



QLLC BNN using Cisco DLSw

Sample Conversion from the IBM 3745 to
Communications Controller for Linux z/Series

Target Audience

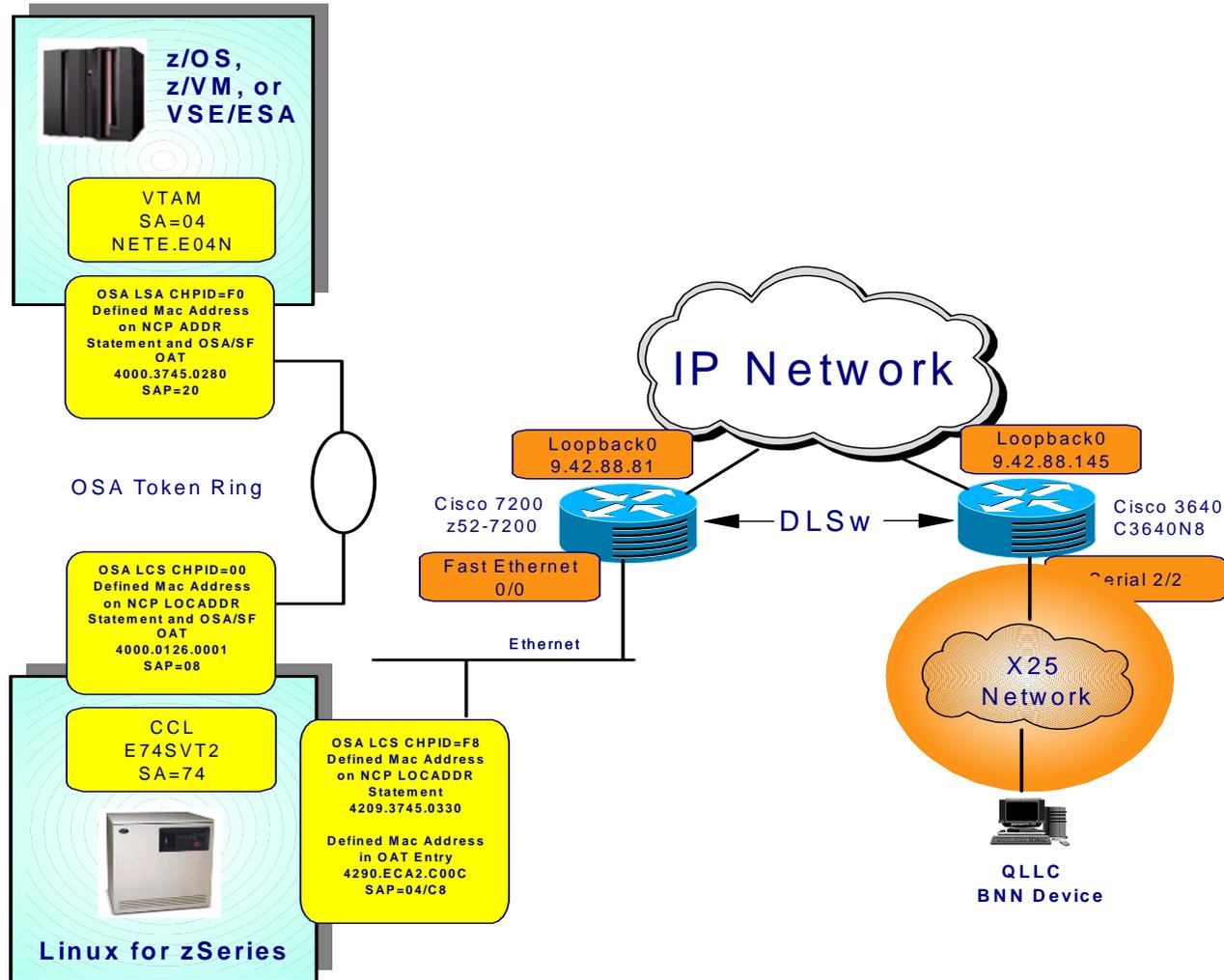
- IBM's customers who use IBM 3745 or IBM 3746/900 to attach QLLC BNN devices from remote sites to the datacenter.

Purpose of this Paper

The intent of this paper is to provide a tested solution for customers during the migration from 3745/3746-900 FEPs to Communication Controller for Linux z/Series (CCL). This document will provide working examples of the following:

- This document will provide working examples of the following:
 - VTAM XCA Major Node – VTAM to CCL
 - NCP Physical and Logical lines
 - NCP to VTAM
 - NCP BNN Devices
 - DLSw Definitions for Routers

Configuration



Required Resources

- One z/OS Communication Server ID
- One Linux ID running as guests under z/VM
 - 512mb of memory
 - 3 Virtual CPs
 - 2 3390-3 DASD volumes
- One OSA Fast Ethernet OSA adapter
- Layer 2 or Layer 3 Fast Ethernet Switch
- Two Token Ring OSA adapters
- Layer 2 Token Ring Switch or hub.
- Two Cisco IOS Routers
 - For testing purposes, we used Cisco 3600 and 7200 Series IOS Routers

Starting CCL from Linux

- From the Linux console, change to the CCL directory:
 - `cd /opt/ibm/Communication_Controller_for_Linux/`

- Load the CCL kernel module
 - `./load_ndh.sh`
 - You will receive the message :
NDH kernel modules loaded. You are now able to run the cclengine

- Start the CCL engine
 - `nohup ./cclengine -mE74SVT2 -p2074 SVTE74 &`
 - If you use telnet or ssh into the Linux host you will want to preface the command with “nohup” so that the process will remain active even after the telnet/ssh session is terminated.

Activating NCP using XCA from NETE.E04N

- From NETE.E04N activate the XCA major node

```
V NET,ACT,ID=E04XCA,ALL
IST093I E04XCA ACTIVE
IST464I LINK STATION E04TRPU HAS CONTACTED E74SVT2 SA 74
IST093I E04TRPU ACTIVE
```

- From NETE.E04N activate the NCP

```
V NET,ACT,ID=E74SVT2,RNAME=E04TRPU
IST093I E74SVT2 ACTIVE
IST093I E74PU92A ACTIVE
IST093I E74PU93A ACTIVE
IST093I E74NPPU ACTIVE
IST093I E74NRFPU ACTIVE
IST464I LINK STATION E74PG1A HAS CONTACTED E04NPU SA 4
IST093I E74PG1A ACTIVE
```

Displaying the XCA Major Node from NETE.E04N

- Display the XCA major node and the XCA Line

```
D NET, ID=E04XCA, E
IST075I NAME = E04XCA, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1021I MEDIUM=RING, ADAPNO= 0, CUA=2F08, SNA SAP= 20
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I E04TRLIN ACTIV----E
IST314I END

D NET, ID=E04TRLIN, E
IST075I NAME = E04TRLIN, TYPE = LINE
IST486I STATUS= ACTIV----E, DESIRED STATE= ACTIV
IST087I TYPE = LEASED, CONTROL = SDLC, HPDT = *NA*
IST134I GROUP = E04TRGRP, MAJOR NODE = E04XCA
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID
      ADJLS
IST397I E04TRPU ACTIV--W-E 1 1 E74SVT2 74 NETE
IST314I END
```

Activating QLLC Devices

- After starting TPNS devices, verify the CONNECTINs at NETE.E04N

```
IST590I  CONNECTIN  ESTABLISHED FOR PU QLPU0101 ON LINE J002A7CF
```

- Once the CONNECTIN is received at the VTAM console, the LUs downstream will receive the USS10 message and the user will be able to logon to the application.

E04XCA – XCA Major Node Definitions

E04XCA VBUILD TYPE=XCA

*

E04TRPRT PORT MEDIUM=RING,ADAPNO=0,SAPADDR=20,CUADDR=2F08,TIMER=100

E04TRGRP GROUP DIAL=NO,ISTATUS=ACTIVE

E04TRLIN LINE USER=SNA,ISTATUS=ACTIVE

*

E04TRPU PU MACADDR=400001260001,PUTYPE=5,SUBAREA=74,TGN=1, X
SAPADDR=08,ALLOWACT=YES

E74SVT2 – NTRI Physical Line Definitions

```
E74PTRG1 GROUP ECLTYPE=(PHY,ANY),ADAPTER=TIC2,ANS=CONT,MAXTSL=16732, X
          RCVBUFC=32000,ISTATUS=ACTIVE,XID=NO, X
          RETRIES=(20,5,5),NPACOLL=(YES,EXTENDED)
*
*-----
* Physical Token Ring INN/BNN
*-----
*
E74TR92 LINE ADDRESS=(1092,FULL),TRSPEED=16,PORTADD=92, X
          LOCADD=400001260001,NPACOLL=YES
E74PU92A PU
*
*-----
* Physical Ethernet - DLSw BNN and INN
*-----
*
E74TR93 LINE ADDRESS=(1093,FULL),TRSPEED=16,PORTADD=93, X
          LOCADD=420937450330,NPACOLL=YES
E74PU93A PU
*
```

E74SVT2 – NTRI BNN Lines

```
*****
*      NTRI BNN LOGICAL LINES FOR TOKEN RING PORT 1093      *
*****
*
E74BNN2 GROUP ECLTYPE=LOGICAL,ANS=CONTINUE,AUTOGEN=500,CALL=INOUT,      X
          ISTATUS=ACTIVE,PHYSRSC=E74PU93A,                              X
          RETRIES=(10,10,10,20),XMITDLY=NONE,NPACOLL=YES
*
```

E74SVT2 – NTRI Logical Line to NETE.E04N

```

*****
*      NTRI INN LOGICAL LINES FOR TOKEN RING PORT 1092      *
*****
*
E74INNG1 GROUP ECLTYPE=(LOGICAL, SUBAREA), ANS=CONT, MONLINK=CONT,      X
                ISTATUS=ACTIVE, LOCALTO=13.5, REMOTTO=18.2,          X
                T2TIMER=(0.2, 0.2, 3), PHYSRSC=E74PU92A,            X
                SDLCST=(E74PRI, E74SEC), NPACOLL=YES
*
*-----
* Linkstation to VTAM E04N
*-----
*
E74LG1A  LINE  TGN=1, TGCONF=SINGLE
E74PG1A  PU    ADDR=14400037450280, SSAP=(08, H)
*

```

Sample QLLC SMN PU and LU

```
*****
*          SMN for QLLC BNN                                     *
*****
*
QLLCSMN  VBUILD  MAXGRP=10 ,MAXNO=180 ,TYPE=SWNET
*
QLPU0101 PU      ADDR=01 ,PACING=1 ,DISCNT=YES ,MAXDATA=265 ,MAXPATH=1 ,      X
          MAXOUT=6 ,ANS=CONT ,PUTYPE=2 ,IDBLK=017 ,IDNUM=81000
*
QLLU0101 LU      LOCADDR=02 ,LOGAPPL=E08QLLC
QLLU0102 LU      LOCADDR=03 ,LOGAPPL=E08QLLC
QLLU0103 LU      LOCADDR=04 ,LOGAPPL=E08QLLC
QLLU0104 LU      LOCADDR=05 ,LOGAPPL=E08QLLC
QLLU0105 LU      LOCADDR=06 ,LOGAPPL=E08QLLC
```

Cisco Router Definitions – z52-7200

```
dlsw local-peer peer-id 9.42.88.81
dlsw remote-peer 0 tcp 9.42.88.145
dlsw bridge-group 1
!
interface Loopback0
  description Loopback Interface for VIPA
  ip address 9.42.88.81 255.255.255.252
  ip broadcast-address 0.0.0.0
  no ip route-cache
  no ip mroute-cache
end
!
interface FastEthernet0/0
  description DLSw Connection to CCL E74
  no ip address
  no ip route-cache
  no ip mroute-cache
  duplex full
  bridge-group 1
!
bridge 1 protocol ieee
```

Cisco Router Definitions – C3640N8

```
dlsw local-peer peer-id 9.42.88.145
dlsw remote-peer 0 tcp 9.42.88.81
!
interface Loopback0
  description Loopback Interface for the Router
  ip address 9.42.88.145 255.255.255.252
!
interface Serial2/2
  description X25 BNN Connection to CCL NCP Gens
  bandwidth 1544000
  no ip address
  encapsulation x25
  no ip mroute-cache
  x25 address 5555
  x25 ltc 257
  x25 htc 257
  x25 win 7
  x25 wout 7
  x25 map qllc 4000.1111.1111 6666
  keepalive 5
  serial restart-delay 0
  no cdp enable
  qllc accept-all-calls
  qllc dlsw partner 4209.3745.0330
!
```