

# z/OS Introduction and Workshop

CICS

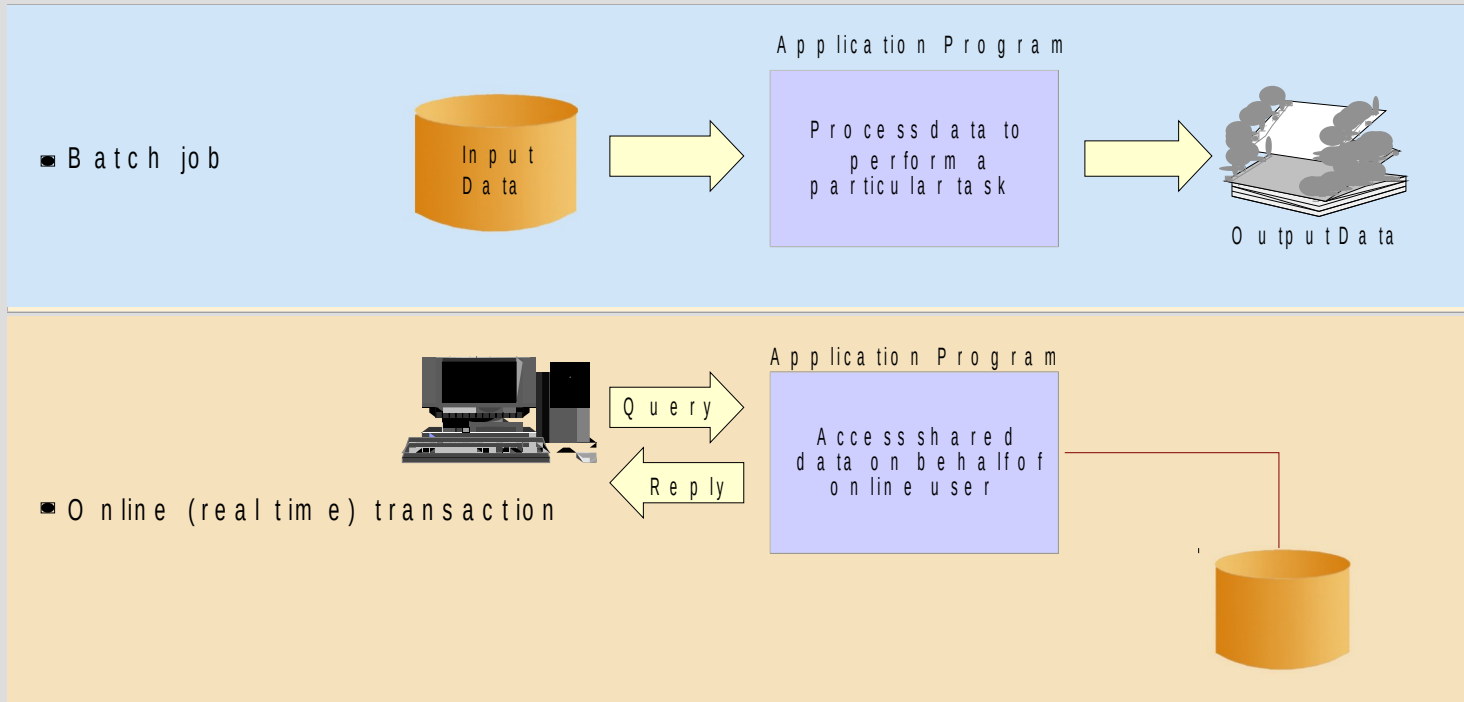


# Unit objectives

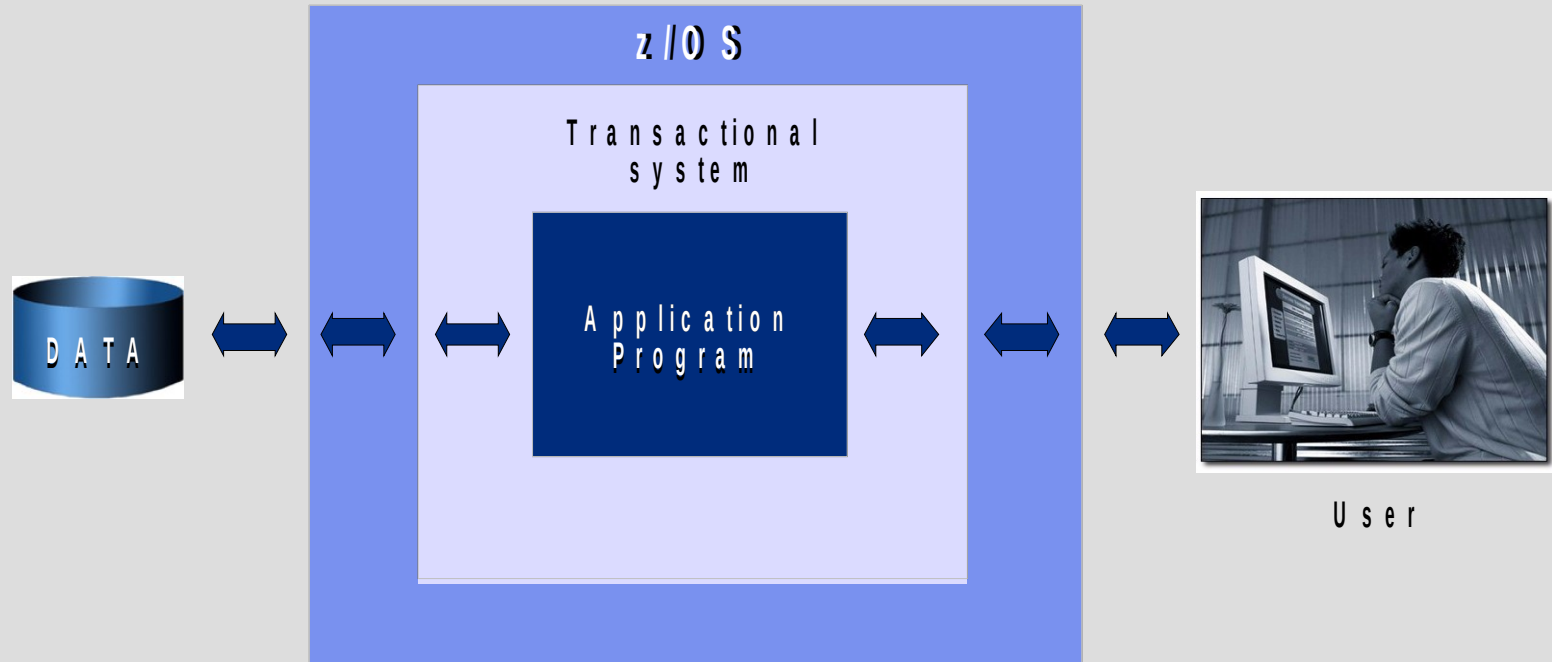
After completing this unit, you should be able to:

- Describe CICS Processing
- Describe CICS Application Programming Interface (API)
- List 6 Programming Languages used write CICS Applications
- List 2 CICS Programming Techniques
- Describe CICS System Definition
- List 3 types of CICS Supplied Transactions

## Typical mainframe workloads (Batch and Online)



# z/OS Transaction System



# What is CICS?

Customer Information Control System

Transaction Processor:

- Run online applications

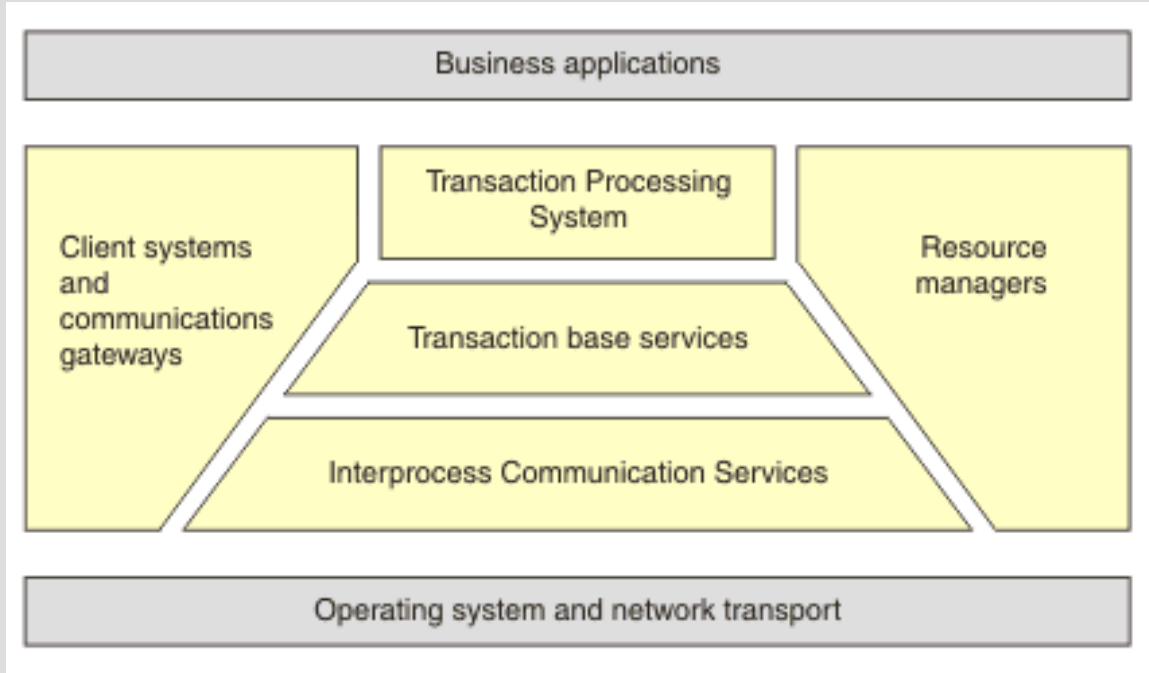
- Many sessions with the same application(s)

- Manages the sharing of resources

- Maintains integrity of data

- Prioritization of execution, with fast response

# CICS Architecture



## CICS functions:

- Application programming
- Web services
- Web interfaces
- Java applications in CICS
- Network services
- Database services
- External interfaces
- Customization
- System management
- Performance and monitoring
- Security
- Recovery and restart

# CICS Message Format (DFHCCnnnn)

where **CC** is a CICS subcomponent

**AC** abnormal condition program component

**AD** Development Deployment Tool messages

**AI** auto-install terminal model manager (AITM)

**AM** RDO allocation manager

**AP** application domain

**BA** business transaction services (BTS) domain

**BR** Bridging to 3270 transactions

**CA** RDO command utility routine

**CC** catalog domain (local and global)

**CE** sign on program component

**CF** coupling facility data tables server

**CP** CPI Communications component

**CQ** CQ console messages

**CR** ISC remote scheduler component

**CZ** class libraries domain

**DB** CICS database control component

**DD** directory manager

**DH** Document handler component

**DM** domain manager domain

**DP** debugging profile domain

**DS** dispatcher domain

**DU** dump domain

**DX** database control component

**EJ** Enterprise Java domain

**EM** Event Manager domain

**ER** user backout program

**EX** external CICS interface

**FC** file control component

**FE** terminal test program component

**IC** interval control program

**IE** IP ECI domain

**II** CORBA and IIOp domain

**IN** indoubt testing tool

**IR** interregion component

**JC** online journal control component

**KC** transaction/profile manager

**KE** kernel domain

**LD** loader domain

**LG** logger domain

**LM** lock manager domain

**MC** BMS message control program component

**ME** message domain

**MN** monitor domain

**MU** message editing utility program

**MV** MVS™ RESMGR exit stub

**NC** Named counter sequence number server

**NQ** enqueue manager domain

# CICS Message Format (DFHCCnnnn)

where **CC** is a CICS subcomponent

**OT** Object Transaction Services domain

**PA** parameter manager domain

**PC** program control program component

**PD** print dump exit routine DFHPDX

**PG** program manager domain

**PI** pipeline manager domain

**PR** partner resource manager

**PS** system spooler interface control component

**RD** RDO allocation manager

**RM** recovery manager

**RP** ONC RPC

**RS** communications resynchronization program

**RT** ISC transaction routing component

**RU** recovery utility program

**RX** RRS-coordinated EXCI domain

**RZ** Request Streams domain

**SH** Scheduler domain

**SI** system initialization component

**SJ** Scaleable Java domain

**SK** sub task control program component

**SM** storage manager domain

**SN** signon component

**SO** Sockets domain

**SR** system recovery component

**ST** statistics domain

**SZ** front end programming interface (FEPI)

**TC** terminal control program component

**TD** transient data component

**TF** terminal facility manager

**TI** timer domain

**TM** system termination program component

**TO** terminal object resolution program component

**TP** BMS terminal page retrieval program component

**TR** trace domain

**TS** temporary storage domain

**UP** measured usage license charging support macro

**US** user domain

**WB** Web Interface

**XA** XRF alternate component

**XC** XRF CICS availability manager

**XG** XRF general component

**XM** transaction manager

**XO** XRF CICS availability manager

**XQ** shared temporary storage queue pool server

**XS** security component

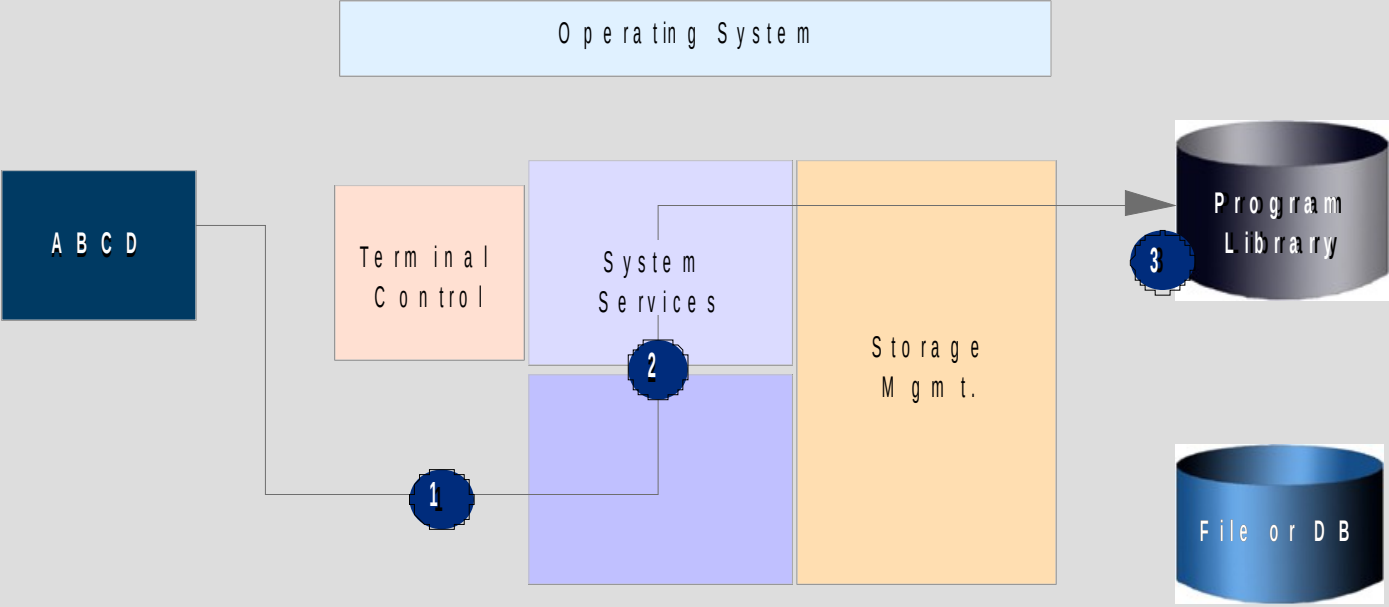
**ZC** terminal control working set component

**ZE** TCP error message writer component

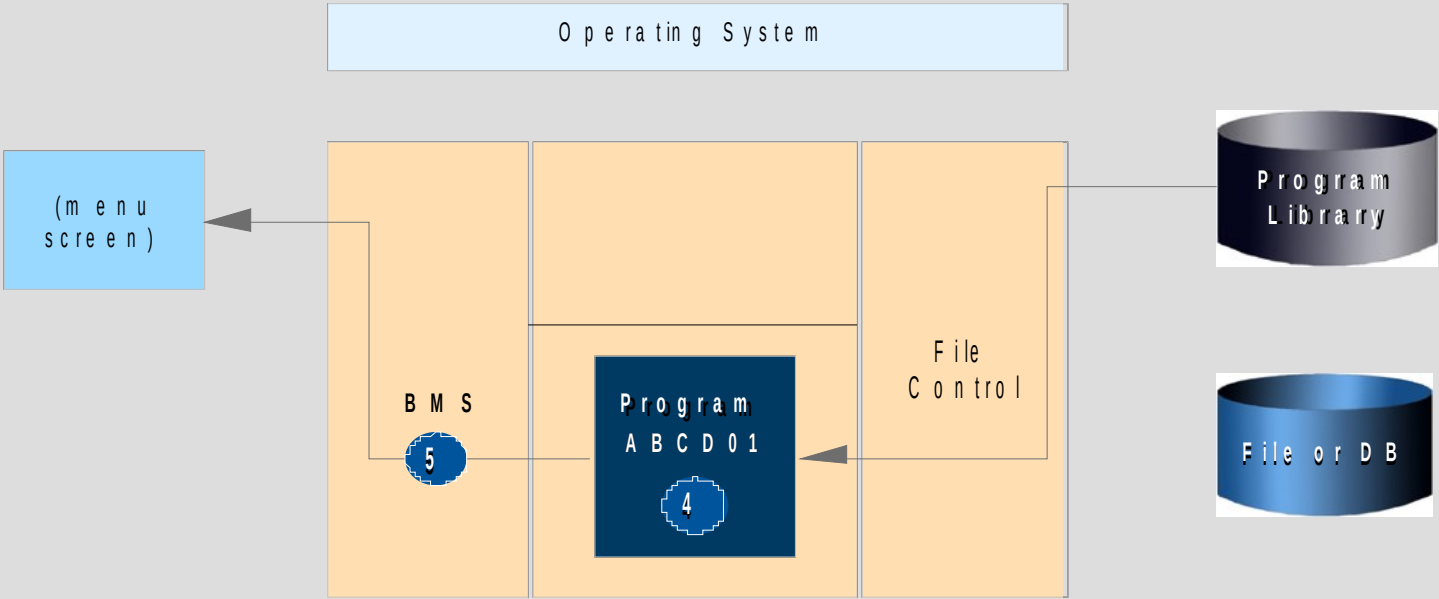
**ZN** syncpoint component



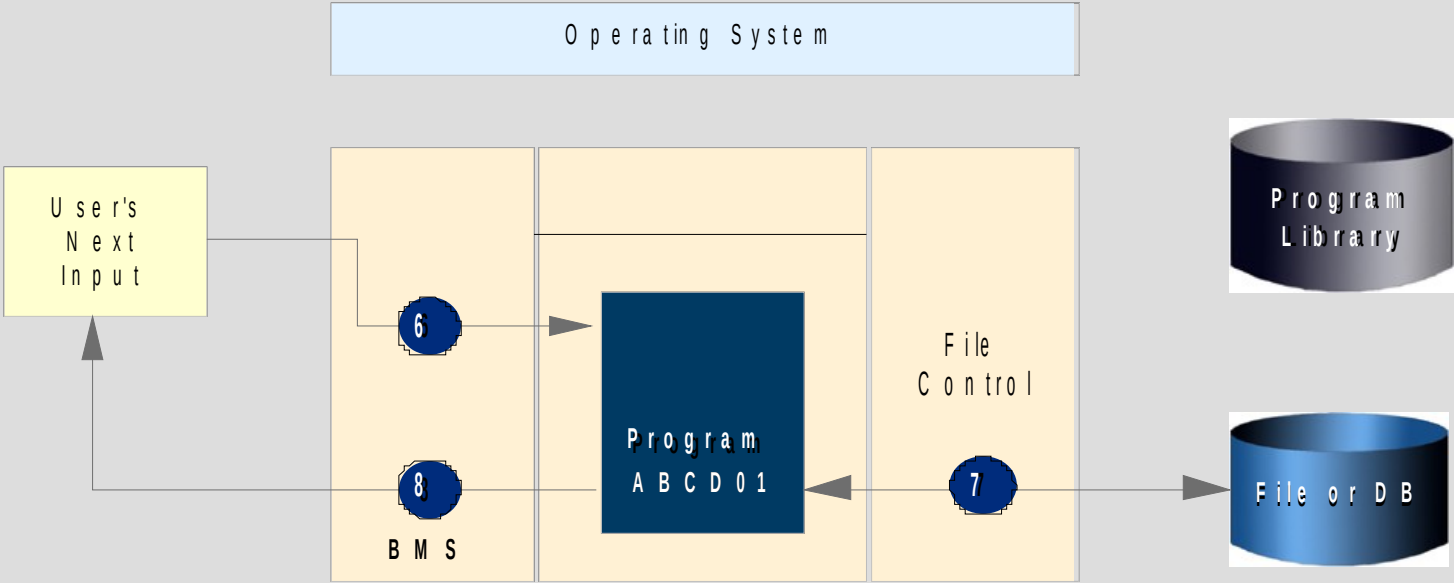
# CICS transaction flow



# CICS transaction flow (Cont...)



# CICS transaction flow (Cont...)



# CICS Application Programming

## Languages

**COBOL**

**Java**

**C/C++**

**REXX**

**Assembler**

**PL/I**

## Application Program Interface (API)

**EXEC CICS ....**

Abend support

APPC basic conversation

APPC mapped conversation

Authentication

Batch data interchange

BMS

Built-in functions

Business transaction services  
(BTS)

Channel commands

Console support

Diagnostic services

Document services

Environment services

Event processing

Exception support

File control services

Interval control services

Journaling

Monitoring

Named counter server

Program control

Scheduling services

Security services

Spool Interface (JES)

Storage control

Syncpoint

Task control

TCP/IP services

Temporary storage control

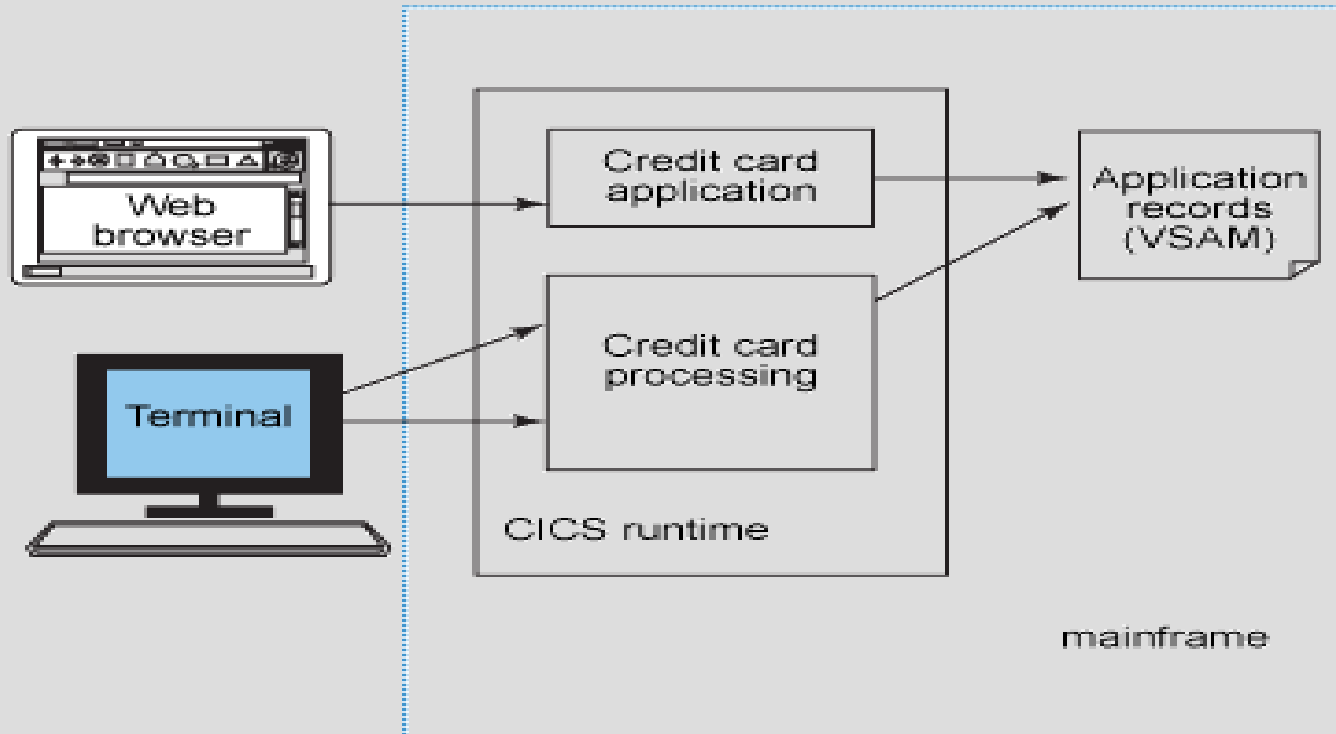
Terminal control

Transient data

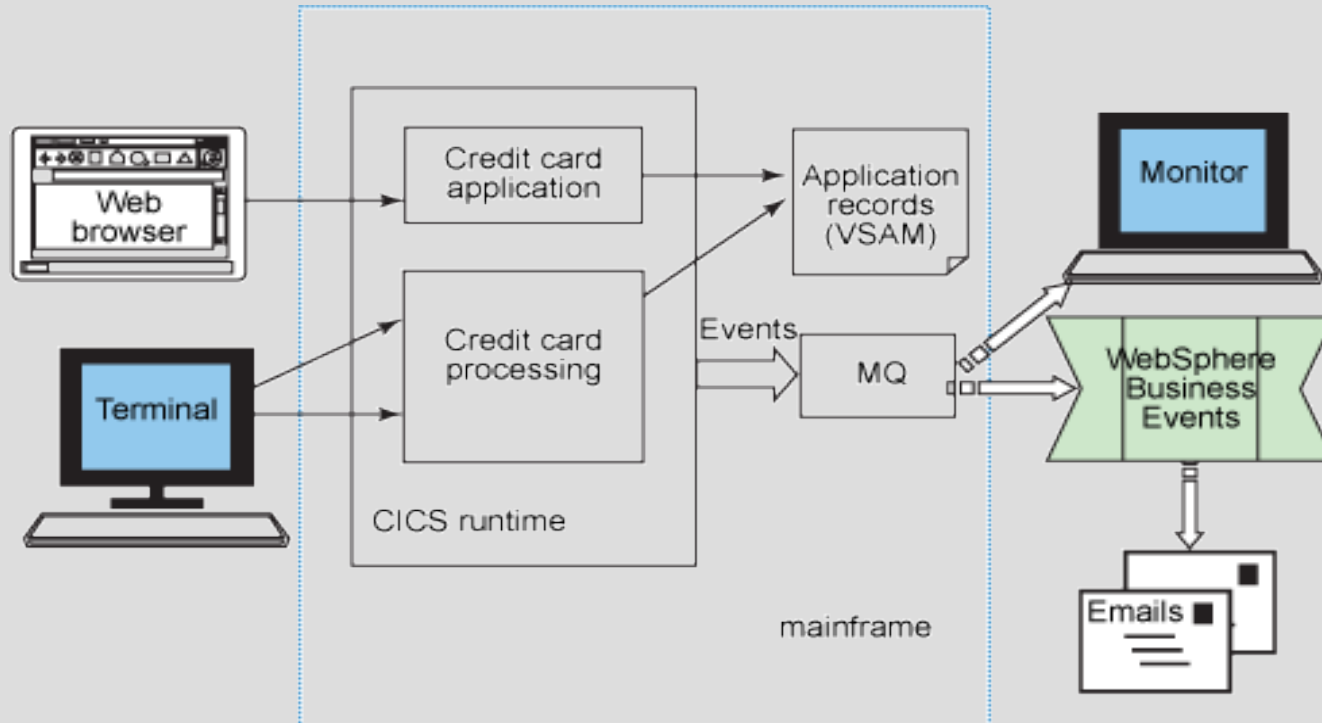
Web support

Web services

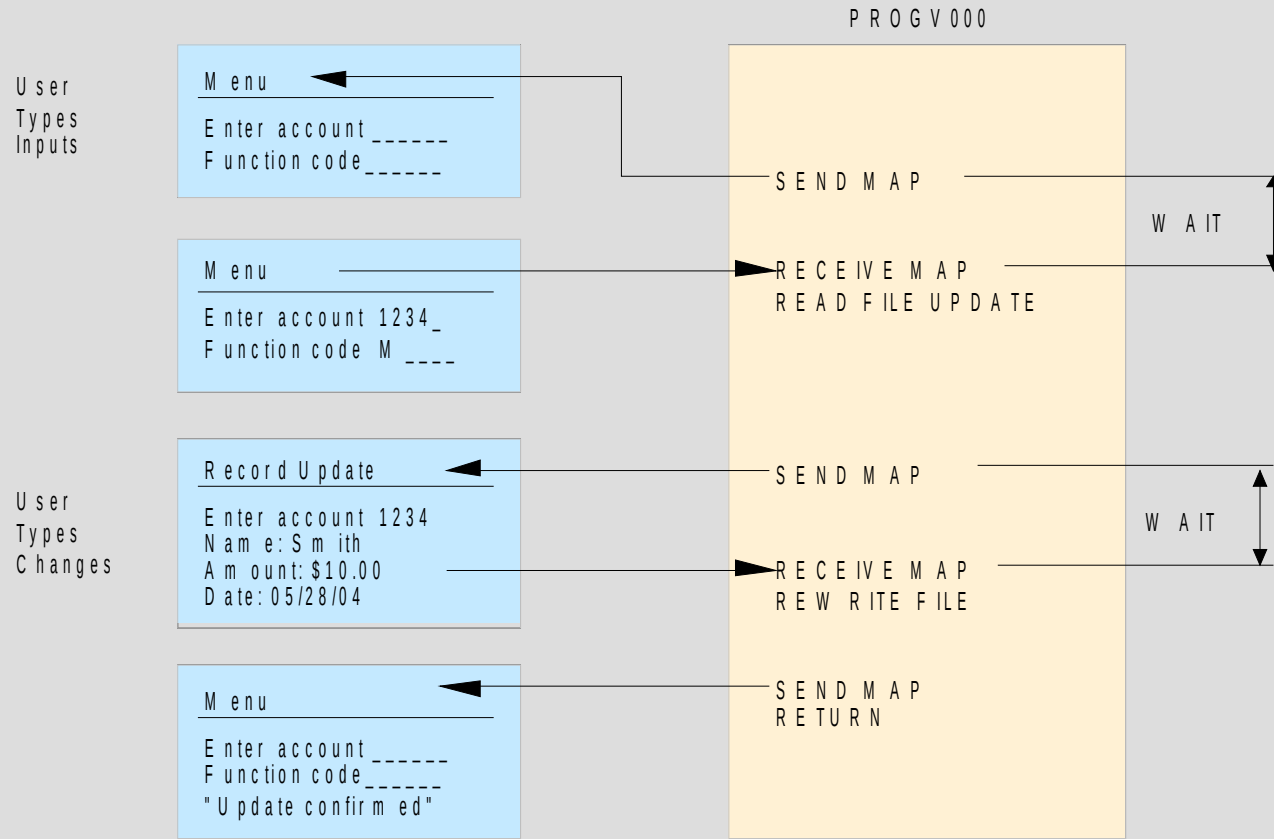
# Typical CICS Business Application



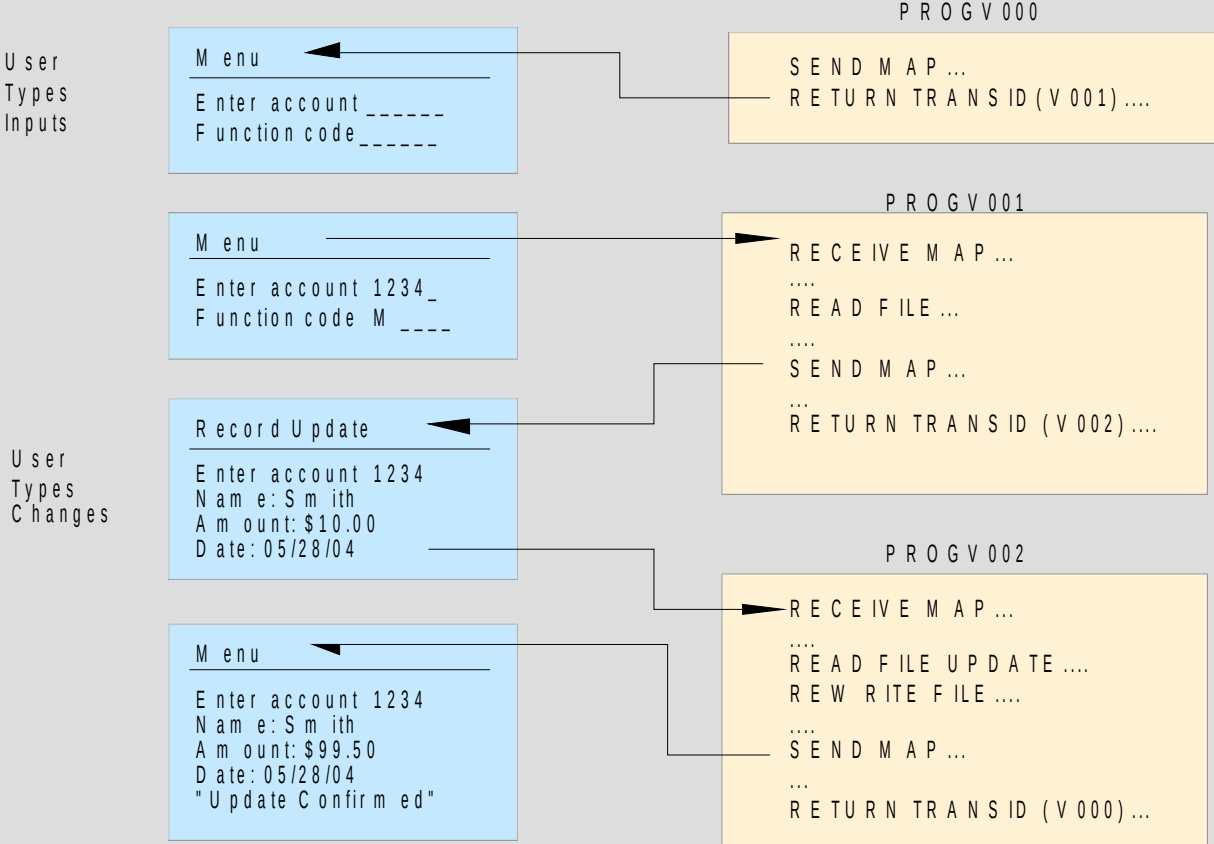
# Typical CICS Business Application



# CICS Programming Technique (Conversational)



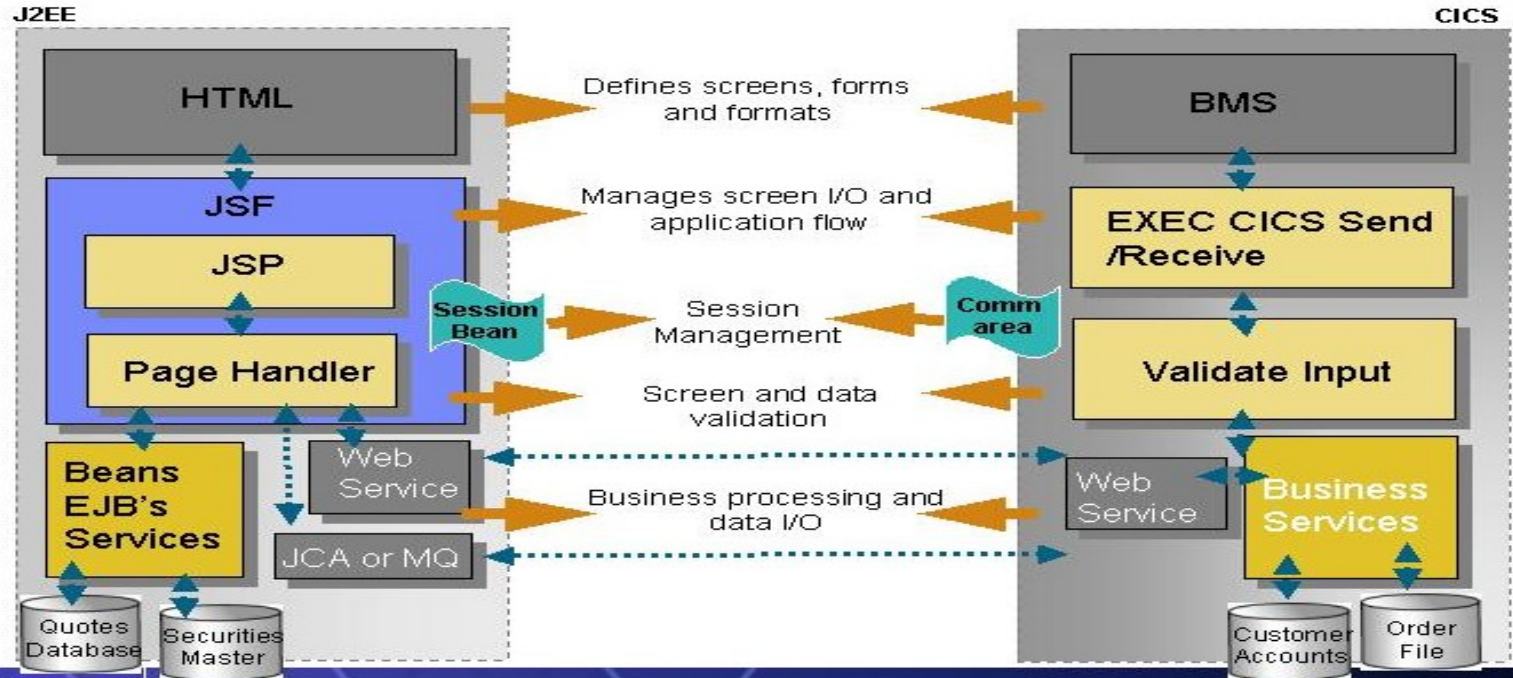
# CICS Programming Technique (Pseudo-Conversational)





# CICS vs. J2EE Model-View-Controller (MVC) organization

It's not that different



# Start CICS Address Space

## S\_CICSTS41,START=INITIAL

DFHPA1101	DFHSIT6\$ IS BEING LOADED.
DFHPA1103	END OF FILE ON SYSIN.
DFHSM0113I	Storage protection is not active.
DFHDM0101I	CICS is initializing.
DFHW20100I	Web2.0 domain initialization has started.
DFHWB0109I	Web domain initialization has started.
DFHSO0100I	Sockets domain initialization has started.
DFHEJ0101	Enterprise Java domain initialization has started. Java is a trademark of Sun Microsystems, Inc.
DFHHDH0100I	Document domain initialization has started.
DFHXS1100I	Security initialization has started.
DFHSI1500	CICS startup is in progress for CICS Transaction Server Version 4.1.0
DFHXS1102I	Security is inactive.
DFHWB0110I	Web domain initialization has ended.
DFHSI1502I	CICS startup is Initial.
DFHW20101I	Web2.0 domain initialization has ended.
DFHFC0100I	File Control initialization has started.
DFHTD0100I	Transient Data initialization has started.
DFHFC0101I	File Control initialization has ended.
DFHWB1007I	Initializing CICS Web environment.
DFHWB1008	CICS Web environment initialization is complete.
DFHSI1517	Control is being given to CICS.
DFHEJ0102	Enterprise Java domain initialization has ended.

# CICS Activity Messages Logged in MSGUSR

## SDSF STATUS DISPLAY

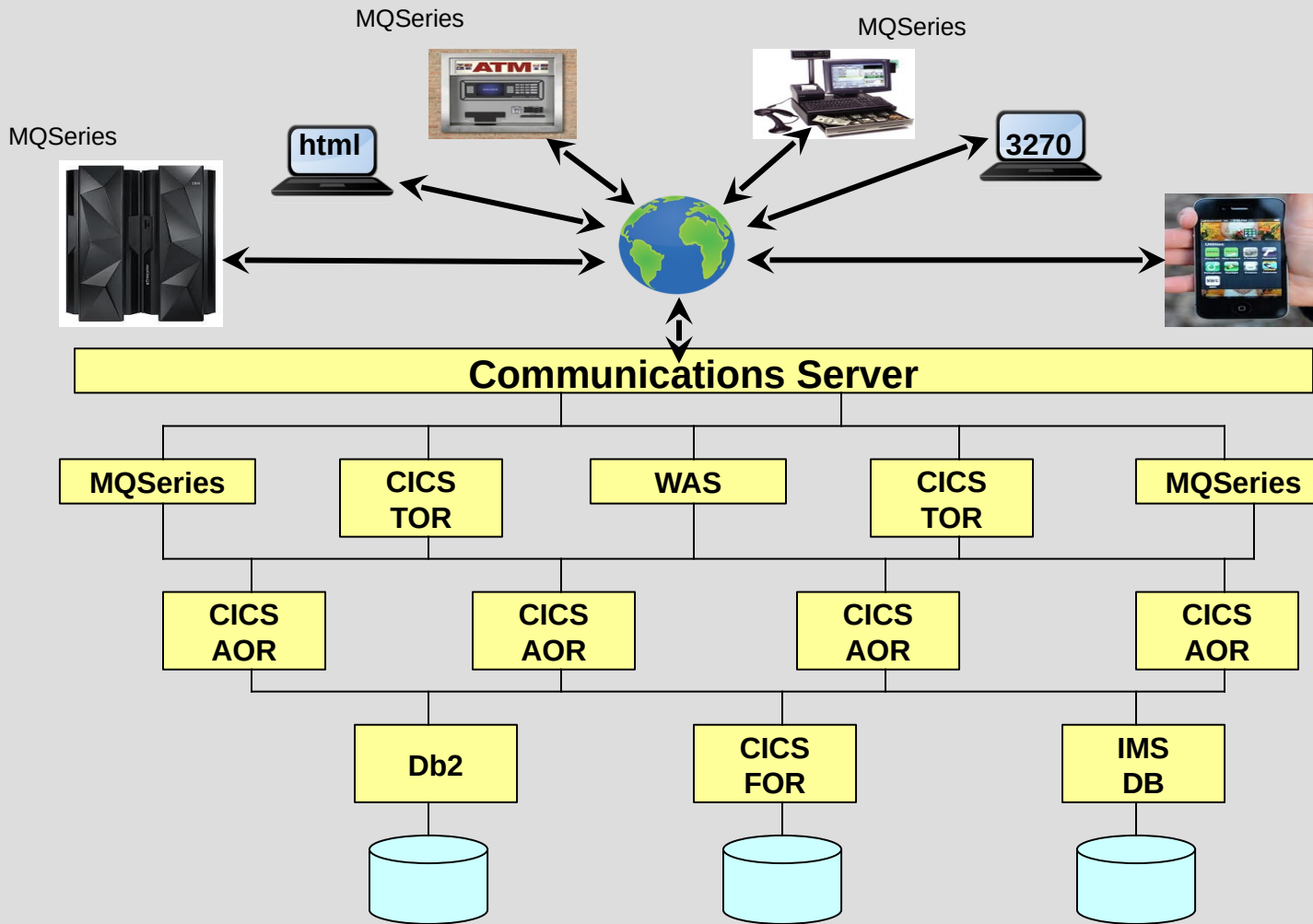
PREFIX=CICS\* DEST=(ALL) OWNER=\*

NP	JOBNAME	JobID	Queue
?	CICSTS41	STC00807	EXECUTION

## SDSF JOB DATA SET DISPLAY - JOB CICSTS41

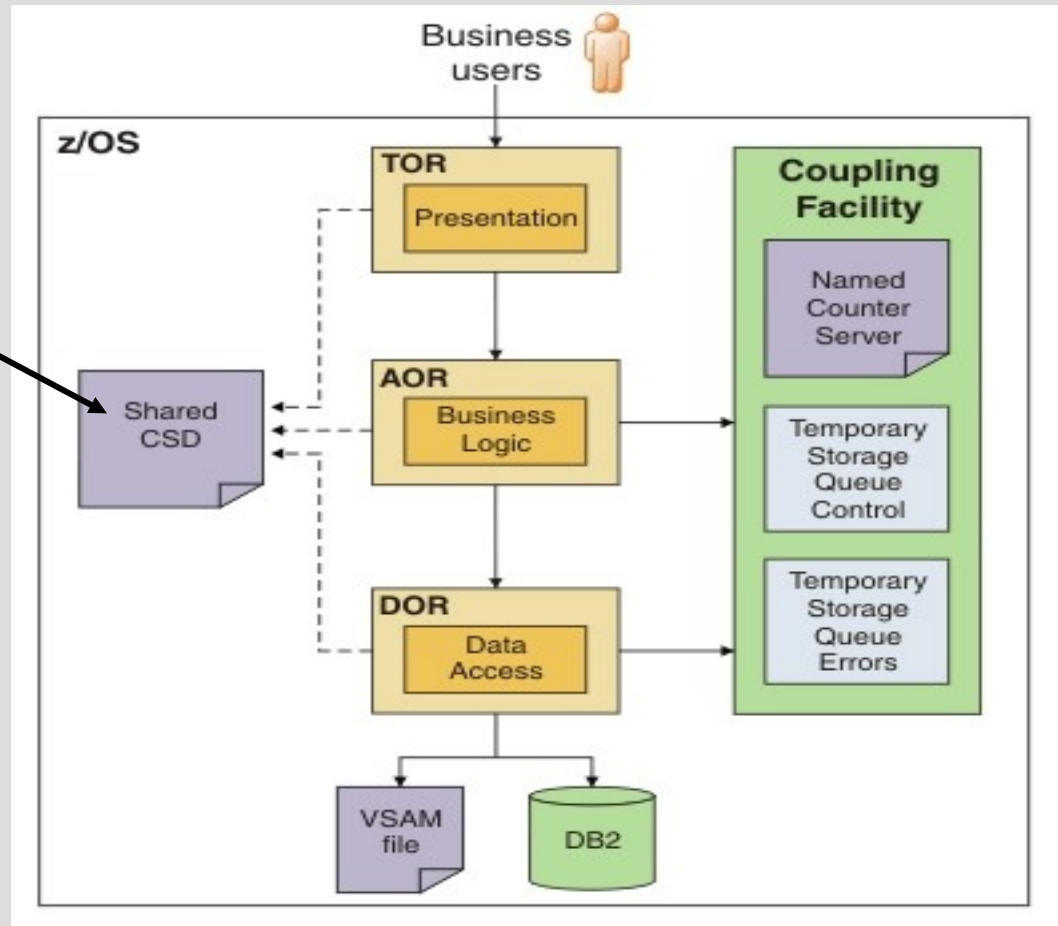
PREFIX=CICS\* DEST=(ALL) OWNER=\* SYSNAME=

NP	DDNAME	StepName
	JESMSGLG	JES2
	JESJCL	JES2
	JESYSMSG	JES2
	SYSPRINT	CICSTS41
	SYSPRINT	CICSTS41
	DFHCXRF	CICSTS41
s	MSGUSR	CICSTS41
	CEEMSG	CICSTS41
	CEEOUT	CICSTS41
	COUT	CICSTS41
	CRPO	CICSTS41



CICS  
Resource Definitions  
Administration

CICS  
System  
Definition



# CICS 3270 Access

Zowe  
z/OS Bootcamp Labs

Local IP Address = 47.185.40.3

Zowe and Z Boot Camp

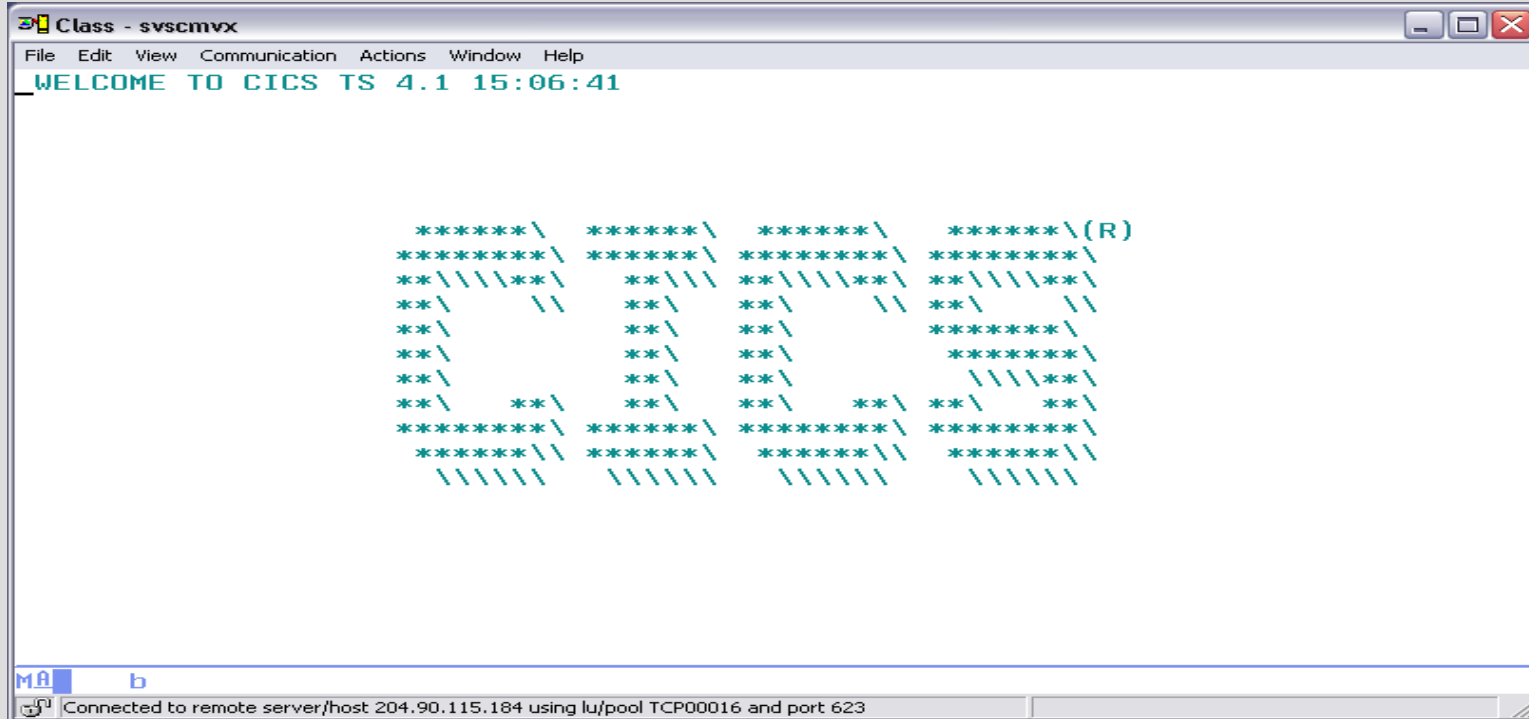
```
          // 0000000 SSSSSS  
         // 00 00 SS  
zzzzzz // 00 00 SS  
      zz // 00 00 SSSS  
     zz // 00 00  SS  
    zz // 00 00  SS  
zzzzzz // 0000000 SSSSSS
```

IBM Z, The Next Generation

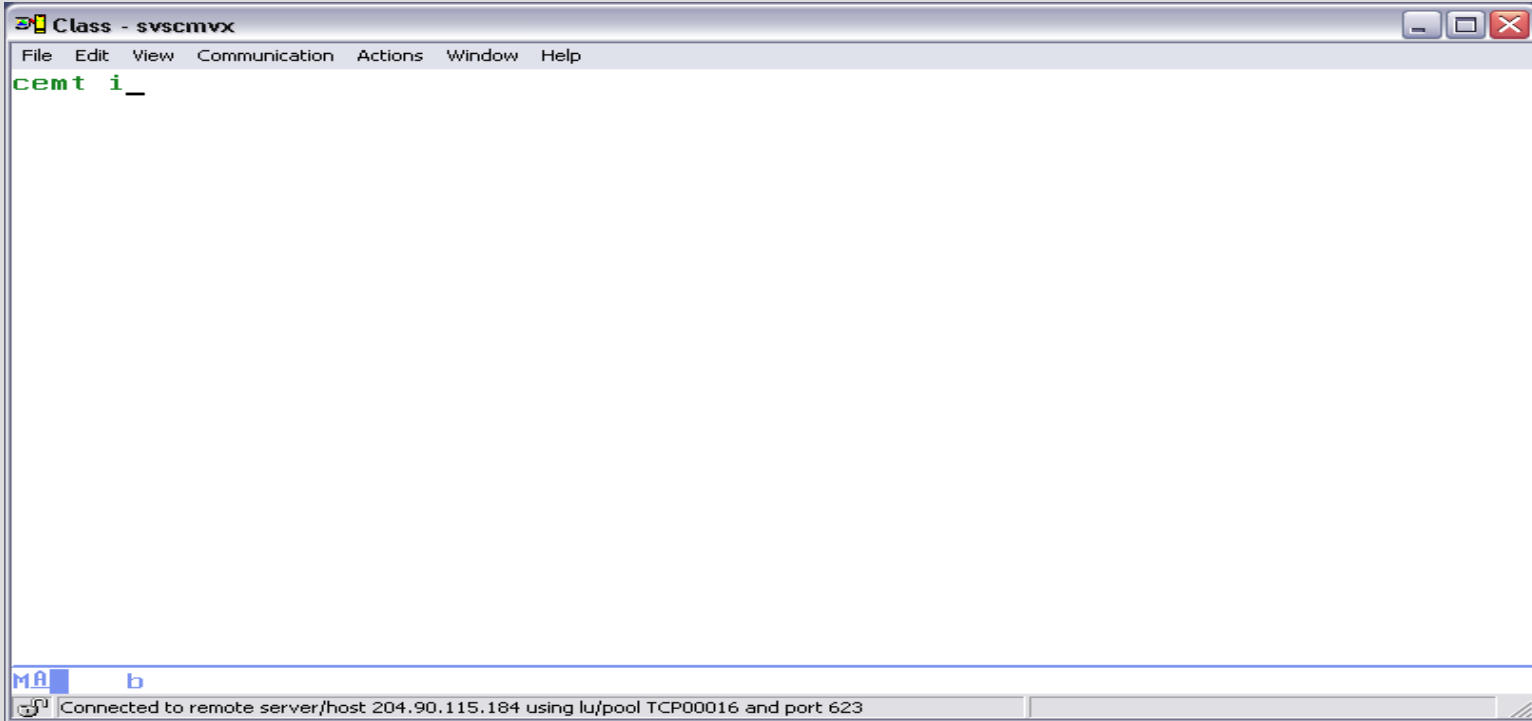
z/OS Runs the Economy of the World

==> Enter "logon" followed by the TSO userid, Example "logon userid" or  
==> Enter TSO

# CICS 3270 Signon Screen – Authentication Disabled



# CICS 3270 Access – CICS Supplied Operator Transaction





# CICS 3270 Access – CICS Supplied Operator Transaction

```
Class - svscmvx
File Edit View Communication Actions Window Help

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

ATomservice  DOctemplate  INttrace    PROCesstype  TSMModel
AUTInstmodel DSAs         IPconn      PROFile      TSPool
AUTOinstall  DSName      IRc         PROGRAM      TSQueue
AUXtrace     DUmpds      JModel     REquestmodel UOW
BEan         ENQ          JJournalname RRms         UOWDsnfail
BRfacility    ENQModel    JVM         STATistics   UOWLink
BUndle       EVENTBinding JVMPool     STreamname  URimap
CFdtpool     EVENTProcess JVMServer   SYDumpcode  Vtam
CLasscache  EXci        LIBrary    SYSTEM       WEB
CONnection  FEConnection LINE        TASK        WEBSERVICE
CORbaserver FENode      MODename   TCLass      WOrkrequest
DB2Conn     FEPOol      MONitor    TCPIP       Xmltransform
DB2Entry    FEPropset   MQConn     TCPIPService
DB2Tran     FETarget    MQIni      TDqueue
DEletshipped File         Netname    TERminal
DISpatcher  Gtfttrace  PARTner    TRANsaction
DJar        Host       PIPeline   TRDumcode

                                           SYSID=S660 APPLID=CICSTS41

PF 1 HELP      3 END      5 VAR      9 MSG

M@ b
Connected to remote server/host 204.90.115.184 using lu/pool TCP00016 and port 623
```

# CICS Supplied Transactions

**CEMT** (*Operations*)

Many supplied CICS transactions exist for administration and operation

**CEDF** (*Program Debug*)

All supplied CICS transactions begin with C

**CEDA** (*Administration*)

**CEDB**

**CEDC**

Manual dedicated to CICS Supplied Transactions

# CICS Professional Manuals and Documentation

CICS Transaction Server for z/OS 5.6.0

# Unit summary

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