

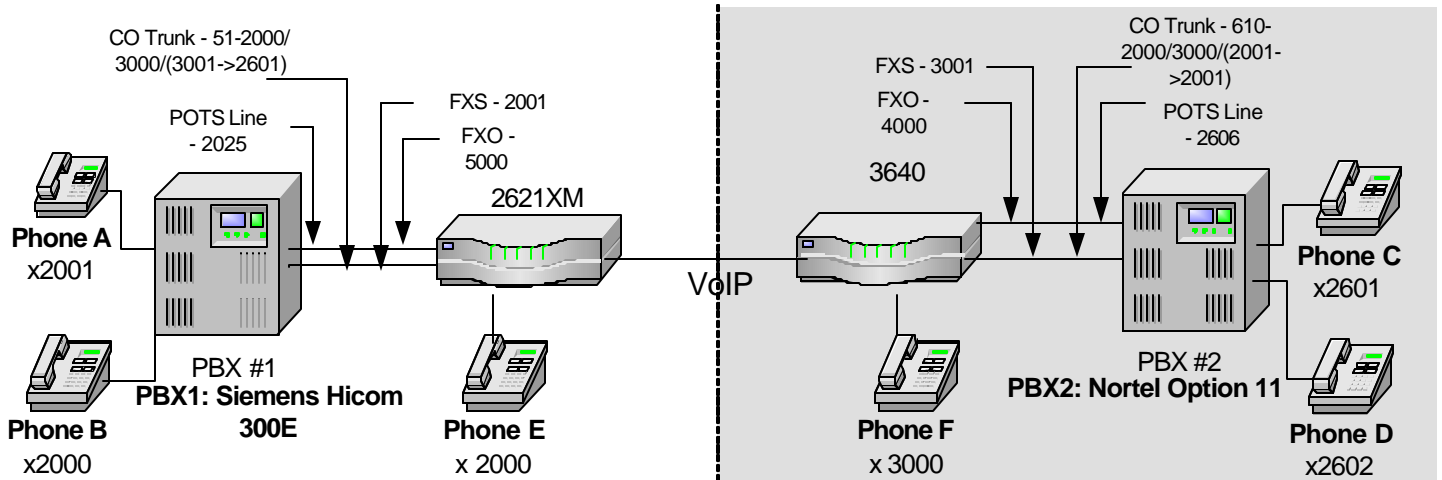
Cisco 3640 Gateway - PBX Interoperability: Nortel Option 11 PBX using Analog FXS/FXO Interfaces to an MGCP Gateway

Introduction

- This application note describes the interoperability of a Cisco 3640 gateway and a Nortel Option 11 PBX using analog FXS/FXO interface ports.
- The network topology diagram shows the end-to-end interoperability.

Network Topology

Basic Call Setup End-to-End Configuration





Limitations

The FXO voice port goes off-hook on the first ring of an incoming seizure before the targeted phone has answered. The PBX analog extension does not support disconnect supervision, which causes trunk hang issues and long ring-no answer times. For additional information, refer to *FXO Answer and Disconnect Supervision* at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t2/ft_ansds.htm

System Components

Hardware Requirements

- Cisco 3640 gateway with analog VIC 2FXO and VIC 2FXS interface cards
- Nortel Option 11 PBX

Software Requirements

- Cisco IOS Software Release 3640-is-mz.122-10.7.T6
- Nortel Software Version 2111, Release 24, Issue 24

Configuration

Configuring the Nortel Option 11 PBX

Nortel Switch Configuration

```
REQ prtTYPE parmPARM
  LPIB 192
  HPIB 32
  500B 16
  NCR 200
  MGCR NULL
  CFWS YES
  PCML MU
  ALRM YES
  ERRM ERR BUG AUD
  DTRB 50
  TMRK 128
  FCDR OLD
  PCDR NO
  TPO NO
  TSO NO
  CLID YES
  DUR5 NO
  MLDN YES
  MARP NO
  FRPT NEFR
  DCUS NULL
  MSCL 255
  PMSI
  MANU PMS1
  PMCR 20
  PORT NONE
  NDIS 20
  OCAC NO
  MTRO MR
```



```
SBA_ADM_INS 001
SBA_USER 010
BCAP SPEECH
NORTEL_BRAND NO
```

Common Equipment Configuration

```
REQ PRT
TYPE 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 003 24 ESF B8S FDL - 00
     004 24 ESF B8S FDL - 00
     005 24 ESF B8S FDL - 00
```

```
PRI2 06 07
```

```
DTI2
```

```
MISP
```

Route Data Block for Loop Start CO Trunk

```
>ld 21
```

```
REQ: prtTYPE: rdbCUST 0ROUT 10
```

```
TYPE RDB
```

```
CUST 00
```

```
DMOD
```

```
ROUT 10
```

```
DES ANALOG_LOOP_COT
```

```
TKTP COT
```

```
PRIV NO
```

```
SAT NO
```

```
RCLS EXT
```

```
DTRK NO
```

```
ISDN NO
```

```
PTYP ACO
```

```
AUTO YES
```

```
ICOG IAO
```

```
RANX NO
```

```
SRCH RRB
```

```
TRMB YES
```

```
STEP
```

```
ACOD 610
```

```
CPP NO
```

```
TARG 01
```

```
CLEN 1
```

```
BILN NO
```

```
OABS
```

```
TIMR ICF 512
```

```
OGF 512
```

```
EOD 13952
```



DSI 34944
NRD 10112
DDL 70
ODT 4096
RGV 640
FLH 510
GRD 896
SFB 3
CRD 512
TFD 0
LEXT 100
SST 3 0
NEDC ETH
FEDC ORG
CPDC NO
SPCT IMM
HOLD 02 02 40
SEIZ 02 02
RGFL 02 02
RVSD 08 31
ILLR 02 02
DRNG NO
CDR NO
MUS NO
MR NO
MANO NO
EQAR NO
OHQ NO
OHQT 00
TTBL 0
OHTD NO
PLEV 2
MCTS NO
ALRM NO
ART 0
SGRP 0
AACR NO

Trunk Data Block for Loop Start CO Trunk

>
OVL000
>ld 20
PT0000
MARP NOT ACTIVATED

REQ: prtTYPE: tnbTN 9 0 0 0DATE PAGE DES
TN 009 0 00 00
TYPE COT
CDEN 8D
CUST 0
XTRK XUT
TIMP 600
BIMP 600
TRK ANLG
NCOS 0
RTMB 10 1
ATDN 2601
SIGL LOP
SUPN NO



```
AST NO
IAPG 0
CLS UNR DTN CND WTA LPR APN THFD
P10 NTC LOL
TKID
```

Analog Phone Configuration

```
>ld 10PBX000
MARP NOT ACTIVATED
```

```
MEM AVAIL: (U/P): 1272407    USED U P: 106347 95805    TOT: 1474559
DISK RECS AVAIL: 476
TNS    AVAIL:    47    USED:    153    TOT:    200
ACD AGENTS AVAIL:    300    USED:    0    TOT:    300
ANALOGUE TELEPHONES AVAIL: 2498    USED:    2    TOT:    2500
AST    AVAIL:    100    USED:    0    TOT:    100
WIRELESS TELEPHONES AVAIL: 2500    USED:    0    TOT:    2500
```

```
REQ: prtTYPE: 500
```

```
MARP NOT ACTIVATED
```

```
TN 002 0 0 0DATE PAGE DES
DES TEST1
TN 002 0 00 00
TYPE 500
CDEN 4D
CUST 0
WRLS NO
DN 2606 0 MARP
AST NO
IAPG 0
HUNT
TGAR 0 LDN NO
NCOS 0
SGRP 0
RNPG 0
XLST
SCI 0
CLS CTD DTN FBD XFD WTA THFD FND HTD ONS
LPR XRD CWD SWD MWD RMMD SMWD LPD XHD CCSD LND TVD
CFTD SFD MRD C6D CNID CLBD AUTU
ICDD CDMD LLCN EHTD MCTD
GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTA ASCD
MBXD CPFA CPTA DDGA NAMA
MCRD
EXR0 SHL ABDD CFHD DNDY DNO3
CWND USMD USRD BNRD RTDD RBDD RBHD FAXA CNUD CNAD PGND FTTC
PLEV 02
AACS NO
MLWU_LANG 0
```

Digital Station Phone 2601 Configuration

```
>ld 11SL1000
MARP NOT ACTIVATED
```

```
MEM AVAIL: (U/P): 1272407    USED U P: 106347 95805    TOT: 1474559
DISK RECS AVAIL: 476
TNS    AVAIL:    47    USED:    153    TOT:    200
```



ACD AGENTS AVAIL: 300 USED: 0 TOT: 300
AST AVAIL: 100 USED: 0 TOT: 100
DIGITAL TELEPHONES AVAIL: 2494 USED: 6 TOT: 2500

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
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 0
SCI 0
SSU XLST
CLS CTD FBD WTA LPR MTD FND HTD ADD HFD
MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
POD DSX VMD CMSD CCSD SWD LND CNDA
CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF
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 RTDA RBDD RBHD PGND FLXD FTTC DNDY DNO3
CPND_LANG ENG
HUNT
PLEV 02
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
DNDR 0
ARTO 0
AFD
AHNT
KEY 00 SCR 2601 0 MARP
CPND
NAME BERT
XPLN 27
DISPLAY_FMT FIRST, LAST
01 SCR 3510 0 MARP
02
03 CFW 12 2002
04 AO6
05 TRN
06 DSP
07
08 ADL 16 7055573500
09 ADL 16
10 ADL 16
11 ADL 16



```
12 ADL 16
13 ADL 16
14 ADL 16
15
```

Configuring the Cisco 3640 Router

```
Router# show running-config
Building configuration...
```

```
Current configuration : 2258 bytes
!
version 12.2
no parser cache
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
no service dhcp
!
hostname 3640_Analog
!
no logging buffered
enable password cisco
!
voice-card 1
!
ip subnet-zero
!
!
no ip domain lookup
!
isdn switch-type primary-net5
isdn voice-call-failure 0
!
voice call carrier capacity active
!
mta receive maximum-recipients 0
!
controller E1 1/0
 framing NO-CRC4
 ds0-group 1 timeslots 1 type e&m-immediate-start
!
controller E1 1/1
 clock source internal
 pri-group timeslots 1-31
!
interface Ethernet0/0
 ip address 10.10.10.102 255.255.255.0
 no ip mroute-cache
 shutdown
 full-duplex
 no cdp enable
!
interface Ethernet0/1
 ip address 1.1.1.1 255.255.255.0
 no ip mroute-cache
 full-duplex
 no cdp enable
!
interface Serial1/1:15
 no ip address
 no logging event link-status
```



```
isdn switch-type primary-net5
isdn overlap-receiving
isdn protocol-emulate network
isdn incoming-voice voice
no cdp enable
!
ip classless
no ip http server
!
no cdp run
!
snmp-server manager
call rsvp-sync
!
voice-port 1/0:1
shutdown
!
voice-port 1/1:15
!
voice-port 2/0/0
!
voice-port 2/0/1
!
voice-port 2/1/0
!
voice-port 2/1/1
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
no mgcp timer receive-rtcp
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 1 pots
shutdown
destination-pattern 5...
direct-inward-dial
forward-digits all
!
dial-peer voice 2 voip
destination-pattern 2...
session target ipv4:1.1.1.2
!
dial-peer voice 3 pots
destination-pattern 3000
port 3/0/0
!
dial-peer voice 4 pots
destination-pattern 3001
port 3/0/1
!
dial-peer voice 5 pots
shutdown
destination-pattern 3...
```




```
progress_ind setup enable 1
direct-inward-dial
forward-digits all
!
dial-peer voice 6 pots
destination-pattern 4...
port 1/1:15
prefix 4
!
dial-peer voice 7 voip
destination-pattern 5...
session target ipv4:1.1.1.2
dtmf-relay h245-alphanumeric
!
dial-peer voice 8 pots
shutdown
destination-pattern 5...
direct-inward-dial
prefix 5
!
dial-peer voice 9 pots
destination-pattern 4000
port 3/1/0
!
dial-peer voice 10 pots
destination-pattern 6000
port 2/1/0
!
line con 0
line aux 0
line vty 0 4
login
!
end
```

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