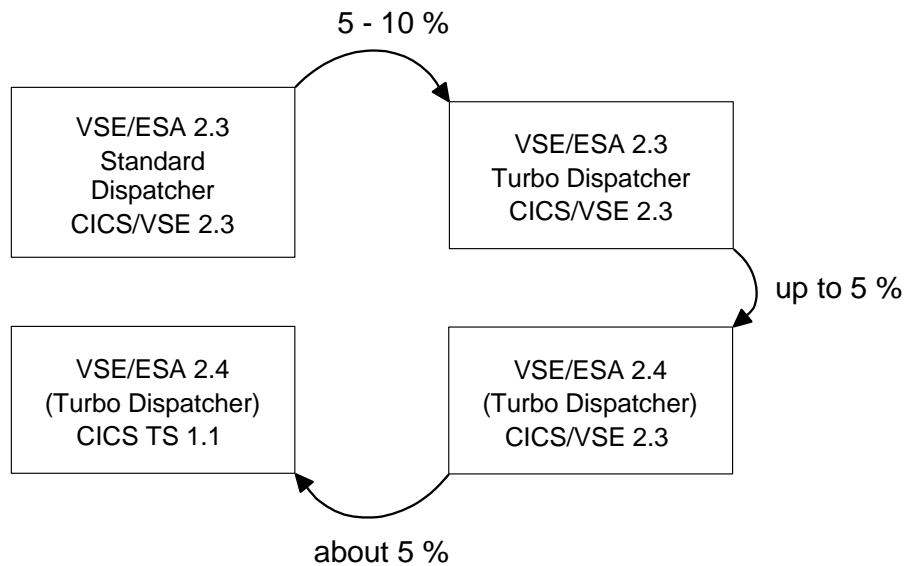
VSE/ESA 2.4 Highlights ...

- OS/390 emulation mode
 - ▶ Provides [OS/390 interfaces](#) for CICS TS 1.1
 - OS/390 control blocks simulated
 - OS/390 system services implemented for
 - Cross memory, locking, recovery, tasking, security, storage management, timer, ...
 - ▶ Invoked via // EXEC <program name>, [OS390](#)
- ESA exploitation
 - ▶ [Space switching Program call \(PC-ss\)](#)
 - ▶ VSE task continues to run in different address space
 - ▶ Used by Data Management Facility (DMF) server
 - ▶ Used to call shared data table server
- [Subsystem Storage Protection \(SSP\)](#)
 - ▶ CICS system code/data protected (applications isolated)

Communication DMF and Shared Data Table Server



VSE/ESA Planning/Installation CPU Time Requirements



"If you do not exploit new capabilities !!!"

VSE/ESA 2.4 Planning/Installation

- Dropped hardware support
 - ▶ No ESA/370 support, that is
 - ES/4381 models 90E, 91E, 92E dropped
 - ES/3090 E/J/S dropped
 - ▶ Devices dropped as system devices
 - 9332 model 600, 9335, 0671
(supported as data devices)

VSE/ESA 2.4 Planning/Installation

- Additional disk space
- Additional VSIZE dependent on predefined environment
- Minimum real storage: 16 MB
- Label area in virtual (for all environments)

VSE/ESA 2.4 Planning/Installation

- 3 pre-environments available for selection
 - ▶ Environments A (100 MB), B (250 MB), C (100 MB)
 - ▶ **Environment B** provides allocations for 2 CICS TS 1.1 and 1 CICS/VSE 2.3
- Automatic installation for CICS TS 1.1 only
 - ▶ CICS/VSE 2.3 on extended base tape
- **Shared CSD file** in coexistence environment possible
- Minimal Interactive Interface support for CICS/VSE 2.3
- No Fast Service Upgrade (FSU) from prior releases

VSE/ESA Security (Access Control)

- CICS TS 1.1 has no internal security
 - ▶ Therefore VSE/ESA provides RACROUTE services as part of the MVS System Authorization Facility (SAF)
Ported from OS/390
- CICS TS 1.1 issues RACROUTE (SAF) calls
- SAF calls an external security manager, which can be
 - ▶ **VSE/ESA's Basic Security Manager (BSM)**
 - ▶ OEM External Security Manager (ESM)

Basic Security Manager (BSM)

- Most important online security functions provided by BSM
 - ▶ sign-on security
 - ▶ transaction security
- BSM provides access control to batch resources
- Logging via ACLR (batch) or console messages (online)

External Security Manager (ESM)

- ESM distributed by IBM
 - ▶ CA-Top Secret for VSE/ESA
 - Distributed on VSE/ESA 2.4 extended base tape
 - Requires IBM key (license) for full activation
 - Requires CA90s with new service level
(www.cai.com/solutions/os390/vse/ca90_service_form.htm)
 - Uses common security startup including server partition
- ESM from vendors
 - CA-Top Secret for VSE/ESA 1.3.0 (VSE/ESA 1.4 or higher)
 - BIM-Alert
 - Others

Security Manager Activation

- Security manager comes up before VSE/POWER or other partitions
 - ▶ The initialization will fail, if other partitions active
- BSM activated as default security manager
 - ▶ BSM interacts with the Security Server started in FB (default)
 - Default may be changed by new **SYS SERVPART** parameter
 - Security server must run in a static partition
 - ▶ Additional access authority checking, if **SYS SEC=YES**
- ESM activated dependent on new IPL **SYS ESM=...** parameter
 - ▶ DTSECTAB protection active for **SYS SEC=YES** systems until ESM is initialized

Security Server

- Security Server handles access to VSE control file
- Processes security requests
- Started after IPL, not VSE/POWER controlled
 - ▶ Interaction via console interface (MSG command)
- Shutdown during VSE/POWER termination

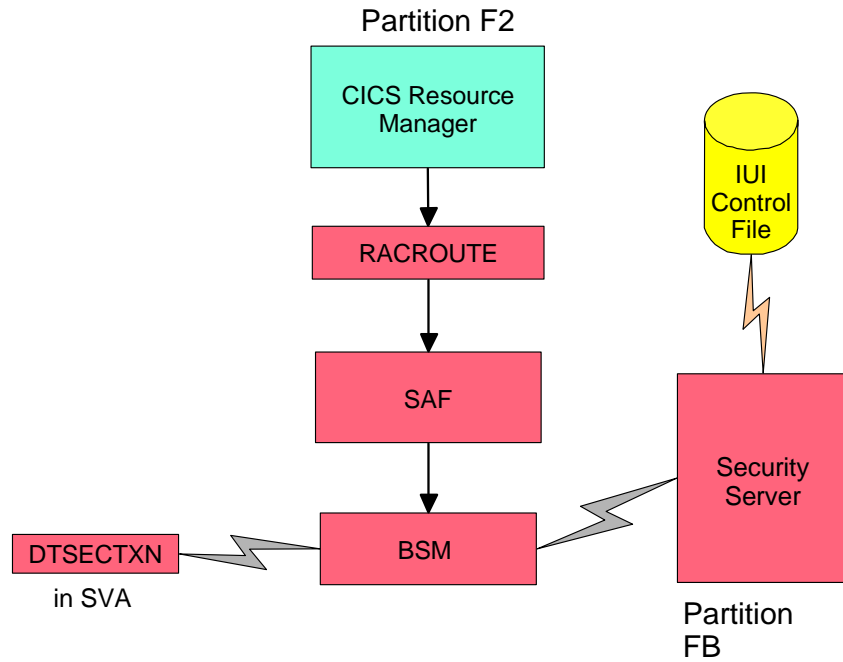
BSM Repositories

- **VSE Control File** = central repository for user profiles (user ids)
 - ▶ VSAM file
 - ▶ For batch (SEC=YES) and online
 - ▶ Keeps all CICS user ids
- **DTSECTAB** holds mainly resource definitions
 - ▶ "batch" security (e.g. to protect files, VSE libraries, ...)
- **DTSECTXN** (new) holds transaction security resources
 - ▶ Built via new DTSECTXN macro
 - ▶ Describes attributes of a transaction

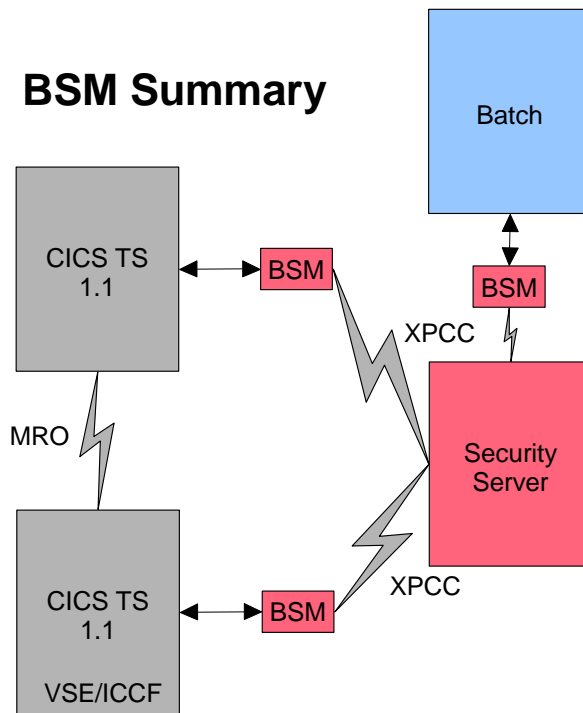
Additional Security Enhancements

- Enhanced "**Maintain User Profiles**" dialog
 - ▶ Batch utility available to maintain profile information
- **VSE/ICCF** uses Interactive Interface services to get access to control file
- **VSE/POWER**: access to spool entries for authorized users
 - ▶ enabled via new **SET** parameter

How does the BSM get control ?



BSM Summary



VSE/ESA 2.4 Summary

- New CICS (CICS TS) code base
 - ▶ Increased affinity between OS/390 and VSE/ESA
 - ▶ Improved reliability and availability
 - ▶ Virtual Storage Constraint Relief
- CICS coexistence for CICS TS and CICS/VSE 2.3
- Basic Security Manager (BSM)
- CA TopSecret for VSE/ESA 1.3.0
- New product releases (MQSeries, DB2, DITTO, HLASM)

VSE/ESA 2.5 Preview

- Enhanced interoperability via VSE 'e-business' connectors
- CICS TS Enhancements
 - ▶ CICS Web Support
 - ▶ 3270 bridge
- VSE/ESA base enhancements
 - ▶ More dynamic classes
 - ▶ VSAM exploitation of IXFP/SnapShot
 - ▶ Support of the Enterprise Storage Server (ESS) FlashCopy Feature
 - ▶ VSAM hashing algorithm
for faster access to large VSAM LSR buffer pools
- Fast Service Upgrade (FSU) from VSE/ESA 2.4

VSE/ESA 2.5 Preview ...

- VSE/ESA 2.5 will no longer support
 - ▶ LANRES/VSE
 - ▶ Distributed Workstation Feature (DWF)
 - ▶ VisualLift runtime environment
 - ▶ OCR/MICR devices (except 3890 support)
 - ▶ Distributed, centrally managed remote unattended VSE environment

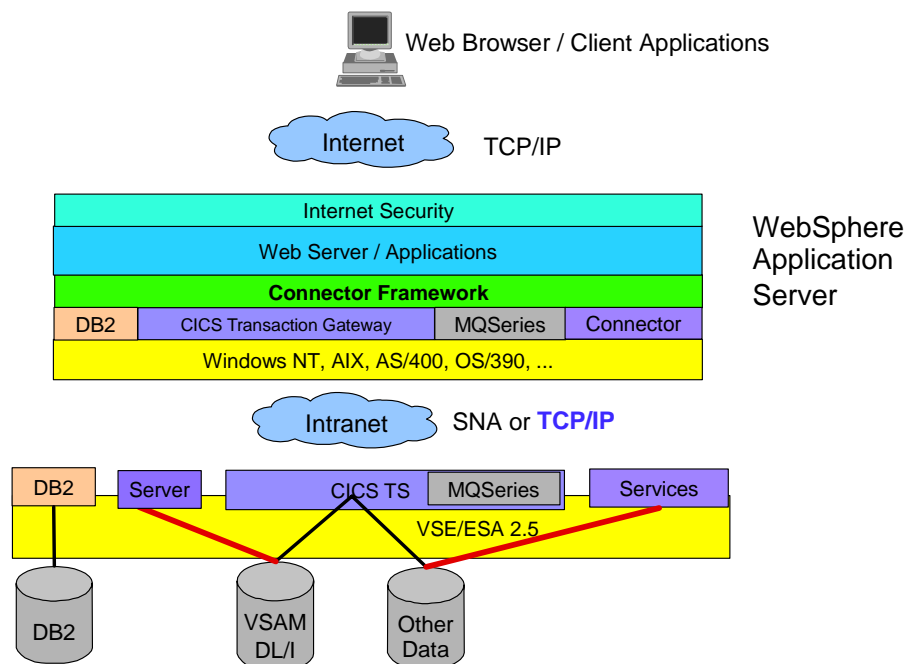
Preview: DB2 Server for VSE and VM 7.1

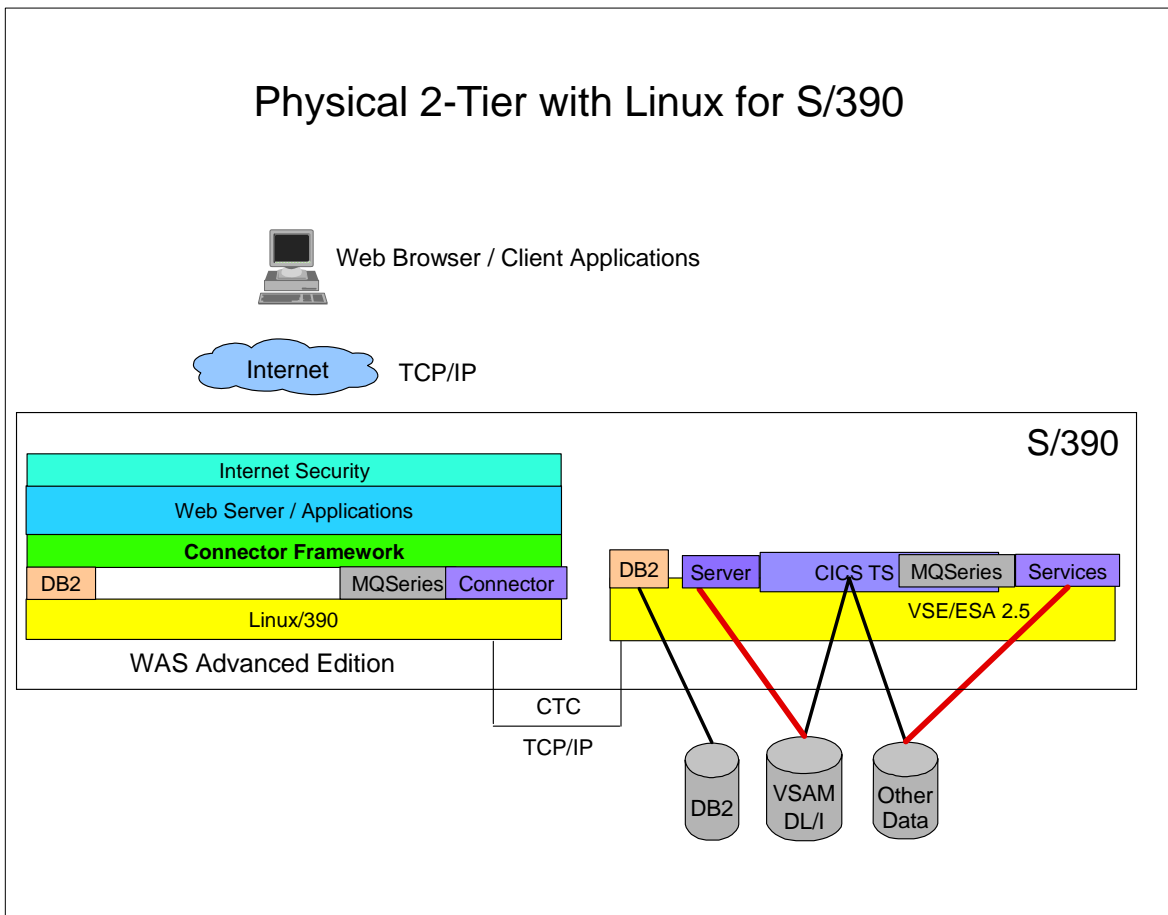
- Major VSE/ESA related enhancements:
 - ▶ DRDA over TCP/IP
 - ▶ DRDA batch application requester support
 - ▶ Stored procedures application requester support
 - ▶ Enhanced QMF for VSE
 - DRDA application requester support for VSE QMF users
 - Cross platform install capability
 - DB2 for AS/400 database access

VSE e-business Connectors

- Easy access to VSE/ESA resources from other systems
- VSE e-business connectors include
 - ▶ Server code running on VSE/ESA
 - ▶ JAVA beans, servlets and samples on Java capable clients
 - Such as IBM's WebSphere Application Server which may run on Windows NT, Linux, AIX, OS/390, ...
- Advantages
 - ▶ Exploitation of non-VSE e-business infrastructure
 - ▶ Always newest e-business components
 - Java, web server, security
 - Platform independent
 - ▶ VSE/ESA resources can be easily integrated into new e-business applications
 - ▶ New VSE e-business connectors
 - ▶ Existing connectors (DB2 Connect, MQ Series client, CICS TS Gateway, ...)
 - ▶ E-business offerings can be exploited
 - ▶ Generalized interfaces

WebSphere - Connection with VSE/ESA

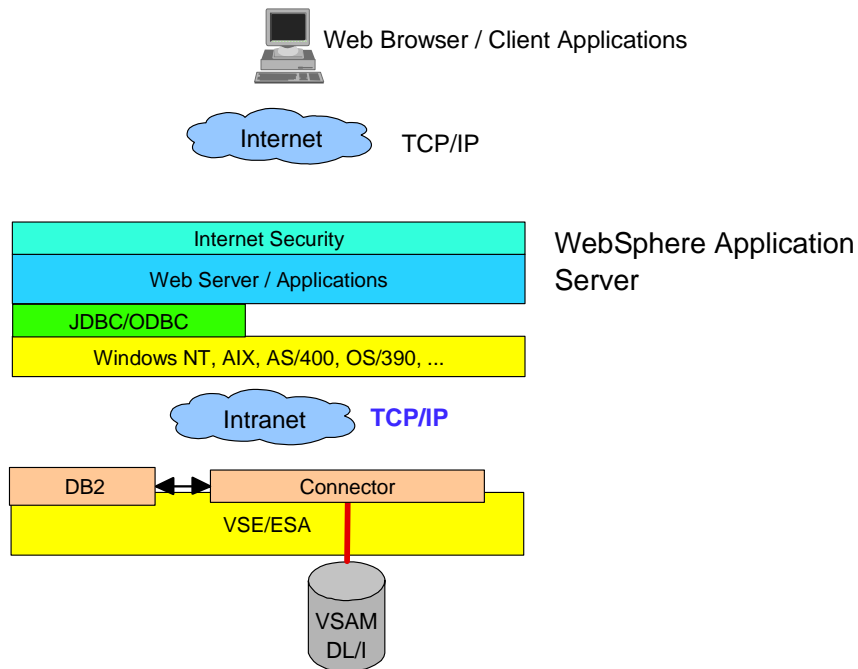




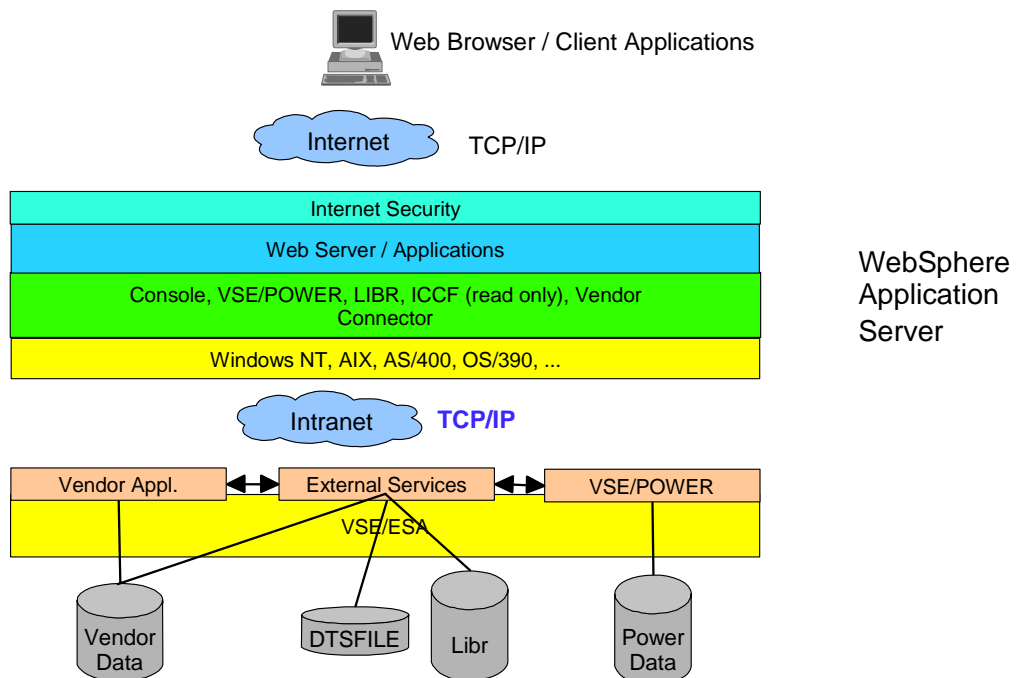
VSE e-business Connectors ...

- **DB2 based connectors for VSAM and DL/I**
 - ▶ Exploitation of DB2 infrastructure (JDBC/ODBC, DB2 Connect, DB2 server, DB2 stored procedures)
 - ▶ Mapping of SQL requests to VSAM and DL/I data
 - ▶ Sample mappings and applications provided
 - ▶ Communication via DRDA (SNA or TCP/IP based with DB2 V7)
- **Other VSE connectors**
 - ▶ Access to VSE/ESA resources, such as VSE/VSAM files, VSE/POWER, VSE/ICCF, VSE Librarian, VSE consoles
 - ▶ Access provided via
 - external services running on VSE/ESA
 - Java-based services running on e.g. web application server environments
 - ▶ Java samples are provided
 - ▶ Communication TCP/IP based

DB2-based Connectors

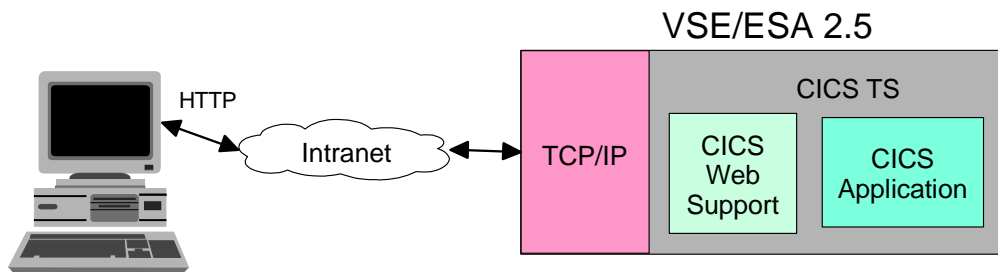


Connectors based on External Services



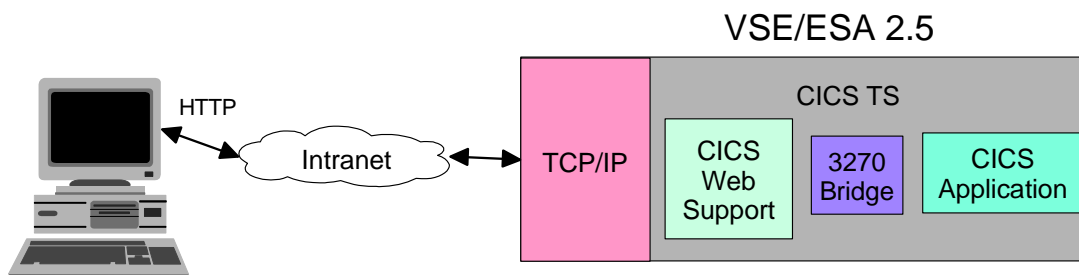
CICS Web Support

- Allows a standard Web Browser to invoke a CICS application
- Direct connection - no intermediate gateways or servers
- ASCII to EBCDIC Conversion
- Ability for existing applications to have their output converted to HTML by CICS



3270 Bridge

- A way of accessing 3270 transactions from non-3270 devices
- Advantages
 - ▶ Access to existing 3270 transactions, unmodified
 - ▶ No rewrite of presentation logic
 - ▶ No 3270 emulation needed



More Information

- IBM e-business connectors
 - ▶ <http://www.software.ibm.com/webservers/connectors>
- Application Framework for e-business
 - ▶ <http://www.software.ibm.com/ebusiness>
- WebSphere
 - ▶ <http://www.software.ibm.com/webservers>
- CICS Gateways
 - ▶ <http://www.ibm.com/software/ts/cics/products/>
- DB2 related connectors (net.data, DB2 Connect, ...)
 - ▶ <http://www.software.ibm.com/data>

- ▶ VSE/ESA home page
(includes links to VSE/ESA and e-business, TCP/IP for VSE/ESA, Turbo Dispatcher, ...)
 - ▶ <http://www.s390.ibm.com/vse/>
- ▶ VSE/ESA Turbo Dispatcher Guide and Reference
 - ▶ VSE/ESA 2.4, SC33-6797