

Cisco 2611XM Gateway – PBX Interoperability: Nortel Meridian Option 11 to an NM-HDV2-T1/E1 Digital Voice Network Module with H.323

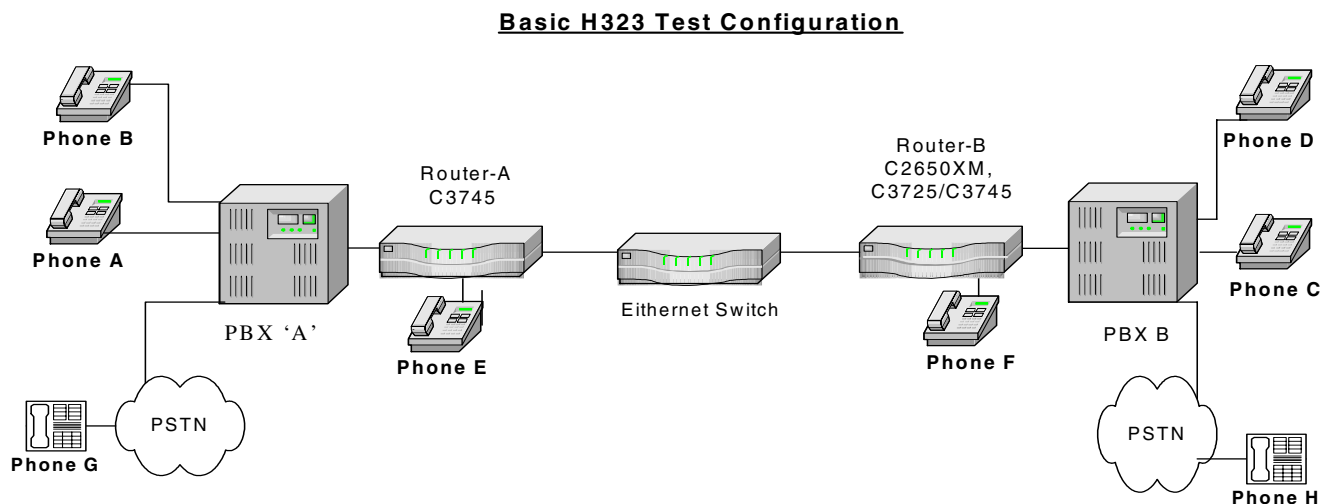
Introduction

This is an application note for connectivity for PBX interoperability testing between PBXs and the NM-HDV2 T1/E1 Network Module installed in Cisco voice gateways.

- The network topology diagram (Figure 1) is representative of the configuration used for testing. The diagram shows the test set-up for the pair of Cisco voice gateways being tested. The Cisco voice gateways are configured for back-to-back VoIP operation.
- This application note uses the Cisco 2611XM voice gateway; however other Cisco voice gateways are also an option to use.

Network Topology

Figure 1. Network Topology or Test Setup



The above diagram is representative of the various configurations used for testing. As shown in the diagram above, a PBX is connected via an interface to a Cisco router, which in turn, is connected to an Ethernet switch which is connected to a second Cisco router. The second Cisco router is connected to a second PBX. The interoperability testing involved signaling and audio path confirmation on the voice interfaces under test between each Cisco router and it's associated PBX.

Limitations

- The FXO voice port goes off-hook on the first ring of an incoming seizure, before the targeted phone has answered. The PBX Analog extension does not support disconnect supervision, which causes trunk hang issues and long ring-no answer times. FXO Answer and Disconnect Supervision URL:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t2/ft_ansds.htm



- The POTS Line to FXO topology should not be used with this PBX as it does not support disconnect supervision on its analog extensions and ring-no-answer will result in hung circuits. This feature needs to be supported on the FXO port and the POTS line. The universal trunk card of Nortel Option 11 PBX used in this test case does not support the feature set to provide proper disconnect tone or loop-break-disconnect supervision to allow FXO port to hang-up.
- Calls from Nortel Option 11 PBX digital phone, through its POTS line to the FXO port of the Cisco C2611XM, will not disconnect correctly when the Nortel Option 11 PBX hangs up as the analog POTS line does not support disconnect supervision to provide proper disconnect to allow the FXO port to hang-up.

System Components

Hardware Requirements

- Nortel Meridian PBX
- Cisco C2611XM Router
- Interfaces
 - NM-HDV2-2T1/E1
 - PVDM2-8
 - PVDM2-16
 - PVDM2-32
 - PVDM2-48
 - PVDM2-64

Software Requirements

- Nortel Meridian - RELEASE 24 ISSUE 24
- C2611XM - Cisco IOS Software Release 12.3(7)T

Features

- Supported
 - Disconnect supervision feature is supported by Cisco VIC-2 FXO voice interface card.
- Not Supported
 - Nortel Option 11 PBX analog POTS lines do not support disconnect supervision.

Configuration

Configuration Sequence and Tasks

Configure in the following sequence:

The Nortel Meridian Opt. 11 PBX

The Cisco 2611XM Router

Configuration Menus and Commands



Configuring the Nortel Meridian, with Opt. 11 PBX

Nortel Option 11 PBX Configuration Screens

Printout of Nortel Switch Configuration

REQ prtTYPE parmPARM

LPIB 192

HPIB 32

500B 16

NCR 200

MGCR NULL

CFWS YES

PCML MU

ALRM YES

ERRM ERR BUG AUD

DTRB 50

TMRK 128

FCDR OLD

PCDR NO

TPO NO

TSO NO

CLID YES

DUR5 NO

MLDN YES

MARP NO

FRPT NEFR

DCUS NULL

MSCL 255



PMSI

MANU PMS1

PMCR 20

PORT NONE

NDIS 20

OCAC NO

MTRO MR

SBA_ADM_INS 001

SBA_USER 010

BCAP SPEECH

NORTEL_BRAND NO

Prinout of Nortel Common Equipment Configuration

REQ PRT

TYPE CEQU

CEQU

MPED 8D

SUPL 000 004 008 012

016 032 036 040

044 048 064 068

072

XCT 000

CONF 029 030 031 062

094 095

DLOP NUM DCH FRM LCMT YALM T1TE TRSH



PRI 003 24 ESF B8S FDL - 00

004 24 ESF B8S FDL - 00

005 24 ESF B8S FDL - 00

PRI2 06 07

DTI2

MISP

Printout of Nortel Analog Phone Configuration

MEM AVAIL: (U/P): 1272407 USED U P: 106347 95805 TOT: 1474559

DISK RECS AVAIL: 476

TNS AVAIL: 47 USED: 153 TOT: 200

ACD AGENTS AVAIL: 300 USED: 0 TOT: 300

ANALOGUE TELEPHONES AVAIL: 2498 USED: 2 TOT: 2500

AST AVAIL: 100 USED: 0 TOT: 100

WIRELESS TELEPHONES AVAIL: 2500 USED: 0 TOT: 2500

TN 002 0 0 0DATE PAGE DES

DES TEST1

TN 002 0 00 00

TYPE 500

CDEN 4D

CUST 0

WRLS NO

DN 2606 0 MARP

AST NO



IAPG 0

HUNT

TGAR 0 LDN NO

NCOS 0

SGRP 0

RNPG 0

XLST

SCI 0

CLS CTD DTN FBD XFD WTA THFD FND HTD ONS

LPR XRD CWD SWD MWD RMMD SMWD LPD XHD CCSD LND TVD

CFTD SFD MRD C6D CNID CLBD AUTU

ICDD CDMD LLCN EHTD MCTD

GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTA ASCD

MBXD CPFA CPTA DDGA NAMA

MCRD

EXR0 SHL ABDD CFHD DNDY DNO3

CWND USMD USRD BNRD RTDD RBDD RBHD FAXA CNUD CNAD PGND FTTC

PLEV 02

AACS NO

MLWU_LANG 0

Printout of Nortel Digital Station Phone 2603 Configuration

MEM AVAIL: (U/P): 1272407 USED U P: 106347 95805 TOT: 1474559

DISK RECS AVAIL: 476

TNS AVAIL: 47 USED: 153 TOT: 200

ACD AGENTS AVAIL: 300 USED: 0 TOT: 300

AST AVAIL: 100 USED: 0 TOT: 100



DIGITAL TELEPHONES AVAIL: 2494 USED: 6 TOT: 2500

REQ: prtTYPE: 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

CLS CTD FBD WTA LPR MTD FND HTD ADD HFD

MWD 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 RCBD

ICDD CDMD LLCN MCTD CLBD AUTU

GPUD DPUD DNDA CFXA ARHD CLTD ASCD

CPFA CPTA ABDD CFHD FICD NAID BUZZ AHD

DDGA NAMA



DRDD EXR0

USMD USRD ULAD RTDA RBDD RBHD PGND FLXD FTTC DNDY DNO3

CPND_LANG ENG

HUNT

PLEV 02

AST

IAPG 0

AACS NO

ITNA NO

DGRP

MLWU_LANG 0

DNDR 0

ARTO 0

AFD

AHNT

KEY 00 SCR 2601 0 MARP

CPND

NAME BERT

XPLN 27

DISPLAY_FMT FIRST, LAST

01 SCR 3510 0 MARP

02

03 CFW 12 2002

04 AO6

05 TRN

06 DSP

07

08 ADL 16 7055573500

09 ADL 16



10 ADL 16
11 ADL 16
12 ADL 16
13 ADL 16
14 ADL 16

Configuring the Cisco 2611XM Router

show Running-Config

B-2611XM#sho runn
Building configuration...

```
Current configuration : 1225 bytes
!
version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname B-2611XM
!
boot-start-marker
boot-end-marker
!
card type e1 1 1
enable secret 5 $1$Ilo$rrTZbWb3xci/uuEvYELWI.
enable password cisco
!
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
voice-card 1
!
fax interface-type fax-mail
!
controller E1 1/0
!
controller E1 1/1
!
no crypto isakmp enable
!
interface FastEthernet0/0
ip address 172.20.43.155 255.255.255.0
no ip mroute-cache
```



```
speed auto
full-duplex
no mop enabled
!
interface FastEthernet0/1
no ip address
no ip mroute-cache
shutdown
duplex auto
speed auto
!
ip classless
!
no ip http server
no ip http secure-server
!
control-plane
!
voice-port 1/0/0
!
voice-port 1/0/1
!
dial-peer cor custom
!
dial-peer voice 100 pots
destination-pattern 8000
port 1/0/0
!
dial-peer voice 101 voip
destination-pattern ....
session target ipv4:172.20.43.151
!
line con 0
line aux 0
line vty 0 4
password cisco
login
line vty 5 15
password cisco
login
!
end
```

Acronyms

Acronym	Definition
FXO	Foreign Exchange Office
MFT	Multi-Flex Trunk, an interface
PBX	Private branch exchange



POTS	Plain Old Telephone Service
VoIP	Voice over IP

Important Information

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Test Results



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