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Lab 6 Part 2: VOIP Advanced (Ringtone, Music on Hold, Calling Outside of the Network)

Purpose

The purpose of this lab is to set a ringtone and music on hold for the two phones in part of this lab, and use the phone to call outside of the network. We learned how to configure the detailed and advanced part of setting up IP phones, a skill crucial to managing communication between enterprises and companies. This lab was a continuation of the second part of the lab.

Background Information on Lab Concepts

Trivial File Transfer Protocol (TFTP) Server: Literally, a server that transfers files from one device to another. TFTP is notable for its simplicity, for a trivial amount of memory is required for the implementation of this protocol.

Music on Hold: Music on Hold is literally music that puts customers in "hold," or waiting until the service provider needs to separate him/herself from the phone. It is mainly designed for customer services, especially when the service provider has to put the customer on hold for finding necessary information for a long period of time. The setup is relatively simple on CUCM: by clicking "Find and List Music on Hold Server Audio Server," one can easily set up Music on hold.

Custom Ringtone (feature of CUCM): Similar to Music on Hold, Custom Ringtone is music that plays while the customer waits for the receiver (service provider) to pick up the phone. Some enterprises have replaced their ringtones with a description of themselves, or a system that leads to different branches of them. Ringtone is often crucial to an enterprise's communication with customers.

Raw audio format: A format for storing uncompressed audio files in a file with an ending of .raw. Using this format, we reduced the size of the audio file that we wanted to use for Custom Ringtone and Music on hold to less than 9 seconds.

Calling outside of the network: Calling outside of a network is a crucial part of communication, from one enterprise to another. To do this, a phone line is required.

Lab Summary

Music on Hold

Custom Ringtone

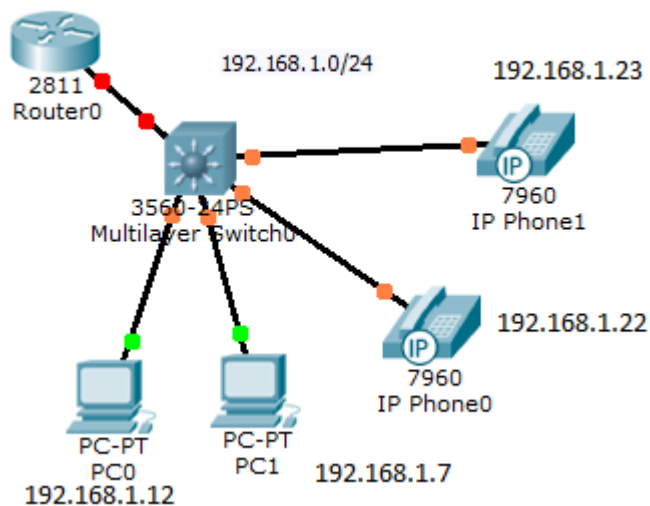
Calling outside of the network

Lab Commands

Router(config)# voice service voip	Configures VOIP's calling option
Router(config-voice)# allow connections h323 to h323	Establishes a H323 connection on the router.
Router(config-voice)# h323	Enables H323 connection
Router(config-if)# h323-gateway voip bind scraddr [IP address of the Router]:	Binds H323 to the router
Router(config)# dial-peer voice 10 pots	Enables POTS on the router
Router(config)# destination-pattern 9..... (ten periods)	Establishes a connection between the specified phone number and the destination pattern

Network Diagram with IP's

The following is the same network diagram as the one I used in part 1:



Configurations

Show run on R1 (Same as that of part 1)

```
hostname R1
!
memory-size iomem 10
clock timezone PST -8
no network-clock-participate slot 1
!
no ip dhcp use vrf connected
ip dhcp excluded-address 192.168.1.1
ip dhcp excluded-address 192.168.1.5
ip dhcp excluded-address 192.168.1.6
!
ip dhcp pool Voip
network 192.168.1.0 255.255.255.0
dns-server 192.168.1.1
default-router 192.168.1.1
domain-name Voip
```

```

option 150 ip 192.168.1.6
!
ip domain name Voip
ip name-server 192.168.1.1
!
voice-card 0
no dspfarm
!
voice-card 1
no dspfarm
!
voice service voip
allow-connections h323 to h323
h323
!
voice class h323 1
h225 timeout tcp establish 3
!
interface FastEthernet0/1
ip address 192.168.1.1 255.255.255.0
duplex auto
speed auto
h323-gateway voip bind srcaddr 192.168.1.1
!
ip classless
!
voice-port 0/3/0
!
voice-port 0/3/1
!
voice-port 0/3/2
!
voice-port 0/3/3
!
voice-port 1/0/0
!
voice-port 1/0/1
!
dial-peer voice 10 pots
destination-pattern 9.....
port 0/3/0
forward-digits all
!
scheduler allocate 20000 1000
ntp broadcastdelay 10
ntp source FastEthernet0/0
ntp master 4
ntp update-calendar
ntp server 192.168.1.1
!
end

```

Problem

The main issue I had while uploading the .raw file was that the TFTP server could not recognize which file was designated as the Ringtone. This was due to my lack of prudence: I had not activated the TFTP server in CUCM. The message "TFTP Write Error" showed up, but I could not figure out the error. As I encountered this, I realized that careful planning was the key to success in this lab, for I did not find that the TFTP server were reactivated. Later on, I discovered that as I suspended my computer for future usage, the IP address was reset too.

In addition, I had some Layer 1 issues, for the phone line was too short to be connected with the phone in the network that I had set up. I initially thought that I had wrongly configured a part of CUCM and therefore researched the potentially erroneous parts. Eventually, I found out that the cables that maintained the connections have been broken since the phone line could not reach my rack.

Conclusion

Overall, I managed to configure Music on Hold and Custom Ringtones, and was able to call phones outside of the network (any cell phone) while using a phone line. Although I had some difficulties uploading and finding the .raw file, activating the TFTP server, and resolving some haphazard Layer 1 issues, I successfully ornamented the phone that I initially set up in part 1 with the numerous features of CUCM.