Cisco 3640 Gateway - PBX Interoperability: Lucent/Avaya Definity G3si V9 PBX with E1 ISDN PRI to an MGCP Gateway
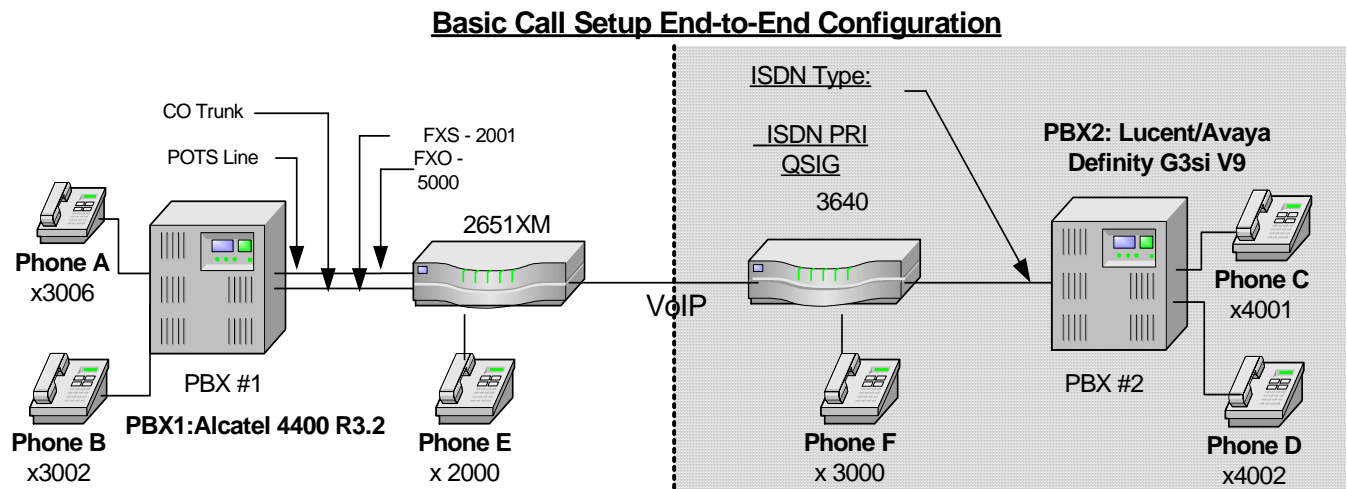
Introduction

This note describes the interoperability of the Lucent/Avaya Definity G3si V9 PBX and the Cisco 3640 router in an MGCP gateway.

The signaling protocol is E1 ISDN PRI and QSIG.

The network topology diagram shows the end-to-end interoperability.

Network Topology

Figure 1. Network Topology

Limitations

None

System Components

Hardware Requirements

Cisco 3640 router

Lucent/Avaya Definity G3si V9 PBX

Software Requirements

Cisco IOS Release 12.2(10.7)T6

PBX Software Version: V9

Configuration

Configure CO loop-start trunk

Configure analog station

Configure digital station

Configuring the Lucent/Avaya Definity G3si V9 PBX

Configure the DS1 circuit pack. Use the following screens as a reference.

File   Edit   View   System   Action   Tools   Window   Help

AvayaV9

change ds1 a14 | send (return) | help (f5) | cancel (esc) | enter (f3) | schedule (f9) | next (f7) | previous (f8) | next form (f6)

1

DS1 CIRCUIT PACK

```
             Location: 01A14                          Name: E1-ISDN QSIG
             Bit Rate: 2.048                   Line Coding: hdb3

       Signaling Mode: isdn-pri
              Connect: network
  CentreVu Long Timers? n               Country Protocol: 1
  Interworking Message: PROGress        Protocol Version: b
  Interface Companding: alaw                        CRC? y
             Idle Code: 11111111
                           DCP/Analog Bearer Capability: 3.1kHz




       Slip Detection? n          Near-end CSU Type: other
```

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NUM

File Edit View System Action Tools Window Help

AvayaV9

change signaling-group 14   send (return)   help (f5)   cancel (esc)   enter (f3)   schedule (f9)   next (f7)   previous (f8)   next form (f6)

```
1  2  3  4  5
```

                           SIGNALING GROUP

Group Number: 14
              Associated Signaling? y   Max number of NCA TSC: 0
                 Primary D-Channel: 01A1416   Max number of CA TSC: 0
                                             Trunk Group for NCA TSC:
    Trunk Group for Channel Selection: 14
        Supplementary Service Protocol: a

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AvayaV9

change trunk-group 14 | send (return) | help (f5) | cancel (esc) | enter (f3) | schedule (f9) | next (f7) | previous (f8) | next form (f6)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

```
                              TRUNK GROUP

 Group Number: 14              Group Type: isdn        CDR Reports: y
   Group Name: E1 ISDN              COR: 1      TN: 1        TAC: 669
    Direction: two-way     Outgoing Display? y
  Dial Access? y           Busy Threshold: 99        Night Service:
 Queue Length: 0
 Service Type: tandem                            TestCall ITC: rest
                    Far End Test Line No:
TestCall BCC: 4
TRUNK PARAMETERS
           Codeset to Send Display: 7    Codeset to Send National IEs: 7
          Max Message Size to Send: 260  Charge Advice: none
     Supplementary Service Protocol: c   Digit Handling (in/out): enbloc/enbloc


                Trunk Hunt: ascend
                                          Digital Loss Group: 13
 Calling Number - Delete:      Insert:                Numbering Format:
               Bit Rate: 1200      Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? y
 Answer Supervision Timeout: 0
```

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```
DEFINITY® Site Administration - [AvayaV9 GEDI]                          _ □ ×
File  Edit  View  System  Action  Tools  Window  Help                  _ 8 ×

  [toolbar]                              AvayaV9          ▼

change trunk-group 14    ▼  send (return)   help (f5)  cancel (esc)  enter (f3)  schedule (f9)  next (f7)  previous (f8)  next form (f6)

 1   2   3   4   5   6   7   8   9  10

TRUNK FEATURES
              ACA Assignment? n          Measured: none      Wideband Support? n
                                                          Maintenance Tests? y
                     Data Restriction? n    NCA-TSC Trunk Member:
                           Send Name: y     Send Calling Number: y
          Used for DCS? n          Hop Dgt? n
   Suppress # Outpulsing? n   Numbering Format: public
  Outgoing Channel ID Encoding: exclusive   UUI IE Treatment: service-provider

                                        Replace Restricted Numbers? y
                                        Replace Unavailable Numbers? n
                                         Send Connected Number: y


             Send UCID? n
  Send Codeset 6/7 LAI IE? n                   Ds1 Echo Cancellation? n
```

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AvayaV9

change trunk-group 14 | send (return) | help (f5) | cancel (esc) | enter (f3) | schedule (f9) | next (f7) | previous (f8) | next form (f6)

| 1 | 2 | 3 | **4** | 5 | 6 | 7 | 8 | 9 | 10 |

TRUNK GROUP

Administered Members (min/max):   1/30

GROUP MEMBER ASSIGNMENTS   Total Administered Members: 30

	Port	Code	Sfx	Name	Night	Sig Grp
1:	01A1401	TN464	F			14
2:	01A1402	TN464	F			14
3:	01A1403	TN464	F			14
4:	01A1404	TN464	F			14
5:	01A1405	TN464	F			14
6:	01A1406	TN464	F			14
7:	01A1407	TN464	F			14
8:	01A1408	TN464	F			14
9:	01A1409	TN464	F			14
10:	01A1410	TN464	F			14
11:	01A1411	TN464	F			14
12:	01A1412	TN464	F			14
13:	01A1413	TN464	F			14
14:	01A1414	TN464	F			14
15:	01A1415	TN464	F			14

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DEFINITY® Site Administration - [AvayaV9 GEDI]

File   Edit   View   System   Action   Tools   Window   Help

AvayaV9

change trunk-group 14 | send (return) | help (f5) | cancel (esc) | enter (f3) | schedule (f9) | next (f7) | previous (f8) | next form (f6)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

```
                            TRUNK GROUP
                         Administered Members (min/max):    1/30
      GROUP MEMBER ASSIGNMENTS           Total Administered Members:   30

              Port      Code Sfx Name          Night          Sig Grp
      16:  01A1417   TN464   F                                   14
      17:  01A1418   TN464   F                                   14
      18:  01A1419   TN464   F                                   14
      19:  01A1420   TN464   F                                   14
      20:  01A1421   TN464   F                                   14
      21:  01A1422   TN464   F                                   14
      22:  01A1423   TN464   F                                   14
      23:  01A1424   TN464   F                                   14
      24:  01A1425   TN464   F                                   14
      25:  01A1426   TN464   F                                   14
      26:  01A1427   TN464   F                                   14
      27:  01A1428   TN464   F                                   14
      28:  01A1429   TN464   F                                   14
      29:  01A1430   TN464   F                                   14
      30:  01A1431   TN464   F                                   14
```

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DEFINITY® Site Administration - [AvayaV9 GEDI]

File Edit View System Action Tools Window Help

AvayaV9

change dialplan | send (return) | help (f5) | cancel (esc) | enter (f3) | schedule (f9) | next (f7) | previous (f8) | next form (f6)

DIAL PLAN RECORD

Local Node Number: 1
ETA Node Number:
Uniform Dialing Plan: 4-digit   ETA Routing Pattern:
UDP Extension Search Order: udp-table-first

FIRST DIGIT TABLE

First Digit	- 1 -	- 2 -	- 3 -	Length - 4 -	- 5 -	- 6 -
1:				pextension		
2:				extension		
3:				extension		
4:				extension		
5:						
6:			dac			
7:						
8:	fac					
9:	fac					
0:	attd					
*:			fac			
#:						

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Ready   NUM

Configure the Cisco 3640 Router

Verify the loop-start configuration using the **show running-config** command. The following is sample output.

```
3640_Analog#sh running-config

Building configuration...

Current configuration : 2297 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
!
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
 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 protocol-emulate network
 isdn incoming-voice voice
 no cdp enable
!
interface BRI2/0
 no ip address
 isdn switch-type basic-qsig
 isdn protocol-emulate network
 isdn layer1-emulate network
 isdn incoming-voice voice
 isdn static-tei 0
 isdn skipsend-idverify
!
interface BRI2/1
 no ip address
 shutdown
 isdn switch-type basic-qsig
 isdn overlap-receiving
 isdn incoming-voice voice
!
ip classless
no ip http server
!
no cdp run
```

```
!
snmp-server manager
call rsvp-sync
!
voice-port 1/0:1
!
voice-port 1/1:15
!
voice-port 2/0/0
!
voice-port 2/0/1
!
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
 port 2/0/0
 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
 port 2/0/1
 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
!
dial-peer voice 8 pots
 destination-pattern 8000
 port 3/1/0
!
line con 0
line aux 0
line vty 0 4
 login
!
```

```
end
```

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