Demystifying Networking
Prof. Sridhar Iyer
Department of Computer Science and Engineering
Indian Institute of Technology, Bombay

Lecture - 58
Introduction to UDP

Now we come to UDP which is a far simpler protocol than TCP.

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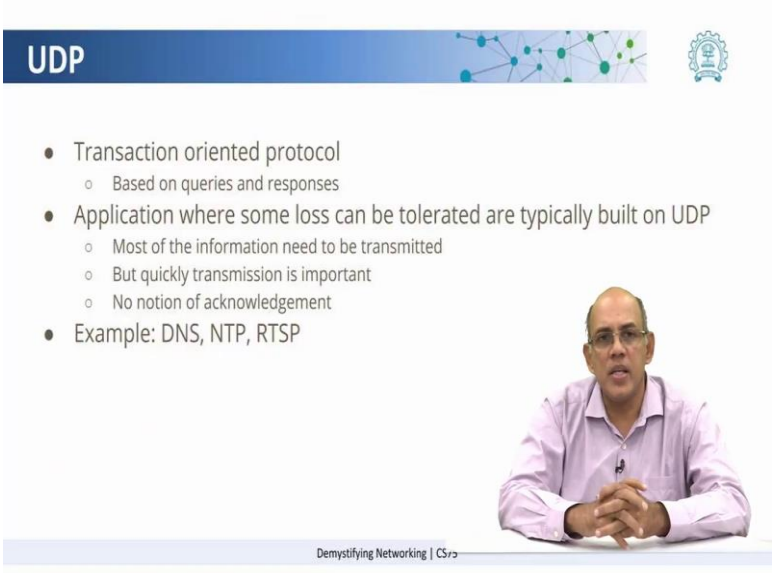

So, UDP is basically called a transaction oriented protocol or it is for simple queries and responses ok. It is suitable for applications which can tolerate some loss what do we mean by applications which can tolerate some loss? Essentially application let us say you are watching a video and certain parts of the video are not very easy to see, occasionally it happens. So, applications like that are often built on top of UDP. So, the key idea here is that, we want most of the information to go through, but we want them to go through quickly so there is no notion of acknowledgments. And the receiver actually constructs the image or the packet based on whatever information is available.

UDP is used for several applications. The DNS for example is one of them or the network time protocol (NTP) is another of them. Having had a brief glimpse of TCP and UDP let us take a reflection spot.

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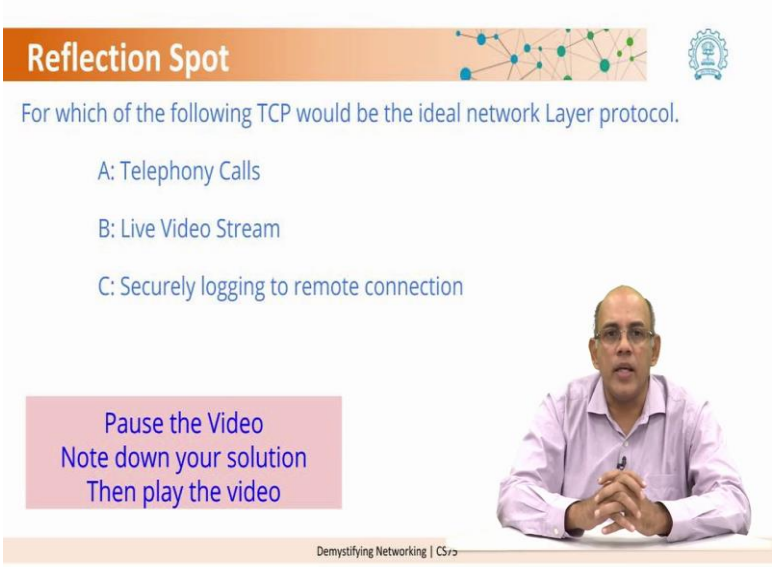

For which of the following would TCP be the ideal transport layer protocol. A, making telephone calls. B, a live video stream or C, securely logging in to a remote connection. Take a moment to think about it which one will be your answer and why and then you can proceed.

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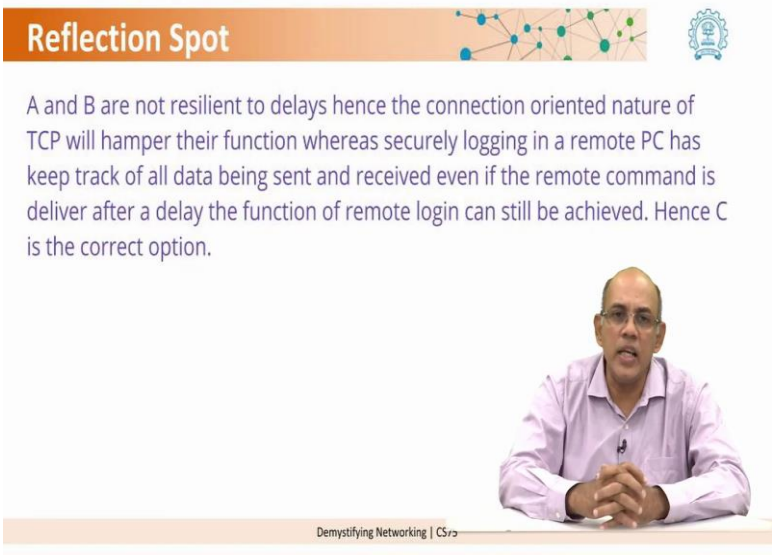

So, if you think about it we will see that A and B which is basically the telephony and the video streaming application, are tolerant to delays and the connection oriented nature

of TCP is really not required because then there would be some additional delays that were introduced because of the retransmission.

On the other hand, securely logging into a remote PC, one has to keep track of all the data that is being sent and received even if the remote command is delivered after a delay. Hence securely logging into any remote server is based on TCP while video streaming and telephony type of calls are based on UDP. Actually there are other protocols which are also built on top of UDP such as the real time streaming protocol and so on,, which make other services available to such streaming applications, but that is for another course.

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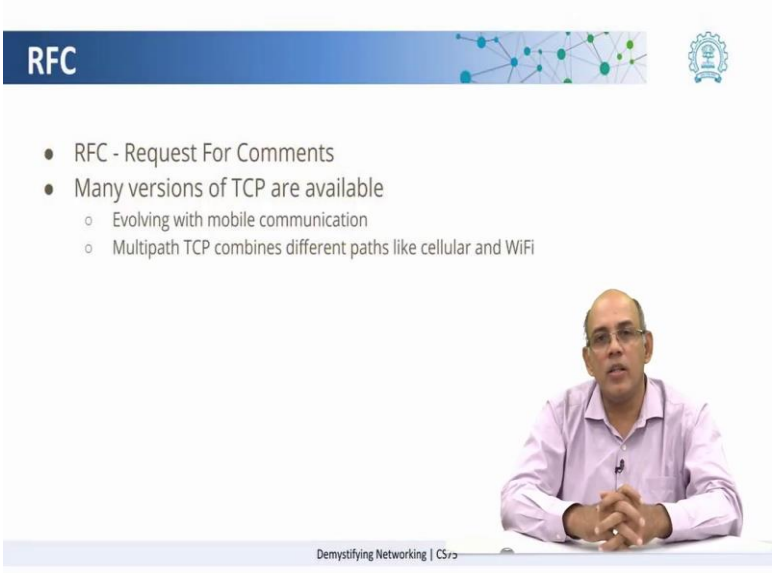

Having heard all these terms TCP, UDP, RTSP and so, on several other such protocols some of you may be wondering where does one find more information about such protocols. In the internet development, traditionally these have been documented as documents within title - request for comments. So, you will see RFC, Request for Comments, and a number. So, many such numbers are there, running in few thousands which actually document all these different protocols. So, you will find versions of TCP, several versions of TCP, if you search for RFCs in the internet.

TCP for example, is evolving in the current generations along with technologies like mobile devices. Since it uses only one path for communication, if you have a phone which has both a Wi-Fi and a cellular data connection, TCP typically uses only one of

them. However, now, there are versions of TCP which are called multi part TCP which actually attempt to segregate or to get some of the data through the cellular link, some of the data through the Wi-Fi link and merge them together. So, this is called MTCP and you can read the following resource about it and then answer the question.