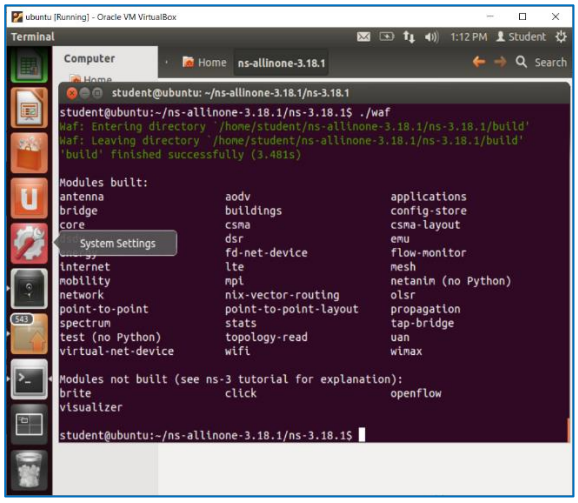
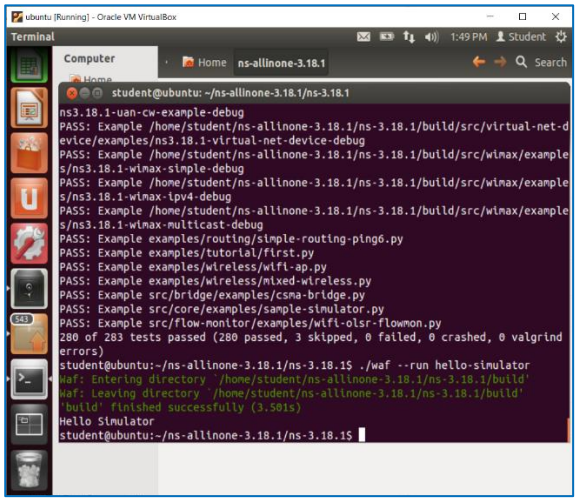
Result & Graphs

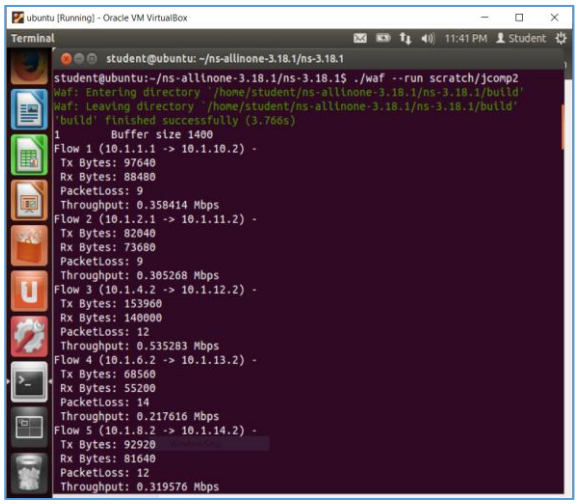
- In this project, we have successfully employed and analysed TCP Reno for congestion control. It is analysed that unlike TCP Tahoe, one of TCP's earliest variant, TCP Reno is not that aggressive in the reduction of the congestion window and takes precautions on the basis of the light or heavy congestion detected.
- Drop Tail and RED queuing mechanisms are compared and it is found that RED being a relatively random algorithm than Drop Tail which always drops packets at the end, RED performs better. This is because RED can control the average queue length, the congestion situation and hence provides higher throughput and lesser packet loss.

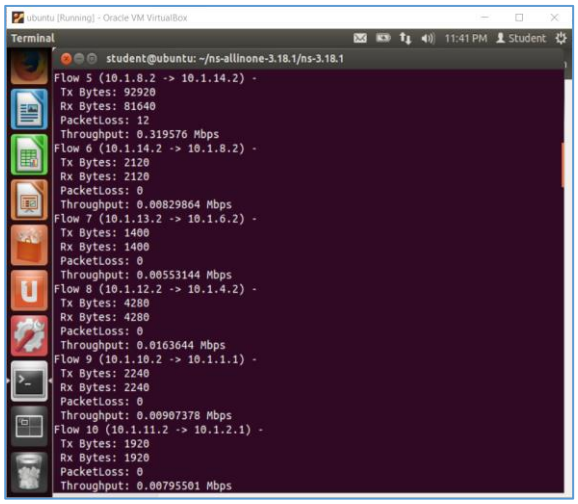
- **Installation of ns3**



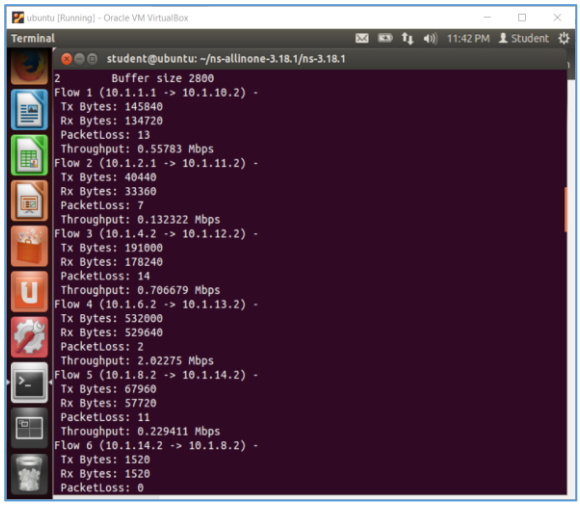


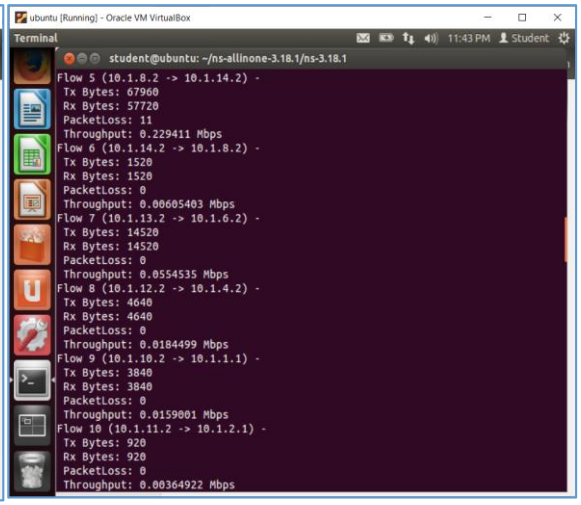
- **DropTail mechanism (with 5 different Buffer size)**
- Buffer Size = 1400



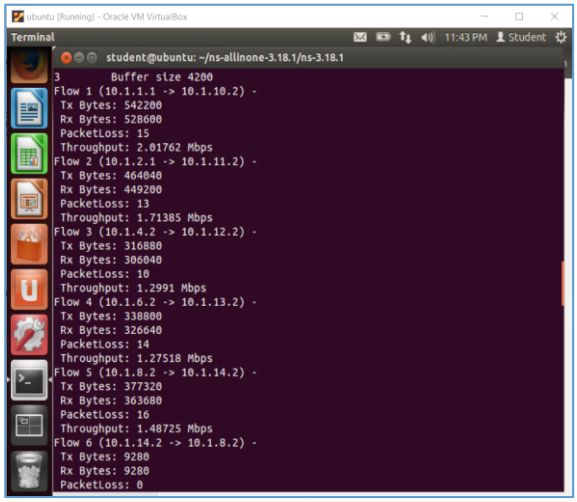


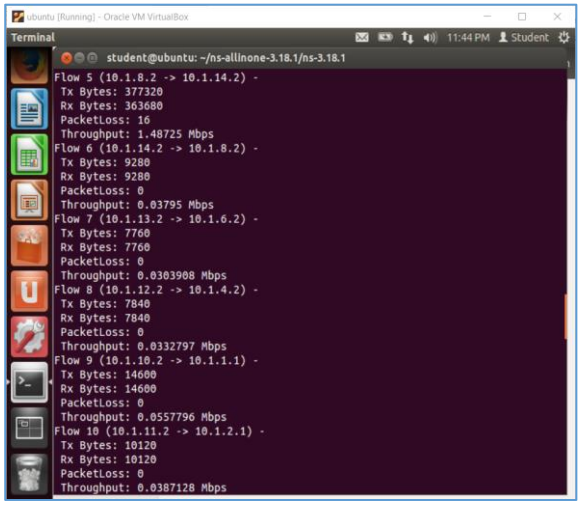
- Buffer Size = 2800



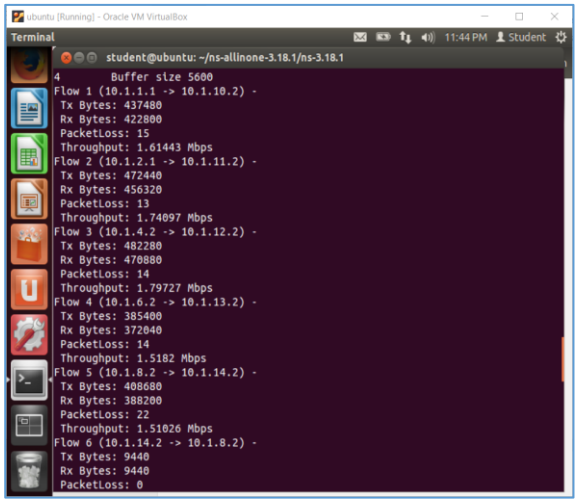


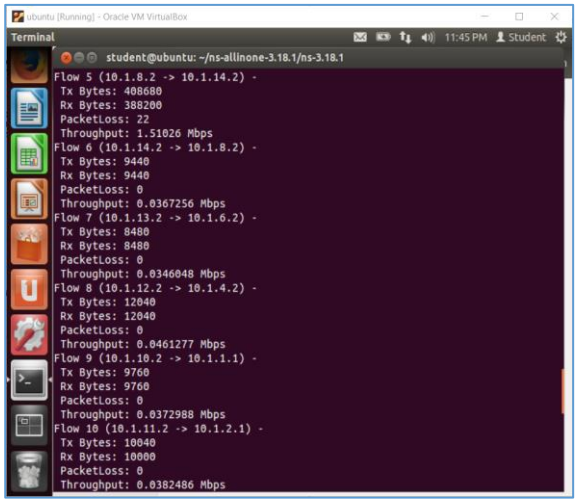
- Buffer Size = 4200



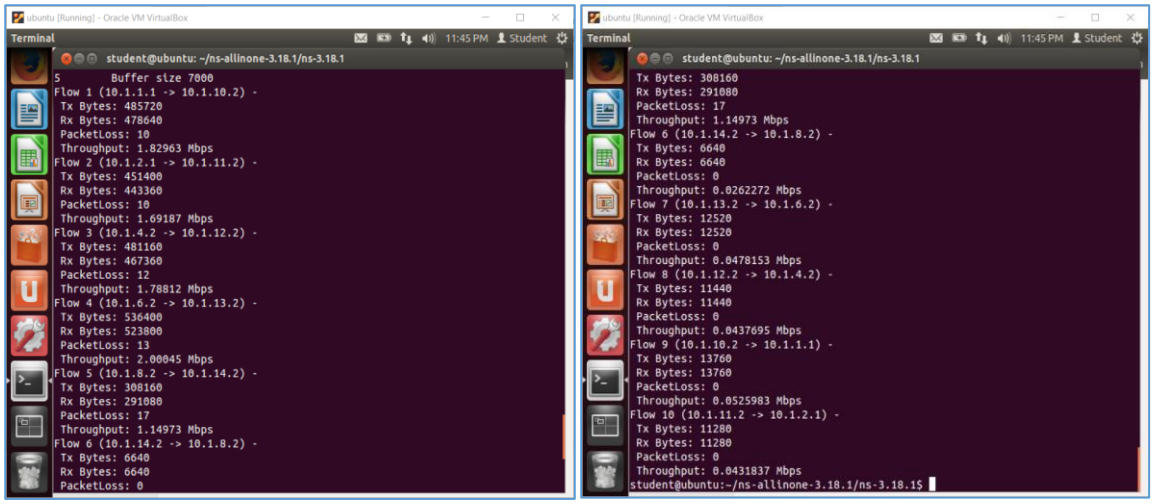


- Buffer Size = 5600

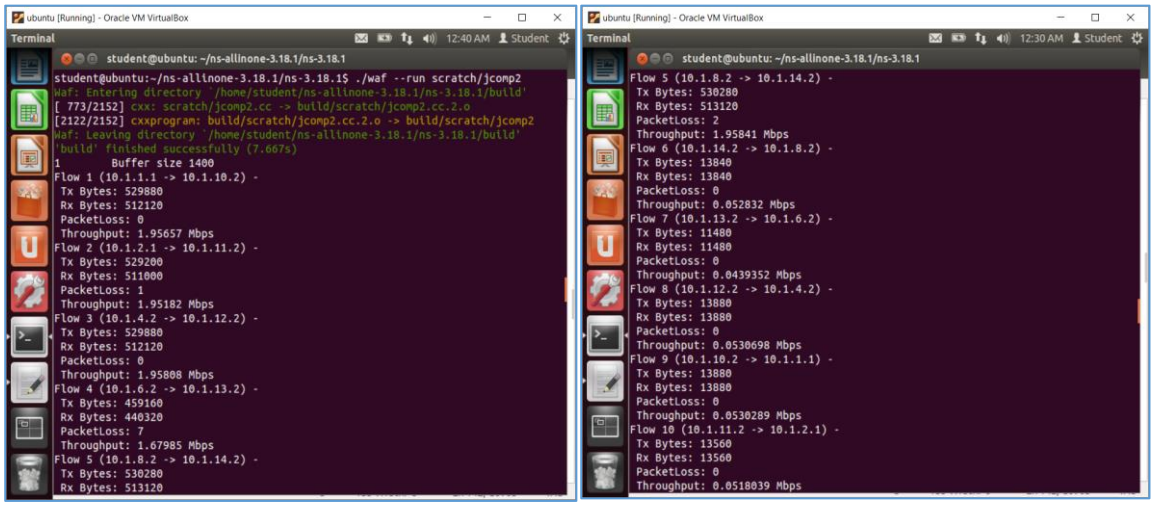




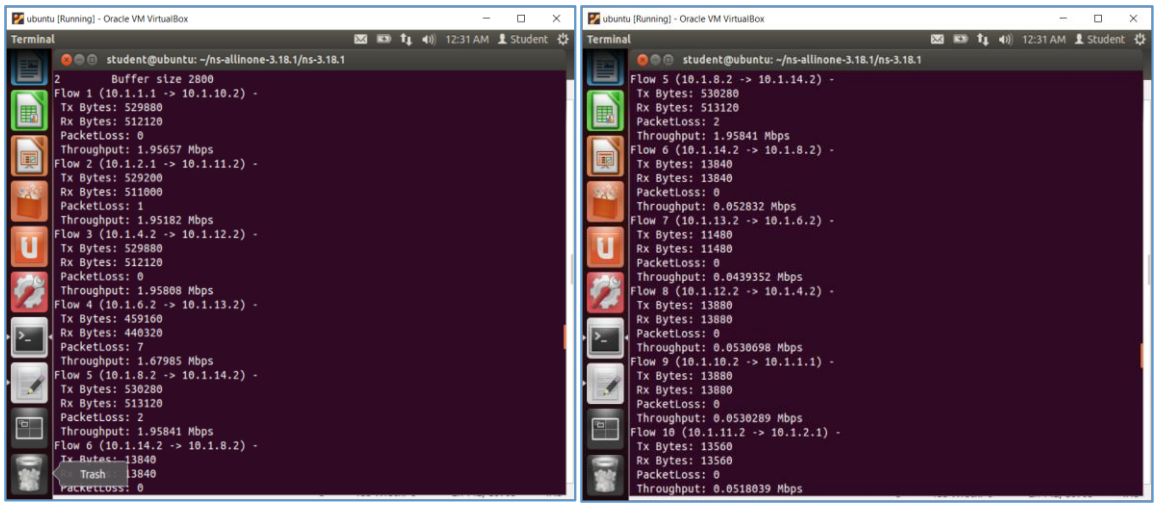
- Buffer Size = 7000



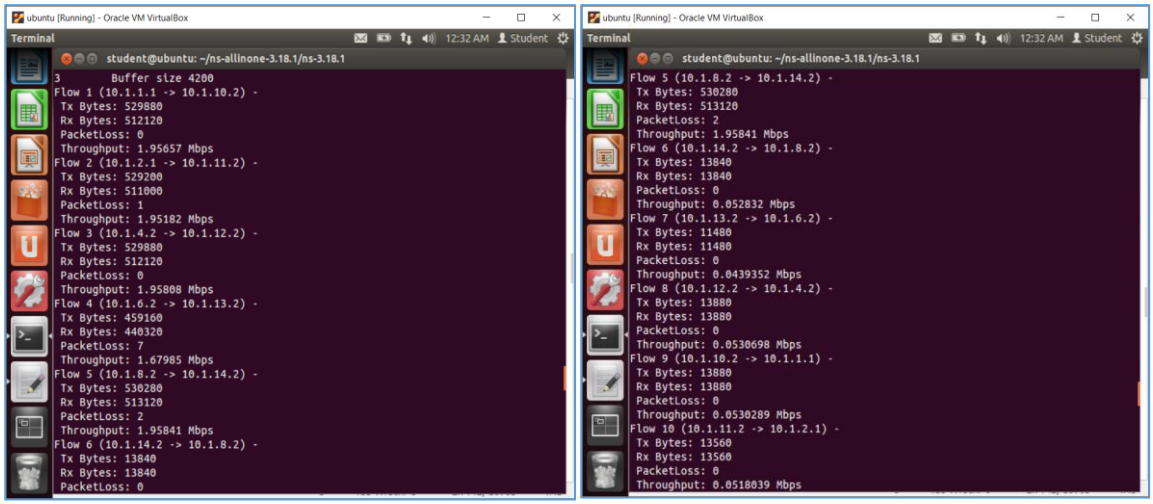
- **RED mechanism (with 5 different Buffer size)**
- Buffer Size = 1400



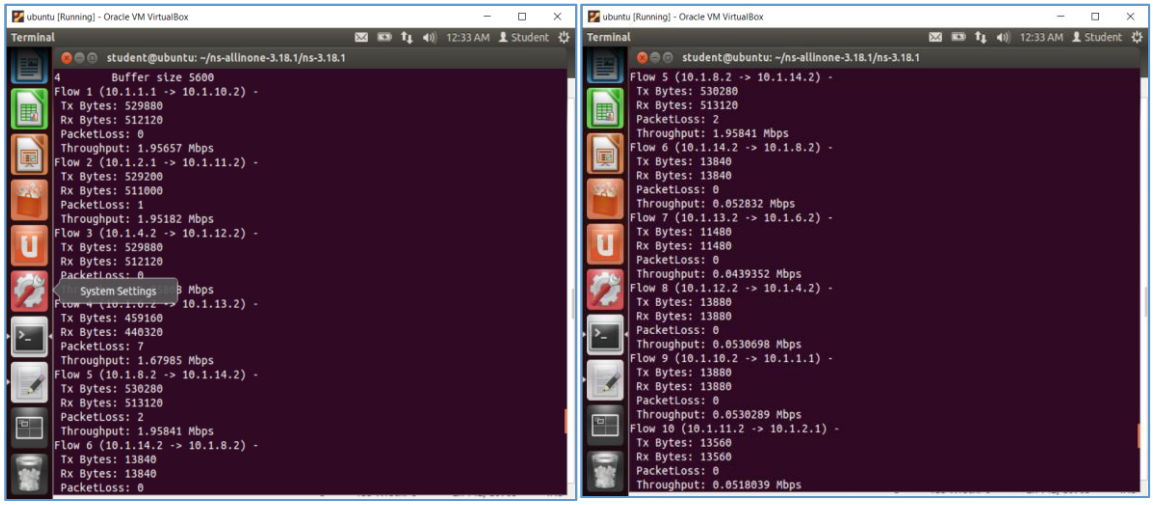
- Buffer Size = 2800



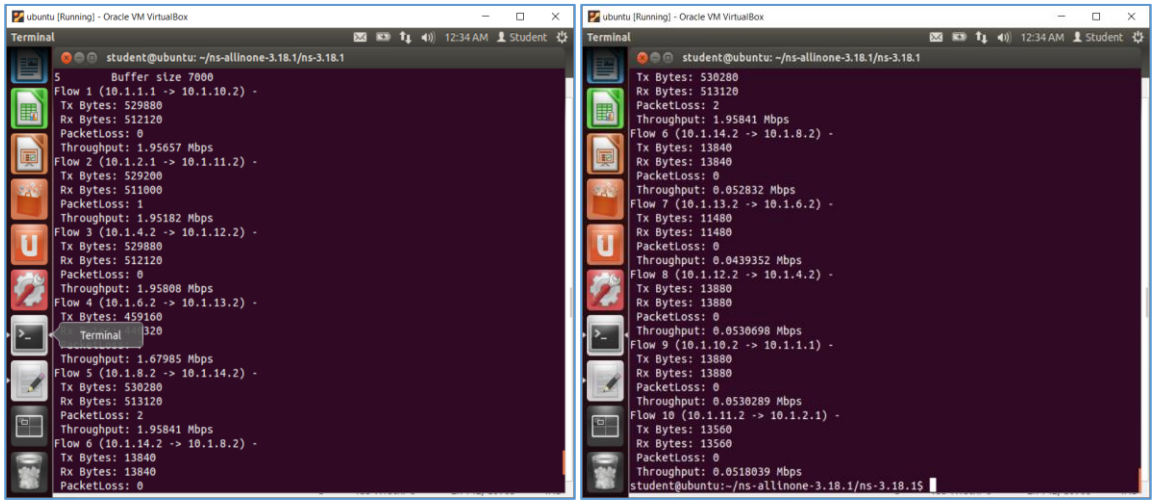
- Buffer Size = 4200



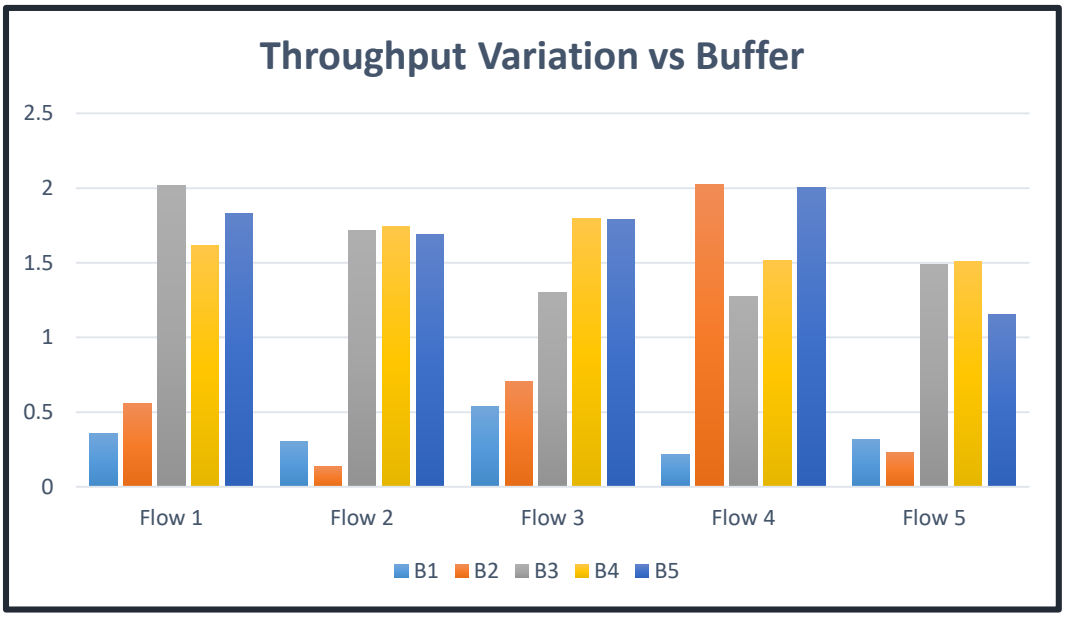
- Buffer Size = 5600



- Buffer Size = 7000

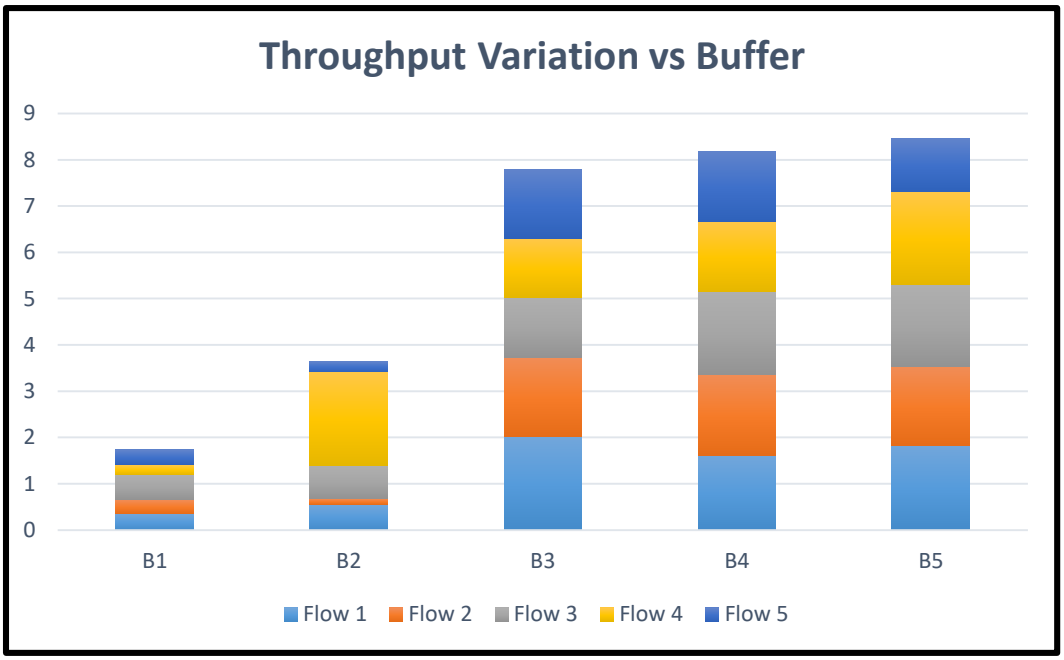


- **Flow-wise Throughput vs Buffer Size for Drop Tail**



Throughput	Buffer Size				
Flow	B1	B2	B3	B4	B5
Flow 1	0.358414	0.55783	2.01762	1.61443	1.82963
Flow 2	0.305268	0.132322	1.71385	1.74097	1.69187
Flow 3	0.535283	0.706679	1.2991	1.79727	1.78812
Flow 4	0.217616	2.02275	1.27518	1.5182	2.00045
Flow 5	0.319576	0.229411	1.48725	1.51026	1.14973

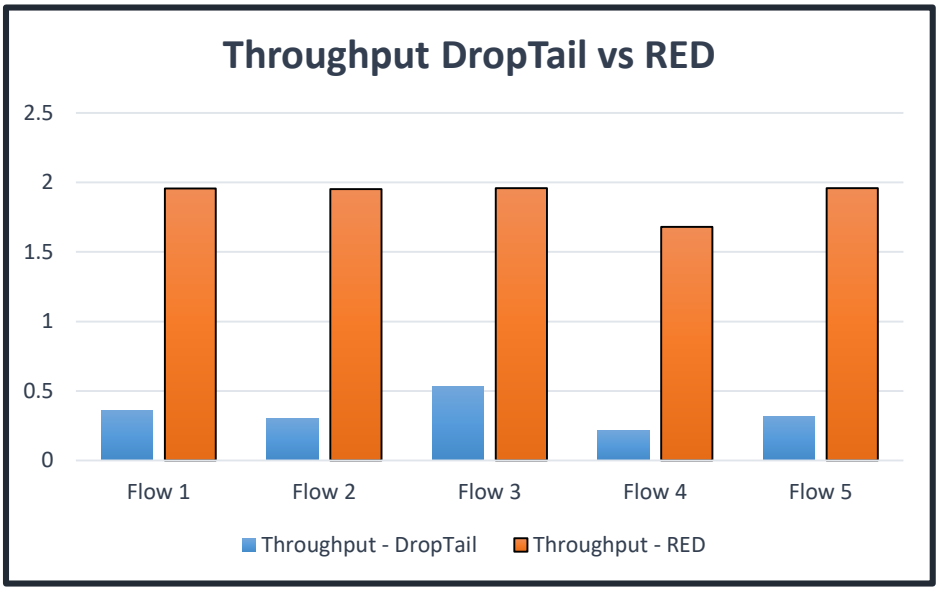
- **Throughput vs Buffer Size for Drop Tail**



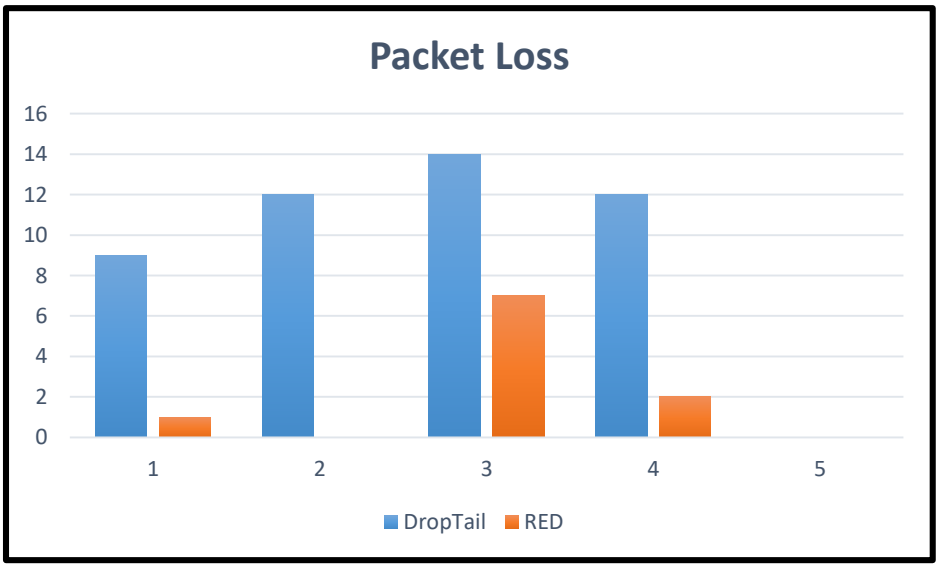
where B1=1400, B2=2800, B3=4200, B4=5600, B5=7000

- **Throughput Comparison Drop Tail vs RED**

Buffer Size - 1400		
Flow	Throughput - DropTail	Throughput - RED
Flow 1	0.358414	1.95657
Flow 2	0.305268	1.95182
Flow 3	0.535283	1.95808
Flow 4	0.217616	1.67985
Flow 5	0.319576	1.95841

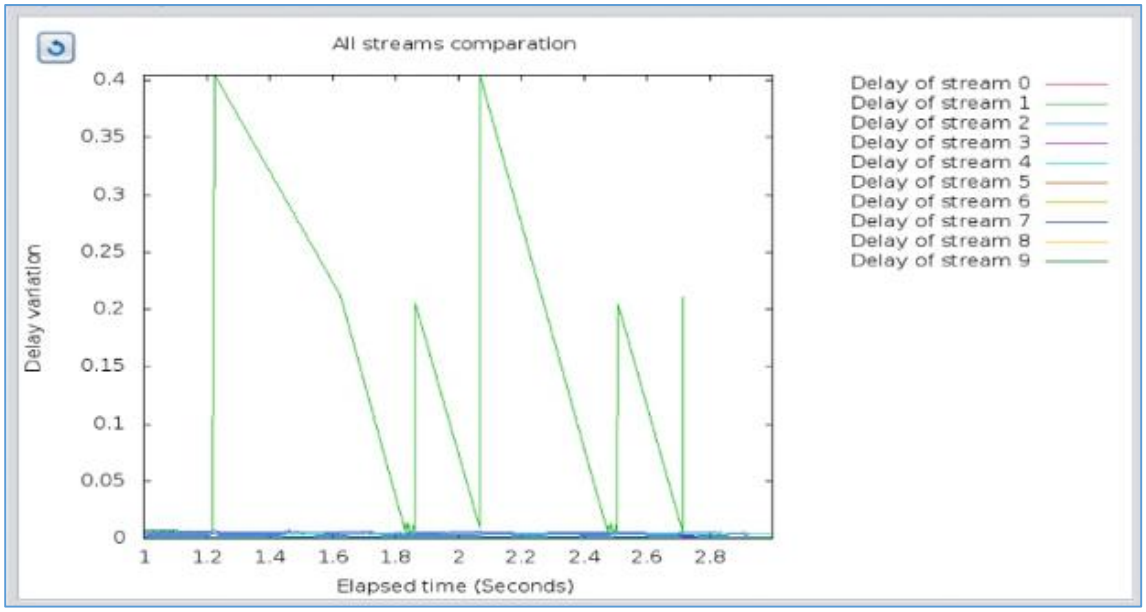


- **Packet Loss Comparison Drop Tail vs RED**



- **Delay Variation Drop Tail vs RED**

Using trace metrics for buffer size = 2800 (Drop Tail)



Using trace metrics for buffer size = 2800 (RED)