Roll no: 42428
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Experiment No. 8

Title: set up and carry out experiment on VOIP Implementation

Aim: set up and carry out experiment on VOIP Implementation

Pre-requisite:

a) Concept of VOIP
b) VOIP protocol
c) Skype

Theory:

Voice over internet protocol is protocol used for transmission of voice calls through internet or other packet switched network. It is also called IP telephony, internet telephony voice over broadband (VOBB) Telephony voice is over 3G technologies.

VOIP system imply session control protocol over control codes which encodes the speech allowing transmission over an IP network as a digital audio voice & audio stream PSTN.

SKYPE: Skype is a simple bit of software. It will let you make free calls to your friends all over the world. Skype also offer paid services such Skype out, skype in and Skype voice mail. Skype out is a service that allows you to call ordinary phones at low cost. Skype In is a service where you are assigned your own telephone number and people can call you from ordinary phones. Skype voice mail is a voice mail service for taking message if you are away or your line is busy.

Difference between PSTN & VOIP :

	PSTN	VOIP
1	Voice network use circuit switch	It uses packet switching method.
2	Dedicated path is established between caller and called party.	No dedicated path is established between sender and receiver.
3	Bandwidth is reserved in advanced	It acquires and releases bandwidth according to need.

Architecture model of VOIP:

There are various approaches:

1) VoIP through dedicated data lines.
2) VoIP through dedicated data network. (LAN)
3) VoIP through internet. (WLAN)
4) VoIP through existing telephony system. (PSTN)

1) VoIP through dedicated data lines:

If an organization has dedicated data communication between office i.e. position to install voice offices will go to data lines instead of PSTN.

2) Calling through data network (LAN):

Calling through network involves managing multiple communication connection through the network. This involves adding a call server to data network. This involves receiving call.

3) Calling through Internet:

It is possible for an organisation to call through an internet simplifying calling through internet can be possible using IP centre.

Protocol stack:

<table>
<tr><td>Application layer</td><td>Data</td><td colspan="2">call control signalling</td><td>Audio, Video</td><td>Registration</td></tr>
<tr><td>Presentation and session layer</td><td>T.120</td><td>H.225 call signalling</td><td>H.245 conference control</td><td>RTP 1, RTLP</td><td>H225 , RAS</td></tr>
<tr><td>Transport layer</td><td colspan="3">TCP</td><td colspan="2">UDP</td></tr>
<tr><td>Network layer</td><td colspan="5">NETWORK LAYER PROTOCOL</td></tr>
<tr><td>Data link layer</td><td colspan="5">DATA LINK LAYER PROTOCOL</td></tr>
<tr><td>Physical layer</td><td colspan="5">PHYSICAL LAYER PROTOCOL</td></tr>
</table>

VOIP Protocols:

Challenges occurred in VOIP system:

1. voice transmission delay
2. Call setup
3. Backward compatibility with existing PSTN system

VOIP has been implemented in various ways using both proprietary and open protocols.

Network protocols used to implement VOIP:

1. H.323
2. Medical gateway
3. Session initial protocols
4. Real time transport protocol
5. Session description protocol
6. Inter exchange

Proprietary protocol: Skype protocol.

Procedure:

There are two software to be loaded to use VOIP phones.

1. Skype software.
2. VOIP phone hardware driver software.

Application of VOIP:

1. It is a proprietary VOIP service and switch application created by NiklasZenstream. The service allows user to communicate with peer by voice and instant messaging over the internet.
2. Skype is a hybrid peer to peer and client.
3. Phone calls may be placed to recipients traditional telephone networks.
4. Call to other user within Skype service landline or mobile phone are chargeable.
5. The online number facility is provided by skype through other telephone users can deal the number and can be received through computers anywhere in the world.

Conclusion:

In this experiment we set up and carried out VOIP Implementation through Skype software and VOIP phone hardware driver. We studied the background of VOIP, difference between VOIP and PSTN, various architectural model approaches of VOIP, various protocols related to it and challenges faced in designing VOIP system.

Signature