



Communication Controller for Linux on zSeries

Token Ring BNN using Cisco DLSw

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

Target Audience

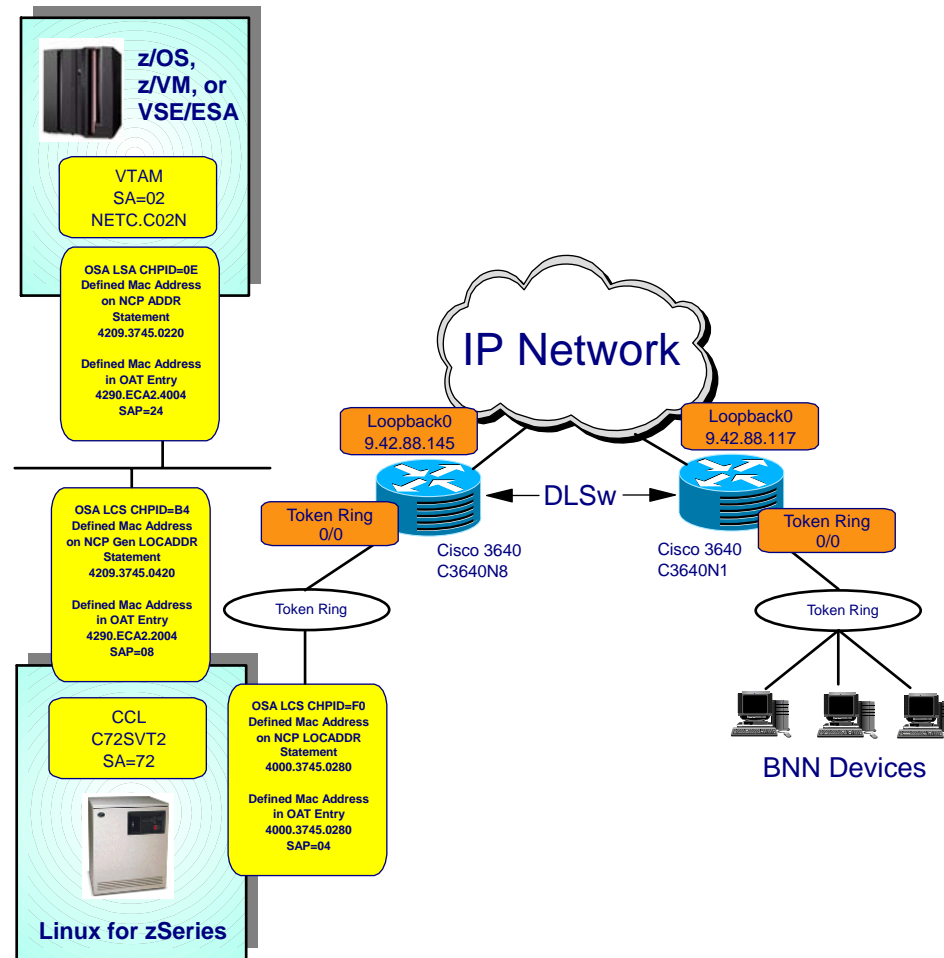
Customers using 3745/3746-900s Ring Token BNN who will be replacing the FEP with Communication Controller for Linux z/Series V1R1.

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:

- VTAM XCA Major Node – VTAM to CCL
- NCP Physical and Logical lines
 - NCP to VTAM
 - NCP BNN Devices
- DLSw Definitions for Routers

Test Configuration



Resources Used for Solution Verification

- One z/OS Communications Server
- One Linux ID running as guest under z/VM
 - 512mb of memory
 - 3 Virtual CPs
 - 2 3390-3 DASD volumes
- Two OSA Copper Ethernet OSA adapters
- Layer 2 or Layer 3 Ethernet Switch
- One Token Ring OSA adapter
- Layer 2 Token Ring Switch or hub
- Two Cisco IOS Routers
 - For testing purposes, we used Cisco 3600 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 -mC72SVT2 -p2072 SVTC72 &`
 - 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 NETC.C02N

- From NETC.C02N activate the XCA major node

```
V NET,ACT,ID=C02XCA,ALL
IST097I VARY ACCEPTED
IST093I C02XCA ACTIVE
IST464I LINK STATION C02ETHPU HAS CONTACTED SA 72
IST093I C02ETHPU ACTIVE
```

- From NETC.C02N activate the NCP

```
V NET,ACT,ID=C72SVT2,RNAME=C02ETHPU
IST097I VARY ACCEPTED
IST093I C72SVT2 ACTIVE
IST728I GWPATHS FOR GWN C72SVT2 ARE NOW ENABLED FOR THESE CDRMS
IST778I E04N
IST314I END
IST093I C72PU89A ACTIVE
IST093I C72NPPU ACTIVE
IST720I C72PG2A HAS CONTACTED E74TEST IN NETX, SA 34
IST093I C72PG2A ACTIVE
IST464I LINK STATION C72PG2B HAS CONTACTED C02NPU SA 2
IST093I C72PG2B ACTIVE
```

Displaying the XCA Major Node - NETC.C02N

- Display the XCA major node and the XCA Line

```

D NET,ID=C02XCA,E
IST097I DISPLAY ACCEPTED
IST075I NAME = C02XCA, TYPE = XCA MAJOR NODE 723
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1021I MEDIUM=CSMA/CD,ADAPNO= 0,CUA=2EEA,SNA SAP= 24
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I C02ETHLN ACTIV----E
IST314I END

D NET,ID=C02ETHLN,E
IST097I DISPLAY ACCEPTED
IST075I NAME = C02ETHLN, TYPE = LINE 735
IST486I STATUS= ACTIV----E, DESIRED STATE= ACTIV
IST087I TYPE = LEASED, CONTROL = SDLC, HPDT = *NA*
IST134I GROUP = C02ETHGP, MAJOR NODE = C02XCA
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJL
IST397I C02ETHPU ACTIV--W-E 1 1 C72SVT2 72 NETC
IST314I END

```

BNN Devices Connecting into VTAM

- From the BNN device, establish the connection to VTAM. In our case, we used TPNS and Communications Server (NT and Linux) to simulate boundary devices.

```
IST590I CONNECTIN ESTABLISHED FOR PU NTPU1001 ON LINE J0028F9F
```

- 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.

C02XCA – XCA Major Node Definitions

C02XCA VBUILD TYPE=XCA

*

C02ETHPT PORT MEDIUM=CSMACD,ADAPNO=0,SAPADDR=24,CUADDR=2EEA, X
TIMER=100

*

C02ETHGP GROUP DIAL=NO,ISTATUS=ACTIVE

C02ETHLN LINE USER=SNA,ISTATUS=ACTIVE

C02ETHPU PU MACADDR=4290ECA22004,PUTYPE=4,SUBAREA=72,TGN=1, X
SAPADDR=08,ALLOWACT=YES

C72SVT2 – NTRI Physical Line Definitions

* Physical NTRI Lines

*

```
C72PTRG1  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)
```

*

```
C72TR88   LINE   ADDRESS=(1088,FULL),TRSPEED=16,PORTADD=88,                X
              LOCADD=400037450280,NPACOLL=YES
```

```
C72PU88A  PU
```

*

```
C72TR89   LINE   ADDRESS=(1089,FULL),TRSPEED=16,PORTADD=89,                X
              LOCADD=420937450420,NPACOLL=YES
```

```
C72PU89A  PU
```

C72SVT2 – NTRI Logical Line to VTAM

```
*****
* Connection to VTAM SA=02                                     *
*****
*
C72INNG2  GROUP  ECLTYPE=(LOGICAL,SUBAREA),ANS=CONT,           X
              ISTATUS=ACTIVE,LOCALTO=13.5,REMOTTO=18.2,       X
              T2TIMER=(0.2,0.2,3),PHYSRSC=C72PU89A,           X
              SDLCST=(C72PRI,C72SEC),NPACOLL=YES
*
C72LG2B   LINE   TGN=1,TGCONF=SINGLE,MONLINK=CONT
C72PG2B   PU     ADDR=18420937450220,SSAP=(08,H)
```

C72SVT2 – NTRI BNN – Logical Definitions

```
*****
*      NTRI BNN LOGICAL LINES FOR TOKEN RING PORT 1088      *
*****
*
C72BNNG1  GROUP  ECLTYPE=LOGICAL,ANS=CONTINUE,AUTOGEN=1000,CALL=INOUT,      X
              ISTATUS=ACTIVE,PHYSRSC=C72PU88A,                          X
              RETRIES=(10,10,10,20),XMITDLY=NONE,NPACOLL=YES
*
```

Sample NTRI SMN PU and LU

```
*****
*      SMN for NTRI BNN                                     *
*****
*
NTRISMN  VBUILD  MAXGRP=10,MAXNO=180,TYPE=SWNET
*
NTPU1001 PU      ADDR=C1,PUTYPE=2,IDBLK=017,IDNUM=01001,      *
                MAXPATH=1,MAXOUT=3,ANS=CONTINUE,MODETAB=AMODETAB
NTL1001A LU      LOCADDR=2,DLOGMOD=D6327802,USSTAB=AUSSTAB*
```

Cisco Router Definitions – C3640N8

```
source-bridge ring-group 1111
dls w local-peer peer-id 9.42.88.145
dls w remote-peer 0 tcp 9.42.88.117
!
!
interface Loopback0
  description Loopback Interface for the Router
  ip address 9.42.88.145 255.255.255.252
  no ip unreachable s
  no ip proxy-arp
!
!
interface TokenRing0/0
  description DLSw Ring from Communications Controller for Linux
  mac-address 4000.3640.0800
  no ip address
  no ip unreachable s
  no ip proxy-arp
  ring-speed 16
  no cdp enable
  source-bridge 100 1 1111
  source-bridge spanning
```

Cisco Router Definitions – C3640N1

```
source-bridge ring-group 1111
dls w local-peer peer-id 9.42.88.117
dls w remote-peer 0 tcp 9.42.88.145
!
interface Loopback0
  description Loopback Interface for VIP
  ip address 9.42.88.117 255.255.255.252
  no ip unreachable s
  no ip proxy-arp
!
!
interface TokenRing0/0
  description DLSw Ring from 3745 C73
  mac-address 4000.3640.0100
  no ip address
  no ip unreachable s
  no ip proxy-arp
  no ip mroute-cache
  ring-speed 16
  no cdp enable
  source-bridge 100 1 1111
  source-bridge spanning
```