Pantheon Report

Generated at 2019-03-09 21:04:56 (UTC).
Data path: GCE London on ens4 (local) → GCE Iowa on ens4 (remote).
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 4.15.0-1026-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 @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90cc077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da2095537730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1af958fa0d6618623c091a55fec8724981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f613e8acd08fb92c4eb24f974ab
third_party/proto-quic @ 77961f1a8273a86b42f1bc8143ebc978f3cfcf42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3b3db2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f9e26
M src/examples/cellsim.cc
M src/examples/sproutbtt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
test from GCE London to GCE Iowa, 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>504.09</td>
<td>135.00</td>
<td>0.25</td>
</tr>
<tr>
<td>Copa</td>
<td>5</td>
<td>304.19</td>
<td>61.91</td>
<td>0.00</td>
</tr>
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<td>TCP Cubic</td>
<td>5</td>
<td>505.14</td>
<td>62.52</td>
<td>0.01</td>
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<td>FillP</td>
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<td>864.53</td>
<td>95.43</td>
<td>0.30</td>
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<td>FillP-Sheep</td>
<td>5</td>
<td>874.40</td>
<td>81.18</td>
<td>0.03</td>
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<td>Indigo</td>
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<td>226.22</td>
<td>48.19</td>
<td>0.00</td>
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<td>Indigo-MusesC3</td>
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<td>565.14</td>
<td>61.31</td>
<td>0.00</td>
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<td>69.69</td>
<td>0.02</td>
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<td>Indigo-MusesD</td>
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<td>489.34</td>
<td>68.76</td>
<td>0.02</td>
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<tr>
<td>Indigo-MusesT</td>
<td>4</td>
<td>604.59</td>
<td>94.33</td>
<td>0.08</td>
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<td>LEDBAT</td>
<td>5</td>
<td>36.16</td>
<td>49.17</td>
<td>0.01</td>
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<td>PCC-Allegro</td>
<td>5</td>
<td>409.43</td>
<td>135.16</td>
<td>1.48</td>
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<tr>
<td>PCC-Expr</td>
<td>5</td>
<td>302.20</td>
<td>105.89</td>
<td>1.33</td>
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<tr>
<td>QUIC Cubic</td>
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<td>71.75</td>
<td>47.48</td>
<td>0.00</td>
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<td>SCReAM</td>
<td>5</td>
<td>0.22</td>
<td>47.53</td>
<td>0.00</td>
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<td>Sprout</td>
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<td>9.32</td>
<td>47.38</td>
<td>0.00</td>
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<td>TaoVA-100x</td>
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<td>245.35</td>
<td>47.07</td>
<td>0.00</td>
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<td>TCP Vegas</td>
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<td>428.77</td>
<td>57.61</td>
<td>0.00</td>
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<td>Verus</td>
<td>5</td>
<td>168.60</td>
<td>126.65</td>
<td>0.53</td>
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<tr>
<td>PCC-Vivace</td>
<td>5</td>
<td>281.21</td>
<td>51.52</td>
<td>0.01</td>
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<td>WebRTC media</td>
<td>5</td>
<td>0.47</td>
<td>47.31</td>
<td>0.00</td>
</tr>
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</table>
Run 1: Statistics of TCP BBR

Start at: 2019-03-09 16:44:47
End at: 2019-03-09 16:45:17
Local clock offset: -0.035 ms
Remote clock offset: -0.126 ms

# Below is generated by plot.py at 2019-03-09 19:24:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 492.18 Mbit/s
95th percentile per-packet one-way delay: 147.976 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 492.18 Mbit/s
95th percentile per-packet one-way delay: 147.976 ms
Loss rate: 0.23%
Run 1: Report of TCP BBR — Data Link
Run 2: Statistics of TCP BBR

Start at: 2019-03-09 17:15:29
End at: 2019-03-09 17:15:59
Local clock offset: -0.022 ms
Remote clock offset: -0.0 ms

# Below is generated by plot.py at 2019-03-09 19:24:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 520.10 Mbit/s
95th percentile per-packet one-way delay: 144.640 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 520.10 Mbit/s
95th percentile per-packet one-way delay: 144.640 ms
Loss rate: 0.30%
Run 2: Report of TCP BBR — Data Link

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**Throughput (Mbps)**

- Flow 1 ingress (mean 521.68 Mbps)
- Flow 1 egress (mean 520.10 Mbps)

**Packet One Way Delay (ms)**

- Flow 1 (95th percentile 144.64 ms)
Run 3: Statistics of TCP BBR

Start at: 2019-03-09 17:46:20
End at: 2019-03-09 17:46:50
Local clock offset: -0.067 ms
Remote clock offset: -0.133 ms

# Below is generated by plot.py at 2019-03-09 19:24:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 522.29 Mbit/s
95th percentile per-packet one-way delay: 154.158 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 522.29 Mbit/s
95th percentile per-packet one-way delay: 154.158 ms
Loss rate: 0.32%
Run 3: Report of TCP BBR — Data Link

![Throughput Graph]

- Flow 1 ingress (mean 523.98 Mbit/s)
- Flow 1 egress (mean 522.29 Mbit/s)

![Packet Delay Graph]

- Flow 1 (95th percentile 154.16 ms)
Run 4: Statistics of TCP BBR

Start at: 2019-03-09 18:16:56
End at: 2019-03-09 18:17:26
Local clock offset: -0.105 ms
Remote clock offset: -0.087 ms

# Below is generated by plot.py at 2019-03-09 19:24:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 488.41 Mbit/s
95th percentile per-packet one-way delay: 98.291 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 488.41 Mbit/s
95th percentile per-packet one-way delay: 98.291 ms
Loss rate: 0.13%
Run 4: Report of TCP BBR — Data Link
Run 5: Statistics of TCP BBR

Start at: 2019-03-09 18:47:20
End at: 2019-03-09 18:47:50
Local clock offset: -0.1 ms
Remote clock offset: -0.109 ms

# Below is generated by plot.py at 2019-03-09 19:24:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 497.47 Mbit/s
95th percentile per-packet one-way delay: 129.927 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 497.47 Mbit/s
95th percentile per-packet one-way delay: 129.927 ms
Loss rate: 0.29%
Run 5: Report of TCP BBR — Data Link

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

- **Flow 1 ingress (mean 498.97 Mbit/s)**
- **Flow 1 egress (mean 497.47 Mbit/s)**

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

- **Flow 1 (95th percentile 129.93 ms)**
Run 1: Statistics of Copa

Start at: 2019-03-09 16:34:53
End at: 2019-03-09 16:35:23
Local clock offset: -0.05 ms
Remote clock offset: -0.122 ms

# Below is generated by plot.py at 2019-03-09 19:25:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 297.24 Mbit/s
95th percentile per-packet one-way delay: 58.637 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 297.24 Mbit/s
95th percentile per-packet one-way delay: 58.637 ms
Loss rate: 0.00%
Run 1: Report of Copa — Data Link
Run 2: Statistics of Copa

Start at: 2019-03-09 17:05:38
End at: 2019-03-09 17:06:08
Local clock offset: -0.393 ms
Remote clock offset: -0.002 ms

# Below is generated by plot.py at 2019-03-09 19:26:04
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 322.15 Mbit/s
  95th percentile per-packet one-way delay: 61.590 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 322.15 Mbit/s
  95th percentile per-packet one-way delay: 61.590 ms
  Loss rate: 0.00%
Run 2: Report of Copa — Data Link
Run 3: Statistics of Copa

Start at: 2019-03-09 17:36:16
End at: 2019-03-09 17:36:46
Local clock offset: -0.112 ms
Remote clock offset: -0.083 ms

# Below is generated by plot.py at 2019-03-09 19:26:04
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 267.73 Mbit/s
  95th percentile per-packet one-way delay: 68.178 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 267.73 Mbit/s
  95th percentile per-packet one-way delay: 68.178 ms
  Loss rate: 0.01%
Run 3: Report of Copa — Data Link
Run 4: Statistics of Copa

Start at: 2019-03-09 18:06:47
End at: 2019-03-09 18:07:17
Local clock offset: -0.107 ms
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 326.41 Mbit/s
95th percentile per-packet one-way delay: 58.239 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 326.41 Mbit/s
95th percentile per-packet one-way delay: 58.239 ms
Loss rate: 0.00%
Run 4: Report of Copa — Data Link

![Graph of throughput and latency over time. The top graph shows throughput in Mbps over time, with two lines representing ingress and egress traffic. The bottom graph shows round-trip delay over time, with a shaded area indicating the 95th percentile delay.]
Run 5: Statistics of Copa

Start at: 2019-03-09 18:37:30
End at: 2019-03-09 18:38:00
Local clock offset: -0.105 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 307.41 Mbit/s
95th percentile per-packet one-way delay: 62.916 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 307.41 Mbit/s
95th percentile per-packet one-way delay: 62.916 ms
Loss rate: 0.00%
Run 5: Report of Copa — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 307.40 Mbit/s)  Flow 1 egress (mean 307.41 Mbit/s)

Per-packet one-way delay (ms)

Flow 1 (95th percentile 62.92 ms)
Run 1: Statistics of TCP Cubic

Start at: 2019-03-09 16:31:23
End at: 2019-03-09 16:31:53
Local clock offset: -0.044 ms
Remote clock offset: -0.125 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 531.04 Mbit/s
95th percentile per-packet one-way delay: 70.563 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 531.04 Mbit/s
95th percentile per-packet one-way delay: 70.563 ms
Loss rate: 0.00%
Run 1: Report of TCP Cubic — Data Link

![Graph of throughput and round trip time over time for Flow 1]
Run 2: Statistics of TCP Cubic

Start at: 2019-03-09 17:02:09
End at: 2019-03-09 17:02:39
Local clock offset: -0.047 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 458.80 Mbit/s
  95th percentile per-packet one-way delay: 62.884 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 458.80 Mbit/s
  95th percentile per-packet one-way delay: 62.884 ms
  Loss rate: 0.00%
Run 2: Report of TCP Cubic — Data Link
Run 3: Statistics of TCP Cubic

Start at: 2019-03-09 17:32:59
End at: 2019-03-09 17:33:29
Local clock offset: -0.074 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 530.25 Mbit/s
95th percentile per-packet one-way delay: 60.963 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 530.25 Mbit/s
95th percentile per-packet one-way delay: 60.963 ms
Loss rate: 0.00%
Run 3: Report of TCP Cubic — Data Link

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

![Graph 2: One Way Delay vs Time](image2)
Run 4: Statistics of TCP Cubic

Start at: 2019-03-09 18:03:31
End at: 2019-03-09 18:04:01
Local clock offset: -0.09 ms
Remote clock offset: -0.117 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 526.61 Mbit/s
95th percentile per-packet one-way delay: 60.742 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 526.61 Mbit/s
95th percentile per-packet one-way delay: 60.742 ms
Loss rate: 0.03%
Run 4: Report of TCP Cubic — Data Link

![Graph of Throughput vs Time](image1)

- **Flow 1 ingress** (mean 526.76 Mbit/s)
- **Flow 1 egress** (mean 526.61 Mbit/s)

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

- **Flow 1** (95th percentile 60.74 ms)
Run 5: Statistics of TCP Cubic

Start at: 2019-03-09 18:34:18
End at: 2019-03-09 18:34:48
Local clock offset: -0.097 ms
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2019-03-09 19:35:11
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 479.02 Mbit/s
  95th percentile per-packet one-way delay: 57.446 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 479.02 Mbit/s
  95th percentile per-packet one-way delay: 57.446 ms
  Loss rate: 0.01%
Run 5: Report of TCP Cubic — Data Link

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

![Graph 2: Packet Delay over Time](image)
Run 1: Statistics of FillP

Start at: 2019-03-09 16:47:59
End at: 2019-03-09 16:48:29
Local clock offset: -0.1 ms
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2019-03-09 19:43:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 877.07 Mbit/s
95th percentile per-packet one-way delay: 85.388 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 877.07 Mbit/s
95th percentile per-packet one-way delay: 85.388 ms
Loss rate: 0.24%
Run 1: Report of FillP — Data Link

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![Graph of Throughput vs. Time](image1)

*Flow 1 ingress (mean 879.25 Mbit/s) — Flow 1 egress (mean 877.07 Mbit/s)*

![Graph of Per-Socket One-Way Delay vs. Time](image2)

*Flow 1 (95th percentile 85.39 ms)*

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Run 2: Statistics of FillP

Start at: 2019-03-09 17:18:38
End at: 2019-03-09 17:19:08
Local clock offset: -0.017 ms
Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2019-03-09 19:52:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 872.40 Mbit/s
95th percentile per-packet one-way delay: 80.147 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 872.40 Mbit/s
95th percentile per-packet one-way delay: 80.147 ms
Loss rate: 0.00%
Run 2: Report of FillP — Data Link

![Graph of throughput over time](image1)

- Flow 1 ingress (mean 872.39 Mbit/s)
- Flow 1 egress (mean 872.40 Mbit/s)

![Graph of per packet round-trip delay](image2)

- Flow 1 (95th percentile 80.15 ms)
Run 3: Statistics of FillP

Start at: 2019-03-09 17:49:30
End at: 2019-03-09 17:50:00
Local clock offset: -0.024 ms
Remote clock offset: -0.12 ms

# Below is generated by plot.py at 2019-03-09 19:53:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 873.16 Mbit/s
95th percentile per-packet one-way delay: 106.237 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 873.16 Mbit/s
95th percentile per-packet one-way delay: 106.237 ms
Loss rate: 0.43%
Run 3: Report of FillP — Data Link

[Graph showing throughput and delay over time]

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 876.92 Mbps)  Flow 1 egress (mean 873.16 Mbps)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 106.24 ms)
Run 4: Statistics of FillP

Start at: 2019-03-09 18:20:02
End at: 2019-03-09 18:20:32
Local clock offset: -0.131 ms
Remote clock offset: -0.068 ms

# Below is generated by plot.py at 2019-03-09 19:53:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 867.96 Mbit/s
95th percentile per-packet one-way delay: 109.317 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 867.96 Mbit/s
95th percentile per-packet one-way delay: 109.317 ms
Loss rate: 0.81%
Run 4: Report of FillP — Data Link

[Graph showing throughput vs. time for Flow 1 ingress and egress with mean values.

Graph showing per-packet one-way delay vs. time for Flow 1 with 95th percentile delay.

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Run 5: Statistics of FillP

Start at: 2019-03-09 18:50:27
End at: 2019-03-09 18:50:57
Local clock offset: -0.148 ms
Remote clock offset: -0.118 ms

# Below is generated by plot.py at 2019-03-09 19:53:35
# Datalink statistics
-- Total of 1 flow:
Average throughput: 832.05 Mbit/s
95th percentile per-packet one-way delay: 96.060 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 832.05 Mbit/s
95th percentile per-packet one-way delay: 96.060 ms
Loss rate: 0.03%
Run 5: Report of FillP — Data Link

![Graph 1: Throughput over time](image1)

- **Flow 1 Ingress (mean 832.29 Mbit/s)**
- **Flow 1 Egress (mean 832.05 Mbit/s)**

![Graph 2: Packet Delay over time](image2)

- **Flow 1 (95th percentile 96.66 ms)**
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-09 16:33:06
End at: 2019-03-09 16:33:36
Local clock offset: -0.384 ms
Remote clock offset: -0.108 ms

# Below is generated by plot.py at 2019-03-09 19:53:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 862.30 Mbit/s
95th percentile per-packet one-way delay: 81.556 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 862.30 Mbit/s
95th percentile per-packet one-way delay: 81.556 ms
Loss rate: 0.06%
Run 1: Report of FillP-Sheep — Data Link
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-09 17:03:44
End at: 2019-03-09 17:04:14
Local clock offset: -0.035 ms
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2019-03-09 19:54:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 871.72 Mbit/s
95th percentile per-packet one-way delay: 73.585 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 871.72 Mbit/s
95th percentile per-packet one-way delay: 73.585 ms
Loss rate: 0.00%
Run 2: Report of FillP-Sheep — Data Link
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-09 17:34:33  
End at: 2019-03-09 17:35:03  
Local clock offset: -0.436 ms  
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-03-09 19:55:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 909.00 Mbit/s  
95th percentile per-packet one-way delay: 77.705 ms  
Loss rate: 0.06%
-- Flow 1:
Average throughput: 909.00 Mbit/s  
95th percentile per-packet one-way delay: 77.705 ms  
Loss rate: 0.06%
Run 3: Report of FillP-Sheep — Data Link

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

- Flow 1 ingress (mean 909.81 Mbit/s)
- Flow 1 egress (mean 909.00 Mbit/s)

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

- Flow 1 (95th percentile 77.70 ms)
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-09 18:05:05
End at: 2019-03-09 18:05:35
Local clock offset: -0.114 ms
Remote clock offset: -0.093 ms

# Below is generated by plot.py at 2019-03-09 20:06:32
# Datalink statistics
-- Total of 1 flow:
Average throughput: 869.33 Mbit/s
95th percentile per-packet one-way delay: 83.798 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 869.33 Mbit/s
95th percentile per-packet one-way delay: 83.798 ms
Loss rate: 0.01%
Run 4: Report of FillP-Sheep — Data Link

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

- Flow 1 ingress (mean 869.41 Mbps)
- Flow 1 egress (mean 869.33 Mbps)

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

- Flow 1 (95th percentile 83.80 ms)
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-09 18:35:49
End at: 2019-03-09 18:36:19
Local clock offset: -0.107 ms
Remote clock offset: -0.038 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 859.63 Mbit/s
95th percentile per-packet one-way delay: 89.242 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 859.63 Mbit/s
95th percentile per-packet one-way delay: 89.242 ms
Loss rate: 0.02%
Run 5: Report of FillP-Sheep — Data Link

![Graph of throughput vs time with two curves labeled: dashed line for Flow 1 ingress (mean 859.78 Mb/s) and solid line for Flow 1 egress (mean 859.63 Mb/s).]

![Graph of per-packet one-way delay vs time with a single curve labeled: '*' for Flow 1 (95th percentile 89.24 ms).]
Run 1: Statistics of Indigo

Start at: 2019-03-09 16:59:34
End at: 2019-03-09 17:00:04
Local clock offset: -0.066 ms
Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 228.89 Mbit/s
95th percentile per-packet one-way delay: 47.492 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 228.89 Mbit/s
95th percentile per-packet one-way delay: 47.492 ms
Loss rate: 0.00%
Run 1: Report of Indigo — Data Link
Run 2: Statistics of Indigo

Start at: 2019-03-09 17:30:24
End at: 2019-03-09 17:30:54
Local clock offset: -0.048 ms
Remote clock offset: -0.034 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 228.73 Mbit/s
95th percentile per-packet one-way delay: 48.181 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 228.73 Mbit/s
95th percentile per-packet one-way delay: 48.181 ms
Loss rate: 0.00%
Run 2: Report of Indigo — Data Link

![Graph showing throughput and packet delay over time]

- Flow 1 ingress (mean 228.73 Mbit/s)
- Flow 1 egress (mean 228.73 Mbit/s)

![Graph showing packet delay distribution]

- Flow 1 (95th percentile 48.18 ms)
Run 3: Statistics of Indigo

Start at: 2019-03-09 18:00:56
End at: 2019-03-09 18:01:26
Local clock offset: -0.052 ms
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 228.00 Mbit/s
95th percentile per-packet one-way delay: 48.233 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 228.00 Mbit/s
95th percentile per-packet one-way delay: 48.233 ms
Loss rate: 0.00%
Run 3: Report of Indigo — Data Link

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

- Flow 1 ingress (mean 228.00 Mbit/s)
- Flow 1 egress (mean 228.00 Mbit/s)

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

- Flow 1 (95th percentile 48.23 ms)
Run 4: Statistics of Indigo

Start at: 2019-03-09 18:31:42
End at: 2019-03-09 18:32:12
Local clock offset: -0.502 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 227.28 Mbit/s
95th percentile per-packet one-way delay: 48.440 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 227.28 Mbit/s
95th percentile per-packet one-way delay: 48.440 ms
Loss rate: 0.00%
Run 4: Report of Indigo — Data Link

---

**Throughput (Mbps)**

- **Flow 1 ingress (mean 227.28 Mbps)**
- **Flow 1 egress (mean 227.28 Mbps)**

---

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

- **Flow 1 (95th percentile 48.44 ms)**

---

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Run 5: Statistics of Indigo

Start at: 2019-03-09 19:02:15
End at: 2019-03-09 19:02:45
Local clock offset: -0.098 ms
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.22 Mbit/s
95th percentile per-packet one-way delay: 48.601 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 218.22 Mbit/s
95th percentile per-packet one-way delay: 48.601 ms
Loss rate: 0.00%
Run 5: Report of Indigo — Data Link
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-09 16:46:24
End at: 2019-03-09 16:46:54
Local clock offset: -0.037 ms
Remote clock offset: -0.117 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 581.33 Mbit/s
95th percentile per-packet one-way delay: 61.935 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 581.33 Mbit/s
95th percentile per-packet one-way delay: 61.935 ms
Loss rate: 0.00%
Run 1: Report of Indigo-MusesC3 — Data Link
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-09 17:17:05
End at: 2019-03-09 17:17:35
Local clock offset: 0.346 ms
Remote clock offset: 0.014 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 550.73 Mbit/s
  95th percentile per-packet one-way delay: 61.023 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 550.73 Mbit/s
  95th percentile per-packet one-way delay: 61.023 ms
  Loss rate: 0.00%
Run 2: Report of Indigo-MusesC3 — Data Link

![Graph of Throughput and Delay](image)

**Throughput (Mbps)**

- Flow 1 ingress (mean 550.73 Mbps)
- Flow 1 egress (mean 550.73 Mbps)

**Round-trip Delay (ms)**

- Flow 1 (95th percentile 61.02 ms)
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-09 17:47:56
End at: 2019-03-09 17:48:26
Local clock offset: -0.098 ms
Remote clock offset: -0.124 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 566.32 Mbit/s
  95th percentile per-packet one-way delay: 62.454 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 566.32 Mbit/s
  95th percentile per-packet one-way delay: 62.454 ms
  Loss rate: 0.00%
Run 3: Report of Indigo-MusesC3 — Data Link

![Throughput Graph](image1)

- **Flow 1 ingress** (mean 566.35 Mbit/s)
- **Flow 1 egress** (mean 566.32 Mbit/s)

![Delay Graph](image2)

- **Flow 1** (95th percentile 62.45 ms)
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-09 18:18:29
End at: 2019-03-09 18:18:59
Local clock offset: -0.077 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 561.33 Mbit/s
95th percentile per-packet one-way delay: 60.585 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 561.33 Mbit/s
95th percentile per-packet one-way delay: 60.585 ms
Loss rate: 0.00%
Run 4: Report of Indigo-MusesC3 — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 561.32 Mbit/s)
Flow 1 egress (mean 561.33 Mbit/s)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 60.59 ms)
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-09 18:48:54
End at: 2019-03-09 18:49:24
Local clock offset: -0.128 ms
Remote clock offset: -0.084 ms

# Below is generated by plot.py at 2019-03-09 20:12:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 565.99 Mbit/s
95th percentile per-packet one-way delay: 60.546 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 565.99 Mbit/s
95th percentile per-packet one-way delay: 60.546 ms
Loss rate: 0.00%
Run 5: Report of Indigo-MusesC3 — Data Link

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

- Flow 1 ingress (mean 565.98 Mbit/s)
- Flow 1 egress (mean 565.99 Mbit/s)

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

- Flow 1 (95th percentile 60.55 ms)
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-09 16:57:57
End at: 2019-03-09 16:58:27
Local clock offset: -0.04 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2019-03-09 20:12:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 589.78 Mbit/s
95th percentile per-packet one-way delay: 76.562 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 589.78 Mbit/s
95th percentile per-packet one-way delay: 76.562 ms
Loss rate: 0.00%
Run 1: Report of Indigo-MusesC5 — Data Link

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

- **Flow 1 ingress (mean 589.78 Mbit/s)**
- **Flow 1 egress (mean 589.78 Mbit/s)**

![Graph 2: Per packet end-to-end delay vs Time](image2)

- **Flow 1 (95th percentile 76.56 ms)**
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-09 17:28:49
End at: 2019-03-09 17:29:19
Local clock offset: -0.025 ms
Remote clock offset: -0.035 ms

# Below is generated by plot.py at 2019-03-09 20:16:48
# Datalink statistics
-- Total of 1 flow:
Average throughput: 599.09 Mbit/s
95th percentile per-packet one-way delay: 71.387 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 599.09 Mbit/s
95th percentile per-packet one-way delay: 71.387 ms
Loss rate: 0.05%
Run 2: Report of Indigo-MusesC5 — Data Link

![Throughput and Delay Graphs]

Throughput (Mbps) vs. Time (s)

- **Flow 1 ingress** (mean 599.45 Mbit/s)
- **Flow 1 egress** (mean 599.09 Mbit/s)

Packet one-way delay (ms) vs. Time (s)

- **Flow 1** (95th percentile 71.39 ms)
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-09 17:59:21
End at: 2019-03-09 17:59:51
Local clock offset: -0.439 ms
Remote clock offset: -0.132 ms

# Below is generated by plot.py at 2019-03-09 20:17:58
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 601.39 Mbit/s
  95th percentile per-packet one-way delay: 71.879 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 601.39 Mbit/s
  95th percentile per-packet one-way delay: 71.879 ms
  Loss rate: 0.01%
Run 3: Report of Indigo-MusesC5 — Data Link
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-09 18:30:08
End at: 2019-03-09 18:30:38
Local clock offset: -0.447 ms
Remote clock offset: -0.069 ms

# Below is generated by plot.py at 2019-03-09 20:21:45
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 584.81 Mbit/s
  95th percentile per-packet one-way delay: 66.079 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 584.81 Mbit/s
  95th percentile per-packet one-way delay: 66.079 ms
  Loss rate: 0.01%
Run 4: Report of Indigo-MusesC5 — Data Link

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

- Flow 1 ingress (mean 584.82 Mbit/s)
- Flow 1 egress (mean 584.81 Mbit/s)

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

- Flow 1 (95th percentile 66.88 ms)
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-09 19:00:41
End at: 2019-03-09 19:01:11
Local clock offset: -0.141 ms
Remote clock offset: -0.106 ms

# Below is generated by plot.py at 2019-03-09 20:22:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 566.94 Mbit/s
95th percentile per-packet one-way delay: 62.523 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 566.94 Mbit/s
95th percentile per-packet one-way delay: 62.523 ms
Loss rate: 0.04%
Run 5: Report of Indigo-MusesC5 — Data Link
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-09 16:49:42
End at: 2019-03-09 16:50:12
Local clock offset: -0.065 ms
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2019-03-09 20:22:14
# Datalink statistics
-- Total of 1 flow:
Average throughput: 481.42 Mbit/s
95th percentile per-packet one-way delay: 60.279 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 481.42 Mbit/s
95th percentile per-packet one-way delay: 60.279 ms
Loss rate: 0.01%
Run 1: Report of Indigo-MusesD — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 481.47 Mbit/s)  Flow 1 egress (mean 481.42 Mbit/s)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 60.28 ms)
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-09 17:20:19
End at: 2019-03-09 17:20:49
Local clock offset: -0.021 ms
Remote clock offset: -0.006 ms

# Below is generated by plot.py at 2019-03-09 20:22:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 515.58 Mbit/s
95th percentile per-packet one-way delay: 72.621 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 515.58 Mbit/s
95th percentile per-packet one-way delay: 72.621 ms
Loss rate: 0.00%
Run 2: Report of Indigo-MusesD — Data Link

![Graph showing throughput over time for Flow 1 ingress and egress.]

- Flow 1 ingress (mean 515.58 Mbit/s)
- Flow 1 egress (mean 515.58 Mbit/s)

![Graph showing per packet one-way delay for Flow 1.]

- Flow 1 (95th percentile 72.62 ms)
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-09 17:51:13
End at: 2019-03-09 17:51:43
Local clock offset: -0.066 ms
Remote clock offset: -0.125 ms

# Below is generated by plot.py at 2019-03-09 20:22:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 446.28 Mbit/s
95th percentile per-packet one-way delay: 72.396 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 446.28 Mbit/s
95th percentile per-packet one-way delay: 72.396 ms
Loss rate: 0.01%
Run 3: Report of Indigo-MusesD — Data Link
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-09 18:21:44
End at: 2019-03-09 18:22:14
Local clock offset: -0.087 ms
Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2019-03-09 20:22:15
# Datalink statistics
-- Total of 1 flow:
Average throughput: 489.61 Mbit/s
95th percentile per-packet one-way delay: 72.044 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 489.61 Mbit/s
95th percentile per-packet one-way delay: 72.044 ms
Loss rate: 0.00%
Run 4: Report of Indigo-MusesD — Data Link
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-09 18:52:12
End at: 2019-03-09 18:52:42
Local clock offset: 0.249 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-03-09 20:26:44
# Datalink statistics
-- Total of 1 flow:
Average throughput: 513.83 Mbit/s
95th percentile per-packet one-way delay: 66.440 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 513.83 Mbit/s
95th percentile per-packet one-way delay: 66.440 ms
Loss rate: 0.10%
Run 5: Report of Indigo-MusesD — Data Link

![Throughput vs. Time](chart1.png)

- **Flow 1 ingress (mean 514.33 Mbit/s)**
- **Flow 1 egress (mean 513.33 Mbit/s)**

![Packet Delay vs. Time](chart2.png)

- **Flow 1 (95th percentile 66.44 ms)**
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-09 16:36:27
End at: 2019-03-09 16:36:57
Local clock offset: -0.044 ms
Remote clock offset: -0.113 ms
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-09 17:07:15
End at: 2019-03-09 17:07:45
Local clock offset: -0.061 ms
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2019-03-09 20:31:27
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 615.45 Mbit/s
  95th percentile per-packet one-way delay: 94.411 ms
  Loss rate: 0.03%
-- Flow 1:
  Average throughput: 615.45 Mbit/s
  95th percentile per-packet one-way delay: 94.411 ms
  Loss rate: 0.03%
Run 2: Report of Indigo-MusesT — Data Link

The graphs illustrate the throughput and one-way delay for two flows over time. The top graph shows the throughput in Mbps (Megabits per second), with two lines indicating Flow 1 ingress and egress, both with a mean of 615.65 Mbps and 615.45 Mbps respectively. The bottom graph displays the per-packet one-way delay in ms (milliseconds), with a 95th percentile of 94.41 ms.
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-09 17:37:49
End at: 2019-03-09 17:38:19
Local clock offset: -0.047 ms
Remote clock offset: -0.048 ms

# Below is generated by plot.py at 2019-03-09 20:31:33
# Datalink statistics
-- Total of 1 flow:
Average throughput: 612.86 Mbit/s
95th percentile per-packet one-way delay: 85.955 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 612.86 Mbit/s
95th percentile per-packet one-way delay: 85.955 ms
Loss rate: 0.15%
Run 3: Report of Indigo-MusesT — Data Link

![Graph showing throughput and delay over time]

**Throughput (kbps)**

- **Flow 1 ingress (mean 613.77 Mbit/s)**
- **Flow 1 egress (mean 612.86 Mbit/s)**

**Delay (ms)**

- **Flow 1 (95th percentile 85.95 ms)**

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Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-09 18:08:24
End at: 2019-03-09 18:08:54
Local clock offset: -0.11 ms
Remote clock offset: -0.106 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 609.25 Mbit/s
  95th percentile per-packet one-way delay: 99.103 ms
  Loss rate: 0.07%
-- Flow 1:
  Average throughput: 609.25 Mbit/s
  95th percentile per-packet one-way delay: 99.103 ms
  Loss rate: 0.07%
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-09 18:39:05
End at: 2019-03-09 18:39:35
Local clock offset: -0.148 ms
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
   -- Total of 1 flow:
   Average throughput: 580.80 Mbit/s
   95th percentile per-packet one-way delay: 97.859 ms
   Loss rate: 0.08%
   -- Flow 1:
   Average throughput: 580.80 Mbit/s
   95th percentile per-packet one-way delay: 97.859 ms
   Loss rate: 0.08%
Run 5: Report of Indigo-MusesT — Data Link
Run 1: Statistics of LEDBAT

Start at: 2019-03-09 16:43:36
End at: 2019-03-09 16:44:06
Local clock offset: -0.074 ms
Remote clock offset: -0.104 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 30.35 Mbit/s
95th percentile per-packet one-way delay: 48.818 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 30.35 Mbit/s
95th percentile per-packet one-way delay: 48.818 ms
Loss rate: 0.00%
Run 1: Report of LEDBAT — Data Link

![Graph showing throughput over time with two lines representing ingress and egress traffic.]
Run 2: Statistics of LEDBAT

Start at: 2019-03-09 17:14:18
End at: 2019-03-09 17:14:48
Local clock offset: -0.078 ms
Remote clock offset: -0.013 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 40.83 Mbit/s
95th percentile per-packet one-way delay: 49.131 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 40.83 Mbit/s
95th percentile per-packet one-way delay: 49.131 ms
Loss rate: 0.00%
Run 2: Report of LEDBAT — Data Link
Run 3: Statistics of LEDBAT

Start at: 2019-03-09 17:45:09
End at: 2019-03-09 17:45:39
Local clock offset: -0.079 ms
Remote clock offset: -0.094 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 31.14 Mbit/s
95th percentile per-packet one-way delay: 48.725 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 31.14 Mbit/s
95th percentile per-packet one-way delay: 48.725 ms
Loss rate: 0.00%
Run 3: Report of LEDBAT — Data Link

[Graphs showing packet size and packet loss over time]

Flow 1 ingress (mean 31.14 Mbit/s)  Flow 1 egress (mean 31.14 Mbit/s)

Flow 1 (95th percentile 48.73 ms)
Run 4: Statistics of LEDBAT

Start at: 2019-03-09 18:15:45
End at: 2019-03-09 18:16:15
Local clock offset: -0.48 ms
Remote clock offset: -0.046 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 36.91 Mbit/s
  95th percentile per-packet one-way delay: 51.278 ms
  Loss rate: 0.05%
-- Flow 1:
  Average throughput: 36.91 Mbit/s
  95th percentile per-packet one-way delay: 51.278 ms
  Loss rate: 0.05%
Run 4: Report of LEDBAT — Data Link
Run 5: Statistics of LEDBAT

Start at: 2019-03-09 18:46:08
End at: 2019-03-09 18:46:38
Local clock offset: -0.088 ms
Remote clock offset: -0.11 ms

# Below is generated by plot.py at 2019-03-09 20:32:18
# Datalink statistics
-- Total of 1 flow:
Average throughput: 41.58 Mbit/s
95th percentile per-packet one-way delay: 47.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 41.58 Mbit/s
95th percentile per-packet one-way delay: 47.918 ms
Loss rate: 0.00%
Run 5: Report of LEDBAT — Data Link
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-09 16:52:19
End at: 2019-03-09 16:52:49
Local clock offset: -0.001 ms
Remote clock offset: -0.079 ms

# Below is generated by plot.py at 2019-03-09 20:37:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 378.27 Mbit/s
95th percentile per-packet one-way delay: 92.655 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 378.27 Mbit/s
95th percentile per-packet one-way delay: 92.655 ms
Loss rate: 0.12%
Run 1: Report of PCC-Allegro — Data Link
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-09 17:23:04
End at: 2019-03-09 17:23:34
Local clock offset: -0.06 ms
Remote clock offset: -0.015 ms

# Below is generated by plot.py at 2019-03-09 20:40:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 399.69 Mbit/s
95th percentile per-packet one-way delay: 163.730 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 399.69 Mbit/s
95th percentile per-packet one-way delay: 163.730 ms
Loss rate: 1.17%
Run 2: Report of PCC-Allegro — Data Link
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-09 17:53:48
End at: 2019-03-09 17:54:18
Local clock offset: -0.078 ms
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2019-03-09 20:40:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 363.97 Mbit/s
95th percentile per-packet one-way delay: 82.023 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 363.97 Mbit/s
95th percentile per-packet one-way delay: 82.023 ms
Loss rate: 0.41%
Run 3: Report of PCC-Allegro — Data Link
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-09 18:24:21  
End at: 2019-03-09 18:24:51  
Local clock offset: -0.062 ms  
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2019-03-09 20:44:11  
# Datalink statistics
-- Total of 1 flow:  
Average throughput: 445.38 Mbit/s  
95th percentile per-packet one-way delay: 166.884 ms  
Loss rate: 3.04%  
-- Flow 1:  
Average throughput: 445.38 Mbit/s  
95th percentile per-packet one-way delay: 166.884 ms  
Loss rate: 3.04%
Run 4: Report of PCC-Allegro — Data Link
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-09 18:54:53  
End at: 2019-03-09 18:55:23  
Local clock offset: -0.186 ms  
Remote clock offset: -0.103 ms

# Below is generated by plot.py at 2019-03-09 20:48:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 459.86 Mbit/s
95th percentile per-packet one-way delay: 170.505 ms
Loss rate: 2.66%
-- Flow 1:
Average throughput: 459.86 Mbit/s
95th percentile per-packet one-way delay: 170.505 ms
Loss rate: 2.66%
Run 5: Report of PCC-Allegro — Data Link

![Graph showing throughput and delay over time for two flows, with annotations indicating mean ingress and egress speeds.

- Flow 1 ingress (mean 472.42 Mbit/s)
- Flow 1 egress (mean 459.86 Mbit/s)

Flow 1 (95th percentile 170.50 ms)
Run 1: Statistics of PCC-Expr

Start at: 2019-03-09 16:56:23
End at: 2019-03-09 16:56:53
Local clock offset: 0.307 ms
Remote clock offset: -0.077 ms

# Below is generated by plot.py at 2019-03-09 20:48:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 281.55 Mbit/s
95th percentile per-packet one-way delay: 153.347 ms
Loss rate: 3.73%
-- Flow 1:
Average throughput: 281.55 Mbit/s
95th percentile per-packet one-way delay: 153.347 ms
Loss rate: 3.73%
Run 1: Report of PCC-Expr — Data Link

[Graphs showing throughput and packet delay over time for Flow 1 with labels indicating mean data rates.]
Run 2: Statistics of PCC-Expr

Start at: 2019-03-09 17:27:17
End at: 2019-03-09 17:27:47
Local clock offset: -0.056 ms
Remote clock offset: 0.023 ms

# Below is generated by plot.py at 2019-03-09 20:48:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 283.49 Mbit/s
95th percentile per-packet one-way delay: 87.678 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 283.49 Mbit/s
95th percentile per-packet one-way delay: 87.678 ms
Loss rate: 0.00%
Run 2: Report of PCC-Expr — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 283.49 Mbit/s) — Flow 1 egress (mean 283.49 Mbit/s)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 87.68 ms)
Run 3: Statistics of PCC-Expr

Start at: 2019-03-09 17:57:50
End at: 2019-03-09 17:58:20
Local clock offset: 0.271 ms
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2019-03-09 20:48:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 279.44 Mbit/s
95th percentile per-packet one-way delay: 59.060 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 279.44 Mbit/s
95th percentile per-packet one-way delay: 59.060 ms
Loss rate: 0.01%
Run 3: Report of PCC-Expr — Data Link

![Graph of throughput over time with two lines representing flow ingress and egress]

- Flow 1 ingress (mean 279.45 Mbit/s)
- Flow 1 egress (mean 279.44 Mbit/s)

![Graph of per-packet one-way delay over time]

- Flow 1 (95th percentile 59.06 ms)
Run 4: Statistics of PCC-Expr

Start at: 2019-03-09 18:28:31
End at: 2019-03-09 18:29:01
Local clock offset: -0.094 ms
Remote clock offset: -0.045 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 336.92 Mbit/s
95th percentile per-packet one-way delay: 65.353 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 336.92 Mbit/s
95th percentile per-packet one-way delay: 65.353 ms
Loss rate: 0.00%
Run 4: Report of PCC-Expr — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 336.91 Mbit/s)
- Flow 1 egress (mean 336.92 Mbit/s)

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

- Flow 1 (95th percentile 65.35 ms)
Run 5: Statistics of PCC-Expr

Start at: 2019-03-09 18:59:04
End at: 2019-03-09 18:59:34
Local clock offset: -0.178 ms
Remote clock offset: -0.103 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 329.61 Mbit/s
95th percentile per-packet one-way delay: 164.005 ms
Loss rate: 2.93%
-- Flow 1:
Average throughput: 329.61 Mbit/s
95th percentile per-packet one-way delay: 164.005 ms
Loss rate: 2.93%
Run 5: Report of PCC-Expr — Data Link
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-09 16:37:53
End at: 2019-03-09 16:38:23
Local clock offset: -0.084 ms
Remote clock offset: -0.091 ms
Run 1: Report of QUIC Cubic — Data Link

![Graph showing throughput over time for flow ingress and egress with mean 0.01 Mbps.]

![Graph showing packet delay over time for flow 1 with 95th percentile 47.71 ms.]
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-09 17:08:53
End at: 2019-03-09 17:09:23
Local clock offset: -0.053 ms
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.06 Mbit/s
95th percentile per-packet one-way delay: 48.801 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 72.06 Mbit/s
95th percentile per-packet one-way delay: 48.801 ms
Loss rate: 0.00%
Run 2: Report of QUIC Cubic — Data Link
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-09 17:39:27
End at: 2019-03-09 17:39:57
Local clock offset: 0.284 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.64 Mbit/s
95th percentile per-packet one-way delay: 46.885 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 72.64 Mbit/s
95th percentile per-packet one-way delay: 46.885 ms
Loss rate: 0.00%
Run 3: Report of QUIC Cubic — Data Link

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Run 4: Statistics of QUIC Cubic

Start at: 2019-03-09 18:10:00
End at: 2019-03-09 18:10:30
Local clock offset: -0.46 ms
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 61.81 Mbit/s
95th percentile per-packet one-way delay: 47.648 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 61.81 Mbit/s
95th percentile per-packet one-way delay: 47.648 ms
Loss rate: 0.00%
Run 4: Report of QUIC Cubic — Data Link

![Graph showing throughput over time for Flow 1 ingress and egress with mean 61.81 Mbit/s each.]

- **Throughput (Mbps)**:
  - Y-axis: 0 to 120 Mbps
  - X-axis: Time (s) from 0 to 30 seconds

- **Flow Details**:
  - **Flow 1 ingress**:
    - (mean 61.81 Mbit/s)
  - **Flow 1 egress**:
    - (mean 61.81 Mbit/s)

![Graph showing packet delay over time for Flow 1 with 95th percentile 47.65 ms.]

- **Packet Delay**:
  - Y-axis: Packet delay (ms) from 40 to 60 ms
  - X-axis: Time (s) from 0 to 30 seconds

- **Flow 1**:
  - 95th percentile delay is 47.65 ms
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-09 18:40:39
End at: 2019-03-09 18:41:09
Local clock offset: -0.128 ms
Remote clock offset: -0.088 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
Average throughput: 80.51 Mbit/s
95th percentile per-packet one-way delay: 46.569 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 80.51 Mbit/s
95th percentile per-packet one-way delay: 46.569 ms
Loss rate: 0.00%
Run 5: Report of QUIC Cubic — Data Link

![Throughput Graph](image1)

![Round-trip Time Graph](image2)
Run 1: Statistics of SCReAM

Start at: 2019-03-09 16:51:11
End at: 2019-03-09 16:51:41
Local clock offset: -0.432 ms
Remote clock offset: -0.103 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.950 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.950 ms
  Loss rate: 0.00%
Run 1: Report of SCReAM — Data Link

![Graph showing network performance metrics over time]
Run 2: Statistics of SCReAM

Start at: 2019-03-09 17:21:56
End at: 2019-03-09 17:22:26
Local clock offset: -0.041 ms
Remote clock offset: 0.008 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 49.080 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 49.080 ms
  Loss rate: 0.00%
Run 2: Report of SCReAM — Data Link

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

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

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

- Flow 1 (95th percentile 49.08 ms)
Run 3: Statistics of SCReAM

Start at: 2019-03-09 17:52:40
End at: 2019-03-09 17:53:10
Local clock offset: -0.106 ms
Remote clock offset: -0.128 ms

# Below is generated by plot.py at 2019-03-09 20:52:02
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 46.768 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 46.768 ms
  Loss rate: 0.00%
Run 3: Report of SCReAM — Data Link

Throughput (Mb/s)

Flow 1 ingress (mean 0.22 Mb/s)  Flow 1 egress (mean 0.22 Mb/s)

Round-trip one way delay (ms)

Flow 1 (95th percentile 46.77 ms)
Run 4: Statistics of SCReAM

Start at: 2019-03-09 18:23:14
End at: 2019-03-09 18:23:44
Local clock offset: -0.454 ms
Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.062 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.062 ms
Loss rate: 0.00%
Run 4: Report of SCReAM — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 0.22 Mbps)  Flow 1 egress (mean 0.22 Mbps)

Packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 47.06 ms)
Run 5: Statistics of SCReAM

Start at: 2019-03-09 18:53:46
End at: 2019-03-09 18:54:16
Local clock offset: -0.151 ms
Remote clock offset: -0.128 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.776 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.776 ms
Loss rate: 0.00%
Run 5: Report of SCReAM — Data Link
Run 1: Statistics of Sprout

Start at: 2019-03-09 16:53:52
End at: 2019-03-09 16:54:22
Local clock offset: 0.008 ms
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 47.041 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 47.041 ms
Loss rate: 0.00%
Run 1: Report of Sprout — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 9.54 Mbit/s)
- Flow 1 egress (mean 9.54 Mbit/s)

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

- Flow 1 (99th percentile 47.04 ms)
Run 2: Statistics of Sprout

Start at: 2019-03-09 17:24:43  
End at: 2019-03-09 17:25:13  
Local clock offset: -0.012 ms  
Remote clock offset: -0.008 ms

# Below is generated by plot.py at 2019-03-09 20:52:03  
# Datalink statistics
# Total of 1 flow:  
Average throughput: 9.15 Mbit/s  
95th percentile per-packet one-way delay: 47.812 ms  
Loss rate: 0.00%  
Flow 1:  
Average throughput: 9.15 Mbit/s  
95th percentile per-packet one-way delay: 47.812 ms  
Loss rate: 0.00%
Run 2: Report of Sprout — Data Link
Run 3: Statistics of Sprout

Start at: 2019-03-09 17:55:18
End at: 2019-03-09 17:55:48
Local clock offset: -0.411 ms
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 9.73 Mbit/s
  95th percentile per-packet one-way delay: 47.380 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 9.73 Mbit/s
  95th percentile per-packet one-way delay: 47.380 ms
  Loss rate: 0.00%
Run 3: Report of Sprout — Data Link

![Graph](image-url)

**Throughput (Mbps)**

- Flow 1 ingress (mean 9.73 Mbit/s)
- Flow 1 egress (mean 9.73 Mbit/s)

![Graph](image-url)

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

- Flow 1 95th percentile 47.38 ms
Run 4: Statistics of Sprout

Start at: 2019-03-09 18:25:58
End at: 2019-03-09 18:26:28
Local clock offset: -0.083 ms
Remote clock offset: -0.043 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 46.979 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 46.979 ms
Loss rate: 0.00%
Run 4: Report of Sprout — Data Link
Run 5: Statistics of Sprout

Start at: 2019-03-09 18:56:34
End at: 2019-03-09 18:57:04
Local clock offset: -0.112 ms
Remote clock offset: -0.116 ms

# Below is generated by plot.py at 2019-03-09 20:52:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 9.72 Mbit/s
95th percentile per-packet one-way delay: 47.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 9.72 Mbit/s
95th percentile per-packet one-way delay: 47.706 ms
Loss rate: 0.00%
Run 5: Report of Sprout — Data Link

![Graph 1: Throughput vs Time]

- Flow 1 ingress (mean 9.72 Mbit/s)
- Flow 1 egress (mean 9.72 Mbit/s)

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

- Flow 1 (95th percentile 47.71 ms)
Run 1: Statistics of TaoVA-100x

Start at: 2019-03-09 16:40:30  
End at: 2019-03-09 16:41:00  
Local clock offset: -0.033 ms  
Remote clock offset: -0.097 ms

# Below is generated by plot.py at 2019-03-09 20:52:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 247.66 Mbit/s
95th percentile per-packet one-way delay: 46.863 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 247.66 Mbit/s
95th percentile per-packet one-way delay: 46.863 ms
Loss rate: 0.00%
Run 1: Report of TaoVA-100x — Data Link

![Graph showing throughput over time for two data flow types, ingress and egress, with a mean of 247.66 Mbit/s each.]

![Graph showing per-packet one-way delay over time for Flow 1, with a 95th percentile of 46.56 ms.]
Run 2: Statistics of TaoVA-100x

Start at: 2019-03-09 17:11:26
End at: 2019-03-09 17:11:56
Local clock offset: -0.027 ms
Remote clock offset: -0.0 ms

# Below is generated by plot.py at 2019-03-09 20:53:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 245.63 Mbit/s
95th percentile per-packet one-way delay: 47.651 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 245.63 Mbit/s
95th percentile per-packet one-way delay: 47.651 ms
Loss rate: 0.00%
Run 2: Report of TaoVA-100x — Data Link
Run 3: Statistics of TaoVA-100x

Start at: 2019-03-09 17:42:15
End at: 2019-03-09 17:42:45
Local clock offset: -0.431 ms
Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2019-03-09 20:53:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 244.91 Mbit/s
95th percentile per-packet one-way delay: 47.142 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 244.91 Mbit/s
95th percentile per-packet one-way delay: 47.142 ms
Loss rate: 0.00%
Run 3: Report of TaoVA-100x — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 244.90 Mbps)  Flow 1 egress (mean 244.91 Mbps)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 47.14 ms)
Run 4: Statistics of TaoVA-100x

Start at: 2019-03-09 18:12:45
End at: 2019-03-09 18:13:16
Local clock offset: -0.071 ms
Remote clock offset: -0.06 ms

# Below is generated by plot.py at 2019-03-09 20:53:11
# Datalink statistics
-- Total of 1 flow:
Average throughput: 242.38 Mbit/s
95th percentile per-packet one-way delay: 46.836 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 242.38 Mbit/s
95th percentile per-packet one-way delay: 46.836 ms
Loss rate: 0.00%
Run 4: Report of TaoVA-100x — Data Link

![Graph of throughput over time](image1)

![Graph of packet-to-packet delay over time](image2)
Run 5: Statistics of TaoVA-100x

Start at: 2019-03-09 18:43:12
End at: 2019-03-09 18:43:42
Local clock offset: -0.138 ms
Remote clock offset: -0.069 ms

# Below is generated by plot.py at 2019-03-09 20:53:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 246.17 Mbit/s
95th percentile per-packet one-way delay: 46.860 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 246.17 Mbit/s
95th percentile per-packet one-way delay: 46.860 ms
Loss rate: 0.00%
Run 5: Report of TaoVA-100x — Data Link
Run 1: Statistics of TCP Vegas

Start at: 2019-03-09 16:39:01
End at: 2019-03-09 16:39:31
Local clock offset: -0.052 ms
Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2019-03-09 20:58:36
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 469.48 Mbit/s
  95th percentile per-packet one-way delay: 57.789 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 469.48 Mbit/s
  95th percentile per-packet one-way delay: 57.789 ms
  Loss rate: 0.00%
Run 2: Statistics of TCP Vegas

Start at: 2019-03-09 17:10:04
End at: 2019-03-09 17:10:34
Local clock offset: -0.419 ms
Remote clock offset: -0.032 ms

# Below is generated by plot.py at 2019-03-09 20:58:37
# Datalink statistics
-- Total of 1 flow:
Average throughput: 298.80 Mbit/s
95th percentile per-packet one-way delay: 56.312 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 298.80 Mbit/s
95th percentile per-packet one-way delay: 56.312 ms
Loss rate: 0.00%
Run 2: Report of TCP Vegas — Data Link

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

- Flow 1 ingress (mean 298.80 Mbit/s)
- Flow 1 egress (mean 298.80 Mbit/s)

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

- Flow 1 (95th percentile 56.31 ms)
Run 3: Statistics of TCP Vegas

Start at: 2019-03-09 17:40:39
End at: 2019-03-09 17:41:09
Local clock offset: -0.101 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2019-03-09 21:02:12
# Datalink statistics
-- Total of 1 flow:
Average throughput: 541.79 Mbit/s
95th percentile per-packet one-way delay: 62.223 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 541.79 Mbit/s
95th percentile per-packet one-way delay: 62.223 ms
Loss rate: 0.00%
Run 3: Report of TCP Vegas — Data Link
Run 4: Statistics of TCP Vegas

Start at: 2019-03-09 18:11:11
End at: 2019-03-09 18:11:41
Local clock offset: -0.11 ms
Remote clock offset: -0.065 ms

# Below is generated by plot.py at 2019-03-09 21:03:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 554.65 Mbit/s
95th percentile per-packet one-way delay: 63.857 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 554.65 Mbit/s
95th percentile per-packet one-way delay: 63.857 ms
Loss rate: 0.01%
Run 4: Report of TCP Vegas — Data Link

```
```

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Run 5: Statistics of TCP Vegas

Start at: 2019-03-09 18:41:51
End at: 2019-03-09 18:42:21
Local clock offset: -0.13 ms
Remote clock offset: -0.092 ms

# Below is generated by plot.py at 2019-03-09 21:03:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 279.15 Mbit/s
95th percentile per-packet one-way delay: 47.850 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 279.15 Mbit/s
95th percentile per-packet one-way delay: 47.850 ms
Loss rate: 0.00%
Run 5: Report of TCP Vegas — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 279.15 Mbit/s)  Flow 1 egress (mean 279.15 Mbit/s)

Per packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 47.85 ms)
Run 1: Statistics of Verus

Start at: 2019-03-09 16:55:01
End at: 2019-03-09 16:55:31
Local clock offset: -0.044 ms
Remote clock offset: -0.036 ms

# Below is generated by plot.py at 2019-03-09 21:03:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 154.98 Mbit/s
95th percentile per-packet one-way delay: 107.601 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 154.98 Mbit/s
95th percentile per-packet one-way delay: 107.601 ms
Loss rate: 0.00%
Run 2: Statistics of Verus

Start at: 2019-03-09 17:25:52
End at: 2019-03-09 17:26:22
Local clock offset: -0.057 ms
Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2019-03-09 21:03:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 185.49 Mbit/s
95th percentile per-packet one-way delay: 146.968 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 185.49 Mbit/s
95th percentile per-packet one-way delay: 146.968 ms
Loss rate: 0.60%
Run 2: Report of Verus — Data Link

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

- Flow 1 ingress (mean 186.61 Mbit/s)
- Flow 1 egress (mean 185.49 Mbit/s)

![Graph 2: Per-packet end-to-end delay (ms)](image2)

- Flow 1 (95th percentile 146.97 ms)
Run 3: Statistics of Verus

Start at: 2019-03-09 17:56:27
End at: 2019-03-09 17:56:57
Local clock offset: -0.071 ms
Remote clock offset: -0.138 ms

# Below is generated by plot.py at 2019-03-09 21:03:58
# Datalink statistics
-- Total of 1 flow:
Average throughput: 169.59 Mbit/s
95th percentile per-packet one-way delay: 177.642 ms
Loss rate: 2.03%
-- Flow 1:
Average throughput: 169.59 Mbit/s
95th percentile per-packet one-way delay: 177.642 ms
Loss rate: 2.03%
Run 3: Report of Verus — Data Link

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

Start at: 2019-03-09 18:27:07
End at: 2019-03-09 18:27:37
Local clock offset: 0.219 ms
Remote clock offset: -0.077 ms

# Below is generated by plot.py at 2019-03-09 21:04:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 181.01 Mbit/s
95th percentile per-packet one-way delay: 117.263 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 181.01 Mbit/s
95th percentile per-packet one-way delay: 117.263 ms
Loss rate: 0.00%
Run 4: Report of Verus — Data Link

![Graph 1: Time vs. Throughput (Mbps)](chart1)

- **Flow 1 ingress** (mean 181.02 Mbit/s)
- **Flow 1 egress** (mean 181.01 Mbit/s)

![Graph 2: Time vs. Packet Processing (ms)](chart2)

- **Flow 1** (95th percentile 117.26 ms)
Run 5: Statistics of Verus

Start at: 2019-03-09 18:57:42
End at: 2019-03-09 18:58:12
Local clock offset: -0.497 ms
Remote clock offset: -0.097 ms

# Below is generated by plot.py at 2019-03-09 21:04:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 151.94 Mbit/s
95th percentile per-packet one-way delay: 83.753 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 151.94 Mbit/s
95th percentile per-packet one-way delay: 83.753 ms
Loss rate: 0.00%
Run 5: Report of Verus — Data Link

The first chart shows the throughput of data link over time, with two lines indicating the flow ingress and egress. The second chart displays the per-packet delay over time, with a specific point indicating the 95th percentile delay.
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-09 16:42:00
End at: 2019-03-09 16:42:30
Local clock offset: -0.05 ms
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2019-03-09 21:04:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 344.95 Mbit/s
95th percentile per-packet one-way delay: 49.091 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 344.95 Mbit/s
95th percentile per-packet one-way delay: 49.091 ms
Loss rate: 0.00%
Run 1: Report of PCC-Vivace — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 344.95 Mbit/s)
- Flow 1 egress (mean 344.95 Mbit/s)

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

- Flow 1 (95th percentile 49.09 ms)
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-09 17:12:56
End at: 2019-03-09 17:13:26
Local clock offset: -0.027 ms
Remote clock offset: 0.015 ms

# Below is generated by plot.py at 2019-03-09 21:04:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 211.55 Mbit/s
95th percentile per-packet one-way delay: 49.664 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 211.55 Mbit/s
95th percentile per-packet one-way delay: 49.664 ms
Loss rate: 0.03%
Run 2: Report of PCC-Vivace — Data Link
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-09 17:43:46
End at: 2019-03-09 17:44:16
Local clock offset: -0.082 ms
Remote clock offset: -0.121 ms

# Below is generated by plot.py at 2019-03-09 21:04:17
# Datalink statistics
-- Total of 1 flow:
Average throughput: 215.35 Mbit/s
95th percentile per-packet one-way delay: 49.896 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 215.35 Mbit/s
95th percentile per-packet one-way delay: 49.896 ms
Loss rate: 0.00%
Run 3: Report of PCC-Vivace — Data Link

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

- **Flow 1 ingress** (mean 215.35 Mbit/s)
- **Flow 1 egress** (mean 215.35 Mbit/s)

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

- **Flow 1** (95th percentile 49.90 ms)
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-09 18:14:14
End at: 2019-03-09 18:14:44
Local clock offset: -0.059 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2019-03-09 21:04:51
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 349.25 Mbit/s
  95th percentile per-packet one-way delay: 58.551 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 349.25 Mbit/s
  95th percentile per-packet one-way delay: 58.551 ms
  Loss rate: 0.01%
Run 4: Report of PCC-Vivace — Data Link
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-09 18:44:42
End at: 2019-03-09 18:45:12
Local clock offset: -0.134 ms
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 284.94 Mbit/s
95th percentile per-packet one-way delay: 50.417 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 284.94 Mbit/s
95th percentile per-packet one-way delay: 50.417 ms
Loss rate: 0.00%
Run 5: Report of PCC-Vivace — Data Link

![Graph 1](chart1.png)

**Flow 1 ingress (mean 284.94 Mbit/s)**

![Graph 2](chart2.png)

**Flow 1 egress (mean 284.94 Mbit/s)**

**Flow 1 (95th percentile 50.42 ms)**
Run 1: Statistics of WebRTC media

Start at: 2019-03-09 16:30:14
End at: 2019-03-09 16:30:44
Local clock offset: -0.07 ms
Remote clock offset: -0.068 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 48.501 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 48.501 ms
Loss rate: 0.00%
Run 1: Report of WebRTC media — Data Link

![Graph 1](image1)

Throughput (Mbit/s)

0.0 0.5 1.0 1.5 2.0 2.5

Time (s)

Flow 1 ingress (mean 0.06 Mbit/s)  Flow 1 egress (mean 0.06 Mbit/s)

---

![Graph 2](image2)

Per packet one-way delay (ms)

47.2 47.4 47.6 47.8 48.0 48.2 48.4

Time (s)

Flow 1 (90th percentile 48.50 ms)
Run 2: Statistics of WebRTC media

Start at: 2019-03-09 17:01:02
End at: 2019-03-09 17:01:32
Local clock offset: 0.292 ms
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 46.393 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 46.393 ms
Loss rate: 0.00%
Run 2: Report of WebRTC media — Data Link

![Graph of throughput and packet per wire delay](image)

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

![Graph of packet per wire delay](image)

- Flow 1 (95th percentile 46.39 ms)
Run 3: Statistics of WebRTC media

Start at: 2019-03-09 17:31:52
End at: 2019-03-09 17:32:22
Local clock offset: -0.071 ms
Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 46.702 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 46.702 ms
Loss rate: 0.00%
Run 3: Report of WebRTC media — Data Link

![Graph showing WebRTC media throughput and latency over time.]
Run 4: Statistics of WebRTC media

Start at: 2019-03-09 18:02:24
End at: 2019-03-09 18:02:54
Local clock offset: -0.472 ms
Remote clock offset: -0.096 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.847 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 47.847 ms
Loss rate: 0.00%
Run 4: Report of WebRTC media — Data Link
Run 5: Statistics of WebRTC media

Start at: 2019-03-09 18:33:10
End at: 2019-03-09 18:33:40
Local clock offset: -0.487 ms
Remote clock offset: -0.058 ms

# Below is generated by plot.py at 2019-03-09 21:04:52
# Datalink statistics
-- Total of 1 flow:
  Average throughput: 2.13 Mbit/s
  95th percentile per-packet one-way delay: 47.108 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 2.13 Mbit/s
  95th percentile per-packet one-way delay: 47.108 ms
  Loss rate: 0.00%

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Run 5: Report of WebRTC media — Data Link

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

- Flow 1 ingress (mean 2.13 Mbit/s)
- Flow 1 egress (mean 2.13 Mbit/s)

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

- Flow 1 (95th percentile 47.11 ms)