

# Lucent/Avaya Definity G3si V9 PBX with CallManager using Cisco 2621-E1 PRI NET5 Gateway

**This application note discusses the integration of the Lucent/Avaya Definity G3si V9 PBX with CallManager using the Cisco 2621-E1 PRI NET5 Gateway.**

### Integration Description

Connectivity is achieved by using the ETSI standard PRI protocol. The Lucent/Avaya Definity G3si can be configured as either the NETWORK or USER side. The figure below shows the general network layout for the integration.

### Features

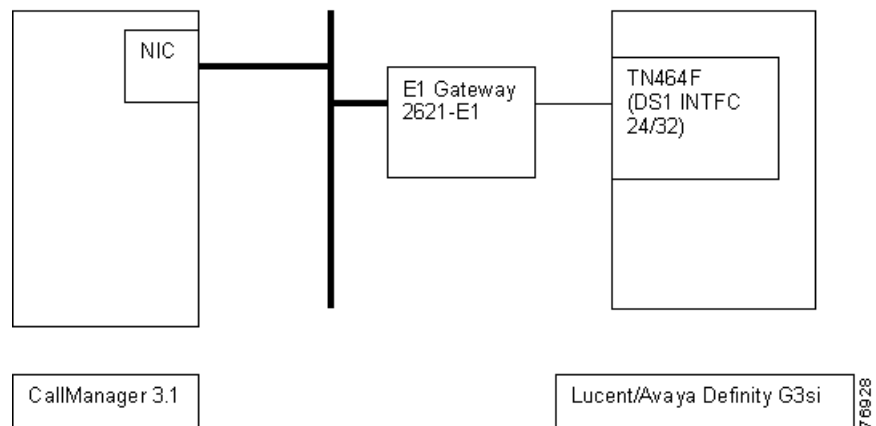
Key features supported:

- Calling/Called Number
- Calling Name

Key features not supported:

- Connected Name
- Connected Number

### Network Layout



### Cisco Systems Equipment Needed

- Hardware (Cisco 2621 Gateway): 2MFT E1 Port
- Software: CallManager Release 3.1

### PBX Requirements

- Hardware: TN464F, DS1 INTFC 24/32.
- Software: Version V9



## Configuring the Lucent/Avaya Definity G3si PBX

To configure the Lucent/Avaya Definity G3si PBX, do the following:

- Step 1.** Add the new circuit pack.
- Step 2.** Add the new signaling group.
- Step 3.** Add the new trunk group.
- Step 4.** Add the Uniform Dialing Plan.

### Circuit Pack

The following figures show the configuration of the DS1 circuit pack.

#### DS1 Circuit Pack

The screenshot displays the 'DEFINITY Site Administration - (Lucent Test PBX GED)' window. The main area is titled 'DS1 CIRCUIT PACK' and contains the following configuration fields:

Location:	81A12	Name:	E1 ISDN PRI
Bit Rate:	2.048	Line Coding:	hdb3
Signaling Mode:	isdn-pri		
Connect:	network		
CentreU Long Timers?	n	Country Protocol:	etsi
Interworking Message:	PROGress	Protocol Version:	a
Interface Companding:	slaw	CRC?	u
Idle Code:	11111111		
		DCP/Analog Bearer Capability:	3.1kHz
Slip Detection?	n	Near-end CSU Type:	other

Right-click in a field to see a list of valid entries or help text  
Ready



## Signaling Group

The following figure shows the configuration of the signaling group.

### Signaling Group

The screenshot shows a window titled "DEFINITY Site Administration - [Lucent Test PBX GED]". The window contains a menu bar (File, Edit, View, Tools, Window, Help) and a toolbar with various icons. Below the toolbar is a status bar with the text "Change signaling group" and several keyboard shortcuts: "cancel (ctrl)", "help (f5)", "cancel (esc)", "enter (f3)", "schedule (f5)", "next (f7)", and "previous (f9)".

The main area of the window is titled "SIGNALING GROUP" and displays the configuration for Group Number: 3. The configuration fields are as follows:

Group Number:	3	Associated Signaling?	<input checked="" type="checkbox"/>	Max number of NCA TSC:	<input type="text" value="0"/>
Primary D-Channel:	81A1216	Max number of CA TSC:	<input type="text" value="0"/>	Trunk Group for NCA TSC:	<input type="text" value=""/>
Trunk Group for Channel Selection:	14				
Supplementary Service Protocol:	a				

At the bottom of the window, there is a status bar with the text "Right-click in a field to see a list of valid entries or help text" and "Ready".



## Trunk Group

The following figures show the configuration of the trunk group.

### Trunk Group

The screenshot displays the configuration for Trunk Group 14 in the DEFINITY Site Administration application. The interface includes a menu bar (File, Edit, View, Tools, Window, Help), a toolbar, and a status bar. The main configuration area is titled "TRUNK GROUP" and contains the following fields:

- Group Number: 14
- Group Name: ISDN E1 PRI
- Group Type: isdn
- CDR Reports:
- CDR: 1
- TN: 1
- TAC: 669
- Direction: two-way
- Outgoing Display?
- Dial Access?
- Busy Threshold: 99
- Night Service:
- Queue Length: 0
- Service Type: tie
- Auth Code?
- TestCall ITC: rest
- Far End Test Line No:
- TestCall BCC:
- TRUNK PARAMETERS
  - Codeset to Send Display: 8
  - Codeset to Send National IEs: 7
  - Max Message Size to Send: 268
  - Charge Advice: none
  - Supplementary Service Protocol: c
  - Digit Handling (in/out): enblac/enblec
  - Trunk Hunt: ascend
  - Digital Loss Group: 13
- Calling Number - Delete:  Insert:  Numbering Format:
- Bit Rate: 1280
- Synchronization: async
- Duplex: full
- Disconnect Supervision - In?  Out?
- Answer Supervision Timeout: 0

At the bottom of the window, there is a status bar with the text "Right-click in a field to see a list of valid entries or help text" and "Ready".



### Trunk Group—Trunk Features

DEFINITY Site Administration - [Lucent Test PBX GED]

File Edit View Tools Window Help

Lucent Test PBX

change trunk-group 14 | account | help (F5) | cancel (esc) | enter (F5) | schedule (F5) | next (F7) | previous (F8)

1 2 3 4 5 6 7 8 9 10

**TRUNK FEATURES**

ACA Assignment?	<input type="checkbox"/>	Measured:	<input type="text" value="none"/>	Wideband Support?	<input type="checkbox"/>
		Internal Alert?	<input type="checkbox"/>	Maintenance Tests?	<input type="checkbox"/>
		Data Restriction?	<input type="checkbox"/>	NCA-TSC Trunk Member:	<input type="checkbox"/>
		Send Name:	<input type="text" value=""/>	Send Calling Number:	<input type="checkbox"/>
Used for DCS?	<input type="checkbox"/>	Numbering Format:	<input type="text" value="public"/>		
Suppress # Outpulsing?	<input type="checkbox"/>	UI IE Treatment:	<input type="text" value="service-provider"/>		
Outgoing Channel ID Encoding:	<input type="text" value="preferred"/>			Replace Restricted Nusbars?	<input type="checkbox"/>
				Replace Unavailable Nusbars?	<input type="checkbox"/>
				Send Connected Number:	<input type="checkbox"/>
Send UCID?	<input type="checkbox"/>				
Send Codeset 6/7 LAI IE?	<input type="checkbox"/>			Dis Echo Cancellation?	<input type="checkbox"/>

Right-click in a field to see a list of valid entries or help text

Ready



### Trunk Group—Group Member Assignments

DEFINITY Site Administration - [Lucent Test PBX GEO]

File Edit View Tools Window Help

Change trunk-group 14 help (F5) cancel (esc) enter (F3) schedule (F5) next (F7) previous (F8)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP  
Administered Members (min/max): 1/38  
Total Administered Members: 30

GROUP MEMBER ASSIGNMENTS

	Port	Code	Sfx	Name	Night	Sig	Grp
1:	01A1201	TN464	F			3	
2:	01A1202	TN464	F			3	
3:	01A1203	TN464	F			3	
4:	01A1204	TN464	F			3	
5:	01A1205	TN464	F			3	
6:	01A1206	TN464	F			3	
7:	01A1207	TN464	F			3	
8:	01A1208	TN464	F			3	
9:	01A1209	TN464	F			3	
10:	01A1210	TN464	F			3	
11:	01A1211	TN464	F			3	
12:	01A1212	TN464	F			3	
13:	01A1213	TN464	F			3	
14:	01A1214	TN464	F			3	
15:	01A1215	TN464	F			3	

Right-click in a field to see a list of valid entries or help text  
Ready



Trunk Group—Group Member Assignments Continued

DEFINITY Site Administration - [Lucent Test PBX GED]

File Edit View Tools Window Help

change trunk group 14

TRUNK GROUP

Administered Members (min/max): 1/30

Total Administered Members: 30

GROUP MEMBER ASSIGNMENTS

	Port	Code	Sfx	Name	Night	Sig Grp
16:	01A1217	TN464	F			3
17:	01A1218	TN464	F			3
18:	01A1219	TN464	F			3
19:	01A1220	TN464	F			3
20:	01A1221	TN464	F			3
21:	01A1222	TN464	F			3
22:	01A1223	TN464	F			3
23:	01A1224	TN464	F			3
24:	01A1225	TN464	F			3
25:	01A1226	TN464	F			3
26:	01A1227	TN464	F			3
27:	01A1228	TN464	F			3
28:	01A1229	TN464	F			3
29:	01A1230	TN464	F			3
30:	01A1231	TN464	F			3

Right-click in a field to see a list of valid entries or help text

Ready



## Uniform Dialing Plan

The following figures show the configuration of the uniform dialing plan.

### Dial Plan Record

DEFINITY Site Administration - [Lucent Test PBX GED]

File Edit View Tools Window Help

Lucent Test PBX

change dialplan | cancel(esc) | enter (E) | schedule (S) | mod (M) | saveplan (S)

DIAL PLAN RECORD

Local Node Number: 2  
ETA Node Number:   
ETA Routing Pattern:   
Uniform Dialing Plan: 4-digit  
UDP Extension Search Order: udp-table-first

FIRST DIGIT TABLE

First Digit	- 1 -	- 2 -	- 3 -	- 4 -	- 5 -	- 6 -
1:				extension		
2:				extension		
3:				extension		
4:						
5:						
6:			dac			
7:						
8:	fac					
9:	fac					
0:	attd					
*:	fac					
#:	fac		fac			

Right-click in a field to see a list of valid entries or help text

Ready





### Uniform Dialing Plan

DEFINITY Site Administration - [Lucent Test PBX GED]

File Edit View Tools Window Help

Lucent Test PBX

change vdo ? help (F5) cancel (esc) enter (F5) schedule (F8) next (F7) previous (F8)

1 | 2

UNIFORM DIALING PLAN  
Ext Codes: 2ddx

Ext Code: 2xxx Type: **UOPCode** 222

dd	Type	dd	Type	dd	Type	dd	Type	dd	Type
0x:	<input type="text"/>	1x:	<input type="text"/>	2x:	<input type="text"/>	3x:	<input type="text"/>	4x:	<input type="text"/>
00:	<input type="text"/>	10:	<input type="text"/>	20:	<input type="text"/>	30:	<input type="text"/>	40:	<input type="text"/>
01:	<input type="text"/>	11:	<input type="text"/>	21:	<input type="text"/>	31:	<input type="text"/>	41:	<input type="text"/>
02:	<input type="text"/>	12:	<input type="text"/>	22:	<input type="text"/>	32:	<input type="text"/>	42:	<input type="text"/>
03:	<input type="text"/>	13:	<input type="text"/>	23:	<input type="text"/>	33:	<input type="text"/>	43:	<input type="text"/>
04:	<input type="text"/>	14:	<input type="text"/>	24:	<input type="text"/>	34:	<input type="text"/>	44:	<input type="text"/>
05:	<input type="text"/>	15:	<input type="text"/>	25:	<input type="text"/>	35:	<input type="text"/>	45:	<input type="text"/>
06:	<input type="text"/>	16:	<input type="text"/>	26:	<input type="text"/>	36:	<input type="text"/>	46:	<input type="text"/>
07:	<input type="text"/>	17:	<input type="text"/>	27:	<input type="text"/>	37:	<input type="text"/>	47:	<input type="text"/>
08:	<input type="text"/>	18:	<input type="text"/>	28:	<input type="text"/>	38:	<input type="text"/>	48:	<input type="text"/>
09:	<input type="text"/>	19:	<input type="text"/>	29:	<input type="text"/>	39:	<input type="text"/>	49:	<input type="text"/>

Right-click in a field to see a list of valid entries or help text

Ready



## Configuring Cisco CallManager

To configure Cisco CallManager, do the following:

- Step 1.** Configure the gateway.
- Step 2.** Configure the route pattern.

### Gateway Configuration

The following figures show the configuration of the Cisco 2621 H.323 Gateway.

Cisco 2621 H.323 Gateway Configuration

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration  
For Cisco IP Telephony Solutions

CISCO SYSTEMS

### Gateway Configuration

[Back to Find/List Gateways](#)

Product : H.323 Gateway  
Gateway : 10.1.1.129  
Device Protocol: H.225  
Registration: Unknown  
IP Address: 10.1.1.129

Status: Update completed. Reset the gateway to have the changes take affect.

Update Delete Reset Gateway Cancel Changes

Device Name\* 10.1.1.129  
Description Cisco 2621  
Device Pool\* Default  
Media Resource Group List < None >

Restart succeeded. Local intranet 76821

Cisco 2621 H.323 Gateway Configuration Continued

Network Hold Audio Source < None >  
User Hold Audio Source < None >  
Calling Search Space < None >  
Location < None >  
Caller ID DN  
Calling Party Selection\* Originator  
Presentation Bit\* Allowed  
Display IE Delivery   
Gatekeeper Name < None >  
Media Termination Point Required   
Num Digits\* 23  
Sig Digits   
Prefix DN  
Run H225D On Every Node   
Called party IE number type unknown\* Cisco CallManager

Restart succeeded. Local intranet 76822



### Cisco 2621 H.323 Gateway Configuration Continued

Required	
Num Digits*	23
Sig Digits	<input type="checkbox"/>
Prefix DN	
Run H225D On Every Node	<input checked="" type="checkbox"/>
Called party IE number type unknown*	Cisco CallManager
Calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
* indicates required item	
<a href="#">Back to Find/List Gateways</a>	

Restart succeeded. Local intranet 76823

### Route Pattern Configuration

The following figures show the configuration of the route pattern.

#### Route Pattern Configuration

System Route Plan Service Feature Device User Application Help

**Cisco CallManager Administration**  
For Cisco IP Telephony Solutions

**Route Pattern Configuration**

[Add a New Route Pattern](#)  
[Back to Find/List Route Patterns](#)

**Route Pattern: 6.XXXX**  
Status: Ready  
Note: Any update to this route pattern automatically resets the associated gateway/route list

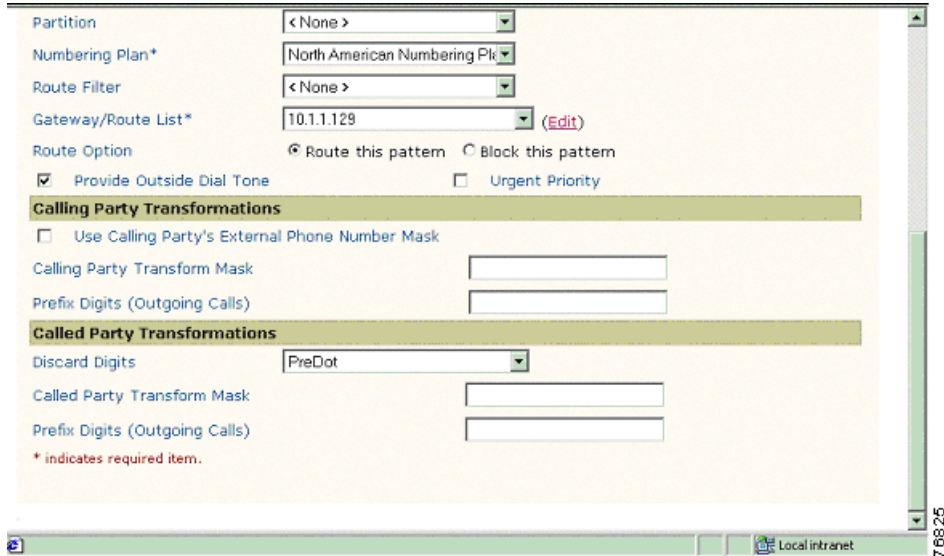
**Pattern Definition**

Route Pattern*	6.XXXX
Partition	< None >
Numbering Plan*	North American Numbering Plan
Route Filter	< None >
Gateway/Route List*	10.1.1.129 (Edit)
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern

Local intranet 76824



## Route Pattern Configuration Continued



The screenshot shows a web-based configuration interface for a route pattern. The fields are as follows:

- Partition: < None >
- Numbering Plan\*: North American Numbering Plk
- Route Filter: < None >
- Gateway/Route List\*: 10.1.1.129 (Edit)
- Route Option:  Route this pattern  Block this pattern
- Provide Outside Dial Tone  Urgent Priority
- Calling Party Transformations**
  - Use Calling Party's External Phone Number Mask
  - Calling Party Transform Mask: [ ]
  - Prefix Digits (Outgoing Calls): [ ]
- Called Party Transformations**
  - Discard Digits: PreDot
  - Called Party Transform Mask: [ ]
  - Prefix Digits (Outgoing Calls): [ ]

\* indicates required item.

At the bottom right of the window, the text "76825" is visible.

## Considerations

### Calling Name and Number Feature

When calling from a Cisco 7960 IP phone to a Lucent/Avaya digital phone, the Lucent/Avaya phone displays the Calling Name and Number after the call is answered as expected. The Cisco 7960 phone, however, displays only the Called Number but not the Connected Name, even though Lucent/Avaya PBX is sending both the Connected Name and the Connected Number IE information in the CONNECT message back to the Cisco 2621 Gateway.

When calling from a Lucent/Avaya digital phone to a Cisco 7960 IP phone, the IP phone displays the Connected Name and Number after the call is answered. The Lucent/Avaya phone, however, does not display the Called Name or Called Number. It displays the numbers being dialed instead (that is the Access Code and the extension number). It was verified using an ISDN protocol analyzer that the CallManager was not sending Connected Name or Connected Number information in the connect message back to PBX.

### Integration Testing

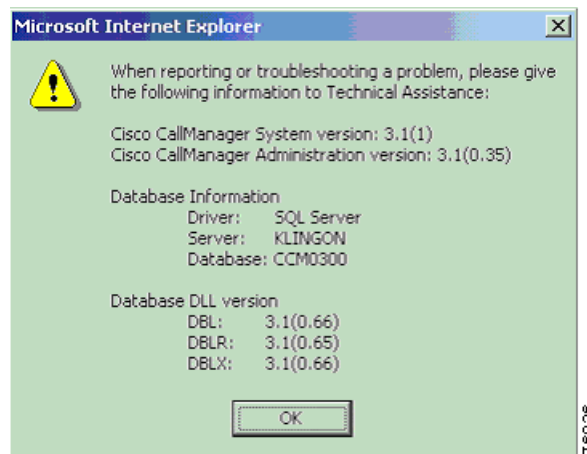
This section contains information about the setup used in testing the integration of the Lucent/Avaya Definity G3si and the Cisco 2621-E1 PRI NET5 Gateway.



## CallManager Software Release

The following figure shows the information about the release of CallManager being used.

### CallManager Software Release



## Lucent/Avaya Definity G3si Software Release

The following release of the Lucent/Avaya Definity G3si was used:

- System: G3siV6
- Software Version: G3V9i.02.0.033.2

## Cisco 2621 Router Configuration

The following shows the configuration of the Cisco 2621 router.

```
2621_B#show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-JS-M), Version 12.2(3.5)T, MAINTENANCE INTERIM SOFTWARE
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 03-Aug-01 22:45 by ccai
Image text-base: 0x80008088, data-base: 0x81631DD8

ROM: System Bootstrap, Version 12.1(3r)T2, RELEASE SOFTWARE (fc1)
2621_B uptime is 4 minutes
System returned to ROM by power-on
System image file is "flash:c2600-js-mz.122-3.5.T"

cisco 2621 (MPC860) processor (revision 0x200) with 56320K/9216K bytes of memory
.
Processor board ID JAD051516TX (503811939)
M860 processor: part number 0, mask 49
Channelized E1, Version 1.0.
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
Primary Rate ISDN software, Version 1.1.
```



2 FastEthernet/IEEE 802.3 interface(s)  
31 Serial network interface(s)  
2 Channelized E1/PRI port(s)  
32K bytes of non-volatile configuration memory.  
16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102  
2621\_B#

---

2621\_B#show diag

Slot 0:

C2621 2FE Mainboard Port adapter, 2 ports  
Port adapter is analyzed  
Port adapter insertion time unknown  
EEPROM contents at hardware discovery:  
Hardware Revision : 2.0  
PCB Serial Number : JAD051516TX (503811939)  
Part Number : 73-3200-08  
RMA History : 00  
RMA Number : 0-0-0-0  
Board Revision : A0  
Deviation Number : 0-21249  
EEPROM format version 4  
EEPROM contents (hex):  
0x00: 04 FF 40 00 A2 41 02 00 C1 17 4A 41 44 30 35 31  
0x10: 35 31 36 54 58 20 28 35 30 33 38 31 31 39 33 39  
0x20: 29 82 49 0C 80 08 04 00 81 00 00 00 00 42 41 30  
0x30: 80 00 00 53 01 FF FF FF FF FF FF FF FF FF FF  
0x40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Slot 1:

High Density Voice Port adapter  
Port adapter is analyzed  
Port adapter insertion time unknown  
EEPROM contents at hardware discovery:  
Hardware Revision : 1.1  
Top Assy. Part Number : 800-03567-01  
Board Revision : F1  
Deviation Number : 0-0  
Fab Version : 02  
PCB Serial Number : JAB05080LU9  
RMA Test History : 00  
RMA Number : 0-0-0-0  
RMA History : 00  
EEPROM format version 4  
EEPROM contents (hex):  
0x00: 04 FF 40 00 CC 41 01 01 C0 46 03 20 00 0D EF 01  
0x10: 42 46 31 80 00 00 00 00 02 02 C1 8B 4A 41 42 30  
0x20: 35 30 38 30 4C 55 39 03 00 81 00 00 00 00 04 00  
0x30: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF



```
VIC Slot 0:
E1 (2 Port) Multi-Flex Trunk WAN Daughter Card
Hardware revision 1.0          Board revision B0
Serial number 18801733        Part number 800-04479-01
Test history 0x0              RMA number 00-00-00
Connector type PCI
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 23 01 00 01 1E E4 45 50 11 7F 01 00 00 00 00
 0x30: 58 00 00 00 00 03 09 00 FF FF FF FF FF FF FF FF

HDV firmware: Compiled Fri 23-Mar-01 00:20 by miriyala
HDV memory size 524280 heap free 175065
```

2621\_B#

---

2621\_B#**show controllers e1 1/0**

```
E1 1/0 is up.
Applique type is Channelized E1 - balanced
No alarms detected.
alarm-trigger is not set
Version info Firmware: 20010710, FPGA: 15
Framing is CRC4, Line Code is HDB3, Clock Source is Line.
Data in current interval (62 seconds elapsed):
 0 Line Code Violations, 0 Path Code Violations
 0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
 0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
```

2621\_B#

---

2621\_B#**show configuration**

```
Using 1785 out of 29688 bytes
!
version 12.2
no parser cache
service timestamps debug datetime msec localtime show-timezone
service timestamps log uptime
no service password-encryption
!
hostname 2621_B
!
no logging buffered
enable password cisco
!
!
!
memory-size iomem 15
voice-card 1
 dspfarm
!
ip subnet-zero
!
!
no ip domain-lookup
!
```



```
isdn switch-type primary-net5
!
!
voice class codec 1
  codec preference 1 g729r8
  codec preference 2 g711ulaw
  codec preference 3 g711alaw
!
!
!
!
!
!
!
controller E1 1/0
  pri-group timeslots 1-31
!
controller E1 1/1
  shutdown
!
!
!
!
interface FastEthernet0/0
  ip address 192.168.100.2 255.255.255.0
  no ip mroute-cache
  load-interval 30
  no keepalive
  speed auto
  half-duplex
!
interface FastEthernet0/1
  ip address 10.1.1.129 255.255.255.0
  no ip mroute-cache
  duplex auto
  speed auto
!
interface Serial1/0:15
  no ip address
  no logging event link-status
  isdn switch-type primary-net5
  isdn protocol-emulate network
  isdn incoming-voice voice
  isdn T321 40000
  isdn T203 30000
  isdn bchan-number-order ascending
  no cdp enable
!
router rip
  network 1.0.0.0
  network 192.168.100.0
!
ip classless
no ip http server
ip pim bidir-enable
!
dialer-list 1 protocol ip permit
```





```
dialer-list 1 protocol ipx permit
!
!
snmp-server packetsize 4096
snmp-server manager
tftp-server nvram
call rsvp-sync
!
voice-port 1/0:15
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
dial-peer voice 1 pots
 destination-pattern 2...
 direct-inward-dial
 port 1/0:15
 prefix 2
!
dial-peer voice 3 voip
 destination-pattern 4...
 progress_ind setup enable 1
 voice-class codec 1
 session target ipv4:10.1.1.2
 dtmf-relay h245-alphanumeric
!
!
line con 0
 exec-timeout 0 0
line aux 0
 exec-timeout 0 0
line vty 0 4
 exec-timeout 0 0
 password cisco
 login
line vty 5 15
 exec-timeout 0 0
 login
!
scheduler allocate 3996 1000
!
end

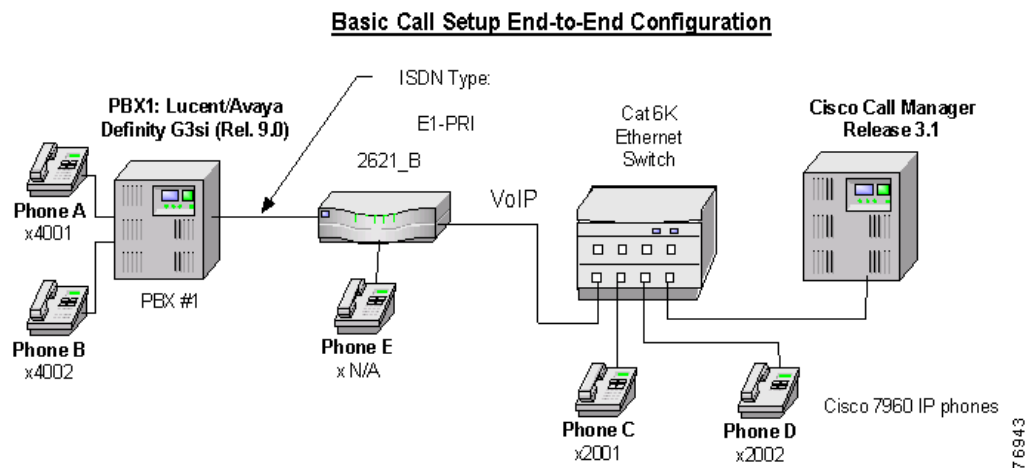
2621_B#
```



## Test Configuration

The following figure represents the various configurations used for testing.

### Testbed Network Configuration



As shown in the figure above, a Lucent/Avaya Definity G3si PBX was connected via an ISDN E1 PRI link to a Cisco 2621 Gateway, which in turn, was connected to an Ethernet switch. The interoperability testing involved Layers 1, 2 and 3 on the ISDN PRI link between a Cisco 2621 and the PBX.

#### Layer 1 (Physical Layer)

The Lucent/Avaya Definity G3si PBX configuration screen for the E1 trunk interface is reached using the **change ds1 a12** command, which sets the E1 physical layer parameters.

#### Layers 2 & 3 (Q.921 and Q.931)

Layer 2 and 3 packet exchanges were monitored using an Acacia Clarinet protocol analyzer, bridged across the PRI link in high impedance mode.

Layer 2 Q.921 packets were monitored to ensure that each PBX/2621 software configuration properly exchanged SABME/UA packets to initialize the ISDN link, and then RR packets were exchanged every 30 seconds.

Layer 3 Q.931 packets were monitored to ensure that the appropriate call setup/teardown packets were exchanged for each configuration, and that the SETUP packets contained the mandatory Information Elements with the necessary details, as well as optional IEs such as Calling Name and Number.

Telephone calls were made end-to-end in both directions through the Cisco 2621 Gateway, and a check was made to ensure that there was an audio path in both directions for each call.

#### User/Network Settings

The Cisco 2621 Gateway with ISDN protocol type setting of primary-net5 supports both protocol sides by using the **isdn protocol-emulate network/user** command.

The Lucent/Avaya Definity G3si PBX supports both “USER” and “NETWORK” protocol sides by using the **change ds1 a12** command.



## Test Results

Testing was performed by Test Engineer(s): Samir Batio, October 4, 2001

### Test 1

In test 1:

- The PBX1 country-protocol is set to ETSI to emulate the Network.
- The Cisco 2621 Gateway is configured as a Primary-net5 to emulate the User.

The results are shown in the following tables.

**Table 1** Basic Calls (Enbloc Sending)

Calls Made	Call Comp?	Calling Number passed to final destination?	Calling Name passed to final destination?	Called Number passed to original side?	Called Name passed to the original side?
Phone A to Phone C	Yes	Yes	Yes	No <sup>1</sup>	No <sup>1</sup>
Phone C to Phone A	Yes	Yes	Yes	Yes	No

1. CallManager is not sending the Connected Name or the Connected Number information in the connect message back to PBX.

**Table 2** Call Transfers (Supervised Local Transfers)

Calls Made	Call Comp?	Original Calling Number displayed on final dest phone?	Original Calling Name displayed on final dest phone?	Called Number display on original phone updated after transfer?	Called Name display on original phone updated after transfer?
Phone C to Phone A Xfr to Phone B	Yes	Yes	Yes	No	No
Phone A to Phone C Xfr to Phone D	Yes	Yes	Yes	No	No

**Table 3** Call Conferencing (Local)

Calls Made	Call Comp?	Calling Number passed to the remaining conferee when the conferencing phone drops out?	Calling Name passed to the remaining conferee when the conferencing phone drops out?	Connected Number updated on original caller phone display when a conferee drops out?	Connected Name updated on original caller phone display when a conferee drops out?
Phone C to Phone A, Phone A conf Phone B	Yes	(A Drops out) Yes	(A Drops out) Yes	(A Drops out) No	(A Drops out) No



**Table 3** Call Conferencing (Local)

Calls Made	Call Comp?	Calling Number passed to the remaining conferee when the conferencing phone drops out?	Calling Name passed to the remaining conferee when the conferencing phone drops out?	Connected Number updated on original caller phone display when a conferee drops out?	Connected Name updated on original caller phone display when a conferee drops out?
Phone C to Phone A, Phone C conf Phone D	Yes	(C Drops out) No	(C Drops out) No	(D Drops out) No	(D Drops out) No
Phone A to Phone C, Phone C conf Phone D	Yes	(C Drops out) No	(C Drops out) No	(C Drops out) No	(C Drops out) No
Phone A to Phone C, Phone A conf Phone B	Yes	(A Drops out) No	(A Drops out) No	(B Drops out) No	(B Drops out) Yes

**Table 4** Call Forward (Local)

Calls Made	Call Comp?	Original Calling Number passed to final dest?	Original Calling Name passed to final dest?	Forwarding Called Number passed to final dest?	Forwarding Called Name passed to final dest	Final destination Connected Number updated at original side?	Final destination Connected Name updated at original side?
Phone C to Phone A fwd to Phone B	Yes	No	Yes	No	Yes	No	No
Phone A to Phone C fwd to Phone D	Yes	Yes	Yes	No	No	No	No

Test 2

In test 2:

- The PBX1 country-protocol is set to ETSI to emulate the User.
- The Cisco 2621 Gateway is configured as a Primary-net5 to emulate the Network.

The test results are identical to those in Test 1.



