

Cisco 2611XM Gateway-PBX Interoperability: Nortel Meridian Option 11 to a NM-HDV2-T1 PRI Using H.323

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Introduction

This document contains configuration examples that allow for the interoperability of a T1 PRI link from a NM-HDV2-T1/E1 installed in a Cisco 2611XM voice gateway to a Nortel Meridian Option 11 PBX. Note that PBX interoperability is available for other Cisco voice gateways.

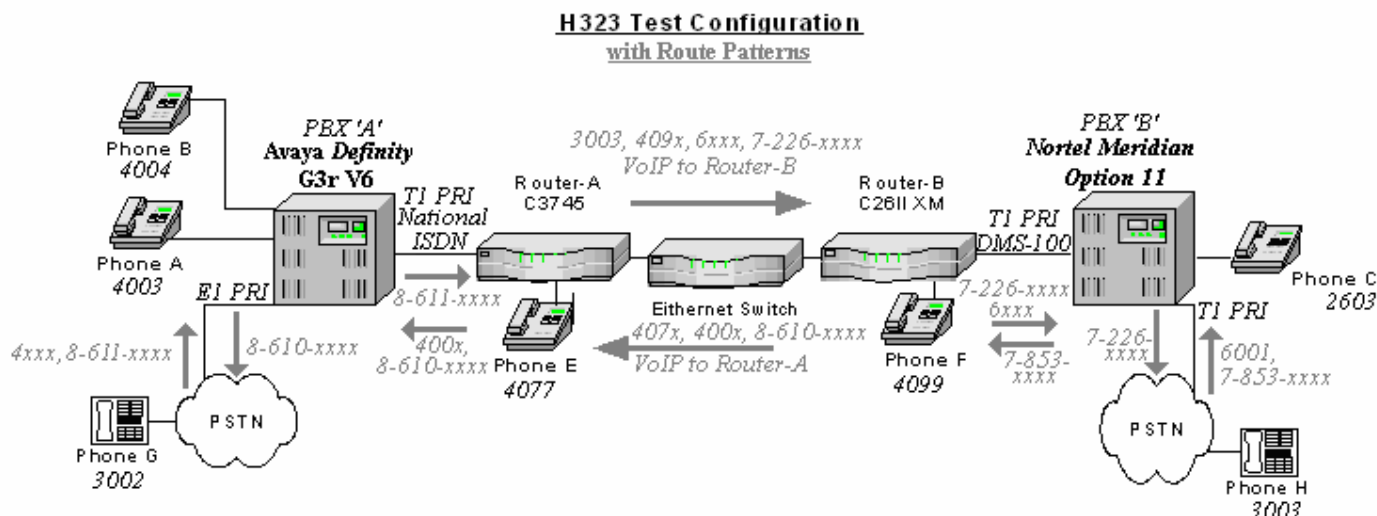
Network Topology

Figure 1 represents the topology for the example configuration output in this document. The figure shows two Cisco voice gateways connected through an Ethernet switch and controlled by H.323. Note that Figure 1 also shows an Avaya PBX and a Cisco 3745. If you have the hardware and software shown in Figure 1, you can configure your system for both of the PBXs and Cisco routers. For configuration information regarding the Avaya Definity G3r V6 PBX and Cisco 3745, see EDCS-414433av1 (*Cisco 3745 Gateway-PBX Interoperability: Avaya Definity G3r V6 to a NM-HDV2-T1 PRI Using H.323*).

Note: On Router B in Figure 1, the correct position of J7 on the NM-HDV2-T1/E1 is critical for establishing Layer 1 connectivity. Looking at the NM-HDV2-T1/E1 from the direction of insertion into the router, the jumper must connect the left and middle pins.



Figure 1. Network Topology



Features

The following features are supported:

- Basic Call (ENBLOC)
- Calling Name
- Calling Number

The following features are not supported for the network topology in Figure 1, due to the limitations listed in the next section:

- Called Name
- Called Number
- Connected Name
- Connected Number

Limitations

The following limitations apply to the topology shown in Figure 1:

- On basic calls from Phone A to Phone C, the following limitations apply:
 - The Nortel PBX does not send the CALLED NUMBER in the ALERTING or NOTIFY messages.
 - The Nortel PBX sends the CALLED NAME in a NOTIFY message. The message is received by Router B (Cisco 2611XM) but is not passed by Router A (Cisco 3745) because the T1-PRI link from Router A to the Avaya PBX is non-DMS-100.
 - The Nortel PBX does not send the CONNECTED NAME and NUMBER.



- On basic calls from Phone C to Phone A, the following limitations apply:
 - The Avaya PBX does not send the CALLED NAME and NUMBER.
 - The Avaya PBX sends the CONNECTED NAME and NUMBER in the CONNECT message. The information is received by Router A (Cisco 3745) but is not passed in the CONNECT message from Router B (Cisco 2611XM) to the Nortel PBX.
- On basic calls from Phone A to Phone F, the following limitations apply:
 - Router A (Cisco 3745) does not send the CALLED NAME or NUMBER to the Avaya PBX.
 - Router A (Cisco 3745) does not include the CONNECTED NAME and NUMBER in the CONNECT message.
- On basic calls from Phone E to Phone C, the following limitations apply:
 - The Nortel PBX does not send the CALLED NUMBER in the ALERTING or NOTIFY messages.
 - The Nortel PBX does not send the CONNECTED NAME and NUMBER.
 - The dialed number (not the called number) is visible on phone E.
 - The CALLED NAME, CALLED NUMBER, CONNECTED NAME, and CONNECTED NUMBER are not supported to analog (FXS) endpoints.
 - The Nortel PBX sends the CALLED NAME in a NOTIFY message. This message is received by Router B (Cisco 2611XM) but is not passed to the originating phone (phone E) because the CALLED/CONNECTED NAME/NUMBER are not supported to an analog (FXS) endpoint.
- On basic calls from Phone G to Phone H, the following limitations apply:
 - The CALLED NAME, CALLED NUMBER, CONNECTED NAME, and CONNECTED NUMBER are not supported to analog (FXS) endpoints.
 - The originating PSTN does not support sending the CALLING NAME.
 - The destination PSTN does not support sending the CALLED/CONNECTED NAME/NUMBER.
- On basic calls from Phone H to Phone G, the following limitations apply:
 - The CALLED NAME, CALLED NUMBER, CONNECTED NAME, and CONNECTED NUMBER are not supported to analog (FXS) endpoints.
 - The destination PSTN does not support sending the CALLED/CONNECTED NAME/NUMBER.
 - The destination PSTN does not support receiving the CALLING NAME



System Components

Hardware Requirements

- Cisco 2611XM
 - NM-HDV2-2T1/E1
- Nortel Meridian Option 11

Software Requirements

- Cisco IOS Software Release 12.3(7)T
- Nortel Meridian Option 11: RELEASE 25, ISSUE 15

Configuration

Nortel Meridian Option 11 PBX Configuration

Note that the following configuration is for Enbloc. Enbloc is the mode where all call establishment information is sent in the setup message (opposite of overlap mode, where additional messages are needed to establish the call).

```
*****  
D-Channel Configuration  
*****
```

```
REQ prt  
TYPE adan dch 18
```

```
ADAN      DCH 18  
  CTYP MSDL  
  CARD 08  
  PORT 1  
  DES  t1_dms100  
  USR  PRI  
  DCHL 8  
  OTBF 32  
  PARM RS422  DTE  
  DRAT 64KC  
  CLOK EXT  
  IFC  D100  
  SIDE USR  
  CNEG 1  
  RLS  ID  **  
  RCAP ND2  
  MBGA NO  
  OVLN NO  
  OVLS NO  
  T200 3  
  T203 10  
  N200 3  
  N201 260  
  K    7
```

```
*****  
Route Data Block Configuration  
*****
```

```
REQ: prt  
TYPE: rdb  
CUST 0  
ROUT 108
```



TYPE RDB
CUST 00
DMOD
ROUT 108
DES T1_D100
TKTP TIE
NPID_TBL_NUM 0
ESN NO
RPA NO
CNVT NO
SAT NO
RCLS EXT
DTRK YES
BRIP NO
DGTP PRI
ISDN YES
MODE PRA
IFC D100
SBN NO
PNI 00000
NCNA YES
NCRD YES
CHTY BCH
CTYP UKWN
INAC NO
ISAR NO
CPUB OFF
DAPC NO
BCOT 0
DSEL VOD
PTYP PRI
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH RRB
TRMB YES
STEP
ACOD 508
TCPP NO
PII NO
TARG 01
BILN NO
OABS
INST
SIGO STD
MFC NO
ICIS YES
OGIS YES
TIMR ICF 1920
OGF 1920
EOD 13952
LCT 256
NRD 10112
DDL 70
ODT 4096
RGV 640
GTO 896
GTI 896
SFB 3
PRPS 800
NBS 2048
NBL 4096



PAGE 002

IENB 5
TFD 0
VSS 0
VGD 6
DTD NO
SCDT NO
2 DT NO
DRNG NO
CDR NO
NATL YES
SSL
CFWR NO
IDOP NO
VRAT NO
MUS NO
PANS YES
OHQ NO
OHQT 00
CBQ NO
AUTH NO
TTBL 0
PLEV 2
OPR NO
ALRM NO
ART 0
TIDY 508 108
SGRP 0
AACR NO

REQ:

Trunk Data Block Configuration

REQ: prt
TYPE: tie
TN 8 1
DATE
PAGE

TN 008 01
TYPE TIE
CDEN SD
CUST 0
TRK PRI
PDCA 1
PCML MU
NCOS 0
RTMB 108 1
B-CHANNEL SIGNALING
TGAR 0
AST NO
IAPG 0
CLS UNR DTN CND WTA LPR APN THFD XREP BARD HKD
P10 VNL
TKID
DATE 16 DEC 2004

Digital Station Phone Configuration

REQ: prt



TYPE: 2616

MARP NOT ACTIVATED

TN 001 0 0 0

DATE

PAGE

DES

DES TEST1

TN 001 0 00 00

TYPE 2616

CDEN 8D

CUST 0

AOM 0

FDN

TGAR 0

LDN NO

NCOS 0

SGRP 0

RNPG 0

SCI 0

SSU

XLST

SFLT NO

CAC_MFC 0

CLS CTD FBA WTA LPR MTD FNA HTD ADD HFD

MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1

POD DSX VMD CMSD CCSD SWD LND CNDA

CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCB

ICDD CDMD MCTD CLBD AUTU

GPUD DPUD DNDA CFXA ARHD CLTD ASCD

ABDD CFHD FICD NAID BUZZ AGRD MOAD

UDI RCC HBTD AHD IPND DDGA NAMA MIND PRSD NRWD NRCD NROD

DRDD EXR0

USRD ULAD RTDD RBDD RBHD PGND FLXD FTTC DNDY DNO3 MCBN

CPND_LANG ENG

RCO 0

HUNT

PLEV 02

AST

IAPG 0

AACS NO

ITNA NO

DGRP

MLWU_LANG 0

DNDR 0

KEY 00 SCR 6001 0 MARP

CPND

CPND_LANG ROMAN

NAME BIG BIRD

XPLN 13

DISPLAY_FMT FIRST, LAST

01 SCR 6011 0 MARP

02 MIK

03 CFW 12 78534004

04 AO6

05 TRN

06 DSP

07

08 ADL 16

09 ADL 16

10 ADL 16

11 ADL 16



```
12 ADL 16
13 ADL 16
14 RGA
15 MCK
DATE 3 DEC 2004
```

NACT

```
*****
PBX Software Release/Issue
*****
```

```
VERSION 2111
RELEASE 25
ISSUE 15 +
PSWV VERSION: PSWV 33
```

Cisco 2611XM Gateway Configuration

Note that the following configuration is for Enbloc.

```
2611XM-B# show running-config
```

Building configuration...

Current configuration : 2278 bytes

```
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption

hostname 2611XM-B

boot-start-marker
boot-end-marker

card type t1 1 1

no network-clock-participate slot 1
no network-clock-participate wic 0
ip subnet-zero

ip cef
ip audit po max-events 100
no aaa new-model
no ftp-server write-enable
isdn switch-type primary-dms100
voice-card 1

voice rtp send-recv

voice class h323 1

controller T1 1/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
 description connection to Nortel T1 PRI

no crypto isakmp enable

interface Tunnell
 no ip address
```



```
interface FastEthernet0/0
 ip address 172.20.43.155 255.255.255.0
 duplex auto
 speed auto

interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto

interface Serial1/0:23
 description connection to Nortel T1 PRI
 no ip address
 no logging event link-status
 isdn switch-type primary-dms100
 isdn protocol-emulate network
 isdn incoming-voice voice
 isdn send-alerting
 isdn channel-id invert extend-bit
 no cdp enable

ip classless
ip route 0.0.0.0 0.0.0.0 172.20.43.1
ip route 0.0.0.0 255.255.255.0 FastEthernet0/0

no ip http server
no ip http secure-server

control-plane

voice-port 1/0/0
 station-id name phone F
 station-id number 4099
 caller-id enable type 1

voice-port 1/0/1
 station-id name phone FF
 station-id number 4098
 caller-id enable

voice-port 1/0/2

voice-port 1/0/3

voice-port 1/0:23

dial-peer voice 1 voip
 destination-pattern 407.
 session target ipv4:172.20.43.151
 ip qos dscp cs1 media

dial-peer voice 100 pots
 destination-pattern 4099
 port 1/0/0

dial-peer voice 2 voip
 destination-pattern 400.
 session target ipv4:172.20.43.151
 ip qos dscp cs1 media

dial-peer voice 3 voip
 destination-pattern 8610....
 session target ipv4:172.20.43.151
```



```
ip qos dscp cs1 media

dial-peer voice 1023 pots
 destination-pattern 6...
 direct-inward-dial
 port 1/0:23
 forward-digits all

dial-peer voice 1024 pots
 destination-pattern 710....
 port 1/0:23
 forward-digits all

dial-peer voice 7226 pots
 destination-pattern 7226....
 port 1/0:23
 forward-digits all

line con 0
line aux 0
line vty 0 4
 login
```



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Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International
BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 317 7777
Fax: +65 317 7799

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