

IQRA NATIONAL UNIVERSITY

Name : Javid

ID : 13151

Subject : Voice over IP

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Instructor Name

Sir Muhammad Adil

Programme : Bs Telecommunication

(Q<sub>1</sub>). Differentiate between IP Telephony and VoIP?  
PART (a).

(Ans). Difference B/W IP TELEPHONY & VoIP:

⇒ Although both the terms are used interchangeably but there are slight distinctions.

①. In a VoIP network traditional analog or digital devices connect into an IP network; usually through some sort of gateways.

②. An IP Telephony environment contains end points that natively communicate using IP.

e.g: \* Computers.

\* Corporate intranets and the backbone networks of carriers.

(Q<sub>1</sub>).

PART (b). Differentiate between Connectionless and Connection oriented Service?

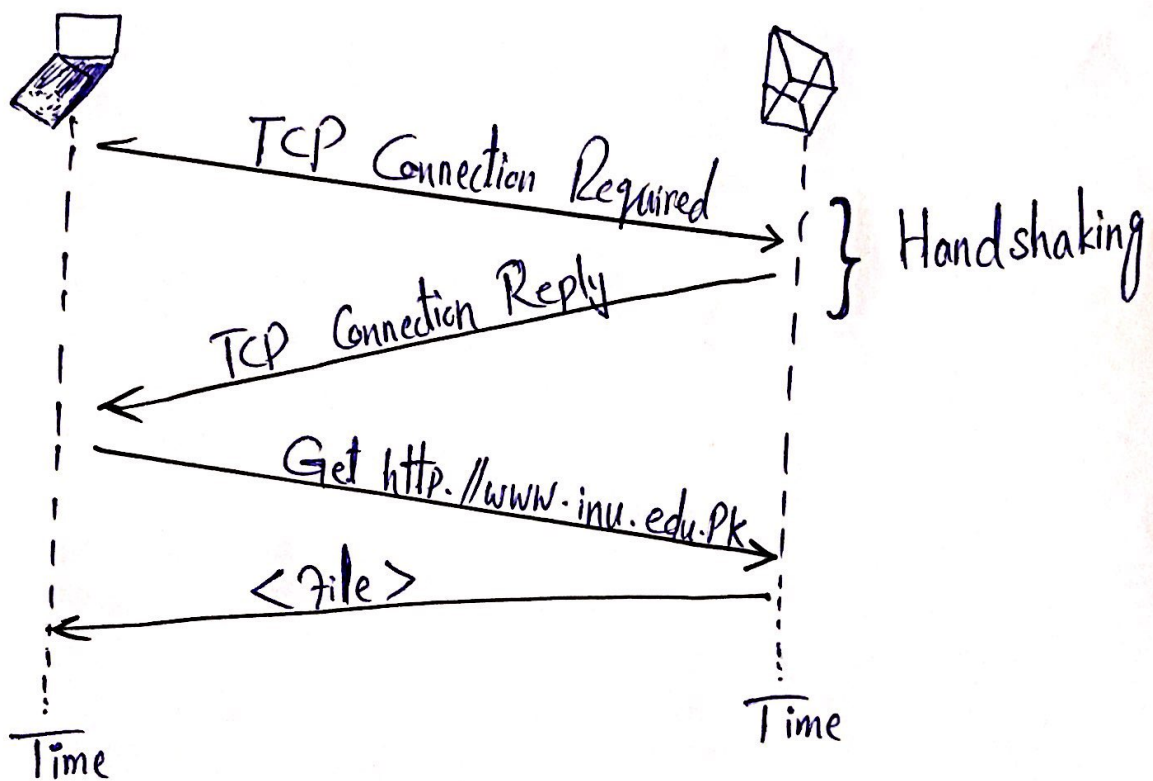
(Ans). Connection - Oriented VS Connectionless Services:

⇒ Connection - Oriented Services :

- \*. These Services are based on Connection oriented transport. e.g: TCP.
- \*. Here, The client and Server programs send Control Packets to each other before sending Packets with actual data to be transferred, which is known as handshaking.
- \*. Handshaking Procedure alerts the clients and Server to be prepared for transmission of data Packets.
- \*. As soon as the handshaking Procedure is finished, a Connection is said to be established b/w the two Systems.

\*. TCP is said to be Connection-oriented b/c of "handshake" process.

\*. TCP is defined in RFC 793, RFC 1122, RFC 1323, RFC 2018 and RFC 2581.



### TCP Connection - Oriented Transport.

\*. Connection-oriented transfer is "Reliable Data Transfer" b/c an application can rely on the connection to deliver all of its data without errors and in proper order.

\*. Reliability in Internet is achieved by acknowledgments and retransmissions.

## ⇒ Connectionless Services :

- \* Here, there is no handshaking, so when one side wants to transmit packets to the other side it simply sends the packets.
- \* Due to non-handshaking prior to packet transmission, data can be delivered sooner.
- \* But there is no reliable data transfer, so a source never knows which packets are lost.
- \* There is no flow control or congestion control.
- \* The Internet connectionless service is called User Datagram Protocol (UDP). UDP is defined in RFC 768.
- \* TCP is mostly used by applications like Telnet (remote login), SMTP (e-mail), FTP (file transfer) and HTTP (for the web).
- \* UDP is used by many applications also, like many of the emerging multimedia applications such as Internet phone and video conferencing.

## ii. Unified Messaging :-

Unified Messaging Provides a single interface for messages that had been delivered over a variety of medium.

\* For Example, user can read their e-mail; hear their voice mail and view fax messages by accessing a single inbox.

## iii. Security :-

Mechanisms in an IP network ensure that IP conversations are secure.

Encryption of sensitive signalling and message bodies protect packets in case of unauthorized packet interception.

## iv. Flexibility :-

→ The organization providing VoIP can be more flexible in types of applications and services they provide to customers and users.

→ Service Provider can easily segment customers.

(Q2). How would you be explaining the following features of VoIP?

(Ans).

i. Cost Saving :-

- ①. PSTN uses TDM, that dedicates 64 kbps of bandwidth per voice channel.
- ②. This means that when there is no voice traffic then the bandwidth will be unused.
- ③. But VoIP combines multiple 64 kbps channels into high speed links for transport across a network,
- ④. Which results in a more efficient use of bandwidth, there by reducing bandwidth requirements.

## V. Long-Distance Toll Bypass Page 7

Long-Distance toll bypass is an attractive solution for organizations that place a significant number of calls between sites that are traditionally charged long distance.



(Q3). Fill in the Blanks ?

Telephone Network use Circuit switching.

POTS stands for Plain old Telephone System.

The Local Loop used for voice has a bandwidth of 4000Hz (4KHz).

The toll office in the telephone network is called Tandem office.

~~IP~~ Telephony enables to carry voice traffic.

In VoIP digital signals travel over an IP network.

Least Cost Routing is an example of advanced call routing.

Unified Messaging provides a single interface for different types of messages.

Call quality in VoIP is affected by Quality and Performance.

VoIP Services are usually charged for additional cost by traditional.