

Configuring Voice over Internet Protocol-VoIP on the LAN

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Abstract -Voice over IP (VOIP) uses the Internet Protocol (IP) to broadcast voice as packets over an IP network. Therefore, VOIP can be accomplished on any data network that uses IP address, such as Internet, Intranets and Local Area Networks (LAN). The paper provides an overview of the technology and how this technology can be applied for the integration of voice and data networks. It is also focusing on how VoIP configure on LAN and how it works. It will help to students and research scholars to understand the concept of VoIP. This paper discusses the merits and demerits of using VoIP services that may affect those who are new to VoIP.

Keywords: VoIP, Packet Switching, Router, SIP, LAN, PSTN

I. INTRODUCTION

VoIP stands for Voice over Internet Protocol. It is also referred to as IP Telephony, Internet Telephony and Internet Calling. It is another method of making phone calls that can be very economical or totally free. The 'phone' components are not always present anymore, as people can communicate without a telephone set [1]. VoIP is the transmission of voice and audio, video content over Internet Protocol (IP) networks. VoIP is enabled by a group of technologies and methodologies used to deliver voice communications over the internet, enterprise local area networks or wide area networks [2].

II. REQUIREMENTS

CISCO Router 2811 series, Manageable Switch 2960 Series, 3 IP phones, 3 Laptops, Packet Tracer 6.3 Network Simulator.

III. METHODOLOGY

A. Design of Experiment

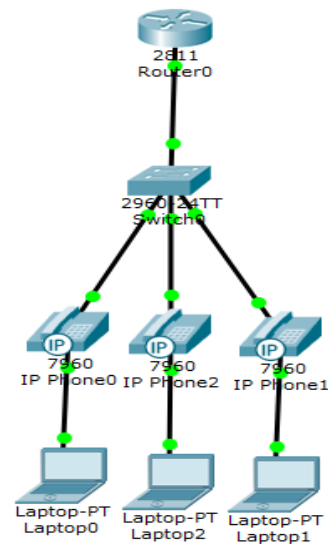


Fig. 1 Shows the Setup of VoIP

B. Configure the Router

Configure interface FastEthernet 0/0 and Dynamic Host Configuration Protocols (DHCP) server on ROUTER 0

```
Router>enable
Router#configuration terminal
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 80.0.10.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
```

```
CONFIGURE DHCP SERVER ON ROUTER 0
Router(config)#ip dhcp pool VOIP
Router(dhcp-config)#network 80.0.10.0 255.0.0.0
Router(dhcp-config)#default-router 80.0.10.1
```

```
Router(dhcp-config)#option 150 ip 80.0.10.1
Router(dhcp-config)#exit
```

Enable VOIP Service on the Network by configure the Call Manager Express telephony service on Router 0

Enable the telephony service on Router

```
Router(config)#telephony-service
Set the number of ip phone supported
```

```
Router(config-telephony)#max-dn 10
Set the maximum No. of extensions. It depends upon the version of IOS and platform.
```

```
Router(config-telephony)#max-ephones 10
Identifies the IP address and port number for IP phone registration. Default port no. is 2000
```

```
Router(config-telephony)#ip source-address 80.0.10.1
port 2100
Router(config-telephony)#auto assign 4 to 6
Router(config-telephony)#auto assign 1 to 5
Router(config-telephony)#exit
```

C. CONFIGURE THE SWITCH

Configure a voice VLAN on switch

```
Switch#configure terminal
Switch(config)#interface range fastEthernet 0/1-10
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport voice vlan 1
```

Configure the Phone Directory for IP Phones 1, 2, 3

```
Router(config)#ephone-dn 1
Router(config-ephone-dn)#number 2601126
Router(config-ephone-dn)#exit
Router(config)#ephone-dn 2
Router(config-ephone-dn)#number 2601127
Router(config-ephone-dn)#exit
Router(config)#ephone-dn 3
Router(config-ephone-dn)#number 2601128
Router(config-ephone-dn)#exit
Router(config)#ephone-dn 4
Router(config-ephone-dn)#number 2601129
Router(config-ephone-dn)#exit
Router(config)#
%IPPHONE-6-REGISTER: ephone-1 IP:80.0.0.4
Socket:2 DeviceType:Phone has registered.
%IPPHONE-6-REGISTER: ephone-2 IP:80.0.0.2
Socket:2 DeviceType:Phone has registered.
%IPPHONE-6-REGISTER: ephone-3 IP:80.0.0.3
Socket:2 DeviceType:Phone has registered.
```

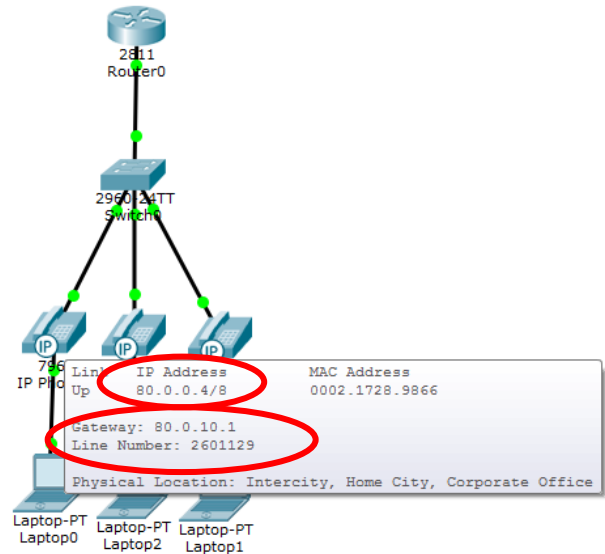


Fig. 2 Shows the IP address and Line No. of IP Phone



Fig. 3 Caller Phone shows ring out



Fig. 4 Callee Phone shows the phone is ringing



Fig. 5 Callee phone shows the phone is connected



Fig. 6 Callee phone shows the line is disconnected

IV. RESULTS AND SUGGESTIONS

It is found that IP phone automatically receives the IP address and phone number via router as shows by Fig. 3. When we did the call to phone number 2601126 (callee) by the phone 2601127 (caller) then it is found that callee phone has received the call successful from caller phone and a link was found in between caller and callee. When callee put the receiver on phone then callee shows a message "The line is disconnected" as shown in Fig. 8

Therefore, it is suggested that in this way people can send their voice from one location to another location with the data by their existing broadband internet without any additional charges. In this way they can save their money

References

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- [2]. Rouse Margaret, WhatIs.com VoIP (voice over IP) <http://searchunifiedcommunications.techtarget.com/definition/VoIP>