



Communication Controller for Linux on zSeries

## QLLC BNN using Cisco DLSw

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

## Target Audience

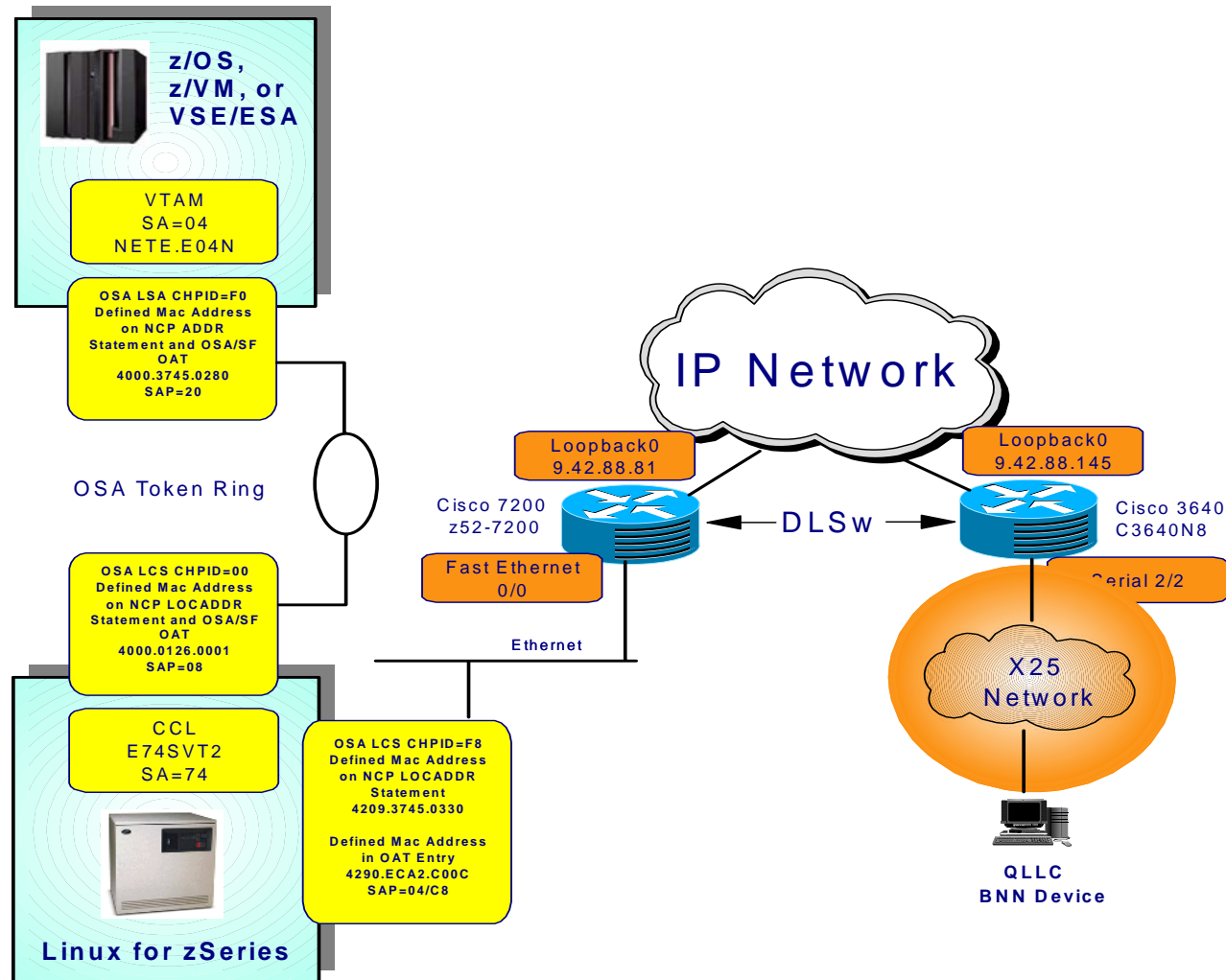
- IBM's customers who use IBM 3745 or IBM 3746/900 to attach QLLC BNN devices from remote sites to the datacenter.

## 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      *
*****
*
E74BNNG2 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

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\* SMN for QLLC BNN \*

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\*

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

```
dls w local-peer peer-id 9.42.88.81
dls w remote-peer 0 tcp 9.42.88.145
dls w 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
!
```