Nortel CS1000M Release 4.0 to a Cisco IAD243X using E1-MELCAS E&M Immediate-Start with SIP

January 10, 2007 Initial Version

Table of Contents

Introduction

This is an application note for connectivity to Nortel CS1000 Succession 4.0 PBX with Cisco IAD243X Gateway via E1 MELCAS E&M immediate start-to-SIP communication (10/100baseT).
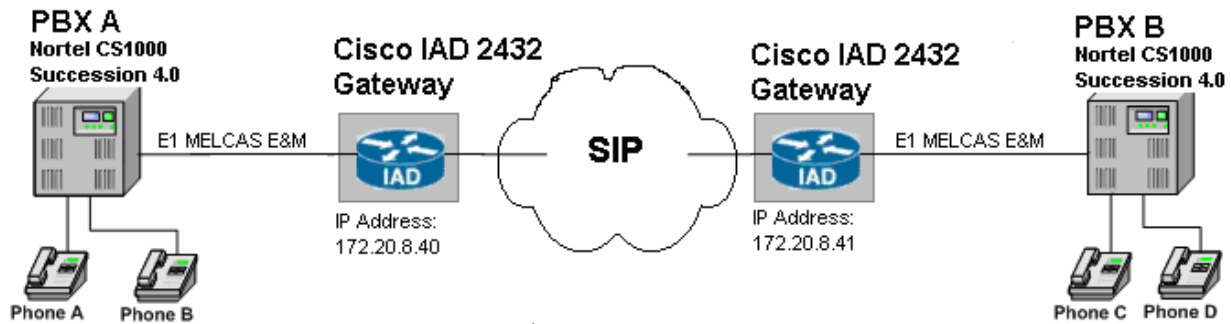
The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco IAD243X Gateway connected to the PBX via MELCAS E&M (E1 MELCAS). IP trunk connectivity between the IAD243X's is achieved by using SIP protocol.

EDCS#565399 Rev # Initial Version

Network Topology

Figure 1. Basic Call Setup

Basic Call Setup End-to-End Configuration

Limitations

When a 3-way call conference is initiated by the external calling phone to conference a local phone (e.g. Phone A calls Phone C, Phone C answers. Phone A conferences in Phone D), the call will be dropped on all phones if the external calling phone hangs-up.

Call Forward No Answer does not interoperate. This limitation is an interworking issue between PBX and gateway

ANI (Automatic Number Identification) is not supported with the detailed Avaya configuration.

Hardware Requirements

2 Cisco IAD2432 24FXS

2 Nortel CS1000M PBX

2 Nortel 2616 Digital phones

1 Cisco Catalyst switch

Software Requirements

Nortel PBX: Succession 4.0

Cisco IOS Release: c2430-ik9o3s-mz-124-9.T1

Features

Features Supported

Basic end-to-end calls

Call Transfer – Local and Network/External

Call on-hold

Call Forward (Unconditional, Busy) – Local and Network/External, (No answer) – Only Local CF

3-way Conference

Features Not Supported

ANI

Configuration

Configuring the Nortel Meridian 1 Option 11C PBX

Configure in the following sequence:
1. Configure common equipment

2. Configure the Route Data Block.

3. Configure the Trunk Data Block

4. DTI2 Signaling Category Configuration

5. DTI2 Physical layer configuration

6. Configure the Coordinated Dialing Plan

7. Configure the Digital Station Phone

E1 CAS E&M Immediate-Start

```
****************************
```
Common Equipment Configuration
```
****************************
>ld 22
PT2000

REQ  prt
TYPE cequ

CEQU
 MPED 8D
 SUPL  000  004  008  012
       016  032  036  040
       044  048  064  068
       072 V096 V100
 TDS   000
 CONF  029  030  031  062
       094  095

 DLOP  NUM DCH FRM TMDI LCMT YALM T1TE TRSH
  PRI  02  23 ESF NO  B8S FDL  -  00
       04  24 ESF YES B8S DG2  0  00
       05  24 ESF NO  B8S FDL  -  00
       07  23 ESF NO  B8S FDL  -  00
 PRI2 11
 DTI2  06  12  13  21
 MISP
```

```
***************************
```
Route Data Block Configuration
```
***************************
>ld 21
PT1000

REQ: prt
TYPE: rdb
CUST 0
ROUT 106

TYPE RDB
CUST 00
DMOD
ROUT 106
DES  E1_DT2_DID
TKTP DID
NPID_TBL_NUM  0
SAT  NO
RCLS EXT
VTRK NO
NODE
DTRK YES
DGTP DTI2
ISDN NO
DSEL VOD
PTYP DCO
```

AUTO NO
DNIS NO
ICOG IAO
RANX NO
SRCH RRB
TRMB YES
STEP
ACOD 506
CPP NO
TARG 01
CLEN 1
BILN NO
OABS
INST
TIMR ICF 512
   OGF 512
   EOD 13952
   DSI 34944
   NRD 10112
   DDL 70
   ODT 4096
   RGV 640
   FLH 510
   GRD 896
   SFB 3

   IENB 5
   VSS 0
   VGD 6
SST 5 0
NEDC ORG
FEDC ORG
CPDC NO
DLTN NO
HOLD 02 02 40
SEIZ 02 02
SVFL 02 02
DRNG NO
CDR NO
VRAT NO
MUS NO
MR   NO
MANO NO
EQAR NO
FRL 0 0
FRL 1 0
FRL 2 0

PAGE 002

FRL 3 0
FRL 4 0
FRL 5 0
FRL 6 0
FRL 7 0
OHQ NO
OHQT 00
TTBL 0

ATAN NO
OHTD NO
PLEV 2
MCTS NO
ALRM NO
ART 0
OPDL 0
SGRP 0
AACR NO

****
Trunk Data Block Configuration
****
>ld 20

PT0000
REQ: prt
TYPE: did*
TYPE: tnb
TN   6 1
DATE
PAGE
DES

DES E1_CAS
TN   006 01
TYPE DID
CUST 0
TRK DTI2
SICA 3
PDCA 1
PCML A
NCOS 0
RTMB 106 1
NITE
AST NO
IAPG 0
CLS UNR DTN WTA LPR APN THFD
   P10
TKID 106
AACR NO
DATE 25 OCT 2006

****
DTI2 Signaling Category Configuration
****
>ld 73
DDB000
MEM AVAIL: (U/P): 2827806   USED U P: 200312 68457   TOT: 3096575
DISK RECS AVAIL: 1153
REQ prt
TYPE dti2
FEAT abcd
SICA 3
TNLS

IN/OUT CALLS

IDLE (S)1101
IDLE (R)1101
FALT (S)1001
FALT (R)1001
P RRC (S)UNUSED
INCOMING CALLS
E SEZ (R)0101
SEZD (R)UNUSED
SEZV (R)UNUSED
P CALL (R)UNUSED
SEZA (S)1101
  TIME   150
  FSZA   NO
PRCS (S)UNUSED
P WNKS (S)UNUSED
P DIGT (R)UNUSED
NRCV (S)UNUSED
P EOSF (S)UNUSED
EOSF (S)UNUSED
P EOSB (S)UNUSED
EOSB (S)UNUSED
P OPCA (R)UNUSED
E CONN (S)0101
CONN (R)0001
P BURS (S)UNUSED
P BURS (R)UNUSED
C CLRB (S)1101
P RCTL (S)UNUSED
P RCOD (S)UNUSED
P OPRS (R)UNUSED
P NXFR (S)UNUSED
P ESNW (S)UNUSED
P CAS (S)UNUSED
CLRF (R)UNUSED
SOS (R)UNUSED
OUTGOING CALLS
E SEZ (S)0101
SEZD (S)UNUSED
SEZV (S)UNUSED
SEZA (R)1101
P WNKS (R)UNUSED
P EOS (R)UNUSED
CONN (S)0001
E CONN (R)0101
P OPRC (R)UNUSED
P BURS (S)UNUSED
P BURS (R)UNUSED
C CLRB (R)1101
P RCTL (R)UNUSED
P NXFR (R)UNUSED
P ESNW (R)UNUSED
P CAS (R)UNUSED
CLRF (S)UNUSED
SOS (R)UNUSED
MEM AVAIL: (U/P): 2827806   USED U P: 200312 68457   TOT: 3096575
DISK RECS AVAIL: 1153

```
*********************************************
```
DTI2 Physical Configuration
```
*********************************************
>ld 73
DDB000
MEM AVAIL: (U/P): 2827806    USED U P: 200312 68457    TOT: 3096575
DISK RECS AVAIL: 1153
REQ  prt
TYPE dti2
FEAT lpti
LOOP 6


CDTI2  NO
P DIGT (S)  PXXX
P METR (R)  UNUSED
PPMD  NO
SASU    1920
MFAO     NO
SZNI     NO
LCLB     NO
UCFS     1101
MFF      AFF ==============================➔
CRC    205    10  S    3  S    3  S    1  S
BPV    205    10  S    3  S    3  S    1  S
FAP    32    4  S    1  S    1  S    100  T
SLP    20    30  S    10  S    10  S    6  S
GP2    20    100  S    12  S    12  S    4  S
MEM AVAIL: (U/P): 2827806    USED U P: 200312 68457    TOT: 3096575
DISK RECS AVAIL: 1153
```

When MFF=AFF IOS config under E1 controller must be set to "framing NO-crc4, When MFF=CRC IOS config under E1 controller must be set to "framing crc4

```
**********
CDP config
**********
>ld 87
ESN000

MEM AVAIL: (U/P): 2827806    USED U P: 200312 68457    TOT: 3096575
DISK RECS AVAIL: 1152
REQ  prt
CUST 0
FEAT cdp
TYPE dsc
DSC  533
DSC  533
FLEN 0
DSP  LSC
RLI  6
NPA
NXX
```

Station Data Configuration

REQ: prt
TYPE: 2616

TN   1 9
DATE
PAGE
DES

DES CS101A
TN   001 0 00 09
TYPE 2616
CDEN 8D
CUST 0
AOM 0
FDN 2332
TGAR 1
LDN NO
NCOS 0
SGRP 0
RNPG 0
SCI 0
SSU
XLST
CLS CTD FBA WTA LPR MTD FNA HTA ADD HFD
    MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
    POD DSX VMD CMSD SLKD CCSD SWD LND CNDA
    CFTA SFD MRD DDV CNIA 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 AGRD MOAD AHD
    DDGA NAMA
    DRDD EXR0
    USRD ULAD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN CDMR
CPND_LANG ENG
RCO 0
EFD 2332
HUNT 2332
EHT 2332
LHK 0
PLEV 02
CSDN
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
DNDR 0
KEY 00 SCR 2333 0   MARP
    CPND
     NAME ZEUS_2333
     XPLN 9
     DISPLAY_FMT FIRST,LAST
   01

```
02
03 CFW 4  2332
04 AO6
05 TRN
06
07
08
09
10
11
12
13
14
15 RGA
```

Cisco IAD2432 24FXS Configuration

```
IAD_cs101#sh run
Building configuration...

Current configuration : 2256 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname IAD_cs101
!
boot-start-marker
boot system flash:c2430-ik9o3s-mz-124-9.T1.bin
boot-end-marker
!
card type e1 1
logging buffered 10000000 debugging
no logging console
enable secret 5 $1$WJPz$ZoIKHvDdxxTEDUc2AwOoM0
!
no aaa new-model
!
resource policy
!
network-clock-participate E1 1/0
network-clock-participate E1 1/1
network-clock-select 1 E1 1/1
!
!
no ip domain lookup
!
!
!
isdn switch-type primary-qsig
!
voice-card 0
!
!
!
!
!
```

```
voice service voip
 notify redirect ip2pots
!
!
!
!
!
!
!
controller E1 1/0
 shutdown
 framing NO-CRC4
!
controller E1 1/1
 mode cas
 framing NO-CRC4
 ds0-group 0 timeslots 1-15,17-30 type e&m-melcas-immed
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 172.20.8.40 255.255.255.0
 ip broadcast-address 0.0.0.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 ip broadcast-address 0.0.0.0
 shutdown
 duplex auto
 speed auto
!
ip default-gateway 172.20.8.1
ip http server
no ip http secure-server
!
ip route 0.0.0.0 0.0.0.0 172.20.8.1
!
!
!
tftp-server flash:c2430-is-mz.sb93109
!
!
control-plane
!
!
!
voice-port 1/1:0
!
voice-port 2/0
!
voice-port 2/1
!
voice-port 2/2
!
```

```
voice-port 2/3
!
voice-port 2/4
!
voice-port 2/5
!
voice-port 2/6
!
voice-port 2/7
!
voice-port 2/8
!
voice-port 2/9
!
voice-port 2/10
!
voice-port 2/11
!
voice-port 2/12
!
voice-port 2/13
!
voice-port 2/14
!
voice-port 2/15
!
voice-port 2/16
!
voice-port 2/17
!
voice-port 2/18
!
voice-port 2/19
!
voice-port 2/20
!
voice-port 2/21
!
voice-port 2/22
!
voice-port 2/23
!
!
!
!
dial-peer voice 2330 pots
 destination-pattern 2...
 supplementary-service pass-through
 port 1/1:0
 forward-digits all
!
dial-peer voice 5330 voip
 destination-pattern 5...
 session protocol sipv2
 session target ipv4:172.20.8.41
 dtmf-relay rtp-nte
 supplementary-service pass-through
!
dial-peer voice 4000 voip
```

```
 destination-pattern 4...
 session protocol sipv2
 session target ipv4:172.20.8.41
 dtmf-relay rtp-nte
 supplementary-service pass-through
!
!
gateway
 timer receive-rtp 1200
!
!
!
line con 0
 password cisco
 login
line aux 0
line vty 0 4
 exec-timeout 0 0
 password cisco
 login
!
end

IAD_cs101#
```

Acronyms

Acronym	Definitions
IAD	Integrated Access Device
SIP	Session Initiation Protocol

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