Test Scenario 2

Configuring TCP/IP over SNA Gateway

In Scenario 2, a customer has TCP/IP LANs which are represented by Node A and Node E in the following figure. They would like to access each other's socket applications over an SNA network backbone.

The recommended solution is to configure AnyNet® Sockets over SNA Gateway on each of two Communications Server for Windows NT servers.

To complete this scenario, you will need to perform the following steps:

Step 1: Configure the TCP/IP address for Node A

Step 2: Configure the TCP/IP address for Node B

Step 3: Configure the TCP/IP address for Node D

Step 4: Configure the TCP/IP address for Node E

Step 5: Configure Communications Server for Windows NT on Node B(this includes configuring the Gateway Adapter device driver)

Step 6: Configure Communications Server for Windows NT on Node D (this includes configuring the Gateway Adapter device driver)

Step 7: PING Node E from Node A to test your configurations



Scenario 2: Configuring TCP/IP over SNA gateway

In this scenario, you will enable communication between a sockets application on Node A on a TCP/IP network and a sockets application on Node E on a TCP/IP network. Node A and Node E, connected by an SNA network, will communicate through two AnyNet® sockets over SNA gateways.

Before beginning this scenario, collect the following information that is unique to your machines:

- Local IP addresses for Nodes A, B, D, and E. (Issue ipconfig at the command prompt at each node to determine if you have an adapter installed, and what the native IP address is once it is configured.)
- 12-character hexadecimal LAN adapter node address (MAC address) for Node B and Node D. (Issue *net config wksta* at the command prompt.)

Note: For purposes of this example, the following values will be used:

- Node A: Microsoft TCP/IP Configuration IP address = 10.10.10.1 Subnet mask = 255.255.255.0 Default gateway = 10.10.10.2 (GW B)
- Node B: Microsoft TCP/IP Configuration IP address interface = 10.10.10.2 Subnet mask = 255.255.255.0
- Node D: **Microsoft TCP/IP Configuration** IP address interface = 30.30.30.2 Subnet mask = 255.255.255.0
- Node E: Microsoft TCP/IP Configuration IP address = 30.30.30.1 Subnet mask = 255.255.255.0 Default gateway = 30.30.30.2 (GW D)

Node B: Sockets over SNA Configuration

Local: sna0 configuration IP address = 20.20.20.2 Subnet Mask = 255.255.255.0 LUS: IP address to LU mapping; generate LU names IP address = 20.20.20.2 Subnet Mask = 255.255.255.0 Netid = NETZ Template = ITSO

Routes

Route type = Network Destination address = 30.30.30.0 Destination mask = 255.255.255.0 Router address = 20.20.20.3 Direct connection: No

Gateway Adapter Configuration IP address interface = 20.20.20.2 Subnet mask = 255.255.255.0 Enable IP forwarding

SNA Configuration Node: CP name NETZ.CPB Network Node Devices: LAN

Connections: Destination address = Address of Gateway D SNA adapter (use *net config wksta* from command line to get this information)

Node D: Sockets over SNA Configuration

Local: sna0 configuration IP address = 20.20.20.3 Subnet Mask = 255.255.255.0 LUs: IP address to LU mapping; generate LU names IP address = 20.20.20.3 Subnet Mask = 255.255.255.0 Netid = NETZ Template = ITSO Routes Route type = Network Destination address = 10.10.10.0 Destination mask = 255.255.255.0 Router address = 20.20.20.2 Direct connection: No

- Gateway Adapter Configuration IP address interface = 20.20.20.3 Subnet mask = 255.255.255.0 Enable IP forwarding
- SNA Configuration Node: CP name NETZ.CPD Network Node Devices: LAN

Connections: Destination address = Address of Gateway B SNA adapter (use *net config wksta* from command line to get this information)

Step 1: Configure the TCP/IP address for Node A

Using the values provided at the beginning of this scenario for Node A, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

- 1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.
- 2. Select TCP/IP Protocol.
- 3. Click Properties.
- 4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.
- 5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node A.
- 6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.
- 7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 2: Configure the TCP/IP address for Node B

Using the values provided at the beginning of this scenario for Node B, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

- 1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.
- 2. Select TCP/IP Protocol.
- 3. Click Properties.
- 4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.
- 5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node B.
- 6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.
- 7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 3: Configure the TCP/IP address for Node D

Using the values provided at the beginning of this scenario for Node D, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

- 1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.
- 2. Select TCP/IP Protocol.
- 3. Click Properties.
- 4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.
- 5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node D.
- 6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.
- 7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 4: Configure the TCP/IP address for Node E

Using the values provided at the beginning of this scenario for Node E, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

- 1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.
- 2. Select TCP/IP Protocol.
- 3. Click Properties.
- 4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.
- 5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node E.
- 6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.
- 7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 5: Configure Communications Server for Windows NT on Node B (this includes configuring the Gateway Adapter device driver)

Using the values provided at the beginning of this scenario for Node B, perform the following:

1. Click Start on the task bar, then select:

- Programs
- IBM Communications Server
- SNA Node Configuration

2. The Communications Server SNA Node Configuration window is displayed.

Select File, then select New

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<u>File</u> <u>S</u> cenari	os <u>O</u> ptions	<u>H</u> elp				
New	Ctrl+N					
<u>0</u> pen	Ctrl+O					
<u>S</u> ave	Ctrl+S					
Save <u>A</u> s						
Recent File						
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, Create a new (document					

3. Select Scenarios, then select AnyNet Sockets over SNA....



Configure the Node

1. Highlight **Configure Node**, then click **New**.

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Configuration options: Configure Dode Configure Convections Configure Convections Configure Partner LU 6.2 Configure AnyNet Sockets over SN	A
Description: Click on the New button to define th change its parameters or delete it.	ne node. You can then view and
Node:	
Node:	New
Node:	New View/Change/Add
Node:	New View/Change/Add
Node:	New View/Change/Add Delete

- 2. The Define the Node window is displayed. Select the **Basic** tab, and provide the following information.
 - Fully qualified CP name = NETZ.CPB
 - Node Type = Network Node
 - When you are done, click OK

Define the Node	х
Basic Advanced DLU Requester	
Control Point (CP) Fully qualified CP name: NETZ CP alias: NODE_B	
Local Node ID Block ID: Physical Unit ID: 05D 00000	
Node Type C End Node Network Node	
OK Cancel Apply Help	

Configure Devices

1. Highlight **Configure Devices**, then select **New**.

🔀 Untitled - Communications Server SNA	Node Configuration
<u>File Scenarios Options H</u> elp	
Configure Node Configure Node Configure Devices Configure Connections Configure Partner LU 6.2 Configure AnyNet Sockets over SNA	DLCs:
Description: When you select a definition in the list belo parameters or delete it. Click on the New b LAN Devices:	w, you can view and change its outton to add a new definition.
	New
	View/Change/Add
	Delete
Ready	

2. The Define a LAN Device window is displayed. Click **OK** to accept the default values.

Define	a LAN Device			X
Basic	Advanced Perform	mance		
Pr	ort name: Adapter number: Local SAP:	LAN0_04	4	
	ОК	Cancel	Apply	Help

Configure Connections

1. Select Configure Connections, then select New.

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<u>File Scenarios Options H</u> elp	
Configuration options: Configure Node Configure Devices Configure Devices Configure Devices Configure Devices Configure Applied Contexts and SNA	DLCs:
Description: When you select a definition in the list below parameters or delete it. Click on the New I LAN Connections:	w, you can view and change its outon to add a new definition.
	Nou
	View/Change/Add
	Delete
Ready	

- 2. The Define a LAN Connection window is displayed.
 - Select the Basic tab
 - Issue the net config wksta command at the command prompt to obtain the 12-character hexadecimal destination address requested. In this example, it is 400050000000.
 - When you are done, click **OK**

Define	e a LAN Connection		X
Basi	C Advanced Security		
l	Link station name:	LINK0000	
[Device name:	LAN0_04	-
[
	Discover netwo	ork addresses	
	Destination address:	400050000000	
	Remote SAP:	04 💌	
	OK Cancel		Help

Configure AnyNet Sockets over SNA

1. Select **Configure AnyNet Sockets over SNA**, then click **New**.

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Eile	<u>S</u> cenarios	<u>O</u> ptions	<u>H</u> elp			
Г	Configuration	n options: -				
	Configure Configure Configure Configure	Node Devices Connectior Partner LU AnyNet So	ns 6.2 ickets over SN/			
	Description: When you parameters	select a d s or delete	efinition in the li it. Click on the	t below, you can view New button to add a r	v and change its new definition.	
ſ	Sockets:			Ne	w	
	Sockets:			Ne View/Cha	w	
	Sockets: —			View/Cha	w nge/Add lete	
	Sockets:			View/Cha	w nge/Add lete	

- 2. The AnyNet Sockets over SNA window is displayed.
 - Select the Local tab
 - Click Change

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All the control	nation be used on the w	okstation?	
C States			
Containe	i filikini kuri	net excel	
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- 3. The Local Interface window is displayed.
 - Specify the IP address (20.20.20.2) and subnet mask (255.255.255.0)
 - When you are done, click $\mathbf{O}\mathbf{K}$

Local Interface	<
The network connection is identified by an interface name and associated IP address information.	
Interface:	
I <u>P</u> address:	
Subnet mask:	
Cancel Help	

4. When you return to the AnyNet Sockets over SNA window, ensure that **Yes** is selected for Gateway Adapter Configuration is required. When you are done, select the **LUs** tab.

20 20 20 20 2	255 255 255 0	Tronde-
n be used on the we	foreitation?	
	No. of Concession, Name	
Adapter companies	(it required)	
data codession	is not seawed)	
	dapter carrilgandice	dapter canfiguration is net way-level)

5. The LUs tab is displayed. Click **New...**

I name I frecto	1 1 590	E ADDAL	and the second sec
	10225		And along the second

6. The IP Address to LU Mapping window is displayed.

- Leave Generate LU names selected
- Enter the following information for this example: IP address = 20.20.20.2
 Address mask = 255.255.255.0
 SNA network ID = NETZ (Default)
 LU Template = ITSO
- When you are done, click **OK**

IP Address to LU Mapping	×
Mapping type	
Generate LU names	
O I will <u>e</u> xplicitly define a LU na	me
I <u>P</u> address:	Address <u>m</u> ask:
SNA network ID: LU templa	te:
Cancel	Help

7. When you return to the AnyNet Sockets over SNA property 10. When you return to the AnyNet Sockets over SNA window, sheet, select the **Routes** tab. click **OK**.

UU name TSO	Net1D NET2	Type Generated	IP address 30.21.30.2	Address teach

Time	Tastatos	Destruction made	Doorw address	Direct conception
Network.	30.30.30.0	295,295,295.0	20.20.20.3	No

8. The Routes property page is displayed. Select **New...**

ear 1 10a	House Med	List of tostes for this	volutation	
Type	Destination	Destruction mark	Roater address	Desctomentos
0				

9. The Route Types window is displayed. Select **Network**, then enter the values listed for Node B. When you are done, click **OK**.



11. The Communications Server SNA Configuration Help window is displayed. Be sure to follow the instructions on this Help window before proceeding.



12. On the Gateway Adapter Information screen, write down the Software Location, TCP/IP address, and subnet mask information (you will need this later), then click **Configure...**.

Gateway Adapter Information	×
Gateway Adapter installation	
Software location:	
Gateway Adapter TCP/IP configu	uration
Configure the Gateway Adapter	using the following values:
TCP/IP address:	20.20.20.2
Subnet mask:	255.255.255.0
When prompted by the TCP/IP (changed, D0 N0T choose to Ri Communications Server for NT c	configuration program that network settings have estart Now. You must complete, save and end the onfiguration before rebooting.
Configu	re Cancel

13.On the Network panel, select the **Adapters** tab, then click **Add....**

Network				? ×
Identification Se	vices Protocols	Adapters Bir	ndings	
<u>N</u> etwork Adapter	s:			
Q¥(1) 3Com Et	nerlink III PCI Bus	-Master Adapter	(30590)	1
<u>A</u> dd	<u>R</u> emove	Properties	<u>U</u> pdate	11
Item Notes:				
3Com Etherlink I	II PCI Bus-Maste	r Adapter (3C590))	
		ОК	Cance	el

14. The Select Network Adapter panel is displayed. Click **Have Disk...**.

Select Ne	twork Adapter
	Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
<u>N</u> etwork	Adapter:
Colorado de Colora	m 3C508 ISA 16-bit Ethernet Adapter
🛛 🗐 3Cor	m Etherlink II Adapter (also II/16 and II/16 TP)
🛛 🗐 3Col	m Etherlink III ISA/PCMCIA Adapter
🛛 🗐 3Coi	m EtherLink III PCI Bus-Master Adapter (3C590)
🛛 🗐 3Col	m Etherlink16/EtherLink16 TP Adapter
len oca	n East Ethart ink PCL10/100PASE T Adapter (20595)
	Have Disk
	OK Cancel

15. The Insert Disk window is displayed. Enter D:\IBMCS\GW, then click OK.

Insert Dis	sk	X
æ	Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.	OK Cancel
	D:\IBMCS\GW	

16. The Select OEM Option panel is displayed. Select **AnyNet Gateway Adapter** and click **OK**.

Select OEM Option
Choose a software supported by this hardware manufacturer's disk.
AnyNet Gateway Adapter
OK Cancel <u>H</u> elp

17. The Network panel is displayed, indicating the AnyNet Gateway Adapter is installed.

Network			? ×
Identification Ser	vices Protocols	Adapters B	indings
Network Adapter	s:		
■2 [1] 3Com Eth	ierlink III PCI Bus iateway Adapter	Master Adapter	(3C590)
<u>A</u> dd	<u>R</u> emove	<u>P</u> roperties	<u>U</u> pdate
Įtem Notes:			
		Close	Cancel

Next, configure the Gateway Adapter device driver.

The following describes the configuration sequence for Microsoft TCP/IP (this is the same information that appears on the Communications Server SNA Configuration Help panel).

- 1. From the Network panel, click Close. TCP/IP Configuration will be invoked.
- 2. Click the IP Address tab and from the Adapter pull down, select AnyNet Gateway Adapter.
- 3. Click the Specify an IP Address tab and enter the TCP/IP address and subnet mask that were displayed in the Gateway Adapter Information panel. No other fields should be entered on the IP Address panel.
- 4. Click the Routing tab, and then click Enable IP Forwarding so that IP forwarding is enabled.
- 5. Click the WINS Address tab and, from the Adapter pull down, select AnyNet Gateway Adapter.

6. Deselect the Enable DNS for Windows Resolution option. No other fields should be selected or filled in on this panel.

Note: The DNS Configuration panel may contain data pertinent to other adapters. These fields should not be modified.

- 7. Click OK on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click Yes to continue.
- 8. When the Network Settings Change warning is displayed, click No so that the computer is not restarted.
- 9. Click **OK** on the Gateway Adapter Information panel and save your configuration. Restart the computer for the adapter changes to take effect.

Step 6: Configure Communications Server for Windows NT on Node D (this includes configuring the Gateway Adapter device driver) 1. To configure Node D:

- - Repeat the procedure followed when configuring Node B but do not Configure Connections.
 - Substitute the appropriate values provided at the beginning of this scenario.
- 2. You have completed the AnyNet Sockets over SNA Gateway configuration.
- 3. After configuring and rebooting Nodes A, B, D, and E, start Communications Server for Windows NT on Nodes B and D using the configurations that you previously saved.
- 4. Next, you will want to start the node, and then verify that the link is active.

Step 7: PING Node E from Node A to test your configurations

Enter the following from the command line:

ping 30.30.30.1