Exploiting CICS TS for VSE/ESA 31-bit Support

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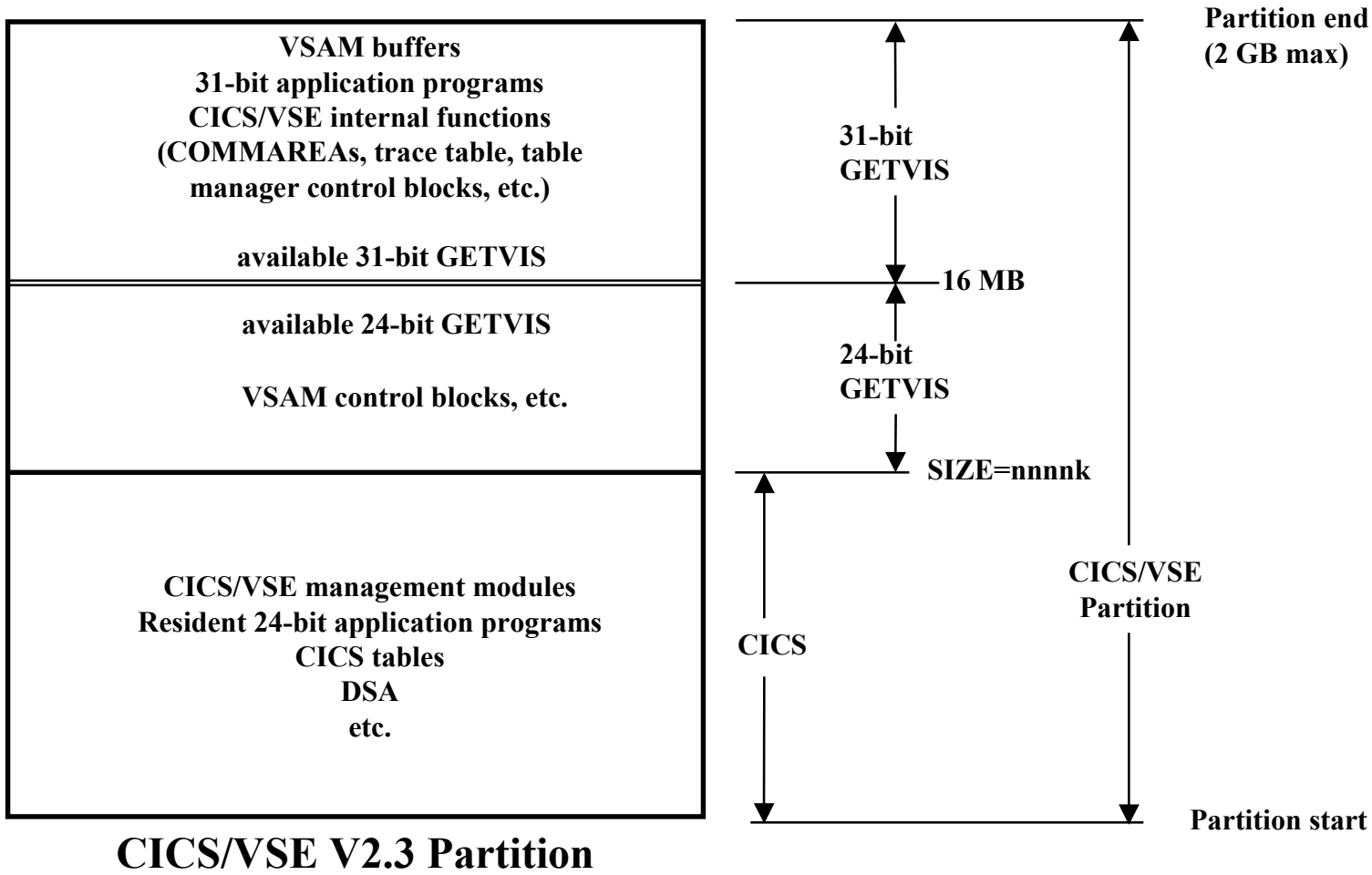
Topics

- CICS Storage Organization
- VSCR – VSE components
- VSCR – CICS TS components
- VSCR – CICS applications
- Summary

CICS Storage Organization

- CICS/VSE Partition
  - Most of CICS nucleus below 16 MB line
  - Most of the major CICS control blocks below 16 MB line
  - 1 Dynamic Storage Area (DSA)
    - Below 16 MB line in 24-bit program area
    - Available DSA dependent on number of resource definitions, resident programs, and CICS modules and control blocks loaded into 24-bit program area

CICS Storage Organization...

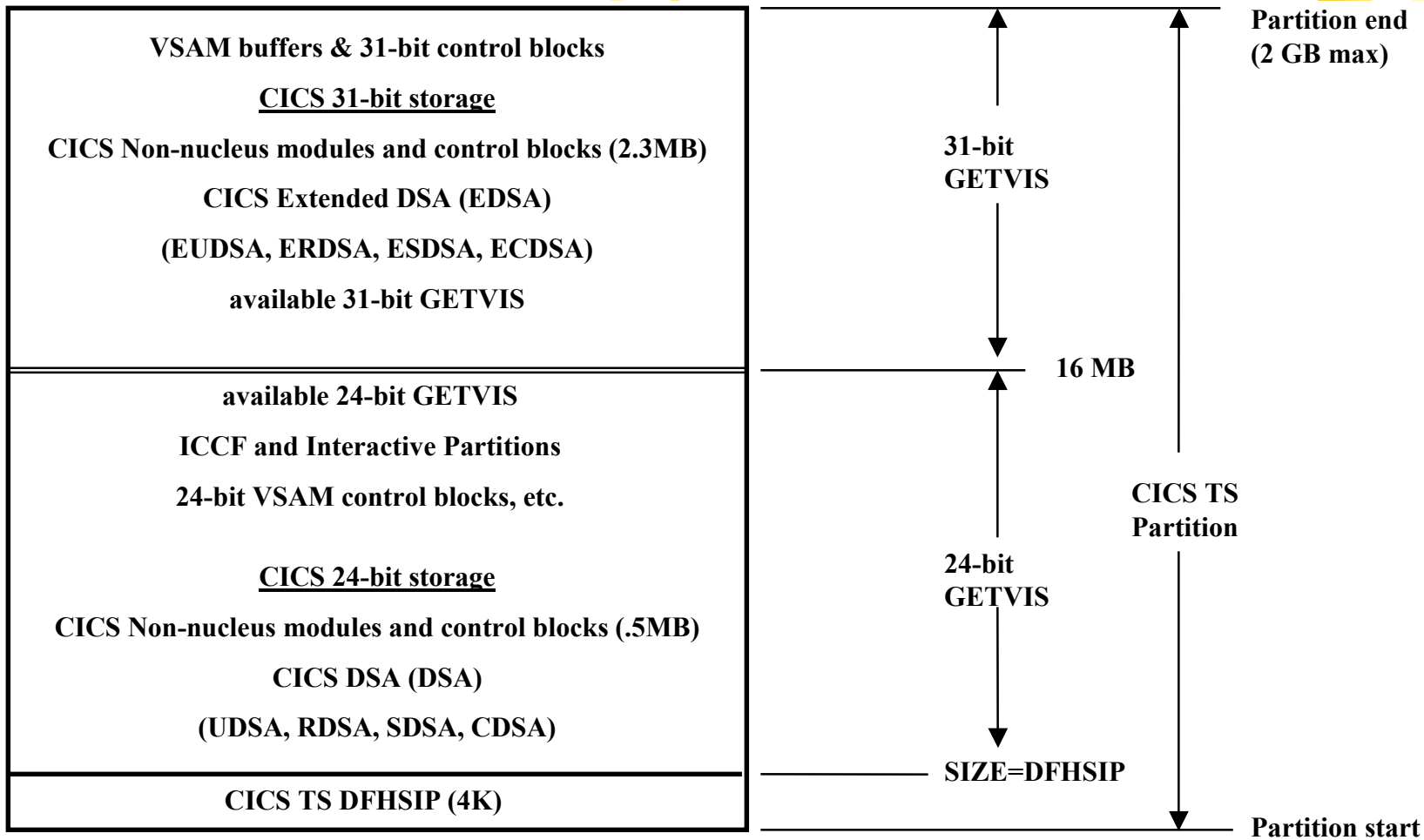


CICS/VSE V2.3 Partition

CICS Storage Organization...

- CICS TS Partition
  - Most of CICS nucleus above 16 MB line
  - All major CICS control blocks above 16 MB line
  - 8 Dynamic Storage Areas (DSA)
    - 4 DSAs above 16 MB line in extended (31-bit) DSA (EDSA)
    - 4 DSAs below 16 MB line in 24-bit DSA

CICS Storage Organization...



CICS Transaction Server Partition

CICS Storage Organization...

- Dynamic Storage Areas
  - CDSA and ECDSA (CICS DSA)
    - CICS-key storage
    - Non-reentrant programs
    - Control blocks
    - Task-lifetime storage
  - UDSA and EUDSA (User DSA)
    - User-key storage
    - Task-lifetime storage
      - TCA, TWA, EIB, EIS, etc.

CICS Storage Organization…

- Dynamic Storage Areas…
  - SDSA and ESDSA (Shared DSA)
    - User-key storage
    - Non-reentrant programs
    - EXEC CICS GETMAIN….SHARED storage
  - RDSA and ERDSA (Read-only DSA)
    - Key-0 storage
    - All SVA-eligible programs not in SVA

CICS Storage Organization…

- Dynamic Storage Areas…
  - Initial allocation from system initialization parameters (cold start)
    - EDSALIM, DSALIM
    - ECDSASZE, ERDSASZE, ESDSASZE, EUDSASZE
    - CDSASZE, RDSASZE, SDSASZE, UDSASZE
  - From local catalog on non-cold start, overridden by system initialization options

CICS Storage Organization...

- Dynamic Storage Areas...
  - SIT EDSALIM
    - Maximum size of CICS 31-bit DSAs
    - Define in 1M multiples
    - Minimum size 10MB, default 20MB
  - SIT DSALIM
    - Maximum size of CICS 24-bit DSAs
    - Define in 256K multiples
    - Minimum size 2MB, default 5MB

CICS Storage Organization...

- Dynamic Storage Areas...
  - No SIT options, startup overrides only
    - ECDSASZE, ERDSASZE, ESDSASZE, EUDSASZE
      - Defines size of DSAs in 31-bit GETVIS
    - CDSASZE, RDSASZE, SDSASZE, UDSASZE
      - Defines size of DSAs in 24-bit GETVIS
    - Use default size 0
      - CICS acquires DSA storage dynamically
      - Additional increments defined as extents
  - DSAs managed using 4K page size

VSCR – VSE Components

- VSE/VSAM support with CICS
  - Index and data buffers
    - Allocated in 31-bit partition GETVIS if available
  - Local Shared Resource (LSR) pool buffers
    - Index and data buffers are managed separately if defined with CICS TS CEDA DEFINE LSRPOOL
  - Non-Shared Resource (NSR) file buffers
    - FCT or RDO BUFNI and BUFND values
  - Increase buffers to reduce I/O

VSCR – VSE Components…

- VSE/VSAM support with CICS…
  - CICS system datasets
    - VSAM buffers allocated in 31-bit storage
    - CICS Catalog Datasets DFHGCD and DFHLCD
      - Specify buffering parameters on DLBL
    - CICS Restart Dataset DFHRSD
      - Specify buffering parameters on DLBL
    - CICS Temporary Storage and Transient Data files
      - SIT TS=(buffers, strings)
      - SIT TD=(buffers, strings)

VSCR – VSE Components…

- VSE/VSAM support with CICS…
  - DL/I database VSAM buffer usage
    - HIDAM KSDS, HDAM and HIDAM secondary index, HISAM KSDS, SHISAM KSDS (index buffers)
    - HISAM ESDS and SHISAM KSDS (data buffers)
    - Allocated in 24-bit partition GETVIS (default)
    - Change DLZACT to allocate buffers in 31-bit partition GETVIS
      - DLZACT TYPE=CONFIG HSMODE=ANY

VSCR – VSE Components…

- LE/VSE Options
  - Runtime options
    - ALL31(OFF), STACK(BELOW) for 24-bit applications
    - ALL31(ON), STACK(ANY) for full 31-bit support
      - Program must be linkedited AMODE(31)
    - Use CEEUOPT for programs that are AMODE(24)
  - Compile options
    - DATA(24) for working storage in 24-bit storage
    - DATA(31) for working storage in 31-bit storage

VSCR – VSE Components…

- Shared Virtual Area (SVA)
  - Most CICS TS modules and programs are RMODE(ANY)
  - SIT SVA option controls use of SVA for modules
    - SIT SVA=YES uses CICS TS modules in SVA
    - SIT SVA=NO loads CICS TS modules in read-only DSA
  - CICS program definition controls use of SVA
    - DEFINE PROGRAM… USESVACOPY(NO)

VSCR – CICS Components

- Most CICS control blocks allocated in 31-bit partition storage
  - Resource definitions and tables except JCT and sequential terminals in TCT
  - BMS mapsets
    - Linkedit BMS mapsets RMODE(ANY)
  - TCA, TWA, EIB, EIS
  - Transparent to application programs

VSCR – CICS Components...

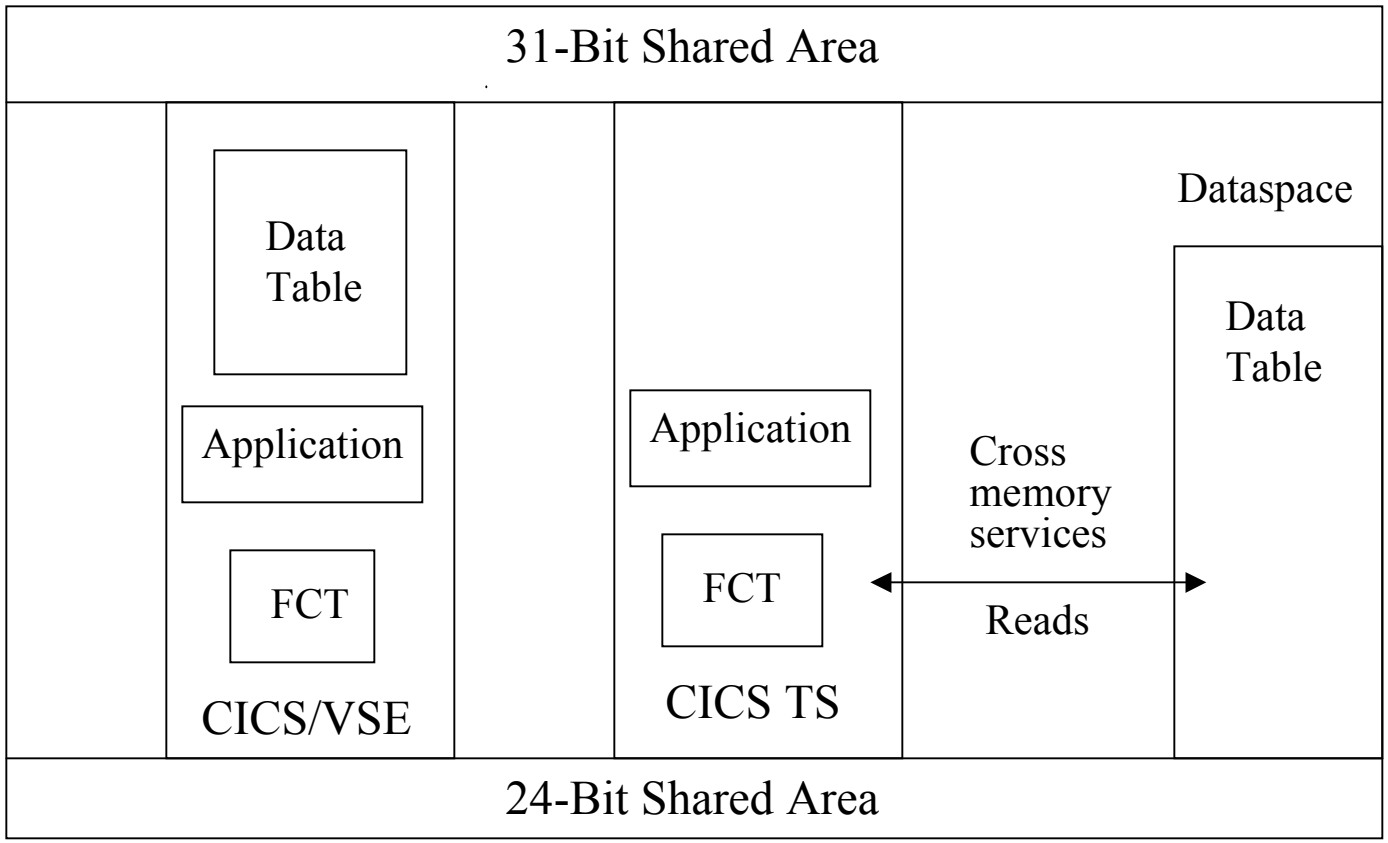
- Dynamic backup buffers
  - Specify size in SIT DBUFSZ
- Trace tables
  - Allocated in 31-bit partition storage
  - CICS internal trace table
    - SIT TRTABSZ=16 (256 KB in VSE supplied SIT tables)
  - CICS transaction trace table
    - SIT TRTRANSZ=16 (512 KB in VSE supplied SIT tables)

VSCR – CICS Components...

- CICS Data Tables
  - Data in memory for VSAM files
    - High performance file access for files with high READ and BROWSE activity
  - Allocated in 31-bit partition storage in CICS/VSE
  - Allocated in VSE Data Space in CICS TS

VSCR – CICS Components...

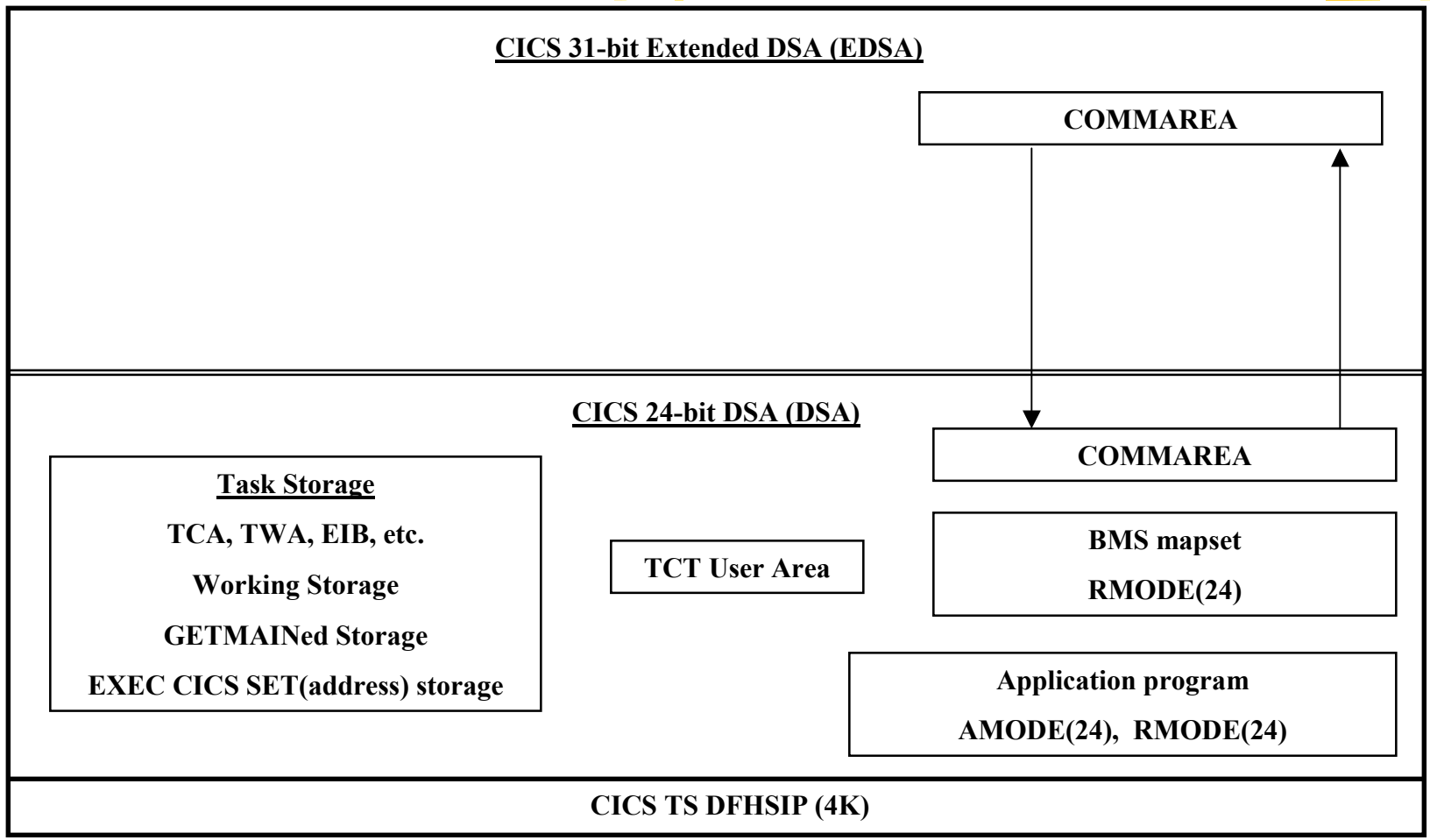
Data Table Support



VSCR – CICS applications

- How to control 31-bit DSA usage
  - Transaction definition
  - Program definition
  - EXEC CICS GETMAIN requests
  - Program's addressing mode (AMODE) and residency mode (RMODE)
  - SIT options

VSCR – CICS applications...



CICS Transaction Server Partition – 24-bit application storage layout

VSCR – CICS applications…

- Controlling DSA usage with transaction definition parameters
  - Controls DSA used for task lifetime storage
    - TASKDATALOC(value)
      - BELOW UDSA or CDSA
      - ANY EUDSA, ECDSA, UDSA, or CDSA
        - Program must be linked AMODE(31)
    - TASKDATAKEY(value)
      - USER UDSA or EUDSA
      - CICS CDSA or ECDSA

VSCR – CICS applications…

- Controlling DSA usage with program definition parameters
  - Controls DSA used for EXEC commands with SET option
    - DATALOCATION(value)
      - BELOW UDSA or CDSA
      - ANY EUDSA, ECDSA UDSA, or CDSA
        - Program must be linked AMODE(31)

VSCR – CICS applications…

- Controlling DSA usage with program definition parameters …
  - Controls DSA used for loading non-reentrant programs
    - EXECKEY(value) and program linked RMODE(24)
      - USER SDSA (24-bit)
      - CICS CDSA (24-bit)
    - EXECKEY(value) and program linked RMODE(ANY)
      - USER ESDSA (31-bit)
      - CICS ECDSA (31-bit)

VSCR – CICS applications…

- Controlling DSA usage with program definition parameters …
  - Controls DSA used for loading reentrant programs
    - Program linked RMODE(24) and SVA-eligible
      - RDSA (24-bit)
    - Program linked RMODE(ANY) and SVA-eligible
      - ERDSA (31-bit)

VSCR – CICS applications...

- Controlling DSA usage by applications
  - EXEC CICS GETMAIN options
    - Requested storage acquired in 24-bit DSA
      - LENGTH option
      - FLENGTH BELOW option
      - FLENGTH option in program linked AMODE(24)
    - Requested storage acquired in 31-bit DSA
      - FLENGTH option in program linked AMODE(31)

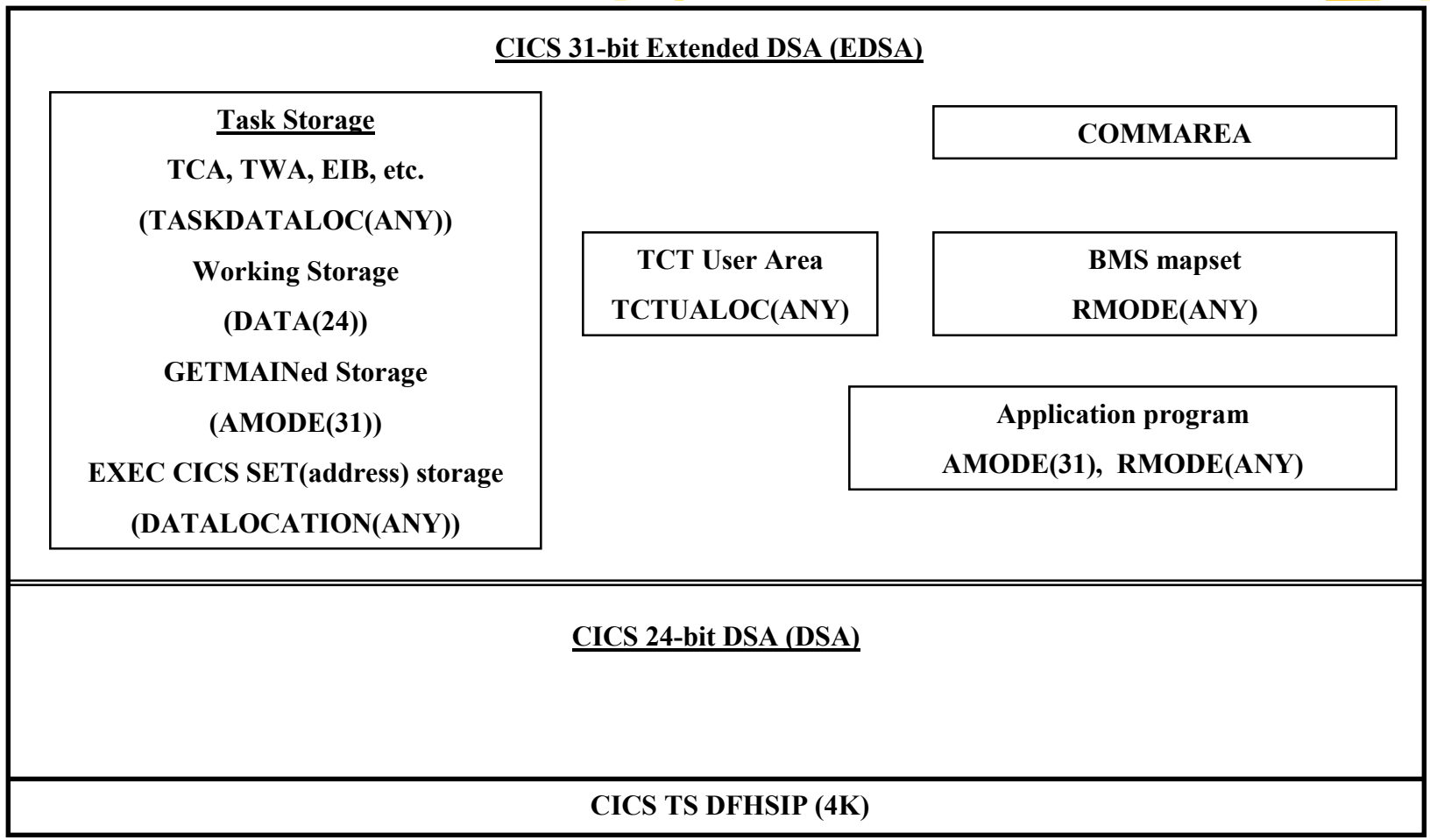
VSCR – CICS applications…

- Controlling DSA usage by application request
  - EXEC CICS GETMAIN options
    - Override TASKDATAKEY
      - USERDATAKEY without SHARED option
        - UDSA (24-bit) or EUDSA (31-bit)
      - USERDATAKEY + SHARED option
        - SDSA (24-bit) or ESDSA (31-bit)
      - CICSDATAKEY
        - CDSA (24-bit) or ECDSA (31-bit)

VSCR – CICS applications…

- Controlling DSA usage with SIT options
  - TCT User Area (TCTUA)
    - SIT TCTUALOC=BELOW|ANY
      - BELOW UDSA or CDSA
      - ANY EUDSA, ECDSA, UDSA or CDSA
        - Programs referencing TCTUA must be AMODE(31)
    - SIT TCTUAKEY=USER|CICS
      - USER SDSA (24-bit) or ESDSA (31-bit)
      - CICS CDSA (24-bit) or ECDSA (31-bit)

VSCR – CICS applications...



CICS Transaction Server Partition – 31-bit application storage layout

Summary

- More VSCR in CICS TS
- Significant savings during migration without change
- More savings possible with changes
  - AMODE(31) and RMODE(ANY) for applications
  - Application GETMAIN requests
  - CICS TS transaction and program definition changes

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