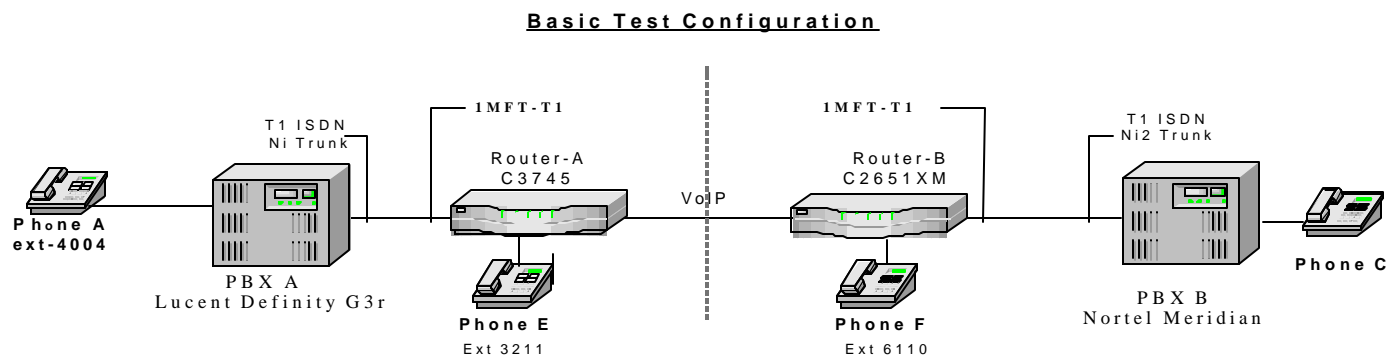


Cisco 2651XM Gateway - PBX Interoperability: Nortel Meridian Option 11C PBX using Q.931 PRI Network Side Interfaces to an H.323 Gateway

Introduction

- This Application Note describes the interoperability of a Cisco 2651XM with a Nortel Meridian Option 11C PBX with Q.931 PRI network-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 1 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 the Common Equipment

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

LD 22PT2000

REQ PRTTYPE 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 NET (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
PTYP 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 the 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 the 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
OVLP 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
RNPG 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 CDMD LLCN 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  
!  
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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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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