



| Communication Controller for Linux on zSeries

# SDLC BNN using Cisco DLSw

Sample Conversion from the IBM 3745 to  
Communications Controller for Linux zSeries

## Target Audience

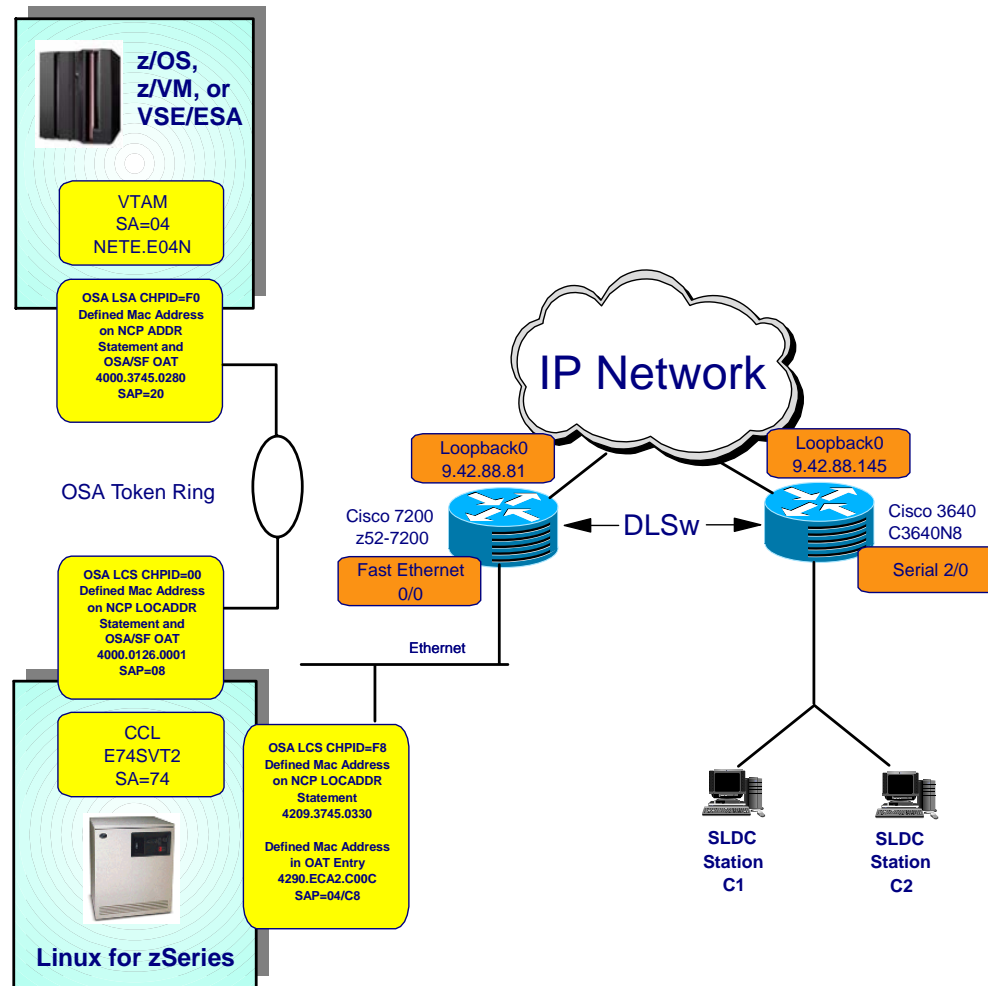
- IBM's customers who use IBM 3745 or IBM 3746/900 to attach SDLC BNN devices from remote sites to their datacenter.

## 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
```

- From NETE.E04N activate the Switched Major Node

```
V NET,ACT,ID=SDLCSMN,ALL
IST097I VARY ACCEPTED
IST093I SDLCPU01 ACTIVE
IST093I SDLCPU02 ACTIVE
IST093I SDLCSMN ACTIVE
```

# Displaying the XCA Major Node from NETE.E04N

- Display the XCA major node

```
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
```

- Display the XCA line

```
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
```

# Displaying the XCA Major Node from NETE.E04N

- Display the XCA major node

```
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
```

- Display the XCA line

```
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 SDLC Devices

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

```
IST590I  CONNECTIN  ESTABLISHED FOR PU SDLCPU01 ON LINE J002A7C
```

```
IST590I  CONNECTIN  ESTABLISHED FOR PU SDLCPU02 ON LINE J002A7CD
```

- 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

## E04XCA – Switched Major Node Definitions

SDLCSMN VBUILD MAXGRP=10,MAXNO=180,TYPE=SWNET

\*

SDLCPU01	PU	ADDR=C1,MODETAB=AMODETAB,USSTAB=AUSSTAB,ANS=CONT,	X
		IDBLK=017,IDNUM=000C1,MAXPATH=10	

SDLCL01A	LU	LOCADDR=2,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL01B	LU	LOCADDR=3,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL01C	LU	LOCADDR=4,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL01D	LU	LOCADDR=5,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

\*

SDLCPU02	PU	ADDR=C1,MODETAB=AMODETAB,USSTAB=AUSSTAB,ANS=CONT,	X
		IDBLK=017,IDNUM=000C2,MAXPATH=10	

SDLCL02A	LU	LOCADDR=2,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL02B	LU	LOCADDR=3,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL02C	LU	LOCADDR=4,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

SDLCL02D	LU	LOCADDR=5,ISTATUS=ACTIVE,DLOGMOD=D6327802
----------	----	---

## 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 (MVS)
*-----
*
E74LG1A  LINE  TGN=1,TGCONF=SINGLE
E74PG1A  PU    ADDR=14400037450280,SSAP=(08,H)
*

```

# Sample SDLC SMN PU and LU

```

*****
*          SMN for SDLC BNN                      *
*****
*
SDLCSMN  VBUILD  MAXGRP=10,MAXNO=180,TYPE=SWNET
*

SDLCPU01  PU      ADDR=C1,MODETAB=AMODETAB,USSTAB=AUSSTAB,ANS=CONT,      X
              IDBLK=017,IDNUM=000C1,MAXPATH=10

SDLCL01A  LU      LOCADDR=2,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL01B  LU      LOCADDR=3,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL01C  LU      LOCADDR=4,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL01D  LU      LOCADDR=5,ISTATUS=ACTIVE,DLOGMOD=D6327802
*

SDLCPU02  PU      ADDR=C1,MODETAB=AMODETAB,USSTAB=AUSSTAB,ANS=CONT,      X
              IDBLK=017,IDNUM=000C2,MAXPATH=10

SDLCL02A  LU      LOCADDR=2,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL02B  LU      LOCADDR=3,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL02C  LU      LOCADDR=4,ISTATUS=ACTIVE,DLOGMOD=D6327802
SDLCL02D  LU      LOCADDR=5,ISTATUS=ACTIVE,DLOGMOD=D6327802

```

## 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 Serial2/0
  no ip address
  encapsulation sdlc
  no keepalive
  serial restart-delay 0
  sdlc role primary
  sdlc vmac 4000.3640.2000
  sdlc address C1
  sdlc xid C1 017000C1
  sdlc partner 4209.3745.0330 C1
  sdlc address C2
  sdlc xid C2 017000C2
  sdlc partner 4209.3745.0330 C2
  sdlc dlsw C1 C2
end
```