

I Scream, You Scream, We ALL Scream for iSeries-EE and Ice Cream

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Social Security Administration

Session: 3213

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SHARE in Boston

Enterprise Extender Multi-Platform Implementations at Social Security Administration

This session will cover both z/OS Communications Server and iSeries Enterprise Extender configurations, as well as other small platforms (Microsoft HIS, IBM AIX, and HP SNAPPlus). z/OS to z/OS EE is a well-trodden path at this point, but not so with smaller platforms. Configuration recommendations, and lessons learned will be the emphasis of this session. This session is intended for z/OS Network-knowledgeable professionals dealing with Enterprise Extender in a multi-platform environment.

SSANet and Enterprise Extender



- Why use Enterprise Extender?
 - What APPN Node Types are used?
 - When should Connection Network be used?
- Where are we with EE Migration?
- How do we Monitor EE?
 - Do we Buy it or Build it?
- What EE Experiences, or Problems, are likely?
- How do Smaller Platforms Implement EE?
 - What's the Lingo?
- What's the Moral of the Story?

Enterprise Extender in the Enterprise



- Enterprise Motivations – Technology Obsolescence
 - FEPs/NCP -- Source of initial “push” for EE
 - *CCL/Linux became, effectively, a “delay” for EE*
 - Copper NICs on iSeries
 - SNA/LLC and SDLC
 - Data Link Switching (DLSw) -- no IPv6 future
- IPv6 and Single-Wire Protocol Mandates
- Enterprise Extender Advancements
 - z/OS 1.9 Multiple XCA VIPAs / Groups
 - z/OS 1.10
 - Compatibility patch & MTU on SWNET
 - Platform Expansion
 - IBM: z/OS, AIX, PComm, and iSeries
 - Other: MS-Windows Host Integration Server, HP-Unix SNAPPlus

What Remains of the Pre-EE Legacy?

- One IBM 3745 FEP/NCP at HQ Data Center Only
 - Supports SOLITARY SDLC Back-to-Back SNI/INN Sites
 - Last year was 2 FEPs with 7 Sites
- OSA/LLC at HQ Data Center ONLY
 - Supports SOLITARY Adjacent SNI/INN (CCL/Linux) Site
 - Supports SEVERAL BNN Sites
- Over 100k Desktops using PComm with SNA/LLC
 - TN3270 Coming ... soon ?
 - APPC Elimination and ECSA Constraints (relief came in R11)
- Many iSeries with SNA/LLC

File Edit View Communication Actions Window Help

SNCHCK2B OSA SITE STATUS 07/29/10 12:51 CNM61 PANEL 6 OF 7

NOTE: Blinking LPAR Number Is Backup System. * Owing LPAR Downtime

NAME	STATUS	LOCATION	LPAR	CP/CDRM	NAME	STATUS
SFFFAA8	ACTIV	MAXIMUS C:D	61			
SFFFAA7	ACTIV	MAXIMUS TN3270	61			
SFFFAA9	ACTIV	NEWSPR 2	60			
SSAPRPU	ACTIV	Puerto Rico	60	GMG	Sensitive Data	ACTIV
FMSPU1PH	ACTIV	Treasury	61	FMS		ACTIV
FMSPU2KC	ACTIV	Treasury	61	FMS		ACTIV

FOR SUPPRESS PLACE CURSOR ON DEVICE OR TYPE COMMAND
ACTION===>

PF1= HELP PF2= EXIT PF3= EXIT PF6= ROLL
PF7= PREV PANEL PF8= NEXT PANEL PF10 = DIAL PF12 = REFRESH

File Edit View Communication Actions Window Help

SNCHCK3 SNI LINES 07/29/10 12:52 CNM61 PANEL 7 OF 7

Please Enter Data in field where appropriate or on ACTION LINE.

LINE STATUS LOCATION CDRM STATUS MINOR NODE STATUS

PU530041 ACTIV State Dept CDRMST ACTIV OVTAM ACTIV

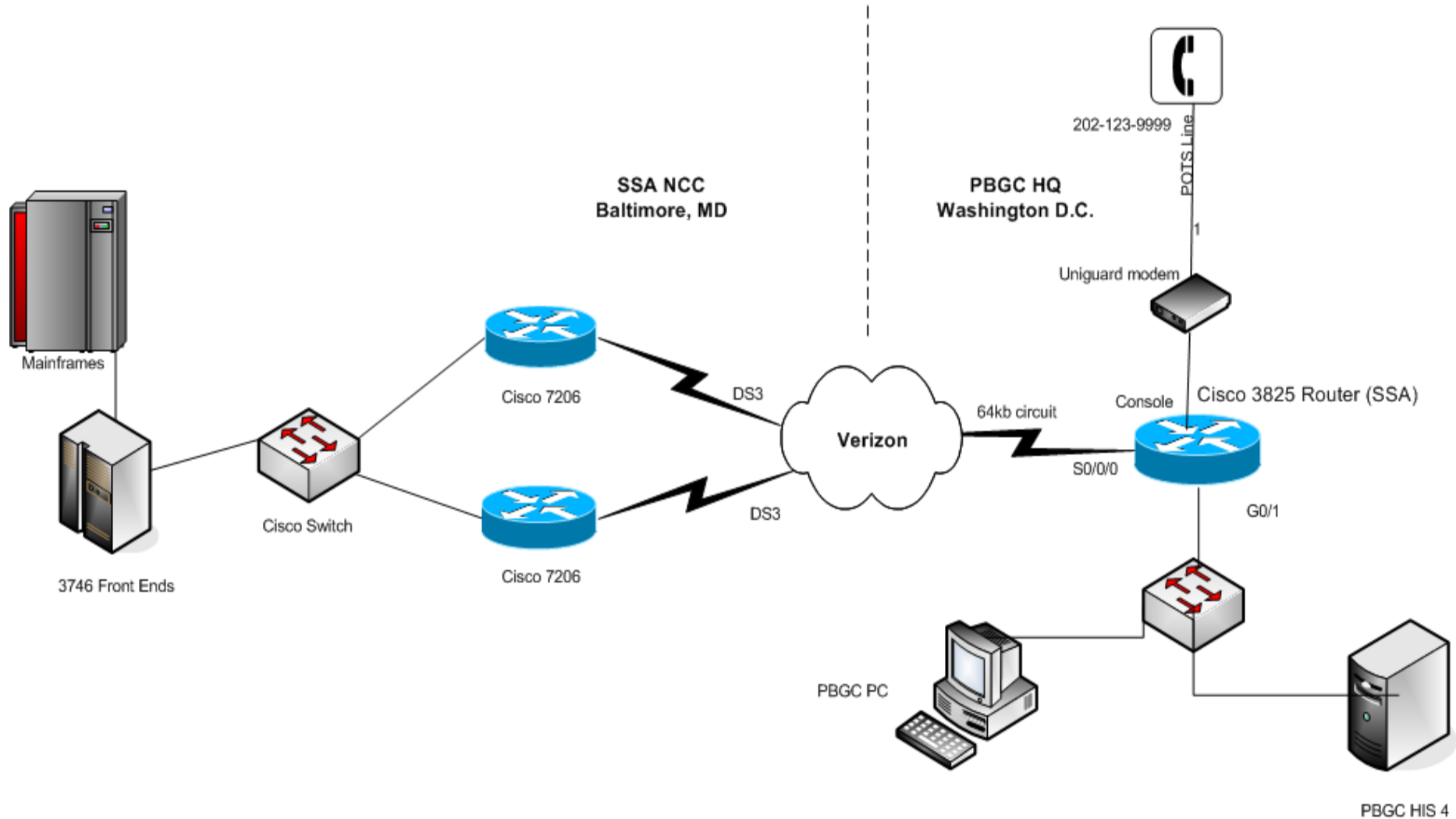
ACTION===>

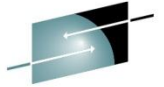
PF1= HELP PF2= EXIT PF3= EXIT
PF6= ROLL PF7= PREV PANEL PF9= DISPLAY PF12 = REFRESH

Enterprise Extender Platforms

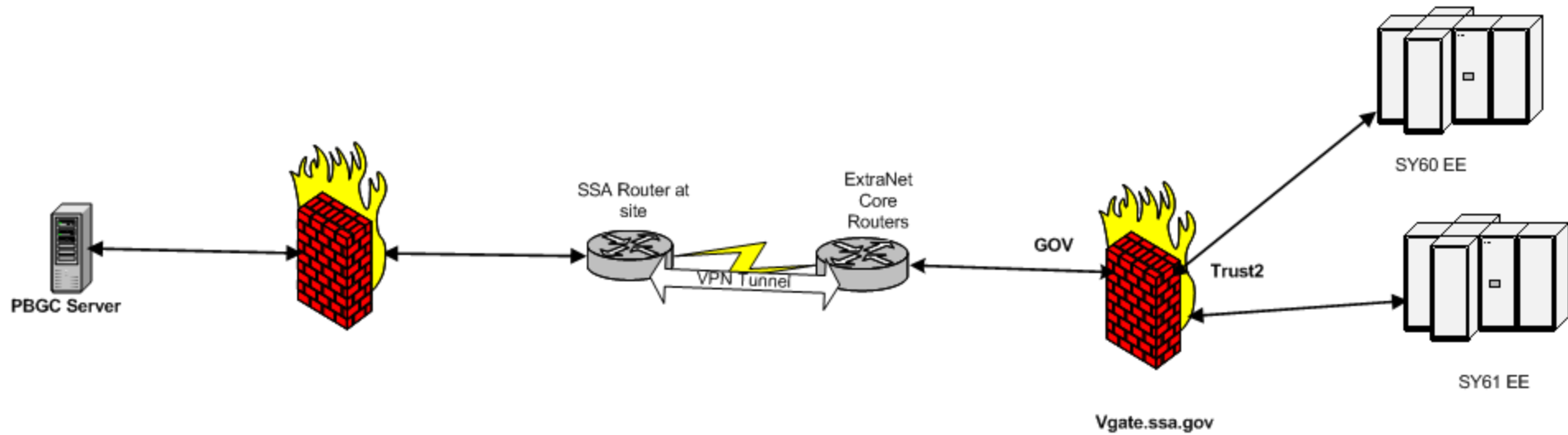
- **EE Platforms in SSANet community include:**
 - z/OS (e.g., State of AR),
 - UNIX servers (e.g., State of NY - AIX),
 - Windows laptops (e.g., Me! - PComm)
 - Windows servers (e.g., State of PA - HIS), and
 - iSeries platform (e.g., DDS Sites - iOS, AS/400).
- **IP & EE Migrations allows for FEP retirement and updated security initiatives:**
 - VPN Tunnels, and CP-CP Session Keys.

Pension Benefit Guaranty Corporation SSA Mainframe Access August 2008





SSA EE to the PBGC



Notes:

The router interface is a 10MB Full Duplex
EE uses UDP Ports 12000 to 12004

APPN: Back to Basics

APPN Node Type Assignment

Network Nodes (NN)

End Nodes (EN)

Branch Extender Node (BEX)

APPN Node Functions

Extended Border Node (EBN)

Network Node Server (NNS)

Dependent LU Server (DLUs)

Dependent LU Requester (DLUr)

EBN Start Option Recommendations

- | | |
|---|--------------------|
| • ALSREQ=NO | Recommended |
| • APPNCOS=#BATCH | Recommended |
| • BN=YES | Mandatory |
| • BNDYN=LIMITED | Recommended |
| • BNORD=DEFINED | Recommended |
| • CONNTYPE=LEN | Recommended |
| • CPCP=YES | Recommended |
| • HPR=RTP | Recommended |
| • HPRARB=RESPMODE | Recommended |
| • HPRPST=(480S,240S,180S,180S) | Recommended |
| • IPADDR= <i>TCP/IP stack static VIPA</i> | Mandatory |
| • MSGLEVEL=CS390 | Recommended |
| • NODETYPE=NN | Mandatory |
| • PSRETRY=(10M,5M,2M,90S) | Recommended |
| • TCPNAME= <i>TCP/IP stack for EE</i> | Optional |
| • VERIFYCP=OPTIONAL | Mandatory |
| • XNETALS=YES | Recommended |

Monitoring Enterprise Extender

- Traditional IP Monitors don't do UDP very well
 - Connectionless “connections” require special “monitor” consideration
 - Commercial Off-The-Shelf (*we wish*) vs RYO
- What to Monitor?
 - UP and DOWN Time (On Demand)
 - Path Switch (Daily Reporting)
 - REXMIT (Daily Reporting)
 - INOP (SNMP & e-Mail Alerts; Daily Reporting)
- What to Automate?
 - HANGUP when CP-CP mismatched
 - DIAL during delayed outage

File Edit View Communication Actions Window Help

S1CHCK1 EE STATUS DIALED SITES 07/29/10 11:56 CNM61 PANEL 1 OF 7

NOTE: Blinking LPAR Number Is Backup System. * Owing LPAR Downtime

For EBP Info Place Cursor on State and Hit PF4.

NAME	STATUS	LOCATION	LPAR	UPTIME	DOWNTIME	CP NAME	CP STATUS
EEPUSAL	ACTIV	Alabama	61	0D 12H		USST	ACTIV
EEPUSAK	ACTIV	Alaska	60	3D 11H		NETA	ACTIV
EEPUSAZ	ACTIV	Arizona	61	3D 11H		DOA1	ACTIV
EEPUSAR	ACTIV	Arkansas	61	3D 11H		USAF	ACTIV
EEPUSCA	ACTIV	California	61	3D 11H		HWDC	ACTIV
EEPUSCO	ACTIV	Colorado	60	3D 11H		USGE	ACTIV
EEPUSCT	ACTIV	Connecticut	60	3D 11H		USST	ACTIV
EEPUDOD	ACTIV	Defense Dept	61	3D 11H		NAVF	ACTIV
EEPUDOI	ACTIV	DOI	61	3D 11H		ASC1	ACTIV
EEPUDOL	ACTIV	DOL	61	3D 11H		BCOM	ACTIV
EEPUSFL	ACTIV	Florida	61	3D 7H		FLAH	ACTIV
EEPUFNS	ACTIV	Food/Nutr	61	3D 11H		WCCN	ACTIV
EEPUSGA	ACTIV	Georgia	60	3D 11H		DOAS	ACTIV
EEPUSHI	ACTIV	Hawaii	61	3D 11H		USSH	ACTIV
EEPUCMS	ACTIV	HCFA/CMS	61	3D 11H		HCFA	ACTIV
EEPUSID	ACTIV	Idaho	60	3D 11H		IDST	ACTIV



Sensitive Data

FOR SUPPRESS PLACE CURSOR ON DEVICE OR TYPE COMMAND

ACTION===>

PF1= HELP PF2= EXIT PF3= EXIT PF4= EBPINFO

PF6= ROLL PF8= NEXT PANEL PF9 = DISPLAY PF10 = DIAL PF12=REFRESH

D NET,ID=eepuname vs D NET,EE

```
* CNM61 D NET,ID=EEPUSAR
  CNM61 IST097I DISPLAY ACCEPTED
' CNM61
IST097I DISPLAY ACCEPTED
IST075I NAME = EEPUSAR      , TYPE = PU_T2.1
IST486I STATUS= ACTIV    , DESIRED STATE= ACTIV
IST1043I CP NAME = ARCPNAME - CP NETID = ARNETID - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO    - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I EEPUSAR AC/R   1 YES 9843000000000000000209100008080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = NOTPREF - RECEIVED = NOTALLOW
IST1680I LOCAL IP ADDRESS 10.1.2.3
IST1680I REMOTE IP ADDRESS 172.4.5.6
IST2114I LIVTIME: INITIAL = 25 MAXIMUM = 0 CURRENT = 25
IST136I SWITCHED SNA MAJOR NODE = SWEESAR
IST081I LINE NAME = E00000CD, LINE GROUP = XCAPRD1G, MAJNOD = XCASY61
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT , NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST172I NO LOGICAL UNITS    EXIST
IST314I END
```

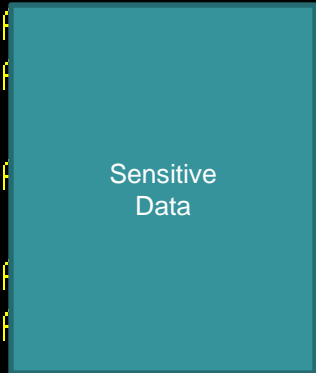
```
* CNM61 D NET,EE,ID=EEPUSAR
  CNM61 IST097I DISPLAY ACCEPTED
' CNM61
IST350I DISPLAY TYPE = EE
IST2001I ENTERPRISE EXTENDER CONNECTION INFORMATION
IST075I NAME = EEPUSAR      , TYPE = PU_T2.1
IST1680I LOCAL IP ADDRESS 10.1.2.3
IST1680I REMOTE IP ADDRESS 172.4.5.6
IST2022I EE CONNECTION ACTIVATED ON 07/26/10 AT 00:43:41
IST2114I LIVTIME: INITIAL = 25 MAXIMUM = 0 CURRENT = 25
IST2023I CONNECTED TO LINE E00000CD
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0
IST2009I RTP PIPES = 4 LU-LU SESSIONS = 5
IST2027I DWINOP = NO REDIAL = *NA* REDDELAY = *NA*
IST2028I KEEPACT = YES
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 277822 ( 277K )
IST2037I BYTES SENT = 174854692 ( 174M )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 235229 ( 235K )
IST2041I BYTES RECEIVED = 52373294 ( 052M )
IST314I END
```

File Edit View Communication Actions Window Help

SNCHCKX NON DIALED SITES 07/29/10 12:50 CNM61 PANEL 5 OF 7

Please Enter Data in field where appropriate or on ACTION LINE.

NAME	STATUS	LOCATION	LPAR	UPTIME	DOWNTIME	CP NAME	CP STATUS
EEPUSNY	ACTIV	New York	61	3D 12H		NYSTA	ACTIV
EEPUOCSE	ACTIV	OCSE	61	3D 12H		USSSA	ACTIV
SFFFAAB	ACTIV	OCSE	60				
EEPUOIG	ACTIV	OIG-HHS	61	3D 12H		USSSA	ACTIV
SFFFAA5	ACTIV	OIG-HHS	61				
EEPUSPA	ACTIV	Pennsylvania	61	0D 23H		USSSA	ACTIV
EEPUPBG	ACTIV	PBG	60	3D 12H		USSSA	ACTIV
SFFFAA2	DOWN	PBG	N/A				



FOR SUPPRESS PLACE CURSOR ON DEVICE OR TYPE COMMAND

ACTION===>

PF1= HELP PF2= EXIT PF3= EXIT PF6= ROLL

PF7= PREV PANEL PF8= NEXT PANEL PF9= DISPLAY PF12=REFRESH

EE Backup and Recovery Engineering

Architectural Limits



- Network Node Server (NNS)
- -- CPSVCMG (CP-S and CP-P)
 - Configured based on 'destination' IP address
 - ONLY ONE Pair of CP-CP Sessions **per End Node**
- Dependent LU Server (DLUS)
- --CPSVRMGR (DL-S and DL-P)
 - *Configured based on Adjacent CP Name*

Same NNS & DLUS (CP-CP and DLUR)

```
* CNM61  DI OIGWASSN
  CNM61  IST097I DISPLAY ACCEPTED
' CNM61
IST075I NAME = SSANETID.OIGCPNME, TYPE = ADJACENT CP
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1402I SRTIMER = 30 SRCOUNT = 10
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST1184I CPNAME = SSANETID.OIGCPNME- NET02RVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST1131I DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000004, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR005BC
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I SSACPNM1 ACTIV/DL-S CBA3D71A39B015C0 0242 0000 SSANETID
IST635I SSACPNM1 ACTIV/DL-P EB1775A110BF7F3C 0000 020B SSANETID
IST1081I ADJACENT LINK STATION = CNR00409
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I SSACPNM1 ACTIV/CP-S CBA3D71A39B015BD 1074 0001 SSANETID
IST635I SSACPNM1 ACTIV/CP-P EB1775A110BE23C6 0001 1005 SSANETID
IST1355I PHYSICAL UNITS SUPPORTED BY DLUR SSANETID.OIGCPNME
IST089I SFFFAA5 TYPE = PU_T2.1 , ACTIV---X-
IST924I -----
IST075I NAME = SSANETID.OIGCPNME, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED EN
IST1184I CPNAME = SSANETID.OIGCPNME - NET02RVR = SSANETID.SSACPNM1
IST1402I SRTIMER = 30 SRCOUNT = 10
IST314I END
```

CPSVRMGR (DL-S and DL-P)



CPSVCMG (CP-S and CP-P)

“Unhitched” CP-CP and DLUR



* CNM61 DI CPFFFNME

```
CNM61 IST097I DISPLAY ACCEPTED
IST075I NAME = SSANETID.CPFFFNME, TYPE = ADJACENT CP
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1402I SRTIMER = 30 SRCOUNT = 10
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NON
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST1184I CPNAME = SSANETID.CPFFFNME - NET02RVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST1131I DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00418
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I SSACPMM1 ACTIV/CP-S E9B762C5CB084C2C 25C0 0001 SSAN
IST635I SSACPMM1 ACTIV/CP-P EB1775A110BE23E4 0001 2550 SSANE
IST924I -----
IST075I NAME = SSANETID.CPFFFNME, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED EN
IST1184I CPNAME = SSANETID.CPFFFNME - NET02RVR = SSANETID.SSAI
IST1402I SRTIMER = 30 SRCOUNT = 10
IST314I END
```

* CNM60 DI CPFFFNME

```
CNM60 IST097I DISPLAY ACCEPTED
IST075I NAME = SSANETID.CPFFFNME, TYPE = ADJACENT CP
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1402I SRTIMER = 30 SRCOUNT = 10
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSACPMM1, VERIFY OWNER = NO
IST1184I CPNAME = SSANETID.CPFFFNME - NET02RVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST1131I DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00236
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I SSACPMM1 ACTIV/DL-S E9B762C5CB084C31 048F 0000 SSANETID
IST635I SSACPMM1 ACTIV/DL-P EB1774A110BF1231 0000 0471 SSANETID
IST1355I PHYSICAL UNITS SUPPORTED BY DLUR SSANETID.CPFFFNME
IST089I SFFFAAB TYPE = PU_T2.1 ,ACTIV
IST089I SFFFABA TYPE = PU_T2.1 ,ACTIV
IST924I -----
IST075I NAME = SSANETID.CPFFFNME, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC EN
IST1184I CPNAME = SSANETID.CPFFFNME - NET02RVR = SSANETID.SSACPMM1
IST1402I SRTIMER = 30 SRCOUNT = 10
IST314I END
```

SNA Switch Configuration

```
snasw pdlog exception buffer-size 8000 file ftp://172.3.4.5/SNA-BABI1.pdlga
```

```
snasw dlctrace buffer-size 8000 file ftp://172.3.4.5/SNA-BABI1.dlctrac
```

```
snasw rtp pathswitch-timers 480 240 180 180
```

```
snasw cpname SSANETID.SNABABI max-pacing-window 7 station-segmentation
```

```
snasw dlus SSANETID.SSACPNM1 backup SSSANETID.SSACPNM3 prefer-active
```

```
retry 15 10
```

```
snasw port EEPORT hpr-ip Loopback0 vname SSANETID.SSACNEE no-limres
```

```
ldlc 25 15 7
```

```
snasw port PORT0001 vdlc 4091 mac 4000.1000.0001 conntype nohpr nns-required
```

```
max-links 5000 maxbtu 1416
```

```
snasw link CNM1TG1 port EEPORT ip-dest 'primary IP' nns
```

```
snasw link CNM3TG1 port EEPORT ip-dest 'backup IP' nns
```

```
snasw link CNM2TG1 port EEPORT ip-dest 'alternate IP'
```

SNA Switch Display



DISPLAY NET,ID=SNABABI,SCOPE=ALL

IST097I DISPLAY ACCEPTED

IST075I NAME = SSANETID.SNABABI , TYPE = ADJACENT CP

IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV

IST1402I SRTIMER = 30 SRCOUNT = 10

IST1447I REGISTRATION TYPE = NO

IST977I MDLTAB=***NA*** ASLTAB=***NA***

IST1333I ADJLIST = ***NA***

IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***

IST934I DLOGMOD=CPSVCMG USS LANGTAB=*NA*****

IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE

IST231I CDRSC MAJOR NODE = ISTDGRDY

IST1184I CPNAME = SSANETID.SNABABI - NET02RVR = *NA*****

IST1044I ALSLIST = ISTAPNPU

IST1131I DEVICE = ILU/CDRSC

IST654I I/O TRACE = OFF, BUFFER TRACE = OFF

IST1500I STATE TRACE = OFF

IST171I **ACTIVE SESSIONS = 0000004**, SESSION REQUESTS =0000000

IST206I SESSIONS:

IST1081I ADJACENT LINK STATION = CNR0046A

IST634I NAME STATUS SID SEND RECV VR TP NETID

IST635I SSACPNM1 ACTIV/DL-S F4DF37E4464186A3 CC9A 0000 SSANETID

IST635I SSACPNM1 ACTIV/DL-P EB1775A19E54CDD1 0000 7A00 SSANETID

IST1081I ADJACENT LINK STATION = CNR0036B

IST634I NAME STATUS SID SEND RECV VR TP NETID

IST635I SSACPNM1 ACTIV/CP-S F4DF37E44641863F 4DBA 0001 SSANETID

IST635I SSACPNM1 ACTIV/CP-P EB1775A19E54CCBC 0001 1E62 SSANETID

IST1355I PHYSICAL UNITS SUPPORTED BY DLUR SSANETID.SNABABI

IST089I SPA5073 TYPE = PU_T2 , ACTIV---X

IST089I S6E5013 TYPE = PU_T2 , ACTIV---X

IST089I S656010 TYPE = PU_T2 , ACTIV---X

IST089I S7BB0E3 TYPE = PU_T2 , ACTIV---X

IST089I S770012 TYPE = PU_T2 , ACTIV---X

IST089I S7B5013 TYPE = PU_T2 , ACTIV---X

IST089I S65A05E TYPE = PU_T2 , ACTIV---X

IST089I S68921 TYPE = PU_T2.1 , ACTIV

.....

IST089I SE6801A TYPE = PU_T2 , ACTIV---X

IST089I S769014 TYPE = PU_T2 , ACTIV---X

IST089I S616037 TYPE = PU_T2 , ACTIV---X

IST089I S6C601A TYPE = PU_T2 , ACTIV---X

IST075I NAME = SSANETID.SNABABI , TYPE = DIRECTORY ENTRY

IST1186I DIRECTORY ENTRY = REGISTERED EN

**IST1184I CPNAME = SSANETID.SNABABI - NETSRVR =
SSANETID.SSACPNM1**

IST1402I SRTIMER = 30 SRCOUNT = 10

IST314I END

IPv6 Coding Cisco SNA Switch

```
; DEVICE/LINK definitions
; XCA
DEVICE IUTSAMEH MPCPTP AUTORESTART
LINK SAMEHLNK MPCPTP IUTSAMEH
```

```
; OSA Devices
DEVICE OSA0&SSAHRDID&SSAPLEX2 MPCIPA NONROUTER
AUTORESTART
```

```
LINK OSA21LK00 IPAQENET OSA0&SSAHRDID&SSAPLEX2
```

```
; VIPAs for SY21
```

```
DEVICE DEV49 VIRTUAL 0
```

```
LINK VLINK49 VIRTUAL 0 DEV49
```

```
DEVICE DEV69 VIRTUAL 0
```

```
LINK VLINK69 VIRTUAL 0 DEV69
```

```
HOME
```

```
13.0.27.49 VLINK49 ;VIPA
```

```
13.0.27.69 VLINK69 ;VIPA
```

```
13.0.27.110 OSA21LK00 ;OSA0
```

```
INTERFACE VIPA21V6EE DEFINE VIRTUAL6
```

```
IPADDR FEC0::CE21:0001
```

```
2001:1930:7F00:CE21::0001
```

```
; XCA
```

```
INTERFACE SAMEHLNKV6 DEFINE MPCPTP6
```

```
TRLENAM IUTSAMEH
```

```
; OSA Devices
```

```
INTERFACE OSA0INTV6EE DEFINE IPAQENET6
```

```
PORTNAME OSA0&SSAHRDID&SSAPLEX2
```

```
SOURCEVIPAIN VIPA21V6EE
```

```
IPADDR FEC0::A000:EE21
```

```
2001:1930:7F00:A000::EE21
```

```
MTU 1500
```

```
; Start all the defined devices
```

```
START IUTSAMEH ;XCA
```

```
START OSA0&SSAHRDID&SSAPLEX2 ;OSA0
```

```
START SAMEHLNKV6 ;XCA (IPv6)
```

```
START OSA0INTV6EE ;OSA0 (IPv6)
```

```
XCASY21 VBUILD TYPE=XCA EXTERNAL COMMUNICATIONS
ADAPTER
```

```
*
```

```
XCASY21R PORT MEDIUM=HPRIP, EE/HPR CONNECTION
```

```
-----
```

```
XCADEV1S GROUP ANSWER=ON, PU DIAL-IN CAPABILITY TO
VTAM
```

```
HOSTNAME=SY21EEV6.SSTF.SSA.GOV, HOSTNAME FOR
```

```
IPV6 VIPA
```

```
AUTOGEN=(16,IPV6,$), AUTO GEN LINES, NO PU'S
```

```
CALL=INOUT, IN/OUT CALLING CAPABILITY
```

```
DIAL=YES, SWITCHED LINE CONNECTION
```

```
DYNPU=NO, DO NOT ALLOCATE DYNAMIC PU'S
```

```
KEEPACT=YES, REACTIVATE LINE IF INOP OCCURS
```

```
LIMRES=NO, LINES NOT LIMITED RESOURCE
```

```
ISTATUS=INACTIVE INITIAL ACTIVATION STATUS
```

```
snasw rtp pathswitch-timers 480 240 180 120
```

```
snasw cpname USSSAN02.SSZCR2
```

```
snasw port EEV6 hpr-ip Loopback3 hostname SYS0-SSZCR2 ipv6
```

```
snasw port EEV4GBL hpr-ip Loopback0 vname SSAGVRN.SSAEEGCN Idlc 15 15 9
```

```
snasw port EEV4LCL hpr-ip Loopback1 vname USSSAN02.SSAEECN Idlc 15 15 9
```

```
snasw link SY21V6 port EEV6 host-dest sy21v6 nns tgp high
```

```
snasw link SY22V6 port EEV6 host-dest sy22v6 nns tgp high
```

```
snasw link SY24V6 port EEV6 host-dest sy24v6 nns tgp high
```

```
snasw link SY25V6 port EEV6 host-dest sy25v6 nns tgp high
```

```
snasw link SY21V4 port EEV4LCL ip-dest 13.0.27.49 nns tgp low
```

```
snasw link SY25V4 port EEV4LCL ip-dest 13.0.27.65 nns tgp low
```

EE Security Considerations



- Mainframe
 - Connection Network
 - Internal use ONLY – z/OS, SNA Switch
 - *considering for iSeries*
 - CP-CP Session Keys (**VERIFYCP=OPTIONAL**)
 - Authenticate whenever possible (no encryption)
 - Unique XCA Groups (Internet vs Dedicated)
 - Separate VIPAs with **DYNPU=NO/YES**
 - Separate LDLC Timers with z/OS 1.9
 - ADJCP & ADJCLUST and SNA Firewall
 - AUTHNET=(netlist) & ALIASRCH=NO, **BNDYN=NONE** & SNVC=3
 - Static vs Dynamic TGN
 - Static NOT always good (PComm – use Dynamic)
- WAN
 - AES-256 VPN Tunnels
 - VPN over Internet Permitted
 - UDP 12000-12004
 - ALL DIRECTIONS (NO EXCEPTIONS)
 - NO PORT TRANSLATION!!

VTAM XCA Multi-Group Coding



XCASY60 VBUILD TYPE=XCA EXTERNAL COMMUNICATIONS ADAPTER

*
XCASY60R PORT MEDIUM=HPRIP, EE/HPR CONNECTION
HPREELIV=YES, ENABLE HPR LIVENESS REDUCTION (EE)
LIVTIME=25, LLC LIVENESS TIMER INTERVAL
SRQTIME=15, LLC SHORT REQUEST TIMER INTERVAL
SRQRETRY=7, SHORT REQUEST TIMER RETRY
SAPADDR=04 SERVICE ACCESS POINT ADDRESS

XCAPRD1G GROUP ANSWER=ON, PU DIAL-IN CAPABILITY TO VTAM

IPADDR=10.1.2.60, TCPIPEE VIPA
AUTOGEN=(256,E,\$), AUTO GEN LINES, NO PU'S
CALL=INOUT, IN/OUT CALLING CAPABILITY
DIAL=YES, SWITCHED LINE CONNECTION
DYNPU=NO, DO NOT ALLOCATE DYNAMIC PU'S
KEEPACT=YES, REACTIVATE LINE IF INOP OCCURS
LIMRES=NO, LINES NOT LIMITED RESOURCE
ISTATUS=ACTIVE INITIAL ACTIVATION STATUS

XCAPRD1I GROUP ANSWER=ON, PU DIAL-IN CAPABILITY TO VTAM

IPADDR=10.1.2.70, TCPIPEE VIPA FOR INTERNET
AUTOGEN=(16,IE,\$), AUTO GEN LINES, NO PU'S
CALL=INOUT, IN/OUT CALLING CAPABILITY
DIAL=YES, SWITCHED LINE CONNECTION
DYNPU=NO, DO NOT ALLOCATE DYNAMIC PU'S
KEEPACT=YES, REACTIVATE LINE IF INOP OCCURS
LIMRES=NO, LINES NOT LIMITED RESOURCE
LIVTIME=(25,180), LLC LIVENESS TIMER INTERVAL
SRQTIME=20, LLC SHORT REQUEST TIMER INTERVAL
SRQRETRY=9, SHORT REQUEST TIMER RETRY
ISTATUS=ACTIVE INITIAL ACTIVATION STATUS

XCASY43 VBUILD TYPE=XCA EXTERNAL COMMUNICATIONS ADAPTER

*
XCASY43R PORT MEDIUM=HPRIP, EE/HPR CONNECTION
HPREELIV=YES, ENABLE HPR LIVENESS REDUCTION (EE)
LIVTIME=25, LLC LIVENESS TIMER INTERVAL
SRQTIME=15, LLC SHORT REQUEST TIMER INTERVAL
SRQRETRY=7, SHORT REQUEST TIMER RETRY
SAPADDR=04 SERVICE ACCESS POINT ADDRESS

XCAPRD1G GROUP ANSWER=ON, PU DIAL-IN CAPABILITY TO VTAM

IPADDR=10.1.2.43, TCPIPEE VIPA
AUTOGEN=(256,E,\$), AUTO GEN LINES, NO PU'S
CALL=INOUT, IN/OUT CALLING CAPABILITY
DIAL=YES, SWITCHED LINE CONNECTION
DYNPU=NO, DO NOT ALLOCATE DYNAMIC PU'S
KEEPACT=YES, REACTIVATE LINE IF INOP OCCURS
LIMRES=NO, LINES NOT LIMITED RESOURCE
ISTATUS=ACTIVE INITIAL ACTIVATION STATUS

XCAPRD1I GROUP ANSWER=ON, PU DIAL-IN CAPABILITY TO VTAM

IPADDR=10.1.2.53, TCPIPEE VIPA FOR INTERNET
AUTOGEN=(512,IE,\$), AUTO GEN LINES, NO PU'S
CALL=INOUT, IN/OUT CALLING CAPABILITY
DIAL=YES, SWITCHED LINE CONNECTION
DYNPU=YES, ALLOCATE DYNAMIC PU'S
KEEPACT=YES, REACTIVATE LINE IF INOP OCCURS
LIMRES=NO, LINES NOT LIMITED RESOURCE
LIVTIME=(25,180), LLC LIVENESS TIMER INTERVAL
SRQTIME=20, LLC SHORT REQUEST TIMER INTERVAL
SRQRETRY=9, SHORT REQUEST TIMER RETRY
ISTATUS=ACTIVE INITIAL ACTIVATION STATUS

Granular **LDLC** Timers

Dynamic **PU**s Permitted

Single- and Multi-Group XCA Displays

```
DISPLAY NET,ID=XCACNM1,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = XCACNM1 , TYPE = XCA MAJOR
  NODE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1679I MEDIUM = HPRIP
IST1685I TCP/IP JOB NAME = TCPIPEE
IST924I -----
IST089I XCAPRD1G TYPE = LINE GROUP , ACTIV
IST1680I LOCAL IP ADDRESS 'local IP'
IST924I -----
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT , NODE REPORTED
  - YES
IST170I LINES:
IST1901I LINES UNDER GROUP: XCAPRD1G
IST232I E0000000 ACTIV
IST232I E0000001 ACTIV
IST232I E0000002 ACTIV
IST232I E0000003 ACTIV
.....
IST232I E00000FB ACTIV
IST232I E00000FC ACTIV
IST232I E00000FD ACTIV
IST232I E00000FE ACTIV
IST232I E00000FF ACTIV
IST314I END
```

```
DISPLAY NET,ID=XCACNM2,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = XCACNM2 , TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1679I MEDIUM = HPRIP
IST1685I TCP/IP JOB NAME = TCPIPEE
IST924I -----
IST089I XCAPRD1G TYPE = LINE GROUP , ACTIV
IST1680I LOCAL IP ADDRESS 'local IP'
IST924I -----
IST089I XCAPRD1I TYPE = LINE GROUP , ACTIV
IST1680I LOCAL IP ADDRESS 'local IP'
IST924I -----
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT , NODE REPORTED - YES
IST170I LINES:
IST1901I LINES UNDER GROUP: XCAPRD1G
IST232I E0000000 ACTIV
IST232I E0000001 ACTIV
IST232I E0000002 ACTIV
.....
IST232I E00000FE ACTIV
IST232I E00000FF ACTIV
IST1901I LINES UNDER GROUP: XCAPRD1I
IST232I IE000 ACTIV
IST232I IE001 ACTIV
.....
IST314I END
```

RTP & PU MODELS

ISTEXCAA

D NET, MODELS

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST1018I MODEL MAJOR NODE = MODELXCF
IST1018I MODEL MAJOR NODE = MODELVN
IST1018I MODEL MAJOR NODE = MODELRTP
IST1018I MODEL MAJOR NODE = CSERVMDL
IST314I END
```

```
MODELVN VBUILD TYPE=MODEL
DYNALS PU DYNTYPE=VN,
MAXDATA=1033,
MAXOUT=7,
DISCNT=NO
```

```
MODELRTP VBUILD TYPE=MODEL
DYNRTP PU DYNTYPE=RTP,
MAXDATA=1033,
MAXOUT=7,
DISCNT=NO
```

```
CSERVMDL VBUILD TYPE=MODEL
```

* This model is used to connect the "standard" workstation.

```
PUMODEL PU ADDR=01,
ANS=CONT,
DISCNT=(NO),
DYNLU=NO,
MAXOUT=7,
MAXDATA=1033,
PUTYPE=2
```

* Baltimore region models (BA1-7,A-G)

```
LU22BA1 LU LOCADDR=02,
PACING=7,
SSCPFM=USSSCS,
USSTAB=USSTBA1,
DLOGMOD=SSA3279
```

*

```
LU23BA1 LU LOCADDR=02,
PACING=7,
SSCPFM=USSSCS,
USSTAB=USSTBA1,
DLOGMOD=SSA32793
```

EE Backup and Recovery Engineering *Design Recommendations*



- Designate Master/Slave relationship
 - z/OS to z/OS: “Slave” on PRIMARY acts as “Master” on BACKUP
 - “Master” is automatic-connection initiator (i.e., DWACT/DWINOP=YES)
 - z/OS to Other: **“Slave” is z/OS platform**
 - Small platforms don’t do “dial-in” so well
 - *at least no success, with our limited testing, on Non-z/OS platforms*
- Primary and Backup Automation
 - Primary: z/OS to z/OS
 - Automate DIAL from “Slave” after appropriate ‘retry time’ lapses
 - Primary: z/OS to Other
 - Notify “Master” site to initiate DIAL after appropriate ‘retry time’ lapses
 - Backup: z/OS to z/OS
 - Automate EE PU Activation / DIAL after PRIMARY system abandoned
 - *“Master” takes on responsibility of recovery (REDIAL)*

SWNET Recommendations

SWSSAEE VBUILD **TYPE=SWNET**

EEPUSSA PU ADDR=01 ,ANS=CONT ,CPNAME=SSACPNM1 ,NETID=SSANETID ,
PUTYPE=2 ,CONNTYPE=APPN ,HPR=YES ,DWACT=YES ,TGN=1 ,
CPCP=YES ,DISCNT=NO ,DWINOP=YES ,ISTATUS=ACTIVE

EEPTHSSA PATH IPADDR=nnn.nnn.nnn.nnn ,GRPNM=EEGROUP ,
REDIAL=FOREVER ,REDDelay=120

EEPUBKUP PU ADDR=01 ,ANS=CONT ,CPNAME=SSACPNM1 ,NETID=SSANETID ,
PUTYPE=2 ,CONNTYPE=APPN ,HPR=YES ,DWACT=NO ,TGN=1 ,
CPCP=YES ,DISCNT=NO ,DWINOP=NO ,ISTATUS=ACTIVE

EEPTHBKP PATH IPADDR=nnn.nnn.nnn.nnn ,GRPNM=EEGROUP

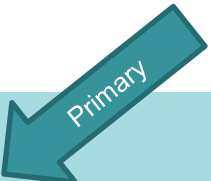
EEPUTERT PU ADDR=01 ,ANS=CONT ,CPNAME=SSACPNM3 ,NETID=SSANETID ,
PUTYPE=2 ,CONNTYPE=APPN ,HPR=YES ,DWACT=NO ,TGN=1 ,
CPCP=YES ,DISCNT=NO ,DWINOP=NO ,ISTATUS=ACTIVE

EEPTHTER PATH IPADDR=nnn.nnn.nnn.nnn ,GRPNM=EEGROUP

System variables, or symbolics, allow VTAMLST sharing

SWNET Backup/Failover Shared Library - System Symbolics

```
SWEESOH  VBUILD TYPE=SWNET
EEPUSOH  PU  ADDR=01,ANS=CONT,CPNAME=SOHSSCP5,NETID=USOHIO01,
          PUTYPE=2,CONNTYPE=APPN,HPR=YES,DWACT=&SSADSY61,TGN=1,
          CPCP=YES,DISCNT=NO,ISTATUS=&SSAISY61,DWINOP=&SSADSY61,
          TGP=EEXTWAN
EEPTHSOH PATH IPADDR=172.1.2.3,GRPNM=XCAPRD1I
```



Primary

Status: &SSAISY61
Sy61-ACTIVE
Sy60-INACTIVE

Dial: &SSADSY61
Sy61-NO
Sy60-YES

Sy61 Primary: Activated automatically; Dial manually
Sy60 Backup: Activated manually; Dial automatically

ADJCP and ADJCLUST

```
ADJSSAC  VBUILD TYPE=ADJCLUST
         NETWORK NETID=SSANETID, SNVC=3, BNDYN=NONE
SSACPNM1 NEXTCP CPNAME=SSANETID.SSACPNM1
SSACPNM2 NEXTCP CPNAME=SSANETID.SSACPNM2
SSACPNM3 NEXTCP CPNAME=SSANETID.SSACPNM3
```



```
ADJCSSA  VBUILD TYPE=ADJCP
SSACPNM1 ADJCP NETID=SSANETID, DYNLU=YES, NN=YES, NATIVE=NO
SSACPNM2 ADJCP NETID=SSANETID, DYNLU=YES, NN=YES, NATIVE=NO
SSACPNM3 ADJCP NETID=SSANETID, DYNLU=YES, NN=YES, NATIVE=NO
```

```
ADJCLSOH VBUILD TYPE=ADJCLUST
         NETWORK NETID=(USOHIO01,NET1),BNDYN=NONE
OHPROD  NEXTCP CPNAME=USOHIO01.OHSSCP5
OHTEST  NEXTCP CPNAME=USOHIO01.OHSSCPT5
SSABKP  NEXTCP CPNAME=SSANETID.&SSAADJCP
```



```
ADJCPSOH VBUILD TYPE=ADJCP
OHSSCP5  ADJCP NETID=USOHIO01, DYNLU=YES, NN=YES, NATIVE=NO, ALIASRCH=NO,
AUTHNET=(SSANETID,NETA,USNETN01,NET02,HLTHNET,WORLDNET)
OHSSCPT5 ADJCP NETID=USOHIO01, DYNLU=YES, NN=YES, NATIVE=NO, ALIASRCH=NO,
AUTHNET=(SSANETID,NETA,USNETN01,NET02,HLTHNET,WORLDNET)
```

Subarea-to-APPN CDRSC Coding

Non-native CDRSC definitions for DLUs (Destination LUs) :

Applications (e.g., CICS) and printer LU cross-domain resources (CDRSCs) **MUST** be coded as **NETID-specific** and with any CPNAME

-- on both primary and backup EBN systems, or on OLU (origin application) Host

Note: Without 'directory entry' for CDRSC, the directory search will fail

```
CDRSCSSA VBUILD TYPE=CDRSC
SSANET   NETWORK NETID=SSANETID
NDM70    CDRSC CPNAME=SSANETID.SSACPN08,DLOGMOD=NDMLOGM,NQNMODE=NAME
NDMMISF  CDRSC CPNAME=SSANETID.SSACPN17,DLOGMOD=NDMLOGM,NQNMODE=NAME
```

Code **CPNAME** for ALL CDRSCs in each 'target' NETID

-- provide **LOGMODE** and, as needed, also specify **MODETAB**

APPN does not like 'blank' Logmodes!!!!

MTU Fragmentation Elimination

- Fragmentation Alerts
 - We use William Data Systems TCP/IP Monitor: Implex
- Typical Cause: VPN over WAN causes additional headers

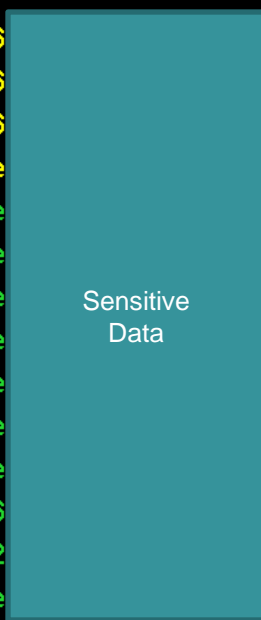
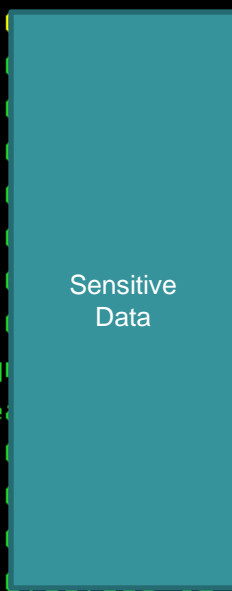
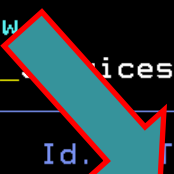
- MTU Parameter Coding
 - OMPROUTE
 - SWNET EE PU (z/OS 1.10)

- PING with PMTU and progressively-reduced Length

- Path MTU Discovery (PMTU)
 - Requires ICMP Enabled on Firewalls
 - IPv4 – Type 3 – Destination Unreachable
 - IPv6 – type 2 – Packet Too Big

Alert view SSAPRD1 6100 TCPIPEE 11:12:57
_Summary _Services _Interfaces _Activity _Connections _Alerts _Gateways _Appls

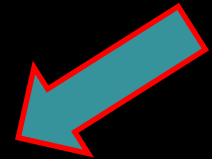
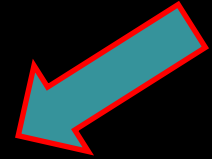
Latest	Id.	Today	Total	Alert Overview
11:12:45	123 P 441	34583	Inbound fragmentation from Host 172.16	
11:08:45	123 P 310	20776	Inbound fragmentation from Host 172.16	
10:55:00	123 P 24	4559	Inbound fragmentation from Host 172.16	
10:44:30	122 A 16	16	Port 161 10.0.0.100 currently unre	
09:34:30	122 A 16	16	Port 161 10.0.0.100 currently unre	
09:25:45	122 A 16	16	Port 161 10.0.0.100 currently unre	
08:38:30	122 A 16	16	Port 161 10.0.0.100 currently unre	
07:58:30	122 A 8	8	Port 161 10.0.0.100 currently unre	
07:45:15	122 A 16	16	Port 161 10.0.0.100 currently unre	
07:41:15	122 A 16	16	Port 161 10.0.0.100 currently unre	
07:41:15	122 A 16	16	Port 161 10.0.0.100 currently unre	
05:59:00	123 P 16	86	Inbound fragm om Host 172.16	
05:01:00	91 A 1	24	Unable to rea 00 on 172.17.2	
02:18:30	122 A 3	93	Port 137 10.0.0.100 currently unre	
00:52:15	122 A 16	16	Port 161 10.0.0.100 currently unreach	
00:50:30	122 A 16	16	Port 161 10.0.0.100 currently unreach	
00:50:30	122 A 16	16	Port 161 10.0.0.100 currently unreach	



Auto off Status 1 of 17

F1 Help F3 End F4 Prompt F5 Refresh F6 Roll F10 Left/Right F12 Menu

```
READY  
ping 172.1[REDACTED] (tcp tcpip ee pmtu yes length 1400  
CS V1R11: Pinging host 172.1[REDACTED]  
Ping #1 needs fragmentation at: s02b001.ba.ssa.gov (172.[REDACTED])  
Next-hop MTU size is 1400  
READY  
  
READY  
ping 172.1[REDACTED] (tcp tcpip ee pmtu yes length 1372  
CS V1R11: Pinging host 172.1[REDACTED]  
Ping #1 response took 0.090 seconds.  
READY
```



MTU Fragmentation



D NET,EE,ID=EEPUSKY,LIST=DETAIL

IST0971 DISPLAY ACCEPTED

IST3501 DISPLAY TYPE = EE

IST20011 ENTERPRISE EXTENDER CONNECTION INFORMATION

IST0751 NAME = EEPUSKY , TYPE = PU_T2.1

IST16801 LOCAL IP ADDRESS 10.1.2.3

IST16801 REMOTE IP ADDRESS 172.4.5.5

IST20221 EE CONNECTION ACTIVATED ON 07/26/10 AT 23:13:36

IST21141 LIVTIME: INITIAL = 25 MAXIMUM = 0 CURRENT = 25

IST20231 CONNECTED TO LINE E00000EE

IST20251 LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0

IST20261 LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0

IST20091 RTP PIPES = 6 LU-LU SESSIONS = 117

IST20271 DWINOP = NO REDIAL = *NA* REDDELAY = *NA*

IST20281 KEEPACT = YES

IST9241 -----

IST20301 PORT PRIORITY = SIGNAL

IST20291 MTU SIZE = 1472

IST20361 NLPS SENT = 8510 (008K)

IST20371 BYTES SENT = 26436 (026K)

IST20381 NLPS RETRANSMITTED = 0 (000K)

IST20391 BYTES RETRANSMITTED = 0 (000K)

IST20401 NLPS RECEIVED = 8509 (008K)

IST20411 BYTES RECEIVED = 26184 (026K)

IST9241 -----

IST20311 PORT PRIORITY = NETWORK

IST20291 MTU SIZE = 1472

IST20361 NLPS SENT = 28497 (028K)

IST20371 BYTES SENT = 5031269 (005M)

IST20381 NLPS RETRANSMITTED = 2 (000K)

IST20391 BYTES RETRANSMITTED = 498 (000K)

IST20401 NLPS RECEIVED = 28174 (028K)

IST20411 BYTES RECEIVED = 4882608 (004M)

IST9241 -----

IST20321 PORT PRIORITY = HIGH

IST20291 MTU SIZE = 1472

IST20361 NLPS SENT = 1269 (001K)

IST20371 BYTES SENT = 81461 (081K)

IST20381 NLPS RETRANSMITTED = 0 (000K)

IST20391 BYTES RETRANSMITTED = 0 (000K)

IST20401 NLPS RECEIVED = 1260 (001K)

IST20411 BYTES RECEIVED = 77922 (077K)

IST9241 -----

IST20331 PORT PRIORITY = MEDIUM

IST20291 MTU SIZE = 1472

IST20361 NLPS SENT = 86655 (086K)

IST20371 BYTES SENT = 14965561 (014M)

IST20381 NLPS RETRANSMITTED = 1 (000K)

IST20391 BYTES RETRANSMITTED = 18 (000K)

IST20401 NLPS RECEIVED = 88730 (088K)

IST20411 BYTES RECEIVED = 27736830 (027M)

IST9241 -----

IST20341 PORT PRIORITY = LOW

IST20291 MTU SIZE = 1472

IST20361 NLPS SENT = 0 (000K)

IST20371 BYTES SENT = 0 (000K)

IST20381 NLPS RETRANSMITTED = 0 (000K)

IST20391 BYTES RETRANSMITTED = 0 (000K)

IST20401 NLPS RECEIVED = 0 (000K)

IST20411 BYTES RECEIVED = 0 (000K)

IST9241 -----

IST20351 TOTALS FOR ALL PORT PRIORITIES

IST20361 NLPS SENT = 124931 (124K)

IST20371 BYTES SENT = 20104727 (020M)

IST20381 NLPS RETRANSMITTED = 3 (000K)

IST20391 BYTES RETRANSMITTED = 516 (000K)

IST20401 NLPS RECEIVED = 126673 (126K)

IST20411 BYTES RECEIVED = 32723544 (032M)

Fixed: MTU Coding

```
SWEEVETA VBUILD TYPE=SWNET
EPUVETA PU
  ADDR=01,ANS=CONT,CPNAME=SSCPNME,NETID=USNETID,
  PUTYPE=2,CONNTYPE=APPN,HPR=YES,DWACT=NO,TGN=1,
  CPCP=YES,DISCNT=NO,ISTATUS=INACTIVE,DWINOP=NO,
  MTU=1400
  PATH IPADDR=172.1.2.3,GRPNM=XCAPRD1G
```

ping 172.1.2.3 (tcp tcpipe pmtu yes length 1400

CS V1R11: Pinging host 172.1.2.3

Ping #1 needs fragmentation at: s02b001.ba.ssa.gov (172.16.254.1)

Next-hop MTU size is 1400



ping 172.1.2.3 (tcp tcpipe pmtu yes length 1372

CS V1R11: Pinging host 172.1.2.3

Ping #1 response took 0.076 seconds.

```
D NET,EE,ID=EPUVETA,LIST=DETAIL
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST200I ENTERPRISE EXTENDER CONNECTION INFORMATION
IST075I NAME = EPUVETA      , TYPE = PU_T2.1
IST1680I LOCAL IP ADDRESS 10.1.2.3
IST1680I REMOTE IP ADDRESS 172.1.2.3
IST202I EE CONNECTION ACTIVATED ON 07/26/10 AT 00:42:17
IST2114I LIVTIME:  INITIAL = 25  MAXIMUM = 0  CURRENT = 25
IST2023I CONNECTED TO LINE E00000F8
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0
IST2009I RTP PIPES = 3  LU-LU SESSIONS = 2
IST2027I DWINOP = NO  REDIAL = *NA*  REDDELAY = *NA*
IST2028I KEEPACT = YES
IST924I -----
IST2030I PORT PRIORITY = SIGNAL
IST2029I MTU SIZE = 1372
IST2036I NLPS SENT = 5201 ( 005K )
IST2037I BYTES SENT = 16513 ( 016K )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 5202 ( 005K )
IST2041I BYTES RECEIVED = 16663 ( 016K )
IST924I -----
IST2031I PORT PRIORITY = NETWORK
IST2029I MTU SIZE = 1372
IST2036I NLPS SENT = 93634 ( 093K )
IST2037I BYTES SENT = 14070668 ( 014M )
IST2038I NLPS RETRANSMITTED = 205 ( 000K )
IST2039I BYTES RETRANSMITTED = 62438 ( 062K )
IST2040I NLPS RECEIVED = 84125 ( 084K )
IST2041I BYTES RECEIVED = 15468775 ( 015M )
IST924I -----
```

SAF CP-CP Session Key Requirements

SAF-Based Session-Level Verification

```
"rdefine appclu networka.cpa.networkb.cpx  
session(sesskey(key provided by cpa)) uacc(none)"
```

```
"rdefine appclu networka.cpa.networkb.cpy  
session(sesskey(key provided by cpa)) uacc(none)"
```

```
"setropts classact(appclu)"
```

Important Note **FOR RACF ONLY**

Ensure the APPCLU Profile is defined to both security systems before the VTAM Startup parameter **VERIFYCP=OPTIONAL** is coded

----- or **VTAM will NOT start!**

CP-CP Verification VTAM Start Failure

```
S NET,,,(LIST=MB)
$HASP100 NET    ON STCINRDR
IEF695I START NET    WITH JOBNAME NET    IS ASSIGNED TO USER NET
, GROUP OPER
$HASP373 NET    STARTED
SMF0001I THU 23 MAR 2006 START STEP 01 NET    NET    *****
IEF403I NET - STARTED - TIME=08.49.43
SMF0001I THU 23 MAR 2006 START STEP 03 RI946RMF SORTDEV *****
EZZ9671E TCPIP VTAM HAS BEEN INACTIVE FOR AT LEAST    60 SECONDS
IST796I HOSTSA VALUE EXCEEDS MAXSUBA
IST049I VTAM START REJECTED - OPEN FOR CP ACB FAILED
IST1218I ACB ERROR FIELD = 72
IST314I END
IST133I VTAM TERMINATION IN PROGRESS
IST105I ISTPDILU NODE NOW INACTIVE
IST105I ISTGROUP NODE NOW INACTIVE
IST412I VTAM COMMAND PROCESSING TERMINATED
```

CP-CP Session Verification Failure

IST970I LU-LU VERIFICATION ERROR 0x FOR NETWORK4.CP4.CPNAMEX

RACF Requires “fully-qualified” CP Names: 4-level qualifier “profile names”

(Inetwork-id.local-lu-name.pnetwork-id.partner-lu-name)

**Note: 4-level coding is NOT a requirement for LU-LU session-level verification;
---RACF Documentation APAR Resulted**

```
IST590I CONNECTOUT ESTABLISHED FOR PU PUEE02 ON LINE LNEE000
IST1086I APPN CONNECTION FOR USABCN01.CPABC002 IS ACTIVE - TGN = 1
IST1488I ACTIVATION OF RTP CNR00029 AS PASSIVE TO USABCN01.CPABC002
IST1488I ACTIVATION OF RTP CNR00028 AS ACTIVE TO USABCN01.CPABC002
IST970I LU-LU VERIFICATION ERROR 09 FOR NETWORKB.CPXWZ001.CPABC002
IST663I BIND FAIL REQUEST RECEIVED, SENSE=080F6051
IST664I REAL OLU=NETWORKB.CPXWZ001 REAL DLU=USABCN01.CPABC002
IST889I SID = C9F32AE128727C7A
IST891I USABCN01.CPABC002 GENERATED FAILURE NOTIFICATION
IST893I ORIGINAL FAILING REQUEST IS BIND
```

CP-CP Session-Level Verification More (ehem) Failures

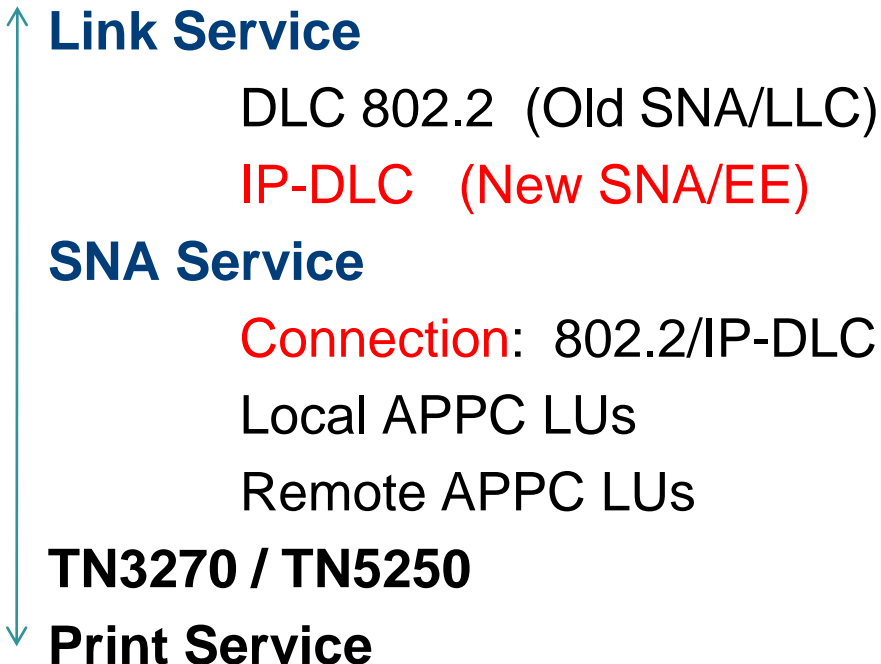


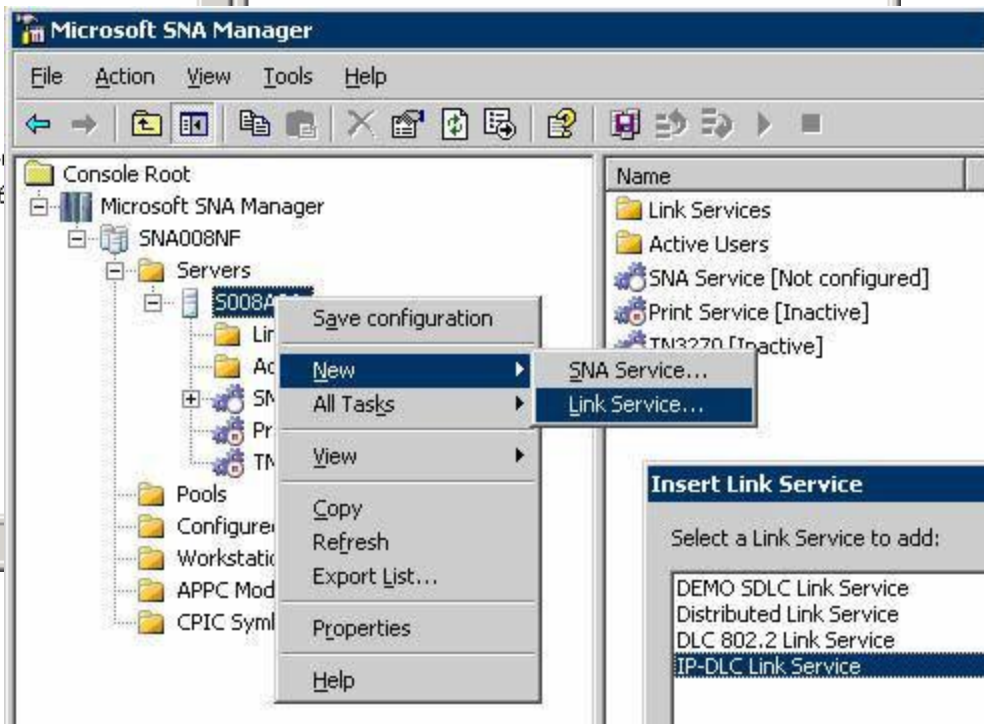
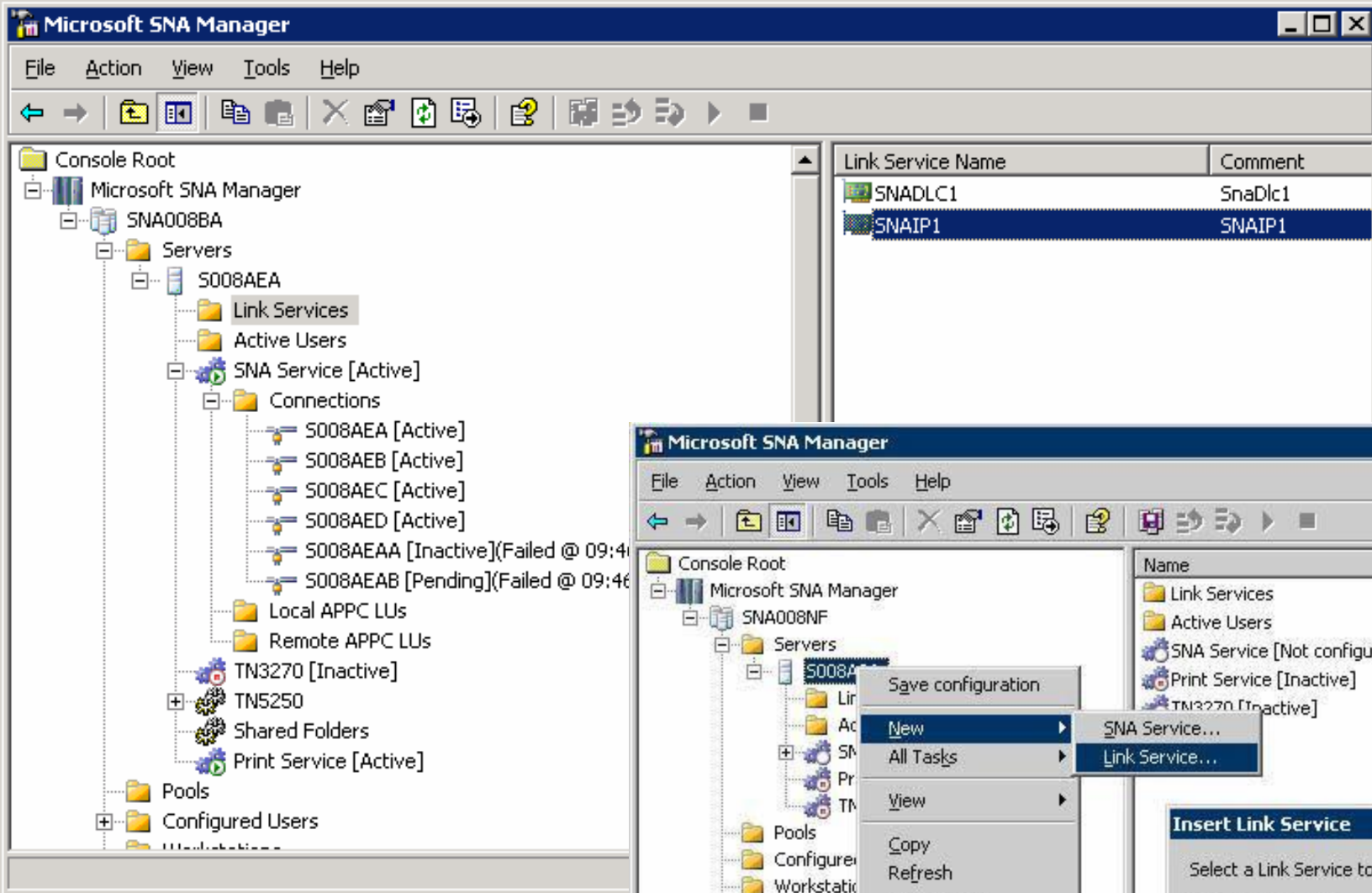
- RACF **Session Key** added with an **'expiration date'**
 - which, ultimately, lapsed
- RACF **STC** did NOT have 'required' **User Name and Group ID**
- **VERIFYCP=NONE** vs **OPTIONAL** as VTAM Start Option
- RACF Key was not applied (**F NET,PROFILES,ID=CPNAMEA**)
- APPCLU class was not assigned
 - **SETROPTS CLASSACT(APPCLU)**

Microsoft SNA Server Host Integration Server

SNA Subdomain

SNA Server





GUI
Look and Feel

IP-DLC Link Service #1 Properties

General | **Advanced**

Service name: SNAIP1

Service title: IP-DLC Link Service #1

Primary NNS: [REDACTED]

Backup NNS: [REDACTED]

Local address

Adapter address: Intel(R) Advanced Network S...

Static IP address: [REDACTED]

Local APPN node

Network name: [REDACTED]

Control point name: EE [REDACTED]

Node ID: 05D 0088A

Associated LEN node: SNA Service

OK Cancel Help

Microsoft Host Integration Server IP-DLC Link Service (Advanced Tab ~ Tuning Parameters)



IP-DLC Link Service #1 Properties

General | **Advanced**

IP-DLC timeouts

Receive ACK: 15000 ms

Lifetime: 10000 ms

Maximum retransmissions: 3 times

Maximum BTU size

Send: 1493 bytes

Receive: 1493 bytes

HPR/IP activation retries

Infinite

Limited: 10 times

Delay between retries: 25 seconds

OK Cancel Help

Microsoft SNA Manager

File Action View Tools Help



Console Root
Microsoft SNA Manager

SNA008BA

Servers

S008AEA

Link Services

Active Users

SNA Service [Active]

Connections

S008AE

Local APPC

Remote APPC

TN3270 [Inactive]

TN5250

Shared Folders

Print Service [Active]

Name

Link Services

Active Users

SNA Service [Active]

TN3270 [Inactive]

TN5250

Shared Folders

Print Service [Active]

New	IP-DLC...
All Tasks	802.2...
	SDLC...
	Channel...
	X.25...
Copy	
Refresh	
Help	

General | Address | System Identification | IP DLC

Name: S008AEAA

Link service: SNAIP1

Comment: EE Connection A

Remote end: Host system

Allowed directions: Outgoing calls

Activation: On server startup

Affiliate application: <None>

OK Cancel Apply Help

Microsoft HIS with DLUr
IP-DLC Connection
(Host System = DLUS)



General | Address | System Identification | IP DLC

Primary DLUS
Network name: [redacted]
Control point name: [redacted]

Backup DLUS
Network name: [redacted]
Control point name: [redacted]

Preferred routing node
Address: [redacted]
Network name: [redacted]
Control point name: [redacted]

OK Cancel Apply Help

General | Address | System Identification | IP DLC

Local node ID:

31F 008BA

Link compression:

None

OK Cancel Apply

ISTEXCAA
Dynamic SWNET Build
IDBLK Convention



General | Address | System Identification | IP DLC

Connection retry limits

Unlimited

Limited:

8 times

Delay after retry:

10 seconds

DLUR retry limits

No retries

Unlimited

Limited:

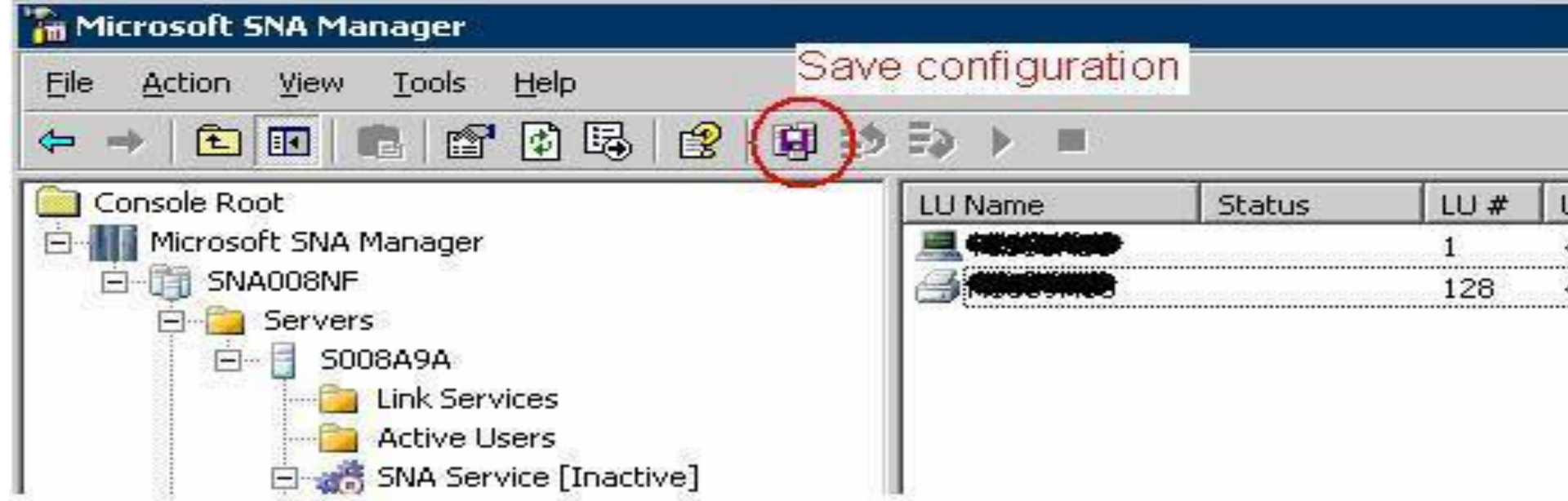
8 times

Delay after retry:

10 seconds

OK Cancel Apply Help

Don't forget to **SAVE** your configuration !



GUI Alternative = Command Line Interface “snacfg”

IBM – AIX CONFIGURATION

Node

smitty sna

Communications Server For AIX

Move cursor to desired item and press Enter.

Configure SNA Resources

Manage SNA Resources
 Problem Determination Aids
 Product Information
 Write an LU6.2 Transaction Program (SNAPI)

Configure SNA Resources

Move cursor to desired item and press Enter.

Local Node Resources

Quick Configuration Tasks
 Migrate Configuration Profiles

Local Node Resources

Move cursor to desired item and press Enter.

Node Definition

Connectivity

Local LUs
 LU 6.2 Configuration
 Focal Points
 AnyNet APPC Over IP
 TN Server/Redirector

Node Definition

Type or select values in entry fields.
 Press Enter AFTER making all desired changes.

	[Entry Fields]
* Control Point alias	[cptstaix]
Description []	
* Control Point name	[SSANET01.CPTSTAIX]
APPN Support	END_NODE
+	
Node ID	[0713abcb]
X	
NM-API Style	NORMAL
+	
If BACK_LEVEL,	
Queue NMVTs?	NO

Connectivity

Move cursor to desired item and press Enter.

DLCs, Ports and Link Stations

APPN Connection Networks
DLUR PUs
 LU0 Primary Lines
 DSPU/DSLUs Templates

DLCs, Ports and Link Stations

Move cursor to desired item and press Enter.

Add Connectivity Resources

Change/Show Connectivity Resources
 Copy Connectivity Resources
 Remove Connectivity Resources

IBM – AIX CONFIGURATION

Connectivity

Add Connectivity Resources

Move cursor to desired item and press Enter.

Add Token Ring Resource
 Add SDLC Resource
 Add Ethernet Resource
 Add X.25 Resource
 Add Multi-Path Channel Resource
 Add Multi-Path Channel Plus Resource
Add Enterprise Extender (HPR over IP) Resource

Add Enterprise Extender (HPR over IP) Resource

Move cursor to desired item and press Enter.

Add Enterprise Extender DLC
Add Enterprise Extender Port
Add Enterprise Extender Link Station

Add Enterprise Extender Port

Type or select values in entry fields.

Press Enter AFTER making all desired changes.

	[Entry Fields]
* Port name	[eeportst]
Description	[]
Protocol	IPV4
* DLC name	[eedlctst]
Initially active?	YES
Maximum BTU size allowed	[1492]
Maximum number of active links allowed	[4096]
Implicit links to end nodes are uplinks?	NO
Local IP interface	[]

Note: BTU default is 1500

Add Enterprise Extender Link Station

Type or select values in entry fields.

Press Enter AFTER making all desired changes.

	[Entry Fields]
* Link station name	[eelstest]
Description	[]
* Port name	[eeportst]
Activation	BY_ADMINISTRATOR
Contact Information:	
* Remote IP host	['remote IP']
Independent LU Traffic:	
Remote node Control Point name	[SSANETID.SSACPNM2]
Remote node type	LEARN_NODE
Advanced:	
Maximum BTU size to be sent	[1492]
Request CP-CP sessions?	YES
Remote node is a network node server	YES
Protocol	IPV4
TG number	[0]
Branch link type	NONE
Reactivate link station after failure	YES
Restart on normal deactivation	NO
Acknowledgement timeout	[2000]
Maximum retry count	[10]
Liveness timeout	[2000]

IBM – AIX CONFIGURATION

DLUR PU



Add DLUR PU

Type or select values in entry fields.

Press Enter AFTER making all desired changes.

	[Entry Fields]
* PU name	[eedlurpu]
Description	[]
DLUS server name	[SSANETID.SSACPNM2]
Backup DLUS server name	[SSANETID.SSACPNM1]
* PU id	[2103abbc]
Initially active?	YES
Retry contacting DLUS indefinitely?	[0]
(0=No, 65535=Yes, else number of retries)	
Compression Supported	NO

AIX Status Displays

COMMAND STATUS

```
Command: failed stdout: yes stderr: no
Before command completion, additional instructions may appear below.
```

```
-----
start_ls command failed :
```

```
primary_rc = LS_FAILURE, secondary_rc = ERROR
```

```
The SNA software will attempt to activate the LS.
```

```
Note: Firewall rules must be modified to allow the UDP traffic for EE
```

COMMAND STATUS

```
Command: OK stdout: yes stderr: no
Before command completion, additional instructions
```

```
-----
DLC   Port   LS   PU Type   Status Description
-----
Eedlctst                IP       Active
      eeportst          IP       Active
      eelstest          IP       Active
-----
```

```
-----
DLUR  PU  LU                Status   DLUS   PLU   Description
-----
EEDLURPU                Active   SSANETID.SSACPNM2
-----
```

COMMAND STATUS

```
Command: OK stdout: yes stderr: no
Before command completion, additional instructions may appear below.
```

```
-----
start_ls command completed successfully
-----
```

PCOMM 5.9 - Node, Port, LS



*TSMon May 24 15:47:18 2010

NODE=(

ANYNET_SUPPORT=NONE

CP_ALIAS=CPFE50A6

DEFAULT_PREFERENCE=NATIVE

DISCOVERY_SUPPORT=NO

DLUR_SUPPORT=MULTI_SUBNET

FQ_CP_NAME=SSANETID.CPFE50A6

GVRN_SUPPORT=1

NODE_ID=AEEFE5A6

NODE_TYPE=END_NODE

REGISTER_WITH_CDS=1

REGISTER_WITH_NN=1

SEND_TERM_SELF=0

)

PORT=(

PORT_NAME=IBMEEDLC

ACTIVATION_DELAY_TIMER=30

DELAY_APPLICATION_RETRIES=1

DLC_NAME=IBMEEDLC

IMPLICIT_CP_CP_SESS_SUPPORT=1

IMPLICIT_DEACT_TIMER=600

IMPLICIT_DSPU_SERVICES=NONE

IMPLICIT_HPR_SUPPORT=1

IMPLICIT_LIMITED_RESOURCE=NO

IMPLICIT_LINK_LVL_ERROR=0

LINK_STATION_ROLE=NEGOTIABLE

MAX_ACTIVATION_ATTEMPTS=3

MAX_IFRM_RCVD=8

MAX_RCV_BTU_SIZE=1033

PORT_TYPE=SATF

RETRY_LINK_ON_DISCONNECT=1

RETRY_LINK_ON_FAILED_START=1

RETRY_LINK_ON_FAILURE=1

LINK_STATION=(

LS_NAME=LINK0000

ACTIVATE_AT_STARTUP=1

ACTIVATION_DELAY_TIMER=-1

ADJACENT_NODE_TYPE=NETWORK_NODE

AUTO_ACTIVATE_SUPPORT=0

CP_CP_SESS_SUPPORT=1

DEFAULT_NN_SERVER=1

DELAY_APPLICATION_RETRIES=1

DEPENDENT_LU_ENCRYPTION=NONE

DEST_ADDRESS=044000

DISABLE_REMOTE_ACT=0

DSPU_SERVICES=NONE

ETHERNET_FORMAT=0

FQ_ADJACENT_CP_NAME=SSANETID.SSACPNM

HPR_LINK_LVL_ERROR=0

HPR_SUPPORT=1

INHERIT_PORT_RETRY_PARMS=0

LIMITED_RESOURCE=NO

LINK_DEACT_TIMER=600

LINK_STATION_ROLE=NEGOTIABLE

MAX_ACTIVATION_ATTEMPTS=-1

MAX_IFRM_RCVD=7

MAX_SEND_BTU_SIZE=1033

NODE_ID=AEEFE5A6

PORT_NAME=IBMEEDLC

RETRY_LINK_ON_DISCONNECT=1

RETRY_LINK_ON_FAILED_START=1

RETRY_LINK_ON_FAILURE=1

SOLICIT_SSCP_SESSION=0

TG_NUMBER=0

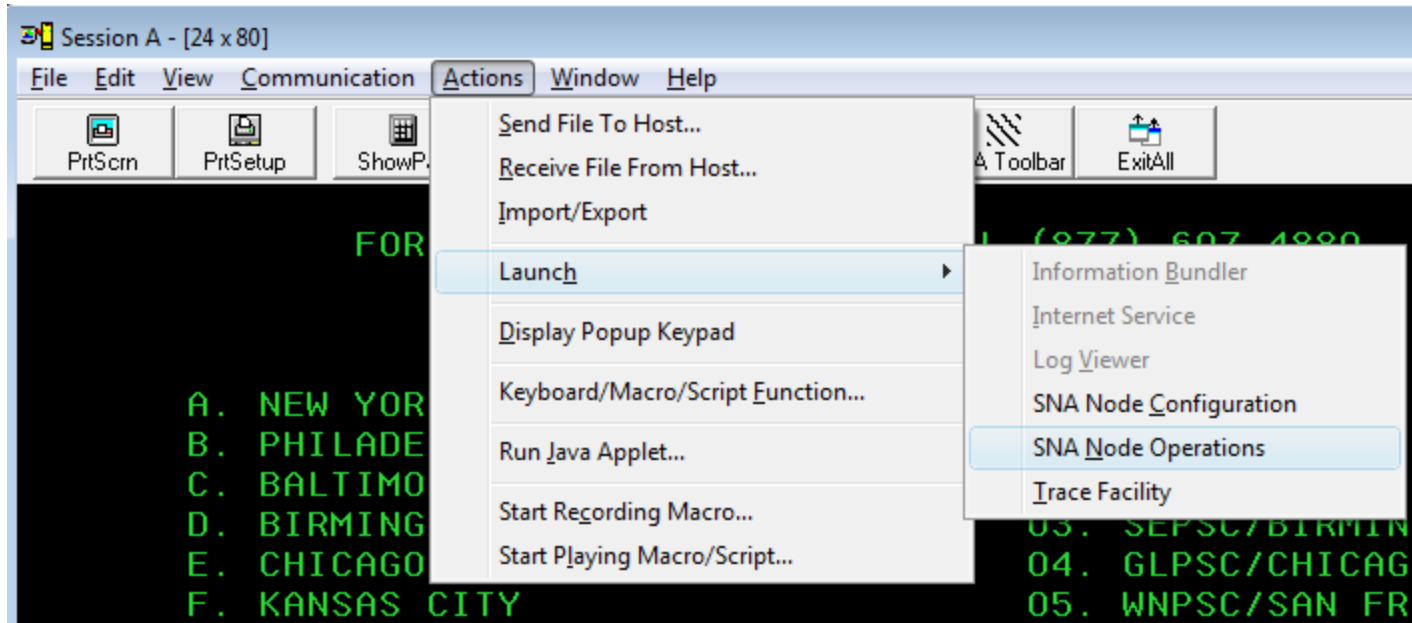
USE_DEFAULT_TG_CHARS=1

PCOMM 5.9 – DLUR PU & LU PAIR

```
INTERNAL_PU=(
  PU_NAME=PUFE50A6
  BKUP_DLUS_NAME=SSANETID.SSACPNM1
  DEPENDENT_LU_ENCRYPTION=NONE
  FQ_DLUS_NAME=SSANETID.SSACPNM1
  NODE_ID=241FE5A6
  STARTUP=0
)
DLUR_DEFAULTS=(
  BKUP_DLUS_NAME=SSANETID.SSACPNM1
  DEFAULT_PU_NAME=CPFE50A6
  DLUS_RETRY_LIMIT=65535
  DLUS_RETRY_TIMEOUT=5
  FQ_DLUS_NAME=SSANETID.SSACPNM1
)
```

```
LOCAL_LU=(
  LU_NAME=LFE5A601
  DEFAULT_POOL=0
  LU_ALIAS=ICSAPL1
  LU_SESSION_LIMIT=1
  NAU_ADDRESS=4
  PU_NAME=PUFE50A6
)
PARTNER_LU=(
  FQ_PLU_NAME=SSANETID.CICSAPL1
  ADJACENT_CP_NAME=SSANETID.SSACPNM3
  CONV_SECURITY_VERIFICATION=1
  MAX_MC_LL_SEND_SIZE=32767
  PARALLEL_SESSION_SUPPORT=0
  PARTNER_LU_ALIAS=cicsapl1
  PREFERENCE=USE_DEFAULT_PREFERENCE
)
LU_LU_PASSWORD=(
  LU_PAIR=LFE5A601,SSANETID.CICSAPL1
  PASSWORD=- - - 16 digit hex key - - -
)
```

PCOMM SNA Node Operations



Node
DLUR PUs
Connections

EEVPN - Personal Communications SNA Node Operations

Operations Launch View Window Help

Node

Name	Value
Alias	CPF
AnyNet SNA/IP ...	No
AnyNet Sockets...	No
COS Database w...	8
COS mapping s...	Yes
Correct XIDs for ...	0
Correct XIDs for ...	0
DLUR release	0
DLUR support	No
Default Routing ...	Native Only
Directory cache size	None
EN functions	None
FQCP Name	US
Functions	None
HPR path switch...	No
HPR support	Unknown

Node

- AnyNet Sockets Devices
- AnyNet Sockets Routes
- Connection Networks
- Connections
- CPI-C Side Information
- Data Link Controls
- Devices
- DLUR PUs
- Focal Points
- Local LU 0 to 3
- Local LU 6.2
- LU 6.2 Sessions
- Modes
- Node**
- Partner LU 6.2
- RTP Connections
- Transaction Programs

EEVPN - Personal Communications SNA Node Operations

Operations Launch View Window Help

DLUR PUs

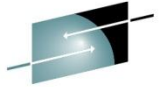
Name	Status	DLUS Name	Backup DLUS Name	PU ID	Location	Active DLUS Name	ANS Support	DLUS Session Sta...	PCID	FQCP Name
SFE50A6	Active	USSAN01.SSAC...	USSAN01.SSAC...	241FE5A6	USSAN01.SSAC...	USSAN01.SSAC...	Active	Active	EDFB672C0327...	USSAN01.CPF

EEVPN - Personal Communications SNA Node Operations

Operations Launch View Window Help

Connections

Name	State	Sub-state	Device Name	Adjacent CP Name	DLC Name	DLC Type	Adjacent CP Type	D...	Migr...	Current T...	D	H	HP...	H...	Node-ID	Destination Ad
LINK0000	Active	Active	IBMEEDLC	USSAN01.SSAC...	IBMEEDLC	IBMEEDLC	Network Node	N...	No	21	N..U..90	N...	FFF0E26B	10.0		



iSeries Evolution: Chicken & The Egg

S/36

S/38

AS/400

LEN

APPN

EE

pSeries

iSeries

zSeries

iSeries Recommended Fixes

Recommended for all systems

All systems will stay current on the latest Cumulative PTF Package, HIPER Group PTF, and Database Group PTF that are listed in the table below.

	IBM i 7.1	IBM i 6.1	IBM i 5.4
CUM Package	<u>SF99710</u>	<u>SF99610</u>	<u>SF99540</u>
HIPER Group	<u>SF99709</u>	<u>SF99609</u>	<u>SF99539</u>
Database Group	<u>SF99701</u>	<u>SF99601</u>	<u>SF99504</u>

*** Search Knowledgebase: Peer & Host PTFS

Network Attributes

Current system name : S123XYZM
 Pending system name :
 Local network ID : SSANETID
 Local control point name : S123XYZM
 Default local location : S123XYZM
 Default mode : BLANK
APPN node type : *BEXNODE
 Data compression : *NONE
 Intermediate data compression : *NONE
 Maximum number of intermediate sessions : 200
 Route addition resistance : 128
 Server network ID/control point name : *LCLNETID *ANY

Change requires IPL

#INTER

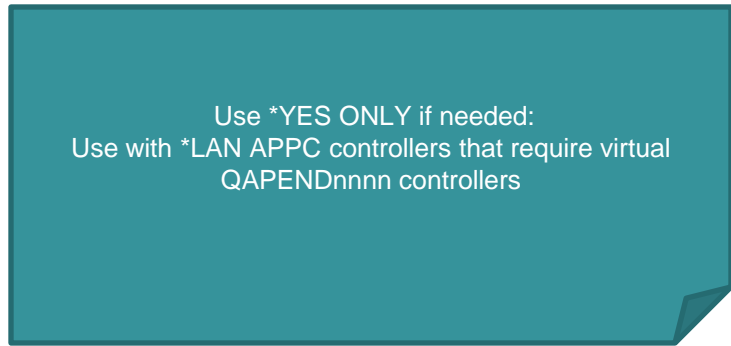
- - - other - - -

Network Attributes (Continued)

Maximum hop count : 16
DDM request access : *OBJAUT
Client request access : *OBJAUT
Default ISDN network type :
Default ISDN connection list : QDCCNNLANY
Allow AnyNet support : *NO
Network server domain : S123XYZM
Allow APPN virtual support : *YES
Allow HPR transport tower support : *YES
Virtual controller autcreate APPC device limit : 100
HPR path switch timers:
 Network priority : 1
 High priority : 2
 Medium priority : 4
 Low priority : 8
Allow add to cluster : *NONE
Modem country or region ID : US



Set to *NO for EE



Use *YES ONLY if needed:
Use with *LAN APPC controllers that require virtual
QAPENDnnnn controllers

File Edit View Communication Actions Window Help

PrtScrn Map Record Stop Play Quit delete me TWRKLIC DltSpool ilevy kwa levyopr level1 level2

Create Ctl Desc (APPC) (CRTCTLAPPC)

Type choices, press Enter.

Label

Controller description > SXXX21PRI Name

Link type > *HPRIP *ANYNW, *FAX, *FR, *HPRIP...

Online at IPL > *YES *YES, *NO

APPN-capable > *YES *YES, *NO

Remote internet address > '10. NNS

Local internet address > '1.2.3.211'

LDLC timers:

LDLC retry count > 7 0-255

LDLC retry timer > 25 0-65535 seconds

LDLC liveness timer > 15 0-65535 seconds

LDLC link speed > *CAMPUS

More...

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

F24=More keys



Create Ctl Desc (APPC) (CRTCTLAPPC)

Type choices, press Enter.

Maximum frame size	> <u>1461</u>	265-16393, 256, 265
Remote network identifier	<u>*NETATR</u>	Name, *NETATR, *NON
Remote control point	> <u>SS</u>	Name, *ANY
Exchange identifier	> <u>AEEBCPZ1</u>	00000000-FFFFFF
LAN DSAP	<u>04</u>	04, 08, 0C, 10, 14,
LAN SSAP	<u>04</u>	04, 08, 0C, 10, 14,
APPN CP session support	<u>*YES</u>	*YES, *NO
Remote APPN node type	> <u>*NETNODE</u>	*ENDNODE, *LENNODE.
Branch extender role	> <u>*ENDNODE</u>	*NETNODE, *ENDNODE
HPR path switching	> <u>*NO</u>	*NO, *YES
APPN transmission group number	<u>1</u>	1-20, *CALC
Autocreate device	<u>*ALL</u>	*ALL, *NONE
Autodelete device	<u>1440</u>	1-10000, *NO
User-defined 1	> <u>128</u>	0-255, *LIND
User-defined 2	> <u>128</u>	0-255, *LIND
User-defined 3	> <u>128</u>	0-255, *LIND

Beware

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this
F24=More keys

Host Controller: DLUR PU

Controller description : S00F21HST
 Option : *BASIC
 Category of controller : *HOST

Link type : ***DLUR**
 Online at IPL : *NO
 Switched connection : *YES
 Maximum frame size : *LINKTYPE
 Local exchange identifier : **05600F21**
 Initial connection : *DIAL
 Dial initiation : *LINKTYPE
 Switched disconnect : *NO
 System job : QCMNARB01
 Message queue : *SYSVAL
 Current message queue : QSYSOPR
 Library : QSYS
 Text : HOST DLUR Controller

-----Attached Devices-----



APPN-capable : *YES
 APPN minimum switched status . . . : *VRYON
 Primary DLUS name : PRIDLUS
 Control point name : **SSACPNM1**
 Network identifier : SSANETID
 Backup DLUS name : BKUDLUS
 Control point name : **SSACPNM1**
 Network identifier : SSANETID
 Dependent PU name : *NONE
 Activation timer : 170
 Dsc/reconnect timer (T309) : 170

Recovery limits:
 Count limit : 50
 Time interval : 10

Host Controller: APPN-Capable



Additional Message Information

Message ID : CPI2669 Severity : 00

Message type : Information

Date sent : 07/02/10 Time sent : 14:59:02

Message : **Required parameters assumed for LINKTYPE(*DLUR)**

Cause : The system is using values required for creating a controller description for LINKTYPE(*DLUR). These values may not be the values which were entered on the command.

Recovery : No recovery necessary. The controller is created using system supplied values.

Technical description : The following values are used to create a controller when LINKTYPE(*DLUR) is specified: MAXFRAME(*LINKTYPE) SWITCHED(*YES) **APPN(*YES)**.

VTAM Display of iSeries DLUr PU

DISPLAY NET,ID=SISER1,SCOPE=ALL

IST097I DISPLAY ACCEPTED

IST075I NAME = SISER1 , TYPE = PU_T2

IST486I STATUS= ACTIV , DESIRED STATE= ACTIV

IST2238I DISCNT = NO - FINAL USE = *NA*

IST1354I DLUR NAME = CPISER01 MAJNODE = SWDDSDVB

IST136I SWITCHED SNA MAJOR NODE = SWDDSDVB

IST1934I IDBLK = 056 IDNUM = 00F21

IST654I I/O TRACE = OFF, BUFFER TRACE = OFF

IST1500I STATE TRACE = OFF

IST1656I VTAMTOPO = REPORT , NODE REPORTED - YES

IST1657I MAJOR NODE VTAMTOPO = REPORT

IST355I LOGICAL UNITS:

IST080I VISER100 ACTIV VISER101 ACTIV VISER102 ACTIV

IST080I VISER103 ACTIV VISER104 ACTIV VISER105 ACTIV

IST080I VISER106 ACTIV VISER107 ACTIV VISER108 ACTIV

IST080I VISER109 ACTIV VISER10A ACTIV VISER10B ACTIV

IST080I HISER10C CONCT HISER10D CONCT HISER10E ACTIV

IST080I VISER10F CONCT VISER110 ACTIV VISER111 ACTIV

IST080I VISER112 ACTIV VISER113 ACTIV VISER114 ACTIV

IST080I VISER115 CONCT VISER116 ACTIV VISER117 ACTIV

IST080I VISER118 CONCT VISER119 CONCT VISER11A CONCT

IST080I VISER11B CONCT VISER11C CONCT VISER11D CONCT

IST080I VISER11E CONCT VISER11F CONCT VISER120 CONCT

IST314I END

iSeries Display of HPRIP & DLUr PU

Description	Status
SBCF21HST	VARY ON PENDING
SBCF21PRI	VARIED ON
SBCF21SEC	RCYPND

```

Work with Configuration Status          ILEVY400
                                         07/30/10 14:47:20
Position to . . . . . Starting characters

Type options, press Enter.
1=Vary on  2=Vary off  5=Work with job  8=Work with description
9=Display mode status 13=Work with APPN status...

Opt Description      Status      -----Job-----
SBCF21HST         ACTIVE
HBCF210C            VARIED ON
VBCF210A            VARIED ON
VBCF2101            VARIED ON
VBCF2102            VARIED ON
VBCF2103            VARIED ON
VBCF2104            VARIED ON
VBCF2105            VARIED ON
VBCF2106            VARIED ON

More...

Parameters or command
===>
F5=Refresh  F9=Retrieve  F14=Work with controllers  F24=More keys
  
```

Lingo

Node (NETID, CPName and Node ID: IDBLK/IDNUM)

HIS Port

HIS IP-DLC / HPRIP

iSeries Network Attributes / VTAM Start Options

iSeries Device / VTAM LU

iSeries Controller / VTAM PU

iSeries Varied On Status / VTAM ACTIVE Status

The Moral of the ‘Integration’ Story

- Don't be intent on ELIMINATING SNA !
 - **Be intent on INTEGRATING SNA !**
- ONLY Migrate **SNA Apps** to TCP/IP
 - for APPLICATION-ORIENTED reasons !
 - if NOT for NETWORK-ORIENTED reasons !