

CS549: Performance Analysis of Computer Networks

Mini project no.- 4

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Design of experiments

1. Project Description:

Configure N+1 nodes on your Laptop. Designate one node as server and the other N node as Clients. Write your own client-server code using TCP or UDP sockets. Vary the rate, loss and delay on the client nodes to emulate some real network scenario. Have the clients generate requests to the server for this scenario. Measure the performance and draw inferences.

2. System - Laptop containing N node as client and one as server listing to localhost at a particular ip address.

3. Parameter -

- Port number 3336
- UDP protocols
- Localhost as IP
- Buffer size 100MB

4. Factors and levels-

| Factors | levels |
|-----------------------------------|--|
| Delay | 2s, 5s, 9s |
| Rate at which requests are coming | 10 packet/s, 100 packet/s, 1000 packet/s |
| Loss | 20, 50, 80 |
| Number of client node | 3, 8, 10 |

5. no of experiments : - We will vary one factor at a time while not changing others.
So, total number of experiment will be $3(\text{delay}) + 3(\text{rate}) + 3(\text{loss}) + 3(\text{number of client})$
 $= 12$.

6. Metrics -

Number of packets loss by server.