Session - 6

Program Control

Program Control Commands

- LINK
- XCTL
- RETURN
- LOAD
- RELEASE

LINK

- Used to pass control from one application program to another
- The calling program expects control to be returned to it
- Data can be passed to the called program using COMMAREA
- If the called program is not already in main storage it is loaded

Link Syntax

EXEC CICS **LINK**

PROGRAM(name)

[COMMAREA(data-area)

[LENGTH(data-value)]]

END-EXEC.

Conditions : PGMIDERR, NOTAUTH, LENGERR

XCTL

- To transfer control from one application program to another in the same logical level
- The program from which control is transferred is released
- Data can be passed to the called program using COMMAREA
- If the called program is not already in main storage it is loaded

XCTL Syntax

EXEC CICS **XCTL**

PROGRAM(name)

[COMMAREA(data-area)

[LENGTH(data-value)]]

END-EXEC.

Conditions : PGMIDERR, NOTAUTH, LENGERR

RETURN

- To return control from one application program to another at a higher logical level or to CICS
- Data can be passed using COMMAREA when returning to CICS to the next task

RETURN Syntax

EXEC CICS **RETURN**

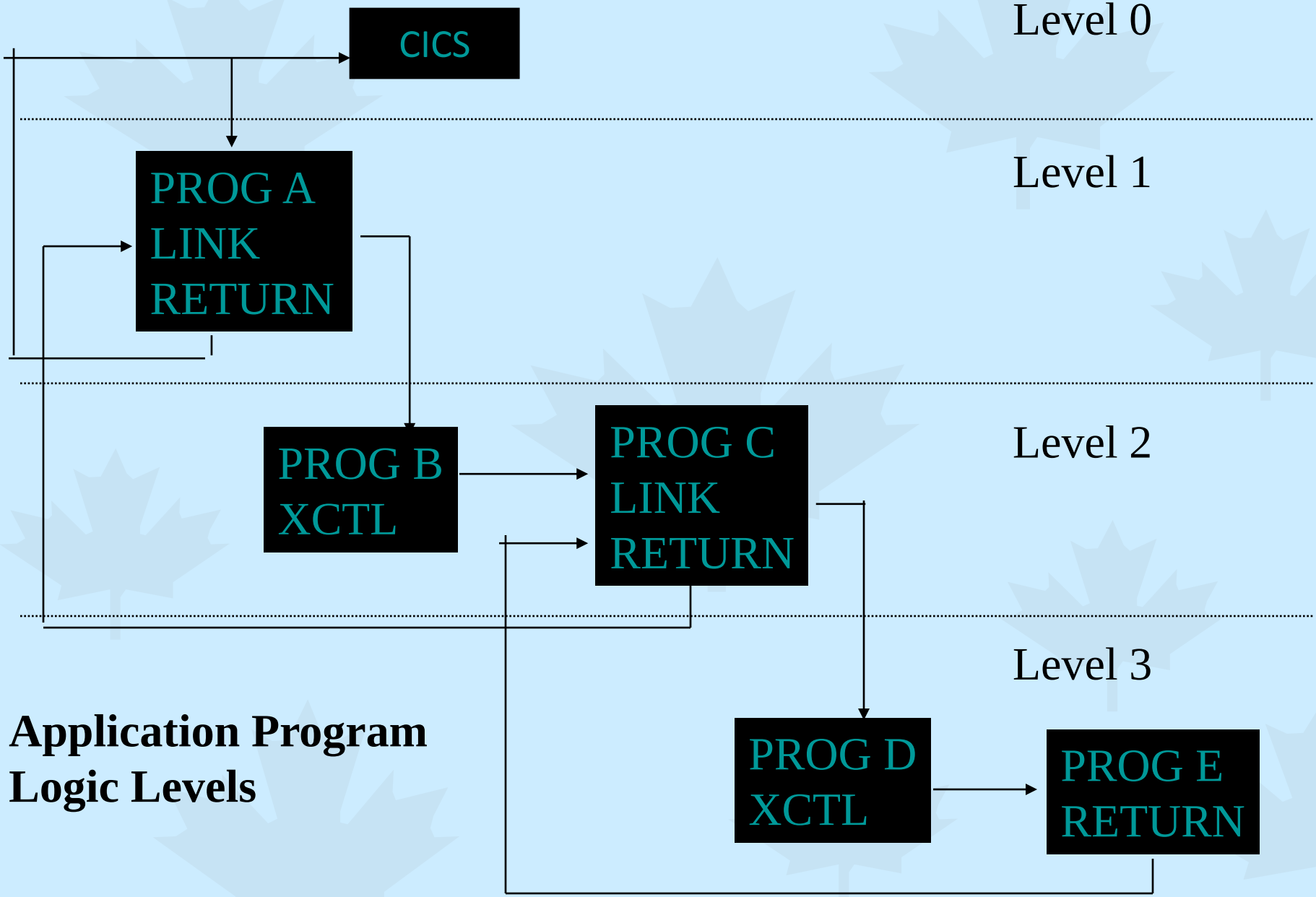
[TRANSID(name)

[COMMAREA(data-area)

[LENGTH(data-value)]]]

END-EXEC.

Conditions : INVREQ, LENGERR



Application Program Logic Levels

LOAD

- To load program/table/map from the CICS DFHRPL concatenation library into the main storage

- Using load reduces system overhead

- **Syntax** :

EXEC CICS Load

Program(name)

[SET (pointer-ref)]

[LENGTH (data-area)]

END-EXEC.

Condition : NOTAUTH, PGMIDERR

Release

- To RELEASE a loaded program/table/map

- **Syntax** :

  EXEC CICS RELEASE

  PROGRAM(name)

  END-EXEC.

  Conditions : PGMIDERR, NOTAUTH, INVREQ

Commarea

- Data passed to called program using COMMAREA in LINK and XCTL
- Calling program - Working Storage defn
- Called program - Linkage section defn under DFHCOMMAREA
- Called program can alter data and this will automatically available in calling program after the RETURN command (need not use COMMAREA option in the return for this purpose)
- EIBCALEN is set when COMMAREA is passed

Recap

- Name some of the program control commands in CICS
- What is the difference between LINK & XCTL?
- What is the use of RETURN command?
- What is commarea? How is it used ?
- What is load?
- When is Release command used?

Lab Session

Link – Sample Program

```
000001 //MAPLE41B JOB ,,CLASS=M,
000002 //   MSGLEVEL=(1,1),NOTIFY=MAPLE41,TIME=(1)
000003 //   JCLLIB  ORDER=(MAPLE41.CICS.TEMP)
000004 //STEP1   EXEC PROC=DFHEITVL
000005 //TRN.SYSIN     DD    *
000006        IDENTIFICATION DIVISION.
000007        PROGRAM-ID. MAIN.
000008        ENVIRONMENT DIVISION.
000009        DATA DIVISION.
000010        WORKING-STORAGE SECTION.
000011        01 INP.
000012           02 F PIC X(5).
000013           02 A PIC 9(2).
000014           02 B PIC 9(2).
```

```
000015       01 OUT.
000016          02 MSG PIC X(10) VALUE 'THE RESULT'.
000017          02 A1 PIC 9(2).
000018          02 F PIC X VALUE '+'.
000019          02 B1 PIC 9(2).
000020          02 F PIC X VALUE '='.
000021          02 RES PIC 999.
000022       PROCEDURE DIVISION.
000023           EXEC CICS
000024               RECEIVE INTO(INP)
000025               LENGTH(LENGTH OF INP)
000026           END-EXEC.
000027            MOVE A TO A1.
000028            MOVE B TO B1.
```

```
000029           EXEC CICS
 000030            LINK PROGRAM('MAPLE39P')
 000031            COMMAREA(OUT)
 000032            LENGTH(LENGTH OF OUT)
 000033           END-EXEC.
 000034           EXEC CICS
 000035            SEND FROM(OUT)
 000036            LENGTH (LENGTH OF OUT)
 000037            ERASE
 000038           END-EXEC.
 000039           EXEC CICS RETURN END-EXEC.
 000040 /*
 000041 //COB.SYSLIB    DD DISP=SHR,DSN=MAPLE41.SYSMB.PDS
 000042 //LKED.SYSLMOD DD
DISP=SHR,DSN=CICSTS22.MAPLE.PRGLOAD3(MAPLE41P)
 000043 //LKED.SYSIN DD *
 000044   NAME MAPLE41P(R)
 000045 /*
 000046 //
```

Program to be linked

```
000001 //MAPLE39B JOB ,,CLASS=M,
000002 //   MSGLEVEL=(1,1),NOTIFY=MAPLE41,TIME=(1)
000003 //   JCLLIB  ORDER=(MAPLE41.CICS.TEMP)
000004 //STEP1 EXEC PROC=DFHEITVL
000005 //TRN.SYSIN   DD  *
000006        IDENTIFICATION DIVISION.
000007        PROGRAM-ID. LINK2.
000008        ENVIRONMENT DIVISION.
000009        DATA DIVISION.
000010        WORKING-STORAGE SECTION.
000011        LINKAGE SECTION.
000012        01 DFHCOMMAREA.
000013          02 OU.
000014            03 MSG PIC X(10).
000015            03 A1 PIC 9(2).
000016            03 F PIC X.
000017            03 B1 PIC 9(2).
000018            03 F PIC X.
000019            03 RES PIC 999.
```

```
000020       PROCEDURE DIVISION.
 000021            COMPUTE RES = A1 + B1.
 000022           EXEC CICS
 000023            SEND FROM(RES)
 000024            LENGTH(LENGTH OF RES)
 000025            ERASE
 000026           END-EXEC.
 000027            EXEC CICS RETURN TRANSID('MP41') END-EXEC.
 000028 /*
 000029 //COB.SYSLIB    DD DISP=SHR,DSN=MAPLE41.SYSMB.PDS
 00030 //LKED.SYSLMOD  DD
DISP=SHR,DSN=CICSTS22.MAPLE.PRGLOAD3(MAPLE39P)
 000031 //LKED.SYSIN DD *
 000032   NAME MAPLE39P(R)
 000033 /*
 000034 //
```

XCTL – Sample Program

```
000001  IDENTIFICATION DIVISION.
000002  PROGRAM-ID. SEN.
000003  ENVIRONMENT DIVISION.
000004  DATA DIVISION.
000005  WORKING-STORAGE SECTION.
000006  01 REC.
000007    05 MSG PIC X(30).
000008  77 LEN PIC S9(4) COMP.
000009  PROCEDURE DIVISION.
000010     MOVE "WELCOME TO CICS" TO MSG.
000011     MOVE 30 TO LEN.
000012     EXEC CICS XCTL
000013          PROGRAM('MAPLE18P')
000014          COMMAREA(REC)
000015          LENGTH(LEN)
000016     END-EXEC.
```