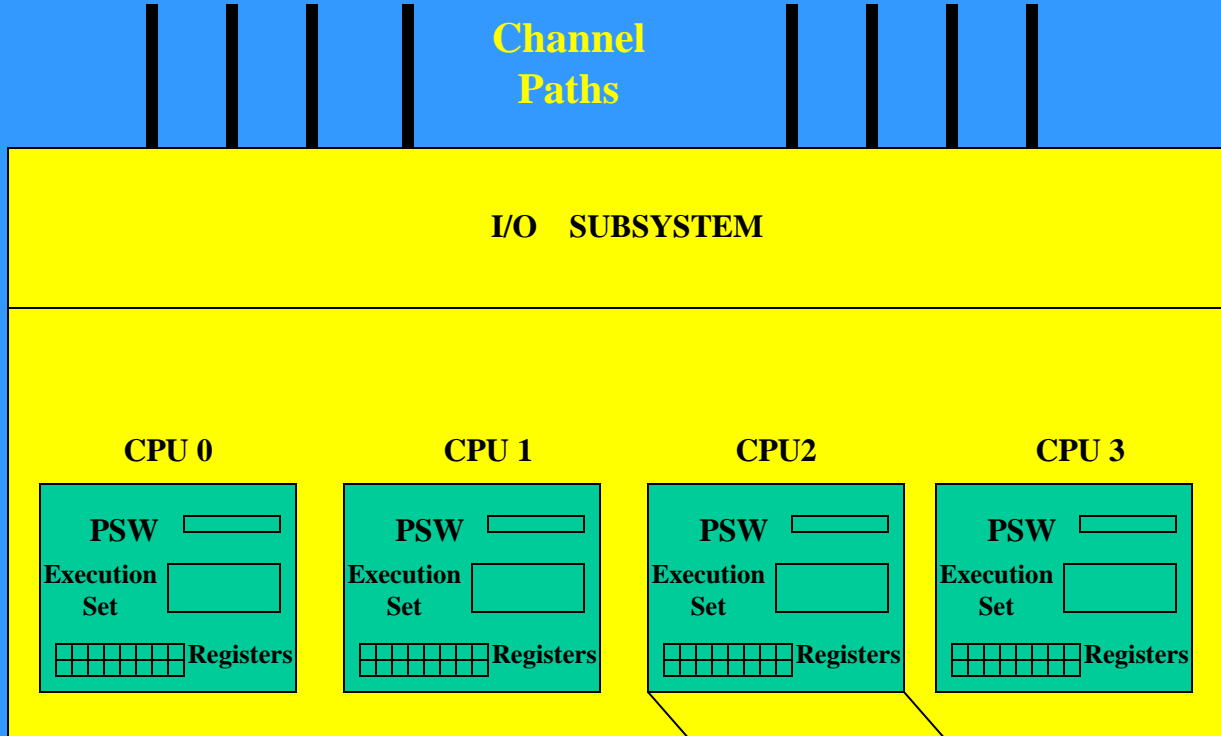


UNDERSTANDING

THREADSAFE

1.1 UNDERSTANDING THREADSAFE



LOGICAL PARTITION

1.1 UNDERSTANDING THREADSAFE

QR TCB is rapidly becoming constrained

Running at 100% CPU

Every task requiring the QR TCB to be dispatched is being delayed

Transactions waiting on the QR TCB to become available are being delayed

1.1 UNDERSTANDING THREADSAFE

z/OS **LPAR**

cpu0	QR tcb	cpu1	L8 tcb
cpu2	L8 tcb	cpu3	L9 tcb

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

Allow all Programs to execute both DB2 SQL calls and CICS API commands on the L8/L9 TCB

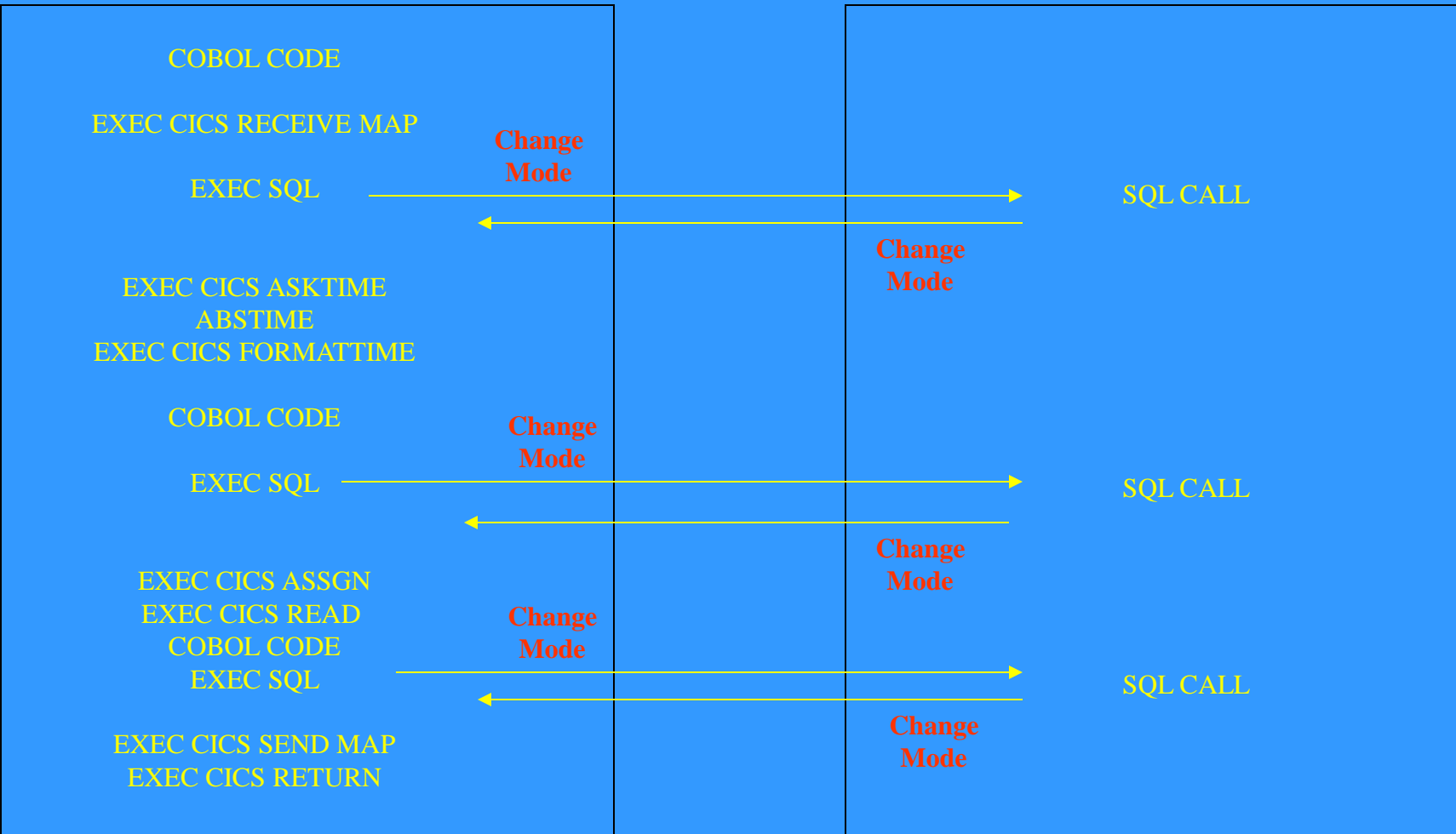
Any CICS call that is not Threadsafe will cause a switch back to the QR TCB

1.1 UNDERSTANDING THREADSAFE

NON THREADSAFE

CICS QR TCB

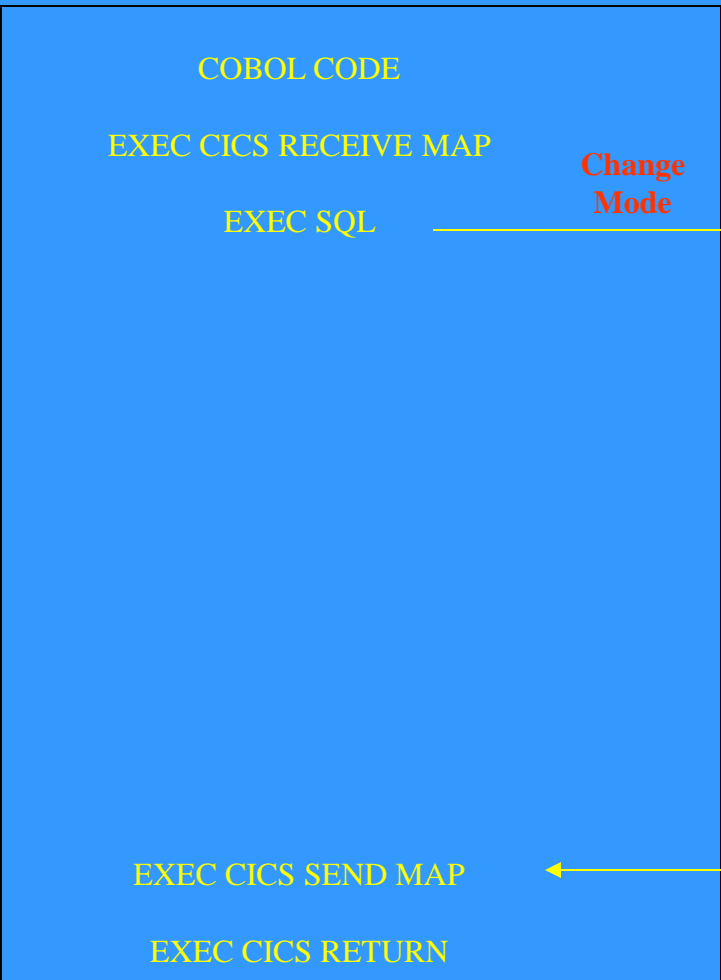
CICS L8 TCB



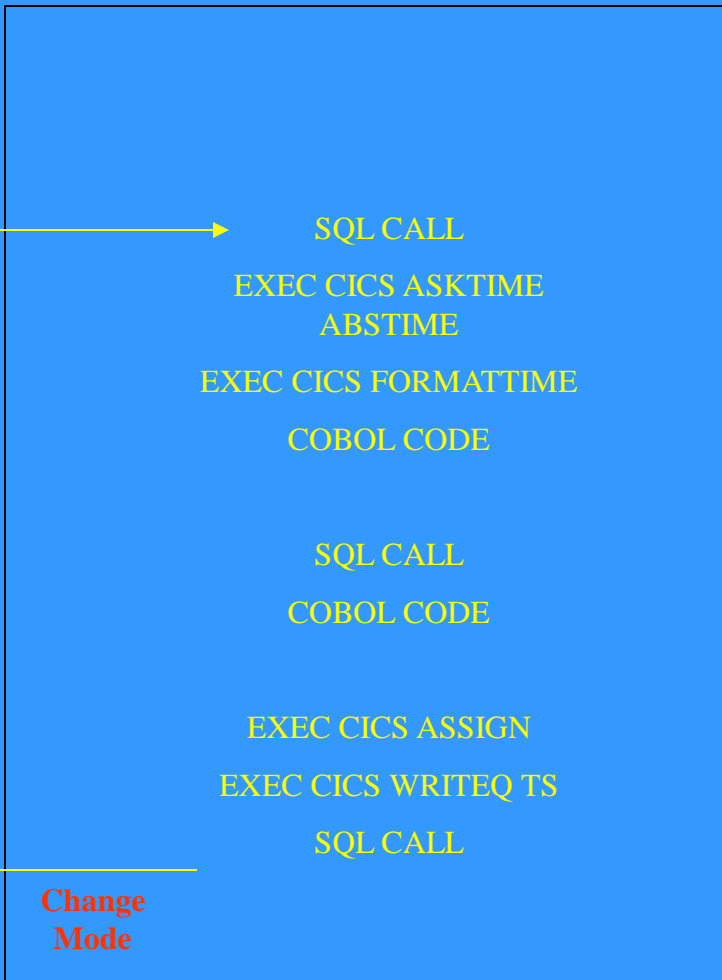
1.1 UNDERSTANDING THREADSAFE

THREADSAFE

CICS QR TCB



CICS L8 TCB



Change Mode

Change Mode

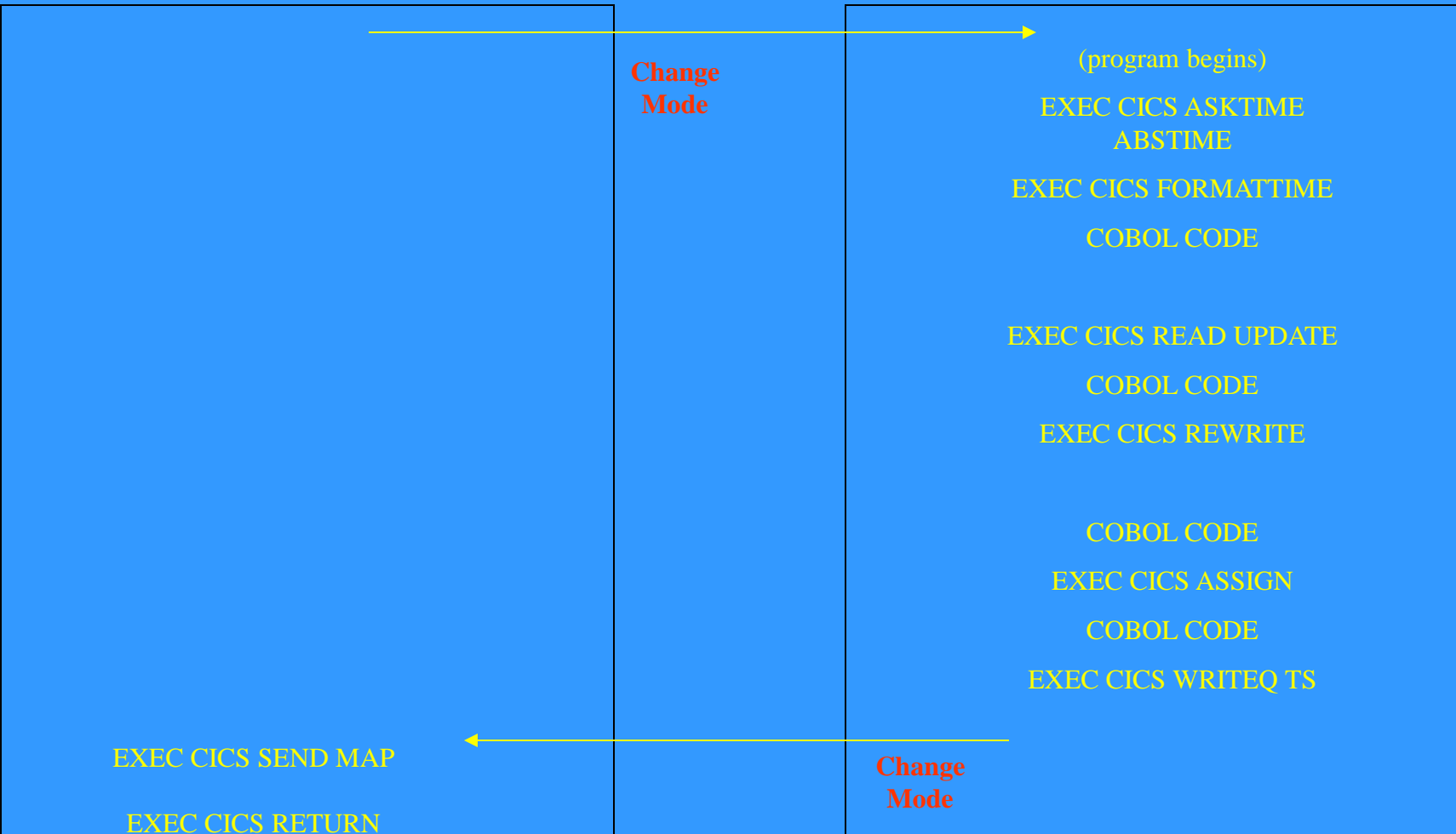


1.1 UNDERSTANDING THREADSAFE

THREADSAFE and OPENAPI

CICS QR TCB

CICS L9 TCB



1.1 UNDERSTANDING THREADSAFE

THREADSAFE

CICS/TS V3 added File Control commands to Threadsafe

CICS/TS V4 added Mirror support for VSAM for an IP connection. Plus a new **REQUIRED** option for Open TCB

CICS/TS V5 added Transient Data commands to Threadsafe

All Local File control commands including RLS are supported

1.1 UNDERSTANDING THREADSAFE

DFHEISUP

The Load module scanner is a Utility that scans CICS Loadlibs

It creates a :

- Summary report
- Detailed report

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

The program must be reviewed before implementing Threadsafte

- EXEC CICS GETMAIN SHARED
- EXEC CICS ADDRESS(CWA)
- COBOL Calls (Assembler)

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

In order to implement Threadsafe (once the Application has been reviewed and is safe), is to do the following :

- Modify the CICS Program Autoinstall Exit. One assembler statement needs to be added to DFHPGADX
- Modify the CICS Program Autoinstall Model Program DFHPGAIP to change the Concurrency Attribute to Threadsafe
- Define each Program in the CICS CSD and change the Concurrency Attribute to Threadsafe or REQUIRED
- Ensure the Threadsafe Dynamic Plan Exit in the DB2CONN is being used, currently it is DSNCUEXT, it should be DFHD2PXT

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

Defining a program as **CONCURRENT=THREADSAFE** will

Have less TCB Switches especially if there are DB2 Calls and non CICS API Calls for Threadsafe as the program will stay on the QR TCB after the Non Threadsafe call.

Defining a program as **CONCURRENT=REQUIRED** will have more TCB Switches as after each QR switch, the program will be switched back to the Open TCB before control is returned

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

CICS Definitions

RLS = YES in the SIT

RLSACCESS enabled for each File entry

SIT option MAXOPENTCBS manages a pool of L8 and L9 TCBs

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

CICS Threadsafe in Operation

With Transaction Isolation MAXOPENTCBS should be set to at least the max task value to cater for subspaces

MAXOPENTCBS and DB2 TCBLIMIT work together

If no free Open TCBs are available, then the transaction is suspended with OPENPOOL

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

The CICS Trace can be an excellent place to see how Threadsafe works

The Trace data below, shows what happens when a Non Threadsafe API command is encountered

The switch from the Open TCB to the QR TCB to execute it can be seen

1.1 UNDERSTANDING THREADSAFE

THREADSAFE

In the sample Trace data below, the switch is made from the L9 Open TCB to the L8 Open TCB to process the DB2 Call.

Once the Call has finished, with the Program's definition specifying OPENAPI, CICS switches back to the L9 TCB before handing control back to the program

1.1 UNDERSTANDING THREADSAFE

INQ SYSTEM

STATUS: RESULTS - OVERTYPE TO MODIFY

Aging(32768)	Progautoctlg(Ctlgmodify)
Akp(04000)	Progautoexit(DFHPGADX)
Cicstslevel(030200)	Progautoinst(Autoinactive)
Cmdprotect(Cmdprot)	Reentprotect(Reentprot)
Db2conn(DB9G)	Release(0650)
Debugtool(Nodebug)	Runaway(0005000)
Dfltuser(CICSUSER)	Scandelay(0500)
Dsalimit(05242880)	Sdtran(CESD)
Dsrtprogram(NONE)	Sosabovebar(Notsos)
Dtrprogram(DFHDYP)	Sosaboveline(Notsos)
Dumping(Sysdump)	Sosbelowline(Notsos)
Edsalimit(0209715200)	Storeprotect(Active)
Forceqr(Noforce)	Time(0001000)
Logdefer(00005)	Tranisolate(Inactive)
Maxtasks(005)	
Memlimit(Nolimit)	
Mrobatch(001)	
Oslevel(010900)	

SYSID=CICS APPLID=CICS