

CNA-8000

Migration and Planning Guide

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CNA-8000 Migration and Planning Guide

Introduction

The Visara CNA-8000 platform allows the migration from a variety of channel attached gateway products, many of them discontinued and unsupported. These gateways include the Cisco CIP and CPA products, the IBM 3172 and 2216 products, the McData 6100 gateway, as well as IBM 3174, Memorex Telex 1174, and other similar controller gateways, and PC gateways made by such companies as Novell and Microsoft.

This document can be used to help determine whether the current feature set of a particular gateway product qualifies for replacement with the CNA-8000. The CNA-8000 consists of 2 main feature groups. These consist of:

- TN3270 Gateway Server: Support for the offloading of TN3270 clients support from the mainframe, and from a variety of PC, thin client, Linux, UNIX, platforms. The clients appear as SNA LU1, LU2, and LU3 devices to VTAM while interfacing to the customer network using IP traffic only.
- SNA PU2 Gateway: Supports a variety of downstream PU2 platforms such as controllers, PC gateways, AS/400, RS6000, APPN networks, and other platforms that primarily communicate using SNA protocols over LLC, SDLC, or DLSw.

This manual addresses how the CNA-8000 appears to the host, what the host gens should be, and what tools are available to transition from existing products to the CNA-8000, usually without having to touch existing downstream clients and SNA platforms. The CNA-8000 may also provide additional support options beyond the existing gateway products, allowing for improved networking and security. This document will also attempt to identify any issues that may arise to minimize surprises.

Chapter 1. CNA-8000 Overview

The CNA-8000 is an enterprise class server providing gateway functions targeted at replacement of several existing products, many of which have been discontinued and unsupported by their respective vendors. Through careful implementation, it is possible in many cases to deploy the CNA-8000 with little or no impact on the end users.

Target Market

Although the product platforms that the CNA-8000 can replace are many, you should carefully compare the functions currently supported on your existing product platform to the feature set of the CNA-8000 to ensure that it will be a complete and successful replacement. Among the products that the CNA-8000 may replace are:

Cisco CIP: TN3270 Server, PU2 Gateway
Cisco CPA: TN3270 Server, PU2 Gateway
IBM 3172: PU2 Gateway
IBM 2216: PU2 Gateway
IBM 3745: Token Ring PU2 Gateway
IBM 3174: PU2 Gateway
Memorex Telex or Visara 1174: TN3270 Server, PU2 Gateway
McData 1374: PU2 Gateway
McData 6100: PU2 Gateway
Microsoft SNA Server: TN3270 Server
Numerous Other Non-Named TN3270 Servers

The CNA-8000 Hardware Platform

The CNA-8000 consists of an enterprise class 3U rack-mountable server with four PCI-x slots and one PCI-Express slot. The base unit includes 2 independently sourced power supplies that can be hot swapped as needed. Each power supply is capable of carrying the complete load of a fully loaded CNA-8000 platform. Multiple redundant fans provide cooling and may also be swapped without powering down. Two 10/100/1000 Mbps Ethernet interfaces are included on the motherboard and do not consume any of the available slots. A pair of Hard Drives in a Mirrored RAID 1 configuration provides completely redundant code storage.

The CNA-8000 supports up to two ESCON interfaces, each capable of supporting up to 16 CU images and 256 subchannels. Each ESCON interface supports EMIF on the host and ESCON directors, allowing communication with up to 16 LPARs through each interface.

The CNA-8000 also supports one FICON interface card for use in the PCI-Express slot. Each interface on this card is capable of operating at maximum FICON speeds. Each interface will support up to 16 CU images and 256 subchannels. This card comes in three versions:

- Single FICON interface
- Dual FICON interface
- Quad FICON interface

Both Long Wave FICON and Short Wave FICON interfaces are supported. The transceiver used by each environment is different so it will be necessary to determine which is used in your environment and the appropriate interface ordered.

Up to three 4/16/100 Mbps Token Ring adapters or two Quad 10/100/1000 Mbps Ethernet adapters may be installed to provide network access depending on available slots.

A Quad Serial Interface (QSI) is also available for supporting remote SDLC PU2 platforms through four RS-232 or V.35 interfaces at speeds up to T1/E1.

TN3270 Gateway Server

The CNA-8000 functions as a TN3270 gateway capable of supporting as many as 16,384 TN3270E clients spread over as many PUs (Host Circuits) as necessary. These PUs may be directed to any of the upstream LPARs configured. Host connectivity is established through configuration of Host Circuits that will appear as if they were downstream PU2 nodes communicating through the SNA Gateway feature.

SNA Gateway Feature

The CNA-8000 provides SNA gateway functionality to SNA PU2 platforms using XCA (External Communications Adapter) technology. Through this technology, SNA PU2 platforms are defined on the host to VTAM using Switched Major Nodes. Each XCA definition allows up to 255 downstream PU2 platforms and all of their associated LUs to communicate with the host through their switched PU2 definitions. Each XCA definition provides a communication pipe between one of the ESCON or FICON interfaces and one of the network interfaces of the CNA-8000. Additional XCA definitions may be created to allow communication between an ESCON or FICON interface and a different, or even the same network interface. Multiple (up to 8) XCA definitions may be made to communicate through a single network adapter. ESCON and FICON resources are allocated to use one subchannel per XCA defined. Using this technology thousands of downstream PUs can be supported through a single CNA-8000.

Migrating from Token Ring to Ethernet

The CNA-8000 supports SNA communication (LLC) through Ethernet as well as through Token Ring. This may allow you to easily migrate from Token Ring environments to Ethernet environments, especially if you are currently using a router to provide DLSw communications to remote sites.

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Using Multiple CNA-8000 Platforms for SNA Disaster Recovery

Using switched SNA definitions on the host with multiple XCA definitions across one or more CNA-8000 platforms allows you to provide redundant data paths for critical operations. For example using two different CNA-8000 platforms, the same downstream SNA platform could reach its host definition through either of the SNA gateways, providing that the downstream platform can be configured to take advantage of this. Another possible arrangement would be to provide redundant paths on the upstream ESCON or FICON connection by using two interfaces in the same CNA-8000, or multiple Ethernet or Token Ring interfaces to the same or different upstreams. Some products such as the Visara 1174 are capable of supporting an alternate SNA gateway as a standard feature, making communication through redundant CNA-8000s seamless.

Providing Backup Strategies for OSAs

The CNA-8000 can provide a redundant pathway for an existing OSA, through an ESCON or FICON interface. SNA traffic that would normally pass through an OSA to access the host can typically be directed to pass through the CNA-8000 as an alternative.

Token Ring Option when a Token Ring OSA is not Available

The CNA-8000 can be used to provide direct access to the host for Token Ring platforms, without having to deploy a router. The CNA-8000 can be equipped with as many as 3 Token Ring adapters to provide functions similar to an OSA through an ESCON or FICON channel.

Integrated DLSw Support

The CNA-8000 is capable of providing integrated DLSw support. When DLSw is configured on the CNA-8000 for the downstream connection, the data passing through the Ethernet interface is in IP format instead of LLC. This option can be used to keep LLC traffic off the local backbone completely. At the downstream location it is necessary to have another DLSw capable device to strip the IP shell from the SNA traffic and present the SNA traffic in a native SNA format (LLC, SDLC, etc) to the downstream SNA platforms. The Visara 1174 product supports a form of DLSw allowing you to keep LLC traffic off the remote LAN as well.

SDLC PU2 Platform Support

The CNA-8000 is capable of communicating with downstream PU2 platforms over an SDLC serial link. The upstream connection utilizes the SNA Gateway feature to interface to a switched VTAM PU2 definition. Both PU2.0 and PU2.1 platforms can be supported through the SDLC lines. Communications speeds up to T1/E1 are possible, and multidrop as well as point-to-point connections are supported.

True Migration Strategies

The CNA-8000 can be configured and operated in parallel with existing products that it is to replace to provide a safe means to migrate at your own pace, moving individual connections to the new platform without having to move every connection at once.

CNA-8000 Features

Features supported by the CNA-8000 include:

- FICON to Ethernet SNA gateway for LLC PU2 traffic
- FICON to Token Ring gateway for LLC PU2 traffic
- FICON to Ethernet DLSw gateway for IP PU2 traffic
- ESCON to Ethernet SNA gateway for LLC PU2 traffic
- ESCON to Token Ring gateway for LLC PU2 traffic
- ESCON to Ethernet DLSw gateway for IP PU2 traffic
- TN3270 gateway support (IP offloaded) for up to 16,384 concurrent clients
- Support for hundreds of TN3270 PUs
- FICON to Ethernet IP connectivity
- ESCON to Ethernet IP connectivity
- XCA “No-Connect List” – provides list of nodes attempting to connect through the CNA-8000 to VTAM that were unsuccessful to provide simpler troubleshooting of network problems and visibility to unauthorized attempts to access the SNA network
- Support for Ethernet LLC-attached PU 2.0 Platforms
- Support for Ethernet LLC-attached PU 2.1 Platforms
- Support for Token Ring LLC-attached PU 2.0 Platforms
- Support for Token Ring LLC-attached PU 2.1 Platforms
- Support for SDLC-attached PU 2.0 and PU 2.1 Platforms
- Remote management of the platform through a browser connection
- Support for a directly attached monitor, keyboard, and mouse to provide a direct console to the CNA-8000
- Easy configuration through a browser interface
- Built in SNA trace facility
- Built in FICON driver trace facility
- Built in ESCON driver trace facility
- Built in event logs
- Email alerts for hardware and other critical problems
- Redundant power supplies with independent AC sources
- Hot swappable power supplies
- Hot swappable fans
- RAID 1 mirrored SETA drives
- Automatically boots into online ready condition (may still require VTAM activation)

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- Built-in SSL encryption capability for supporting TN3270 clients
- User ID and password support for TN3270 clients
- TN3270 user access controller
- Support for both pooled and for dedicated sessions to TN3270 clients
- IP address nailing capability for TN3270 clients
- Easy migration to CNA-8000 from other products without having to reconfigure user desktops
- Dynamic changes to TN3270 client configurations without requirement for reboot of the server

A more detailed explanation of each of these features will be described in subsequent chapters.

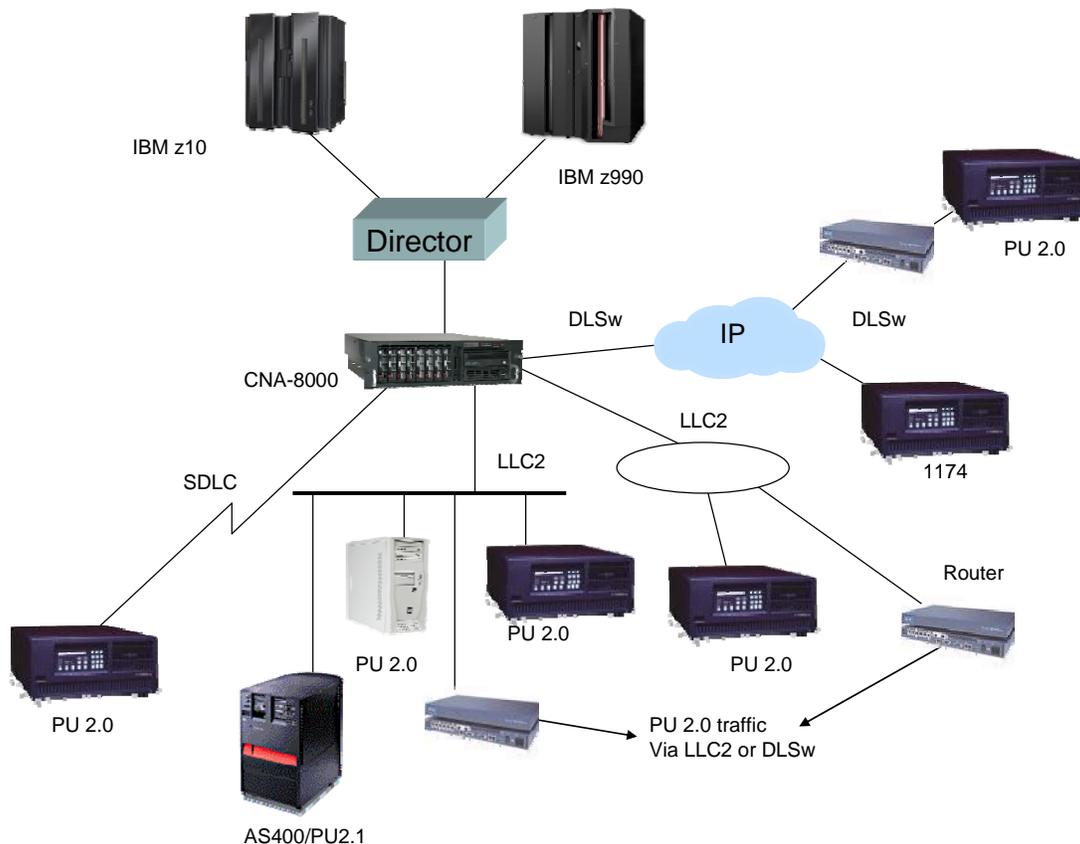
Chapter 2. Support of PU2 Platforms

The CNA-8000 supports PU2 platforms by means of a XCA-styled PU2 Gateway function. With FICON and/or ESCON as the upstream connection, PU2 platforms are supported on Ethernet and Token Ring. Both PU 2.0 and PU 2.1 platforms are supported.

Use of XCA technology makes the CNA-8000 a perfect replacement for Cisco CIP and CPA products as well as a replacement for the 3745 Token Ring Gateway function. Existing switched VTAM definitions and XCA definitions should be able to be used “as is”.

IBM 3174 gateways, Memorex Telex/Visara 1174 gateways, and McData/ Memorex Telex 1374 gateways can also be replaced easily but with a few more gen changes on the host.

The following illustration shows what the network may look like with a CNA-8000.



CIP/CPA and IBM 3172 Replacement Considerations

The CNA-8000 offers a near perfect replacement option for the Cisco CIP/CPA products and for the IBM 3172. In this instance, XCA and Switched PU definitions should already be in place and available for use by the CNA-8000. Likewise, if the LAN interfaces of the CNA-8000 are configured to use the same hardware MAC addresses formerly used by the CIP/CPA or 3172, remote nodes should not require any reconfiguration either.

3745 Replacement Considerations

If you are migrating from a 3745 with Token Ring attached PU2 traffic to the CNA-8000, the migration can be made relatively transparent as well. In this case the PUs should already be defined to VTAM using Switched Major Node definitions, and no change in these definitions should be required. The CNA-8000 will require an XCA definition in VTAM for each Token Ring interface to be used. To make the conversion completely transparent it will be necessary to configure the same hardware MAC addresses for use by the CNA-8000 that was being used by the 3745. The CNA-8000 also provides the ability to support PU2 traffic through Ethernet connections. If a bridge is currently being used to convert Ethernet LLC traffic to run on Token Ring (to communicate through the 3745), the CNA-8000 should be able to accept the Ethernet traffic directly, perhaps allowing retirement of the bridge as well.

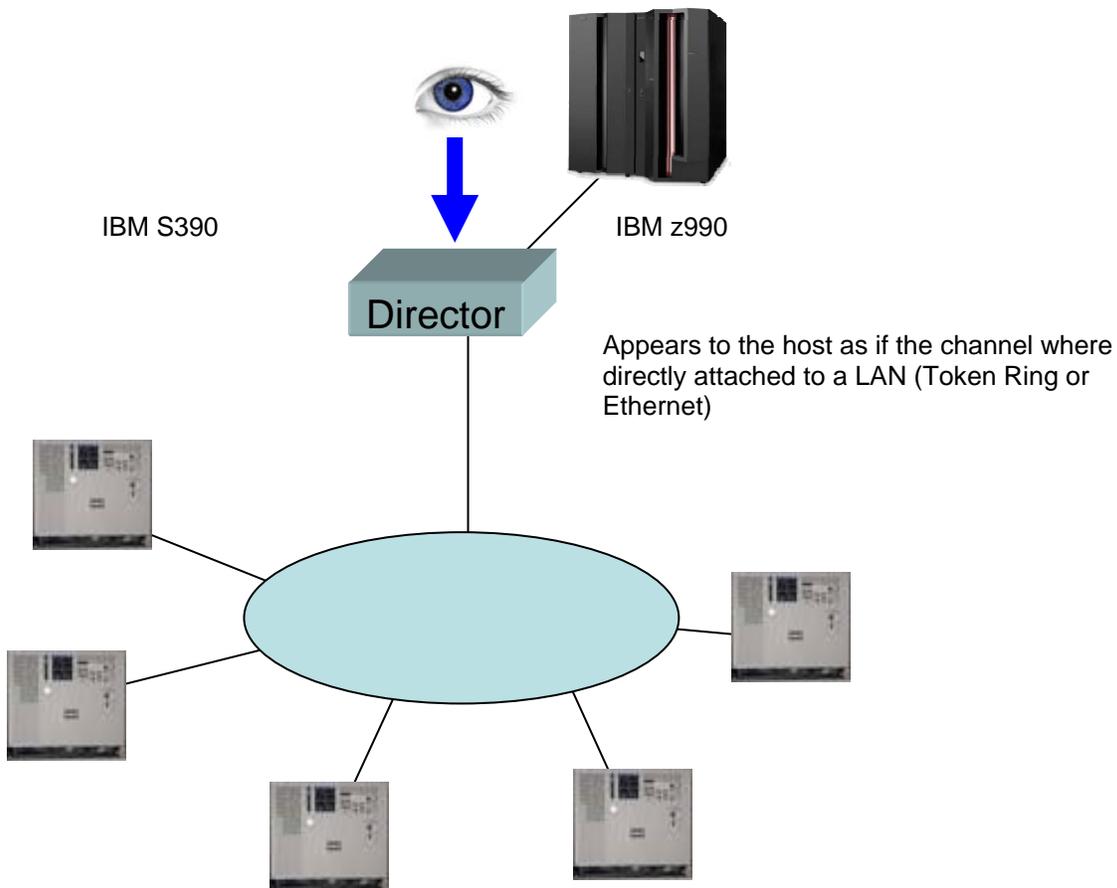
3174/1174/1374 Replacement Considerations

Migration from IBM 3174, Visara 1174, and Memorex Telex 1174 or 1374 SNA gateway technology to the XCA technology of the CNA-8000 requires conversion of Local Channel PU2 definitions to Switched PU2 definitions. For the most part LUs defined under the Local Channel definitions should be able to be reused under the Switched PU2 definitions. Converting to Switched PU2 definitions has the added advantage of providing a common definition, should it be possible for the downstream PU to connect through a different path to gain access to the host. Note that downstream nodes such as the Visara (formerly Memorex Telex) 1174 can be configured to support an alternate gateway to make use of this capability.

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XCA Gateway Operation

Setting up an XCA (External Communication Adapter) gateway is quite easy and is more advantageous for LAN attached PUs than previous gateway types. Introduced with the IBM 3172, a single subchannel is associated with a network adapter on the CNA-8000. If multiple network adapters are to be used for the XCA function, then a minimum of one subchannel for each network adapter is required. Up to 255 downstream PUs can connect through each XCA gateway. If you need more than 255 downstream PUs to connect through an adapter, you can define an additional XCA gateway. Up to eight XCA gateways may be assigned to a single network adapter. Note that for performance reasons, you would likely want to limit the number of downstream PUs through a single adapter to a smaller number.



Downstream PUs are typically set up to dynamically connect through the XCA to request connection to their Switched Major Node definition in VTAM. Each downstream PU is expected to provide a unique ID to VTAM (XID) which VTAM uses to match to the appropriate Switched definition (matched to the IDBLK and IDNUM parameters). If no such match is found, then the attempted connection will be rejected. Successful matches

should result in a successful connection unless another node has already an established connection to it. Once a connection is established VTAM will commence to activate the SNA PU (PU type 2.0) and associated LUs. If the PU type is 2.1, then a peer session activation occurs.

The CNA-8000 maintains a list of failed XID attempts. This list can be used to help identify misconfigured nodes on the network and to identify failed attempts to hack the network.

If multiple XCA gateways are defined to the same VTAM, the downstream PU can connect through any of them to establish its session with VTAM. VTAM maintains a connection through only one of the XCAs to a specific PU at a time. All communication between VTAM and the LUs supported by that PU travel over the same established path. If connection is lost, the downstream PU can establish a new connection through a different XCA. The CNA-8000 supports XCA traffic between the FICON or ESCON channel and Ethernet (LLC), Token Ring (LLC), and SDLC.

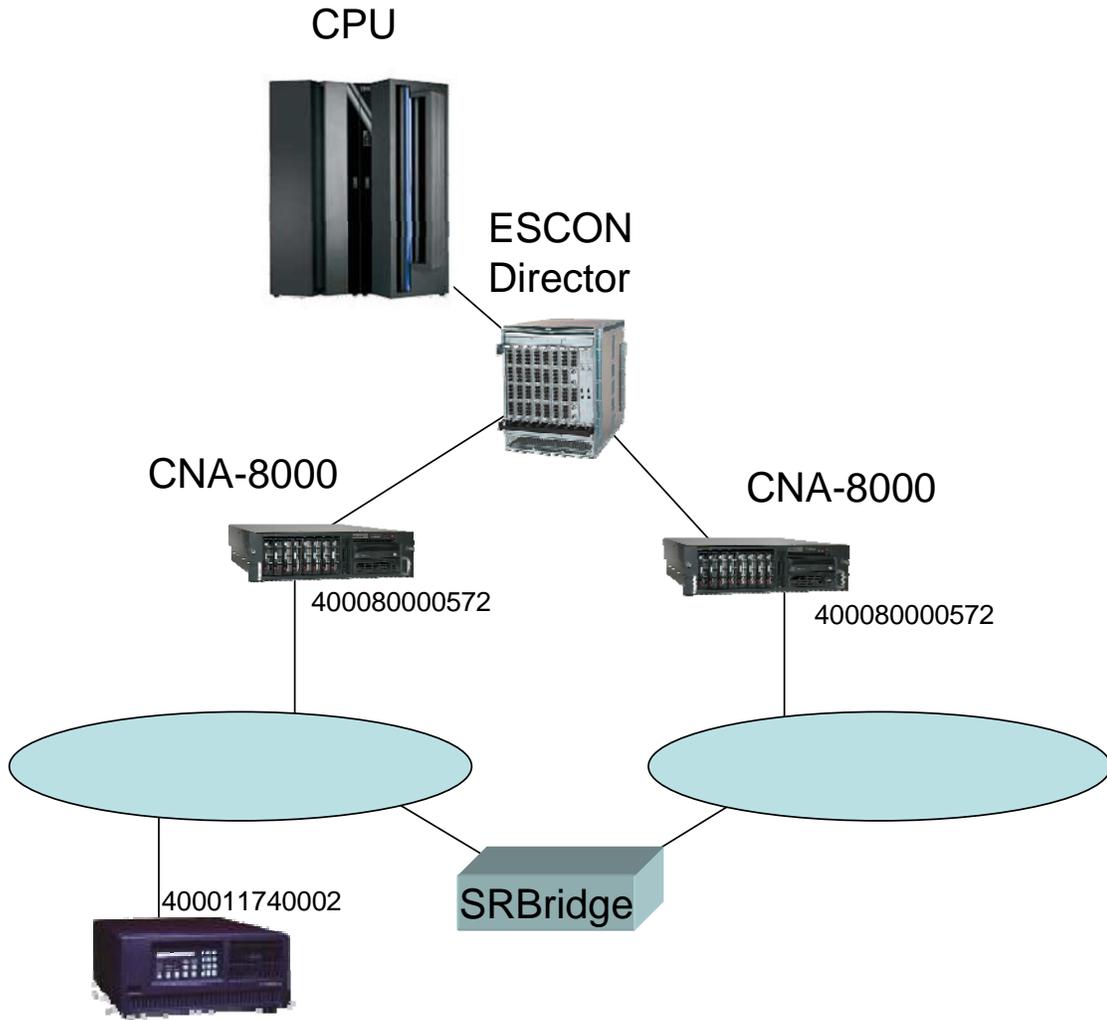
The CNA-8000 can also direct XCA traffic to its internal DLSw feature. When routed through the DLSw feature, the SNA packets are encapsulated into IP and presented to the configured Ethernet interface where it can be routed through the IP network to its destination, another DLSw capable platform.

Using Multiple XCA Paths

One of the big advantages of using XCA technology is the ability for a node to be able to access VTAM through multiple paths. In order for a downstream PU to establish a host connection through multiple XCA gateways, one of two things must happen. Either the downstream PU must have the ability to communicate with multiple upstream network addresses, or there must be a way for the network address to exist in two different locations. Token Ring provides an environment that allows for the same network address to exist in two different places when source route bridging is used. Refer to the diagram below.

When source route bridging is used, a downstream node will initially attempt to contact a session partner using a Test frame, first with Source Route Bridging turned off, and if unsuccessful in making contact another Test frame is sent using source route bridging. Nodes are allowed to have identical MAC addresses as long as they are separated by a Source Routing Bridge. Once a response is received from the target node a session is established and the same route is used for the duration of the session.

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Ethernet architecture does not support Source Route Bridging. In the Ethernet environment or a Token Ring environment that does not support Source Route Bridging, it is necessary for the DSPUs to support an alternate gateway MAC address if you wish to allow a node to make use of redundant gateways. Most DSPUs do not support this feature, but some such as the Visara 1174 does support the configuration of an Alternate upstream gateway address.

Migrating from a Mixed Ethernet/Token Ring Environment to Ethernet Only

Some environments have the majority, if not all downstream nodes attached to Ethernet with an Ethernet/Token Ring bridge used to convert the Ethernet traffic to Token Ring in order to connect through a 3745 Token Ring gateway. With the CNA-8000 capability to gateway the traffic directly from Ethernet it should be possible to eliminate the Ethernet/Token Ring bridge entirely. Chances are that if you check the configuration of MAC addresses in the DSPUs for their gateway, the address configured is not the same hex value as configured on the 3745 that it is communicating with, but may be the bit-swapped address instead. This is because the bit order (most significant bit to least significant bit) is reversed between Token Ring and Ethernet. If this is the case you should be able to configure the MAC address defined in the configuration of your Ethernet attached DSPUs for their gateway into the CNA-8000 (instead of using the MAC address defined for use in the 3745). This should prevent you from having to reconfigure the DSPUs that will use the CNA-8000 as the new gateway. A description of the bit swap process can be found below.

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Bit-Swapping LAN Addresses

Whenever you have a cross media LAN circuit connection between Ethernet and Token Ring, you will probably need to bit-swap the LAN addresses to complete your configuration. This is because of the way the address is identified between the two media. The low order bit designation is opposite between the two LAN media. That is, the most significant bit in one media is the least significant bit in the other media. This only becomes an issue when you are entering the LAN addresses that you need as part of the configuration.

The address that you enter for your media is always correct for your media, but if you are referencing the address of another platform that is attached to the other media, then you must reference the bit swapped version of that address. (For example the FEP-4600 is attached to a Token Ring and the DSPU is attached through an LLC bridge on Ethernet.) Following you will find an example of a procedure you can use to bit swap an address.

For the example, we will bit-swap the Token Ring address 40:00:37:45:00:16 to the equivalent that would be seen on an Ethernet drop.

Bit swapping is performed on a byte by byte basis. Separating the address into individual bytes, we end up with:

40 00 37 45 00 16

which translates to the binary representation of:

01000000 00000000 00110111 01000101 00000000 00010110

Now if we swap the bits of each byte we will have:

00000010 00000000 11101100 10100010 00000000 01101000

Now displaying the resulting hex values again we have:

02 00 EC A2 00 68

And bringing it back together: 02:00:EC:A2:00:68

So the bit-swapped version of 40:00:37:45:00:16 is 02:00:EC:A2:00:68.

Locally administered addresses for a Token Ring environment will normally begin with 4000.... and for the Ethernet environment 0200..... So, for a configuration for the Ethernet interface, both the local address of the Ethernet card and the address of a remote Token Ring box, both addresses will typically begin with 0200....., and if the same configuration were to be implemented on a Token Ring interface, both addresses will typically begin with 4000....

IOCDS Gen Requirements

A single subchannel is required for each XCA definition associated with the CNA-8000. Each XCA definition describes a data pipe between an ESCON or FICON interface and a single network adapter in the CNA-8000. A unit type of 3172 is typically used to define the FEP-4600 for an XCA definition in the ESCON environment. For the FICON environment, since the 3172 was never implemented to work there, you must use a value of 'NOCHECK' in the CNTLUNIT macro to make the system happy.

Each XCA definition is good for supporting up to 255 DSPUs concurrently. If more than 255 DSPUs need to connect through a single adapter on the CNA-8000, then it might be necessary to define multiple XCA definitions to communicate with the same adapter. Up to eight XCA definitions may be defined to each network adapter on the CNA-8000 providing support for up to 2040 DSPUs. Note that your CNA-8000 may require an optional sales feature to support more than 2040 DSPUs.

An example IOCDS definition for use by the CNA-8000 is shown below. This definition would provide support for a single XCA definition for use by a single LPAR (PROD1).

```
RESOURCE PARTITION=((PROD1,1),(TEST,3))
CHPID PATH=(1F),TYPE=CNC,SWITCH=01,SHARED
CNTLUNIT CUNUMBR=1400,PATH=1F,UNITADD=((00,1)),UNIT=3172,LINK=C5
IODEVICE CUNUMBR=1400,ADDRESS=(640,1)UNIT=3172,UNITADD=00,PARTITION=(PROD1)
```

A similar definition that would support multiple XCA definitions (4) to either a single CNA-8000 network adapter or to multiple network adapters would look like this:

```
RESOURCE PARTITION=((PROD1,1),(TEST,3))
CHPID PATH=(1F),TYPE=CNC,SWITCH=01,SHARED
CNTLUNIT CUNUMBR=1400,PATH=1F,UNITADD=((00,4)),UNIT=3172,LINK=C5
IODEVICE CUNUMBR=1400,ADDRESS=(640,4)UNIT=3172,UNITADD=00,PARTITION=(PROD1)
```

Yet another example where XCA gateways will be defined in both LPARs sharing the CHPID would look similar to the definition below. Note that PARTITION parameter is missing from the IODEVICE statement (since all partitions have the same CUNUMBR and device ADDRESS definitions). In the CNA-8000 it is necessary to configure a CU to talk to each of the LPARs (they are treated as the separate connections that they are).

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```
RESOURCE PARTITION=((PROD1,1),(TEST,3))
CHPID PATH=(1F),TYPE=CNC,SWITCH=01,SHARED
CNTLUNIT CUNUMBR=1400,PATH=1F,UNITADD=((00,1)),UNIT=3172,LINK=C5
IODEVICE CUNUMBR=1400,ADDRESS=(640,1)UNIT=3172,UNITADD=00
```

When newer “z” processors are used that supports multiple logical channel subsystems (LCSS) the definition looks a little bit different. (This is the equivalent of the first example shown above.)

```
RESOURCE PARTITION=(CSS(0),(PROD1,1),(TEST,3))
CHPID PATH=(CSS(0),1F),TYPE=CNC,SWITCH=01,SHARED
CNTLUNIT CUNUMBR=1400,PATH=(CSS(0),1F),UNITADD=((00,1)),UNIT=3172,LINK=(CSS(0),C5)
IODEVICE CUNUMBR=1400,ADDRESS=(680,1)UNIT=3172,UNITADD=00,PARTITION=(CSS(0),PROD1)
```

The same definition for a FICON CHPID would look like this:

```
RESOURCE PARTITION=(CSS(0),(PROD1,1),(TEST,3))
CHPID PATH=(CSS(0),3D),TYPE=FIC,SWITCH=03,SHARED
CNTLUNIT CUNUMBR=1400,PATH=(CSS(0),3D),UNITADD=((00,1)),UNIT=NOCHECK,LINK=(CSS(0),C5)
IODEVICE CUNUMBR=1400,ADDRESS=(680,1)UNIT=3172,UNITADD=00,PARTITION=(CSS(0),PROD1)
```

VTAM Switched Major Node Definitions

If you already have Switched Major Node definitions in use for your PU 2 platforms coming through the 3745's Token Ring adapters, then you should not have to make any changes to those definitions at all. You will need to define one XCA Major Node definition for each network adapter that will be used to provide access for the downstream PUs.

If you need to create new Switched Major Node definitions to define new platforms, you will need to define IDBLK and IDNUM values in the VTAM PU definition to match the XID value that will be configured on those platforms. Together these two parameters define an 8 character hex sequence. The IDBLK typically identifies the type of device (for example a 3174 type controller always uses '017' for the first 3 characters of the XID). The IDNUM defines a unique 5 digit hex number for the remaining 5 characters (sometimes referred to as the PUID). Just make sure that the VTAM definition matches the value configured in the remote node.

Operations of the CNA-8000 XCA interface during the connection process involves the PU 2.0 platform sending its XID through the CNA-8000's XCA interface to VTAM for processing (matching the XID to a SWNET PU definition). If a match is found the connection is established, if not the remote platform will be disconnected.

Example Token Ring XCA Definition:

```
TRCXCA      VBUILD      TYPE=XCA
PORTC66     PORT        MEDIUM=RING, (Token Ring)
                                CUADDR=C66,
                                SAPADDR=4,
                                ADAPNO= 2      (FEP-4600 3rd Token Ring Adp)
GRPC66      GROUP      ANSWER=ON,
                                CALL=IN,
                                AUTOGEN=(6,L,P), (Number of Concurrent PUs)
                                ISTATUS=ACTIVE
```

Example Ethernet XCA Definition:

```
ETHXCA      VBUILD      TYPE=XCA
PORTC67     PORT        MEDIUM=CSMACD, (Ethernet)
                                CUADDR=C67,
                                SAPADDR=4,
                                ADAPNO= 0      (CNA-8000 1st Ethernet Adp)
GRPC67      GROUP      ANSWER=ON,
                                CALL=IN,
                                AUTOGEN=(6,L,P), (Number of Concurrent PUs)
                                ISTATUS=ACTIVE
```

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Example Switched Major Node Definition (PU type 2.0):

```
SMN01      VBUILD      TYPE=SWNET,  
SWPU01     PU          DLOGMODE=STUNSPEC,  
                                MODETAB=SYSTSTMT,  
                                USSTAB=USSTABA,  
                                PUTYPE=2,  
                                IDBLK=017,      (3174 Compatible Controller)  
                                IDNUM=86392,    (Unique and Match Remote Node)  
                                MAXOUT=7  
WER002     LU          LOCADDR=2  
WER003     LU          LOCADDR=3  
WER004     LU          LOCADDR=4  
WER005     LU          LOCADDR=5,  
                                DLOGMOD=SCS
```

Example Switched Major Node Definition for a Network Node or End Node:

```
RETEN01    VBUILD      TYPE=SWNET,  
RTENPU01   PU          MODETAB=SYSTSTMT,  
                                USSTAB=USSTABA,  
                                PUTYPE=2,  
                                XID=YES,      (forces PU 2.1 exchange)  
                                MAXOUT=7
```

Example Switched Major Node Definition for a LEN:

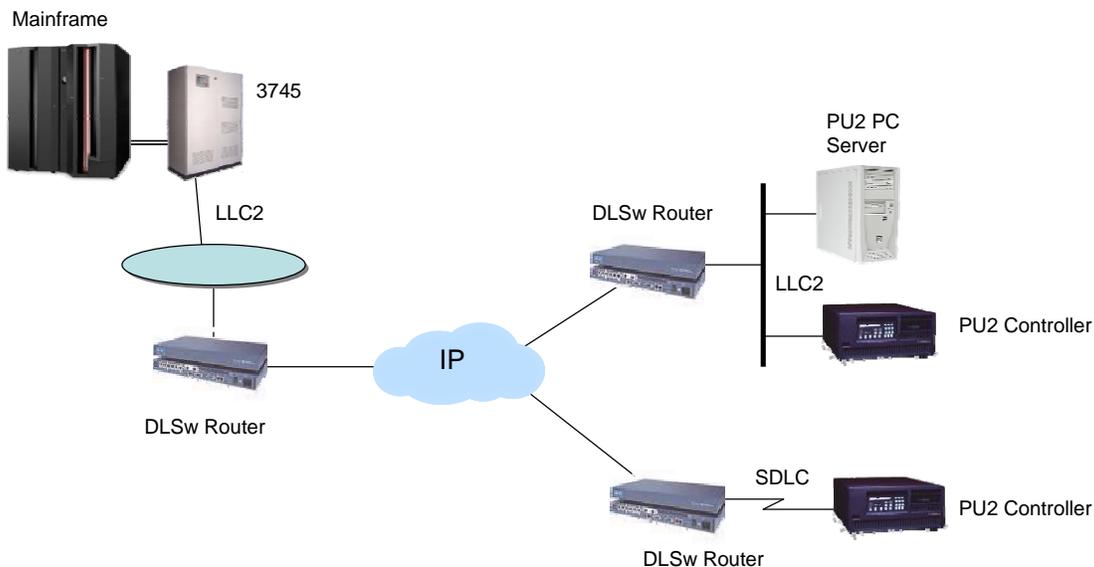
```
RETTR01    VBUILD      TYPE=SWNET,  
RTTRPU01   PU          MODETAB=SYSTSTMT,  
                                USSTAB=USSTABA,  
                                PUTYPE=2,  
                                XID=YES,      (forces PU 2.1 exchange)  
                                MAXOUT=7  
PU01LU00   LU          LOCADDR=0 (LUs defined for LENS all '0')
```


Chapter 3. Integrated Data Link Switching

Data Link Switching (DLSw) is a protocol described by RFC 1795 (and enhanced through RFC 2166) to provide a means to encapsulate SNA traffic into an IP packet. Devices compatible to RFC 2166 are typically also backwards compatible to RFC 1795. There are also platforms still in existence that are compatible to RFC 1434, a predecessor to RFC 1795. The CNA-8000 is equipped with support for RFC 1795 DLSw which will negotiate compatibility with RFC 2166 platforms (configure CNA-8000 for Version 2), and is also directly compatible with RFC 1434 platforms (configure CNA-8000 for Version 1).

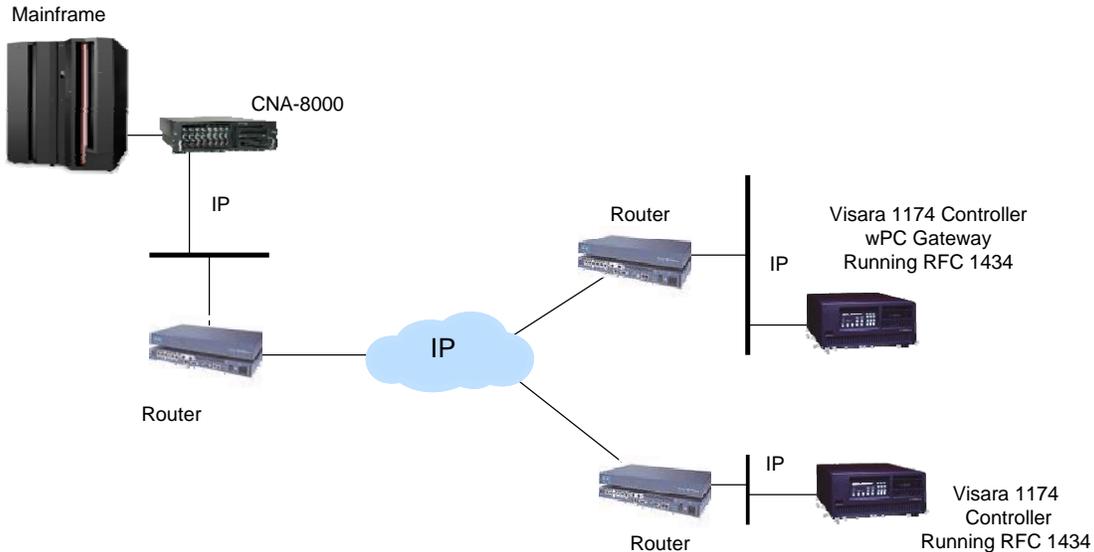
DLSw gateway functionality is typically found in some routers. SNA traffic is received by the router typically in the form of LLC2 packets and is encapsulated into IP packets that can be transported over the wider IP network. A similar router platform is typically located on the far side of the IP network to provide the de-encapsulation of the SNA traffic from the IP packets which is then provided to the SNA platforms located at the far end of the network. The SNA traffic may be in the form of LLC2 packets or perhaps SDLC packets.

A typical DLSw network is shown below.



Chapter 3. Integrated Data Link Switching

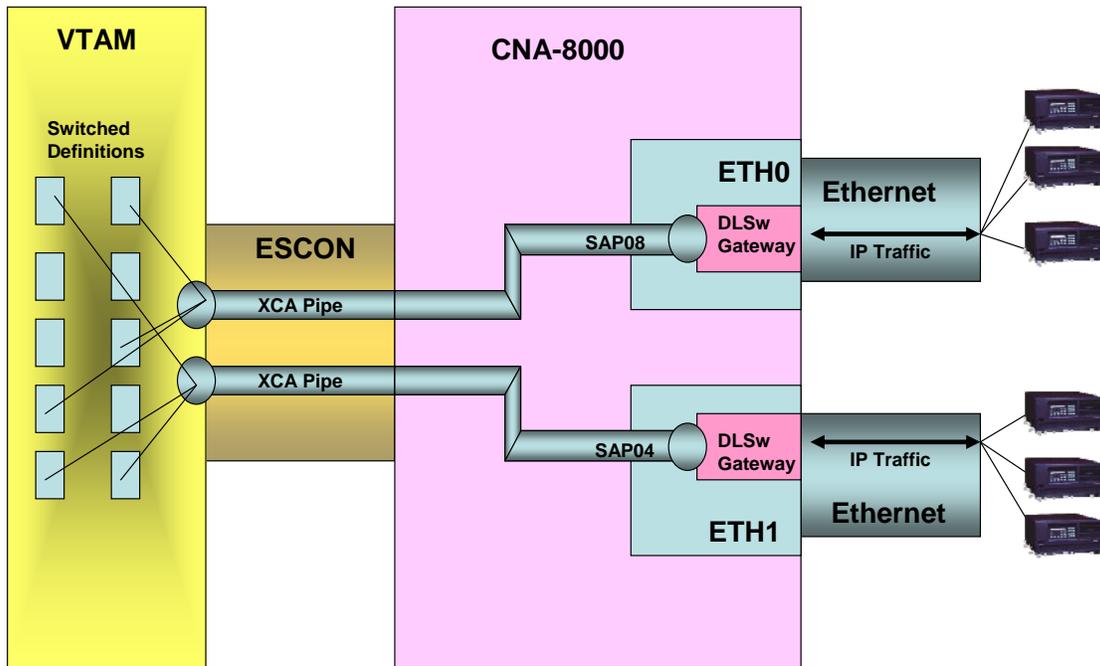
The CNA-8000, by inclusion of the DLSw feature eliminates the need on the host side of the network to move LLC2 protocol over the LAN and in some cases may result in a simplified network. The host connectivity for the DLSw feature is the XCA feature described previously. The downstream connectivity can be a router with DLSw capability or some other device capable of communicating with RFC 2166, 1795, or 1434.



Note the improvements:

- DLSw feature moved from Router to the CNA-8000.
- Token Ring connection converted to Ethernet and possibly just a connection from the FEP directly into the router.
- LLC2 protocol eliminated from the host side LAN
- If Visara 1174 remote controller used, elimination of LLC2 traffic from the remote LAN as well.
- DLSw eliminated from the remote routers.

CNA-8000 Migration and Planning Guide



Directing Traffic Through the CNA-8000

The CNA-8000 is capable of directing traffic to multiple host destinations. The ability to communicate through multiple ESCON and FICON interfaces, through ESCON directors, and through EMIF channels, allows the CNA-8000 to direct traffic to multiple VTAM destinations. Each VTAM XCA definition assigns an ESCON subchannel to receive the traffic. Each VTAM XCA pipe uses a different SAP assignment. The CNA-8000 also supports multiple network interfaces and can support multiple SAPs on each network interface. Gateway Circuits configured on the CNA-8000 are used to map SAP connections on the network interfaces to the proper ESCON or FICON subchannel (and VTAM SAP). Multiple CNA-8000 SAPs can be mapped to the same ESCON and FICON subchannel. This allows traffic to come through multiple network interfaces, and be mapped through multiple CU subchannels, over two ESCON and/or FICON interfaces to direct the traffic to multiple LPARs if needed.

Multiple Circuits from the Same DSLw Node

Nodes connecting through the CNA-8000 each have a DLPID, which corresponds to a MAC address + SAP. The CNA-8000 also uses a local DLPID to receive this connection. In general, if the downstream node requires more than one circuit between itself and the same VTAM XCA destination, a different SAP assignment on either the CNA-8000 or the downstream node must be used to allow the two circuits to be distinguished. Because the MAC address and SAP of the remote node are being forwarded up to VTAM it is necessary for each of the two circuits to use a different SAP on the remote node. This will be true whether the DLSw nodes are attaching through dynamic or predefined connections.

To be Promiscuous or Not

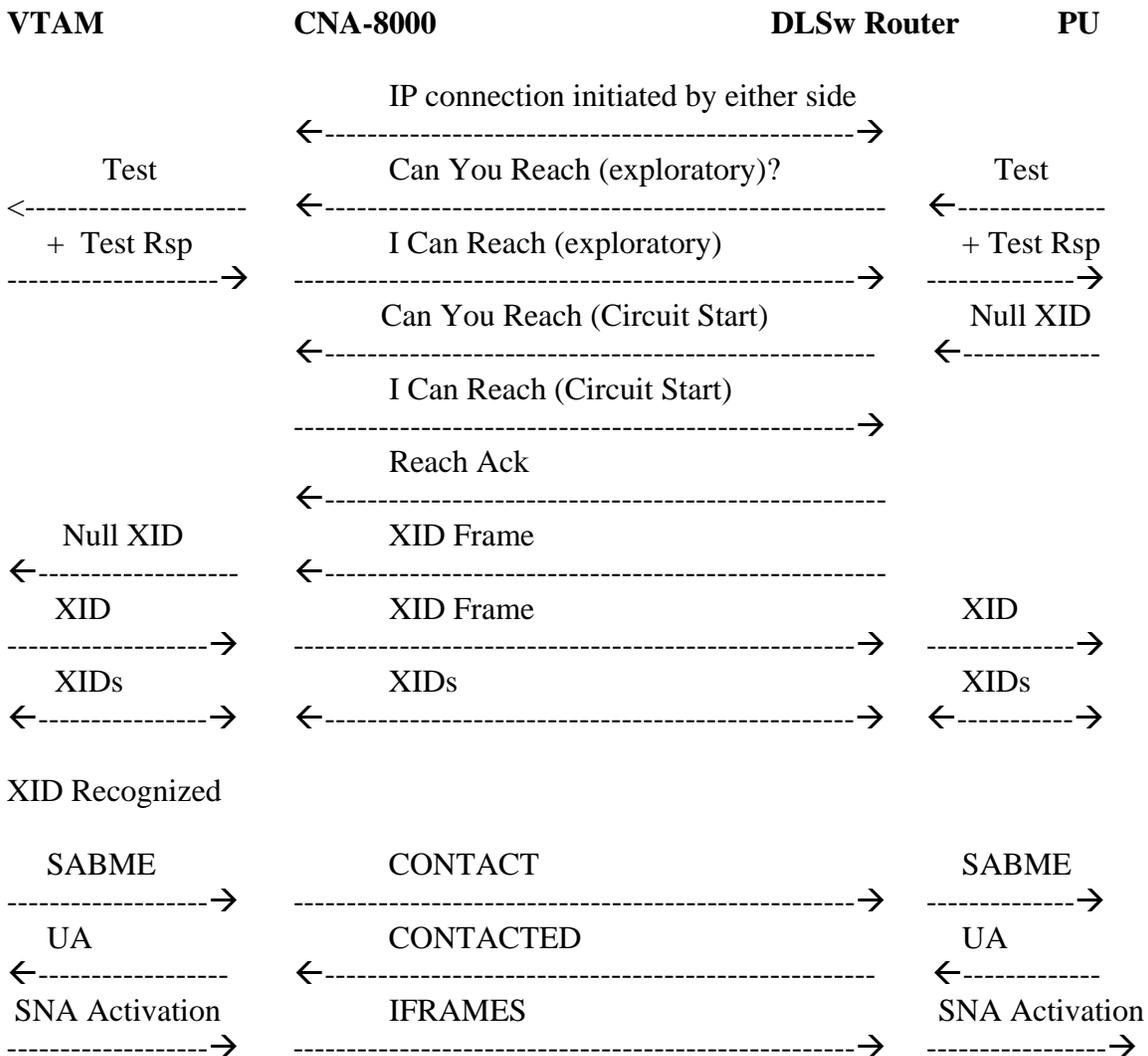
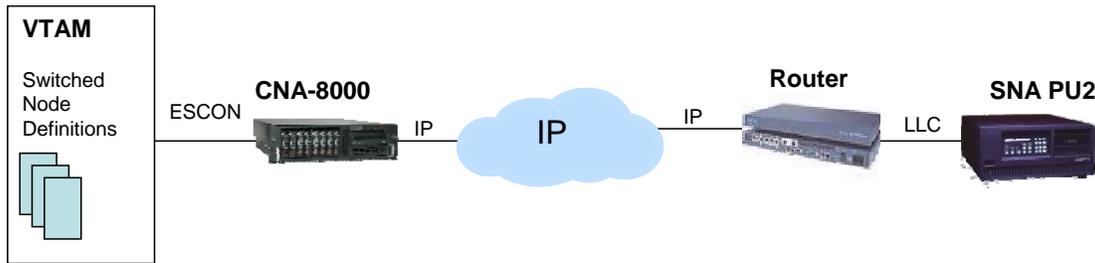
DLSw on the CNA-8000 can be set up two different ways. One method requires that each downstream SNA destination be explicitly defined using static gateway definitions. Using this method only the SNA downstream destinations that are predefined to the CNA-8000 will be allowed to connect. The second method allows any SNA downstream destination to attempt to connect. Downstream IP DLSw platforms are defined, but the SNA endpoints on the other side of the DLSw platforms are not. This is referred to as Dynamic or Promiscuous Mode. It should be noted that even when using the Promiscuous Mode option only downstream destinations that are properly configured in VTAM (proper IDNUM and IDBLK values) will ultimately be allowed to get sessions with the host.

The tradeoff between which method is to be used is one of flexibility and ease to make changes to the network versus security. By requiring all downstream destinations to be explicitly configured, the CNA-8000 acts as a sentinel to allow access to only authorized destinations. Explicit configurations require making changes to the CNA-8000 configuration during some maintenance period, as the new configuration will require a restart of the server software to put it into affect. When set up for Promiscuous Mode, new destinations can be added dynamically, by configuring the downstream destination device to point at the CNA-8000, and by adding a VTAM definition for that destination (which can be added dynamically in VTAM).

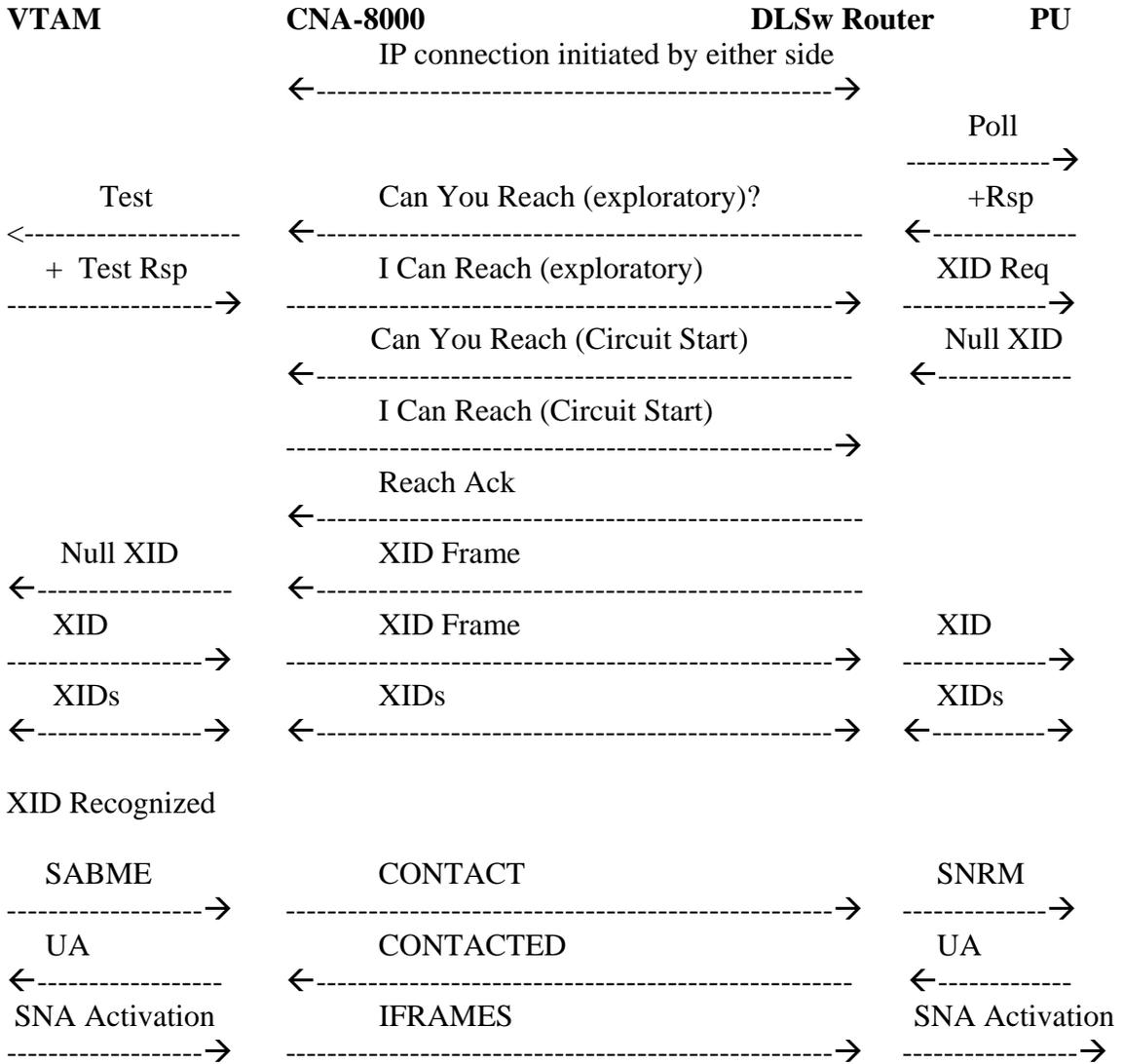
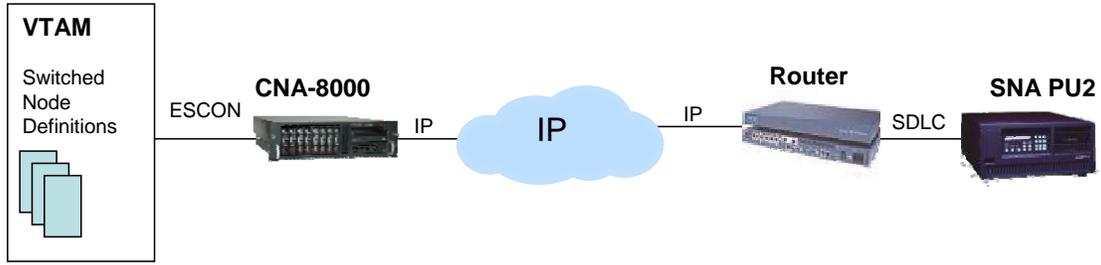
CNA-8000 Migration and Planning Guide

DLSw Circuit Establishment

Let us start with the assumption that the XCA VTAM definition used by the CNA-8000 for use with the DLSw circuits has been activated, and that the PU2 platform is communicating with the local DLSw router. This is a prerequisite for establishing a DLSw circuit. Use the diagram illustrated below as a guide for the data flow diagram.



Chapter 3. Integrated Data Link Switching



CNA-8000 Migration and Planning Guide

Configuration Aids for Downstream Cisco Routers

Cisco Router physically connected by SDLC cable to downstream controller:

Configure the CNA-8000's IP address: **dlsw remote-peer 0 199.62.189.15**

If controller is configured with XID (PUID) parameters then the router should be configured for: **sdlc prim-xid-poll**

If controller is not configured with XID (PUID) parameters then the router should be configured for: **sdlc primary**

Sdlc xid aa xxxyyyyy

Where aa= the poll address, xxx= the IDBLK option in the VTAM PU gen and yyyy= the IDNUM option in the VTAM PU gen.

Chapter 4. Migrating from Cisco CIP/CPA

Migrating from a Cisco CP/CPA environment to the CNA-8000 product can be a simple affair, but there are certainly some pitfalls that you must look out for. The Cisco CIP/CPA product has a feature set that is larger than the CNA-8000. There are a number of features that are not currently supported on the CNA-8000. Among these are:

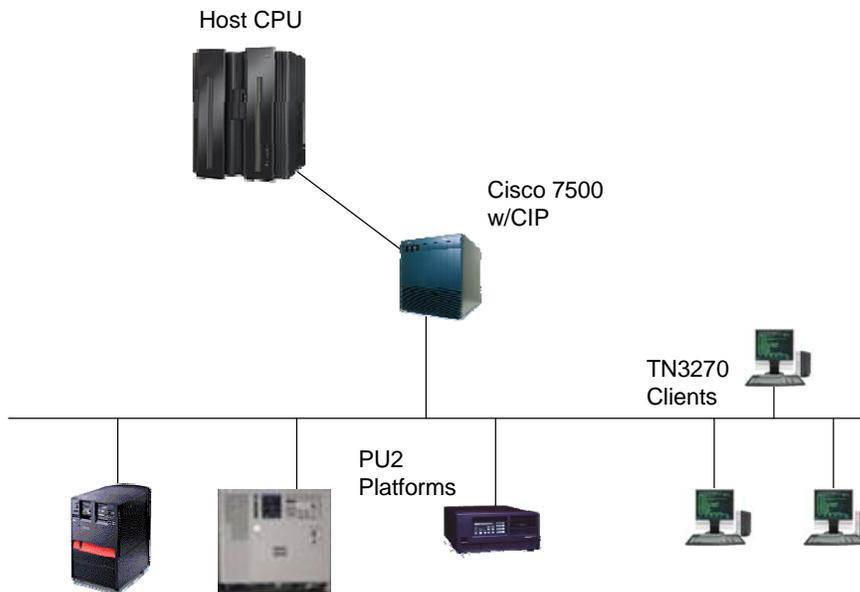
- The ability to pass IP traffic directly up the channel to a TCP/IP stack running within z/OS. – This feature is supported by the Visara 1174 product
- Direct participation in an APPN network as a Network Node – This feature is supported by the Visara 1174 product
- Support for Enterprise Extender
- Support of PU4 traffic – This feature is supported by the Visara FEP-4600

Regarding the features that are supported by the CNA-8000 (TN3270 Gateway and PU2 gateway), you may still need to look for complimentary features that may be running on the CIP/CPA that are not supported. These might include:

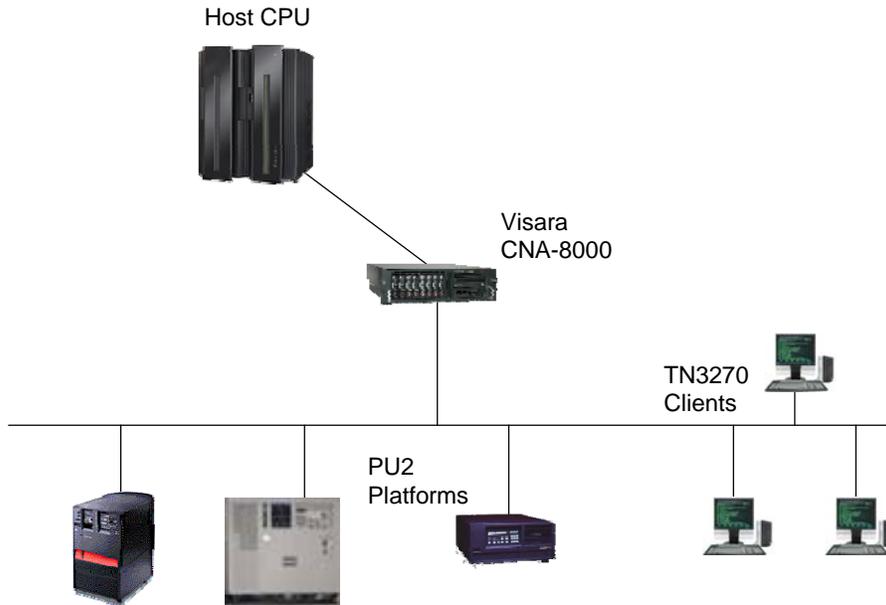
- Hot swap cards
- Support of an internal VLAN

Once you have determined that the feature set of the CNA-8000 is comparable to the CIP/CPA it is replacing, you can proceed to plan for migration.

Before



After



Host Gens

The technology used by the CIP/CPA for supporting SNA traffic is similar to that of the CNA-8000, so normally there should not be a need to make any significant changes to the host gen that currently supports the CIP/CPA.

You should find that your CIP/CPA host gen consists of one or more XCA definitions, along with the necessary Switched PU definitions to support either downstream PU2 platforms or internal host circuits for the TN3270 gateway clients. These host gens should be able to be used directly with the CNA-8000 assuming that the CNA-8000 is configured appropriately. You may also create new XCA definitions for the CNA-8000 to allow it to operate alongside the CIP/CPA during migration.

Client Configurations

Configuration options on the CNA-8000 should permit you to make the CNA-8000 look like the CIP product that it is replacing to the remote PU2 and TN3270 clients. Exceptions to look for would be if the CIP is configured with more VLAN addresses than the CNA-8000 can accommodate.

CNA-8000 Migration and Planning Guide

ESCON to FICON Migration

When migrating from an ESCON CIP/CPA to FICON CNA-8000, the I/O Gen will have to be tweaked to accommodate the FICON interface, but the existing VTAM XCA and Switched PU gens can be used. The main difference in the I/O Gen will be to use a FICON CHPID in place of the ESCON CHPID and to use a UNIT=NOCHECK for the FICON environment in the CNTLUNIT macro.

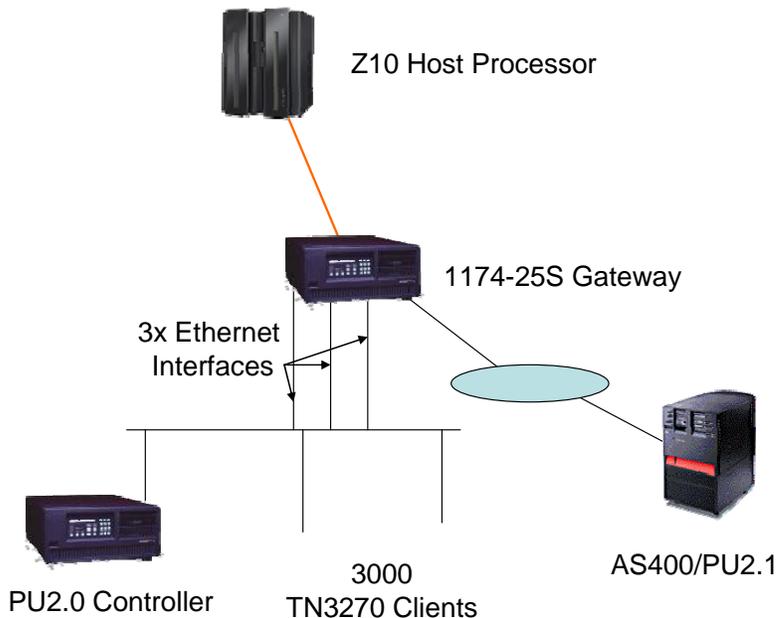
Chapter 5. Migrating from 1174 or 3174

Performing a migrating from a Visara 1174, Memorex Telex 1174, or IBM 3174 to a CNA-8000 requires as a minimum, a change to the host gens. It should be possible however to avoid changes to downstream PU2 platforms when implementing the SNA PU2 gateway feature, or if migrating from the 1174 TN3270 gateway feature.

In the case of an ESCON (or Bus and Tag) 1174 or 3174 gateway product, all traffic passing through those platforms appeared to VTAM and the IO system as if all hardware were locally channel-attached 3270 controllers. This required one or more local channel definitions. Each PU defined required its own subchannel for communications. The CNA-8000 instead, makes use of XCA technology for any PU2 definitions. XCA technology supports traffic for up to 255 PU2 platforms through a single subchannel. CNA-8000 downstream connections to both PU2 platforms and TN3270 clients look approximately the same as their 1174 counterpart. The 3174 supports a subset of the 1174 feature set so the transition requirements are the same. The following example should illustrate the transition requirements.

Sample Network with 1174

The following network shows a single 1174 SNA Gateway supporting a couple of PU2 downstream platforms as well as a few thousand TN3270 clients.



Chapter 5. Migrating from 1174 or 3174

An IO Gen for the above 1174 and all of its clients might look similar to this:

```
RESOURCE PARTITION=( (PROD1,1) )  
CHPID PATH=(1F) ,TYPE=CNC  
CNTLUNIT CUNUMBR=1600,PATH=1F,UNITADD=(00,14) ,UNIT=3174  
IODEVICE CUNUMBR=1600,ADDRESS(700,14) ,UNIT=3174,UNITADD=00
```

An interpretation of the IO Gen would be: A single partition is communicating with what it believes to be 14 channel-attached platforms of type 3174, over PATH 1F using 14 consecutive subchannels. One subchannel is required for the AS400, one for the downstream controller and twelve subchannels to support the host circuits for 3000 TN3270 clients.

CNA-8000 Migration and Planning Guide

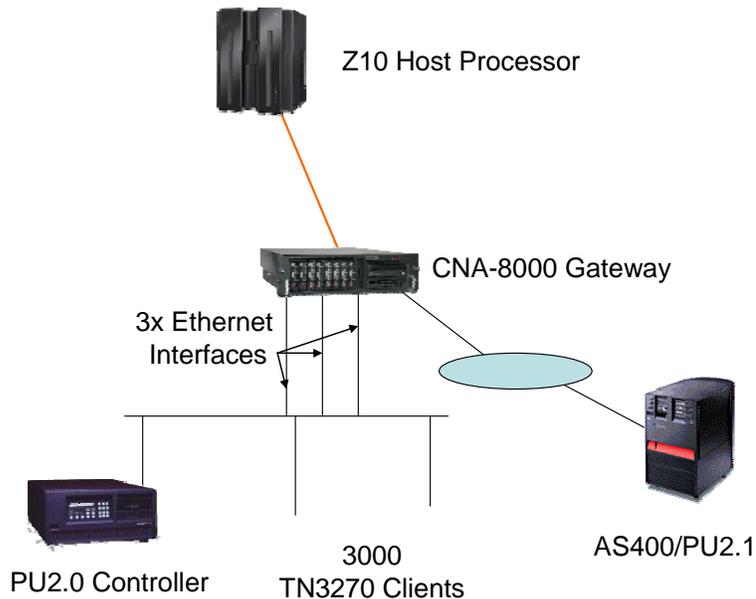
The corresponding VTAM definitions might look similar to the following:

```
VISGROUP      VBUILD TYPE=LOCAL
VIS25LPU      PU      CUADDR=700,  PU2 CONTROLLER
                MAXBFRU=12,
                PUTYPE=2,
                SECNET=YES,
                MODETAB=SYSTSTMT,
                DLOGMOD=D4A32782
V25LU02      LU      LOCADDR=2
V25LU03      LU      LOCADDR=3,
                DLOGMOD=SCS
V25LU04      LU      LOCADDR=4,
                DLOGMOD=SCS
.
.
.
AS400PU      PU      CUADDR=701,  AS400
                CPNAME=CX9JUS,
                SECNET=YES,
                XID=YES,
                PUTYPE=2,
                CONNTYPE=APPN,
                MODETAB=SYSTSTMT,
                CPCP=YES,
                MAXDATA=4105,
                MAXPATH=1,
                PACING=0
CX9JUS0      LU      LOCADDR=0
.
.
.
VSPU212      PU      CUADDR=702,  TN3270 HOST
                MAXBFU=16,
                SECNET=NO,
                DLOGMOD=D4A32782
V212L02      LU      LOCADDR=2
V212L03      LU      LOCADDR=3
V212L04      LU      LOCADDR=4
.
.
.
VSPU213      PU      CUADDR=703,  TN3270 HOST
                MAXBFRU=16,
                SECNET=NO,
                DLOGMOD=D4A32782
V213L02      LU      LOCADDR=2
V214L03      LU      LOCADDR=3
.
.
.
```

Only a small representative VTAM set of definitions are shown, and actual values could vary widely from those displayed.

Transitioning to the CNA-8000

Performing a simple replacement using the CNA-8000, the resulting diagram may appear similar to the one below:



The CNA-8000 is populated with the same number of Ethernet and Token Ring interfaces as the 1174-25S it is replacing so that none of the downstream clients will need to be reconfigured. LLC and IP addressing will be made to match to achieve this goal. Note that the CNA-8000 can easily support expansion of clients well beyond the numbers that were supported by the 1174. If multiple 1174-25S platforms are being replaced, it may be possible to provide consolidation of platforms at the same time.

Because the CNA-8000 uses XCA technology, the corresponding IO gen will be a little different. It could be represented as shown below:

```
RESOURCE PARTITION=((PROD1,1))
CHPID PATH=(27),TYPE=CNC
CNTLUNIT CUNUMBR=2700,PATH=27,UNITADD=(00,3),UNIT=3172
IODEVICE CUNUMBR=2800,ADDRESS(800,3),UNIT=3172,UNITADD=00
```

The two major differences between this IO definition and that of the 1174 is the UNIT type for the CNA-8000 requires a definition of 3172, and the number of subchannels defined has been reduced from 14 to 3. Because the LLC (PU2) gateway feature must talk to both Token Ring and Ethernet, a minimum of two XCA gateways will need to be defined. In this case a third XCA gateway is being defined for the TN3270 Host Circuits to keep them separate from the LLC downstreams, although this is not necessary since they will actually be virtual connections appearing to be connected to any of the LAN

CNA-8000 Migration and Planning Guide

interfaces in the box. The number of XCA gateways required could be reduced to just 2 if desired.

New VTAM XCA Definitions

XCA Gateway definitions for the CNA-8000 are required. These would appear similar to the following:

```
ETH1XCA      VBUILD TYPE=XCA
PORTE80      PORT          MEDIUM=CSMACD,      ETHERNET LLC CLIENTS
                                CUADDR=800 ,
                                SAPADDR=4 ,
                                ADAPNO=2

GRPE800      GROUP ANSWER=ON,
                                CALL=IN,
                                AUTOGEN= (1, L, P) ,
                                ISTATUS=ACTIVE

ETH2XCA      VBUILD TYPE=XCA
PORTE81      PORT          MEDIUM=CSMACD,      TN3270 HOST CIRCUITS
                                CUADDR=801 ,
                                SAPADDR=8 ,
                                ADAPNO=2 ,

GRPE801      GROUP ANSWER=ON,
                                CALL=IN,
                                AUTOGEN= (12, L, P) ,
                                ISTATUS=ACTIVE

TRC1XCA      VBUILD TYPE=XCA
PORTE82      PORT          MEDIUM=RING,        TOKEN RING LLC
                                CUADDR=802 ,
                                SAPADDR=4 ,
                                ADAPNO=3

GRPT83 GROUP ANSWER=ON,
                                CALL=IN,
                                AUTOGEN= (1, L, P) ,
                                ISTATUS=ACTIVE
```

Note the different MEDIUM values for Token Ring and Ethernet. Both Ethernet XCA definitions are pointed at the same physical adapter, but since the Host Circuits are virtual drops, they could have been defined to one of the other Ethernet interfaces or even the Token Ring interface as long as the CNA-8000 is configured to support an XCA circuit to it. The AUTOGEN parameter tells VTAM how many PUs are to be defined to come through the XCA definition. A maximum of 255 can be defined.

New VTAM Switched PU Definitions

PU definitions used by the 1174 need to be converted from being Local Channel PU definitions to Switched PU definitions belonging to one or more Switched Major nodes.

Below is a representation of the previous PU/LU definitions converted to Switched definitions. Note that the same VTAM names are used for clarity.

```

SWVGROUP      VBUILD TYPE=SWNET
VIS25LPU      PU      PUTYPE=2,      PU2 CONTROLLER
                MODETAB=SYSTSTMT,
                MAXOUT=7,
                DLOGMOD=D4A32782

V25LU02       LU      LOCADDR=2
V25LU03       LU      LOCADDR=3,
                DLOGMOD=SCS
V25LU04       LU      LOCADDR=4,
                DLOGMOD=SCS
.
.
.
AS400PU       PU      CPNAME=CX9JUS,      AS400
                XID=YES,
                PUTYPE=2,
                CONNTYPE=APPN,
                MODETAB=SYSTSTMT,
                CPCP=YES,
                MAXDATA=4105,
                MAXPATH=1,
                PACING=0
CX9JUS0       LU      LOCADDR=0
.
.
.
VSPU212       PU      CUADDR=702,      TN3270 HOST
                MODETAB=SYSTSTMT,
                MAXOUT=7,
                DLOGMOD=D4A32782
V212L02       LU      LOCADDR=2
V212L03       LU      LOCADDR=3
V212L04       LU      LOCADDR=4
.
.
.
VSPU213       PU      CUADDR=703,      TN3270 HOST
                MODETAB=SYSTSTMT,
                MAXOUT=7,
                DLOGMOD=D4A32782
V213L02       LU      LOCADDR=2
V214L03       LU      LOCADDR=3
.
.
.

```

Note that for the most part the new PU definitions are very similar to the old definitions, and the LU definitions are typically unchanged.

CNA-8000 Migration and Planning Guide

Other Transition Considerations

During the testing and transition phase, if the same VTAM names are being used, it will be necessary to take down major nodes containing names that will be duplicated by the new major nodes that are being activated. Use of different VTAM names may be a preferred transition strategy.

Testing of the new CNA-8000 prior to retirement of the 1174 will require that different network addresses be used whenever both platforms are active at the same time. This may require setting up some temporary clients to use a different host IP address than the production clients, or reconfiguring of some of the production clients to connect to an IP address on the new CNA-8000 test lines. If the CNA-8000 is physically located near the 1174(s) that it is replacing, it may be desirable to use the same network cables to connect the interfaces using the same IP address to insure that only one interface with a particular IP address is connected at a given time.

Once initial testing of clients with the CNA-8000 has been achieved, it should be possible to move clients over, one network adapter at a time until the CNA-8000 is handling all of the traffic.

CNA-8000 Migration and Planning Guide

Notes:

- 1) The protocol supported by the CNA-8000 always makes use of Channel Path Filtering so it is not necessary to configure it.
- 2) The Attention Delay option used on the 1174 is specific to the Local Channel (3174) style interface and is not used when XCA protocol is used.
- 3) Fewer subchannels are typically required to support SNA traffic through the CNA-8000 than on the 1174. In this example 14 subchannels on the 1174 have been reduced to 3 subchannels on the CNA-8000.
- 4) CU index on the 1174 and the CU Number on the CNA-8000 are simply index numbers that do not have to match between the two platforms when migrating.

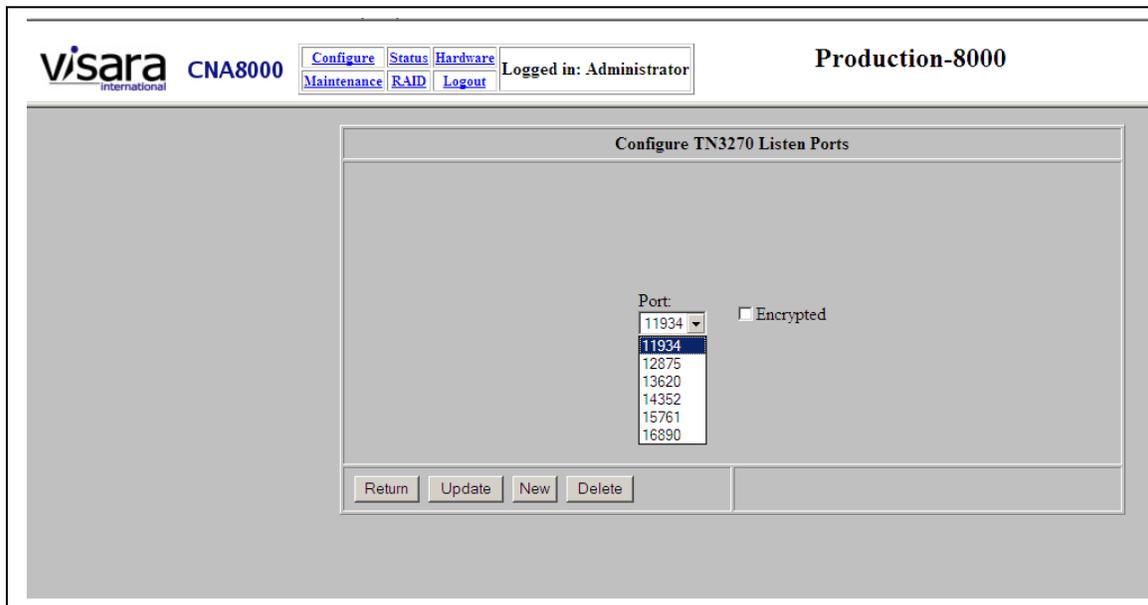
CNA-8000 Migration and Planning Guide

1174 Ports Defined:

TN3270 Client Definition Panel 000				LINCS C8.2 Central Control		
Line	Port	IP Address	Type	3270 Host	LU	
FET1	12875	___ ___ ___ ___	Client	3270 Class: RESERVATIONS	___	
FET2	13620	___ ___ ___ ___	Client	3270 Class: PAYROLL	___	
FET2	14352	___ ___ ___ ___	Client	3270 Class: ACCOUNTSREC	___	
FET2	11934	___ ___ ___ ___	Client	3270 Class: MARKETING	___	
FET2	12875	___ ___ ___ ___	Client	3270 Class: RESERVATIONS	___	
FET3	12875	___ ___ ___ ___	Client	3270 Class: RESERVATIONS	___	
FET2	16890	___ ___ ___ ___	Client	3270 Class: GROUPS	___	
FET2	15761	___ ___ ___ ___	Client ID	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	
FET2	___	___	Client	Disable	___	

PF: 1-Menu 3-Auto 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

CNA-8000 Ports Defined:



Chapter 5. Migrating from 1174 or 3174

Notes:

- 1) Ports on the 1174 are defined per interface. Ports on the CNA-8000 are defined across all of the interfaces defined for TN3270 use.
- 2) Ports on the CNA-8000 are currently limited starting at port 1026 to reduce port conflicts with other IP protocols. If you need to use ports below that, contact your Visara Representative.
- 3) The CNA-8000 supports encryption directly to the client when configured. The 1174 required external encryption such as through the SSL-1000. Migrating from no encryption on the 1174 to using encryption on the CNA-8000 requires a reconfiguration of the client desktops.
- 4) Encryption on the CNA-8000 is configurable on a port by port basis.

CNA-8000 Migration and Planning Guide

1174 Client Access:

TN3270 Client Definition Panel 000				LINCS C8.2 Central Control		
Line	Port	IP Address	Type	3270 Host	LU	
FET1	12875	_____	Client	3270 Class: RESERVATIONS	___	
FET2	13620	_____	Client	3270 Class: PAYROLL	___	
FET2	14352	_____	Client	3270 Class: ACCOUNTSREC	___	
FET2	11934	_____	Client	3270 Class: MARKETING	___	
FET2	12875	_____	Client	3270 Class: RESERVATIONS	___	
FET3	12875	_____	Client	3270 Class: RESERVATIONS	___	
FET2	16890	_____	Client	3270 Class: GROUPS	___	
FET2	15761	_____	Client ID	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	
FET2	_____	_____	Client	Disable	___	

PF: 1-Menu 3-Auto 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

CNA-8000 Client Access:

visara CNA8000 [Configure](#) [Status](#) [Hardware](#) [Maintenance](#) [RAID](#) [Logout](#) Logged in: Administrator **DynamoSystems**

Manage TN3270 Client Access

TN3270 Client Access Entries

*****5900*****-> test (Pool)

Local IP Address: *****
 Port: 5900
 Client IP Address: *****
 Resource: test (Pool)
 LU: _____
 User ID Password Required

Add/Modify Delete

Return Update

Chapter 5. Migrating from 1174 or 3174

Notes:

- 1) On the 1174, the Type field is used to determine whether passwords are required or not. If the client type includes 'PW' then an 1174-wide password is required from the user when connecting. This password is included as part of the configuration file. If the client type includes 'ID' then a User ID and Password are required. These are stored as part of the nickname file.
- 2) Passwords on the 1174 are not case sensitive unless the entry 'SENSITIVE=YES' is the first entry in the nickname file.
- 3) Defining a port on the 1174 without a resource assigned to it is interpreted as requesting a menu of available 3270 Host Classes (pools). On the CNA-8000, this is achieved by selecting 'Present Menu' from the dropdown
- 4) White space is not allowed in the 1174 nickname file (no blank lines or blanks within a line). White space found in the nickname file is interpreted as 'end of file'.
- 5) An IP address configured for one of the client entries on the 1174 is interpreted as allowing only a user from the specified IP address to have access to the listed resource.
- 6) On the 1174, if you select 'Subnet' as the client type, the entered partial IP address is interpreted as a subnet associated with the entry. The CNA-8000 makes use of wildcard entries to allow you to define access from subnets.
- 7) Resources listed on the TN3270 Client Definition panels of the 1174 are scanned top to bottom until a match is found. Duplicate entries (such as using the same listening port) are allowed, but if a client is matched to the first entry, the additional entries will not be checked or used. On the CNA-8000 redundant entries of a specific port are not tolerated.
- 8) When nicknames on the 1174 are used, the nickname file will be checked top to bottom and the first instance of a nickname will always be selected. Redundant instances of the nickname will be ignored. On the CNA-8000, multiple instances of a nickname are not saved.

CNA-8000 Migration and Planning Guide

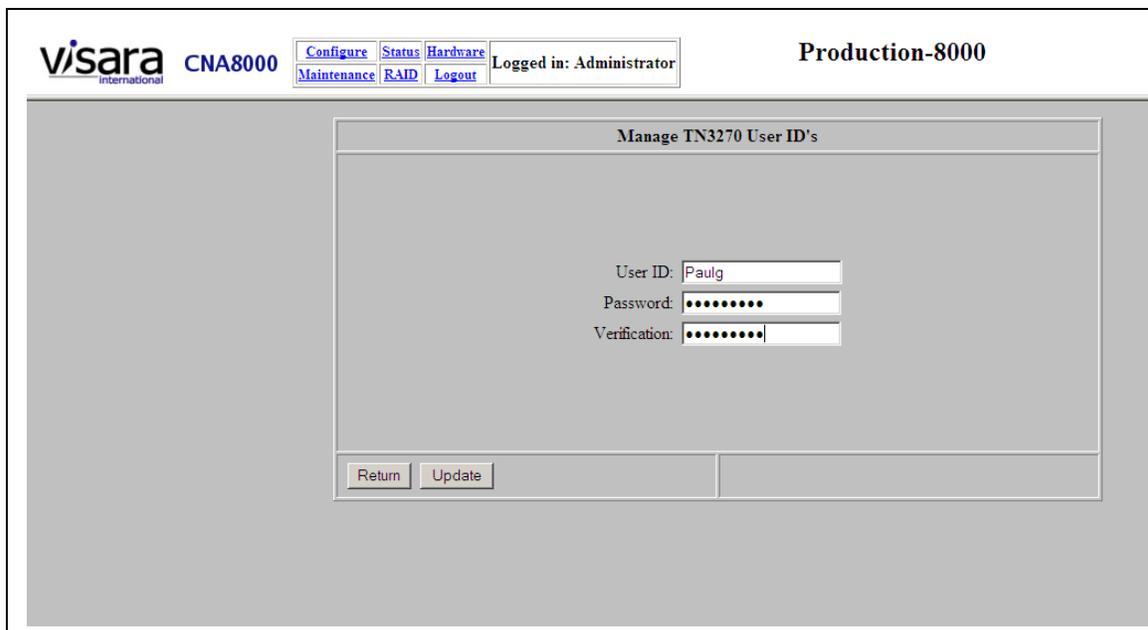
1174 User ID and Password Management:

Individual User IDs and passwords are configured into the Nickname file on the 1174. The Nickname file is an optional text file that can be created to map a variety of options for the TN3270 Server feature. Below is a sample of a Nickname file that is coded with passwords that are case sensitive. Each entry consists of a User ID and the corresponding password separated by a dash ('-').

nickname.txt file

```
SENSITIVE=YES
Georgev-gy79F
Bertp-bU4nf
Graceo-Newton
Paulg-4FforLife
Vinnyh-BullDog
Cindys-ru4Cows
Davek-daBears
Frankl-mMzr2
Paulk-reDfan79
```

CNA-8000 User ID and Password Management:



The screenshot displays the CNA8000 web interface. At the top left is the Visara International logo. To its right, the text 'CNA8000' is displayed. Further right are navigation links: 'Configure', 'Status', 'Hardware', 'Maintenance', 'RAID', and 'Logout'. A 'Logged in: Administrator' indicator is present. On the top right, the system name 'Production-8000' is shown. The main content area is titled 'Manage TN3270 User ID's'. It contains a form with three input fields: 'User ID:' with the value 'Paulg', 'Password:' with masked characters, and 'Verification:' with masked characters. At the bottom of the form are two buttons: 'Return' and 'Update'.

Notes:

- 1) User IDs and Passwords are kept in a normal text file on the 1174. User IDs and Passwords are encrypted and stored in a secure location on the CNA-8000.

Chapter 5. Migrating from 1174 or 3174

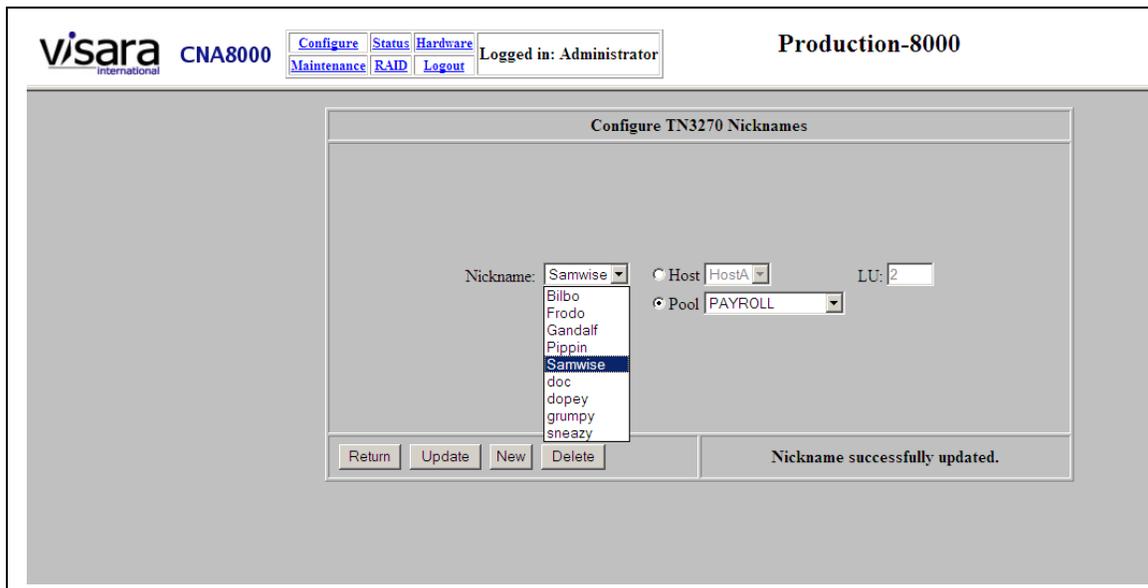
1174 Nickname Usage:

Nicknames are mapped on the 1174 to a resource, either a specific host and LU or to a pool (3270 Host Class). Nicknames are configured on the client using the LU Name field (may be called something different on some clients). Nicknames are configured into the Nickname file on the 1174. The Nickname file is an optional text file that can be created to map a variety of options for the TN3270 Server feature. Below is a sample of a Nickname file that is coded with nicknames. Each entry consists of a nickname and the corresponding resource separated by an equals sign ('=').

nickname.txt file

```
doc=01,04
sneazy=01,07
dopey=01,08
grumpy=01,10
Frodo=Marketing
Pippin=Accountrec
Bilbo=Groups
Gandalf=Reservations
Samwise=payroll
```

CNA-8000 Nickname Usage:



The screenshot shows the 'Configure TN3270 Nicknames' web interface. At the top, there is a navigation bar with links for 'Configure', 'Status', 'Hardware', 'Maintenance', 'RAID', and 'Logout'. The user is logged in as 'Administrator'. The page title is 'Production-8000'. The main form area contains a 'Nickname' dropdown menu with a list of options: Samwise, Bilbo, Frodo, Gandalf, Pippin, Samwise, doc, dopey, grumpy, and sneazy. To the right of the dropdown are radio buttons for 'Host' (selected) and 'Pool', and a text field for 'LU' containing the value '2'. Below the form are buttons for 'Return', 'Update', 'New', and 'Delete'. A message at the bottom right of the form area states 'Nickname successfully updated.'

Notes:

- 1) Nickname resources that are associated with a Host Circuit and LU store the information using the format for the resource of 'Host_Circuit_number,LU number' on the 1174 and 'Host-Circuit_name,LU_number' on the CNA-8000.

Appendix A. Frequently Asked Questions

Q: Is there a NetView interface in the CNA-8000?

A: No, not at this time. However, the SNA platforms supported by the CNA-8000 over remote links will still work the same from a NetView perspective as before. The CNA-8000 passes the NMVT datastreams used by NetView to the attached products.

Q: What type of SNA PU is the CNA-8000?

A: The CNA-8000 is a gateway product when configured to support downstream PU2 devices. It is actually transparent to VTAM and does not represent a PU. When configured to support TN2370 clients, the CNA-8000 functions as a PU type 2.

Q: When SDLC lines are attached to the CNA-8000, can I bring up or take down lines from VTAM or NetView?

A: No. VTAM does not see the SDLC lines as such. VTAM sees the attached platforms as if they were LAN attached. If you need to bounce an SDLC line, you need to take the switched PU2 node down and bring it back up. Actions on the SDLC line will be handled by the CNA-8000.

Q: How do I know the status of the CNA-8000 or the connections through it?

A: The browser interface allows you to maintain a console interface which provides real time status information using easy to see red, green, yellow status indicators to inform you what the current status of the network is through the CNA-8000. You will still get VTAM and NetView console messages for the SNA platforms attached to the CNA-8000 to alert you to when communication is broken.

Q: How many serial lines does the CNA-8000 support?

A: Each CNA-8000 supports 4 card slots which may be populated by a combination of Ethernet, Quad Serial, Token Ring, and ESCON in any way that you need. Serial lines are supported 4 lines to a slot. Assuming a single ESCON connection, up to 3 slots may be populated with serial cards, giving a maximum total of 12 lines. When using FICON for the upstream, up to 4 slots may be populated with serial cards, giving a maximum of 16 lines.

Q: How many management consoles does a CNA-8000 support?

A: There is actually no limit to the number of consoles that the CNA-8000 will support. Connect as many consoles as you need to perform the management tasks required.

Appendix A. Frequently Asked Questions

- Q: How secure is the CNA-8000 interface if I can use a browser to access it?
A: The security is determined by what you feel comfortable with. The web interface itself is a secure encrypted connection (HTTPS). Administrative functions require a password to access. You can isolate the entire management LAN if needed to provide the ultimate in security, or you can provide access to the corporate LAN or even the Internet. You can also attach a monitor, keyboard and mouse directly to the CNA-8000 to provide the ultimately secure console function.
- Q: What is involved with upgrading the software of a CNA-8000?
A: There are five methods offered for updating the software on a CNA-8000. These include using FTP to retrieve code from the 1) Visara site or 2) a local FTP site, 3) downloading code from a CD, 4) from a travel drive through a USB port, and 5) from the Visara eManager product over a secure (SSL encrypted) network connection. Software upgrades automatically create a 'system restore point' to fall back to in case the upgrade does not provide the desired results. After the software has been installed the platform performs a restart operation automatically. The entire procedure can be accomplished in just a few minutes.
- Q: What is a 'system restore point'?
A: The 'system restore point' is a means to gather the existing code and configuration together and create a snapshot of the system that you can restore to at a later time, in the case that you make changes to the code or the configuration that you are not satisfied with. Creation of a system restore point, or restoring the system typically takes less than a minute. Restore points are automatically created when software levels are changed, and can also be manually initiated at any time.
- Q: Does the CNA-8000 support SNMP?
A: Yes it does, in a limited fashion. At this time the CNA-8000 functions as a MIB2 agent only for SNMP. Activities are limited to GETs and GET NEXT functions. No TRAPs are supported at this time.
- Q: Can I disable SNMP if my corporate policy does not allow for it, for security reasons?
A: Yes. You can rename the community name for a more secure SNMP environment or you can disable SNMP altogether.
- Q: Can I use my existing PU2 Switched Major Node definitions that I am using with my 3745, CCL, or Cisco CIP to support Token Ring clients with?
A: Yes. The CNA-8000 supports an XCA definition for the channel that will provide access to those same Switched Major Node definitions. The downstream clients can be migrated to Ethernet and still use the same switched definitions.

CNA-8000 Migration and Planning Guide

- Q: How many TN3270E clients are supported by the CNA-8000?
A: The CNA-8000 supports up to 16,000 TN3270E clients. Up to 4,000 are supported by the base software when the TN3270E gateway option is ordered. Additional increments are allowed using software keys to bring the total sessions to 8,000 or 16,000.
- Q: How many downstream PU2 platforms can be supported by the CNA-8000?
A: The base software supports up to 2,000 DSPUs. These can be supported through a single network interface or spread across multiple interfaces. A single software upgrade key can be added to increase the total to 4,000. However, traffic throughput requirements may reduce the practical number of DSPUs to a smaller number.
- Q: How does the CNA-8000 support DLSw connections?
A: The CNA-8000 supports an integrated DLSw capability through Ethernet. This means that the encapsulation supported by DLSw occurs internally so that only IP traffic is sent out over the network connections, and can be routed across the network as needed. If using Token Ring, the traffic is not converted internally and would require a DLSw capable router.
- Q: How do the remote SDLC connections appear to VTAM?
A: SDLC connections appear as Switched Node definitions to VTAM. Each SDLC drop corresponds to a Switched PU definition, along with the associated LU definitions. The mechanism used to provide ESCON or FICON channel connectivity is XCA.
- Q: If I use the CNA-8000 to support an SDLC platform that is currently communicating through my 3745, won't I need to reconfigure the SDLC platform since XCA requires a PUID to pass up to the VTAM definition, and none is configured on my SDLC platform?
A: No. You can configure a PUID in the CNA-8000 configuration that will be passed upstream on behalf of the SDLC platform to meet the PUID exchange requirement.
- Q: How many remote PUs can be supported through XCA?
A: Each XCA definition supports a maximum of 255 downstream PUs. Multiple XCA definitions can be defined in VTAM to provide to achieve the maximum of 2,000 PUs through a single CNA-8000 network interface, or 4,000 PU platform maximum.
- Q: I have several old Memorex Telex (or Visara) 1174s on my network, attached through an OSA. What advantage if any can a CNA-8000 provide?
A: The CNA-8000 can be configured to support the 1174s using DLSw protocol directly between the platforms. This eliminates LLC traffic completely from the network, and only IP traffic is sent between the platforms.

Appendix A. Frequently Asked Questions

Q: If a CISCO CIP is replaced by the CNA-8000, what changes will I need to make in the host gen and on the TN3270E client workstations?

A: In many cases, no changes whatsoever are required.

Q: If a 3174 or 1174 Gateway controller is being replaced by a CNA-8000, what host gen or remote platform changes are required?

A: The CNA-8000 handles the ESCON interface differently than the 3174/1174 gateway. Those older products use a Local Channel PU definition to define each of the remote platforms. The CNA-8000 uses an XCA definition to connect the remote platforms to Switched PU definitions in VTAM. This means that the Local Channel PU definitions will have to be converted to Switched definitions and at least one XCA definition will have to be created. The advantage to making this conversion however is to reduce the number of channel addresses in use. Switched PU definitions also may open up additional redundant path options.