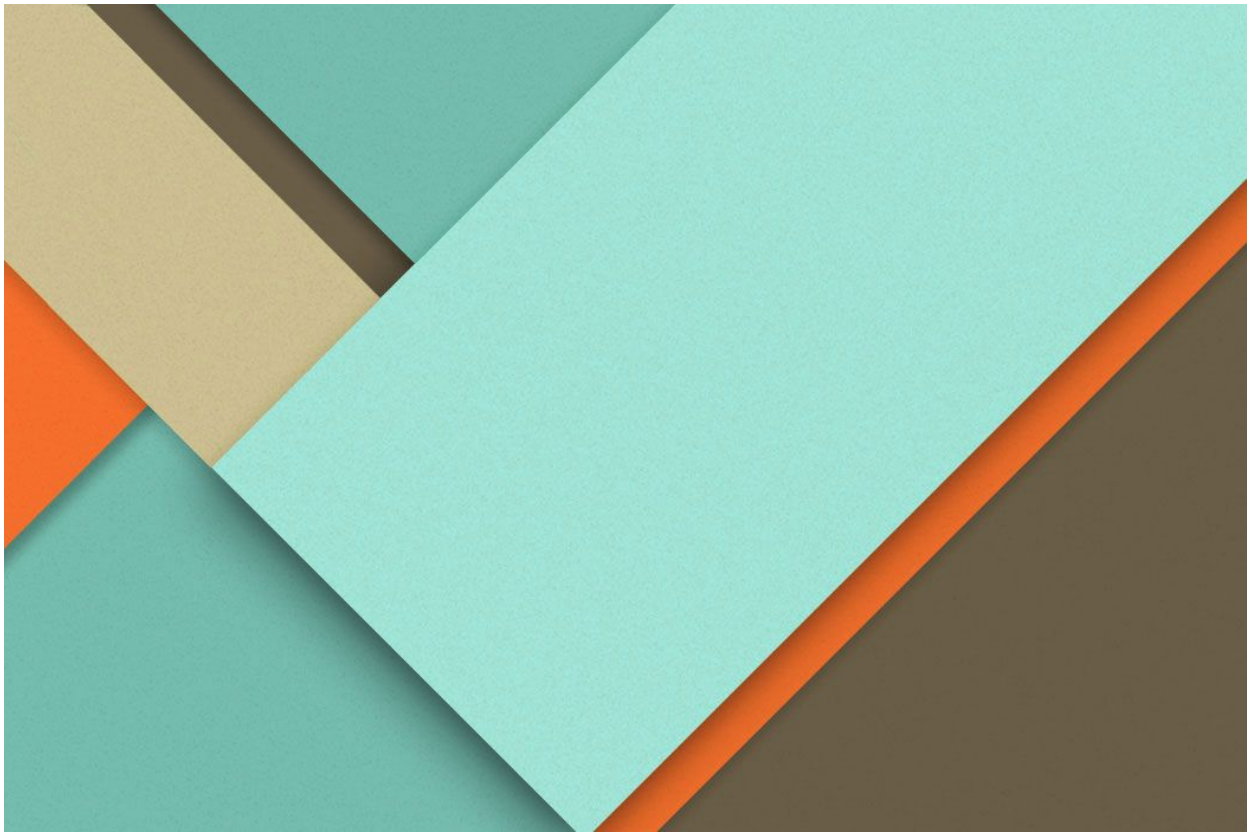

Computer Networks Laboratory

Lab Assignment-5 (L5)

26.09.2019

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Problem Statement 1:

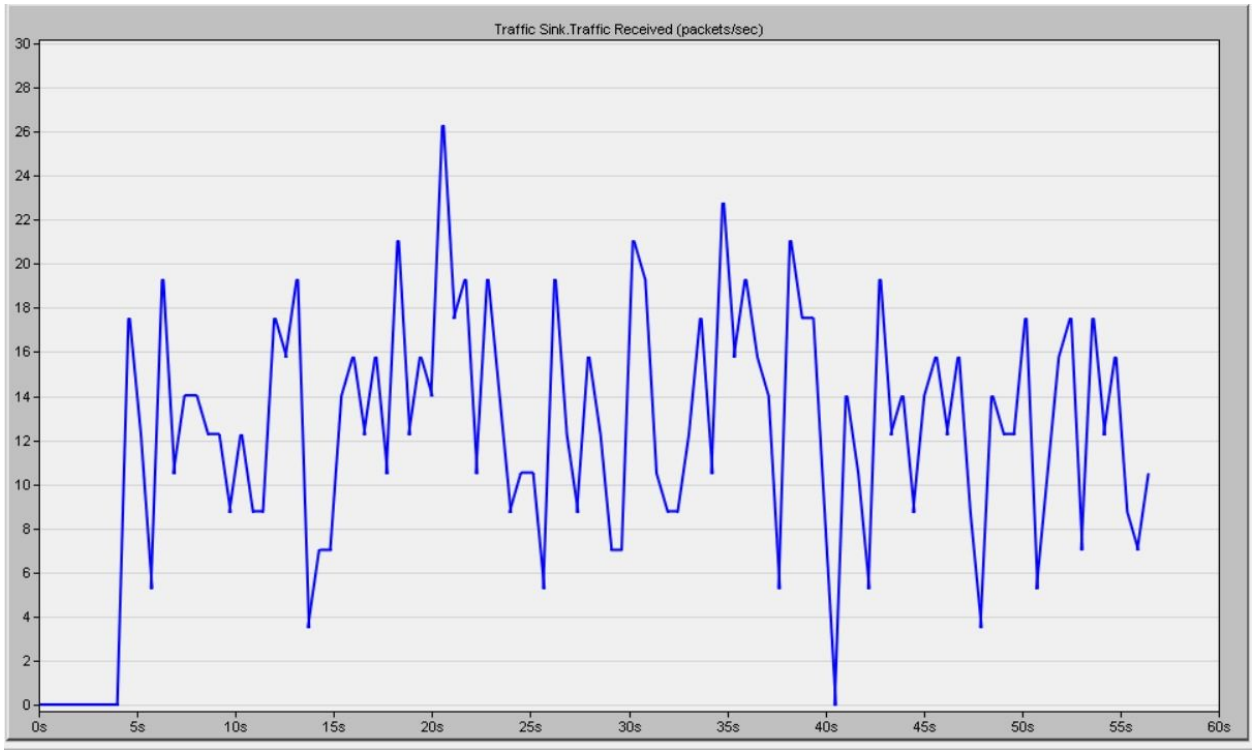
Using OPNET creates Bus topology among a set of N computer nodes out of which two nodes are the source and the rest are sink nodes. Model the traffic of source and sink nodes individually and demonstrate the packet transfer between them using Ethcoax (Ethernet using coaxial) cables. Use network scale as the “campus” of area 1km x 1km.

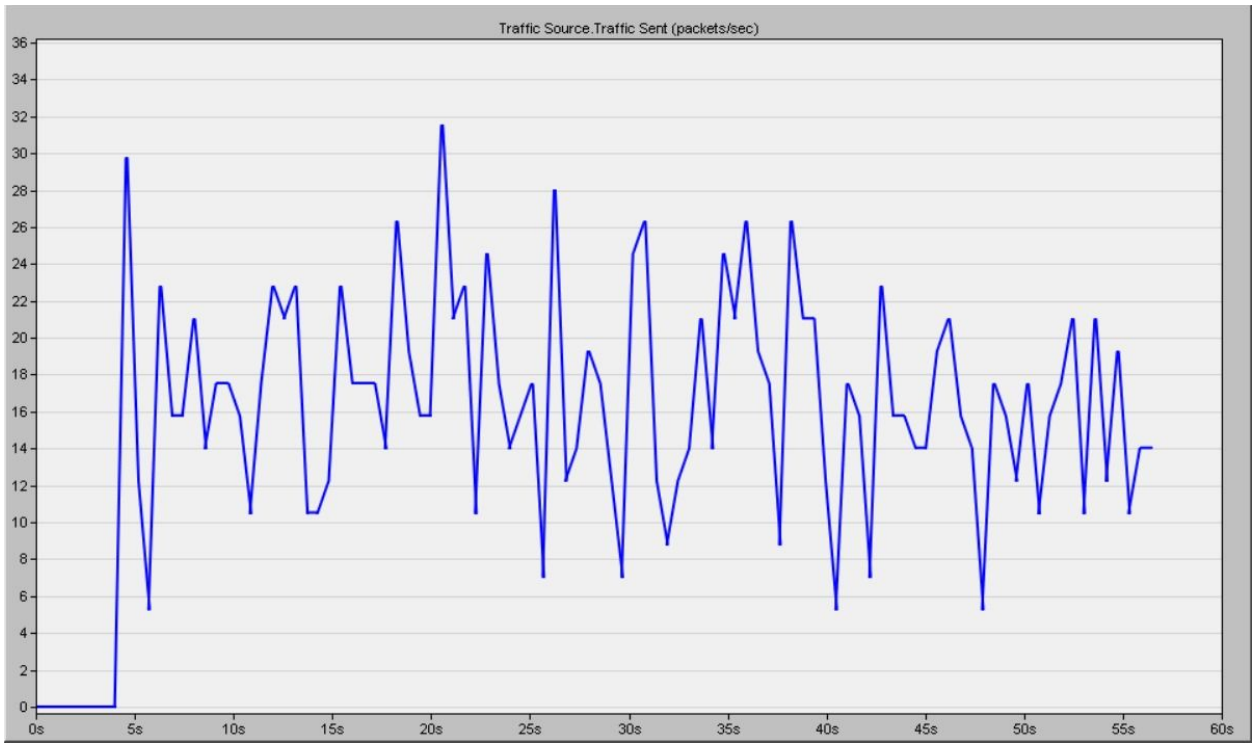
Algorithms:

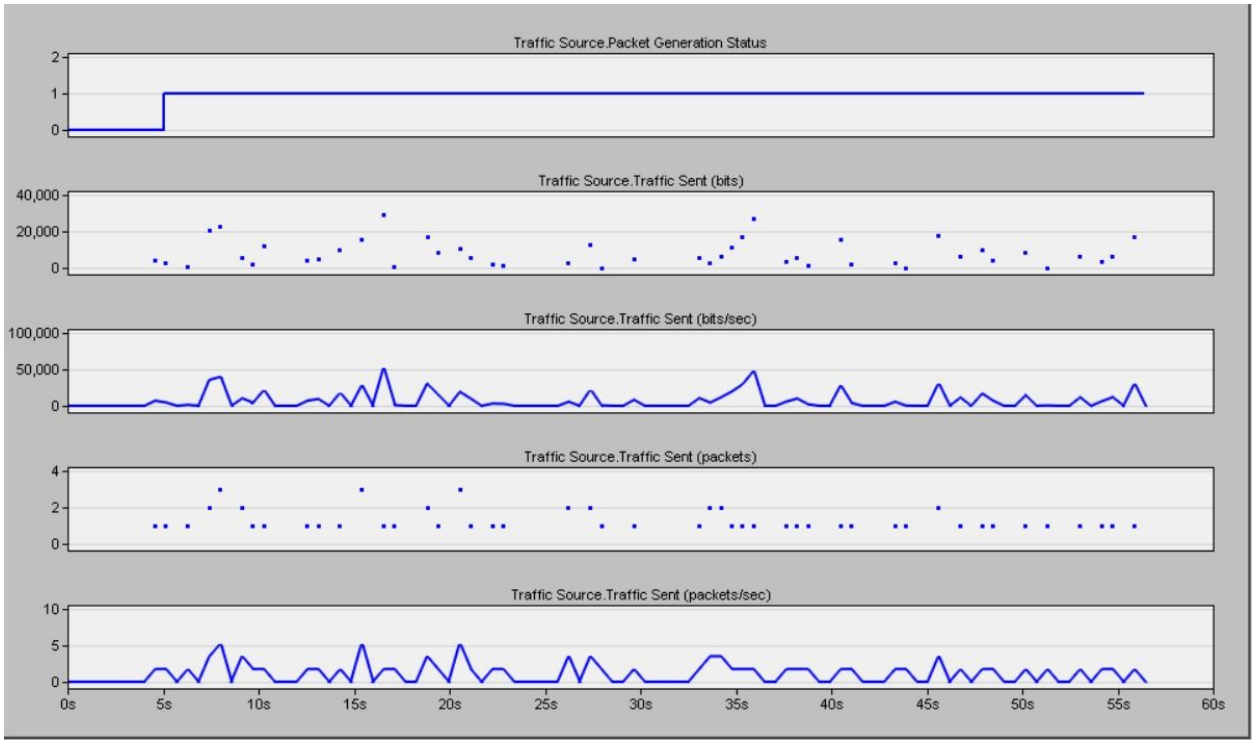
- None

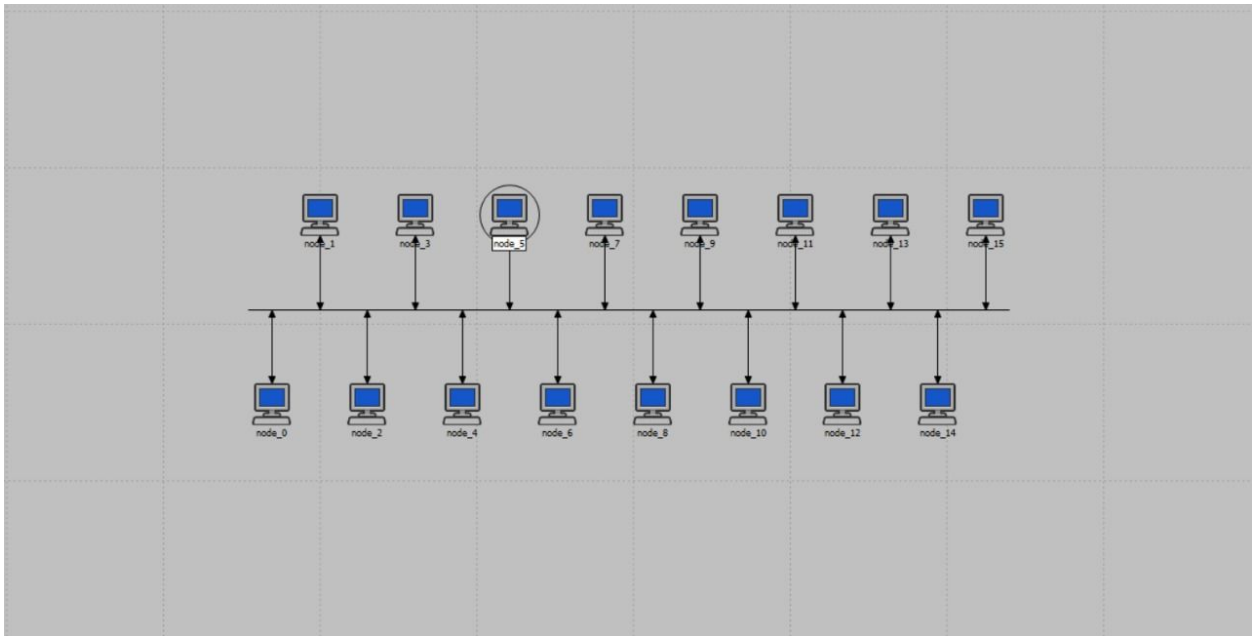
Data Structures:

- **Node**: Used **ethcoax_station** model to implement them.
- **Bus:** Denotes the link through which data is transferred.
- Used **eth_coax** model to implement the links.


Traffic Sink.Traffic Received (packets/sec)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0s
5s
10s
15s
20s
25s
30s
35s
40s
45s
50s
55s
60s


Traffic Source.Traffic Sent (packets/sec)
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0s
5s
10s
15s
20s
25s
30s
35s
40s
45s
50s
55s
60s


Traffic Source.Packet Generation Status
2
1
0
Traffic Source.Traffic Sent (bits)
40,000
20,000
0
Traffic Source.Traffic Sent (bits/sec)
100,000
50,000
0
Traffic Source.Traffic Sent (packets)
4
2
0
Traffic Source.Traffic Sent (packets/sec)
10
5
0
0s
5s
10s
15s
20s
25s
30s
35s
40s
45s
50s
55s
60s


node_1
node_3
node_5
node_7
node_9
node_11
node_13
node_15
node_0
node_2
node_4
node_6
node_8
node_10
node_12
node_14

Problem Statement 2:

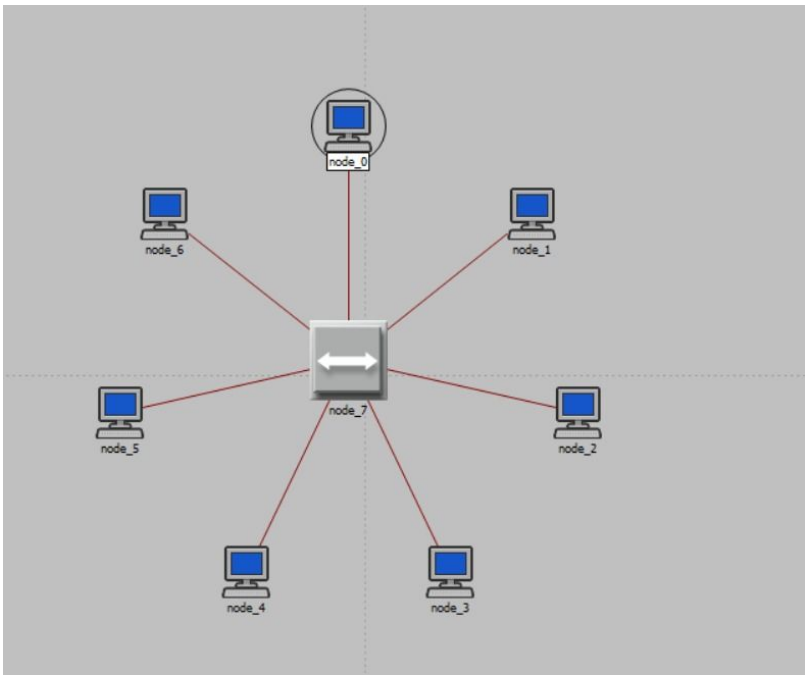
Using OPNET create Star topology among a set of N computer nodes out of which one node is the source and the rest are sink nodes. Model the traffic of source and sink nodes individually and demonstrate the packet transfer between them using Ethcoax (Ethernet using coaxial) cables. Use network scale as the “campus” of area 1km x 1km.

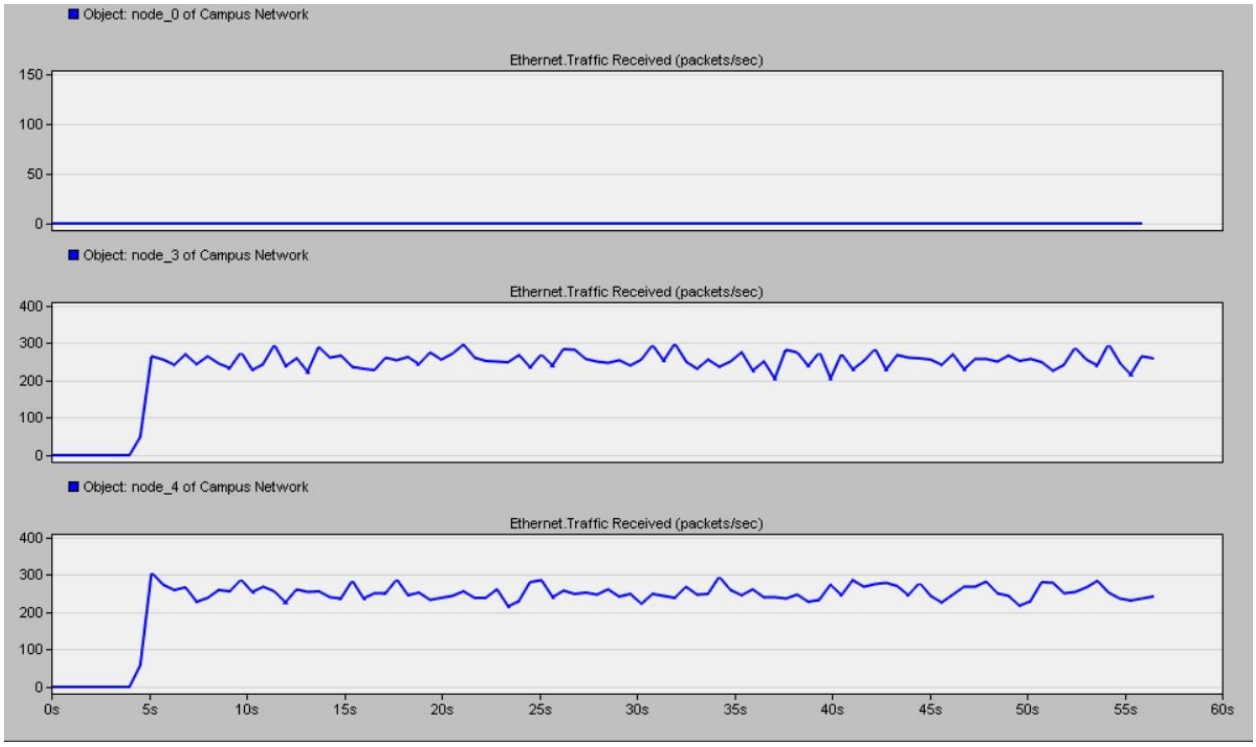
Algorithms:

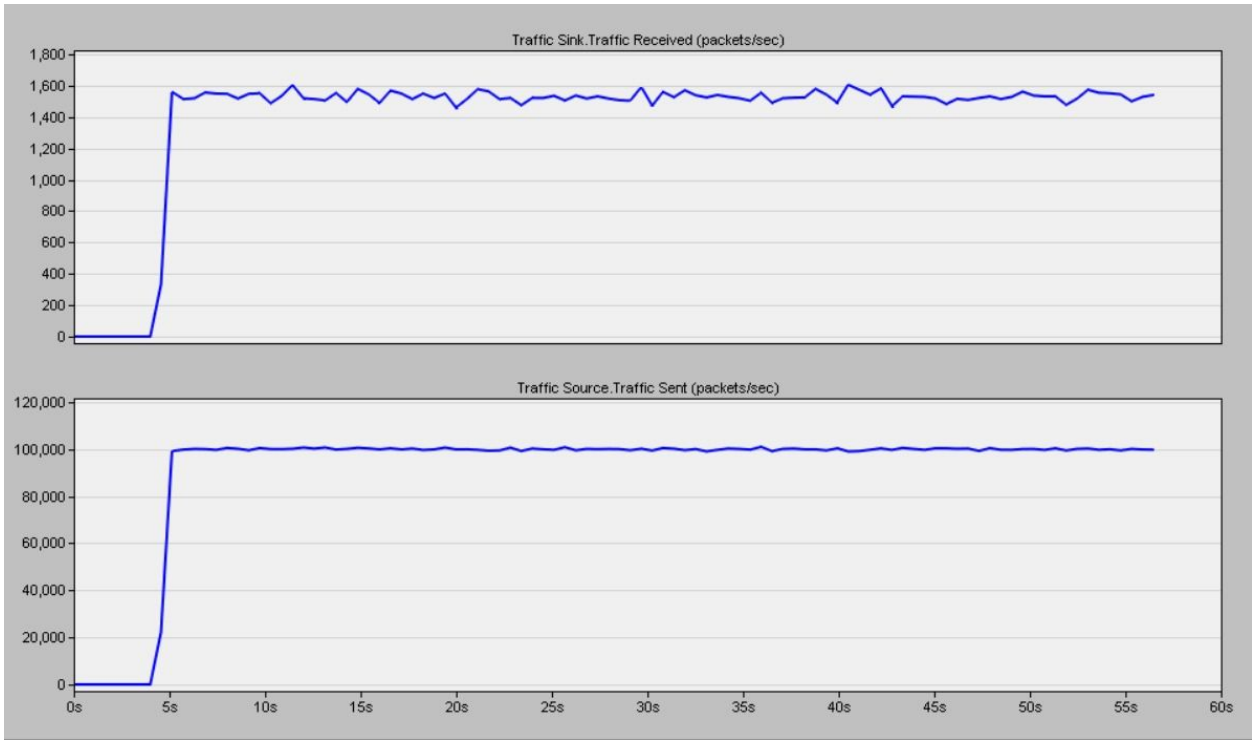
- None

Data Structures:

- **Node:** Used **ethernet16_hub** and **ethernet_station** to implement *central node* and *periphery node* respectively.
- **Link:** Used **10BaseT model**.


node_0
node_6
node_1
node_7
node_5
node_2
node_4
node_3


Object: node_0 of Campus Network
Ethernet.Traffic Received (packets/sec)
150
100
50
0
Object: node_3 of Campus Network
Ethernet.Traffic Received (packets/sec)
400
300
200
100
0
Object: node_4 of Campus Network
Ethernet.Traffic Received (packets/sec)
400
300
200
100
0
0s
5s
10s
15s
20s
25s
30s
35s
40s
45s
50s
55s
60s


Traffic Sink.Traffic Received (packets/sec)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Traffic Source.Traffic Sent (packets/sec)
120,000
100,000
80,000
60,000
40,000
20,000
0
0s
5s
10s
15s
20s
25s
30s
35s
40s
45s
50s
55s
60s