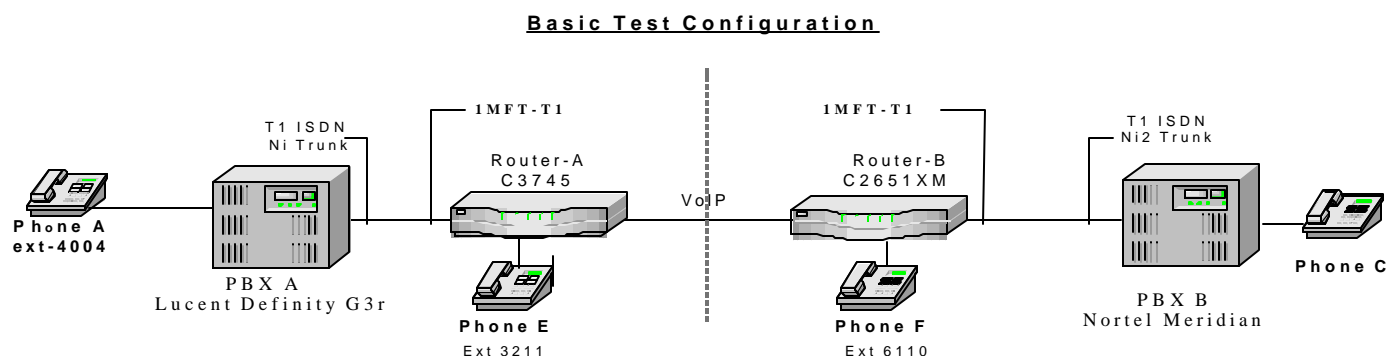


# Cisco 2650XM Gateway - PBX Interoperability: Nortel Meridian Opt 11C PBX using Q.931 PRI User Side Interfaces to an H.323 Gateway

## Introduction

- This Application Note describes the interoperability of a Cisco 2651XM gateway and a Nortel Meridian Option 11C PBX using Q.931 PRI user-side interfaces.
- The network topology diagram shows the end-to-end interoperability when configured for back-to-back VoIP operation.

## Network Topology



## System Components

### Hardware Requirements

- Cisco 2651XM modular access router with a 1MFT-T1 interface card
- Nortel Meridian 1 PBX

### Software Requirements

- Cisco IOS Software Release 12.2(15)ZJ
- Nortel Meridian –VER 2111 RELEASE 25



## Configuration

### Configuring the Nortel Meridian 1

Configure the PBX in the following sequence:

- Common Equipment
- D-Channel
- Trunk Data
- PBX Software
- Digital Station

### Configuring Common Equipment

\*\*\*\*\*COMMON EQUIPMENT CONFIGURATION (LAYER 1)\*\*\*\*\*

LD 22PT2000

REQ PRRTYPE 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 004 24 ESF B8S FDL - 00

007 24 ESF B8S FDL 0 00

PRI2 03 05

DTI2

MISP 002

### Configuring the D-Channel

\*\*\*\*\*D-CHANNEL CONFIGURATION (LAYER 3)\*\*\*\*\*

REQ PRT TYPE ADAN DCH 4

ADAN DCH 4

CTYP MSDL

CARD 04

PORT 1

DES PRINI

USR PRI

DCHL 4

OTBF 32

PARM RS422 DTE

DRAT 64KC

CLOK EXT

IFC NI2

ISDN\_MCNT 300

CLID OPT0

CO\_TYPE STD

SIDE USR (SET TO NETWORK SIDE. FOR USER SIDE = USR)



```
CNEG 1
RLS ID **
RCAP COLP
MBGA NO
OVLN NO
OVLS NO
T310 120
T200 3
T203 10
N200 3
N201 260
K 7
REQ ****
```

```
*****ROUTE DATA BLOCK CONFIGURATION *****
>LD 21PT1000
```

```
REQ: PRRTYPE: RDBCUST 0ROUT 104
TYPE RDB
CUST 00
DMOD
ROUT 104
DES T1_NI2
TKTP DID
M911_ANI NO
M911_TONE NO
NPID_TBL_NUM 0
SAT NO
RCLS EXT
DTRK YES
BRIP NO
DGTP PRI
ISDN YES
    MODE PRA
    IFC NI2
    CBCR NO
    NCOS 0
    SBN NO
    PNI 00000
    NCNA YES
    NCRD NO
    CHTY BCH
    CPFXS YES
    CPUB OFF
    DAPC NO
    BCOT 0
    INTC NO
DSEL VOD
PTYT PRI
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
RANX NO
SRCH RRB
TRMB YES
STEP
ACOD 704
TCPP NO
PII NO
TARG 01
CLEN 1
```



BILN NO  
OABS  
INST  
ICIS YES  
TIMR ICF 512  
OGF 512  
EOD 13952  
NRD 10112  
DDL 70  
ODT 4096  
RGV 640  
FLH 510  
GRD 896  
SFB 3  
NBS 2048  
NBL 4096  
TFD 0  
DRNG NO  
CDR NO  
MUS NO  
EQAR NO  
OHQ NO  
OHQT 00  
TTBL 0  
PLEV 2  
MCTS NO  
ALRM NO  
ART 0  
SGRP 0  
AACR NO

### Configuring Trunk Data

\*\*\*\*\*TRUNK DATA BLOCK CONFIGURATION \*\*\*\*\*

>LD 20  
PT0000  
MARP NOT ACTIVATED  
  
REQ: PRRTYPE: TNBTN 4 1DATE PAGE DES  
TN 004 01  
TYPE DID  
CDEN SD  
CUST 0  
TRK PRI  
PDCA 1  
PCML MU  
NCOS 0  
RTMB 104 1  
B-CHANNEL SIGNALING  
NITE  
STRI/STRO OWK OWK  
AST NO  
IAPG 0  
CLS UNR DTN CND WTA LPR APN THFD HKD  
P10 VNL  
TKID  
DATE 17 APR 2003

NACT



## Configuring PBX Software

\*\*\*\*\*PBX SOFTWARE RELEASE \*\*\*\*\*

REQ ISS  
VERSION 2111  
RELEASE 25  
ISSUE 15 +  
PSW VERSION: PSW 33

\*\*\*\*\*SOFTWARE PACKAGES INSTALLED \*\*\*\*\*

REQ	PRTTYPE	PKGOPTF	1
CUST	2		
CDR	4		
CTY	5		
RAN	7		
TAD	8		
DNDI	9		
EES	10		
INTR	11		
ANI	12		
ANIR	13		
BRTE	14		
DNDG	16		
MSB	17		
SS25	18		
DDSP	19		
ODAS	20		
DI	21		
CHG	23		
CAB	24		
BAUT	25		
CASM	26		
CASR	27		
BQUE	28		
NTRF	29		
NCOS	32		
CPRK	33		
SSC	34		
IMS	35		
UST	35		
UMG	35		
ROA	36		
NSIG	37		
MCBQ	38		
NSC	39		
BACD	40		
ACDB	41		
ACDC	42		
LMAN	43		
MUS	44		
ACDA	45		
MWC	46		
AAB	47		
GRP	48		
NFCR	49		
ACDD	50		
LNK	51		
FCA	52		



SR	53
AA	54
HIST	55
AOP	56
BARS	57
NARS	58
CDP	59
PQUE	60
FCBQ	61
OHQ	62
NAUT	63
SNR	64

PAGE 001

NXFR	67
HOT	70
DHLD	71
LSEL	72
SS5	73
DRNG	74
PBXI	75
DLDN	76
CSL	77
OOD	79
SCI	80
CCOS	81
CDRQ	83
TENS	86
FTDS	87
DSET	88
TSET	89
LNR	90
DLT2	91
PXLT	92
SUPV	93
CPND	95
DNIS	98
BGD	99
RMS	100
MR	101
AWU	102
PMSI	103
LLC	105
MCT	107
ICDR	108
APL	109
TVS	110
TOF	111
IDC	113
AUXS	114
DCP	115
PAGT	116
CBC	117
CCDR	118
EMUS	119
SCMP	121
FTC	125
BKI	127
DTI2	129



TBAR 132  
ENS 133  
FFC 139  
DCON 140  
MPO 141  
ISDN 145  
PRA 146  
ISL 147  
NTWK 148  
IEC 149  
DNXP 150  
CDRE 151  
IAP3P 153  
PRI2 154  
ACNT 155  
THF 157

PAGE 002

FGD 158  
FNP 160  
ISDN INTL SUP 161  
SAR 162  
LAPW 164  
GPRI 167  
ARIE 170  
CPGS 172  
ECCS 173  
AAA 174  
NMS 175  
EOVF 178  
HVS 179  
DKS 180  
SACP 181  
OVL P 184  
EDRG 185  
POVR 186  
SECL 191  
ORC-RVQ 192  
AINS 200  
IPRA 202  
XPE 203  
XCT0 204  
XCT1 205  
MLWU 206  
NACD 207  
HSE 208  
MLM 209  
MAID 210  
VAWU 212  
EAR 214  
ECT 215  
BRI 216  
IVR 218  
MWI 219  
MSDL 222  
FC68 223  
M911 224  
CWNT 225  
SSAU 229



BRIT 233  
FCDR 234  
BRIL 235  
MCMO 240  
MULTI\_USER 242  
ALRM\_FILTER 243  
VMBA 246  
CALL ID 247  
M911 ENH 249  
DPNA 250  
SCDR 251  
ARFW 253  
PHTN 254  
ADMINSET 256  
ATX 258  
QSIG 263  
NI-2 291  
MAT 296  
MQA 297  
CPP 301  
QSIGGF 305  
CPRKNET 306  
PAGENET 307  
CPCI 310  
NGCC 311  
TATO 312  
OPEN ALARM 315  
QSIG-SS 316  
QTN 321  
NGEN 324  
RANBRD 327  
MUSBRD 328  
ESA 329  
ESA\_SUPP 330  
ESA\_CLMP 331  
CNUMB 332  
CNAME 333  
NI-2 CBC 334  
MEET 348  
MC32 350  
DBA 351  
FDID 362  
NMCE 364  
STS\_MSG 380  
CDIR 381  
VIRTUAL\_OFFICE 382

REQ

## Configuring the Digital Station

```
*****DIGITAL STATION PHONE CONFIGURATION *****  
>  
OVL000  
>LD 11SL1000  
MARP NOT ACTIVATED  
  
MEM AVAIL: (U/P): 1284656      USED U P: 75664 32319      TOT: 1392639  
DISK RECS AVAIL: 482  
TNS      AVAIL: 104      USED: 96      TOT: 200  
ACD AGENTS AVAIL: 300      USED: 0      TOT: 300  
AST      AVAIL: 100      USED: 0      TOT: 100
```





DATA PORTS AVAIL: 2499 USED: 1 TOT: 2500  
DIGITAL TELEPHONES AVAIL: 2498 USED: 2 TOT: 2500  
INTERNET TELEPHONES AVAIL: 6 USED: 0 TOT: 6

REQ: PRTTYPE: 2616

MARP NOT ACTIVATED

TN 001 0 0 0DATE PAGE DES  
DES TEST1  
TN 001 0 00 00  
TYPE 2616  
CDEN 8D  
CUST 0  
AOM 0  
FDN 2602  
TGAR 0  
LDN NO  
NCOS 0  
SGRP 0  
RNP 0  
SCI 0  
SSU  
XLST  
CLS CTD FBD WTA LPR MTD FNA HTD ADD HFD  
MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1  
POD DSX VMD CMSD CCSD SWD LND CNDA  
CFTA SFD MRD DDV CNIA CDCA MSID DAPA BFED RCB  
ICDD CMD LCCN MCTD CLBD AUTU  
GPUD DPUD DNDA CFXA ARHD CLTD ASCD  
CPFA CPTA ABDD CFHD FICA NAID BUZZ AHD  
DDGA NAMA  
DRDD EXR0  
USMD USRD ULAD RTDD RBDD RBHD PGND FLXD FTTC DNDY DNO3 MCBN  
CPND\_LANG ENG  
RCO 0  
EFD  
HUNT  
EHT  
PLEV 02  
AST  
IAPG 0  
AACS NO  
ITNA NO  
DGRP  
MLWU\_LANG 0  
DNDR 0  
KEY 00 SCR 2601 0 MARP  
CPND  
NAME BIG BIRD  
XPLN 13  
DISPLAY\_FMT FIRST, LAST  
01 SCR 2611 0 MARP  
02  
03 CFW 12  
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 RGA
DATE 27 FEB 2003
```

```
NACT ****
>
OVL000
>
```

### Configuring the Cisco 2651XM

```
C2651XM#show running-config
```

```
Building configuration...
```

```
Current configuration : 1953 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname C2651XM
!
boot system flash:c2600-jsx-mz-v122_15_zj_throttle.0.5.0
logging queue-limit 100
logging buffered 1000000 debugging
!
ip subnet-zero
ip tcp synwait-time 13
!
no ip domain lookup
!
mpls ldp logging neighbor-changes
isdn switch-type primary-ni
!
voice-card 1
!
voice call carrier capacity active
!
no voice hpi capture buffer
no voice hpi capture destination
!
mta receive maximum-recipients 0
!
controller T1 1/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
controller T1 1/1
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
```



```
interface FastEthernet0/0
 ip address 172.16.1.2 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed 100
!
interface FastEthernet0/1
 ip address 172.20.8.30 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed auto
!
interface Serial1/0:23
 no ip address
 no logging event link-status
 isdn switch-type primary-ni
 isdn incoming-voice voice
 no cdp enable
!
interface Serial1/1:23
 no ip address
 no logging event link-status
 isdn switch-type primary-ni
 isdn incoming-voice voice
 no cdp enable
!!
ip http server
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/1
!
dialer-list 1 protocol ip permit
!
call rsvp-sync
!
voice-port 1/0:23
!
voice-port 1/1/0
!
voice-port 1/1/1
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 2 voip
 destination-pattern 20..
 session target ipv4:172.16.1.1
!
dial-peer voice 1 voip
 destination-pattern 3000
 session target ipv4:172.16.1.1
!
dial-peer voice 3 pots
 destination-pattern 26..
 direct-inward-dial
 port 1/0:23
 prefix 26
!
dial-peer voice 4 pots
 destination-pattern 4000
 port 1/1/0
!
```



```
line con 0
  exec-timeout 0 0
line aux 0
  exec-timeout 0 0
line vty 0 4
  exec-timeout 0 0
  password c
  no login
line vty 5 15
  no login
!
end
```

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