

Migrating to CICS TS for VSE/ESA

VM/ESA and VSE/ESA
TECHNICAL CONFERENCE



4025 Woodland Park Blvd.

Arlington, TX 76013

Tel: 1-800-4-VSEESA or 1-817-277-0800

Email: info@intelliware.com

<http://www.intelliware.com> or <http://www.vseesa.com>

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Topics



- Planning
- Installation and Tailoring
- Resource Definition
- Security
- Application Program Considerations

Topics...



- Customization
- Statistics and Monitoring
- Problem Determination
- Coexistence
- Additional information
- Summary

Planning



- Not your typical CICS migration
- Major differences
 - Re-architected CICS
 - Discontinued functions
 - | PCT, PPT and RDO-eligible TCT macro definitions
 - | Support for macro level programs
 - | Support for RPG programs
 - | Direct access to CICS control blocks
 - | Internal security
 - | BTAM

Planning...



- CICS Transaction Server for VSE/ESA 1.1
 - Based on CICS for MVS/ESA 4.1 + function from CICS TS for OS/390
 - Report Controller integrated into product
 - Pre-installed in PRD1.BASE
 - Generation Feature into PRD2.GEN1 (Optional)
 - Works with
 - Basic Security Manager or External Security Manager
 - VSE/ESA 2.4 Interactive Interface
 - VSE/ICCF

Planning...



- CICS for VSE/ESA 2.3 with RCF
 - On VSE/ESA Extended Base Tape
 - | Supports BTAM, macro level, internal security, etc.
 - | Install using Optional Programs dialog
 - PRD2.CICSOLDP and PRD2.CICSOLDG (optional)
 - Does not work with
 - | VSE/ESA 2.4 Basic Security Manager
 - | VSE/ESA 2.4 Interactive Interface
 - | VSE/ICCF

Planning...



■ Optional Products

- BTAM must be ordered as optional product if needed
- DL/I VSE 1.11 supports CICS TS only
- DL/I DOS/VS 1.10 supports CICS/VSE 2.3 only
- DB2 Server for VSE and VM 6.1 required for CICS TS
 - Supports CICS/VSE 2.3

Planning...



- Preparing to migrate
 - Read the CICS TS Migration Guide and Redbook
 - Read them again!!
- Develop a migration plan
 - Install, test
 - Migrate discontinued functions on current CICS/VSE system
 - Gain familiarity with new parameters and tuning options

Installation/Tailoring



- VSE/ESA 2.4
 - New install only, no Fast Service Upgrade
 - Supports Turbo-Dispatcher only
 - | Possible increase in processor utilization
 - | Performance document on VSE website
 - www.s390.ibm.com/vse
 - Supported on ESA/390 processors only

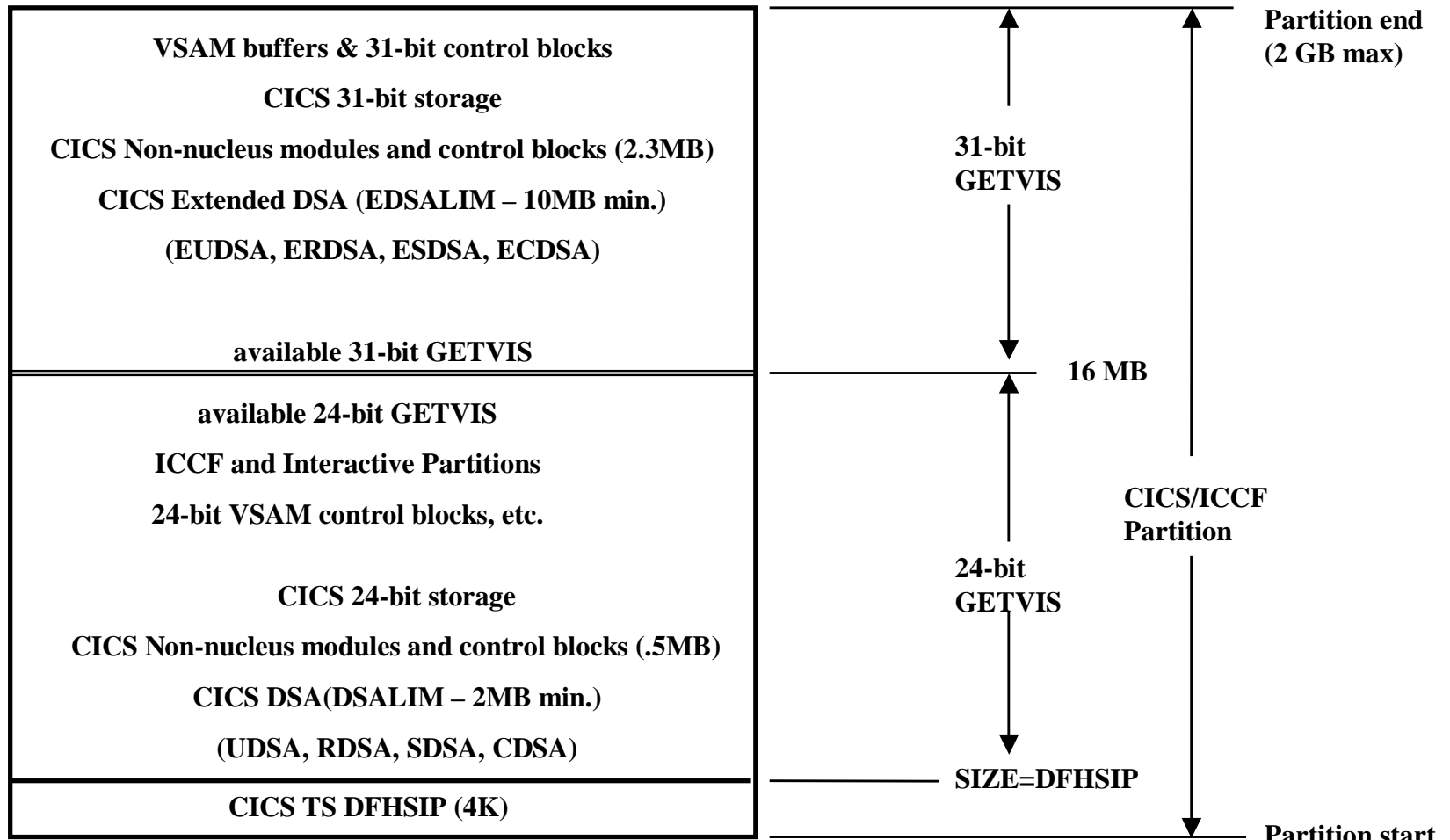
Installation/Tailoring...



- Virtual storage requirements are larger
 - CICS TS 31-bit partition GETVIS
 - | Must be at least 12.5MB plus storage for VSAM buffers
 - More data space usage
 - | Basic Security Manager
 - | CICS Data Management Facility (DMF)
 - | CICS Shared Data Tables
 - | Environment B SYSDEF DSIZE=20MB
 - May require more real memory

Installation/Tailoring...

CICS/ICCF Partition - CICS Transaction Server



Installation/Tailoring...



- Virtual Storage Considerations
 - 24-bit (DSALIM) and 31-bit (EDSALIM) dynamic storage areas required
 - | Other SIT parameters allocate CICS subpools
 - Task storage allocated based on MXT value
 - | MXT=999 is not good (uses 3.6MB)

Installation/Tailoring...



- Use environment B
- Environment B partition allocations
 - 50MB F2 for CICS TS with ICCF
 - 50MB F8 for second CICS TS
 - 20MB F4 for CICS/VSE
 - | Cannot run CICS TS with subsystem storage protection in F4
 - 512K FB (default) for VSE BSM Security Server

Installation/Tailoring...



- New CICS system datasets
 - Local and global catalog (DFHLCD, DFHGCD)
 - Data Management Facility (DMF) datasets for statistics and monitoring
 - Journal archive dataset (DFHJACD)
- Restart dataset used for emergency restart only
 - Other functions moved to local and global catalogs

Installation/Tailoring...



- Migrate macro tables to CSD and RDO
 - PCT, PPT, RDO-eligible TCT entries
 - FCT (optional)
- Update SIT parameters
 - Many new/changed/obsolete entries
- Review other tables for new/changed parameters

Installation/Tailoring...



- CICS system initialization parameter changes
 - 96 new parameters
 - 28 changed
 - 30 removed
 - Some defined in startup job only
 - Skeleton DFHSITSP and DFHSITC2 in ICCF library 59

Installation/Tailoring...

Function	System Initialization Parameter
CSD definitions	CSDACC, CSDJID, CSDBUFNI, CSDLRNO, CSDBUFND, CSDRECOV, CSDFRLOG, CSDSTRNO
BMS	BMS (changed)
Autoinstall	AIEXIT, AILDELAY, AIQMAX, AIRDELAY PGAICTLG, PGAIEXIT, PGAIPGM AUTINST (removed)
Monitoring	MN, MNCONV, MNFREQ, MNTIME, MNEXC, MNPER, MNSYNC MONITOR (removed)

Installation/Tailoring...

Function	System Initialization Parameter
Task dispatcher	ICVTSD and MXT (changed) ICVS, AMXT and CMXT (removed)
Storage protection	CMDPROT, CWAKEY, RENTPGM, STGPROT, TCTUAKEY
Storage management	CHKSTRM, CHKSTSK, DSALIM, EDSALIM, CDSASZE, RDSASZE, SDSASZE, UDSASZE, ECDSASZE, ERDSASZE, ESDSASZE, EUDSASZE, STGRCVY, TCTUALOC PGSIZE and SCS (removed)

Installation/Tailoring...

Function	System Initialization Parameter
Temporary storage and transient data	TSMGSET TS and TD (changed)
Dump definitions	DUMPSW, SYDUMAX, TRDUMAX DUMP and DUMPDS (changed) ABDUMP, PCDUMP and SVD (removed)
Trace definitions	AUXTR, AUXTRSW, INTTR, SPCTR, SPCTRxx, STNTR, STNTRxx, SYSTR, TRTABSZ, TRTRANSZ, TRTRANTY, USERTR TRACE (removed)

Installation/Tailoring...

Function	System Initialization Parameter
XRF	XRFSOFF, XRFSTIME XRFTRSZ (removed)
SVA management	PRVMOD, SVA
Application related	DISMACP, INITPARM, RUWAPPOOL BFP, COBOL2, EXEC, LESTG and PLI (removed)
DTB	DBP (changed), DTB (removed)
Exits	TBEXITS (changed) ALEXIT and EXITS (removed)

Installation/Tailoring...

Function	System Initialization Parameter
Terminal related	DSHIPIDL, DSHIPINT, EODI, GNTRAN, PSDINT, PVDELAY, RESP, TCSACTN, TCSWAIT, USRDELAY PRINT and VTPREFIX (changed) FERS and OPNDLIM (removed)
MRO/ISC	DTRTRAN, FSSTAFF, MROFSE APPLID and SYSIDNT (changed)
Security	CMDSEC, CONFDATA, CONFTXT, DFLTUSER, ESMEXITS, PLTPIUSR, PLTPISEC, SEC, SECPRFX, SNSCOPE, XCMD, XUSER, RESSEC XDCT, XFCT, XJCT, XPCT, XPPT, XTST (changed) EXTSEC (removed)

Installation/Tailoring...



Function	System Initialization Parameter
Initialization	FCT, GMTRAN, GRPLIST, START, SUFFIX, SRT, and TCP (changed) ALT, NLT, PCT, PPT, SIMODS and ZCP (removed)
Others	FEPI, MSGCASE, NEWSIT, PARMERR, PRTYAGE, STATRCD JSTATUS and DATFORM (changed) DIP (removed)

Resource Definition



- CICS system definition file (CSD) is mandatory
 - *Required* for transactions, VTAM terminals, MRO/ISC connections and sessions, VSE console terminals
 - *Required* for programs and mapsets
 - Can be shared with CICS/VSE 2.3 with care
 - Compatibility groups DFHCOMP1 and DFHCOMP2

Resource Definition...



- New support for defining
 - | VSAM files
 - | LSRPOOLS
 - | TRANCLASes
 - | VSE console terminals
- Can still use FCT macro table for VSAM files and LSRPOOLS
 - | Must use macro table for DA files

Resource Definition...



- Other resources still defined using tables
 - TCT for SAM terminals, remote terminals for transaction routing, logical device codes
 - Journals (JCT), Transient Data Queues (DCT), Program Lists for startup and shutdown (PLTPI and PLTSD), MCT, SRT, TLT, TST, XLT, etc.
 - ALT, NLT and SNT are no longer supported

Resource Definition...



- Migrate discontinued macro tables
 - Remove IBM supplied entries
 - Assembly with CICS TS supplied macros
 - Migrate to CSD with DFHCSDUP batch utility
- Migrate supported macro tables
 - Update with new/changed parameters and entries
 - Reassemble with CICS TS

Resource Definition...



- Migrate CSD definitions
 - Restore old CSD on VSE/ESA 2.4
 - Method 1: Upgrade old CSD with DFHCSDUP utility
 - CICS and VSE supplied entries
 - Method 2: Copy application groups from old CSD to new VSE-supplied CSD

Security



- Internal security withdrawn
 - No SNT
 - CICS sign-on changed
 - Several parameters obsolete
- External Security Manager (ESM) used for all security checking
- All security based on 8 character USERID
- Utilities to convert DFHSNT and PCT definitions

Security...



- Obsolete parameters
 - TRANSEC on transaction definitions
 - RSL on resource definitions
 - OPERID, OPERPRTY, OPERRSL, OPERSEC in terminal and session definitions
 - XSNAME (SECURITYNAME) in MRO/ISC definitions
 - EXTSEC in SIT

CICS TS Security Choices



- No security
 - Built into application or not required
 - SIT SEC=NO
- Basic Security Manager (BSM)
 - User sign-on and transaction security only
- External Security Manager
 - Vendor product or write your own
 - “Full function” depending on product

Basic Security Manager



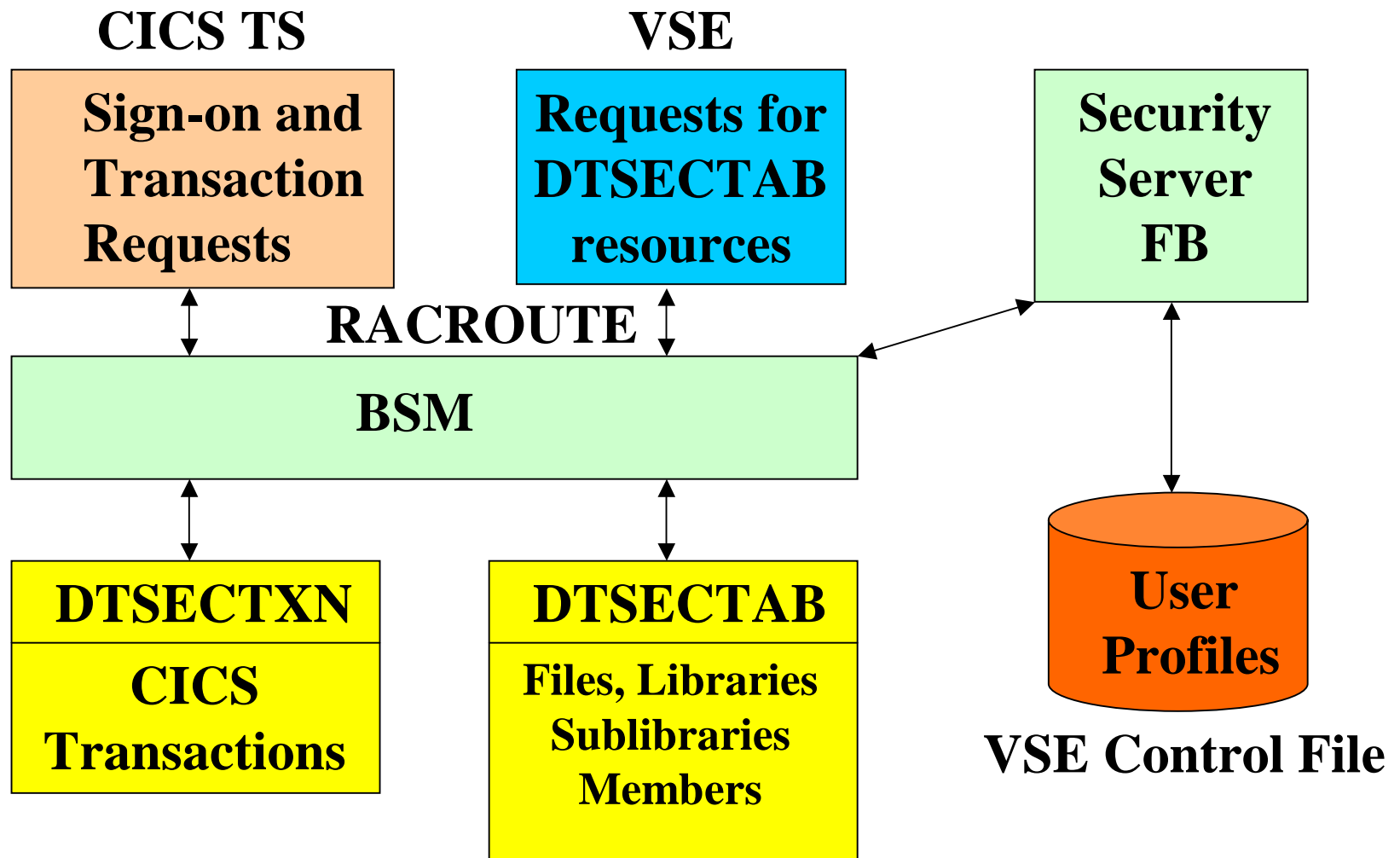
- Basic ESM supplied as part of VSE/ESA 2.4
- Basic security support for CICS TS
 - Sign-on security
 - Transaction-attach security
 - Operates independent of IPL SYS SEC setting
 - Requires SIT SEC=YES, XTRAN=YES
- Support for DTSECTAB system security
 - IPL SYS SEC=YES

Basic Security Manager...



- BSM does not support
 - Resource security checking
 - Report Controller security
 - Command security
 - Surrogate user checking
 - MRO/ISC security

Basic Security Manager...



Security Migration...



- Utilities to convert PCT definitions
 - REXX procedures in ICCF library 59
 - DTSECTXS.PROC
 - | Converts PCT source to BSM transaction security definitions
 - DTSECTX2.PROC
 - | Converts Security Migration Aid (SMA) file entries to BSM transaction security definitions

Security Migration...



- Security Migration Aid (SMA)
 - Stage one of two stage security migration
 - Menu driven online program
 - Extracts security information from a running CICS/VSE system and the VSE IUI control file
 - Creates VSAM KSDS file DFHX SMA
 - Records containing VTAM APPLID, resource type, resource name, RSL and TRANSEC values
 - Used as input to ESM supplied stage two utilities

External Security Manager



- Vendor supplied products
 - Level of security support may vary
 - Check vendor documentation for details
- Computer Associates Top Secret
- B.I. Moyle BIM-Alert/CICS
- MacKinney Systems CICS/Signon
- Others???

Application Program Considerations



- Command level only
- Macro level programs are not supported
 - Identify with DFHMSCAN utility
 - Convert to Command Level using the CICS Application Migration Aid (AMA)
 - Run in "Co-existence" mode under CICS/VSE 2.3
- New translator option SPI to use System Programming Interface EXEC Commands

Application Program Considerations...

Supported: Programs Compiled By

<u>Compiler</u>	<u>Run-Time Library</u>
COBOL for VSE/ESA	LE/VSE
High Level Assembler/Assembler	None or LE/VSE
PL/I for VSE/ESA	LE/VSE
C for VSE/ESA	LE/VSE
DOS/VS COBOL	LE/VSE ¹
VS COBOL II	LE/VSE ²

¹ Will probably run if link-edited with DOS/VSE COBOL or COBOL II run-time library, but not supported if it fails. Support for compiler ended 12/1999.

² Will probably run if link-edited with COBOL II run-time library, but not supported if it fails. Support for compiler ended 4/1998.

Application Program Considerations...



Not Supported: Programs Compiled By

Compiler

DOS PL/I

C/370

RPG II

Run-Time Library

Any

Any

Any

Application Program Considerations...



- Security related parameters
 - ASSIGN OPERKEYS or OPSECURITY
 - | Not supported
 - ASSIGN USERNAME
 - | Returns blanks using BSM
 - | Depends on ESM
 - Can use ASSIGN USERID and ASSIGN OPID

Application Program Considerations...



- Other commands and functions
 - ADDRESS CSA not supported
 - Built-in functions
 - EXEC CICS BIF DEEDIT still supported

Customization



- Review all customization interfaces
- No sysgen or SIT overlays
- PLTPI separated into three stages
- Define PLT programs with EXECKEY(CICS)
- Rework Global User Exits (GLUEs)
- Review User Replaceable Modules (URMs)

Customization...



- Global User Exits
 - 35 New and 8 removed exit points
 - Standardized linkage conventions for all exits
 - New Exit Programming Interface (XPI)
 - Access to CICS services
 - Must be 31-Bit capable
 - Existing programs *must* be changed

Customization...



- User Replaceable Modules (URMs)
 - Must be command level
 - Must be AMODE(31)
 - Use COMMAREA instead of internal control blocks
 - VSE supplied URMs in ICCF lib 59 have been updated
 - DFHPEP, IESZNEP (NEP), IESZATDX (autoinstall)

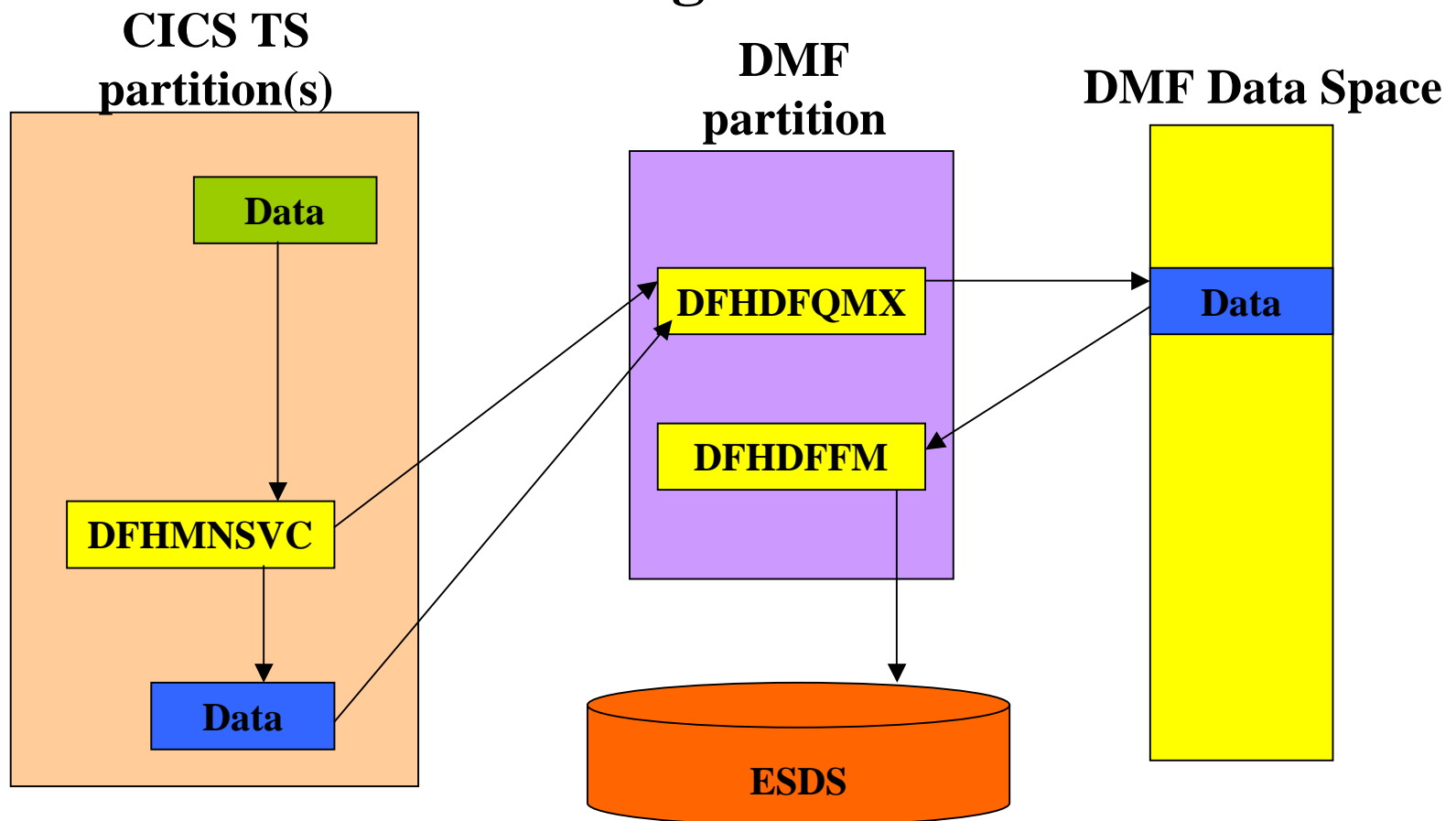
Statistics and Monitoring...



- New Data Management Facility (DMF) used for collecting statistics and monitoring data
- Obsolete statistics/monitoring definitions
 - CSSM and CSSN transient data queues
 - CSTT statistics transaction
 - DFHSTM and DFHSTN statistic datasets
 - Journals for monitoring data

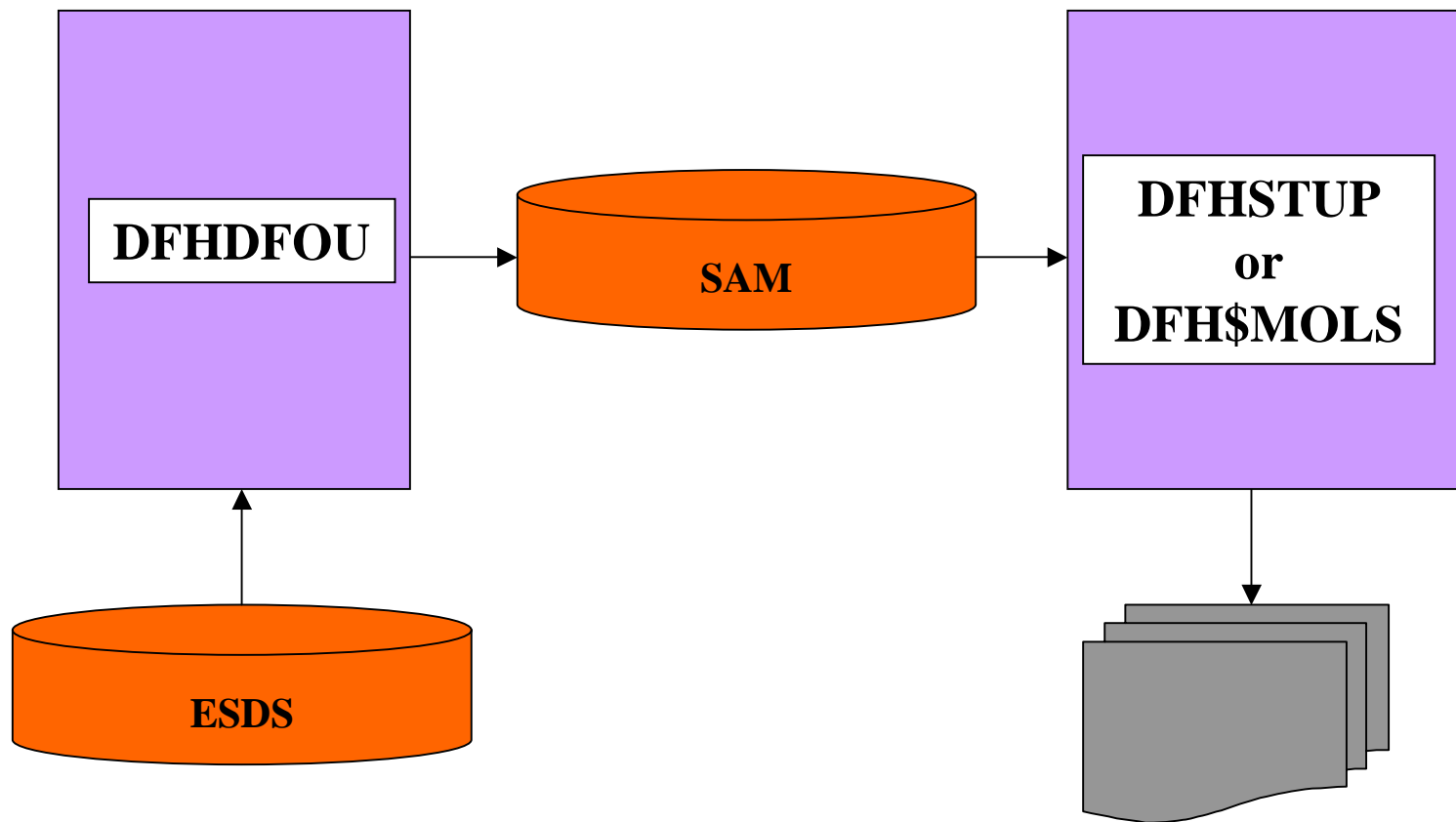
Statistics and Monitoring...

Collecting the Data



Statistics and Monitoring...

Offloading and Processing the Data



Problem Determination



- New trace and dump utility programs
 - DFHTU410 formats auxiliary trace
 - DFHDU410 formats transaction dumps
 - DFHPD410 formats system dumps
- Several options to control dump and trace
 - New SIT parameters
 - New CEMT options
 - New CETR transaction

Problem Determination ...



- More trace and dump granularity
 - Dump Tables
 - | Transaction
 - By transaction abend code
 - | System
 - By system dump code
 - | Created by
 - CEMT SET
 - EXEC CICS SET
 - New trace entries and trace levels

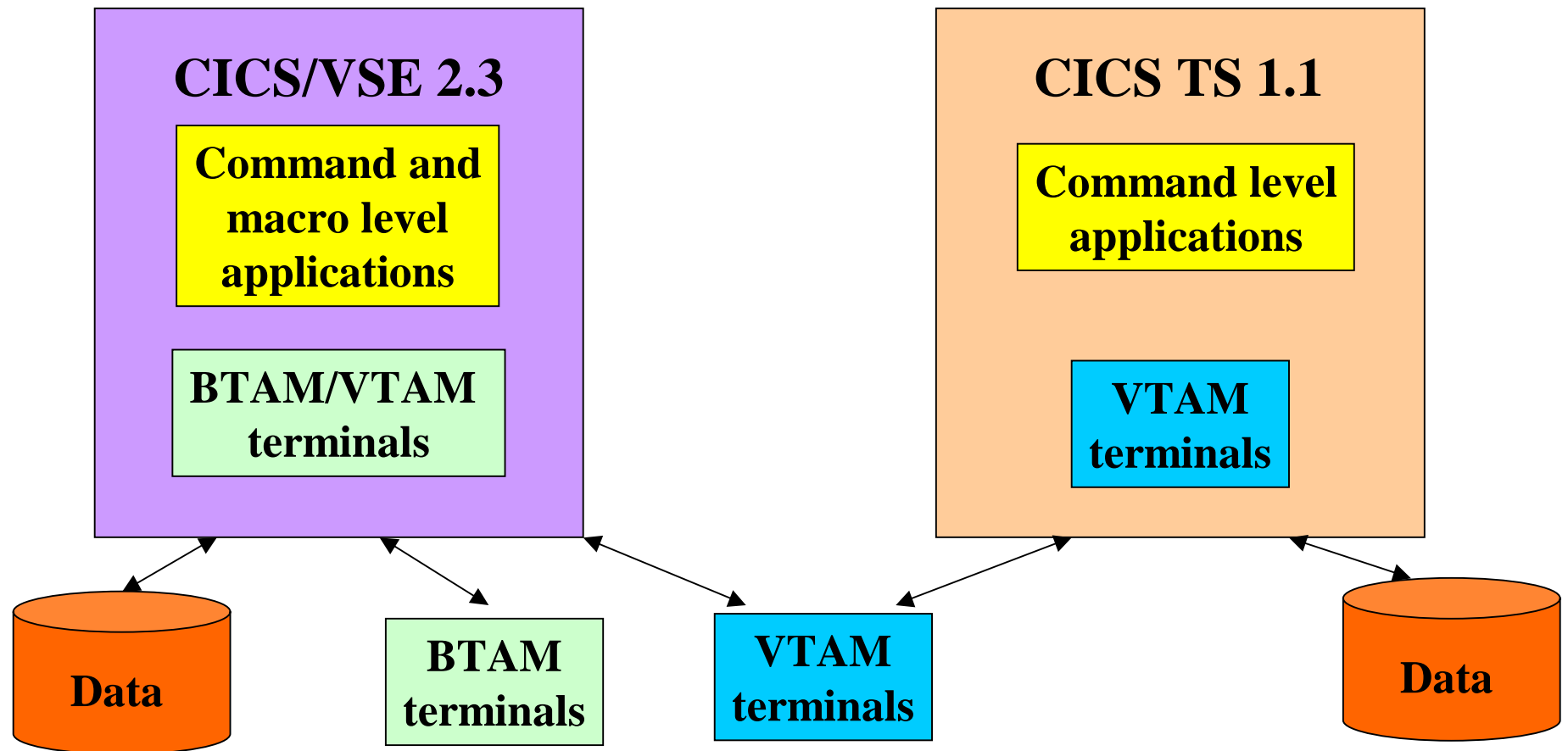
Coexistence



- What is it?
 - CICS/VSE 2.3 on same VSE with CICS TS
 - Support for discontinued functions
- Considerations
 - Shared or separate CSDs
 - CICS modules in SVA
 - Interactive Interface supports CICS TS only
 - Sharing data (MRO function shipping, VSAM shareoptions)

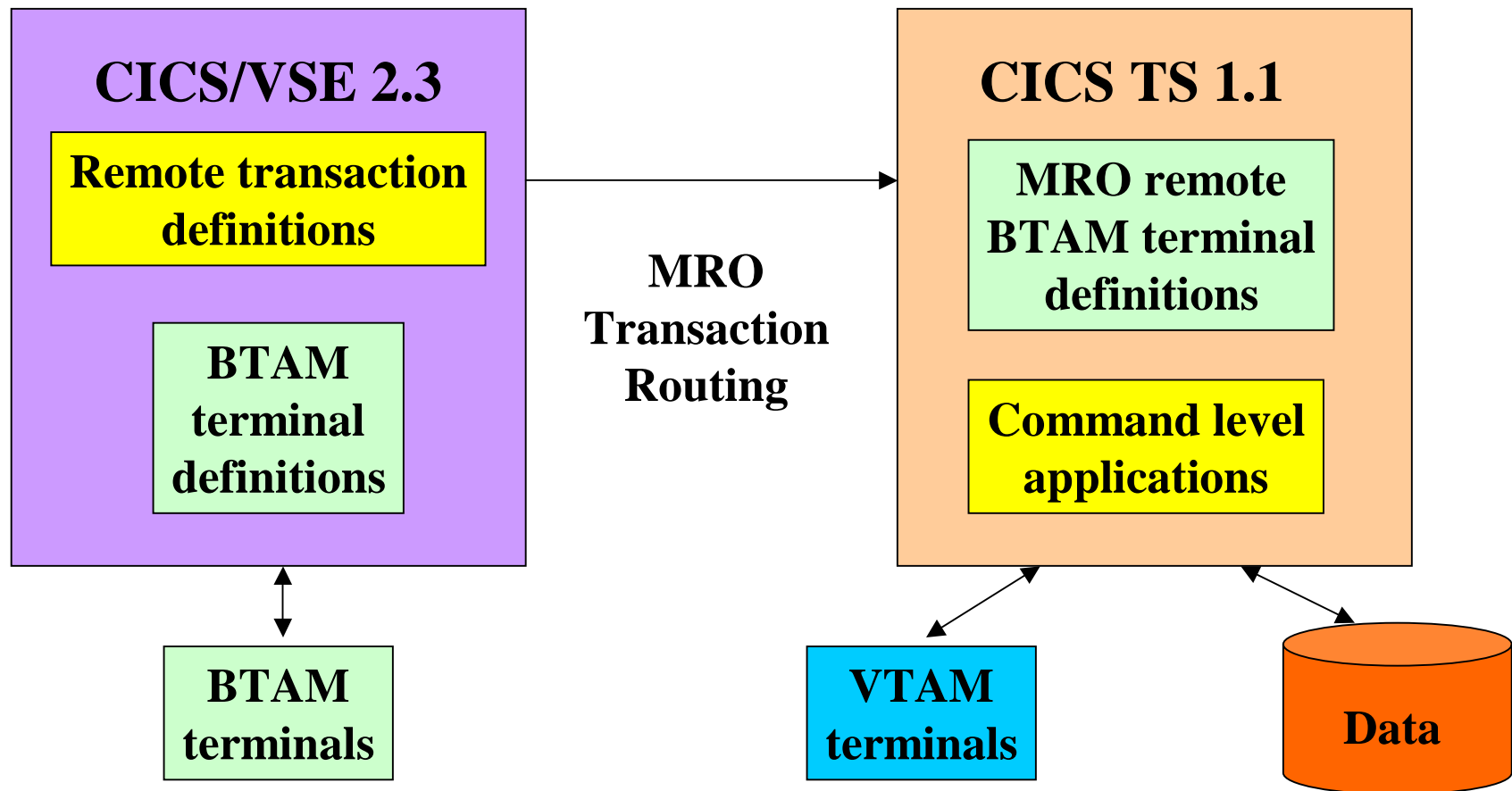
Coexistence scenarios...

Separate standalone partitions



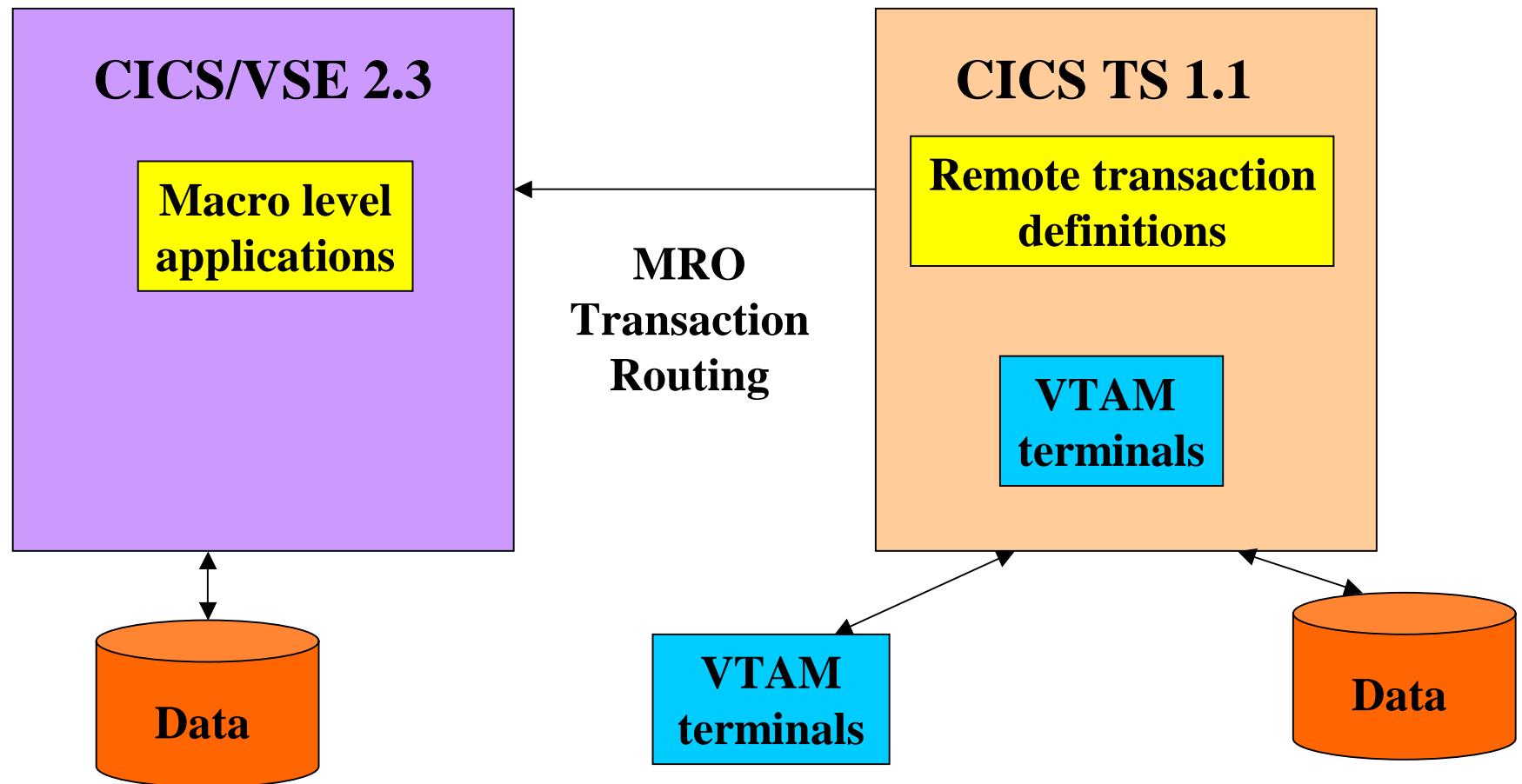
Coexistence scenarios...

BTAM terminal access to CICS TS applications



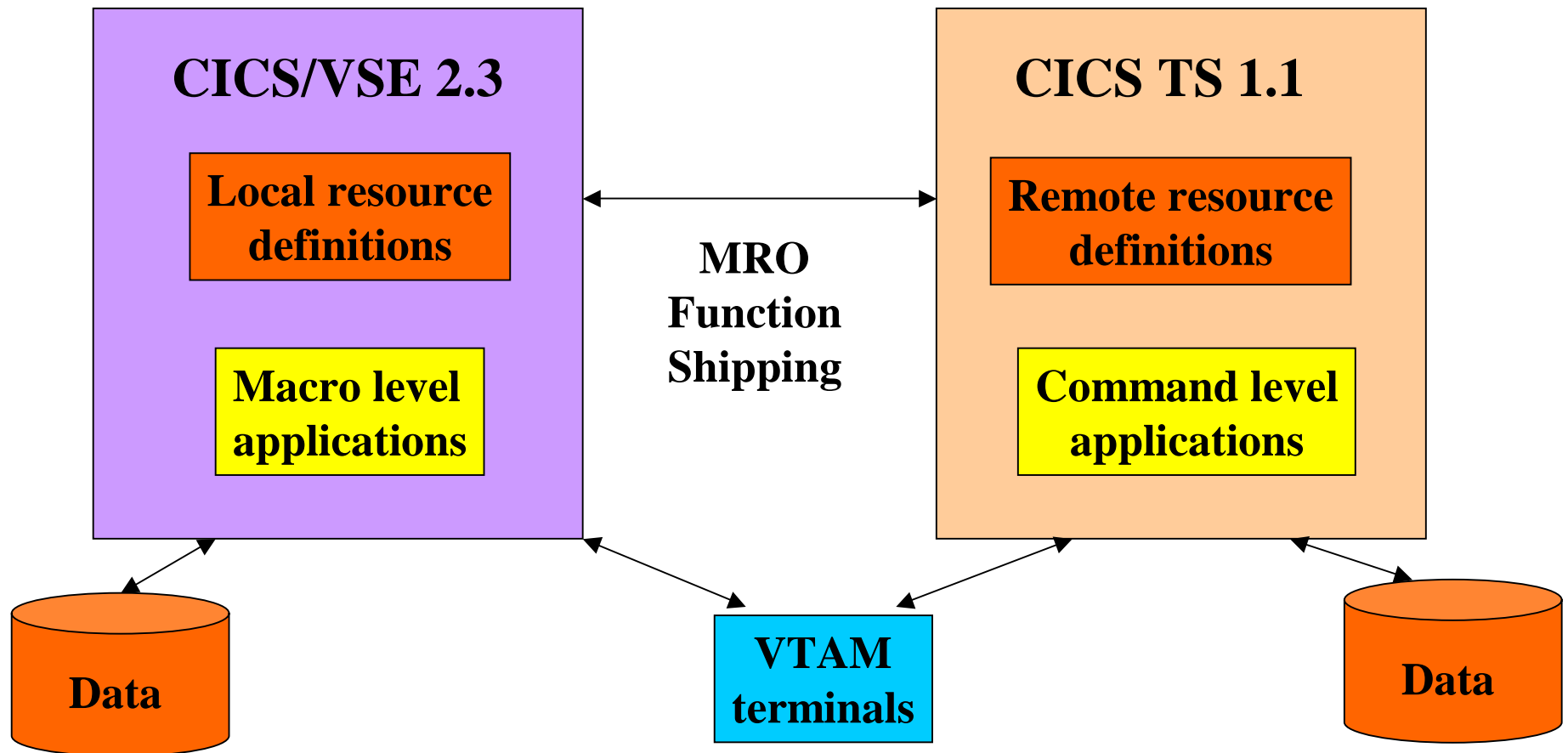
Coexistence scenarios...

CICS TS terminal access to macro level applications



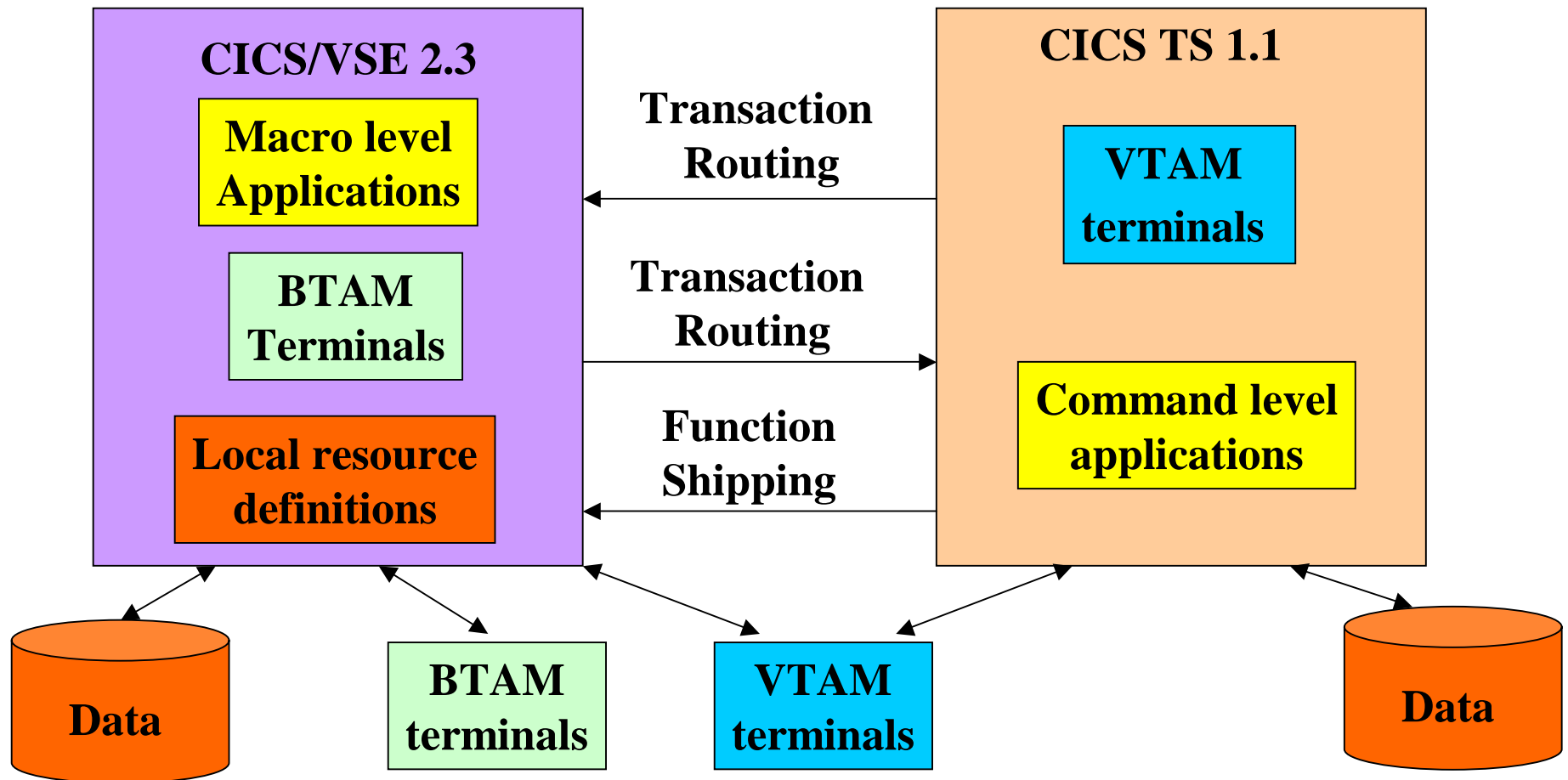
Coexistence scenarios...

CICS TS application access to CICS/VSE data



Coexistence scenarios...

Combination application and data access



Additional Information



■ CICS TS books

- Release Guide (GC33-1646)
- Migration Guide (GC33-1645)
- <http://www.software.ibm.com/ts/cics>

■ Redbooks

- Migration to VSE/ESA 2.4 and CICS Transaction Server for VSE/ESA 1.1 (SG24-5595)
- Implementation of VSE/ESA 2.4 and CICS Transaction Server for VSE/ESA 1.1 (SG24-5624)
- <http://www.redbooks.ibm.com>

Additional Information...



■ Education

- CICS Transaction Server for VSE/ESA Migration (A3731)
- CICS Transaction Server for VSE/ESA Tuning and Problem Determination (A3732)
- CICS Transaction Server for VSE/ESA Under the Covers (A3730)

Summary

- Migration to CICS TS takes more planning
- Some steps can be done on current releases
 - Implement RDO
 - Install a security manager
 - Migrate discontinued functions
- Good planning and education will lead to a successful migration

