

# Introduction to CICS

*Peter Siddell*

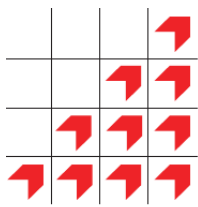
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*sid@rsmpartners.com*

November 2019

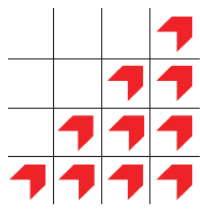
Session **AE**





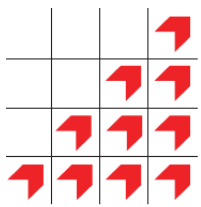
# Introduction to CICS

- What is CICS?
  - CICS is middleware designed to support rapid, high-volume online transaction processing
  - A family of mixed language application servers that provide online transaction management and connectivity for applications on IBM mainframe systems under z/OS and z/VSE
  - One of the family of highly successful IBM Z Series software products:
    - **z/OS, Db2, IMS, MQ**



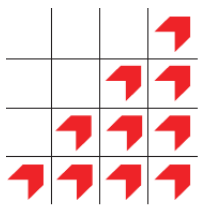
## Different countries have differing pronunciations:

- Within non-US IBM it is referred to as kicks
- In the US and France it is more usually pronounced by reciting each letter: C-I-C-S
- In Australia, Belgium, Canada, Hong Kong, the UK and some other countries, it is pronounced kicks
- In Italy, it is pronounced chicks
- In Portugal and Brazil, it is pronounced sick



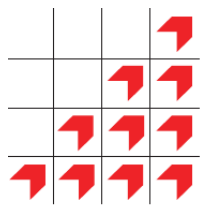
# What is the CICS Family?

- The CICS Family is a portfolio of transaction servers, along with connectors such as CICS Transaction Gateway and the CICS Tools products
- CICS on the mainframe is available as CICS TS for z/OS and CICS for z/VSE
- CICS on distributed platforms is called CICS TXSeries, available on AIX, Linux x86, Windows, Solaris and HP-UX platforms. CICS is also available on other operating systems, notably System i and OS/2



# The history of CICS

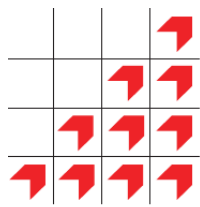
- CICS was originally developed in the United States at an IBM Development Centre in Des Plaines, Illinois, beginning in 1966 to address requirements from the public utility industry
- The first CICS product was announced in 1968, named *Public Utility Customer Information Control System*, or PU-CICS
- The Public Utility prefix was dropped with the introduction of the first release of the CICS Program Product on July 8, 1969
- CICS continued to be developed in Palo Alto, until in 1974.....



## .....it moved here!

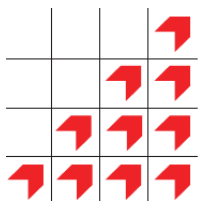
- Hursley House was first acquired by IBM in 1958, and is still the home of development for CICS and MQ
- Initially, IBM just used the House and its grounds. In 1963 it purchased 100 acres of land surrounding the house and has since built a large modern office complex employing over 1500 people
- Hursley House is a Grade II\* listed building and is used as an Executive Briefing Centre. The lower ground floor of the house is home to the IBM Hursley Museum, a computing museum that covers the history of IBM Hursley Park, IBM United Kingdom, and the IBM Corporation



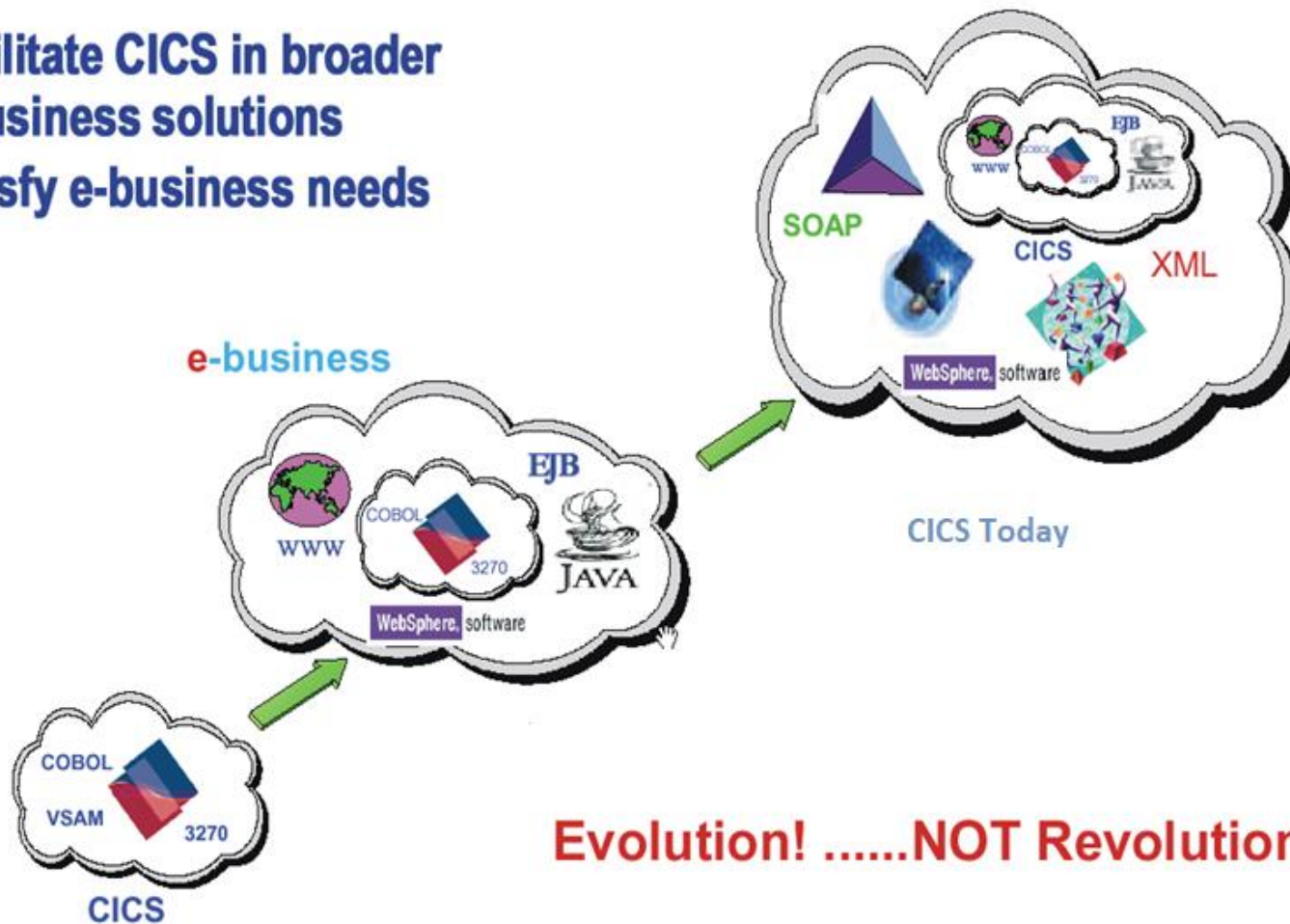


# CICS Programming languages

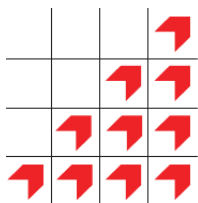
- When CICS was first released, it only supported application programs written in IBM 360 Assembler
  - Support for COBOL and PL/I was added later
- Program requests were written in the form of an assembler macro – “Macro-Level CICS”
  - DFHFC TYPE=READ,DATASET=PAYROLL,TYPOPER=UPDATE
- During the 1980’s, “Command-Level CICS” was introduced, and has since replaced macro-level for application programs
  - EXEC CICS READ DATASET(PAYROLL) RIDFLD(123456) INTO(PAYROLL-RECORD) UPDATE END-EXEC
- CICS Transaction Server Version 2.1 introduced support for Java, and CICS now supports REXX, C and C++
- Recent support has been added for JavaScript node.js applications that use JSON and SOAP services
- The history of CICS releases since 1968 can be found at this IBM website:
  - <https://www.ibm.com/support/pages/history-cics-transaction-server>



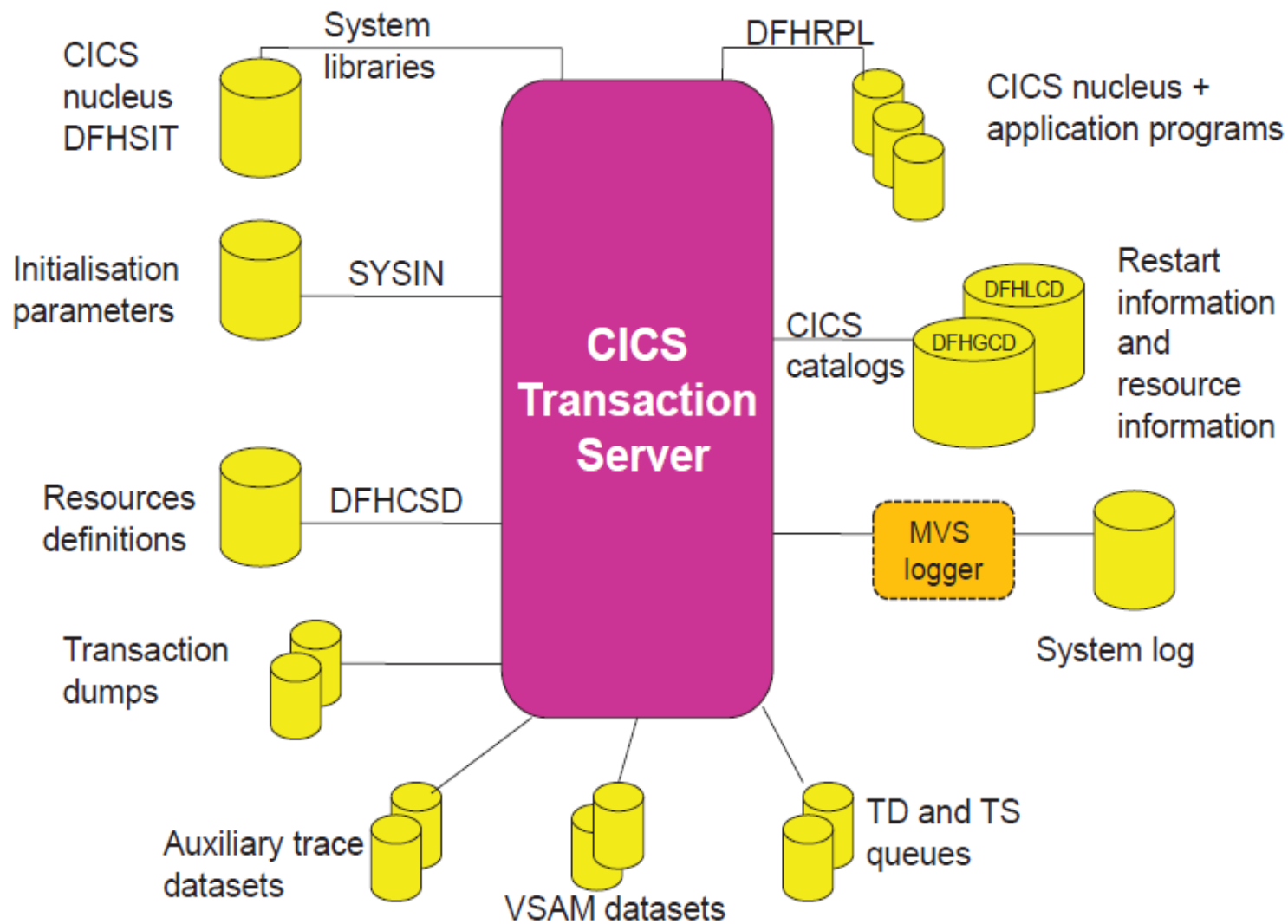
- Facilitate CICS in broader e-business solutions
- Satisfy e-business needs

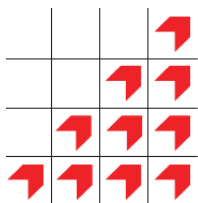




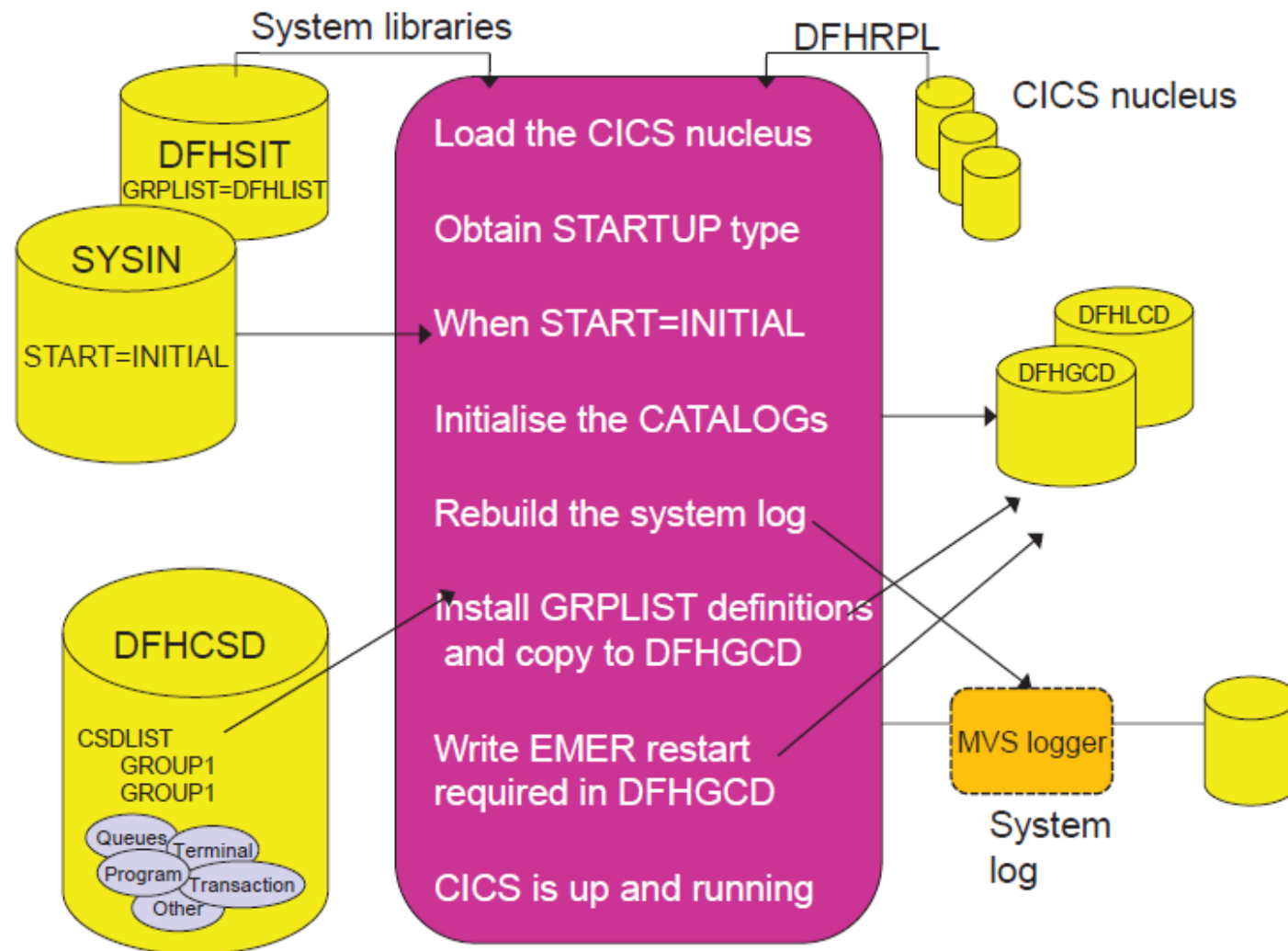


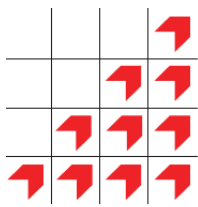
# What is CICS? – the CICS region





# CICS Initial Start





# The CICS region joblog

+DFHLG0104I CICSTS55 394

System log (DFHSHUNT) initialization has ended. Log stream

START2.CICSTS55.DFHSHUNT is connected to structure \*\*\*\*\*.

+DFHRM0206 CICSTS55 Any recovered units of work are resolved.

+DFHIR3791 CICSTS55 Unable to start inter-region communication because ISC=NO has been specified.

+DFHAP1203I CICSTS55 Language Environment is being initialized.

+DFHAP1211I CICSTS55 Language Environment initialization completed.

+DFHWB1007 CICSTS55 Initializing CICS Web environment.

+DFHWB1008 CICSTS55 CICS Web environment initialization is complete.

+DFHEC1006I CICSTS55 Event processing status is STARTED.

+DFHSI8440I CICSTS55 Initiating connection to CICSplex SM.

+EYUNX0001I CICSTS55 LMAS initialization program starting

+EYUXL0003I CICSTS55 CPSM Version 550 LMAS startup in progress

+EYUXL0119I CICSTS55 CPSM Kernel loaded from EYU9XL01

+EYUXL0022I CICSTS55 LMAS Phase I initialization complete

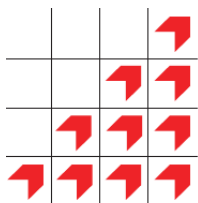
+EYUXL0211I CICSTS55 CPSM Start Up Parameters.

+EYUXL0212I CICSTS55 NAME(CICSTS55).

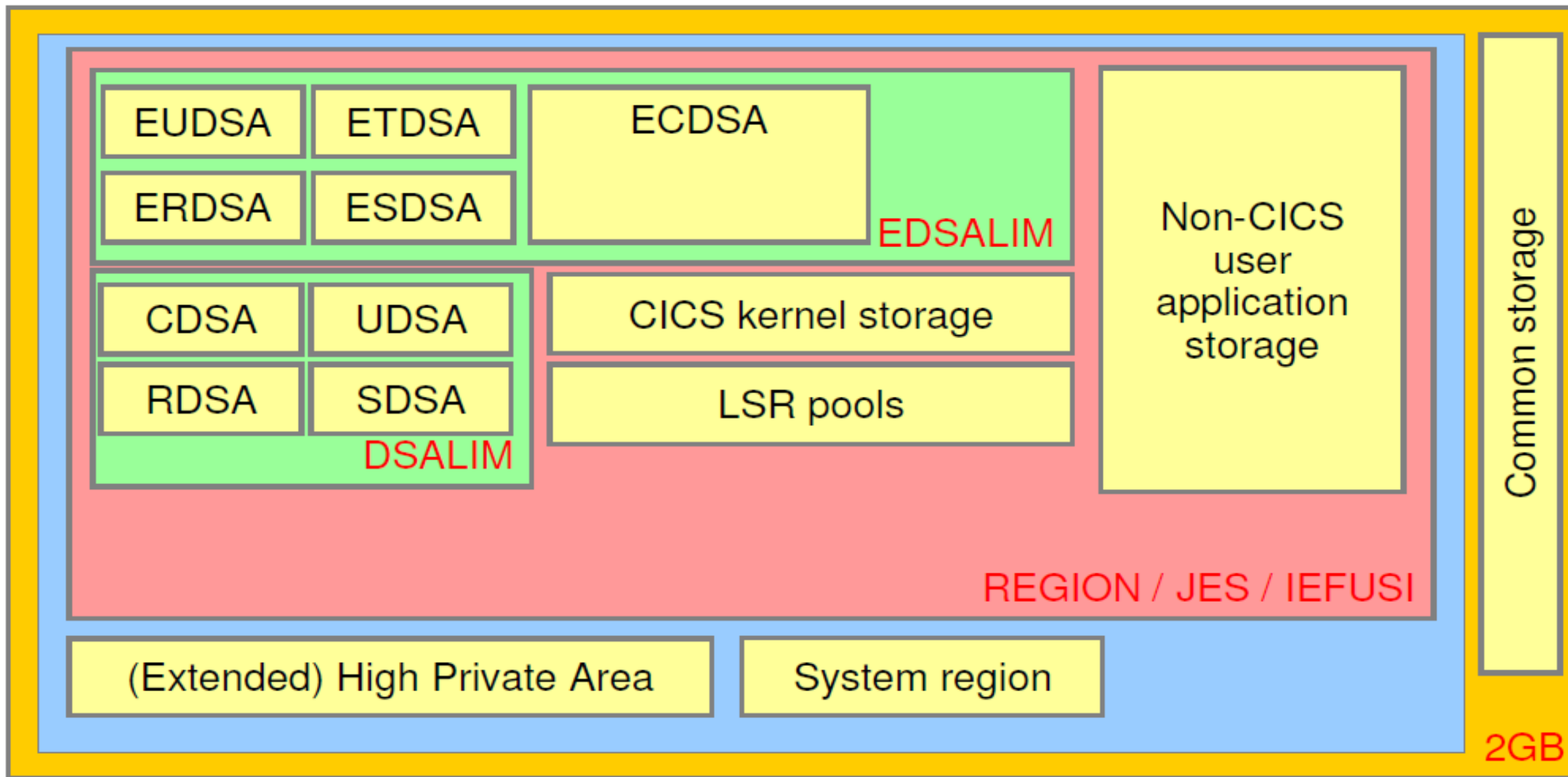
+EYUXL0212I CICSTS55 CICSplex(EYUPLX01).

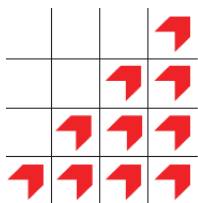
+EYUXL0212I CICSTS55 CMASYSID(CM01).

+DFHSI1517 CICSTS55 Control is being given to CICS.

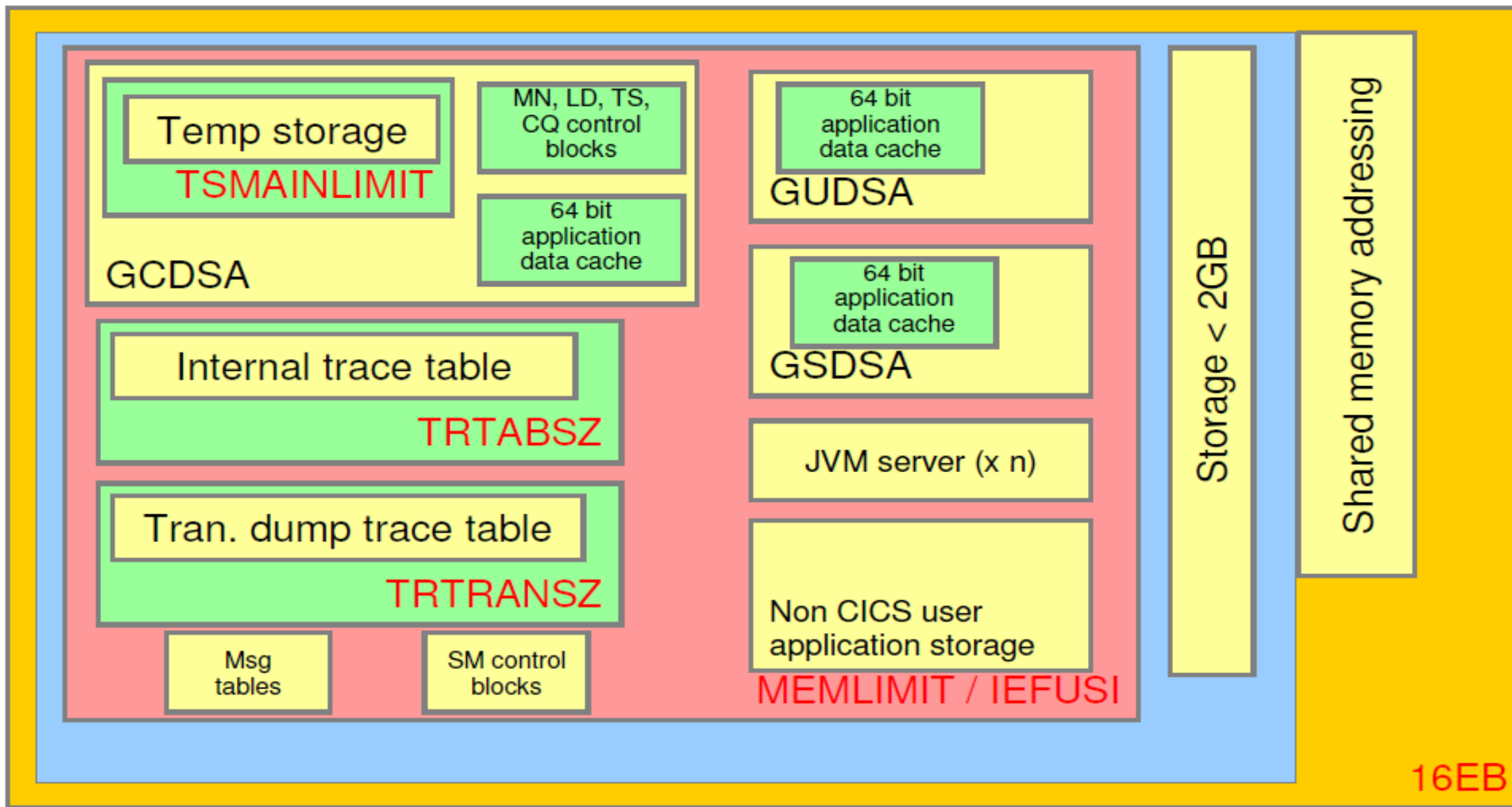


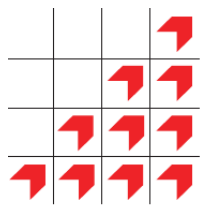
# CICS 24-bit & 31-bit storage



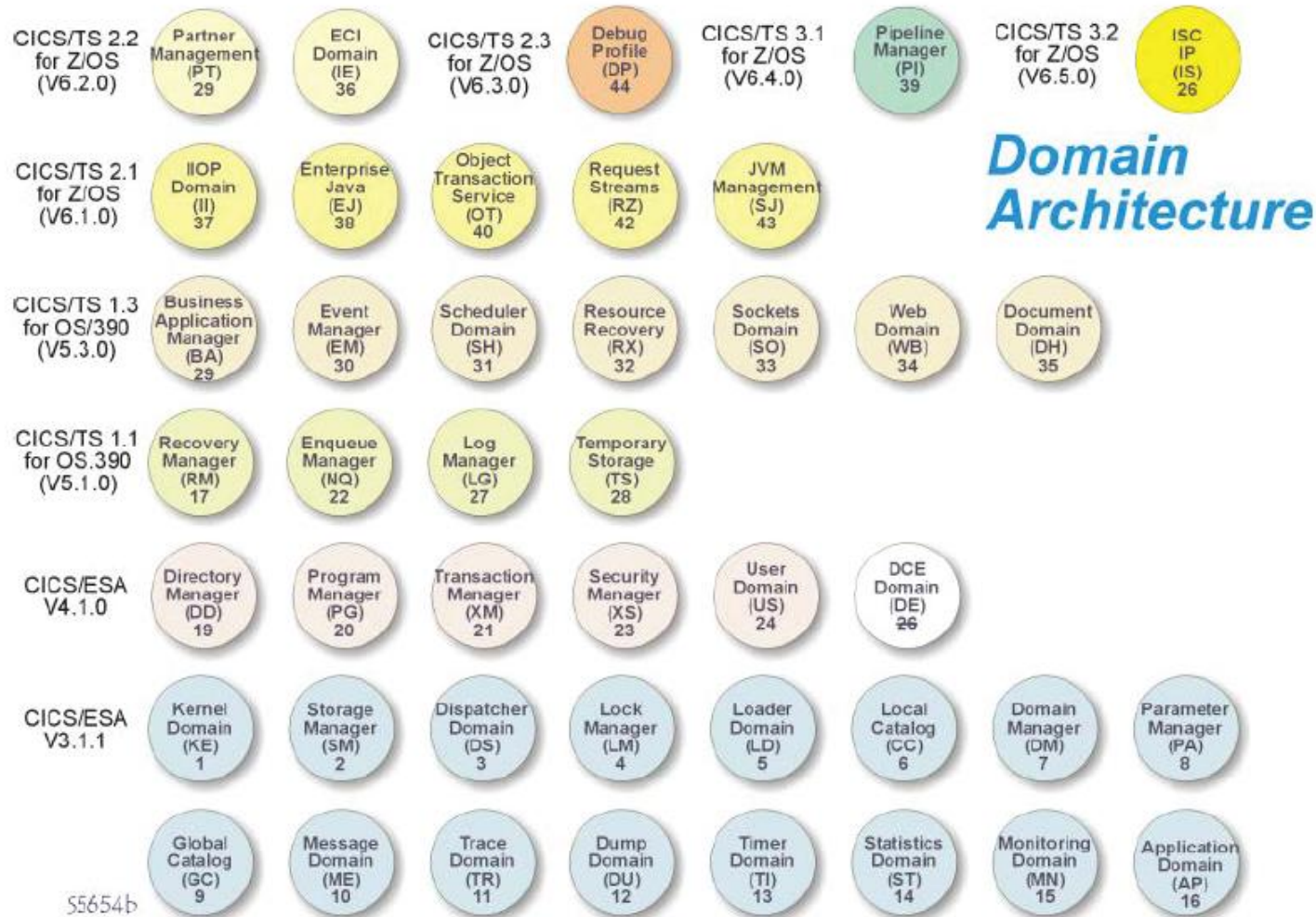


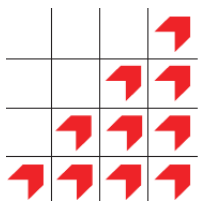
# CICS 64-bit storage



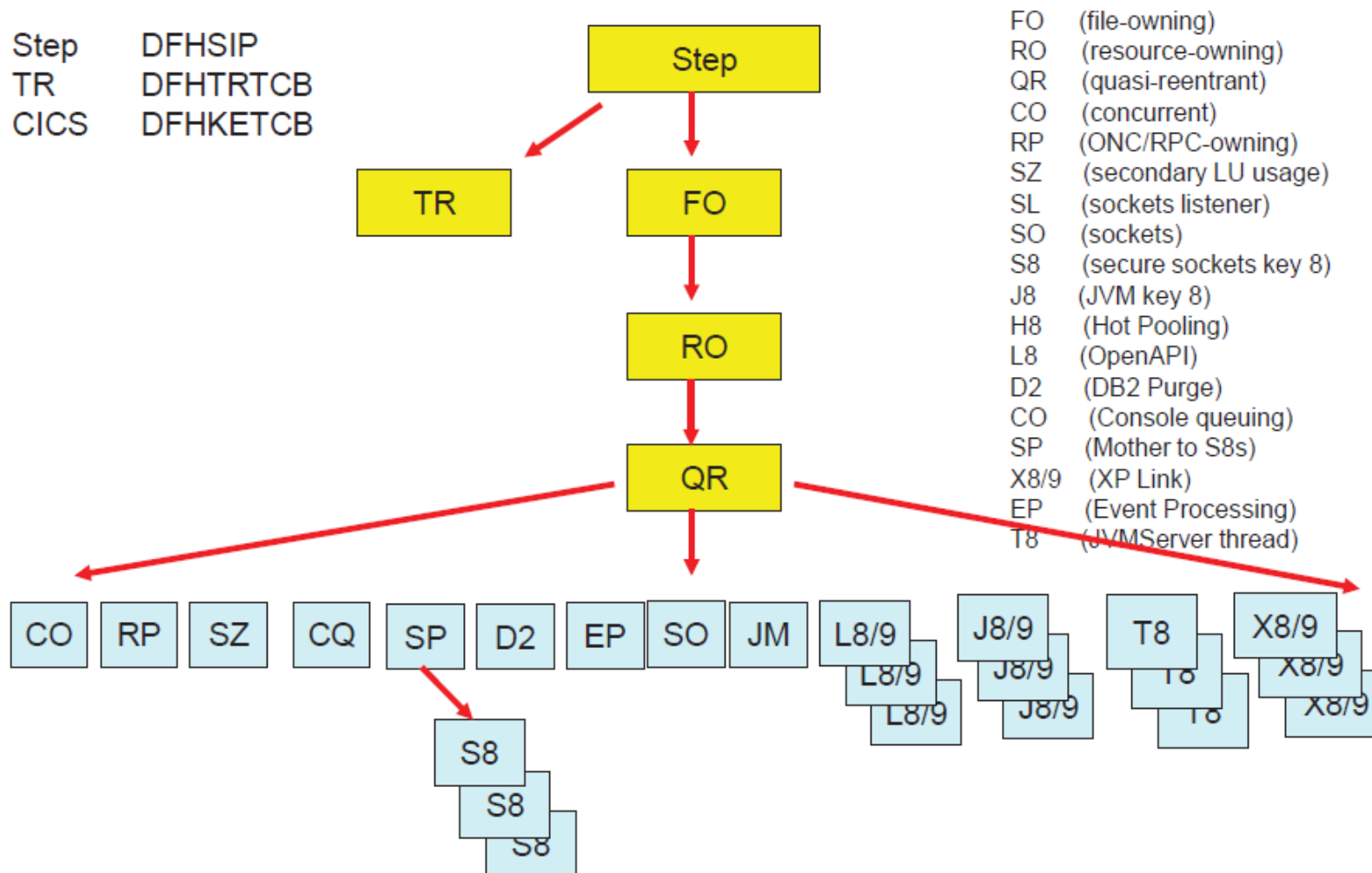


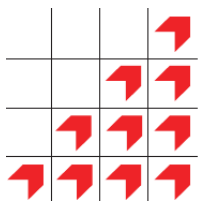
# Domain Architecture





# Task Control Blocks





# Threadsafe Analysis

Show Resources Affinities \*Report View CICS TS level: Region Collection ID: \*

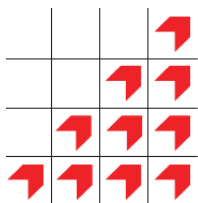
Program	LIB Dataset Name	APIST	Concurrency	Exe...	Storage Protect	CIC...
APPLVERSIONS						
IYDZZ528 (CICS TS 5.						
LGICDB01		CICSAPI	QUASIRENT	USER	INACTIVE	0690
LGICUS01		CICSAPI	QUASIRENT	USER	INACTIVE	0690
LGSTSQ		CICSAPI	QUASIRENT	USER	INACTIVE	0690
<b>LGTESTC1</b>	<b>CICSIAD.GENAPP.V510.L...</b>	<b>CICSAPI</b>	<b>QUASIRENT</b>	<b>USER</b>	<b>INACTIVE</b>	<b>0690</b>
	Total CICS Calls	11	Threadsafe	0	Non-Threadsafe	4
	Indeterminate Threadsafe	7	Total DB2 C...	0	Total MQ Calls	0
	Total IMS Calls	0	Dynamic Cal...	0	Threadsafe Inhi...	0
	<b>Total CPSM Calls</b>	<b>0</b>	<b>Threadsafe</b>	<b>0</b>	<b>Non-Threadsafe</b>	<b>0</b>
LGTSTNC1	<b>CICSIAD.GENAPP.V511.L...</b>	<b>CICSAPI</b>	<b>QUASIRENT</b>	<b>USER</b>	<b>INACTIVE</b>	<b>0690</b>

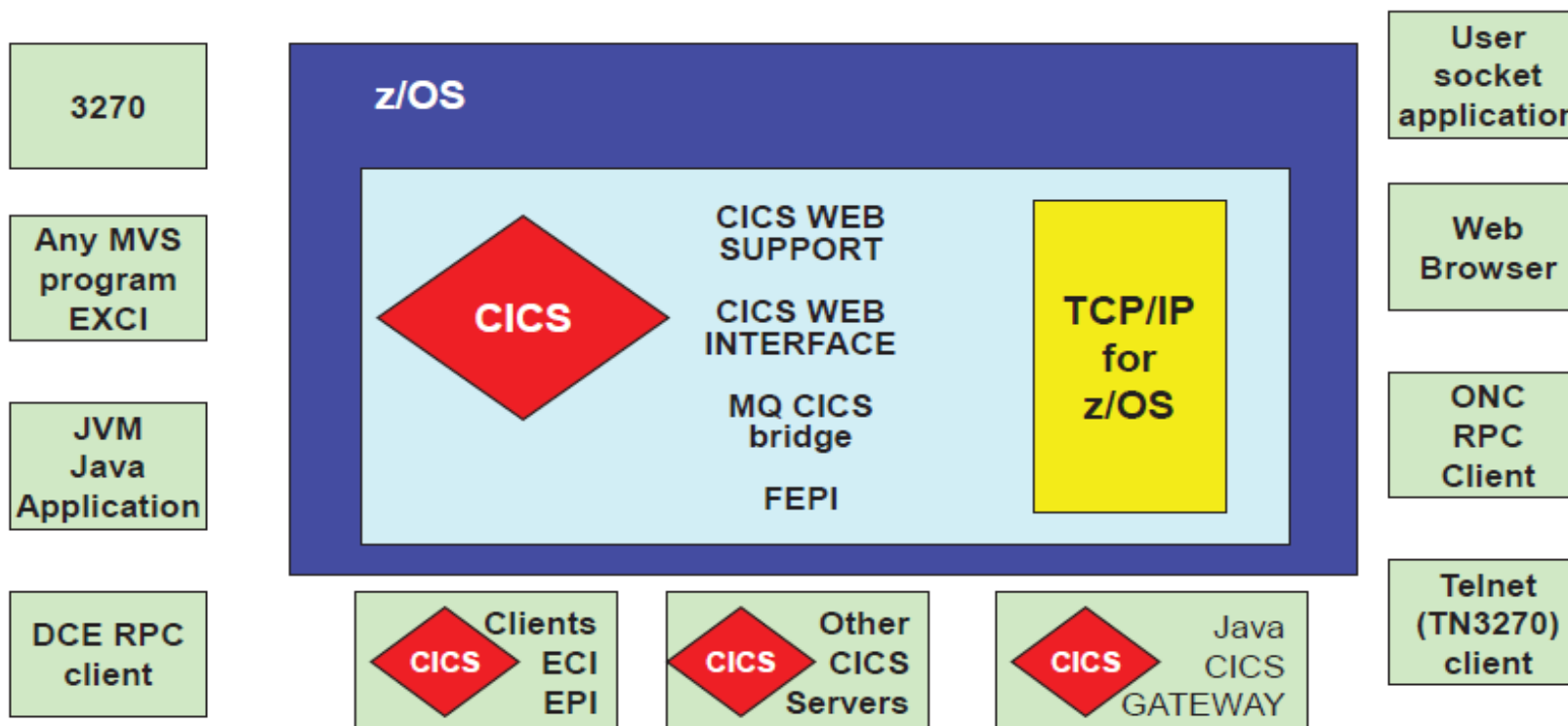
Comma...	Function	Type	Object	Offset	Use cou...	Threads...	Inhibitor
CICS	HANDLE	AID		00000B...	2	Y	N
CICS	HANDLE	CONDITI...		00000C...	2	Y	N
CICS	LINK	PROGRA...	LGICUS01	00000D...	1	Y	N
CICS	RECEIVE	MAP	SSMAPC1	00000C...	2	N	N
CICS	RECEIVE	MAPSET	SSMAP	00000C...	2	N	N
CICS	RETURN	TRANSID	SSC1	000013...	1	Y	N
CICS	SEND	MAP	SSMAPC1	00000B...	1	N	N
CICS	SEND	MAP	SSMAPC1	000016...	1	N	N
CICS	SEND	MAPSET	SSMAP	00000B...	1	N	N
CICS	SEND	MAPSET	SSMAP	000016...	1	N	N
CICS	SEND	TEXT	SEND TEXT	000014...	1	N	N

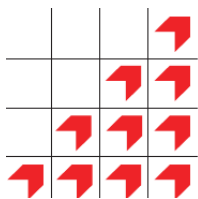






# Access to CICS





# What is a transaction?

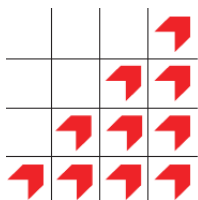
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AMNU\_

MR 0.0 10/09/19.282 12:24PM zos.rsm.co.uk a 1,5



# What is a transaction?

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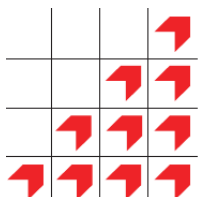
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OPERATOR INSTRUCTIONS

OPERATOR INSTR - ENTER AMNU  
FILE INQUIRY - ENTER AINQ AND NUMBER  
FILE BROWSE - ENTER ABRW AND NUMBER  
FILE ADD - ENTER AADD AND NUMBER  
FILE UPDATE - ENTER AUPD AND NUMBER

PRESS CLEAR TO EXIT  
ENTER TRANSACTION: **ABRW** NUMBER **111111**

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# What is a transaction?

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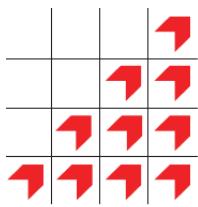
Attn Clear

FILE BROWSE

NUMBER	NAME	AMOUNT
111111	C. BAKER	\$0011.00
123456	G. SHARMAN	\$9000.00
200000	S. P. RUSSELL	\$0020.00
222222	DR E. GRIFFITHS	\$0022.00

PRESS CLEAR TO END BROWSE OPERATION  
PRESS PF1 OR TYPE F TO PAGE FORWARD  
PRESS PF2 OR TYPE B TO PAGE BACKWARD

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# Program Preparation

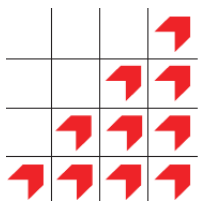
## CICS Translator

### *Before Translation*

```
EXEC CICS READ  
  FILE ('PAYROLL')  
  RIDFLD (WS-KEY)  
  INTO (WS-DATA)  
  NOHANDLE  
END-EXEC
```

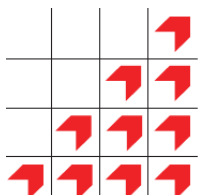
### *After Translation*

```
*EXEC CICS READ  
*  FILE ('PAYROLL')  
*  RIDFLD (WS-KEY)  
*  INTO (WS-DATA)  
*  NOHANDLE  
*END-EXEC  
  
MOVE WS-DATA TO ...  
MOVE WS-KEY TO ...  
CALL DFHEI1 USING ....
```



# The Exec Interface Block

NAME	COBOL	PL/I	C	ASM	DESCRIPTION
EIBTIME	PIC S9(7) comp-3	FIX DEC(7,0)	char[4]	PL4	TIME IN OHMMSS FORMAT
EIBDATE	PIC S9(7) comp-3	FIX DEC(7,0)	char[4]	PL4	DATE IN OCYDDD FORMAT
EIBTRNID	PIC X(4)	CHAR(4)	char[4]	CL4	TRANSACTION IDENTIFIER
EIBTASKN	PIC S9(7) comp-3	FIX DEC(7,0)	char[4]	PL4	TASK NUMBER
EIBTRMID	PIC X(4)	CHAR(4)	char[4]	CL4	TERMINAL IDENTIFIER
EIBRSVD1	PIC XX	CHAR(2)	char[2]	CL2	RESERVED
EIBCPOSN	PIC S9(4) comp	FIX BIN(15)	signed short	H	CURSOR POSITION
EIBCALEN	PIC S9(4) comp	FIX BIN(15)	signed short	H	COMMAREA LENGTH
EIBAID	PIC X	CHAR(1)	char	CL1	ATTENTION IDENTIFIER
EIBFN	PIC XX	CHAR(2)	char[2]	CL2	FUNCTION CODE
EIBRCODE	PIC X(6)	CHAR(6)	char[6]	CL6	RESPONSE CODE
EIBDS	PIC X(8)	CHAR(8)	char[8]	CL8	DATASET NAME
EIBREQID	PIC X(8)	CHAR(8)	char[8]	CL8	REQUEST IDENTIFIER
EIBSRCE	PIC X(8)	CHAR(8)	char[8]	CL8	RESOURCE NAME
EIBSYNC	PIC X	CHAR(1)	char	CL1	X'FF' SYNCPOINT REQUESTED
EIBFREE	PIC X	CHAR(1)	char	CL1	X'FF' FREE REQUESTED
EIBRECV	PIC X	CHAR(1)	char	CL1	X'FF' RECEIVE REQUIRED
EIBSEND	PIC X	CHAR(1)	char	CL1	RESERVED
EIBATT	PIC X	CHAR(1)	char	CL1	X'FF' ATTACH RECEIVED
EIBEOC	PIC X	CHAR(1)	char	CL1	X'FF' EOC RECEIVED
EIBFMH	PIC X	CHAR(1)	char	CL1	X'FF' FMHS RECEIVED
EIBCOMPL	PIC X	CHAR(1)	char	CL1	X'FF' DATA COMPLETE
EIBSIG	PIC X	CHAR(1)	char	CL1	X'FF' SIGNAL RECEIVED
EIBCONF	PIC X	CHAR(1)	char	CL1	X'FF' CONFIRM REQUESTED
EIBERR	PIC X	CHAR(1)	char	CL1	X'FF' ERROR RECEIVED
EIBERRCD	PIC X(4)	CHAR(4)	char[4]	CL4	ERROR CODE RECEIVED
EIBSYNRB	PIC X	CHAR(1)	char	CL1	X'FF' SYNC ROLLBACK REQ'D
EIBNODAT	PIC X	CHAR(1)	char	CL1	X'FF' NO APPL DATA RECEIVED
EIBRESP	PIC S9(8) comp	FIX BIN(31)	signed long	F	CONDITION NUMBER
EIBRESP2	PIC S9(8) comp	FIX BIN(31)	signed long	F	Details for some Responses
EIBRLDBK	PIC X	CHAR(1)	char	CL1	ROLLED BACK



# CEMT – The Master Terminal

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STATUS: ENTER ONE OF THE FOLLOWING

Discard  
Inquire  
Perform  
Set

SYSID=TS55 APPLID=CICSTS55

PF 1 HELP

3 END

5 VAR

9 MSG

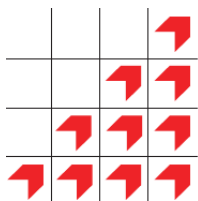
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! Attn Clear

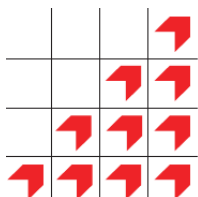
I  
STATUS: ENTER ONE OF THE FOLLOWING OR HIT ENTER FOR DEFAULT

ATomservice	ENQ	IRc	Rrms	UOW
AUTInstmodel	ENQModel	JModel	STATistics	UOWDsnfail
AUTOinstall	EPADAPTER	JOURNALname	STReamname	UOWLInk
AUXtrace	EPADAPTERSet	JVmserver	SYDumocode	URimap
BRfacility	EVENTBinding	LIBrary	SYStem	Vtam
BUndle	EVENTProcess	LINE	TASk	WEB
CFdtpool	EXci	MODename	TCLass	WEBSERVICE
COnection	FECOnection	MONitor	TCPIP	WLMhealth
DB2Conn	FENode	MQConn	TCPIPService	Xmltransform
DB2Entry	FEPool	MQMonitor	TDqueue	
DB2Tran	FEPPropset	NETname	TEMPstorage	
DEletshipped	FETarget	NODEjsapp	TERminal	
DISpatcher	FILE	PARtner	TRANSaction	
DOctemplate	Gtftrace	PIpeline	TRDumocode	
DSAs	Host	PROCESstype	TSMODEL	
DSName	INTtrace	PROFile	TSPool	
DUmpds	IPconn	PROGram	TSQueue	

SYSID=TS55 APPLID=CICSTS55

PF 1 HELP            3 END            5 VAR            9 MSG

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ENTER ONE OF THE FOLLOWING

ADd  
ALter  
APpend  
CHeck  
COpy  
DEFine  
DELete  
DISplay  
EXpand  
InstAll  
Lock  
Move  
REMOve  
REName  
UNlock  
USerdefine  
View

SYSID=TS55 APPLID=CICSTS55

PF 1 HELP

3 END

6 CRSR

9 MSG

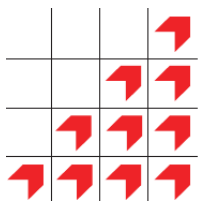
12 CNCL

MR

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Vista TN3270 Session A

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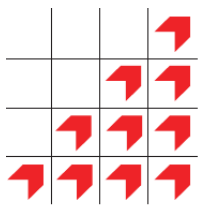
! Attn Clear

```

DISPLAY GROUP(DFHOPER)
ENTER COMMANDS
NAME          TYPE          GROUP          LAST CHANGE
DFHCMNH       MAPSET       DFHOPER       02/15/19 14:27:58
DFHCMNM       MAPSET       DFHOPER       02/15/19 14:27:58
DFHCTRH       MAPSET       DFHOPER       02/15/19 14:27:58
DFHCTRM       MAPSET       DFHOPER       02/15/19 14:27:58
DFHSO1M       MAPSET       DFHOPER       02/15/19 14:27:58
DFHCEMNA      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCEMNB      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCEMNC      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCEMND      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCETRA      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCETRB      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCETRC      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCETRD      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHCETRF      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHECBAM      PROGRAM      DFHOPER       02/15/19 14:27:58
DFHEITMT      PROGRAM      DFHOPER       02/15/19 14:27:58
+ DFHEITOT    PROGRAM      DFHOPER       02/15/19 14:27:58

RESULTS: 1 TO 17 OF 35
PF 1 HELP 2 SIG 3 END 4 TOP 5 BOT 6 CRSR 7 SBH 8 SFH 9 MSG 10 SB 11 SF 12 CNCL

SYSID=TS55 APPLID=CICSTS55
TIME: 11.46.58 DATE: 10/09/19
0.0 10/09/19.282 12:51PM zos.rsm.co.uk a 4,35
  
```



Open  
Home  
Repeat last menu

- + Alerts
- + Regions
- + Activity
- + Connectivity
- + Files & DB2
- + Journals
- + Queues
- + Transactions
- + Programs
- + Enterprise Java
- + History
- + Administration

Special  
Refresh  
New window  
Close window  
Sign off

## CICS region

[EYUVC1280I](#) 5 records collected at 10/10/19 14:32:13.

Context:  Scope:  Automatic refresh:  60 seconds.

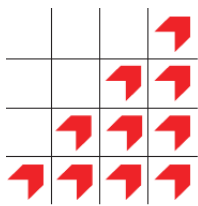
5 records on 1 pages.

Record	CICS system name	MVS job name	MVS job ID	MVS system ID	CICS Release	CICS status	Current number of tasks	Current number of queued user transactions	Short on storage status below the bar	Short on storage status above the bar	Total CPU time used
1	<a href="#">CICSTS51</a>	<a href="#">CICSTS51</a>	<a href="#">STC08119</a>	RSMP	0680	Active	3	0	Notsos	Notsos	0:01:41.3008
2	<a href="#">CICSTS52</a>	<a href="#">CICSTS52</a>	<a href="#">STC08030</a>	RSMP	0690	Active	3	0	Notsos	Notsos	0:01:41.5357
3	<a href="#">CICSTS53</a>	<a href="#">CICSTS53</a>	<a href="#">STC08120</a>	RSMP	0700	Active	3	0	Notsos	Notsos	0:00:57.1621
4	<a href="#">CICSTS55</a>	<a href="#">CICSTS55</a>	<a href="#">STC08125</a>	RSMP	0720	Active	0	0	Notsos	Notsos	0:01:44.6880
5	<a href="#">WUINCM01</a>	<a href="#">CPSMWUI</a>	<a href="#">STC08112</a>	RSMP	0720	Active	4	0	Notsos	Notsos	0:02:37.2520

5 records on 1 pages.

- Set attributes...
- Shutdown...
- Request system dump...
- Switch auxiliary tracing data set...
- Reset the internal CICS clock...
- Rebuild security profiles...
- Delete shipped terminal definitions...
- Request statistics processing...
- Rebuild SSL environment...

Resource name: CICSRGN. View name: EYUSTARTCICSRGN.TABULAR



.zosexplorer - Region "CICSTS51" in "CICSTS51" - C:\Users\peter\.zosexplorer - IBM Explorer for z/OS

File Edit Search Operations Definitions Window Help

Quick Access

CICSplex Explorer CICSplex Repositories Regions Tasks Progra... ISC/M... Termin... Local F... Local T...

Server: CM01

WUIPCM01 (5/6)

- Workload Management
- Systems
  - CICSTS42
  - CICSTS51 (A05CICS1)
  - CICSTS52 (CICS2)
  - CICSTS53 (A05CICS3)
  - CICSTS55 (A05CICS5)
  - WUINCM01 (WUINCM01)
- System Groups

CNX02111 Context: WUIPCM01. Resource: CICSRCN. 5 records collected at 10 Oct 2019, 15:40:14

Region	Job Na...	MVS Sy...	Task Co...	CICS St...	CICS TS ...	Release	Total CP...	Page I
CICSTS51	CICSTS51	RSMP	3	✓ ACTIVE	050100	0680	0000:01:4	
CICSTS52	CICSTS52	RSMP	3	✓ ACTIVE	050200	0690	0000:01:4	
CICSTS53	CICSTS53	RSMP	3	✓ ACTIVE	050300	0700	0000:00:5	
CICSTS55	CICSTS55	RSMP	0	✓ ACTIVE	050500	0720	0000:01:4	
WUINCM01	CPSMWUI	RSMP	3	✓ ACTIVE	050500	0720	0000:02:3	

Attributes

WUIPCM01 > CICSTS51 > CICSTS51

type filter text

Name	CICS Name	Value
Autoinstall Details		
Autoinstall Console	CONSOLES	FULLAUTO
Autoinstall Program	AINSPROG	DFHZATDX
Autoinstall Program	PROGAUTOATTM	0
Autoinstall Program	PROGAUTOCTLG	CTLGMODIFY
Autoinstall Program	PROGAUTOEXIT	DFHPGADX
Autoinstall Program	PROGAUTOFAIL	0
Autoinstall Program	PROGAUTOXREJ	0
Autoinstall Program	PROGAUTOINST	AUTOINACTIVE
Autoinstall Request	AINSCREQ	0
Autoinstall Status	AINSTAT	ENABLED
Maximum Autoinsta	AINSMREQ	100
Basic		
Akp	AKP	4,000
Appl ID	APPLID	A05CICS1
CICS Release	EYU_CICSREL	E680
CICS Start Time	STRRTIME	08-Oct-2019 09:58:45
CICS Status	CICSSTATUS	ACTIVE
CICS System ID	SYSID	TS51
CICS TS Level	CTSLEVEL	050100
Coldstatus	COLDSTATUS	INITIAL
Command Protectio	CMDPROTECT	CMDPROT
Conversest	CONVERSEST	CONVERSE
Dside	DSIDLE	02:00:00
Dsinterval	DSINTERVAL	12:00:00
Exception Monitorin	EXCEPTCLASS	EXCEPT
Exit Wait Time	EXITTIME	1,000
Forceqr	FORCEQR	NOFORCE
Frequency	FREQUENCY	00:00:00
I/O Count	SIORREQ	9,471
Identity Monitoring	IDNTYCLASS	NOIDNTY

Connections

type filter text

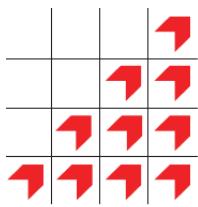
- CICS System Management (2) (RS)
  - CICSplex SM Data Interface
  - CMCI (2)
    - RSMA [TSGSID]
    - RSMP [TSGSID]
- z/OS (1)
  - z/OS FTP (1)
  - z/OS Remote System

Credentials

TSGSID [TSGSID]

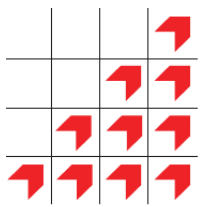
Autoinstall Program Catalog Type (PROGAUTOCTLG)

RSMP



# The CICS story just keep going!

- On October 1<sup>st</sup>, 2019, IBM announced a continuous delivery enhancement to V5.5
- Also announced was the introduction of the CICS TS for z/OS V5.6 Open Beta
- The full announcement can be found here:
  - [https://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep\\_ca/3/649/ENUSA19-0693/index.html&lang=en&request\\_locale=en](https://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/3/649/ENUSA19-0693/index.html&lang=en&request_locale=en)



# CICS Information sources

- CICS Transaction Server V5.5 Knowledgebase
  - [https://www.ibm.com/support/knowledgecenter/en/SSGMCP\\_5.5.0/home/welcome.html](https://www.ibm.com/support/knowledgecenter/en/SSGMCP_5.5.0/home/welcome.html)
- CICS Transaction Server V5.6 (Open Beta) Knowledgebase
  - [https://www.ibm.com/support/knowledgecenter/en/SSGMCP\\_5.6.0/home/welcome.html](https://www.ibm.com/support/knowledgecenter/en/SSGMCP_5.6.0/home/welcome.html)
- IBM Redbooks (search for CICS)
  - <http://www.redbooks.ibm.com/>
- IBM CICS Redbooks Video Course
  - <http://www.redbooks.ibm.com/redbooks.nsf/redbookabstracts/crse0303.html?Open>
- You Tube (search for CICS)
  - <https://www.youtube.com/CICS/>
- Facebook (search for CICS)
  - <https://www.facebook.com/>
- Twitter (ibm\_cics)
  - [https://twitter.com/ibm\\_cics?lang=eu](https://twitter.com/ibm_cics?lang=eu)

