# Cisco 6608 – PBX interoperability: Nortel Meridian Option11 E Release 21 PBX with Cisco CallManager using the 6608-E1 PRI EURO Gateway

Introduction

Connectivity is achieved by using the ETSI standard PRI protocol. The Nortel Meridian Opt11 E can be configured as either NETWORK or USER side. The calling/called number feature is supported.

Network Topology

Basic Call Setup End-to-End Configuration
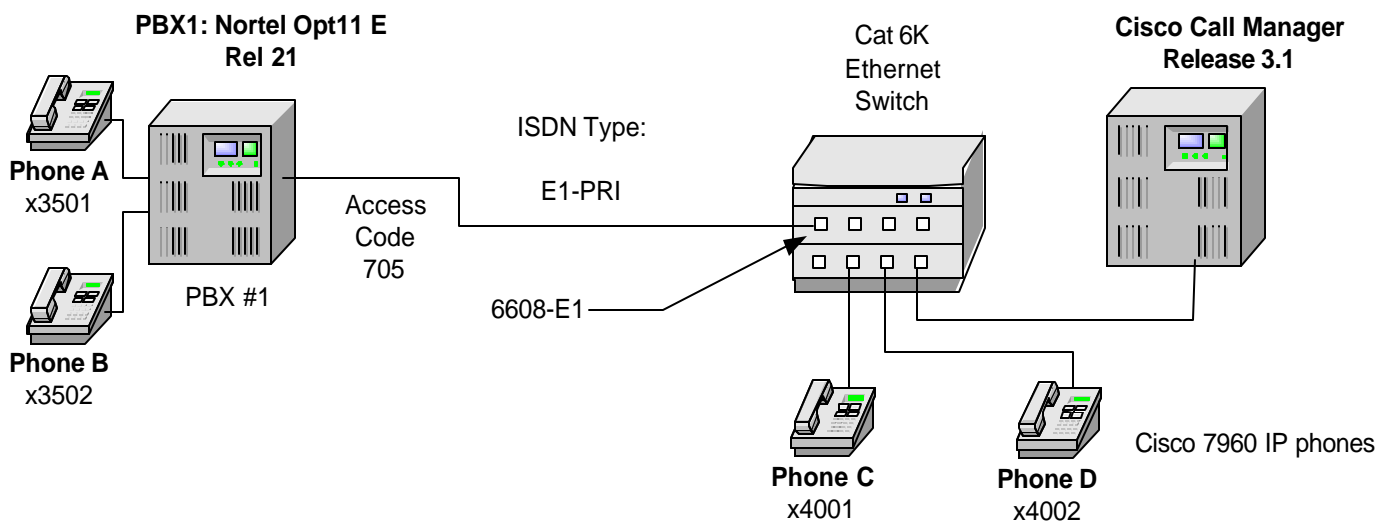
Limitations

- Calling-name delivery and presentation features are not supported by the Nortel PBX as of Release 21. The only switch types that are available on the Nortel PBX with the calling-name delivery/presentation feature are QSIG with GF platform (i.e. ESGF, ISGF and E4GF) and DMS100.
- When calling from a Cisco 7960 IP phone to a Nortel digital phone, the calling/called number is displayed on both phones after the call is answered as usual.

- When calling from a Nortel digital phone to a Cisco 7960 IP phone, the IP phone displays the connected number after the call is answered. The Nortel phone, however, does not get updated when the call is answered. It displays the numbers being dialed instead. (for example, Access Code + extension number). The ISDN protocol analyzer verifies that the Cisco CallManager does not send connected number information in the connect message back to the PBX.

System Components

Hardware Requirements

- Cisco 6608 E1 Port (Gateway)
- Nortel Meridian NTBK50AA, 2 Mb PRI

Software Requirements

- Cisco IOS Software Release 5.5(6a)
- PBX Software Release 21
- Cisco CallManager Release 3.1

Configuration

Configuring the Nortel Meridian Opt11C PBX

Configure in the following sequence:

1. Common Equipment

2. D-Channel

3. Route Data Block

4. Trunk

Configuring Common Equipment

```
>LD 22

PT2000

MARP NOT ACTIVATED



REQ  PRT


TYPE CEQU



CEQU
```

```
MPED 8D

SUPL  000  004  008  012

      016  032  036  040

      048

DDCS  09

DTCS

XCT   000

CONF  029  030  031


DLOP  NUM DCH FRM LCMT YALM TRSH

 PRI  006 23  ESF B8S  FDL  15

PRI2 05

APVL

DTI2

MISP

MTYP 384K



REQ  ****

>



Configuring the D-Channel

>LD 22

PT2000

MARP NOT ACTIVATED



REQ  PRT



TYPE ADAN DCH 5



ADAN    DCH 5
```

```
CTYP MSDL

CARD 05

PORT 1

DES  EURO

USR  PRI

DCHL 5

OTBF 32

PARM RS422  DTE

DRAT 64KC

CLOK EXT

NASA NO

IFC  EURO

CNTY ETSI

SIDE NET

CNEG 1

RLS  ID  **

RCAP ND2

MBGA NO

OVLR NO

OVLS YES

OVLT 0

T310 30

T200 3

T203 10

N200 3

N201 260

K    7


REQ  ****

>
```

Configuring the Route Data Block

```
>LD 21

PT1000


REQ: PRT


TYPE: RDB


CUST 0


ROUT 105



TYPE RDB
CUST 00
DMOD
ROUT 105
TKTP TIE
ESN  NO
RPA  NO
CNVT NO
SAT  NO
RCLS EXT
DTRK YES
BRIP NO
DGTP PRI2
ISDN YES
     MODE PRA
     IFC  EURO
     CNTY ETSI
     SBN  NO
```

```
          PNI  00000

          NCNA NO

          NCRD NO

          CTYP UKWN

          INAC NO

          ISAR NO

          TGAR 0

PTYP DTT

AUTO NO

DNIS NO

DCDR NO

ICOG IAO

SRCH RRB

TRMB YES

STEP

ACOD 705

TCPP NO

TARG

BILN NO

OABS

INST

IDC  NO

DCNO 0 *

NDNO 0

DEXT NO

SIGO STD

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

    NRAG 30

    IENB 5

      TFD  0

      VSS  0




PAGE 002



      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

EQAR  NO

FRL   0 0

FRL   1 0

FRL   2 0

FRL   3 0

FRL   4 0

FRL   5 0

FRL   6 0

FRL   7 0

OHQ   NO

OHQT  00

CBQ   NO

AUTH  NO

TTBL  0

PLEV  2

ALRM  NO

ART   0

PECL  NO

DCTI  0

TIDY  705 105

SGRP  0


REQ: ****

>
```

Configuring the Trunk

```
>LD 20

PT0000

MARP NOT ACTIVATED


REQ: PRT


TYPE: TNB


TN    5 1


DATE


PAGE


DES



TN   005 01
```
TYPE TIE
```
CDEN SD

CUST 0
```
TRK PRI2
```
PDCA 1

PCML A

NCOS 0

RTMB 105 1

B-CHANNEL SIGNALING

TGAR 0

CLS  UNR DTN WTA LPR APN XREP

     P10 VNL
```

```
TKID

DATE  1 APR 1993




NACT ****

>
```

Configuring Cisco CallManager

6608-E1 Gateway Configuration

Network Hold Audio Source	< None >
User Hold Audio Source	< None >
Calling Search Space	< None >
Location	< None >
Load Information	
Channel Selection Order*	Top Down
PCM Type*	A-law
Protocol Side*	User
Caller ID DN	
Calling Party Selection*	Originator
Channel IE Type*	Use Number when 1B
Interface Identifier Present**	☐
Interface Identifier Value**	0
Display IE Delivery	☐
Redirecting Number IE Delivery	☑
Delay for first restart (1/8 sec ticks)	32

Local intranet

Delay between restarts (1/8 sec ticks)	4
Num Digits*	23
Sig Digits	☑
Prefix DN	
Presentation Bit*	Allowed
Called party IE number type unknown*	Cisco CallManager
Calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
PRI Protocol Type*	PRI EURO
Inhibit restarts at PRI initialization	☑
Enable status poll	☐
Number of digits to strip*	0
Country Code*	North America
Setup non-ISDN Progress Indicator IE Enable***	☐

Local intranet

Product Specific Configuration

Clock Reference*	Network
Framing*	CRC4
Audio Signal Adjustment into IP Network*	NoDbPadding
Audio Signal Adjustment from IP Network*	NoDbPadding
Zero Suppression*	HDB3

* indicates required item
** applicable to DMS-100 protocol only
*** may be required to force ringback from some PBXs

Back to Find/List Gateways

Local intranet

Route Pattern Configuration

System   Route Plan   Service   Feature   Device   User   Application   Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Route Pattern Configuration

Route Pattern: 6.XXXX

Status: Ready
Note: Any update to this route pattern automatically resets the associated gateway/route list

| Copy | Update | Delete | Cancel Changes |

Pattern Definition

Route Pattern*	6.XXXX
Partition	< None >
Numbering Plan*	North American Numbering Pla
Route Filter	< None >
Gateway/Route List*	S0/DS1-0@SDA0001C9D8633E (Edit)
Route Option	⦿ Route this pattern ○ Block this pattern

Local intranet

Partition	< None >
Numbering Plan*	North American Numbering Pl▾
Route Filter	< None >
Gateway/Route List*	S0/DS1-0@SDA0001C9D8633E ▾ (Edit)
Route Option	◉ Route this pattern ○ Block this pattern
☑ Provide Outside Dial Tone	☐ Urgent Priority

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask [   ]

Prefix Digits (Outgoing Calls) [   ]

Called Party Transformations

Discard Digits [PreDot ▾]

Called Party Transform Mask [   ]

Prefix Digits (Outgoing Calls) [   ]

* indicates required item.

Local intranet

Configuring the Catalyst 6000 Switch

NOTE: There is no show running config output in the original EDCS specification.

The Cisco 6608-E1 Gateway with ISDN protocol type setting of **PRI-EURO** supports both protocol sides by selecting "Network/User" in the protocol side field when configuring the Gateway via Cisco CallManager.

The Nortel Meridian Option 11 E, when set to EURO, supports both "USER" and "NETWORK" protocol sides. This USER/NETWORK choice is set on the Nortel by using LD 17.

```
Console> (enable) show version

WS-C6006 Software, Version NmpSW: 5.5(6a)

Copyright (c) 1995-2001 by Cisco Systems

NMP S/W compiled on Feb 23 2001, 10:23:18


System Bootstrap Version: 5.3(1)
```

```
Hardware Version: 2.0  Model: WS-C6006  Serial #: TBA04511172


Mod Port Model                Serial #    Versions
--- ---- ------------------ ----------- ------------------------------------
1    2   WS-X6K-SUP1A-2GE   SAD05010NBK Hw : 7.0

                                        Fw : 5.3(1)

                                        Fw1: 5.4(2)

                                        Sw : 5.5(6a)

                                        Sw1: 5.5(6a)

         WS-F6K-PFC         SAD05020221 Hw : 1.1
3    48  WS-X6348-RJ-45     SAD04420N7B Hw : 1.4

                                        Fw : 5.4(2)

                                        Sw : 5.5(6a)

         WS-F6K-VPWR                    Hw : 1.0
4    24  WS-X6624-FXS       SAD050203M8 Hw : 3.0

                                        Fw : 5.4(2)

                                        Sw : 5.5(6a)

                                        HP : A00203010018; DSP : A003H031 (3.3.

35)
5    8   WS-X6608-T1        SAD04400EM0 Hw : 1.1

                                        Fw : 5.4(2)

                                        Sw : 5.5(6a)

                                        HP1: D00403010017; DSP1: D005E031 (3.3.

32)

                                        HP2: D00403010025; DSP2: D005H031 (3.3.

35)

                                        HP3: D00403010025; DSP3: D005H031 (3.3.

35)

                                        HP4: D00403010025; DSP4: D005H031 (3.3.
```

```
35)

                                      HP5: D00403010025; DSP5: D005H031 (3.3.
35)

                                      HP6: D00403010025; DSP6: D005H031 (3.3.
35)

                                      HP7: D00403010025; DSP7: D005H031 (3.3.
35)

                                      HP8: D00403010025; DSP8: D005H031 (3.3.
35)
6   8   WS-X6608-E1        SAD04380DW1 Hw : 1.1
                                      Fw : 5.4(2)
                                      Sw : 5.5(6a)
                                      HP1: D00403010025; DSP1: D005H031 (3.3.
35)

                                      HP2: D00403010025; DSP2: D005H031 (3.3.
35)

                                      HP3: D00403010025; DSP3: D005H031 (3.3.
35)

                                      HP4: D00403010025; DSP4: D005H031 (3.3.
35)

                                      HP5: D00403010025; DSP5: D005H031 (3.3.
35)

                                      HP6: D00403010025; DSP6: D005H031 (3.3.
35)

                                      HP7: D00403010025; DSP7: D005H031 (3.3.
35)

                                      HP8: D00403010025; DSP8: D005H031 (3.3.
35)


        DRAM                FLASH                NVRAM

Module Total   Used    Free    Total   Used    Free    Total Used  Free
```

```
------ ------- ------- ------- ------- ------- ------- ----- ----- -----

1       65408K  37787K  27621K  16384K  11546K   4838K  512K  198K  314K


Uptime is 142 days, 5 hours, 1 minute

Console> (enable)
```

_____

```
Console> (enable) show module
Mod Slot Ports Module-Type              Model              Sub Status

--- ---- ----- ------------------------ ------------------ --- --------

1   1    2     1000BaseX Supervisor     WS-X6K-SUP1A-2GE   yes ok

3   3    48    10/100BaseTX Ethernet    WS-X6348-RJ-45     yes ok

4   4    24    FXS                      WS-X6624-FXS       no  ok

5   5    8     T1                       WS-X6608-T1        no  ok

6   6    8     E1                       WS-X6608-E1        no  ok


Mod Module-Name         Serial-Num

--- ------------------- -----------

1                       SAD05010NBK

3                       SAD04420N7B

4                       SAD050203M8

5                       SAD04400EM0

6                       SAD04380DW1


Mod MAC-Address(es)                        Hw     Fw         Sw

--- -------------------------------------- ------ ---------- ------------------

1   00-04-c0-f8-42-02 to 00-04-c0-f8-42-03 7.0    5.3(1)     5.5(6a)

    00-04-c0-f8-42-00 to 00-04-c0-f8-42-01

    00-04-9b-f0-78-00 to 00-04-9b-f0-7b-ff

3   00-02-fc-20-5e-50 to 00-02-fc-20-5e-7f 1.4    5.4(2)     5.5(6a)
```

```
4    00-03-32-ba-2e-35                        3.0    5.4(2)    5.5(6a)

5    00-01-c9-d9-3a-98 to 00-01-c9-d9-3a-9f 1.1    5.4(2)    5.5(6a)

6    00-01-c9-d8-63-3e to 00-01-c9-d8-63-45 1.1    5.4(2)    5.5(6a)


Mod Sub-Type               Sub-Model           Sub-Serial  Sub-Hw

--- ---------------------- ------------------- ----------- ------

1    L3 Switching Engine     WS-F6K-PFC          SAD05020221 1.1

3    Inline Power Module     WS-F6K-VPWR                     1.0

Console> (enable)
```

```
Console> (enable) show port 6

Port  Name               Status     Vlan       Duplex Speed Type

----- ------------------ ---------- ---------- ------ ----- ------------

 6/1                     connected  1           full 2.048 E1

 6/2                     notconnect 1           full 2.048 E1

 6/3                     notconnect 1           full 2.048 E1

 6/4                     notconnect 1           full 2.048 E1

 6/5                     notconnect 1           full 2.048 E1

 6/6                     notconnect 1           full 2.048 E1

 6/7                     notconnect 1           full 2.048 E1

 6/8                     notconnect 1           full 2.048 E1


Port    DHCP   MAC-Address      IP-Address      Subnet-Mask

------- ------ ---------------- --------------- ---------------

 6/1    enable 00-01-c9-d8-63-3e 10.1.1.104      255.255.255.0

 6/2    enable 00-01-c9-d8-63-3f 10.1.1.118      255.255.255.0

 6/3    enable 00-01-c9-d8-63-40 10.1.1.123      255.255.255.0

 6/4    enable 00-01-c9-d8-63-41 10.1.1.117      255.255.255.0

 6/5    enable 00-01-c9-d8-63-42 10.1.1.120      255.255.255.0

 6/6    enable 00-01-c9-d8-63-43 10.1.1.121      255.255.255.0
```

```
6/7      enable   00-01-c9-d8-63-44 10.1.1.122      255.255.255.0

6/8      enable   00-01-c9-d8-63-45 10.1.1.124      255.255.255.0


Port      Call-Manager(s)   DHCP-Server     TFTP-Server     Gateway

--------  ----------------  --------------  --------------  ---------------

6/1      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/2      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/3      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/4      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/5      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/6      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/7      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

6/8      10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7


Port      DNS-Server(s)     Domain

--------  ----------------  -------------------------------------------------

6/1      -                 -

6/2      -                 -

6/3      -                 -

6/4      -                 -

6/5      -                 -

6/6      -                 -

6/7      -                 -

6/8      -                 -


Port      CallManagerState DSP-Type

--------  ---------------- --------

6/1      registered       C549

6/2      registered       C549

6/3      registered       C549

6/4      registered       C549

6/5      registered       C549
```

```
 6/6     registered      C549

 6/7     registered      C549

 6/8     registered      C549


Port  NoiseRegen NonLinearProcessing

-----  ---------- -------------------

 6/1  enabled    enabled

 6/2  enabled    enabled

 6/3  enabled    enabled

 6/4  enabled    enabled

 6/5  enabled    enabled

 6/6  enabled    enabled

 6/7  enabled    enabled

 6/8  enabled    enabled

Console> (enable)
```

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