Pantheon Report

Data path: GCE Iowa on ens4 (remote) → GCE London on ens4 (local).
Repeated the test of 21 congestion control schemes 5 times.
Each test lasted for 30 seconds running 1 flow.
NTP offsets were measured against time.google.com and have been applied
to correct the timestamps in logs.

System info:
Linux 4.15.0-1028-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
brANCH: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fceed56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38d4dfe0edbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906c6bb7cf3cf
third_party/muses @ 5ce721187ad823da2095537730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27af942717625e3aa354cc2e802bd
third_party/pcc @ lafa958fa0d6d18b2c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8ac08f9b24e24f974ab
third_party/proto-quic @ 77961f1a82739a0b24f1bb8143e978f3ccf42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3dbd2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 3b6e35e6178b01e31d4a6a18c74f915f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2ba86211435ae071a32f96b7d8c504587f5d7f4
test from GCE Iowa to GCE London, 5 runs of 30s each per scheme
(mean of all runs by scheme)
<table>
<thead>
<tr>
<th>scheme</th>
<th># runs</th>
<th>mean avg tput (Mbit/s)</th>
<th>mean 95th-%ile delay (ms)</th>
<th>mean loss rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP BBR</td>
<td>5</td>
<td>454.83</td>
<td>171.05</td>
<td>0.76</td>
</tr>
<tr>
<td>Copa</td>
<td>5</td>
<td>245.22</td>
<td>75.01</td>
<td>0.31</td>
</tr>
<tr>
<td>TCP Cubic</td>
<td>5</td>
<td>502.37</td>
<td>151.17</td>
<td>0.50</td>
</tr>
<tr>
<td>FillP</td>
<td>5</td>
<td>818.76</td>
<td>106.58</td>
<td>1.04</td>
</tr>
<tr>
<td>FillP-Sheep</td>
<td>5</td>
<td>822.11</td>
<td>92.15</td>
<td>0.66</td>
</tr>
<tr>
<td>Indigo</td>
<td>4</td>
<td>229.43</td>
<td>50.55</td>
<td>0.31</td>
</tr>
<tr>
<td>Indigo-MusesC3</td>
<td>5</td>
<td>528.55</td>
<td>76.89</td>
<td>0.34</td>
</tr>
<tr>
<td>Indigo-MusesC5</td>
<td>5</td>
<td>549.69</td>
<td>97.03</td>
<td>0.45</td>
</tr>
<tr>
<td>Indigo-MusesD</td>
<td>5</td>
<td>489.81</td>
<td>80.25</td>
<td>0.40</td>
</tr>
<tr>
<td>Indigo-MusesT</td>
<td>5</td>
<td>540.67</td>
<td>114.29</td>
<td>0.46</td>
</tr>
<tr>
<td>LEDBAT</td>
<td>5</td>
<td>39.93</td>
<td>49.04</td>
<td>0.40</td>
</tr>
<tr>
<td>PCC-Allegro</td>
<td>5</td>
<td>342.36</td>
<td>159.18</td>
<td>1.98</td>
</tr>
<tr>
<td>PCC-Expr</td>
<td>5</td>
<td>232.71</td>
<td>158.27</td>
<td>2.00</td>
</tr>
<tr>
<td>QUIC Cubic</td>
<td>4</td>
<td>52.98</td>
<td>47.31</td>
<td>0.45</td>
</tr>
<tr>
<td>SCReAM</td>
<td>5</td>
<td>0.22</td>
<td>47.25</td>
<td>0.31</td>
</tr>
<tr>
<td>Sprout</td>
<td>5</td>
<td>9.63</td>
<td>48.03</td>
<td>0.33</td>
</tr>
<tr>
<td>TaoVA-100x</td>
<td>5</td>
<td>234.71</td>
<td>53.16</td>
<td>0.28</td>
</tr>
<tr>
<td>TCP Vegas</td>
<td>5</td>
<td>467.47</td>
<td>96.55</td>
<td>0.35</td>
</tr>
<tr>
<td>Verus</td>
<td>5</td>
<td>150.07</td>
<td>122.17</td>
<td>0.49</td>
</tr>
<tr>
<td>PCC-Vivace</td>
<td>5</td>
<td>274.48</td>
<td>112.78</td>
<td>0.48</td>
</tr>
<tr>
<td>WebRTC media</td>
<td>3</td>
<td>0.05</td>
<td>47.43</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Run 1: Statistics of TCP BBR

End at: 2019-04-24 14:31:43
Local clock offset: -0.022 ms
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2019-04-24 17:15:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 457.28 Mbit/s
95th percentile per-packet one-way delay: 173.513 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 457.28 Mbit/s
95th percentile per-packet one-way delay: 173.513 ms
Loss rate: 1.08%
Run 1: Report of TCP BBR — Data Link
Run 2: Statistics of TCP BBR

Start at: 2019-04-24 15:01:00
End at: 2019-04-24 15:01:30
Local clock offset: 0.01 ms
Remote clock offset: -0.026 ms

# Below is generated by plot.py at 2019-04-24 17:15:50
# Datalink statistics
-- Total of 1 flow:
Average throughput: 455.65 Mbit/s
95th percentile per-packet one-way delay: 162.168 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 455.65 Mbit/s
95th percentile per-packet one-way delay: 162.168 ms
Loss rate: 0.48%
Run 2: Report of TCP BBR — Data Link

![Graph showing throughput over time]

![Graph showing packet delay over time]

- Flow 1 ingress (mean 456.38 Mbit/s)
- Flow 1 egress (mean 455.65 Mbit/s)

- Flow 1 (95th percentile 162.17 ms)
Run 3: Statistics of TCP BBR

Start at: 2019-04-24 15:30:45
End at: 2019-04-24 15:31:15
Local clock offset: 0.113 ms
Remote clock offset: -0.075 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 467.19 Mbit/s
95th percentile per-packet one-way delay: 172.698 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 467.19 Mbit/s
95th percentile per-packet one-way delay: 172.698 ms
Loss rate: 0.78%
Run 3: Report of TCP BBR — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 469.35 Mbps)
- Flow 1 egress (mean 467.19 Mbps)

![Graph 2: Per-packet one-way delay (ms)]

- Flow 1 (95th percentile 172.70 ms)
Run 4: Statistics of TCP BBR

Start at: 2019-04-24 16:00:29
End at: 2019-04-24 16:00:59
Local clock offset: 0.221 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 444.67 Mbit/s
95th percentile per-packet one-way delay: 166.813 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 444.67 Mbit/s
95th percentile per-packet one-way delay: 166.813 ms
Loss rate: 0.57%
Run 4: Report of TCP BBR — Data Link
Run 5: Statistics of TCP BBR

Start at: 2019-04-24 16:30:28
End at: 2019-04-24 16:30:58
Local clock offset: 0.023 ms
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 449.37 Mbit/s
95th percentile per-packet one-way delay: 180.040 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 449.37 Mbit/s
95th percentile per-packet one-way delay: 180.040 ms
Loss rate: 0.87%
Run 5: Report of TCP BBR — Data Link
Run 1: Statistics of Copa

Local clock offset: 0.006 ms
Remote clock offset: -0.033 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 232.40 Mbit/s
95th percentile per-packet one-way delay: 70.371 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 232.40 Mbit/s
95th percentile per-packet one-way delay: 70.371 ms
Loss rate: 0.25%
Run 1: Report of Copa — Data Link

![Graph showing throughput (Mbps) over time](image1)

![Graph showing per-packet one way delay (ms) over time](image2)
Run 2: Statistics of Copa

Start at: 2019-04-24 15:26:38
End at: 2019-04-24 15:27:08
Local clock offset: 0.081 ms
Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 231.66 Mbit/s
95th percentile per-packet one-way delay: 87.798 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 231.66 Mbit/s
95th percentile per-packet one-way delay: 87.798 ms
Loss rate: 0.42%
Run 2: Report of Copa — Data Link
Run 3: Statistics of Copa

End at: 2019-04-24 15:56:52
Local clock offset: 0.196 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-04-24 17:15:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 236.29 Mbit/s
95th percentile per-packet one-way delay: 76.335 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 236.29 Mbit/s
95th percentile per-packet one-way delay: 76.335 ms
Loss rate: 0.27%
Run 3: Report of Copa — Data Link

![Graph showing throughput and packet delay over time.]

- Flow 1 ingress (mean 236.17 Mbit/s)
- Flow 1 egress (mean 236.29 Mbit/s)
Run 4: Statistics of Copa

Start at: 2019-04-24 16:26:19
End at: 2019-04-24 16:26:49
Local clock offset: 0.026 ms
Remote clock offset: -0.037 ms

# Below is generated by plot.py at 2019-04-24 17:24:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 247.48 Mbit/s
95th percentile per-packet one-way delay: 70.111 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 247.48 Mbit/s
95th percentile per-packet one-way delay: 70.111 ms
Loss rate: 0.26%
Run 4: Report of Copa — Data Link

![Graphs showing network performance metrics over time.]

- Flow 1 ingress (mean 247.36 Mbit/s)
- Flow 1 egress (mean 247.48 Mbit/s)

- Per packet one way delay (ms)

Flow 1 (95th percentile 70.11 ms)
Run 5: Statistics of Copa

Start at: 2019-04-24 16:56:07
End at: 2019-04-24 16:56:37
Local clock offset: -0.058 ms
Remote clock offset: -0.099 ms

# Below is generated by plot.py at 2019-04-24 17:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 278.25 Mbit/s
95th percentile per-packet one-way delay: 70.431 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 278.25 Mbit/s
95th percentile per-packet one-way delay: 70.431 ms
Loss rate: 0.35%
Run 5: Report of Copa — Data Link

![Graph 1: Throughput vs. Time](image1)

- Flow 1 ingress (mean 278.36 Mbit/s)
- Flow 1 egress (mean 278.25 Mbit/s)

![Graph 2: Packet Delay vs. Time](image2)

- Flow 1 (95th percentile 70.43 ms)
Run 1: Statistics of TCP Cubic

Start at: 2019-04-24 14:43:09
Local clock offset: -0.055 ms
Remote clock offset: -0.009 ms

# Below is generated by plot.py at 2019-04-24 17:25:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 492.50 Mbit/s
95th percentile per-packet one-way delay: 168.093 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 492.50 Mbit/s
95th percentile per-packet one-way delay: 168.093 ms
Loss rate: 0.72%
Run 1: Report of TCP Cubic — Data Link

![Plot 1: Througput (Mb/s) vs Time (s)]

Flow 1 ingress (mean 494.50 Mb/s)  Flow 1 egress (mean 492.50 Mb/s)

![Plot 2: Per packet one way delay (ms) vs Time (s)]

*Flow 1 (95th percentile 168.09 ms)*
Run 2: Statistics of TCP Cubic

Start at: 2019-04-24 15:12:57
Local clock offset: 0.01 ms
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2019-04-24 17:25:18
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 511.78 Mbit/s
  95th percentile per-packet one-way delay: 164.338 ms
  Loss rate: 0.49%
-- Flow 1:
  Average throughput: 511.78 Mbit/s
  95th percentile per-packet one-way delay: 164.338 ms
  Loss rate: 0.49%
Run 2: Report of TCP Cubic — Data Link
Run 3: Statistics of TCP Cubic

End at: 2019-04-24 15:43:11
Local clock offset: 0.135 ms
Remote clock offset: -0.066 ms

# Below is generated by plot.py at 2019-04-24 17:25:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 504.43 Mbit/s
95th percentile per-packet one-way delay: 155.570 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 504.43 Mbit/s
95th percentile per-packet one-way delay: 155.570 ms
Loss rate: 0.43%
Run 3: Report of TCP Cubic — Data Link

![Throughput Graph](image1)

- **Flow 1 ingress (mean 505.03 Mbit/s)**
- **Flow 1 egress (mean 504.43 Mbit/s)**

![Packet Delay Graph](image2)

- **Flow 1 (99th percentile 155.57 ms)**
Run 4: Statistics of TCP Cubic

Start at: 2019-04-24 16:12:31
End at: 2019-04-24 16:13:01
Local clock offset: 0.101 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2019-04-24 17:25:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 487.07 Mbit/s
95th percentile per-packet one-way delay: 127.065 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 487.07 Mbit/s
95th percentile per-packet one-way delay: 127.065 ms
Loss rate: 0.55%
Run 4: Report of TCP Cubic — Data Link

![Graph of Throughput vs Time]

- Flow 1 ingress (mean 488.22 Mbit/s)
- Flow 1 egress (mean 487.07 Mbit/s)

![Graph of Per Packet One Way Delay vs Time]

- Flow 1 (95th percentile 127.66 ms)
Run 5: Statistics of TCP Cubic

End at: 2019-04-24 16:42:49
Local clock offset: 0.013 ms
Remote clock offset: -0.088 ms

# Below is generated by plot.py at 2019-04-24 17:25:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 516.07 Mbit/s
95th percentile per-packet one-way delay: 140.790 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 516.07 Mbit/s
95th percentile per-packet one-way delay: 140.790 ms
Loss rate: 0.29%
Run 5: Report of TCP Cubic — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 515.96 Mbit/s)  Flow 1 egress (mean 516.07 Mbit/s)

Round trip packet delay (ms)

Time (s)

Flow 1 (95th percentile 140.79 ms)
Run 1: Statistics of FillP

Start at: 2019-04-24 14:34:21
End at: 2019-04-24 14:34:51
Local clock offset: 0.001 ms
Remote clock offset: -0.039 ms

# Below is generated by plot.py at 2019-04-24 17:33:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 812.35 Mbit/s
95th percentile per-packet one-way delay: 97.101 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 812.35 Mbit/s
95th percentile per-packet one-way delay: 97.101 ms
Loss rate: 0.93%
Run 1: Report of FillP — Data Link
Run 2: Statistics of FillP

Start at: 2019-04-24 15:04:09
End at: 2019-04-24 15:04:39
Local clock offset: 0.029 ms
Remote clock offset: -0.084 ms

# Below is generated by plot.py at 2019-04-24 17:43:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 823.59 Mbit/s
95th percentile per-packet one-way delay: 96.102 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 823.59 Mbit/s
95th percentile per-packet one-way delay: 96.102 ms
Loss rate: 0.61%
Run 2: Report of FillP — Data Link

![Graph of throughput and one-way delay over time.]

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 826.06 Mbps)
  - Flow 1 egress (mean 823.59 Mbps)

- **One-way delay (ms):**
  - Flow 1 (95th percentile 96.10 ms)
Run 3: Statistics of FillP

Start at: 2019-04-24 15:33:54
End at: 2019-04-24 15:34:24
Local clock offset: 0.107 ms
Remote clock offset: -0.039 ms

# Below is generated by plot.py at 2019-04-24 17:44:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 833.24 Mbit/s
95th percentile per-packet one-way delay: 101.328 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 833.24 Mbit/s
95th percentile per-packet one-way delay: 101.328 ms
Loss rate: 0.73%
Run 3: Report of FillP — Data Link

![Graph 1: Throughput vs Time](image1)

- Flow 1 ingress (mean 836.66 Mbits/s)
- Flow 1 egress (mean 833.24 Mbits/s)

![Graph 2: Per-Packet One-Way Delay vs Time](image2)

- Flow 1 (95th percentile 101.33 ms)
Run 4: Statistics of FillP

Start at: 2019-04-24 16:03:40
End at: 2019-04-24 16:04:10
Local clock offset: 0.142 ms
Remote clock offset: -0.043 ms

# Below is generated by plot.py at 2019-04-24 17:44:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 838.54 Mbit/s
95th percentile per-packet one-way delay: 117.029 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 838.54 Mbit/s
95th percentile per-packet one-way delay: 117.029 ms
Loss rate: 1.38%
Run 4: Report of FillP — Data Link
Run 5: Statistics of FillP

End at: 2019-04-24 16:34:06
Local clock offset: 0.002 ms
Remote clock offset: -0.024 ms

# Below is generated by plot.py at 2019-04-24 17:44:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 786.06 Mbit/s
95th percentile per-packet one-way delay: 121.354 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 786.06 Mbit/s
95th percentile per-packet one-way delay: 121.354 ms
Loss rate: 1.57%
Run 5: Report of FillP — Data Link
Run 1: Statistics of FillP-Sheep

End at: 2019-04-24 14:33:14
Local clock offset: -0.019 ms
Remote clock offset: -0.037 ms

# Below is generated by plot.py at 2019-04-24 17:44:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 763.92 Mbit/s
95th percentile per-packet one-way delay: 88.112 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 763.92 Mbit/s
95th percentile per-packet one-way delay: 88.112 ms
Loss rate: 0.46%
Run 1: Report of FillP-Sheep — Data Link
Run 2: Statistics of FillP-Sheep

Start at: 2019-04-24 15:02:29
End at: 2019-04-24 15:02:59
Local clock offset: 0.015 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-04-24 17:44:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 822.82 Mbit/s
95th percentile per-packet one-way delay: 88.575 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 822.82 Mbit/s
95th percentile per-packet one-way delay: 88.575 ms
Loss rate: 0.50%
Run 2: Report of FillP-Sheep — Data Link

![Graph of throughput over time](image1)

![Graph of packet loss over time](image2)
Run 3: Statistics of FillP-Sheep

End at: 2019-04-24 15:32:44
Local clock offset: -0.244 ms
Remote clock offset: -0.056 ms

# Below is generated by plot.py at 2019-04-24 17:45:06
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 836.50 Mbit/s
  95th percentile per-packet one-way delay: 90.255 ms
  Loss rate: 0.86%
-- Flow 1:
  Average throughput: 836.50 Mbit/s
  95th percentile per-packet one-way delay: 90.255 ms
  Loss rate: 0.86%
Run 3: Report of FillP-Sheep — Data Link
Run 4: Statistics of FillP-Sheep

Start at: 2019-04-24 16:01:58
End at: 2019-04-24 16:02:28
Local clock offset: 0.177 ms
Remote clock offset: -0.044 ms

# Below is generated by plot.py at 2019-04-24 17:56:54
# Datalink statistics
-- Total of 1 flow:
Average throughput: 887.73 Mbit/s
95th percentile per-packet one-way delay: 88.576 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 887.73 Mbit/s
95th percentile per-packet one-way delay: 88.576 ms
Loss rate: 0.63%
Run 4: Report of FillP-Sheep — Data Link

---

**Throughput (Mbps):**

- **Flow 1 Ingress** (mean 890.54 Mbps)
- **Flow 1 Egress** (mean 887.73 Mbps)

**Per packet one-way delay (ms):**

- **Flow 1 (95th percentile 88.58 ms)**
Run 5: Statistics of FillP-Sheep

End at: 2019-04-24 16:32:27
Local clock offset: 0.011 ms
Remote clock offset: -0.029 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 799.60 Mbit/s
95th percentile per-packet one-way delay: 105.234 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 799.60 Mbit/s
95th percentile per-packet one-way delay: 105.234 ms
Loss rate: 0.85%
Run 5: Report of FillP-Sheep — Data Link

![Graph showing throughput and per-packet end-to-end delay](image)

*Flow 1 ingress (mean 803.89 Mbit/s)  Flow 1 egress (mean 799.60 Mbit/s)*

*Flow 1 (95th percentile 105.23 ms)*
Run 1: Statistics of Indigo

Start at: 2019-04-24 14:30:06
End at: 2019-04-24 14:30:36
Local clock offset: −0.007 ms
Remote clock offset: −0.055 ms
Run 1: Report of Indigo — Data Link

![Graph 1: Throughput vs Time](image1)

![Graph 2: Per-packet one way delay vs Time](image2)
Run 2: Statistics of Indigo

End at: 2019-04-24 15:00:02
Local clock offset: 0.027 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 226.18 Mbit/s
95th percentile per-packet one-way delay: 53.382 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 226.18 Mbit/s
95th percentile per-packet one-way delay: 53.382 ms
Loss rate: 0.29%
Run 2: Report of Indigo — Data Link

The graphs depict the throughput and packet delay over time for a data link in Run 2. The throughput graph shows the change in data rate with time, with the solid line indicating the egress rate and the dashed line the ingress rate. Both rates are close to 226.11 Mbit/s on average.

The packet delay graph illustrates the variability in delay, with the 95th percentile delay being approximately 53.38 ms.
Run 3: Statistics of Indigo

Local clock offset: 0.102 ms
Remote clock offset: -0.117 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 228.93 Mbit/s
95th percentile per-packet one-way delay: 51.119 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 228.93 Mbit/s
95th percentile per-packet one-way delay: 51.119 ms
Loss rate: 0.32%
Run 3: Report of Indigo — Data Link
Run 4: Statistics of Indigo

Start at: 2019-04-24 15:59:01
Local clock offset: 0.225 ms
Remote clock offset: -0.035 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 232.49 Mbit/s
95th percentile per-packet one-way delay: 48.746 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 232.49 Mbit/s
95th percentile per-packet one-way delay: 48.746 ms
Loss rate: 0.31%
Run 4: Report of Indigo — Data Link
Run 5: Statistics of Indigo

Start at: 2019-04-24 16:29:00
End at: 2019-04-24 16:29:30
Local clock offset: -0.029 ms
Remote clock offset: -0.011 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 230.13 Mbit/s
95th percentile per-packet one-way delay: 48.959 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 230.13 Mbit/s
95th percentile per-packet one-way delay: 48.959 ms
Loss rate: 0.33%
Run 5: Report of Indigo — Data Link
Run 1: Statistics of Indigo-MusesC3

End at: 2019-04-24 14:50:23
Local clock offset: 0.003 ms
Remote clock offset: -0.021 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 540.10 Mbit/s
  95th percentile per-packet one-way delay: 77.020 ms
  Loss rate: 0.32%
-- Flow 1:
  Average throughput: 540.10 Mbit/s
  95th percentile per-packet one-way delay: 77.020 ms
  Loss rate: 0.32%
Run 1: Report of Indigo-MusesC3 — Data Link

![Graph 1: Throughput (Mbps) vs. Time (s)]

- **Flow 1 ingress (mean 540.02 Mbit/s)**
- **Flow 1 egress (mean 540.10 Mbit/s)**

![Graph 2: Per packet one way delay (ms) vs. Time (s)]

- **Flow 1 (95th percentile 77.02 ms)**

66
Run 2: Statistics of Indigo-MusesC3

End at: 2019-04-24 15:20:14
Local clock offset: 0.041 ms
Remote clock offset: -0.075 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 545.22 Mbit/s
95th percentile per-packet one-way delay: 81.050 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 545.22 Mbit/s
95th percentile per-packet one-way delay: 81.050 ms
Loss rate: 0.36%
Run 2: Report of Indigo-MusesC3 — Data Link

![Graph 1: Throughput (Mbps) vs Time (s)]

- **Flow 1 ingress (mean 545.35 Mbps)**
- **Flow 1 egress (mean 545.22 Mbps)**

![Graph 2: Per-packet one-way delay (ms) vs Time (s)]

- **Flow 1 (95th percentile 81.05 ms)**
Run 3: Statistics of Indigo-MusesC3

Local clock offset: 0.207 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2019-04-24 18:01:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 505.86 Mbit/s
95th percentile per-packet one-way delay: 73.407 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 505.86 Mbit/s
95th percentile per-packet one-way delay: 73.407 ms
Loss rate: 0.38%
Run 3: Report of Indigo-MusesC3 — Data Link

![Graph 1: Throughput vs Time](image1)

- Flow 1 ingress (mean 506.10 Mbit/s)
- Flow 1 egress (mean 505.86 Mbit/s)

![Graph 2: Per-packet one-way delay vs Time](image2)

- Flow 1 (95th percentile 73.41 ms)
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-04-24 16:19:18
Local clock offset: 0.038 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-04-24 18:01:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 523.21 Mbit/s
95th percentile per-packet one-way delay: 65.984 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 523.21 Mbit/s
95th percentile per-packet one-way delay: 65.984 ms
Loss rate: 0.36%
Run 4: Report of Indigo-MusesC3 — Data Link

Throughput (Mbps)

Time (s)

- Flow 1 ingress (mean 523.36 Mbit/s)
- Flow 1 egress (mean 523.21 Mbit/s)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 65.98 ms)
Run 5: Statistics of Indigo-MusesC3

Local clock offset: -0.016 ms  
Remote clock offset: -0.026 ms  

# Below is generated by plot.py at 2019-04-24 18:02:40  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 528.36 Mbit/s  
95th percentile per-packet one-way delay: 86.975 ms  
Loss rate: 0.30%  
-- Flow 1:  
Average throughput: 528.36 Mbit/s  
95th percentile per-packet one-way delay: 86.975 ms  
Loss rate: 0.30%
Run 5: Report of Indigo-MusesC3 — Data Link

![Graph 1: Throughput vs Time](image1)
- Flow 1 ingress (mean 528.16 Mbit/s)
- Flow 1 egress (mean 528.36 Mbit/s)

![Graph 2: Per-packet one way delay vs Time](image2)
- Flow 1 (95th percentile 86.97 ms)
Run 1: Statistics of Indigo-MusesC5

End at: 2019-04-24 14:38:02
Local clock offset: 0.005 ms
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2019-04-24 18:03:36
# Datalink statistics
-- Total of 1 flow:
Average throughput: 569.79 Mbit/s
95th percentile per-packet one-way delay: 83.054 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 569.79 Mbit/s
95th percentile per-packet one-way delay: 83.054 ms
Loss rate: 0.43%
Run 1: Report of Indigo-MusesC5 — Data Link

![Graph showing throughput and per packet one way delay over time.]

- Flow 1 ingress (mean 570.35 Mbit/s)
- Flow 1 egress (mean 569.79 Mbit/s)

- Flow 1 (95th percentile 83.05 ms)
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-04-24 15:07:20
End at: 2019-04-24 15:07:50
Local clock offset: 0.064 ms
Remote clock offset: -0.123 ms

# Below is generated by plot.py at 2019-04-24 18:05:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 538.67 Mbit/s
95th percentile per-packet one-way delay: 106.984 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 538.67 Mbit/s
95th percentile per-packet one-way delay: 106.984 ms
Loss rate: 0.38%
Run 2: Report of Indigo-MusesC5 — Data Link

[Graph 1: Throughput vs Time]

[Graph 2: Per-packet one way delay vs Time]

Legend:
- Flow 1 ingress (mean 538.92 Mbit/s)
- Flow 1 egress (mean 538.67 Mbit/s)
- Flow 1 (95th percentile 106.98 ms)
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-04-24 15:37:05
Local clock offset: 0.147 ms
Remote clock offset: -0.104 ms

# Below is generated by plot.py at 2019-04-24 18:05:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 547.38 Mbit/s
95th percentile per-packet one-way delay: 96.409 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 547.38 Mbit/s
95th percentile per-packet one-way delay: 96.409 ms
Loss rate: 0.45%
Run 3: Report of Indigo-MusesC5 — Data Link

![Graph 1](image1.png)

![Graph 2](image2.png)
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-04-24 16:06:53
End at: 2019-04-24 16:07:23
Local clock offset: 0.155 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2019-04-24 18:07:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 556.43 Mbit/s
95th percentile per-packet one-way delay: 94.954 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 556.43 Mbit/s
95th percentile per-packet one-way delay: 94.954 ms
Loss rate: 0.44%
Run 4: Report of Indigo-MusesC5 — Data Link

[Graphs showing throughput and packet delay over time]
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-04-24 16:36:45
End at: 2019-04-24 16:37:15
Local clock offset: -0.021 ms
Remote clock offset: -0.046 ms

# Below is generated by plot.py at 2019-04-24 18:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 536.19 Mbit/s
95th percentile per-packet one-way delay: 103.734 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 536.19 Mbit/s
95th percentile per-packet one-way delay: 103.734 ms
Loss rate: 0.55%
Run 5: Report of Indigo-MusesC5 — Data Link
Run 1: Statistics of Indigo-MusesD

End at: 2019-04-24 14:42:09
Local clock offset: -0.029 ms
Remote clock offset: -0.024 ms

# Below is generated by plot.py at 2019-04-24 18:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 500.89 Mbit/s
95th percentile per-packet one-way delay: 79.018 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 500.89 Mbit/s
95th percentile per-packet one-way delay: 79.018 ms
Loss rate: 0.44%
Run 1: Report of Indigo-MusesD — Data Link
Run 2: Statistics of Indigo-MusesD

End at: 2019-04-24 15:11:57
Local clock offset: 0.052 ms
Remote clock offset: -0.105 ms

# Below is generated by plot.py at 2019-04-24 18:11:24
# Datalink statistics
-- Total of 1 flow:
Average throughput: 478.91 Mbit/s
95th percentile per-packet one-way delay: 80.726 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 478.91 Mbit/s
95th percentile per-packet one-way delay: 80.726 ms
Loss rate: 0.45%
Run 2: Report of Indigo-MusesD — Data Link
Run 3: Statistics of Indigo-MusesD

Start at: 2019-04-24 15:41:10
End at: 2019-04-24 15:41:40
Local clock offset: 0.199 ms
Remote clock offset: -0.043 ms

# Below is generated by plot.py at 2019-04-24 18:12:13
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 496.62 Mbit/s
  95th percentile per-packet one-way delay: 79.560 ms
  Loss rate: 0.50%
-- Flow 1:
  Average throughput: 496.62 Mbit/s
  95th percentile per-packet one-way delay: 79.560 ms
  Loss rate: 0.50%
Run 3: Report of Indigo-MusesD — Data Link

![Graph 1: Throughput (Mbps)](image)

- Flow 1 ingress (mean 497.41 Mbit/s)
- Flow 1 egress (mean 496.62 Mbit/s)

![Graph 2: Per-packet one-way delay (ms)](image)

- Flow 1 (95th percentile 79.56 ms)
Run 4: Statistics of Indigo-MusesD

Start at: 2019-04-24 16:11:00
End at: 2019-04-24 16:11:30
Local clock offset: 0.091 ms
Remote clock offset: -0.001 ms

# Below is generated by plot.py at 2019-04-24 18:12:48
# Datalink statistics
-- Total of 1 flow:
 Average throughput: 501.52 Mbit/s
 95th percentile per-packet one-way delay: 75.143 ms
 Loss rate: 0.26%
-- Flow 1:
 Average throughput: 501.52 Mbit/s
 95th percentile per-packet one-way delay: 75.143 ms
 Loss rate: 0.26%
Run 4: Report of Indigo-MusesD — Data Link
Run 5: Statistics of Indigo-MusesD

Start at: 2019-04-24 16:40:51
End at: 2019-04-24 16:41:21
Local clock offset: 0.033 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-04-24 18:14:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 471.12 Mbit/s
95th percentile per-packet one-way delay: 86.798 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 471.12 Mbit/s
95th percentile per-packet one-way delay: 86.798 ms
Loss rate: 0.33%
Run 5: Report of Indigo-MusesD — Data Link
Run 1: Statistics of Indigo-MusesT

Start at: 2019-04-24 14:36:00
End at: 2019-04-24 14:36:30
Local clock offset: -0.025 ms
Remote clock offset: -0.01 ms

# Below is generated by plot.py at 2019-04-24 18:16:45
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 570.68 Mbit/s
  95th percentile per-packet one-way delay: 124.411 ms
  Loss rate: 0.43%
-- Flow 1:
  Average throughput: 570.68 Mbit/s
  95th percentile per-packet one-way delay: 124.411 ms
  Loss rate: 0.43%
Run 1: Report of Indigo-MusesT — Data Link

![Graphs showing data link performance](image)

**Throughput (Mbps)**
- Flow 1 ingress (mean 571.17 Mbps)
- Flow 1 egress (mean 570.68 Mbps)

**Per packet one way delay (ms)**
- Flow 1 (95th percentile 124.41 ms)
Run 2: Statistics of Indigo-MusesT

Start at: 2019-04-24 15:05:49
End at: 2019-04-24 15:06:19
Local clock offset: 0.003 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-04-24 18:18:32
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 534.99 Mbit/s
  95th percentile per-packet one-way delay: 87.392 ms
  Loss rate: 0.41%
-- Flow 1:
  Average throughput: 534.99 Mbit/s
  95th percentile per-packet one-way delay: 87.392 ms
  Loss rate: 0.41%
Run 2: Report of Indigo-MusesT — Data Link

![Graph showing throughput and one-way delay over time](image-url)

**Throughput (Mbps)**

- Flow 1 ingress (mean 535.40 Mbit/s)
- Flow 1 egress (mean 534.99 Mbit/s)

**Per-packet one-way delay (ms)**

- Flow 1 (95th percentile 87.39 ms)
Run 3: Statistics of Indigo-MuseST

Start at: 2019-04-24 15:35:33
End at: 2019-04-24 15:36:03
Local clock offset: 0.113 ms
Remote clock offset: -0.068 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 561.27 Mbit/s
  95th percentile per-packet one-way delay: 113.732 ms
  Loss rate: 0.54%
-- Flow 1:
  Average throughput: 561.27 Mbit/s
  95th percentile per-packet one-way delay: 113.732 ms
  Loss rate: 0.54%
Run 3: Report of Indigo-MusesT — Data Link

![Graph showing throughput and delay over time for two network flows.](image-url)

- **Throughput (Mbps)**:
  - Flow 1 ingress (mean 562.44 Mbps)
  - Flow 1 egress (mean 561.27 Mbps)

- **Delay (ms)**:
  - Flow 1 (95th percentile 113.73 ms)
Run 4: Statistics of Indigo-MusesT

Start at: 2019-04-24 16:05:20
End at: 2019-04-24 16:05:50
Local clock offset: 0.117 ms
Remote clock offset: -0.069 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 532.68 Mbit/s
  95th percentile per-packet one-way delay: 118.548 ms
  Loss rate: 0.44%
-- Flow 1:
  Average throughput: 532.68 Mbit/s
  95th percentile per-packet one-way delay: 118.548 ms
  Loss rate: 0.44%
Run 4: Report of Indigo-MusesT — Data Link

**Throughput (Mbps)**

- Flow 1 ingress (mean 533.26 Mbps)
- Flow 1 egress (mean 532.68 Mbps)

**Per packet one way delay (ms)**

- Flow 1 (95th percentile 118.55 ms)
Run 5: Statistics of Indigo-MusesT

Start at: 2019-04-24 16:35:14
End at: 2019-04-24 16:35:44
Local clock offset: -0.01 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 503.74 Mbit/s
  95th percentile per-packet one-way delay: 127.379 ms
  Loss rate: 0.47%
-- Flow 1:
  Average throughput: 503.74 Mbit/s
  95th percentile per-packet one-way delay: 127.379 ms
  Loss rate: 0.47%
Run 5: Report of Indigo-MusesT — Data Link

---

**Throughput (Mbps)**

- Flow 1 ingress (mean 504.48 Mbit/s)
- Flow 1 egress (mean 503.74 Mbit/s)

**Packet End-to-End Delay (ms)**

- Flow 1 (95th percentile 127.38 ms)
Run 1: Statistics of LEDBAT

Local clock offset: 0.009 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.56 Mbit/s
95th percentile per-packet one-way delay: 49.967 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 40.56 Mbit/s
95th percentile per-packet one-way delay: 49.967 ms
Loss rate: 0.63%
Run 1: Report of LEDBAT — Data Link

![Graph depicting throughput and delay over time for Flow 1. The graph shows the throughput increasing over time, with a dotted line representing ingress at 40.69 Mbit/s and a solid line representing egress at 40.56 Mbit/s. Below, the delay per packet is shown, with a 95th percentile delay of 49.97 ms.]
Run 2: Statistics of LEDBAT

Start at: 2019-04-24 14:58:21
End at: 2019-04-24 14:58:51
Local clock offset: 0.028 ms
Remote clock offset: -0.061 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.41 Mbit/s
95th percentile per-packet one-way delay: 48.898 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 37.41 Mbit/s
95th percentile per-packet one-way delay: 48.898 ms
Loss rate: 0.06%
Run 2: Report of LEDBAT — Data Link

![Graph 1: Throughput vs Time](image1)

- **Flow 1 ingress (mean 37.31 Mbit/s)**
- **Flow 1 egress (mean 37.41 Mbit/s)**

![Graph 2: Packet delay vs Time](image2)

- **Flow 1 (95th percentile 48.90 ms)**
Run 3: Statistics of LEDBAT

Local clock offset: 0.085 ms
Remote clock offset: -0.123 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.80 Mbit/s
95th percentile per-packet one-way delay: 48.946 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 40.80 Mbit/s
95th percentile per-packet one-way delay: 48.946 ms
Loss rate: 0.62%
Run 3: Report of LEDBAT — Data Link

![Graph 1: Throughput vs Time](image)

- Flow 1 ingress (mean 40.93 Mbit/s)
- Flow 1 egress (mean 40.80 Mbit/s)

![Graph 2: Per-packet one-way delay](image)

- Flow 1 (95th percentile 48.95 ms)
Run 4: Statistics of LEDBAT

End at: 2019-04-24 15:58:20
Local clock offset: 0.205 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.10 Mbit/s
95th percentile per-packet one-way delay: 48.287 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 40.10 Mbit/s
95th percentile per-packet one-way delay: 48.287 ms
Loss rate: 0.04%
Run 4: Report of LEDBAT — Data Link
Run 5: Statistics of LEDBAT

Local clock offset: 0.039 ms
Remote clock offset: -0.046 ms

# Below is generated by plot.py at 2019-04-24 18:21:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.79 Mbit/s
95th percentile per-packet one-way delay: 49.087 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 40.79 Mbit/s
95th percentile per-packet one-way delay: 49.087 ms
Loss rate: 0.63%
Run 5: Report of LEDBAT — Data Link

![Graph 1: Throughput vs Time](image1)

- Flow 1 ingress (mean 40.92 Mbit/s)
- Flow 1 egress (mean 40.79 Mbit/s)

![Graph 2: Per-packet one-way delay vs Time](image2)

- Flow 1 (90th percentile 49.09 ms)
Run 1: Statistics of PCC-Allegro

End at: 2019-04-24 14:47:45
Local clock offset: -0.025 ms
Remote clock offset: 0.011 ms

# Below is generated by plot.py at 2019-04-24 18:29:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 363.07 Mbit/s
95th percentile per-packet one-way delay: 145.088 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 363.07 Mbit/s
95th percentile per-packet one-way delay: 145.088 ms
Loss rate: 0.53%
Run 1: Report of PCC-Allegro — Data Link
Run 2: Statistics of PCC-Allegro

Start at: 2019-04-24 15:17:09
End at: 2019-04-24 15:17:39
Local clock offset: 0.023 ms
Remote clock offset: -0.073 ms

# Below is generated by plot.py at 2019-04-24 18:29:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 302.49 Mbit/s
95th percentile per-packet one-way delay: 162.169 ms
Loss rate: 4.49%
-- Flow 1:
Average throughput: 302.49 Mbit/s
95th percentile per-packet one-way delay: 162.169 ms
Loss rate: 4.49%
Run 2: Report of PCC-Allegro — Data Link

![Graphs showing network throughput and packet delay]

- Flow 1 ingress (mean 315.71 Mbit/s)
- Flow 1 egress (mean 302.49 Mbit/s)
- Flow 1 (95th percentile 162.17 ms)
Run 3: Statistics of PCC-Allegro

Local clock offset: 0.206 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-04-24 18:29:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 342.54 Mbit/s
95th percentile per-packet one-way delay: 107.078 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 342.54 Mbit/s
95th percentile per-packet one-way delay: 107.078 ms
Loss rate: 0.55%
Run 3: Report of PCC-Allegro — Data Link

![Graph 1: Throughput (Mbps)](image1)

- **Flow 1 ingress (mean 343.34 Mbit/s)**
- **Flow 1 egress (mean 342.54 Mbit/s)**

![Graph 2: Per packet one-way delay (ms)](image2)

- **Flow 1 (95th percentile 107.88 ms)**
Run 4: Statistics of PCC-Allegro

End at: 2019-04-24 16:17:11
Local clock offset: 0.028 ms
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2019-04-24 18:30:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 345.43 Mbit/s
95th percentile per-packet one-way delay: 212.848 ms
Loss rate: 3.41%
-- Flow 1:
Average throughput: 345.43 Mbit/s
95th percentile per-packet one-way delay: 212.848 ms
Loss rate: 3.41%
Run 4: Report of PCC-Allegro — Data Link
Run 5: Statistics of PCC-Allegro

Local clock offset: -0.011 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2019-04-24 18:32:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 358.25 Mbit/s
95th percentile per-packet one-way delay: 168.731 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 358.25 Mbit/s
95th percentile per-packet one-way delay: 168.731 ms
Loss rate: 0.94%
Run 1: Statistics of PCC-Expr

Start at: 2019-04-24 14:52:54
End at: 2019-04-24 14:53:24
Local clock offset: 0.012 ms
Remote clock offset: -0.06 ms

# Below is generated by plot.py at 2019-04-24 18:32:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 250.18 Mbit/s
95th percentile per-packet one-way delay: 146.454 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 250.18 Mbit/s
95th percentile per-packet one-way delay: 146.454 ms
Loss rate: 0.90%
Run 1: Report of PCC-Expr — Data Link
Run 2: Statistics of PCC-Expr

Local clock offset: 0.052 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-04-24 18:32:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 209.23 Mbit/s
95th percentile per-packet one-way delay: 113.808 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 209.23 Mbit/s
95th percentile per-packet one-way delay: 113.808 ms
Loss rate: 0.41%
Run 2: Report of PCC-Expr — Data Link

![Graph showing throughput and per-packet one-way delay over time.]

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 209.41 Mbit/s)
  - Flow 1 egress (mean 209.23 Mbit/s)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 113.81 ms)
Run 3: Statistics of PCC-Expr

Local clock offset: 0.213 ms
Remote clock offset: -0.058 ms

# Below is generated by plot.py at 2019-04-24 18:32:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 222.11 Mbit/s
95th percentile per-packet one-way delay: 120.050 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 222.11 Mbit/s
95th percentile per-packet one-way delay: 120.050 ms
Loss rate: 0.37%
Run 3: Report of PCC-Expr — Data Link

![Graph showing throughput and packet delay over time for Flow 1 ingress and egress.]
Run 4: Statistics of PCC-Expr

Local clock offset: -0.308 ms  
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2019-04-24 18:35:47  
# Datalink statistics

-- Total of 1 flow:
Average throughput: 235.97 Mbit/s
95th percentile per-packet one-way delay: 226.819 ms
Loss rate: 3.13%

-- Flow 1:
Average throughput: 235.97 Mbit/s
95th percentile per-packet one-way delay: 226.819 ms
Loss rate: 3.13%
Run 4: Report of PCC-Expr — Data Link
Run 5: Statistics of PCC-Expr

Start at: 2019-04-24 16:52:09
End at: 2019-04-24 16:52:39
Local clock offset: 0.37 ms
Remote clock offset: -0.082 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 246.07 Mbit/s
95th percentile per-packet one-way delay: 184.230 ms
Loss rate: 5.20%
-- Flow 1:
Average throughput: 246.07 Mbit/s
95th percentile per-packet one-way delay: 184.230 ms
Loss rate: 5.20%
Run 5: Report of PCC-Expr — Data Link

![Graph](image)

- Flow 1 ingress (mean 258.73 Mbit/s)
- Flow 1 egress (mean 246.07 Mbit/s)

![Graph](image)

- Flow 1 (95th percentile 184.23 ms)
Run 1: Statistics of QUIC Cubic

Start at: 2019-04-24 14:44:40
End at: 2019-04-24 14:45:10
Local clock offset: -0.054 ms
Remote clock offset: -0.036 ms
Run 1: Report of QUIC Cubic — Data Link

![Graph 1: Throughput vs Time](image1)

![Graph 2: Delay vs Time](image2)
Run 2: Statistics of QUIC Cubic

Start at: 2019-04-24 15:14:30  
End at: 2019-04-24 15:15:00  
Local clock offset: 0.024 ms  
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2019-04-24 18:38:40  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 65.08 Mbit/s  
95th percentile per-packet one-way delay: 47.256 ms  
Loss rate: 0.40%  
-- Flow 1:  
Average throughput: 65.08 Mbit/s  
95th percentile per-packet one-way delay: 47.256 ms  
Loss rate: 0.40%
Run 2: Report of QUIC Cubic — Data Link

![Graph showing throughput over time for different flows.]

- Flow 1 ingress (mean 65.13 Mbit/s)
- Flow 1 egress (mean 65.08 Mbit/s)

![Graph showing packet round trip delay over time for Flow 1.]

- Flow 1 (95th percentile 47.26 ms)
Run 3: Statistics of QUIC Cubic

End at: 2019-04-24 15:44:43
Local clock offset: 0.173 ms
Remote clock offset: -0.086 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 53.90 Mbit/s
  95th percentile per-packet one-way delay: 47.311 ms
  Loss rate: 0.52%
-- Flow 1:
  Average throughput: 53.90 Mbit/s
  95th percentile per-packet one-way delay: 47.311 ms
  Loss rate: 0.52%
Run 3: Report of QUIC Cubic — Data Link
Run 4: Statistics of QUIC Cubic

Start at: 2019-04-24 16:14:01
End at: 2019-04-24 16:14:31
Local clock offset: 0.455 ms
Remote clock offset: -0.051 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 52.27 Mbit/s
  95th percentile per-packet one-way delay: 47.533 ms
  Loss rate: 0.52%
-- Flow 1:
  Average throughput: 52.27 Mbit/s
  95th percentile per-packet one-way delay: 47.533 ms
  Loss rate: 0.52%
Run 4: Report of QUIC Cubic — Data Link
Run 5: Statistics of QUIC Cubic

End at: 2019-04-24 16:44:22
Local clock offset: -0.01 ms
Remote clock offset: -0.061 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 47.121 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 47.121 ms
Loss rate: 0.35%
Run 5: Report of QUIC Cubic — Data Link
Run 1: Statistics of SCReAM

End at: 2019-04-24 14:56:16
Local clock offset: 0.024 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.510 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.510 ms
Loss rate: 0.38%
Run 1: Report of SCReAM — Data Link

![Graph of Throughput vs Time for Flow 1 ingress and egress]

- Throughput (Mbps)
- Time (s)
- Flow 1 ingress (mean 0.22 Mbit/s)
- Flow 1 egress (mean 0.22 Mbit/s)

![Graph of Per-packet one-way delay vs Time for Flow 1]

- Per-packet one-way delay (ms)
- Time (s)
- Flow 1 (95th percentile 47.51 ms)
Run 2: Statistics of SCReAM

Start at: 2019-04-24 15:25:30
End at: 2019-04-24 15:26:00
Local clock offset: 0.068 ms
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.562 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.562 ms
Loss rate: 0.26%
Run 2: Report of SCReAM — Data Link

![Graph 1: Throughput (Mbps)]

![Graph 2: Per packet one-way delay (ms)]
Run 3: Statistics of SCReAM

Local clock offset: 0.217 ms
Remote clock offset: -0.085 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.322 ms
  Loss rate: 0.26%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.322 ms
  Loss rate: 0.26%
Run 3: Report of SCReAM — Data Link
Run 4: Statistics of SCReAM

End at: 2019-04-24 16:25:42
Local clock offset: -0.014 ms
Remote clock offset: -0.016 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.269 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.269 ms
Loss rate: 0.39%
Run 4: Report of SCReAM — Data Link

![Graphs showing throughput and packet delay over time for Flow 1.](image)

- Flow 1 ingress (mean 0.22 Mbit/s)
- Flow 1 egress (mean 0.22 Mbit/s)
Run 5: Statistics of SCReAM

Start at: 2019-04-24 16:55:00
Local clock offset: -0.037 ms
Remote clock offset: -0.038 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.580 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.580 ms
Loss rate: 0.26%
Run 5: Report of SCReAM — Data Link
Run 1: Statistics of Sprout

Start at: 2019-04-24 14:39:05
Local clock offset: 0.347 ms
Remote clock offset: -0.031 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 48.558 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 48.558 ms
Loss rate: 0.35%
Run 1: Report of Sprout — Data Link

![Graph 1: Throughput vs. Time (Mbps)](image1)

- Flow 1 ingress (mean 9.68 Mbit/s)
- Flow 1 egress (mean 9.67 Mbit/s)

---

![Graph 2: Packet Delay vs. Time (ms)](image2)

- Flow 1 (95th percentile 48.56 ms)
Run 2: Statistics of Sprout

Start at: 2019-04-24 15:08:52
End at: 2019-04-24 15:09:22
Local clock offset: 0.04 ms
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 48.062 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 48.062 ms
Loss rate: 0.26%
Run 2: Report of Sprout — Data Link
Run 3: Statistics of Sprout

End at: 2019-04-24 15:39:08
Local clock offset: 0.183 ms
Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.71 Mbit/s
95th percentile per-packet one-way delay: 47.943 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 9.71 Mbit/s
95th percentile per-packet one-way delay: 47.943 ms
Loss rate: 0.35%
Run 3: Report of Sprout — Data Link

![Graphs showing network performance metrics over time.](image_url)

- **Throughput (Mbps)**
- **Time (s)**

1. **Flow 1 ingress (mean 9.71 Mbit/s)**
2. **Flow 1 egress (mean 9.71 Mbit/s)**

![Graph showing per-packet one-way delay (ms).](image_url)

- **Per-packet one-way delay (ms)**
- **Time (s)**

- **Flow 1 95th percentile 47.94 ms**
Run 4: Statistics of Sprout

Start at: 2019-04-24 16:08:26
End at: 2019-04-24 16:08:56
Local clock offset: 0.091 ms
Remote clock offset: -0.051 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 47.688 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 9.70 Mbit/s
95th percentile per-packet one-way delay: 47.688 ms
Loss rate: 0.35%
Run 4: Report of Sprout — Data Link

![Graph 1: Throughput (Mbps)](image)

- **Flow 1 ingress** (mean 9.71 Mbps)
- **Flow 1 egress** (mean 9.70 Mbps)

![Graph 2: Per-packet one-way delay (ms)](image)

- **Flow 1** (99th percentile 47.69 ms)
Run 5: Statistics of Sprout

Start at: 2019-04-24 16:38:16
End at: 2019-04-24 16:38:46
Local clock offset: -0.04 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-04-24 18:38:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 47.886 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 47.886 ms
Loss rate: 0.32%
Run 5: Report of Sprout — Data Link

![Graph 1](image1.png)

![Graph 2](image2.png)
Run 1: Statistics of TaoVA-100x

Start at: 2019-04-24 14:45:48
End at: 2019-04-24 14:46:18
Local clock offset: -0.021 ms
Remote clock offset: -0.002 ms

# Below is generated by plot.py at 2019-04-24 18:39:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 221.74 Mbit/s
95th percentile per-packet one-way delay: 56.178 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 221.74 Mbit/s
95th percentile per-packet one-way delay: 56.178 ms
Loss rate: 0.36%
Run 1: Report of TaoVA-100x — Data Link
Run 2: Statistics of TaoVA-100x

Start at: 2019-04-24 15:15:40
End at: 2019-04-24 15:16:10
Local clock offset: 0.023 ms
Remote clock offset: -0.058 ms

# Below is generated by plot.py at 2019-04-24 18:40:16
# Datalink statistics
-- Total of 1 flow:
Average throughput: 242.70 Mbit/s
95th percentile per-packet one-way delay: 50.804 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 242.70 Mbit/s
95th percentile per-packet one-way delay: 50.804 ms
Loss rate: 0.30%
Run 2: Report of TaoVA-100x — Data Link
Run 3: Statistics of TaoVA-100x

Start at: 2019-04-24 15:45:23
End at: 2019-04-24 15:45:53
Local clock offset: 0.187 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2019-04-24 18:40:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 242.42 Mbit/s
95th percentile per-packet one-way delay: 51.202 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 242.42 Mbit/s
95th percentile per-packet one-way delay: 51.202 ms
Loss rate: 0.23%
Run 3: Report of TaoVA-100x — Data Link

![Graph 1: Throughput vs. Time](image1)

- Flow 1 ingress (mean 242.17 Mbit/s)
- Flow 1 egress (mean 242.42 Mbit/s)

![Graph 2: Packet Size vs. Time](image2)

- Flow 1 (95th percentile 51.20 ms)
Run 4: Statistics of TaoVA-100x

Start at: 2019-04-24 16:15:12
End at: 2019-04-24 16:15:42
Local clock offset: 0.045 ms
Remote clock offset: -0.06 ms

# Below is generated by plot.py at 2019-04-24 18:40:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 246.55 Mbit/s
95th percentile per-packet one-way delay: 50.079 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 246.55 Mbit/s
95th percentile per-packet one-way delay: 50.079 ms
Loss rate: 0.13%
Run 4: Report of TaoVA-100x — Data Link
Run 5: Statistics of TaoVA-100x

Start at: 2019-04-24 16:45:02
End at: 2019-04-24 16:45:32
Local clock offset: -0.0 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-04-24 18:40:23
# Datalink statistics
-- Total of 1 flow:
Average throughput: 220.15 Mbit/s
95th percentile per-packet one-way delay: 57.520 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 220.15 Mbit/s
95th percentile per-packet one-way delay: 57.520 ms
Loss rate: 0.37%
Run 5: Report of TaoVA-100x — Data Link
Run 1: Statistics of TCP Vegas

End at: 2019-04-24 14:51:55
Local clock offset: -0.044 ms
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2019-04-24 18:41:40
# Datalink statistics
-- Total of 1 flow:
Average throughput: 468.66 Mbit/s
95th percentile per-packet one-way delay: 101.154 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 468.66 Mbit/s
95th percentile per-packet one-way delay: 101.154 ms
Loss rate: 0.39%
Run 1: Report of TCP Vegas — Data Link

![Graph 1: Throughput Over Time](image1)

Flow 1 ingress (mean 469.03 Mbit/s)  Flow 1 egress (mean 468.66 Mbit/s)

![Graph 2: Packet One-Way Delay](image2)

Flow 1 (95th percentile 101.15 ms)
Run 2: Statistics of TCP Vegas

Local clock offset: 0.027 ms
Remote clock offset: -0.104 ms

# Below is generated by plot.py at 2019-04-24 18:45:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 432.99 Mbit/s
95th percentile per-packet one-way delay: 92.967 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 432.99 Mbit/s
95th percentile per-packet one-way delay: 92.967 ms
Loss rate: 0.35%
Run 2: Report of TCP Vegas — Data Link

![Graph 1: Throughput (Mbps)](image1.png)

- **Flow 1 ingress** (mean 433.16 Mbps)
- **Flow 1 egress** (mean 432.99 Mbps)

![Graph 2: Per-packet one-way delay (ms)](image2.png)

- **Flow 1** (95th percentile 92.97 ms)
Run 3: Statistics of TCP Vegas

Local clock offset: 0.2 ms
Remote clock offset: -0.096 ms

# Below is generated by plot.py at 2019-04-24 18:48:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 490.39 Mbit/s
95th percentile per-packet one-way delay: 75.020 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 490.39 Mbit/s
95th percentile per-packet one-way delay: 75.020 ms
Loss rate: 0.19%
Run 3: Report of TCP Vegas — Data Link

![Graph showing throughput and packet delay over time]

- **Throughput (Mbps)**: The graph illustrates the throughput over time for two flows, with one flow showing high initial throughput that gradually decreases and stabilizes, and the other flow maintaining a steady throughput.

- **Packet Delay (ms)**: The packet delay graph shows significant variation, with spikes indicating high delay at certain points in time, indicating potential network congestion or latency issues.
Run 4: Statistics of TCP Vegas

Start at: 2019-04-24 16:20:50
Local clock offset: 0.034 ms
Remote clock offset: -0.042 ms

# Below is generated by plot.py at 2019-04-24 18:48:21
# Datalink statistics
-- Total of 1 flow:
Average throughput: 468.78 Mbit/s
95th percentile per-packet one-way delay: 101.031 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 468.78 Mbit/s
95th percentile per-packet one-way delay: 101.031 ms
Loss rate: 0.44%
Run 4: Report of TCP Vegas — Data Link

![Graph 1: Throughput in Mbps]

- **Flow 1 ingress (mean 469.37 Mbit/s)**
- **Flow 1 egress (mean 468.78 Mbit/s)**

![Graph 2: Per packet one-way delay in ms]

- **Flow 1 (95th percentile 101.03 ms)**
Run 5: Statistics of TCP Vegas

End at: 2019-04-24 16:51:09
Local clock offset: -0.02 ms
Remote clock offset: -0.111 ms

# Below is generated by plot.py at 2019-04-24 18:48:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 476.53 Mbit/s
95th percentile per-packet one-way delay: 112.562 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 476.53 Mbit/s
95th percentile per-packet one-way delay: 112.562 ms
Loss rate: 0.39%
Run 5: Report of TCP Vegas — Data Link
Run 1: Statistics of Verus

Start at: 2019-04-24 14:54:25
End at: 2019-04-24 14:54:55
Local clock offset: -0.022 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2019-04-24 18:48:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 152.86 Mbit/s
95th percentile per-packet one-way delay: 106.693 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 152.86 Mbit/s
95th percentile per-packet one-way delay: 106.693 ms
Loss rate: 0.32%
Run 1: Report of Verus — Data Link
Run 2: Statistics of Verus

Start at: 2019-04-24 15:24:10
End at: 2019-04-24 15:24:40
Local clock offset: 0.011 ms
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2019-04-24 18:48:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 144.44 Mbit/s
95th percentile per-packet one-way delay: 97.838 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 144.44 Mbit/s
95th percentile per-packet one-way delay: 97.838 ms
Loss rate: 0.42%
Run 2: Report of Verus — Data Link

![Graph 1: Throughput (Mbit/s)]

![Graph 2: Per packet one way delay (ms)]

Flow 1 ingress (mean 144.54 Mbit/s) — Flow 1 egress (mean 144.44 Mbit/s)

Flow 1 (95th percentile 97.84 ms)
Run 3: Statistics of Verus

End at: 2019-04-24 15:54:25
Local clock offset: 0.212 ms
Remote clock offset: -0.054 ms

# Below is generated by plot.py at 2019-04-24 18:48:48
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 131.83 Mbit/s
  95th percentile per-packet one-way delay: 115.663 ms
  Loss rate: 0.68%
-- Flow 1:
  Average throughput: 131.83 Mbit/s
  95th percentile per-packet one-way delay: 115.663 ms
  Loss rate: 0.68%
Run 3: Report of Verus — Data Link

![Graph of Throughput and Packet Delay]

- **Flow 1 ingress** (mean 132.31 Mbit/s)
- **Flow 1 egress** (mean 131.83 Mbit/s)
- **Flow 1 (95th percentile 115.66 ms)**
Run 4: Statistics of Verus

End at: 2019-04-24 16:24:18
Local clock offset: 0.014 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-04-24 18:48:48
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 173.53 Mbit/s
  95th percentile per-packet one-way delay: 186.917 ms
  Loss rate: 0.42%
-- Flow 1:
  Average throughput: 173.53 Mbit/s
  95th percentile per-packet one-way delay: 186.917 ms
  Loss rate: 0.42%
Run 4: Report of Verus — Data Link

Throughput (Mbps)

Flow 1 ingress (mean 173.73 Mbps)  Flow 1 egress (mean 173.53 Mbps)

Per packet one way delay (ms)

Flow 1 (95th percentile 186.92 ms)
Run 5: Statistics of Verus

End at: 2019-04-24 16:54:09
Local clock offset: ~0.012 ms
Remote clock offset: ~0.083 ms

# Below is generated by plot.py at 2019-04-24 18:50:27
# Datalink statistics
-- Total of 1 flow:
Average throughput: 147.69 Mbit/s
95th percentile per-packet one-way delay: 103.748 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 147.69 Mbit/s
95th percentile per-packet one-way delay: 103.748 ms
Loss rate: 0.62%
Run 5: Report of Verus — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 148.14 Mbit/s)  Flow 1 egress (mean 147.69 Mbit/s)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 103.75 ms)
Run 1: Statistics of PCC-Vivace

Start at: 2019-04-24 14:40:14
End at: 2019-04-24 14:40:44
Local clock offset: 0.0 ms
Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2019-04-24 18:50:34
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 276.17 Mbit/s
  95th percentile per-packet one-way delay: 134.422 ms
  Loss rate: 0.37%
-- Flow 1:
  Average throughput: 276.17 Mbit/s
  95th percentile per-packet one-way delay: 134.422 ms
  Loss rate: 0.37%
Run 1: Report of PCC-Vivace — Data Link

![Graph showing throughput over time for PCC-Vivace data link]

- Flow 1 ingress (mean 276.31 Mbit/s)
- Flow 1 egress (mean 276.17 Mbit/s)

![Graph showing packet delay over time for PCC-Vivace data link]

- Flow 1 (95th percentile 134.42 ms)
Run 2: Statistics of PCC-Vivace

Start at: 2019-04-24 15:10:00
End at: 2019-04-24 15:10:30
Local clock offset: 0.032 ms
Remote clock offset: -0.09 ms

# Below is generated by plot.py at 2019-04-24 18:50:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 281.05 Mbit/s
95th percentile per-packet one-way delay: 104.568 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 281.05 Mbit/s
95th percentile per-packet one-way delay: 104.568 ms
Loss rate: 0.38%
Run 2: Report of PCC-Vivace — Data Link

---

**Graph 1:**
- **Y-axis:** Throughput (Mbit/s)
- **X-axis:** Time (s)
- **Legend:**
  - Flow 1 ingress (mean 281.23 Mbit/s)
  - Flow 1 egress (mean 281.05 Mbit/s)

**Graph 2:**
- **Y-axis:** Per packet one way delay (ms)
- **X-axis:** Time (s)
- **Legend:** Flow 1 (95th percentile 104.57 ms)
Run 3: Statistics of PCC-Vivace

End at: 2019-04-24 15:40:16
Local clock offset: 0.168 ms
Remote clock offset: -0.087 ms

# Below is generated by plot.py at 2019-04-24 18:50:39
# Datalink statistics
-- Total of 1 flow:
Average throughput: 254.63 Mbit/s
95th percentile per-packet one-way delay: 71.678 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 254.63 Mbit/s
95th percentile per-packet one-way delay: 71.678 ms
Loss rate: 0.37%
Run 3: Report of PCC-Vivace — Data Link

![Graph](image.png)

- **Throughput (Mbps)**
- **Time (s)**

**Legend:**
- Dashed line: Flow 1 ingress (mean 254.76 Mbps)
- Solid line: Flow 1 egress (mean 254.63 Mbps)

![Graph](image.png)

- **Per packet one way delay (ms)**
- **Time (s)**

**Legend:**
- Dotted line: Flow 1 (95th percentile 71.68 ms)
Run 4: Statistics of PCC-Vivace

End at: 2019-04-24 16:10:05
Local clock offset: 0.467 ms
Remote clock offset: -0.056 ms

# Below is generated by plot.py at 2019-04-24 18:51:08
# Datalink statistics
-- Total of 1 flow:
Average throughput: 267.73 Mbit/s
95th percentile per-packet one-way delay: 72.827 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 267.73 Mbit/s
95th percentile per-packet one-way delay: 72.827 ms
Loss rate: 0.39%
Run 4: Report of PCC-Vivace — Data Link

![Throughput Graph](image1)

- Flow 1 ingress (mean 267.94 Mbit/s)
- Flow 1 egress (mean 267.73 Mbit/s)

![Delay Graph](image2)

- Flow 1 (95th percentile 72.83 ms)
Run 5: Statistics of PCC-Vivace

Local clock offset: -0.033 ms
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2019-04-24 18:51:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 292.81 Mbit/s
95th percentile per-packet one-way delay: 180.411 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 292.81 Mbit/s
95th percentile per-packet one-way delay: 180.411 ms
Loss rate: 0.88%
Run 5: Report of PCC-Vivace — Data Link
Run 1: Statistics of WebRTC media

End at: 2019-04-24 14:49:16
Local clock offset: -0.021 ms
Remote clock offset: -0.016 ms
Run 1: Report of WebRTC media — Data Link
Run 2: Statistics of WebRTC media

End at: 2019-04-24 15:19:07
Local clock offset: 0.03 ms
Remote clock offset: -0.09 ms

# Below is generated by plot.py at 2019-04-24 18:51:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.463 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.463 ms
Loss rate: 0.00%
Run 2: Report of WebRTC media — Data Link

![Graph showing throughput and packet delay over time]

- **Flow 1 ingress (mean 0.05 Mbit/s)**
- **Flow 1 egress (mean 0.05 Mbit/s)**

![Graph showing packet delay distribution over time]

- **Flow 1 (90th percentile 47.46 ms)**

208
Run 3: Statistics of WebRTC media

Local clock offset: 0.177 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-04-24 18:51:10
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.304 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.304 ms
Loss rate: 0.00%
Run 3: Report of WebRTC media — Data Link

![Graph of WebRTC media throughput over time](image1)

- Flow 1 ingress (mean 0.05 Mbit/s)
- Flow 1 egress (mean 0.05 Mbit/s)

![Graph of WebRTC media per-packet one-way delay over time](image2)

- Flow 1 (95th percentile 47.30 ms)
Run 4: Statistics of WebRTC media

End at: 2019-04-24 16:18:41
Local clock offset: 0.049 ms
Remote clock offset: -0.058 ms
Run 4: Report of WebRTC media — Data Link

![Graph of WebRTC media data link throughput and packet delay over time]

- **Throughput (Mbit/s)**
  - Y-axis: Throughput (Mbit/s)
  - X-axis: Time (s)

- **Flow 1 Ingress** (mean 0.07 Mbit/s)
- **Flow 1 Egress** (mean 0.07 Mbit/s)

- **Packet Delay (ms)**
  - Y-axis: Packet delay (ms)
  - X-axis: Time (s)

- **Flow 1 95th Percentile Delay**: 47.40 ms
Run 5: Statistics of WebRTC media

Start at: 2019-04-24 16:48:00
End at: 2019-04-24 16:48:30
Local clock offset: -0.035 ms
Remote clock offset: -0.075 ms

# Below is generated by plot.py at 2019-04-24 18:51:10
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 0.05 Mbit/s
  95th percentile per-packet one-way delay: 47.526 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 0.05 Mbit/s
  95th percentile per-packet one-way delay: 47.526 ms
  Loss rate: 0.00%
Run 5: Report of WebRTC media — Data Link

---

Image 1: Graph showing throughput (Mbps) over time (s) for Flow 1 ingress (mean 0.05 Mbit/s) and Flow 1 egress (mean 0.05 Mbit/s).

Image 2: Scatter plot showing per packet one way delay (ms) over time (s) for Flow 1 (90th percentile 47.53 ms).