



e-business

CICS Transaction Server for VSE/ESA

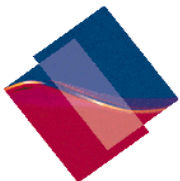
Technical Overview and Migration Considerations



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Agenda.....CICS Transaction Server for VSE/ESA

■ Overview

- ▶ **What is it?**
- ▶ **What's the main new functions?**
- ▶ **e-business support**

■ Migration considerations

- ▶ **Planning**
- ▶ **Installation, Tailoring, Customisation**
- ▶ **Resource Definition**
- ▶ **Monitoring, Statistics, Trace, Dump**
- ▶ **Security**
- ▶ **Application Programming**
- ▶ **Coexistence with CICS/VSE V2.3**

■ Further Information Sources

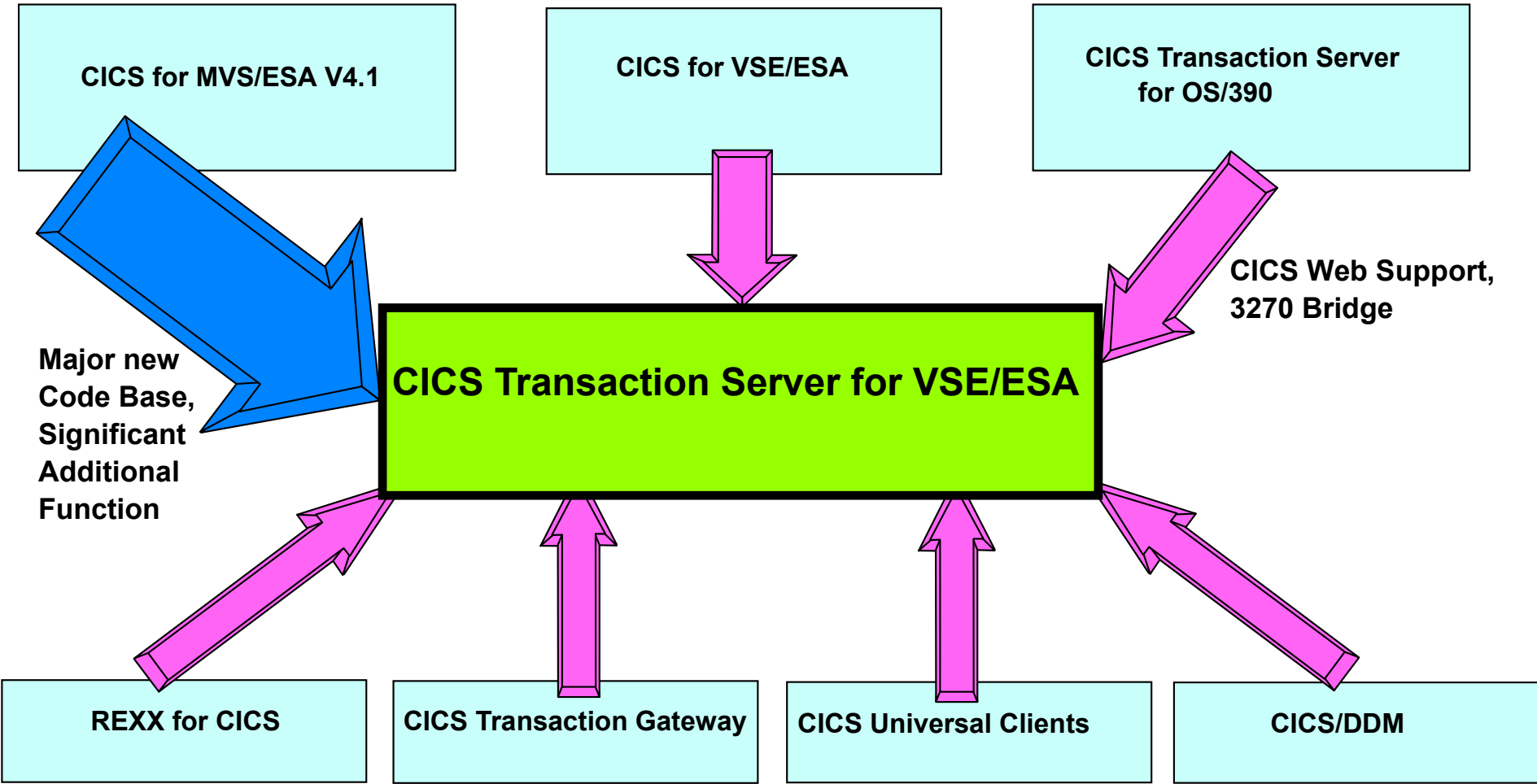
■ Summary

CICS Transaction Server for VSE/ESA

Overview

CICS Transaction Server for VSE/ESA: What is it?

■ New version of CICS for VSE/ESA based on CICS for MVS/ESA V4.1



CICS Transaction Server for VSE/ESA: What is it?

- **The CICS Transaction Server for VSE/ESA product package contains...**
 - **CICS Transaction Server for VSE/ESA**
 - **CICS/VSE V2.3**
 - **Report Controller**
 - **CICS Transaction Gateway V3.1, CICS Universal Clients V3.1**
 - **CICS/DDM, REXX for CICS**

- **Single license and price for the complete package**
 - **MLC same as for CICS/VSE V2.3 (maybe some country variation)**

- **CICS Transaction Server for VSE/ESA V1.1 - General Availability 6/99**
 - **Delivered with VSE/ESA V2.4**

- **CICS Transaction Server for VSE/ESA V1.1.1 - General Availability 9/00**
 - **Delivered with VSE/ESA V2.5**
 - **CICS Web Support, 3270 Bridge, REXX for CICS**

- **CICS Transaction Server for VSE/ESA V1.1.1 update with VSE/ESA V2.6**
 - **ECl over TCP/IP, CICS Web Support SSL exploitation**
 - **Preview Announcement 4/01**

CICS Transaction Server for VSE/ESA: What's new?

e-business and Network Computing

- ▶ CICS Transaction Gateway
- ▶ CICS Web Support
- ▶ CICS Universal Clients

Application Support

- ▶ Shared Data Tables
- ▶ External CICS Interface (EXCI)
- ▶ 3270 Bridge
- ▶ REXX for CICS
- ▶ Front End programming Interface (FEPI)
- ▶ Global User Exit enhancements
- ▶ Exit Programming Interface (XPI)
- ▶ Comms Programming Interface (CPI-C)
- ▶ API enhancements
- ▶ SPI enhancements
- ▶ Report Controller enhancements

System Management/Administration

- ▶ RDO extensions, including Files
- ▶ Autoinstall extensions, including Programs
- ▶ Automatic journal archiving
- ▶ Data Management Facility
- ▶ Monitoring and Statistics enhancements
- ▶ Dump and Trace enhancements
- ▶ External Security Manager support
- ▶ In-Doubt Window Resolution Utility Program
- ▶ Dynamic Transaction Routing enhancements
- ▶ Sysgen step removal

Availability

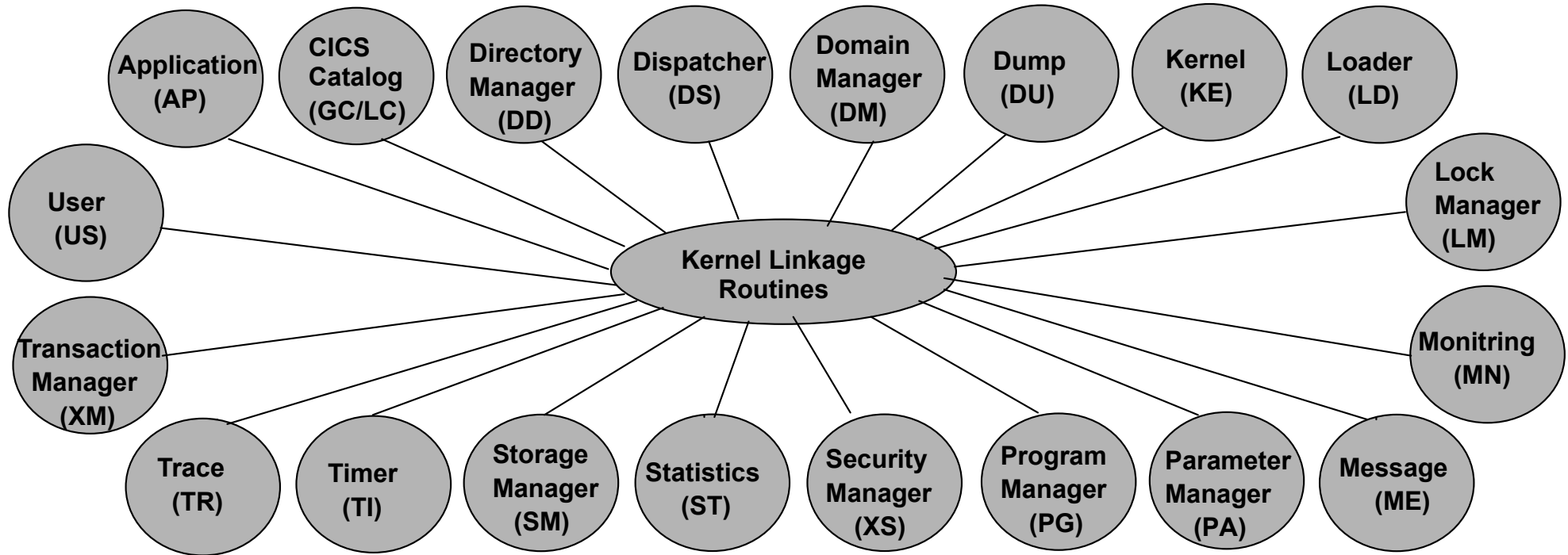
- ▶ Storage Protection
- ▶ Intersystem Session Queue Management
- ▶ VTAM Persistent Sessions
- ▶ DTB Failure Recovery

Restructured CICS Code Base from CICS for MVS/ESA V4.1

- ▶ Improved code quality, reliability, serviceability
- ▶ 31-bit support
- ▶ Extensive Virtual Storage Constraint Relief
- ▶ Dynamic DSA Management

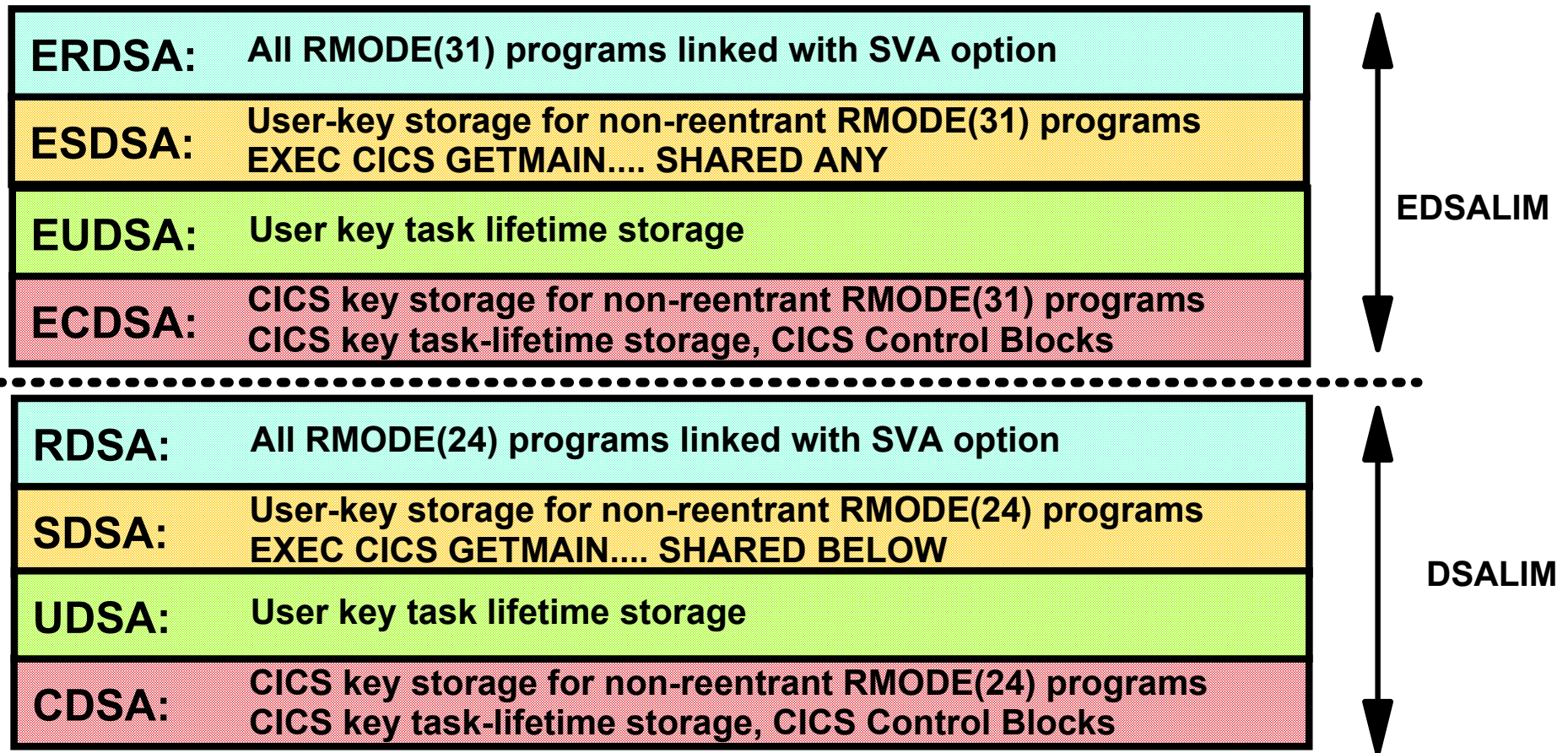
What's new?...Internal Restructure

■ New Internal Domain Architecture



What's new?...Internal Restructure

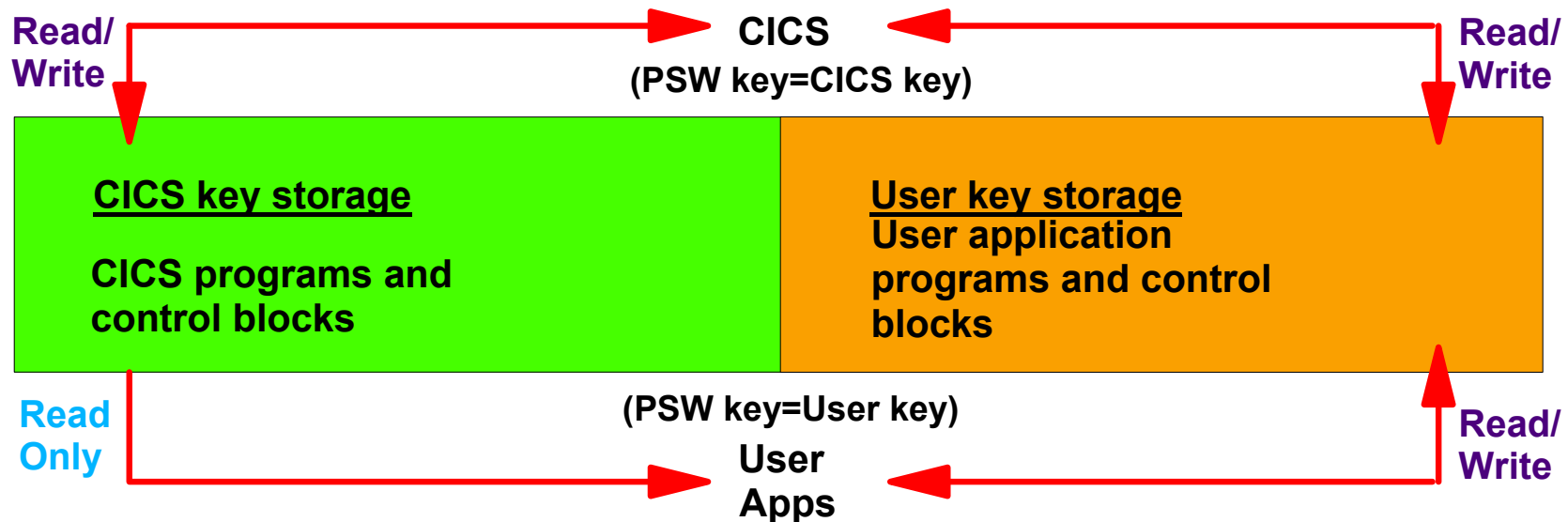
- Extensive Virtual Storage Constraint Relief
 - CICS code and control blocks above the 16 MB line
- Multiple Dynamic Storage Areas, managed by CICS



- Improved storage management algorithms

What's new?....Availability > Subsystem Storage Protection

- Protects CICS from *accidental* overwrite by user applications
- Requires ESA/390 processor with subsystem storage protection facility
- Selectable via SIT parameter STGPROT
- New RDO options for PROGRAM & TRANSACTION
- All applications run in one of two PSW keys:
 - User Key = Public Key = Key 9 = F4 Partition key
 - CICS Key = Partition Key



What's new?....Availability > Other Storage Protection

■ **Read-Only Protection**

- ▶ **Not dependent on any hardware feature**
- ▶ **Selectable via SIT parameter RENTPGM**
- ▶ **Programs linked with SVA attribute loaded into key 0 storage**
- ▶ **Alternative to SVA, but with no cross region sharing**

■ **Command Protection**

- ▶ **Selectable via SIT parameter CMDPROT**
- ▶ **Validates start address of EXEC CICS output areas**
- ▶ **Prevents CICS overwriting storage that application cannot modify**

What's new?....Other Availability improvements

■ VTAM Persistent Sessions

- ▶ End-users do not have to re-establish sessions if CICS fails
- ▶ Faster TOR restart and an alternative to XRF
- ▶ Requires Inter-Enterprise option of VSE/VTAM 4.2

■ Intersystem Session Queue Management

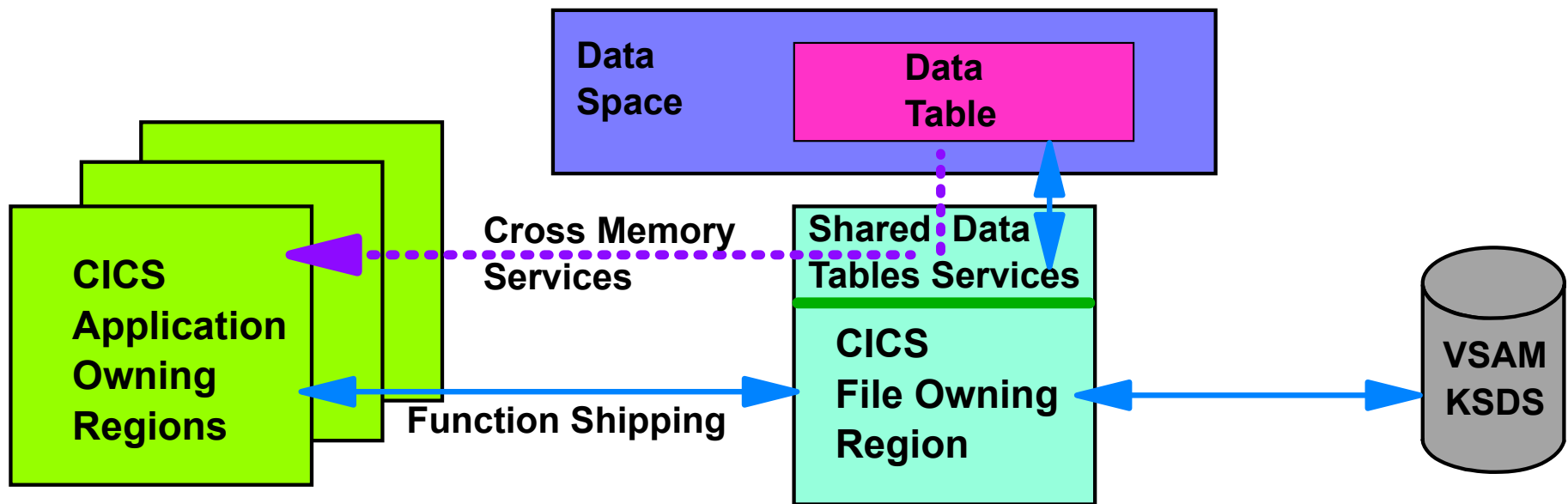
- ▶ Enables early detection and management of queuing bottlenecks

■ Dynamic Transaction Backout Failure Recovery

- ▶ Avoids having to restart CICS

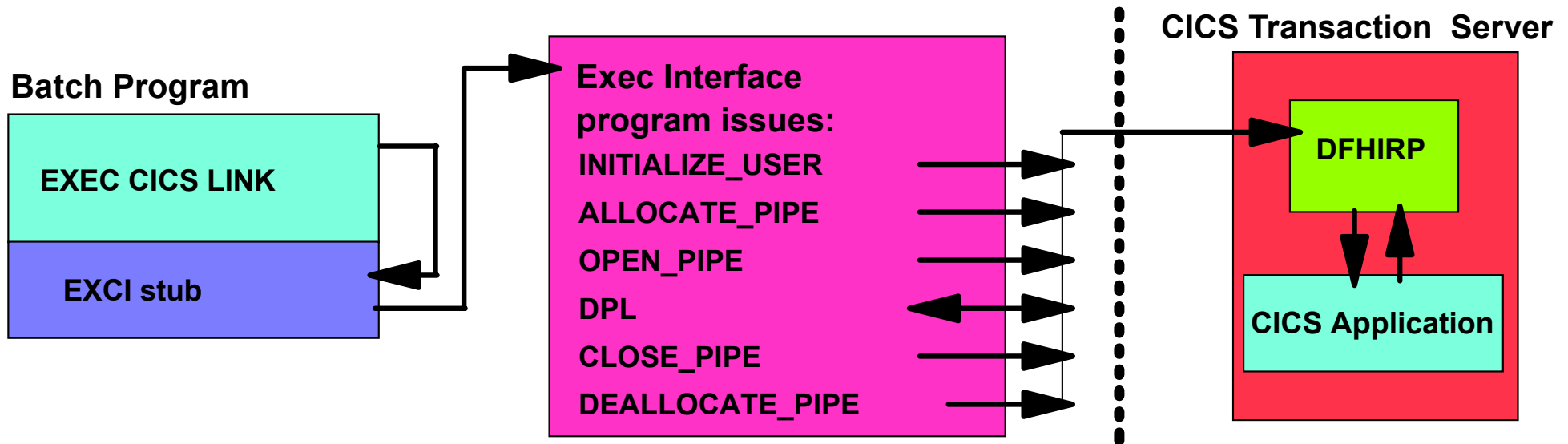
What's new?....Shared Data Tables

- Replaces and enhances Data Tables support in CICS/VSE V2.3
- Enables data sharing between CICS regions on same VSE image
- Data tables now held in a data space
- Uses Cross-Memory services to access data
- Now supports browse and generic key read operations
- Contents of data table do not appear in dumps



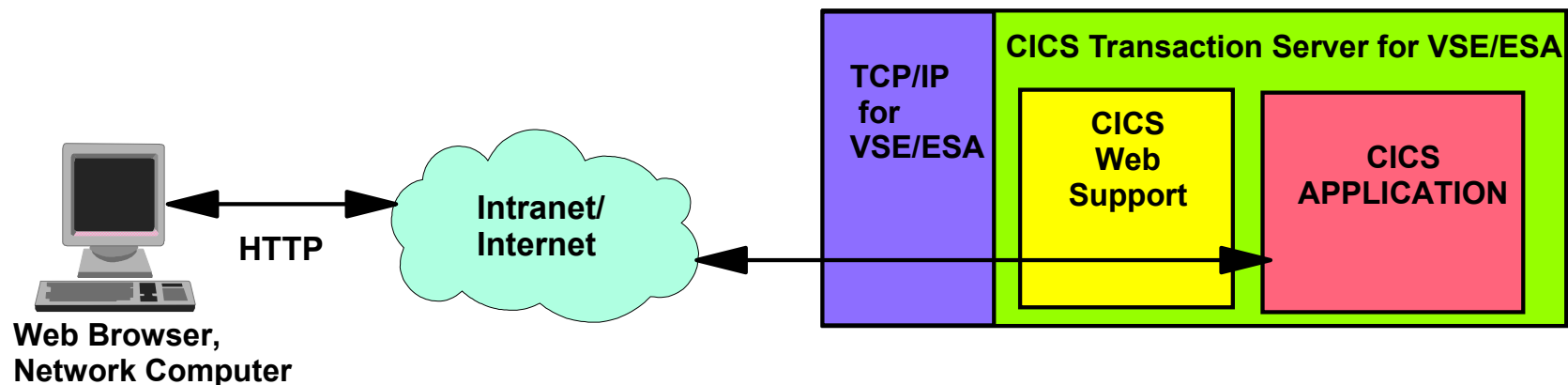
What's new?....External CICS Interface (EXCI)

- Enables a batch program to call a CICS application
 - Update resources with integrity while CICS is accessing them
 - Take CICS resources off-line and on-line for batch processing
- Two forms of the interface: EXEC CICS LINK and EXCI CALL
 - Distributed Program Link used to invoke the CICS program
 - Data passed between batch and CICS program via COMMAREA
 - LINK recommended for low frequency/single requests
 - CALL recommended for multiple requests
- MRO used for communication between batch and CICS partition



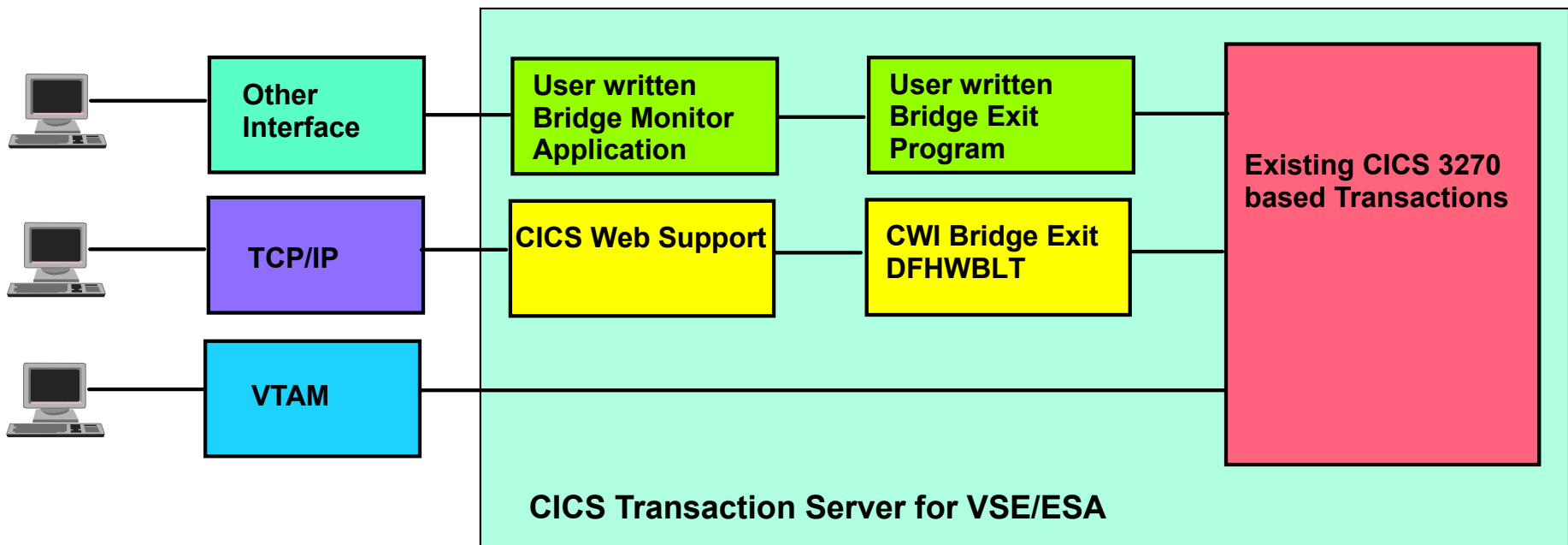
What's new?....CICS Web Support

- Allows access to CICS from Web Browser or Network Computer
- Direct TCP/IP connection using HTTP protocol
 - ▶ Secure Sockets Layer (SSL) support announced for VSE/ESA V2.6
- Support for "web aware" applications
 - ▶ New WEB and DOCUMENT API
- Support for access to existing COMMAREA based applications
- Support for access to existing 3270 transactions
 - ▶ Automatic HTML-3270 conversion
 - ▶ No change to application



What's new?....3270 Bridge

- Ability to run an existing 3270 based transaction without a 3270
 - ▶ No change to application
- 3270 terminal I/O requests intercepted by a bridge exit program
- CICS supplied 3270 bridge exit programs
 - ▶ Specific program for use with CICS Web Support
 - ▶ Sample program which uses TS or TD queues

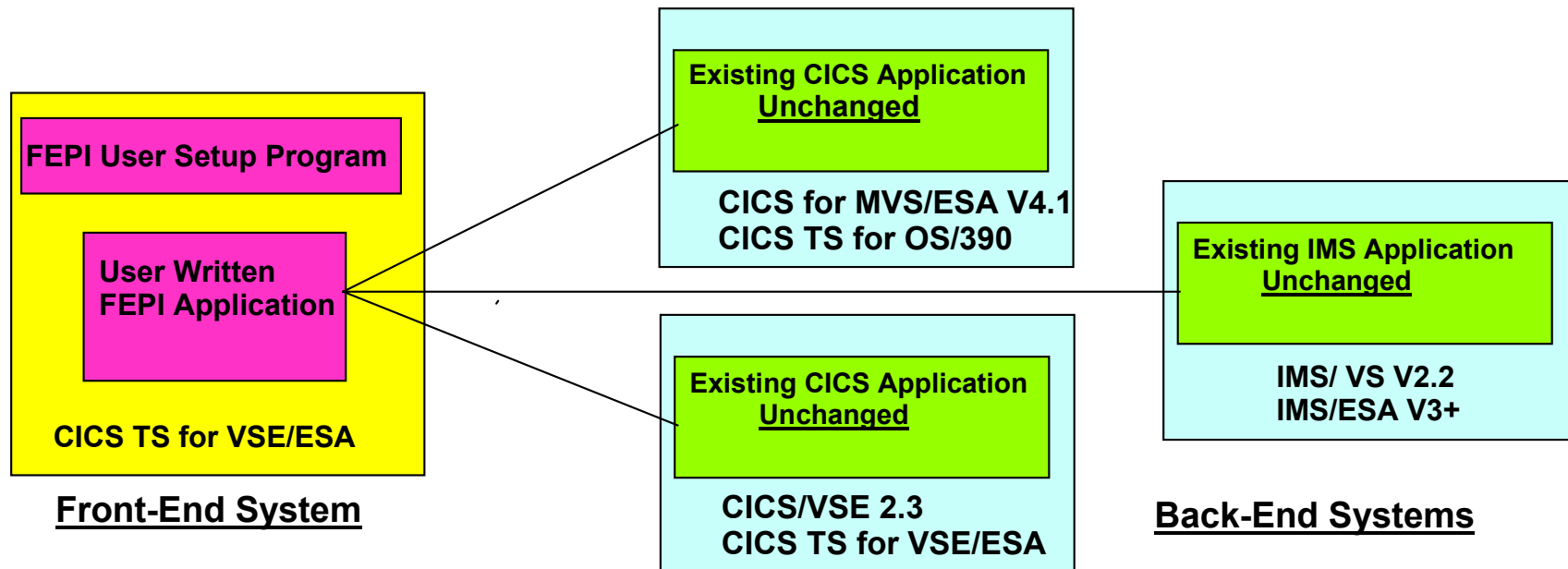


What's new?....REXX for CICS

- **Development and execution of REXX programs for CICS**
- **Provides access to**
 - ▶ **Most EXEC CICS API commands**
 - ▶ **CEMT interface**
 - ▶ **CEDA interface**
 - ▶ **DB2 via EXEC SQL**
- **Development environment**
 - ▶ **CICS-based**
 - ▶ **VSAM File system for REXX Execs and data**
 - ▶ **Text editor**

What's new?....Front End Programming Interface (FEPI)

- Allows programs to be written to access existing CICS or IMS applications
 - FEPI Programs simulate 3270 LU 2 terminals and LU 0 devices
- FEPI programs are CICS applications
 - Extension of the EXEC CICS commands with similar names/functions
 - ➔ e.g. EXEC CICS FEPI ALLOCATE, EXEC CICS FEPI SEND
 - Two Interfaces: Keystroke/screen-image, and datastream
- Back-end applications remain unchanged



What's new?....Global User Exits

- **Many new exit points....**
 - ▶ e.g. Interval Control, Journal Control, Temporary Storage, File Control
- **New Exit Programming Interface (XPI) for additional function**
 - ▶ XPI implemented as a series of macros
 - ▶ Many functions, e.g. Suspend, Resume, Wait, Take Dump
 - ▶ Exit program must be fully reentrant
- **Interface changes**
 - ▶ Usage of registers and parameter lists standardised
 - ▶ Exit programs must be able to run in 31-bit environment
- **Some exit points obsoleted....**
 - ▶ e.g. Dispatcher, File Control, Storage Control

What's new?....Resource Definition and Autoinstall

- **RDO extended**
 - ▶ **Files**
 - ▶ **Consoles**
 - ▶ **Transaction Class**

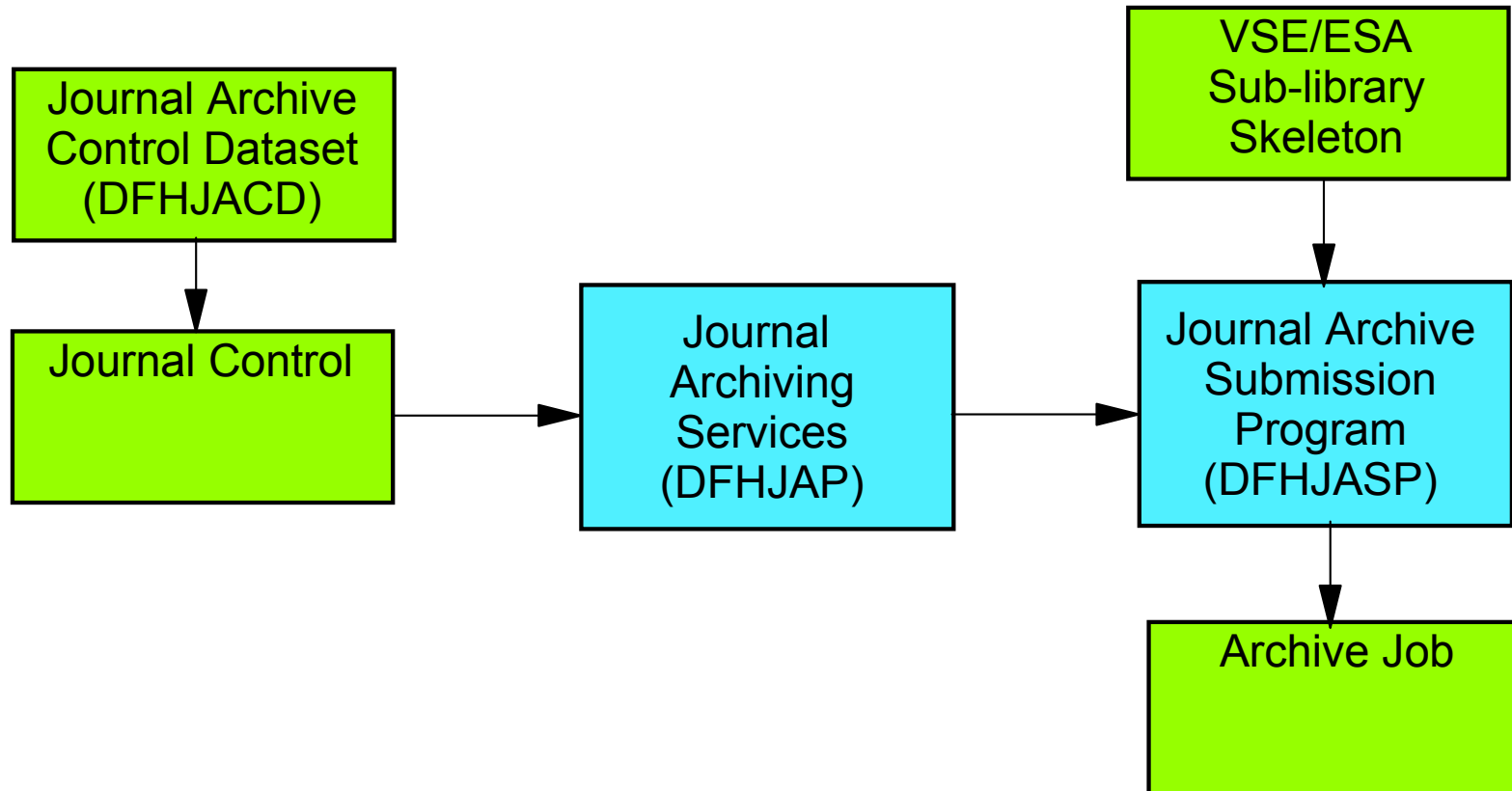
- **Removal of installed resources online**
 - ▶ **CEMT DISCARD or EXEC CICS DISCARD**

- **Autoinstall extended**
 - ▶ **Programs**
 - ▶ **Mapsets**
 - ▶ **Partitionsets**

- **New Autoinstall sample programs**

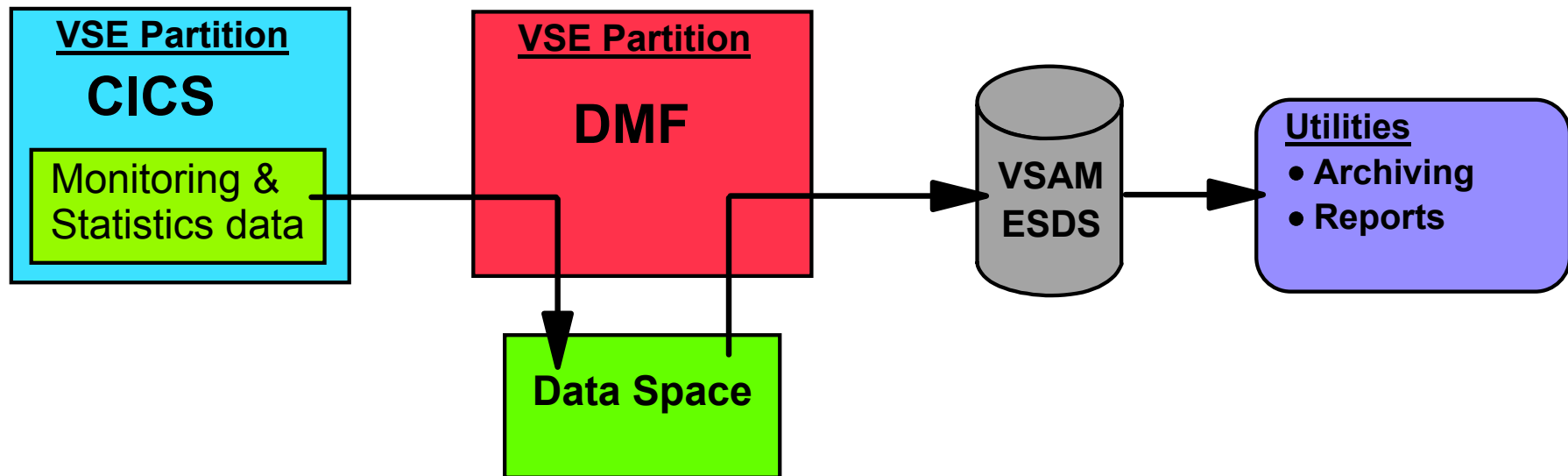
What's new?....Automatic Journal Archiving

- Prompt submission of archive jobs
- Removes need for users to implement own archiving facility
- Provides greater security
- Removes need for operator invention



What's new?....Data Management Facility

- New mechanism for collecting CICS monitoring and statistics data
- DMF runs in its own VSE/ESA partition and collects data from CICS
 - Cross-memory transfer from CICS to a DMF data space
 - SMF 110-format records written to VSAM files
 - DFHSTUP for processing of statistics data
 - DFH\$MOLS for processing of monitoring data
- Potential for use as a central monitoring and statistics repository
- DMF does not support data from CICS/VSE V2.3



What's new?....Monitoring/Statistics/Trace/Dump

■ Monitoring

- ▶ DFHMCT revised
- ▶ Record formats revised
- ▶ New CEMT/SPI commands

■ Statistics

- ▶ DFHSTUP enhanced
- ▶ New online sample program
- ▶ New CEMT/SPI commands

■ Trace

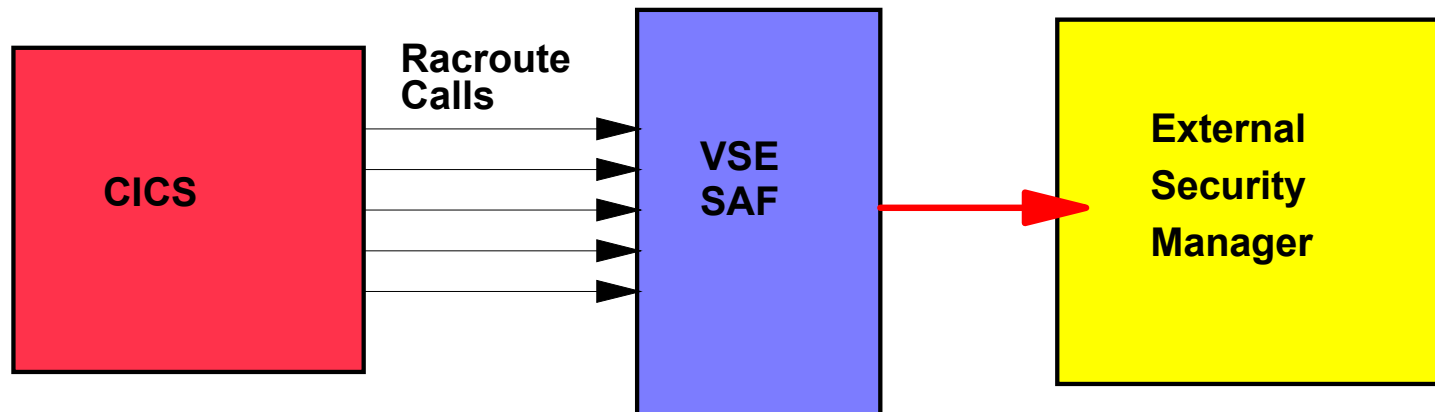
- ▶ More trace points and more information
- ▶ New CETR transaction

■ Dump

- ▶ All CICS system dumps now produced with VSE SDUMP function
- ▶ Improved dump control and dump formatting

What's new?....Security

- All security checking now done by an External Security Manager
- Basic Security Manager supplied with VSE/ESA 2.4
 - Supports Signon and Transaction Attach security only
- Full function External Security Managers available from other vendors
 - CA-Top Secret delivered with VSE/ESA 2.4
 - Other ESM products available from BI Moyle and MacKinney Systems

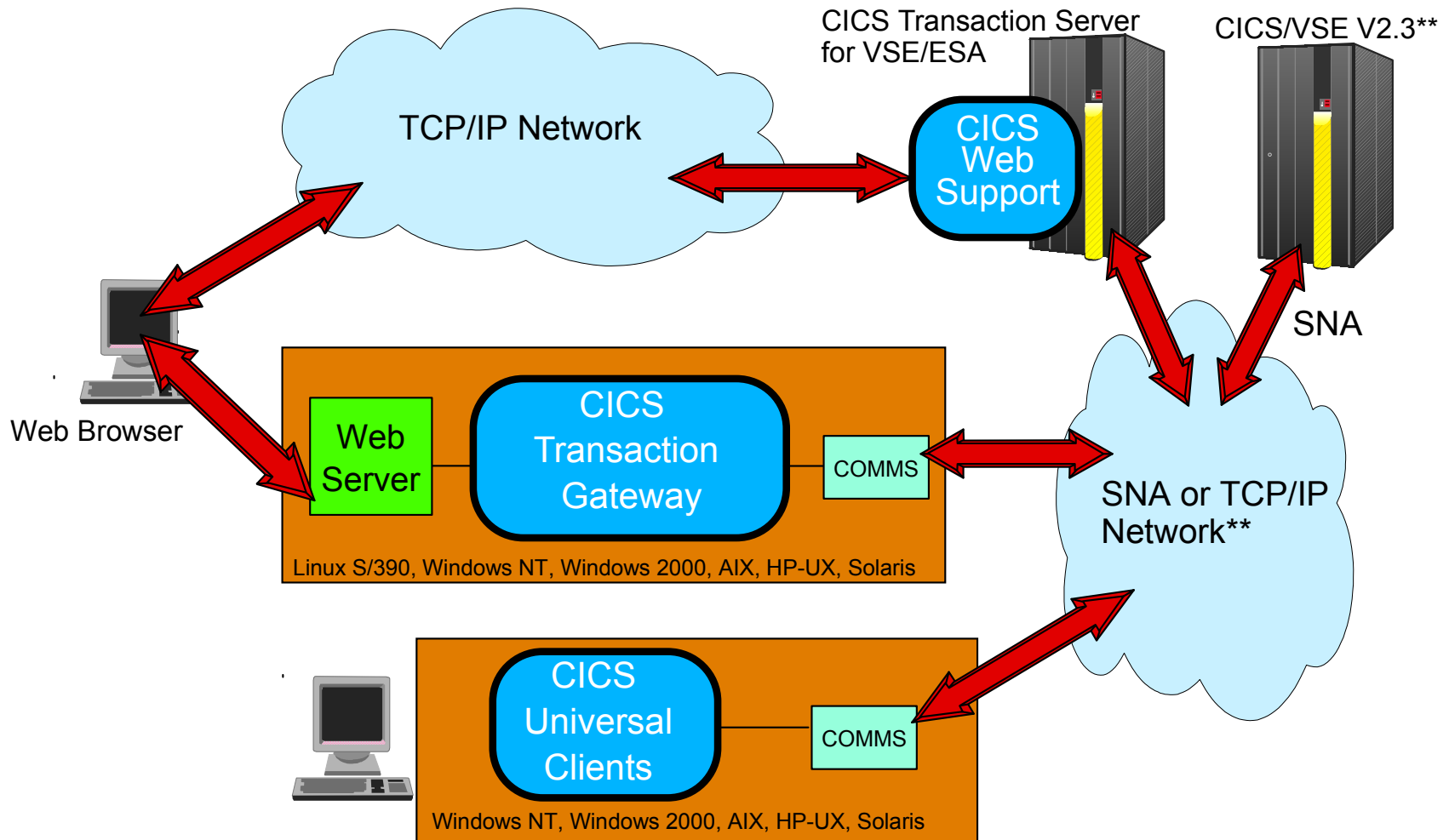


- CSSN and CSSF transactions obsolete, replaced by CESN and CESF
- All security based on Userid
- New Command and Surrogate User checking (not supported by BSM)

What's new?....Other enhancements

- **Common Programming Interface - Communications (CPI-C)**
- **Command Level programming interface enhancements**
- **New Transaction Manager**
- **Report Controller improvements**
- **Additional entry points for Dynamic Transaction Routing**
- **APPC LU6.2 Persistent Verification**
- **In Doubt Window resolution utility**
- **SYSGEN step eliminated**

What's new?....e-business Support



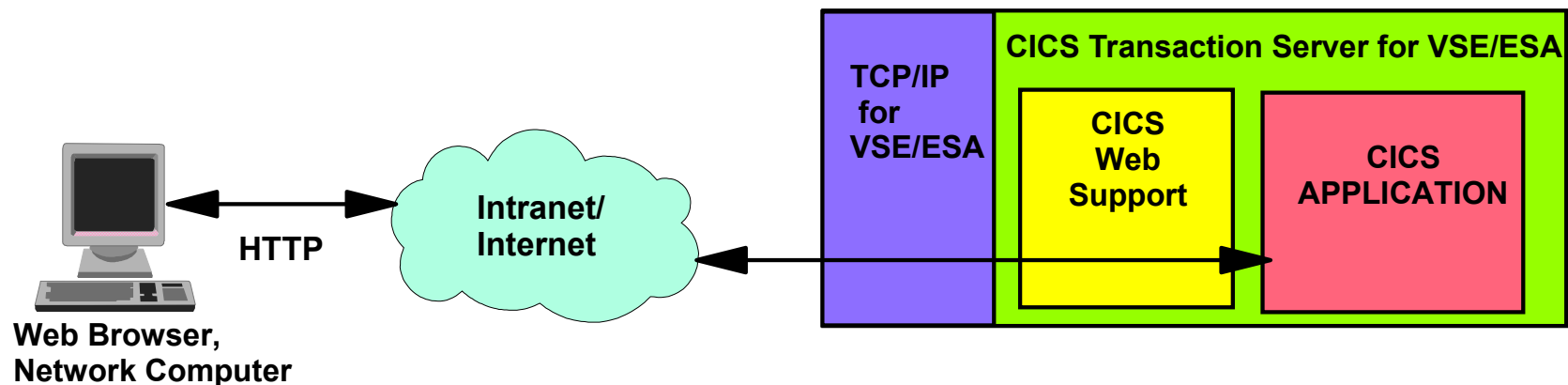
** TCP/IP support announced for CICS TS for VSE/ESA 1.1.1 with VSE/ESA V2.6

e-business Support: CICS Transaction Gateway

- **Provides an interface to CICS from Java and the Web**
 - ▶ from a Web Browser
 - ▶ from any Java execution environment
- **Allows CICS programs or 3270 transactions to be invoked**
- **Is an IBM e-business Connector**
- **Runs on several platforms in conjunction with a Web Server**
 - ▶ Windows NT, Windows 2000, OS/2
 - ▶ AIX, Solaris, HP-UX, OS/390, z/OS, Linux for S/390
- **CICS Universal Clients component gives access from non-Web browser**
- **Two Versions currently available**
 - ▶ **CICS Transaction Gateway V3**
 - Delivered as part of CICS Transaction Server for VSE/ESA package
 - ▶ **CICS Transaction Gateway V4**
 - Separately priced product

e-business Support: CICS Web Support

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Agenda.....CICS Transaction Server for VSE/ESA

Migration Considerations

Migration....Planning

- **Position current system in preparation**
 - **CICS/VSE V2.3, RDO**
- **Understand the CICS TS product changes**
- **Decide whether to run coexistent with CICS/VSE 2.3**
- **Involve third party product suppliers early**
- **Test and cutover in stages**
- **Some significant discontinued support**
 - **Macro level programs,**
 - **Direct control block reference,**
 - **Old languages**
 - **Internal security**
 - **BTAM**
- **Migration aids:**
 - **CICS TS coexistence with CICS/VSE V2.3**
 - **Application Migration Aid, DFHMSCAN, Security Migration Aid**

Migration...Installation

- CICS TS is part of VSE/ESA 2.4 base package
- CICS/VSE V2.3 supplied on the extended base tape
- Predefined environments reflect virtual storage requirement increase
- Changes to CICS Datasets
 - ▶ New Catalogs
 - ▶ CSD mandatory
 - ▶ New Monitoring & Statistics files

Migration....Tailoring/Customisation

- **Many SIT changes**
- **SYSGEN step removed**
- **Two phase PLTPI**
 - ▶ **Limited**
 - ▶ **Full function**
- **SIMODS removed**
 - ▶ **Use PLT stage 2**
- **Review all User Replaceable Modules**
 - ▶ **Must be command level and AMODE (31)**
 - ▶ **Must use COMMAREA**
 - ▶ **Some new URM's and some obsoleted**
- **Review all Global User Exits**
 - ▶ **Will need some change due to interface changes**
 - ▶ **Many new Global User Exit points and some removed**

Migration.....Resource Definition

- **The CSD...**
 - ▶ **Is mandatory**
 - ▶ **Use DFHCSDUP to convert existing CICS/VSE V2.3 CSD for CICS TS**
 - ▶ **Can be shared between CICS TS and CICS/VSE V2.3**

- **Some resources now RDO only**
 - ▶ **Transactions, Programs, Mapsets, VTAM terminals/links, MRO connections, Consoles**
 - ▶ **Use DFHCSDUP to migrate tables to CSD**
 - ▶ **All other tables must be reassembled against CICS TS macros**

Migration.....Monitoring and Statistics

- **Data Management Facility (DMF) used for monitoring and statistics data**
 - ▶ DMF datasets and operational procedures
 - ▶ TD queues CSSM and CSSN obsolete

- **CSTT obsolete**
 - ▶ Replaced by new CEMT and SPI functions for statistics and monitoring

- **Monitoring**
 - ▶ New SIT options
 - ▶ MCT revised
 - ▶ ACCOUNTING records obsolete
 - ▶ PERFORMANCE records enhanced
 - ▶ New Global User Exit (XMNOUT)
 - ▶ DHHEMP macro obsolete (use EXEC CICS MONITOR command)

- **Statistics**
 - ▶ New online sample program, DFH0STAT
 - ▶ Use of DFHSTUP requires change

Migration.....Trace and Dump

■ Trace

- ▶ Trace data volume has increased
- ▶ New CETR trace Transaction
- ▶ New Auxiliary trace formatting utility

■ Dump

- ▶ All CICS system dumps now produced with VSE SDUMP function
- ▶ CICS dump data sets contain only transaction dumps
- ▶ New Dump Table used to control the taking of Dumps
- ▶ New Dump formatting program

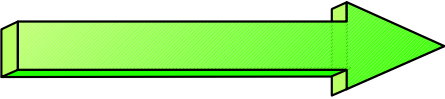
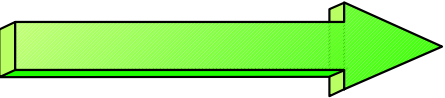
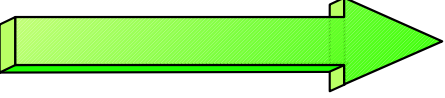
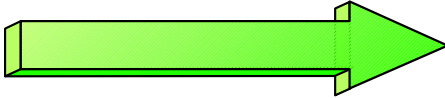
Migration.....Security

- **CICS Internal Security discontinued**
- **All security checking performed by an External Security Manager**
- **Applications which exploit CICS internal security will need changing**
- **All security based on User ID**
- **Decide which External Security Manager meets security requirements**
 - ▶ **BSM supports Signon and Transaction Attach security only**
 - ▶ **CA Top-Secret delivered on VSE/ESA 2.4 Extended base tape**
 - ▶ **Other ESM products from BI Moyle and MacKinney Systems**
- **BSM includes a utility to migrate SNT and PCT data**
 - ▶ **Builds on CICS Security Migration Aid shipped with CICS/VSE 2.3**

Migration.....Application Programming

- **CICS/VSE 2.3 command level programs are object compatible with CICS Transaction Server provided they don't:**
 - ▶ issue any CICS macros
 - ▶ access any CICS control blocks directly
 - ▶ issue any EXEC CICS ADDRESS CSA commands

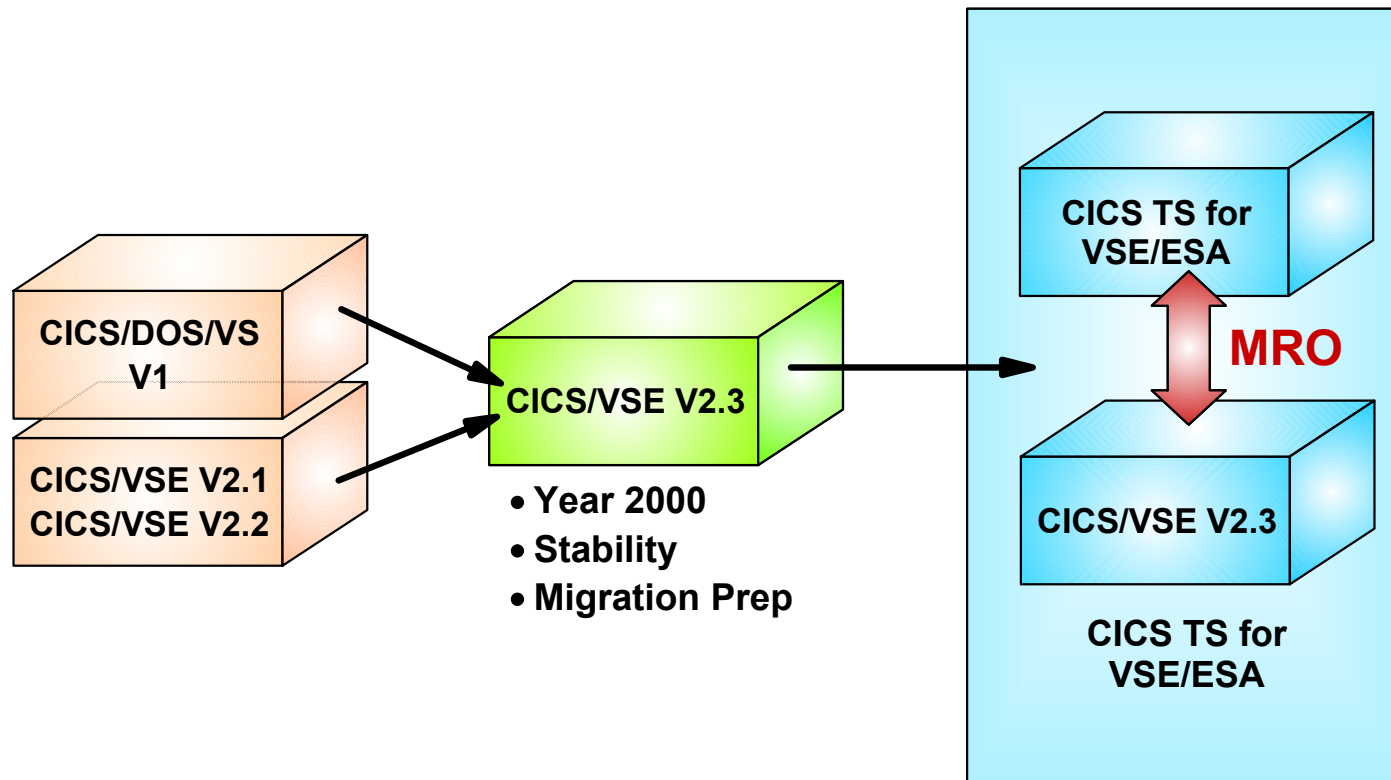
■ Language support:

High-level Assembler COBOL for VSE/ESA PL/I for VSE/ESA C for VSE/ESA		Application will run on CICS TS without need for recompile
DOS/VS COBOL VS COBOL II		Application will run OK, but re-link with LE libraries for Y2K support
C/370 DOS PL/I		Application will not run on CICS TS - recompile with LE enabled compiler
RPG		Not supported - run on CICS/VSE 2.3 in coexistence mode.

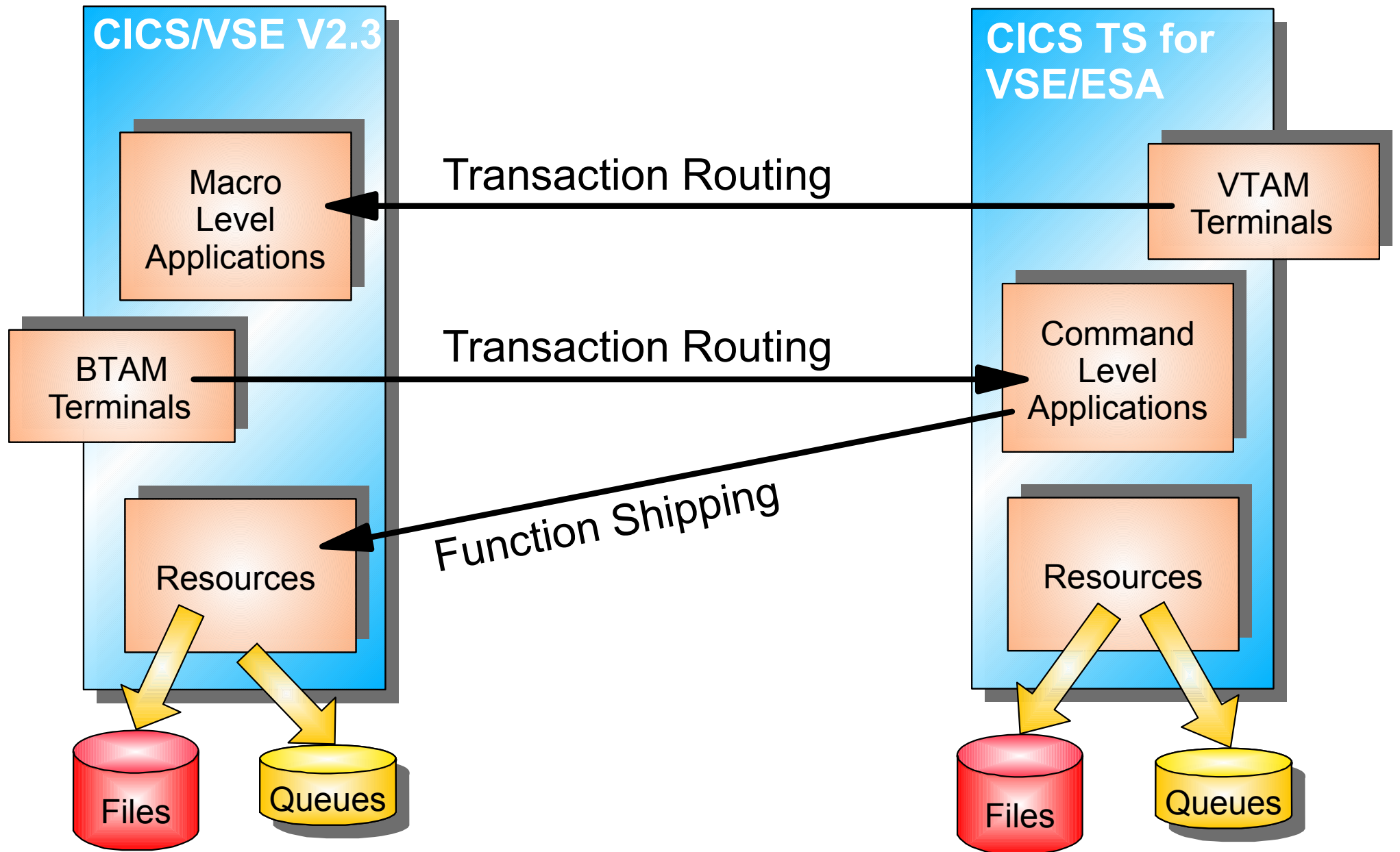
Note: CICS TS exploits LE/VSE performance fix PQ23382

Migration.....Coexistence

- Provided to enable a staged migration
- MRO communication between CICS TS and CICS/VSE V2.3
- Care needed with SVA modules



Migration....Coexistence



Further Information

■ Websites

▶ CICS

→ <http://www.software.ibm.com/ts/cics/>

▶ CICS Transaction Server for VSE/ESA

→ <http://www.software.ibm.com/ts/cics/platforms/cicsvse/vse.html>

▶ VSE/ESA

→ <http://www.s390.ibm.com/vse/>

▶ ITSO

→ <http://www.redbooks.ibm.com>

■ Announcement Letters

▶ **CICS Transaction Server for VSE/ESA:** 298-373, 299-156

▶ **CICS Transaction Server for VSE/ESA V1.1.1:** 200-293

▶ **VSE/ESA V2.5:** 200-288

▶ **VSE/ESA V2.6 Preview:** 201-097

Further Information

■ Publications

Title	Number
IBM CICS Transaction Server for VSE/ESA product publications	
Release Guide	GC33-1645
Migration Guide	GC33-1646
Enhancements Guide (Provided with V1.1.1)	GC34-5763
Internet Guide *****	SC34-5765
External Interfaces Guide *****	SC33-1669
REXX Guide *****	SC33-5764
IBM Red Books	
Migration to VSE/ESA V2.4 and CICS Transaction Server for VSE/ESA V1.1	SG24-5595
Implementation of VSE/ESA V2.4 and CICS Transaction Server for VSE/ESA V1.1	SG24-5624
CICS Transaction Server for VSE/ESA: CICS Web Support	SG24-5997
Revealed! Architecting Web Access to CICS	SG24-5466
Getting Started with TCP/IP for VSE/ESA V1.4	SG24-5626
e-business Solutions for VSE/ESA	SG24-5662

► **Downloadable from CICS and Redbooks Websites**

CICS Transaction Server for VSE/ESA - Summary

- **Major new version of CICS for the VSE/ESA platform**
 - ▶ **Broad range of significant improvements and new function**
 - **Includes CICS Web Support**

- **Inclusive product package containing...**
 - ▶ **CICS Transaction Server for VSE/ESA**
 - ▶ **CICS/VSE V2.3**
 - ▶ **CICS Transaction Gateway**
 - ▶ **CICS Universal Clients**
 - ▶ **Report Controller,**
 - ▶ **CICS/DDM**
 - ▶ **REXX for CICS**

- **Migration more complex than previous**
 - ▶ **Start planning NOW**
 - ▶ **Implement RDO on CICS/VSE V2.3 if not already**
 - ▶ **Convert macro applications to command level**
 - ▶ **Analyse security requirements**
 - ▶ **Coexistence with CICS/VSE V2.3 allows staged migration**