

# ASSIGNMENT 10

## Generating and analyzing network traffic

*In this assignment, we will learn to generate network traffic on our system using Ostinato and analyze the same using Wireshark tool.*

### Problem Statement (100 Points)

Networks need watching, or network administration. Administrators in the Network Operations Center (NOC) use tools like OpenNMS and protocols such as Simple Network Management Protocol (SNMP) to observe network traffic on a real-time basis. Real-time networks are not usable in lab experiments so we use controlled traffic generators (Ostinato) to watch (also called sniffing) using protocol analysis tools such as tcpdump or wireshark.

Now, you are given the following tasks:

- Using wireshark, observe normal network traffic. Can you separately see TCP/IP traffic, IPX traffic and NETBEUI traffic? What is the meaning of these different types of traffic?
- Can you identify DHCP packets ? Explain the mechanism through which a DHCP client acquires an IP address from a DHCP server by giving proper references to the traffic you have captured.

Using Ostinato, configure and generate connectionless and connection-oriented packet services in your system. Generate such traffic for following two cases:

**CASE 1:** Low transmission rate with small packet length

**CASE 2:** High transmission rate with large packet length

Find throughput for both the cases for each packet service (connectionless and connection-oriented) and comment on what you observe.

Please send your .pcap file containing information relevant to your answer, along with the documentation.

### Bonus tasks (10+10=20 Points)

1. Increase the rate at which ostinato is sending data. As you do so, observe that you seem to be able to send at whatever data rate you want. This is obviously wrong - what could be happening ?
2. If you were given the task of developing a ostinato like generator , how would you start and go about it ? How would you 'test' your generator ?

**NOTE:**

- The assignment must be uploaded to <https://sakai.iitd.ac.in> (in certain exceptional cases, the TAs may allow it to be mailed to [dslab2013.iitd@gmail.com](mailto:dslab2013.iitd@gmail.com) )
- Submission deadline is 05:30 PM today
- Submit a zip file named assignno\_entryno having 2 folders:
  1. CODE: Suitable files associated with the assignment
  2. DOCUMENTATION: .pdf and .tex file of your report

**Copying is counter-productive and will be penalized.**