



Communication Controller for Linux on System z9 and zSeries

NPSI Sub Area Dial INN over Cisco XOT

Sample Definitions for Communications
Controller for Linux on System z9 and zSeries

Target Audience

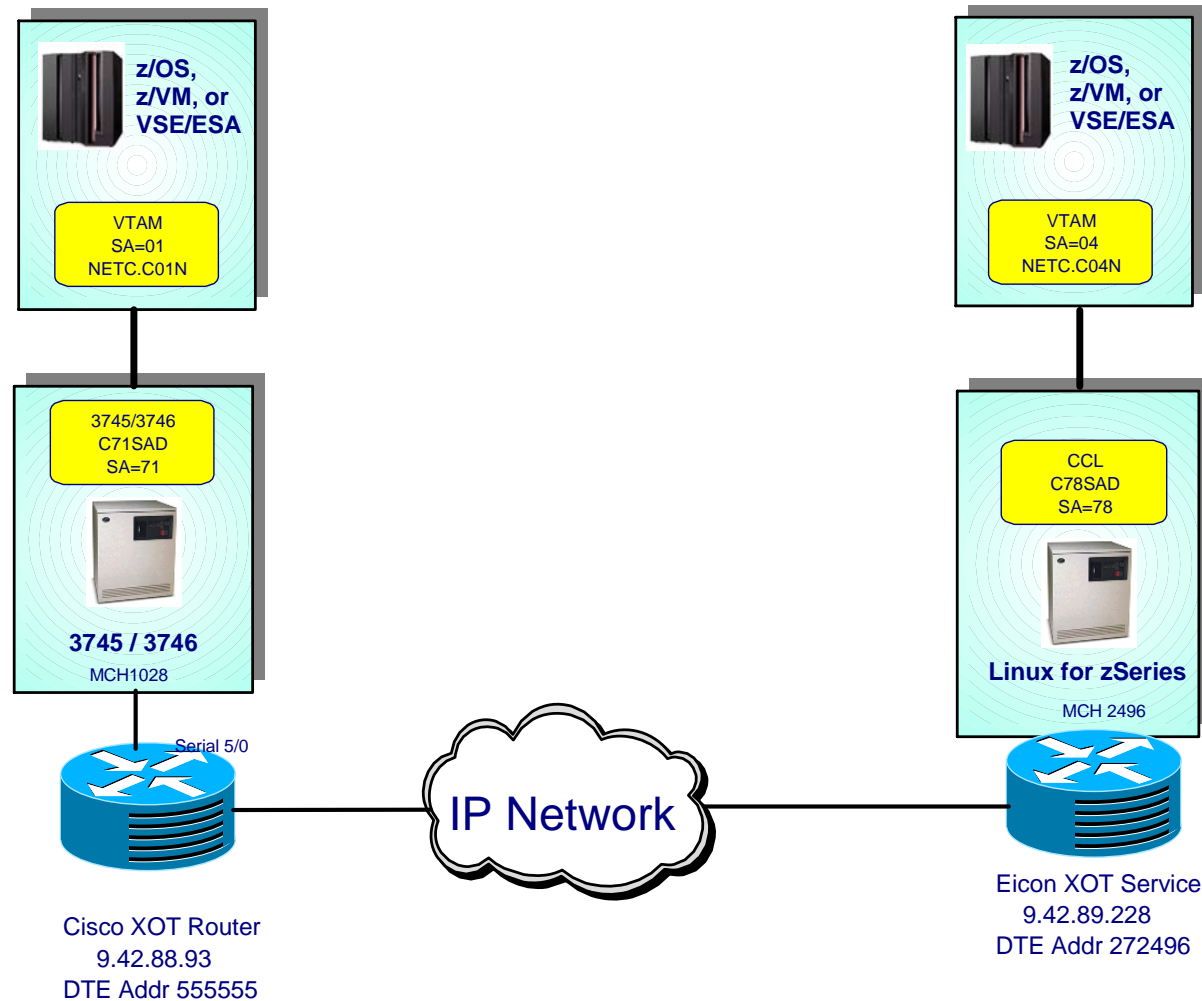
- Customers wanting a migrate NPSI Sub Area Dial INN connection from 3745/3746 hardware to Communication Controller for Linux on System z9 and zSeries9 and zSeries using an IP network as a transport medium.

Purpose of this Paper

The intent of this paper is to provide a sample solution for customers during the migration from 3745/3746-900 FEPs to Communication Controller for Linux on System z9 and zSeries9 or zSeries (CCL). This document will provide working examples of the following:

- NCP gen parameters
- XOT definitions for Eicon (CCL Connection)
- XOT definitions for Cisco (3745/3746 Connection)

Test Configuration



Resources Used for Solution Verification

- Two z/OS Communications Servers
- One Linux ID running as guest under z/VM
 - 512mb of memory
 - 2 Virtual CPs
 - 2 3390-3 DASD volumes
- OSN Connection from zOS to CCL
 - LSA/LCS connections can be used – OSN is not a requirement
- One QDIO or LCS OSA Adapter for IP communication
- Eicon XOT Server for Linux
- Cisco IOS Router
 - Cisco fix is tracked by following the DDTS number CSCsd77820. The fix is targeted for 12.4 train of IOS code.

C71SAD – VCCPT and OUFT Indexes

* X25.VCCPT STATEMENTS

*

X25.VCCPT INDEX=1,MAXPKTL=128,VWINDOW=1

X25.VCCPT INDEX=2,MAXPKTL=128,VWINDOW=7

X25.VCCPT INDEX=3,MAXPKTL=4096,VWINDOW=127

X25.VCCPT INDEX=4,MAXPKTL=4096,VWINDOW=127

*

* X25.OUFT STATEMENTS

*

X25.OUFT INDEX=1

X25.OUFT INDEX=2,OPTFACL=420707430707

X25.OUFT INDEX=3,OPTFACL=420707430303,USRFIELD=1234567890

X25.OUFT INDEX=4,OPTFACL=420A0A436464

*

C71SAD – MCH1028 Physical Line Definition

```
MCH1028  X25.MCH ADDRESS=102
          RESETPVC=YES,
          RNRTIMER=30,
          RNRPKT=YES,
          FRMLGTH=133,
          MMODULO=8,
          MWINDOW=7,
          ANS=CONT,
          DBIT=YES,
          GATE=NO,
          LCGDEF=(0,1),
          LCN0=NOTUSED,
          LLCLIST=LLC3,
          LSPRI=NO,
          LUNAME=XU1028
          MBITCHN=YES,
          NPADTEAD=711028,
          NCPGRP=XM1028,
          PHYSRSC=NO,
          PUNAME=XP1028,
          SDRTCNT=1,
          SDRTIME=10,
          SHM=YES,
          SPEED=1843200,
          STATION=DTE,
          SVCINN=1,
          TPTIMER=3,
          TDTIMER=1,
          NPRETRY=10,
          NDRETRY=3,
          XMONLNK=YES
```

C71SAD – SVC INN Logical Line Definitions

```
*****
*                                LOGICAL LINE DEFINITIONS                                *
*****
*
X25.LCG LCGN=0
*
XLA28GGH X25.LINE DSTNODE=INN,CALL=INOUT,SPAN=OPER1,TYPE=S,
          NCPGRP=XGA28SAD
*
XPA28GGH X25.PU ISTATUS=INACTIVE,PUTYPE=4
XUA28GGH X25.VC LCN=1,TYPE=S,OUFINDX=2,VCCINDX=1,CALL=INOUT,
          ISTATUS=ACTIVE,HEXNAME=NO,SPAN=OPER1,SUFFIX=1,
          PRFLINE=XM28RESL,PRFPU=XM28RESP,PRFLU=XM28RESU
*
```

C01SADMN – Sub Area Dial Switched Major Node

```
C01SADSM VBUILD MAXGRP=5,MAXNO=5,TYPE=SWNET
```

```
*
```

```
*****
```

```
* SAD CONNECTION TO NPSI SUBAREA 78 *
```

```
*****
```

```
*
```

```
SADPUC4  PU      SUBAREA=78,ADDR=01,ANS=CONT,PUTYPE=4,MAXDATA=1024,  
              MAXPATH=2,MAXOUT=7,TGN=1,IDNUM=88888
```

```
*
```

```
SADPATH1 PATH    DIALNO=272496*55555510202,GID=128,PID=01,  
              GRPNM=XGA28SAD,SHM=YES,SHMTIM=1000
```


C78SAD – MCH1028 Physical Line Definition

```
MCH2496  X25.MCH ADDRESS=2496 ,
          RESETPVC=YES ,
          RNRTIMER=30 ,
          RNRPKT=YES ,
          FRMLGTH=133 ,
          MWINDOW=7 ,
          MMODULO=8 ,
          ANS=CONT ,
          DBIT=YES ,
          GATE=NO ,
          LCGDEF=( 0 , 1 ) ,
          LCN0=NOTUSED ,
          LLCLIST=LLC3 ,
          LSPRI=NO ,
          LUNAME=XU2496 ,
          MBITCHN=YES ,
          NCPGRP=XM2496 ,
          NDRETRY=3 ,
          NPRETRY=7 ,
          PHYSRSC=NO ,
          PUNAME=XP2496 ,
          SDRTCNT=1 ,
          SDRTIME=10 ,
          SHM=YES ,
          SPEED=1843200 ,
          STATION=DTE ,
          SVCINN=1 ,
          TDTIMER=3 ,
          TPTIMER=10 ,
          XMONLNK=YES
```

C78SAD – SVC INN Logical Line Definitions

```
*****
*                                LOGICAL LINE DEFINITIONS                                *
*****
*
X25.LCG LCGN=0
*
XLA96GGH X25.LINE DSTNODE=INN,CALL=INOUT,SPAN=OPER1,TYPE=S,
          NCPGRP=XGA96SAD
*
XPA96GGH X25.PU ISTATUS=INACTIVE,PUTYPE=4
XUA96GGH X25.VC LCN=1,TYPE=S,OUFINDX=2,VCCINDX=1,CALL=INOUT,
          ISTATUS=ACTIVE,HEXNAME=NO,SPAN=OPER1,SUFFIX=1,
          PRFLINE=XM96RESL,PRFPU=XM96RESP,PRFLU=XM96RESU
```

C78SAD – VCCPT and OUFT Indexes

* X25.VCCPT STATEMENTS

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X25.VCCPT INDEX=1,MAXPKTL=128,VWINDOW=1

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X25.VCCPT INDEX=4,MAXPKTL=4096,VWINDOW=127

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X25.OUFT INDEX=4,OPTFACL=420A0A436464

*

C04SADMN – Sub Area Dial Switched Major Node

```
C04SADSM VBUILD MAXGRP=5,MAXNO=5,TYPE=SWNET
```

```
*
```

```
*****
```

```
* SAD CONNECTION TO NPSI SUBAREA 71 *
```

```
*****
```

```
*
```

```
SADPUC1  PU      SUBAREA=71,ADDR=01,ANS=CONT,PUTYPE=4,MAXDATA=1024,  
              MAXPATH=2,MAXOUT=7,TGN=1,IDNUM=88888
```

```
*
```

```
SADPATH1 PATH    DIALNO=555555*27249610202,GID=128,PID=01,  
              GRPNM=XGA96SAD,SHM=YES,SHMTIM=1000
```

C78SAD – EICON Definitions (Page 1 of 3)

```
[xot_server]
  product_id=EXS
  product_name=Eicon XOT Server
  product_version=V1R1
  number_of_ports=1

;-----
; MCH2496 - Subarea Dial MCH
;-----

[xot_server/port.1]
  mch_name=MCH2496
  lcn_support=1
  local_svc_x25_address=272496
  local_pvc_interface=Serial1
  remote_pvc_interface=Serial5/0
  number_of_xot_maps=1
  pvc_reconnect_timer=30
  vport_trace_enabled=1
  vport_trace_size=2

[xot_server/port.1/x25]
  max_window_size=7
  max_packet_size=128
```

C78SAD – EICON Definitions (Page 2 of 3)

```
[xot_server/port.1/xot_map.1]
  map_enabled=1
  lcgn=0
  remote_svc_x25_address=555555
  remote_svc_ip=9.42.88.93
  remote_pvc_ip=9.42.88.93
  group_first_pvc=1
  group_num_pvc=0
  group_first_svc=1
  group_num_svc=1
  backup_svc_ip=0.0.0.0
  backup_timer=0
  caller_address=
  caller_override=0
  call_timer=0
  call_retries=0
  call_retry_delay=0
  cug=0
  cug_ext_format=0
  cug_override=0
  idle_timer=0
```

C78SAD – EICON Definitions (Page 3 of 3)

```
[xot_server/port.1/hdlc]
  startup=0
  station_type=0
  pack_format=0
  max_window_size=7
  max_retry_counter=10
  check_point_timer=2900
  ack_delay_timer=200
  idle_probe_timer=15000
```

Cisco Router – XOT Definitions

```
x25 routing
!
interface Serial5/0
description Connection for Subarea Dial MCH
bandwidth 1024
no ip address
no ip unreachable
no ip proxy-arp
encapsulation x25 dce
no ip mroute-cache
x25 address 555555
x25 ltc 1
x25 htc 1
x25 win 7
x25 wout 7
x25 use-source-address
serial restart-delay 0
dce-terminal-timing-enable
no cdp enable
!
x25 route 555555 interface Serial5/0
x25 route 272496 xot 9.42.89.228 xot-source Loopback0
```


Starting CCL from Linux – With Load Option

- From the Linux console, change to the CCL directory:
 - `cd /opt/ibm/ndh`
- 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
- From the Linux console, change to the CCL directory:
 - `cd /opt/ibm/Communication_Controller_for_Linux/`
- Start the CCL engine
 - `nohup ./cclengine -mcclcldp -p2078 C78 &`
 - 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.
 - `cclcldp` tells the cclengine the load will come from the VTAM command

Starting the XOT Server

- The XOT configuration file must be in the same directory as the exotd server
 - In this case, the exotd server will be in the directory /opt/eicon/xot
- Start the XOT server
 - `nohup ./exotd &`
 - 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 Channel Commands

From NETC.C04N, load and activate the NCP Major Node

```
v net,act,all,id=c78sad,load=yes,u=012
IST461I ACTIVATE FOR U/RNAME ENTRY ID = 0012-S STARTED
IST897I LOAD OF C78SAD STARTED
IST270I LOAD OF C78SAD COMPLETE - LOAD MODULE = C78SAD
IST464I LINK STATION 0012-S HAS CONTACTED C78SAD SA 78
IST093I C78SAD ACTIVE
IST093I C78P2112 ACTIVE
IST093I XP2496 ACTIVE
IST464I LINK STATION C3P23E00 HAS CONTACTED ISTEPUS SA 4
IST093I C3P23E00 ACTIVE
```

Issue Dial and Activate CDRMs

From NETC.C04N, issue the dial command

```
v net,dial,id=sadpuc1
```

```
IST590I  CONNECTOUT ESTABLISHED FOR PU SADPUC1  ON LINE XLA96GGH
```

```
IST464I  LINK STATION SADPUC1 HAS CONTACTED C71SAD SA 71
```

```
IST241I  VARY DIAL COMMAND COMPLETE FOR SADPUC1
```

From NETC.C04N, activate the CDRM

```
v net,act,id=c01n
```

```
IST093I  C01N ACTIVE
```