Application Note

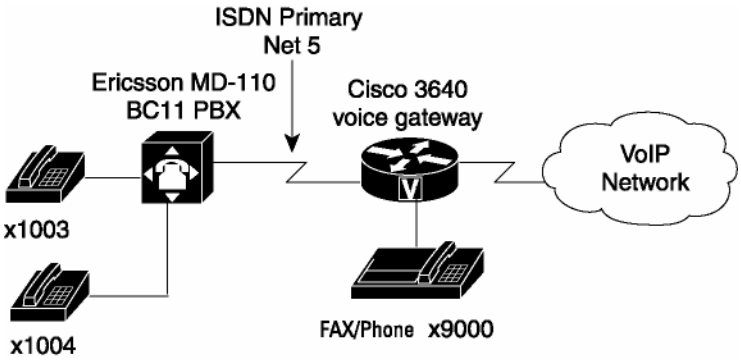
Cisco 3640 Gateway - PBX Interoperability: Ericsson MD-110 PBX using E1 ISDN Primary Net5 Interfaces to an H.323 Gateway

Introduction

- This note describes the interoperability between the Ericsson MD-110 PBX using E1 ISDN primary Net5 interfaces to a Cisco 3640XM gateway.
- The Network Topology diagram shows the end-to-end interoperability.

Network Topology

Figure 1. Network Topology



Limitations

- None noted.

System Components

Hardware Requirements

- Ericsson MD-110 PBX
- Cisco 3640 gateway
- NM-HDV-2E1

Software Requirements

- Cisco IOS Software Release 12.2(13)T
- PBX Software Release, BC11

Configuration

Configuring the Ericsson MD-110

System Board and Equipment

```
<SYEDP:LIM=1;
SYSTEM EQUIPMENT DATA
EQU           BOARDID   TYPE    DIR      ROU/TRU
001-0-00-00        27    -
001-0-00-01        27   TL30               8/001-01
001-0-00-02        27   TL30               8/001-02
001-0-00-03        27   TL30               8/001-03
001-0-00-04        27   TL30               8/001-04
001-0-00-05        27   TL30               8/001-05
001-0-00-06        27   TL30               8/001-06
001-0-00-07        27   TL30               8/001-07
001-0-00-08        27   TL30               8/001-08
001-0-00-09        27   TL30               8/001-09
001-0-00-10        27   TL30               8/001-10
001-0-00-11        27   TL30               8/001-11
001-0-00-12        27   TL30               8/001-12
001-0-00-13        27   TL30               8/001-13
001-0-00-14        27   TL30               8/001-14
001-0-00-15        27   TL30               8/001-15
001-0-00-17        27   TL30               8/001-16
001-0-00-18        27   TL30               8/001-17
001-0-00-19        27   TL30               8/001-18
001-0-00-20        27   TL30               8/001-19
001-0-00-21        27   TL30               8/001-20
001-0-00-22        27   TL30               8/001-21
001-0-00-23        27   TL30               8/001-22
001-0-00-24        27   TL30               8/001-23
001-0-00-25        27   TL30               8/001-24
001-0-00-26        27   TL30               8/001-25
001-0-00-27        27   TL30               8/001-26
001-0-00-28        27   TL30               8/001-27
001-0-00-29        27   TL30               8/001-28
001-0-00-30        27   TL30               8/001-29
001-0-00-31        27   TL30               8/001-30
001-0-10-00       102   AD
     .
     .
001-0-10-31       102   AD
001-0-20-00        77   KL1     1001
001-0-20-01        77   KL1     1002
001-0-20-02        77   KL1     1003
001-0-20-03        77   KL1     1004
001-0-20-04        77   KL1     1005
001-0-20-05        77   KL1     1006
001-0-20-06        77   KL1     1007
001-0-20-07        77   KL1     1008
001-0-20-08        77   KL1     1009
001-0-20-09        77   KL1     1010
```

001-0-20-10	77	KL1	1011	
001-0-20-11	77	KL1	1012	
001-0-20-12	77	KL1	1013	
001-0-20-13	77	KL1	1014	
001-0-20-14	77	KL1	1015	
001-0-30-00	57	-		
001-0-30-01	**57**	**SL60**		**1/001-01**
001-0-30-02	**57**	**SL60**		**1/001-02**
001-0-30-03	**57**	**SL60**		**1/001-03**
001-0-30-04	**57**	**SL60**		**1/001-04**
001-0-30-05	**57**	**SL60**		**1/001-05**
001-0-30-06	**57**	**SL60**		**1/001-06**
001-0-30-07	**57**	**SL60**		**1/001-07**
001-0-30-08	**57**	**SL60**		**1/001-08**
001-0-30-09	**57**	**SL60**		**1/001-09**
001-0-30-10	**57**	**SL60**		**1/001-10**
001-0-30-11	**57**	**SL60**		**1/001-11**
001-0-30-12	**57**	**SL60**		**1/001-12**
001-0-30-13	**57**	**SL60**		**1/001-13**
001-0-30-14	**57**	**SL60**		**1/001-14**
001-0-30-15	**57**	**SL60**		**1/001-15**
001-0-30-17	**57**	**SL60**		**1/001-17**
001-0-30-18	**57**	**SL60**		**1/001-18**
001-0-30-19	**57**	**SL60**		**1/001-19**
001-0-30-20	**57**	**SL60**		**1/001-20**
001-0-30-21	**57**	**SL60**		**1/001-21**
001-0-30-22	**57**	**SL60**		**1/001-22**
001-0-30-23	**57**	**SL60**		**1/001-23**
001-0-30-24	**57**	**SL60**		**1/001-24**
001-0-30-25	**57**	**SL60**		**1/001-25**
001-0-30-26	**57**	**SL60**		**1/001-26**
001-0-30-27	**57**	**SL60**		**1/001-27**
001-0-30-28	**57**	**SL60**		**1/001-28**
001-0-30-29	**57**	**SL60**		**1/001-29**
001-0-30-30	**57**	**SL60**		**1/001-30**
001-0-30-31	**57**	**SL60**		**1/001-31**
001-0-42-00	58	SL60		40/001-01
001-0-42-01	58	SL60		40/001-02
001-0-50-00	87	EL6	1051	
001-0-50-01	87	EL6	1052	
001-0-50-02	87	EL6	1053	
001-0-50-03	87	EL6	1054	
001-0-50-04	87	EL6	1055	
001-0-50-05	87	EL6	1056	
001-0-50-06	87	EL6	1057	
001-0-50-07	87	EL6	1058	
001-0-50-08	87	EL6	1059	
001-0-50-09	87	EL6	1060	
001-0-50-10	87	EL6	1061	
001-0-50-11	87	EL6	1062	

```
001-0-50-12         87   EL6     1063
001-0-50-13         87   EL6     1064
001-0-50-14         87   EL6     1065
001-0-60-00        106   -
001-0-60-01        106   -
001-0-63-00         95   -
     .
     .
001-0-63-05         95   -
001-0-70-00         42   LPU
     .
     .
001-0-70-31         42   LPU
END
```

D-channel

```
<ROCAP:ROU=1;
ROUTE CATEGORY DATA

ROU SEL              TRM SERV       NODG DIST DISL TRAF     SIG          BCAP

1   411000000070001 4   3110000011  0    30   128  00151515 311110000031 001100

END
```

Route Data

```
<RODAP:ROU=1;
ROUTE DATA

ROU   TYPE  VARC        VARI        VARO        FILTER

1     SL60  H'00001310  H'05400000  H'064000010  NO     ←--------4 in VARO means user side, if network, change it to 2

END
```

Class of Service

```
<RODDP:DEST=ALL;
EXTERNAL DESTINATION ROUTE DATA

DEST  DRN ROU CHO CUST ADC                        TRC SRT NUMACK PRE
```

```
21        1            12250000000002501020011    0   3   0

END

Phone Class of Service
<KSCAP:DIR=ALL;
KEY SYSTEM CATEGORY PRINT

DIR    TRAF      SERV       CDIV       ROC     ITYPE  TRM  ADC          LANG

1003   00151515  020272050  011151111  000001  19     0    00100013010  0
1004   00151515  020272050  011151111  000001  19     0    00100013010  0

END
```

Configure Digital Phone

```
<KSFKP:DIR=ALL;
KEY SYSTEM FUNCTION KEY DATA PRINT

DIR = 1003

KEY          KTYPE        VALUE        DIG

 00          PGM
 01          FCN          CAB
 02          FCN          CAD
 03          FCN          TNS
 09          ODN          1003
 10          ODN          1003
 11          ODN          1003
 13          FCN          TNS
 14          FCN          TNS


DIR = 1004

KEY          KTYPE        VALUE        DIG

 00          PGM
 01          FCN          CAB
 02          FCN          CAD
 03          FCN          TNS
 09          ODN          1004
 10          ODN          1004
 11          ODN          1004
 13          FCN          TNS
 14          FCN          TNS
```

END

Configuring the Cisco 3640 Router

The following sample output shows the router configuration for interoperability with the PBX.

```
3640_D#wr ter
Building configuration...
Current configuration : 2172 bytes
!
version 12.2
service timestamps debug datetime msec
service timestamps log uptime
no service password-encryption
no service dhcp
!
hostname "3640_D"
!
boot system slot0:c3640-is-mz.122-13.T
!
voice-card 3
!
ip subnet-zero
!
!
no ip domain lookup
!
isdn switch-type primary-net5
!
!
voice rtp send-recv
!
voice service voip
 fax protocol t38 ls-redundancy 0 hs-redundancy 0 fallback cisco
!
fax interface-type fax-mail
 mta receive maximum-recipients 0
!
controller E1 3/0
 pri-group timeslots 1-31
!
controller E1 3/1
!
!
```

```
interface Ethernet0/0
 ip address 10.2.50.4 255.255.255.0
 full-duplex
 no cdp enable
 h323-gateway voip bind srcaddr 10.2.50.4
!
interface Ethernet0/1
 no ip address
 shutdown
 half-duplex
 no cdp enable
!
interface Serial3/0:15
  no ip address
 no logging event link-status
 isdn switch-type primary-net5
 isdn overlap-receiving
 isdn protocol-emulate network     <-------configure gateway side as the NETWORK side
 isdn incoming-voice voice
!
no cdp enable
!
ip classless
ip route 0.0.0.0 0.0.0.0 10.2.50.6
no ip http server
ip pim bidir-enable
!
!
no cdp run
!
tftp-server flash
tftp-server nvram
snmp-server manager
call rsvp-sync
!
voice-port 2/0/0
  station-id name phone_E
 station-id number 9000
!
voice-port 2/0/1
!
voice-port 3/0:15
!
mgcp profile default
```

```
!
dial-peer cor custom
!
dial-peer voice 1 pots
 destination-pattern 9000
 port 2/0/0
!
dial-peer voice 999 voip
 incoming called-number .
 destination-pattern 5...
 session target ipv4:10.2.50.6
 fax rate 14400
!
dial-peer voice 999 voip
 incoming called-number .
 destination-pattern 8...
 session target ipv4:10.2.50.6
 fax rate 14400
!
dial-peer voice 888 pots
 incoming called-number .
 destination-pattern 1...
 direct-inward-dial
 port 3/0:15
 prefix 1
!
line con 0
line aux 0
line vty 0 4
 password cisco
 no login
!
end
```

Important Information

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on **the Cisco Web site at www.cisco.com/go/offices.**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico• The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Printed in the USA