Introduction

- This application note contains the test results of Nortel Meridian 1 PBX interoperability testing via digital trunk (T1 CAS, E&M, wink start) interfaces under test to a Cisco C2611XM Voice Router via NM-HDV2-T1/E1 Voice Interface Modules.
- This application note is directed toward testing interoperability of the NM-HDV2-T1/E1 Voice Interface Modules with a Nortel Meridian 1 PBX.
- The application note is for Connectivity/Interoperability testing of the Nortel Meridian 1 PBX connected via the NM-HDV2-T1/E1 Voice Interface Modules to a C2611XM Voice Router. The Cisco C2611XM Voice Router under test is connected via Ethernet to an Ethernet switch which also has a Cisco Unified CallManager and IP Phones in the Network Topology.
- Figure 1 shows the test set-up for a Cisco Voice Router connected through an Ethernet switch and controlled via MGCP by a Cisco Unified CallManager.

Network Topology

Figure 1. Network Topology or Test Setup

The above diagram is representative of the configuration 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 also has the CCM (Cisco Call Manager) IP Phones and 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 its associated PBX.
Limitations

- It was found that the correct position of J7 was critical to establish Layer 1 connectivity with the Nortel T1 PBX interface. Looking into the NM-HDV2-T1/E1 Voice Interface Modules in the direction of insertion into the Cisco Voice Router, the jumper should be placed to connect the left and middle pins.
- When phone A calls phone C and phone C answers the call or not, the actual call was placed from phone A to phone K, and then forwarded to phone C (see Figure 1).
- When phone C calls phone A and phone A answers the call or not, the actual call was placed from phone C to phone K, and then forwarded to phone A (see Figure 1).
- When phone G calls phone H and phone H answers the call, it may take a few seconds for this call to be torn down before it can be repeated (see Figure 1).
- When phone G calls phone H and phone H answers the call or not, it may take a few seconds for this call to be torn down before it can be repeated.
- When phone K calls phone H and phone H answers the call or not, the actual call was placed from phone K to phone C, and then forwarded to phone H (see Figure 1).

System Components

Hardware Requirements

- Cisco C2611XM Voice Router with NM-HDV2-T1/E1 Voice Interface Modules
- Nortel Meridian 1 PBX

Software Requirements

- Cisco Unified CallManager Release 4.01
- Nortel Meridian: Release 24, Issue 24
- Cisco C2611XM Voice Router: Cisco IOS Software, C2600 Software (C2600-ADVENTERPRISEK9-M), Version 12.3(7)T, RELEASE SOFTWARE(fc1)

Configuration

Configuration Menus and Commands

Configuring the Nortel Meridian 1 PBX

COMMON EQUIPMENT CONFIGURATION

> LD 22PT2000
MARP NOT ACTIVATED
REQ PRTTYPE CEQU
CEQU
MPED 8D
SUPL 000 004 008 012
  016 032 036 040
  044 048 064 068
ROUTE DATA BLOCK CONFIGURATION

>LD 21PT1000
REQ: PRTTYPE: RDBCUST 0ROUT 103
TYPE RDB
CUST 00
DMOD
ROUT 103
DES T1_CAS
TKTP TIE
BSN NO
CNVT NO
SAT NO
RCLS EXT
DTRK YES
BRICT NO
DGTP DTI
ISDN NO
DSEL VCE
PTYP DTT
SEIZ 02 02
SVFL 02 02
DRNG NO
CDR NO
MUS NO
MANO NO
EQAR NO
OHQ NO
OHQT 00
CBQ NO
AUTH NO
TTBL 0
OHTD NO
PLEV 2
ALRM NO

PAGE 002
ART 0
SGRP 0
AACR NO
REQ: ****

TRUNK DATA BLOCK CONFIGURATION

>LD 20
PT0000
MARP NOT ACTIVATED
REQ PRTTYPE: TNBTN  3 1DATE PAGE DES
TN  003 01
TYPE TIE
CUST 0
TRK  DTI
PDCA 1
PCML MU
NCOS 0
RTMB 103 1
A/B BIT SIGNALING
TGAR 0
SIGL EM4 STRI/STRO WNK WNK
SUPN YES
AST NO
IAPG 0
CLS UNR DTN CND ECD WTA LPR APN THFD HKD
   P10 VNL
TKID
DATE 23 MAR 2004
NACT ****

DIGITAL STATION PHONE CONFIGURATION

>LD 11SL1000
MARP NOT ACTIVATED
MEM AVAIL: (U/P): 1336728 USED U P: 107267 30564 TOT: 1474559
DISK RECS AVAIL: 479
TNS AVAIL:  76 USED:  124 TOT:  200
ACD AGENTS AVAIL:  300 USED:  0 TOT:  300
AST AVAIL:  100 USED:  0 TOT:  100
DIGITAL TELEPHONES AVAIL:  2497 USED:  3 TOT:  2500
REQ: PRTTYPE: 2616
MARP NOT ACTIVATED
TN 001 0 0 4 DATE PAGE DES
DES TEST1
TN 001 0 00 04
TYPE 2616
CDEN 8D
CUST 0
AOM 0
FDN
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 0
SCI 0
SSU
LNRS 16
XLST

CLS CTD FBD WTA LPR MTD FND HTD ADD HFA
MWD LMPN RMDM SMWD AAD IMD XHD IRD NID OLD VCE DRG1
POD DSX VMD CMSD CCSD SWD LNA 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 RTDD RBDD RBHD PGND FLXD FTTC DNDY DN03

CPND_LANG ENG
HUNT
PLEV 02
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
DNDR 0
KEY 00 SCR 2603 0 MARP
CPND

NAME PHONE A

XPLN 27

DISPLAY_FMT FIRST, LAST

01 SCR 2610 0

02

03 CFW 12 7103999

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 ADL 16

15

DATE 13 MAR 2004

NACT ****

PBX SOFTWARE RELEASE/VERSION

>LD 22PT2000

MARP NOT ACTIVATED

REQ ISS

VERSION 2111

RELEASE 24

ISSUE 24

FEATURES/PACKAGES INSTALLED

REQ PRTTYPE PKGOPTF 1

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Configuring Cisco Unified CallManager

Route Patterns

Screenshot for Cisco Unified CallManager Route Patterns (Overview)

Find and List Route Patterns/Hunt Pilots

5 matching record(s) for Pattern begins with ""

Find Route Patterns/Hunt Pilots where Pattern begins with

and show 20 items per page

To list all items, click Find without entering any search text.

Matching record(s) 1 to 5 of 5

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Screenshot for Cisco Unified CallManager Route Patterns (Pattern 9.XXXX to Nortel PBX)
Cisco Unified CallManager Configuration for Cisco C2611XM Voice Router

Screenshot for Cisco Unified CallManager – Cisco C2611XM Voice Router Configuration

**Gateway Configuration**

Product: Cisco 26XX  
Gateway: B-2611XM

Status: Ready

![Gateway Configuration Screen](image)

**Installed Voice Interface Cards**

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**Subunit 0**

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**Subunit 1**

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**Product Specific Configuration**

Switchback Timing*: Graceful  
Switchback uptime-delay (min): 10  
Switchback schedule (hh:mm): 12:00

* indicates required item
Screenshot for Cisco Unified CallManager – Cisco C2611XM Voice Router T1 Trunk Configuration
Configuring the Cisco 2611XM Voice Router

B-2611XM# sho run
Building configuration...
Current configuration : 2172 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 t1 1 1
enable secret 5 $1$1Io$rrT2bWb3xci/uuEvYELWi.
enable password cisco
!
no network-clock-participate slot 1
no network-clock-participate wic 0
ip subnet-zero
!
ip cef
no ip domain lookup
ip host B9 172.20.43.253
ip audit po max-events 100
no aaa new-model
no ftp-server write-enable
isdn switch-type primary-qsig
voice-card 1
fax interface-type fax-mail
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server 172.20.43.253
ccm-manager config
!
controller T1 1/0
  framing esf
  linecode b8zs
  ds0-group 1 timeslots 1-24 type e&m-wink-start
!
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
!
voice-port 1/0/2
!
voice-port 1/0/3
!
voice-port 1/0:1
!
mgcp
mgcp call-agent 172.20.43.253 2427 service-type mgcp version 0.1
mgcp dtmf-relay voip codec all mode out-of-band
mgcp rtp unreachable timeout 1000 action notify
mgcp modem passthrough voip mode nse
mgcp package-capability rtp-package
no mgcp package-capability res-package
mgcp package-capability sst-package
no mgcp package-capability fxr-package
no mgcp timer receive-rtcp
mgcp sdp simple
mgcp fax t38 inhibit
mgcp rtp payload-type g726r16 static
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 999111 pots
  application mgcpapp
!
dial-peer voice 3000 voip
!
dial-peer voice 999100 pots
  application mgcpapp
  port 1/0/0
!
dial-peer voice 999101 pots
  application mgcpapp
  port 1/0:1
!
dial-peer voice 999102 pots
  application mgcpapp
  port 1/0/2
!
dial-peer voice 999103 pots
  application mgcpapp
  port 1/0/3
!
line con 0
line aux 0
line vty 0 4
  password cisco
  login
line vty 5 15
  password cisco
  login
!
end
B-2611XM#
**Important Information**

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