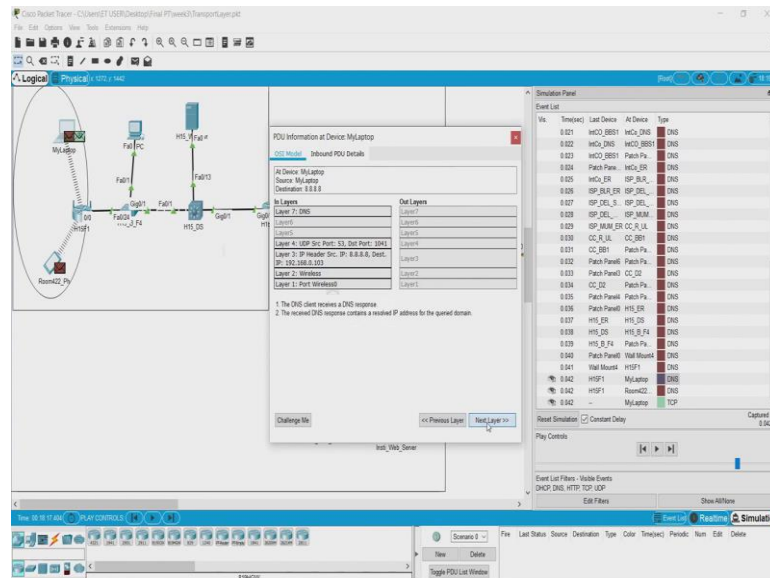


Demystifying Networking

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

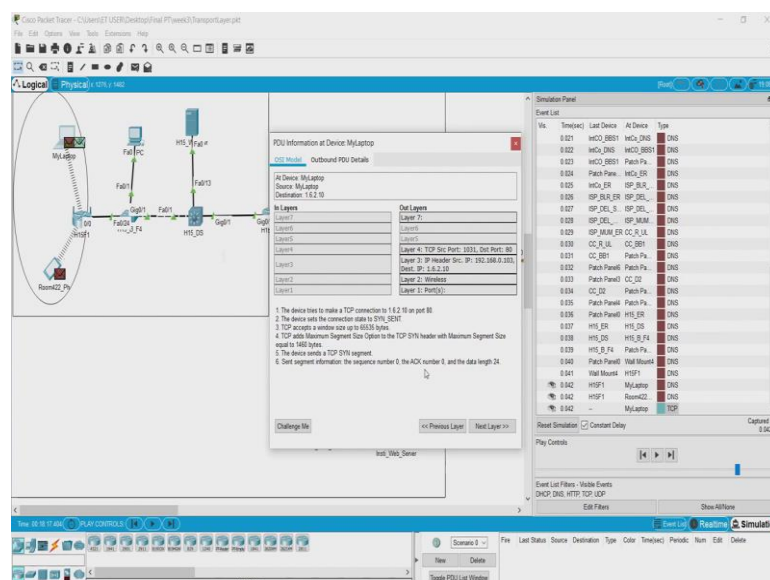
Lecture - 60 TCP Connection Establishment

(Refer Slide Time: 00:01)



After this, after DNS reply is received by the laptop, the response contains the IP address of the website.

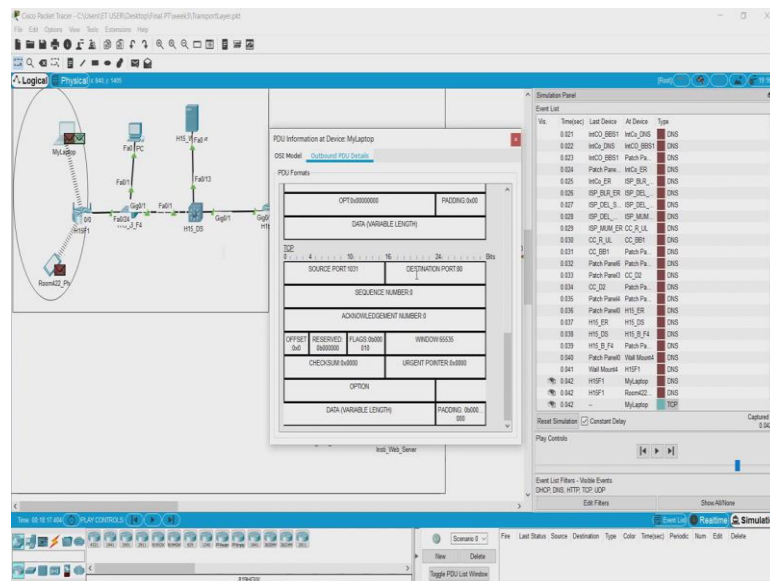
(Refer Slide Time: 00:17)



So, in order to access the website, what the laptop does is, it initially establishes a TCP connection because HTTP works on top of TCP. If we can open this packet here we can see that the HTTP client makes a connection to the server which is actually done by the device trying to make a TCP connection. And we can see that here also port numbers are assigned, here the source port number is 1031 and destination port number is 80 which is the standard port number for HTTP services.

The laptop is trying to make a, start a TCP connection, in order to do that it has to set some parameters. Here we can see that the device sets the connection state to SYN_SENT. TCP accepts a window size up to 65535 bytes. The information sent in the segment are - the sequence number is 0, the acknowledgement number is 0 and the data length is 24, since this is the very first packet that is being sent.

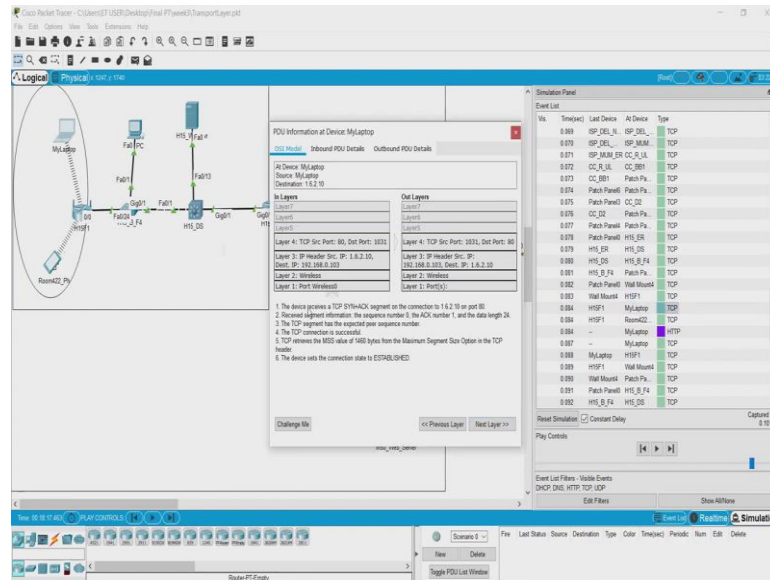
(Refer Slide Time: 01:27)



And we can also see the TCP packet that is being sent here - the source number and the destination port numbers.

And then it sends a reply to the laptop as follows and it sends a TCP SYN-ACK segment back to the laptop. We have got the first response to our TCP packet, let us see what is there inside.

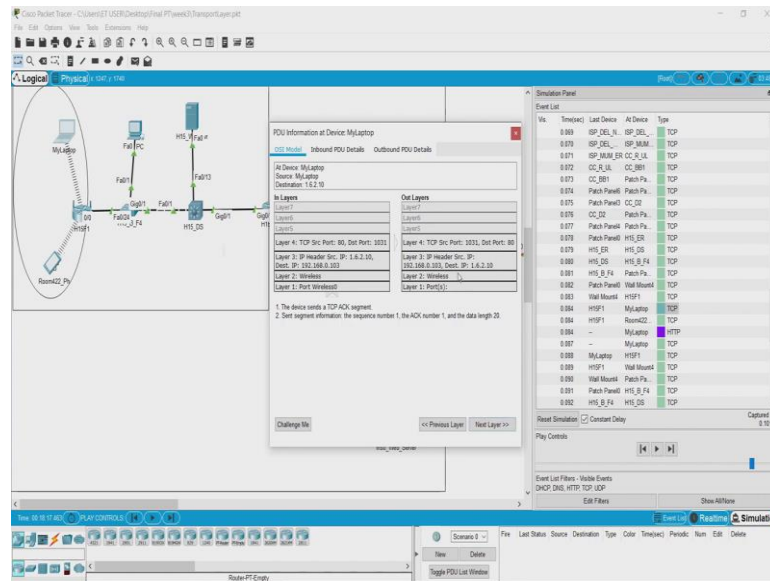
(Refer Slide Time: 02:21)



Here the device receives a TCP SYN+ACK segment on the connection to 1.6.2.10 on port 80, this was the IP address of the website that we were trying to connect and we have received a SYN+ACK segment. And in the received segment we have the sequence number as 0 acknowledgement number 1 and the data length is 24.

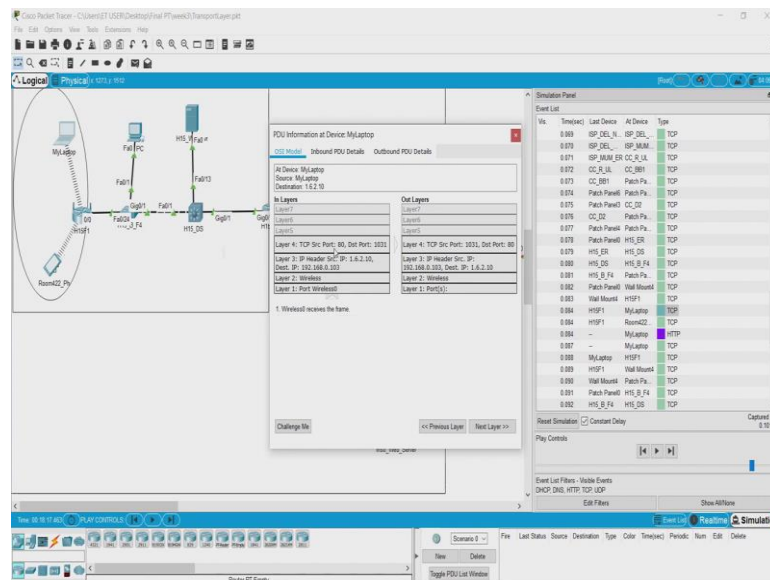
And TCP segment has the expected peer sequence number. So, it means that the TCP connection is successful and because of the successful connection TCP sends a TCP ACK segment.

(Refer Slide Time: 03:01)



And this, the segment information in this segment are that sequence number here would be 1, acknowledgment number would be 1 and the data length is 20.

(Refer Slide Time: 03:21)



And we can also see that the source port here is 80 and destination port is 1031 for the incoming packet and for the outgoing packet, the source port is 1031 and destination port is 80. If we compare the path travelled by the TCP packets we can actually see that, the packets follow the same path because TCP is a connection oriented protocol.

