Pantheon Report

Generated at 2018-11-03 21:26:11 (UTC).
Data path: GCE Tokyo on ens4 (remote) → GCE Sydney on ens4 (local).
Repeated the test of 18 congestion control schemes 5 times.
Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
NTP offsets were measured against time.google.com and have been applied to correct the timestamps in logs.

System info:
Linux 4.15.0-1021-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 @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17ea632d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38cd4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994ab95
third_party/libutp @ b3465b942e2826f2b179eaab4a90636b7cf3cf
third_party/muses @ 65ac1b19bfeb0d6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f86663f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d64b023c091a55f8ec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4ebf974ab
third_party/proto-quic @ 77961f1a82733a86b42f1b3c843edc978f3cf42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3dbb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sprouttb2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562539f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (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>509.59</td>
<td>105.81</td>
<td>0.43</td>
</tr>
<tr>
<td>Copa</td>
<td>5</td>
<td>268.55</td>
<td>72.81</td>
<td>0.40</td>
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<td>TCP Cubic</td>
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<td>497.86</td>
<td>109.01</td>
<td>0.47</td>
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<td>FillIP</td>
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<td>478.84</td>
<td>75.07</td>
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<td>215.54</td>
<td>62.31</td>
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<td>Indigo-96d2da3</td>
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<td>266.33</td>
<td>87.83</td>
<td>0.28</td>
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<td>86.86</td>
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<td>PCC-Allegro</td>
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<td>PCC-Expr</td>
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<td>286.43</td>
<td>168.00</td>
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<td>QUIC Cubic</td>
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<td>51.98</td>
<td>57.24</td>
<td>0.57</td>
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<td>SCReAM</td>
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<td>0.22</td>
<td>57.94</td>
<td>0.38</td>
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<td>Sprout</td>
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<td>7.52</td>
<td>57.43</td>
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<td>TaoVA-100x</td>
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<td>59.09</td>
<td>0.42</td>
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<td>TCP Vegas</td>
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<td>507.47</td>
<td>95.58</td>
<td>0.37</td>
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<td>Verus</td>
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<td>147.68</td>
<td>149.02</td>
<td>0.89</td>
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<td>PCC-Vivace</td>
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<td>117.65</td>
<td>0.61</td>
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<td>WebRTC media</td>
<td>5</td>
<td>1.83</td>
<td>58.62</td>
<td>0.43</td>
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Run 1: Statistics of TCP BBR

Start at: 2018-11-03 16:16:26
End at: 2018-11-03 16:16:56
Local clock offset: 0.282 ms
Remote clock offset: 0.004 ms

# Below is generated by plot.py at 2018-11-03 19:12:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 953.53 Mbit/s
95th percentile per-packet one-way delay: 104.149 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 513.34 Mbit/s
95th percentile per-packet one-way delay: 94.838 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 439.75 Mbit/s
95th percentile per-packet one-way delay: 112.208 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 450.41 Mbit/s
95th percentile per-packet one-way delay: 98.717 ms
Loss rate: 0.70%
Run 1: Report of TCP BBR — Data Link

![Graph showing throughput and per-packet one-way delay over time for different flows]

- **Flow 1 ingress** (mean 513.45 Mbit/s)
- **Flow 1 egress** (mean 513.34 Mbit/s)
- **Flow 2 ingress** (mean 440.79 Mbit/s)
- **Flow 2 egress** (mean 439.75 Mbit/s)
- **Flow 3 ingress** (mean 446.28 Mbit/s)
- **Flow 3 egress** (mean 450.41 Mbit/s)

*Flow 1 (95th percentile 94.84 ms)  Flow 2 (95th percentile 112.21 ms)  Flow 3 (95th percentile 98.72 ms)*
Run 2: Statistics of TCP BBR

Start at: 2018-11-03 16:49:59
End at: 2018-11-03 16:50:29
Local clock offset: 0.36 ms
Remote clock offset: -1.375 ms

# Below is generated by plot.py at 2018-11-03 19:12:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 980.94 Mbit/s
95th percentile per-packet one-way delay: 106.407 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 509.53 Mbit/s
95th percentile per-packet one-way delay: 115.083 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 480.08 Mbit/s
95th percentile per-packet one-way delay: 96.589 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 461.83 Mbit/s
95th percentile per-packet one-way delay: 90.216 ms
Loss rate: 1.57%
Run 2: Report of TCP BBR — Data Link
Run 3: Statistics of TCP BBR

Start at: 2018-11-03 17:23:56
End at: 2018-11-03 17:24:26
Local clock offset: -0.188 ms
Remote clock offset: -0.01 ms

# Below is generated by plot.py at 2018-11-03 19:12:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 975.67 Mbit/s
95th percentile per-packet one-way delay: 109.270 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 509.79 Mbit/s
95th percentile per-packet one-way delay: 116.509 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 473.88 Mbit/s
95th percentile per-packet one-way delay: 106.280 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 458.21 Mbit/s
95th percentile per-packet one-way delay: 96.545 ms
Loss rate: 1.52%
Run 3: Report of TCP BBR — Data Link

![Graph showing throughput and per-packet one-way delay for different flows](image)

Legend:
- Flow 1 ingress (mean 511.44 Mbit/s)
- Flow 1 egress (mean 509.79 Mbit/s)
- Flow 2 ingress (mean 474.66 Mbit/s)
- Flow 2 egress (mean 473.88 Mbit/s)
- Flow 3 ingress (mean 459.88 Mbit/s)
- Flow 3 egress (mean 458.21 Mbit/s)

Legend for per-packet one-way delay:
- Flow 1 (95th percentile 116.51 ms)
- Flow 2 (95th percentile 106.28 ms)
- Flow 3 (95th percentile 96.55 ms)
Run 4: Statistics of TCP BBR

Start at: 2018-11-03 17:57:31
End at: 2018-11-03 17:58:01
Local clock offset: 0.081 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2018-11-03 19:12:56
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 951.62 Mbit/s
  95th percentile per-packet one-way delay: 112.570 ms
  Loss rate: 0.74%
-- Flow 1:
  Average throughput: 507.30 Mbit/s
  95th percentile per-packet one-way delay: 104.594 ms
  Loss rate: 0.47%
-- Flow 2:
  Average throughput: 441.92 Mbit/s
  95th percentile per-packet one-way delay: 127.345 ms
  Loss rate: 0.80%
-- Flow 3:
  Average throughput: 456.54 Mbit/s
  95th percentile per-packet one-way delay: 106.408 ms
  Loss rate: 1.56%
Run 4: Report of TCP BBR — Data Link

[Graphs showing throughput and per-packet one-way delay for different flows.]

Legend:
- Flow 1 ingress (mean 507.73 Mbit/s)
- Flow 1 egress (mean 507.30 Mbit/s)
- Flow 2 ingress (mean 442.91 Mbit/s)
- Flow 2 egress (mean 441.92 Mbit/s)
- Flow 3 ingress (mean 456.43 Mbit/s)
- Flow 3 egress (mean 456.54 Mbit/s)
Run 5: Statistics of TCP BBR

Start at: 2018-11-03 18:31:58
End at: 2018-11-03 18:32:28
Local clock offset: 0.306 ms
Remote clock offset: 0.248 ms

# Below is generated by plot.py at 2018-11-03 19:13:13
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 991.09 Mbit/s
  95th percentile per-packet one-way delay: 96.983 ms
  Loss rate: 0.68%
-- Flow 1:
  Average throughput: 508.00 Mbit/s
  95th percentile per-packet one-way delay: 98.036 ms
  Loss rate: 0.39%
-- Flow 2:
  Average throughput: 488.71 Mbit/s
  95th percentile per-packet one-way delay: 92.382 ms
  Loss rate: 0.73%
-- Flow 3:
  Average throughput: 479.47 Mbit/s
  95th percentile per-packet one-way delay: 103.819 ms
  Loss rate: 1.48%
Run 5: Report of TCP BBR — Data Link

Graph 1: Throughput (Mbps)

Graph 2: Per-packet one-way delay (ms)
Run 1: Statistics of Copa

Start at: 2018-11-03 15:49:55
End at: 2018-11-03 15:50:25
Local clock offset: -0.121 ms
Remote clock offset: -0.295 ms

# Below is generated by plot.py at 2018-11-03 19:13:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 448.47 Mbit/s
95th percentile per-packet one-way delay: 63.309 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 229.17 Mbit/s
95th percentile per-packet one-way delay: 62.223 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 203.22 Mbit/s
95th percentile per-packet one-way delay: 62.613 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 256.20 Mbit/s
95th percentile per-packet one-way delay: 64.971 ms
Loss rate: 1.21%
Run 1: Report of Copa — Data Link

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**Throughput (Mbps)**

- **Flow 1 ingress (mean 229.23 Mbps)**
- **Flow 1 egress (mean 229.17 Mbps)**
- **Flow 2 ingress (mean 203.79 Mbps)**
- **Flow 2 egress (mean 203.22 Mbps)**
- **Flow 3 ingress (mean 256.36 Mbps)**
- **Flow 3 egress (mean 256.20 Mbps)**

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

- **Flow 1 (95th percentile 62.22 ms)**
- **Flow 2 (95th percentile 62.61 ms)**
- **Flow 3 (95th percentile 64.97 ms)**

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Run 2: Statistics of Copa

Start at: 2018-11-03 16:23:19
End at: 2018-11-03 16:23:49
Local clock offset: 0.284 ms
Remote clock offset: 0.132 ms

# Below is generated by plot.py at 2018-11-03 19:13:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 554.83 Mbit/s
95th percentile per-packet one-way delay: 70.671 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 282.77 Mbit/s
95th percentile per-packet one-way delay: 68.277 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 278.76 Mbit/s
95th percentile per-packet one-way delay: 75.091 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 263.05 Mbit/s
95th percentile per-packet one-way delay: 70.989 ms
Loss rate: 1.34%
Run 2: Report of Copa — Data Link

![Graph showing throughput and per-packet one-way delays over time for different flows with mean and 95th percentile values.]
Run 3: Statistics of Copa

Start at: 2018-11-03 16:57:05
End at: 2018-11-03 16:57:35
Local clock offset: -0.455 ms
Remote clock offset: -1.356 ms

# Below is generated by plot.py at 2018-11-03 19:13:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 459.97 Mbit/s
95th percentile per-packet one-way delay: 100.467 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 253.39 Mbit/s
95th percentile per-packet one-way delay: 81.689 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 221.80 Mbit/s
95th percentile per-packet one-way delay: 119.107 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 179.22 Mbit/s
95th percentile per-packet one-way delay: 124.659 ms
Loss rate: 1.21%
Run 3: Report of Copa — Data Link
Run 4: Statistics of Copa

Start at: 2018-11-03 17:30:56
End at: 2018-11-03 17:31:26
Local clock offset: -0.1 ms
Remote clock offset: 0.717 ms

# Below is generated by plot.py at 2018-11-03 19:29:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 525.30 Mbit/s
95th percentile per-packet one-way delay: 75.094 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 275.79 Mbit/s
95th percentile per-packet one-way delay: 70.144 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 279.41 Mbit/s
95th percentile per-packet one-way delay: 74.236 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 193.54 Mbit/s
95th percentile per-packet one-way delay: 95.391 ms
Loss rate: 1.47%
Run 4: Report of Copa — Data Link

![Graph showing throughput and packet loss](image_url)

**Throughput:**
- Flow 1 ingress (mean 275.83 Mbit/s)
- Flow 1 egress (mean 275.79 Mbit/s)
- Flow 2 ingress (mean 279.34 Mbit/s)
- Flow 2 egress (mean 279.41 Mbit/s)
- Flow 3 ingress (mean 194.20 Mbit/s)
- Flow 3 egress (mean 193.54 Mbit/s)

**Packet Loss:**
- Flow 1 (95th percentile 70.14 ms)
- Flow 2 (95th percentile 74.24 ms)
- Flow 3 (95th percentile 95.39 ms)
Run 5: Statistics of Copa

Start at: 2018-11-03 18:04:25
End at: 2018-11-03 18:04:55
Local clock offset: -0.003 ms
Remote clock offset: -0.21 ms

# Below is generated by plot.py at 2018-11-03 19:31:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 555.89 Mbit/s
95th percentile per-packet one-way delay: 81.786 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 301.64 Mbit/s
95th percentile per-packet one-way delay: 81.709 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 259.42 Mbit/s
95th percentile per-packet one-way delay: 73.767 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 247.83 Mbit/s
95th percentile per-packet one-way delay: 93.599 ms
Loss rate: 1.00%
Run 5: Report of Copa — Data Link

![Graphs showing network throughput and packet delay over time.]

Legend for Throughput Graph:
- Flow 1 ingress (mean 301.74 Mbit/s)
- Flow 1 egress (mean 301.64 Mbit/s)
- Flow 2 ingress (mean 259.32 Mbit/s)
- Flow 2 egress (mean 259.42 Mbit/s)
- Flow 3 ingress (mean 247.43 Mbit/s)
- Flow 3 egress (mean 247.83 Mbit/s)

Legend for Packet Delay Graph:
- Flow 1 (95th percentile 81.71 ms)
- Flow 2 (95th percentile 73.77 ms)
- Flow 3 (95th percentile 93.60 ms)
Run 1: Statistics of TCP Cubic

Start at: 2018-11-03 16:18:45
End at: 2018-11-03 16:19:15
Local clock offset: 0.104 ms
Remote clock offset: -0.157 ms

# Below is generated by plot.py at 2018-11-03 19:32:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 945.96 Mbit/s
95th percentile per-packet one-way delay: 104.927 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 513.22 Mbit/s
95th percentile per-packet one-way delay: 107.065 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 433.18 Mbit/s
95th percentile per-packet one-way delay: 79.336 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 438.76 Mbit/s
95th percentile per-packet one-way delay: 106.259 ms
Loss rate: 1.59%
Run 1: Report of TCP Cubic — Data Link

![Graph showing throughput and packet delay over time]

- Flow 1 ingress (mean 513.64 Mbps)
- Flow 1 egress (mean 513.22 Mbps)
- Flow 2 ingress (mean 433.61 Mbps)
- Flow 2 egress (mean 433.38 Mbps)
- Flow 3 ingress (mean 440.72 Mbps)
- Flow 3 egress (mean 438.76 Mbps)

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

- Flow 1 (95th percentile 107.06 ms)
- Flow 2 (95th percentile 79.34 ms)
- Flow 3 (95th percentile 106.28 ms)
Run 2: Statistics of TCP Cubic

Start at: 2018-11-03 16:52:17
End at: 2018-11-03 16:52:47
Local clock offset: ~0.082 ms
Remote clock offset: 1.17 ms

# Below is generated by plot.py at 2018-11-03 19:32:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 937.46 Mbit/s
95th percentile per-packet one-way delay: 110.434 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 481.39 Mbit/s
95th percentile per-packet one-way delay: 114.201 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 482.04 Mbit/s
95th percentile per-packet one-way delay: 97.832 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 410.51 Mbit/s
95th percentile per-packet one-way delay: 110.036 ms
Loss rate: 1.70%
Run 2: Report of TCP Cubic — Data Link

![Graph 1: Throughput (Mbps)]

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

Start at: 2018-11-03 17:26:09
End at: 2018-11-03 17:26:39
Local clock offset: -0.35 ms
Remote clock offset: -0.004 ms

# Below is generated by plot.py at 2018-11-03 19:33:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 985.00 Mbit/s
95th percentile per-packet one-way delay: 99.445 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 500.34 Mbit/s
95th percentile per-packet one-way delay: 103.931 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 498.92 Mbit/s
95th percentile per-packet one-way delay: 97.936 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 463.93 Mbit/s
95th percentile per-packet one-way delay: 87.035 ms
Loss rate: 1.54%
Run 3: Report of TCP Cubic — Data Link

[Graph showing throughput and packet loss over time for different flows]

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 500.80 Mbps)
Flow 1 egress (mean 500.34 Mbps)
Flow 2 ingress (mean 499.55 Mbps)
Flow 2 egress (mean 498.92 Mbps)
Flow 3 ingress (mean 465.71 Mbps)
Flow 3 egress (mean 463.93 Mbps)

Packet loss (ms)

Time (s)

Flow 1 (95th percentile 103.93 ms)
Flow 2 (95th percentile 97.94 ms)
Flow 3 (95th percentile 87.03 ms)
Run 4: Statistics of TCP Cubic

Start at: 2018-11-03 17:59:44
End at: 2018-11-03 18:00:14
Local clock offset: 0.352 ms
Remote clock offset: 0.306 ms

# Below is generated by plot.py at 2018-11-03 19:33:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 954.59 Mbit/s
95th percentile per-packet one-way delay: 109.478 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 500.71 Mbit/s
95th percentile per-packet one-way delay: 111.992 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 468.10 Mbit/s
95th percentile per-packet one-way delay: 107.225 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 432.24 Mbit/s
95th percentile per-packet one-way delay: 107.292 ms
Loss rate: 1.65%
Run 4: Report of TCP Cubic — Data Link

![Graph of Throughput and Per-packet one-way delay](image-url)

**Throughput (Mbps):**
- Flow 1 ingress (mean 501.17 Mbps)
- Flow 2 ingress (mean 468.98 Mbps)
- Flow 3 ingress (mean 434.29 Mbps)
- Flow 1 egress (mean 500.71 Mbps)
- Flow 2 egress (mean 468.10 Mbps)
- Flow 3 egress (mean 432.24 Mbps)

**Per-packet one-way delay (ms):**
- Flow 1 (95th percentile 111.99 ms)
- Flow 2 (95th percentile 107.22 ms)
- Flow 3 (95th percentile 107.29 ms)
Run 5: Statistics of TCP Cubic

Start at: 2018-11-03 18:34:14
End at: 2018-11-03 18:34:44
Local clock offset: -0.075 ms
Remote clock offset: 1.167 ms

# Below is generated by plot.py at 2018-11-03 19:33:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 970.19 Mbit/s
95th percentile per-packet one-way delay: 107.171 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 493.62 Mbit/s
95th percentile per-packet one-way delay: 107.863 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 486.21 Mbit/s
95th percentile per-packet one-way delay: 109.690 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 464.75 Mbit/s
95th percentile per-packet one-way delay: 88.744 ms
Loss rate: 1.53%
Run 5: Report of TCP Cubic — Data Link
Run 1: Statistics of FillP

Start at: 2018-11-03 15:54:07
End at: 2018-11-03 15:54:37
Local clock offset: 0.023 ms
Remote clock offset: 0.352 ms

# Below is generated by plot.py at 2018-11-03 19:36:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 900.89 Mbit/s
95th percentile per-packet one-way delay: 70.208 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 580.65 Mbit/s
95th percentile per-packet one-way delay: 72.448 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 362.30 Mbit/s
95th percentile per-packet one-way delay: 59.527 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 242.38 Mbit/s
95th percentile per-packet one-way delay: 60.635 ms
Loss rate: 1.42%
Run 1: Report of FillP — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 579.96 Mbps) — Flow 1 egress (mean 380.05 Mbps)
Flow 2 ingress (mean 363.90 Mbps) — Flow 2 egress (mean 362.30 Mbps)
Flow 3 ingress (mean 242.71 Mbps) — Flow 3 egress (mean 242.38 Mbps)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 72.45 ms) — Flow 2 (95th percentile 59.53 ms) — Flow 3 (95th percentile 60.63 ms)
Run 2: Statistics of FillP

Start at: 2018-11-03 16:27:48
End at: 2018-11-03 16:28:18
Local clock offset: -0.092 ms
Remote clock offset: -0.114 ms

# Below is generated by plot.py at 2018-11-03 19:52:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 885.67 Mbit/s
95th percentile per-packet one-way delay: 90.166 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 543.92 Mbit/s
95th percentile per-packet one-way delay: 98.313 ms
Loss rate: 0.94%
-- Flow 2:
Average throughput: 384.08 Mbit/s
95th percentile per-packet one-way delay: 60.583 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 264.95 Mbit/s
95th percentile per-packet one-way delay: 60.088 ms
Loss rate: 1.37%
Run 2: Report of FillP — Data Link

![Throughput Graph](image1)

![Delay Graph](image2)

- **Flow 1 Ingress (mean 546.68 Mbps)**
- **Flow 1 Egress (mean 543.92 Mbps)**
- **Flow 2 Ingress (mean 383.50 Mbps)**
- **Flow 2 Egress (mean 384.08 Mbps)**
- **Flow 3 Ingress (mean 265.72 Mbps)**
- **Flow 3 Egress (mean 264.95 Mbps)**
Run 3: Statistics of FillP

Start at: 2018-11-03 17:01:35
End at: 2018-11-03 17:02:05
Local clock offset: 0.084 ms
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2018-11-03 19:54:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 909.60 Mbit/s
95th percentile per-packet one-way delay: 63.524 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 557.75 Mbit/s
95th percentile per-packet one-way delay: 62.943 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 390.71 Mbit/s
95th percentile per-packet one-way delay: 64.110 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 280.07 Mbit/s
95th percentile per-packet one-way delay: 61.304 ms
Loss rate: 1.00%
Run 3: Report of FillP — Data Link

Throughput (Mbps):

- Flow 1 Ingress (mean 556.42 Mbps)
- Flow 1 Egress (mean 557.75 Mbps)
- Flow 2 Ingress (mean 390.31 Mbps)
- Flow 2 Egress (mean 390.73 Mbps)
- Flow 3 Ingress (mean 279.61 Mbps)
- Flow 3 Egress (mean 280.07 Mbps)

Delay (ms):

- Flow 1 (95th percentile 62.94 ms)
- Flow 2 (95th percentile 64.11 ms)
- Flow 3 (95th percentile 61.30 ms)
Run 4: Statistics of FillP

Start at: 2018-11-03 17:35:20
End at: 2018-11-03 17:35:50
Local clock offset: -0.077 ms
Remote clock offset: -0.561 ms

# Below is generated by plot.py at 2018-11-03 19:54:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.87 Mbit/s
95th percentile per-packet one-way delay: 63.364 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 138.43 Mbit/s
95th percentile per-packet one-way delay: 63.704 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 404.61 Mbit/s
95th percentile per-packet one-way delay: 63.456 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 275.53 Mbit/s
95th percentile per-packet one-way delay: 63.047 ms
Loss rate: 1.02%
Run 4: Report of FillP — Data Link
Run 5: Statistics of FillP

Start at: 2018-11-03 18:09:09
End at: 2018-11-03 18:09:39
Local clock offset: -0.014 ms
Remote clock offset: -0.777 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 920.22 Mbit/s
95th percentile per-packet one-way delay: 74.613 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 573.46 Mbit/s
95th percentile per-packet one-way delay: 77.941 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 388.45 Mbit/s
95th percentile per-packet one-way delay: 60.643 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 271.16 Mbit/s
95th percentile per-packet one-way delay: 61.469 ms
Loss rate: 1.24%
Run 5: Report of FillP — Data Link

![Graph 1: Throughput vs Time](image1)
- Flow 1 Ingress (mean 572.83 Mbit/s)
- Flow 1 Egress (mean 573.46 Mbit/s)
- Flow 2 Ingress (mean 387.81 Mbit/s)
- Flow 2 Egress (mean 388.45 Mbit/s)
- Flow 3 Ingress (mean 271.47 Mbit/s)
- Flow 3 Egress (mean 271.16 Mbit/s)

![Graph 2: Packet Delay vs Time](image2)
- Flow 1 (95th percentile 77.94 ms)
- Flow 2 (95th percentile 60.64 ms)
- Flow 3 (95th percentile 61.47 ms)
Run 1: Statistics of Indigo

Start at: 2018-11-03 15:52:04
End at: 2018-11-03 15:52:34
Local clock offset: -0.13 ms
Remote clock offset: -1.407 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 398.86 Mbit/s
95th percentile per-packet one-way delay: 63.350 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 208.40 Mbit/s
95th percentile per-packet one-way delay: 63.705 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 195.07 Mbit/s
95th percentile per-packet one-way delay: 63.282 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 177.08 Mbit/s
95th percentile per-packet one-way delay: 60.539 ms
Loss rate: 1.32%
Run 1: Report of Indigo — Data Link
Run 2: Statistics of Indigo

Start at: 2018-11-03 16:25:36
End at: 2018-11-03 16:26:06
Local clock offset: 0.158 ms
Remote clock offset: -0.152 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 395.35 Mbit/s
95th percentile per-packet one-way delay: 60.266 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 218.28 Mbit/s
95th percentile per-packet one-way delay: 59.992 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 189.37 Mbit/s
95th percentile per-packet one-way delay: 60.573 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 160.81 Mbit/s
95th percentile per-packet one-way delay: 60.757 ms
Loss rate: 1.37%
Run 2: Report of Indigo — Data Link

![Graph 1: Throughput vs Time]

- **Flow 1 ingress (mean 218.33 Mbit/s)**
- **Flow 1 egress (mean 218.28 Mbit/s)**
- **Flow 2 ingress (mean 189.54 Mbit/s)**
- **Flow 2 egress (mean 189.37 Mbit/s)**
- **Flow 3 ingress (mean 161.15 Mbit/s)**
- **Flow 3 egress (mean 160.81 Mbit/s)**

![Graph 2: Per packet size vs delay]

- **Flow 1 (95th percentile 59.99 ms)**
- **Flow 2 (95th percentile 60.57 ms)**
- **Flow 3 (95th percentile 60.76 ms)**
Run 3: Statistics of Indigo

Start at: 2018-11-03 16:59:34
End at: 2018-11-03 17:00:04
Local clock offset: 0.286 ms
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.14 Mbit/s
95th percentile per-packet one-way delay: 62.609 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 215.88 Mbit/s
95th percentile per-packet one-way delay: 62.939 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 195.39 Mbit/s
95th percentile per-packet one-way delay: 61.649 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 162.16 Mbit/s
95th percentile per-packet one-way delay: 60.323 ms
Loss rate: 0.85%
Run 3: Report of Indigo — Data Link
Run 4: Statistics of Indigo

Start at: 2018-11-03 17:33:15
End at: 2018-11-03 17:33:45
Local clock offset: -0.303 ms
Remote clock offset: 0.168 ms

# Below is generated by plot.py at 2018-11-03 19:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 403.80 Mbit/s
95th percentile per-packet one-way delay: 65.399 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 221.51 Mbit/s
95th percentile per-packet one-way delay: 63.062 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 193.51 Mbit/s
95th percentile per-packet one-way delay: 83.653 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 168.37 Mbit/s
95th percentile per-packet one-way delay: 58.595 ms
Loss rate: 1.46%
Run 4: Report of Indigo — Data Link

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

- **Flow 1 ingress** (mean 221.50 Mbps)
- **Flow 1 egress** (mean 221.51 Mbps)
- **Flow 2 ingress** (mean 193.61 Mbps)
- **Flow 2 egress** (mean 193.51 Mbps)
- **Flow 3 ingress** (mean 168.87 Mbps)
- **Flow 3 egress** (mean 168.37 Mbps)

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

- Flow 1 (95th percentile 63.06 ms)
- Flow 2 (95th percentile 83.65 ms)
- Flow 3 (95th percentile 58.59 ms)

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Run 5: Statistics of Indigo

Start at: 2018-11-03 18:07:07
End at: 2018-11-03 18:07:37
Local clock offset: -0.023 ms
Remote clock offset: -1.367 ms

# Below is generated by plot.py at 2018-11-03 20:00:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.88 Mbit/s
95th percentile per-packet one-way delay: 62.574 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 213.61 Mbit/s
95th percentile per-packet one-way delay: 61.849 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 197.28 Mbit/s
95th percentile per-packet one-way delay: 61.464 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 169.54 Mbit/s
95th percentile per-packet one-way delay: 64.192 ms
Loss rate: 1.54%
Run 5: Report of Indigo — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 213.57 Mbps)  Flow 1 egress (mean 213.61 Mbps)
Flow 2 ingress (mean 197.30 Mbps)  Flow 2 egress (mean 197.28 Mbps)
Flow 3 ingress (mean 170.06 Mbps)  Flow 3 egress (mean 169.54 Mbps)

Per-packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 61.85 ms)  Flow 2 (95th percentile 61.46 ms)  Flow 3 (95th percentile 64.19 ms)
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-03 16:10:18
End at: 2018-11-03 16:10:48
Local clock offset: 0.271 ms
Remote clock offset: 0.222 ms

# Below is generated by plot.py at 2018-11-03 20:00:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 526.15 Mbit/s
95th percentile per-packet one-way delay: 85.348 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 279.64 Mbit/s
95th percentile per-packet one-way delay: 83.461 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 250.37 Mbit/s
95th percentile per-packet one-way delay: 83.483 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 245.11 Mbit/s
95th percentile per-packet one-way delay: 98.096 ms
Loss rate: 1.49%
Run 1: Report of Indigo-96d2da3 — Data Link
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-03 16:43:51
End at: 2018-11-03 16:44:21
Local clock offset: 0.192 ms
Remote clock offset: 0.222 ms

# Below is generated by plot.py at 2018-11-03 20:00:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.08 Mbit/s
95th percentile per-packet one-way delay: 87.260 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 259.26 Mbit/s
95th percentile per-packet one-way delay: 87.828 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 239.90 Mbit/s
95th percentile per-packet one-way delay: 88.994 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 240.25 Mbit/s
95th percentile per-packet one-way delay: 83.993 ms
Loss rate: 0.84%
Run 2: Report of Indigo-96d2da3 — Data Link

[Diagram showing throughput and per-packet one-way delay over time for different flows with their respective mean speeds in Mbps.]
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-03 17:17:48
End at: 2018-11-03 17:18:18
Local clock offset: -0.334 ms
Remote clock offset: -0.077 ms

# Below is generated by plot.py at 2018-11-03 20:00:44
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 527.35 Mbit/s
  95th percentile per-packet one-way delay: 86.743 ms
  Loss rate: 0.45%
-- Flow 1:
  Average throughput: 277.26 Mbit/s
  95th percentile per-packet one-way delay: 86.385 ms
  Loss rate: 0.30%
-- Flow 2:
  Average throughput: 274.39 Mbit/s
  95th percentile per-packet one-way delay: 87.839 ms
  Loss rate: 0.37%
-- Flow 3:
  Average throughput: 214.62 Mbit/s
  95th percentile per-packet one-way delay: 84.205 ms
  Loss rate: 1.24%
Run 3: Report of Indigo-96d2da3 — Data Link

![Diagram showing throughput and per-packet one-way delay over time for different flows.]

- Flow 1 ingress (mean 276.27 Mbit/s)
- Flow 1 egress (mean 277.26 Mbit/s)
- Flow 2 ingress (mean 274.21 Mbit/s)
- Flow 2 egress (mean 274.39 Mbit/s)
- Flow 3 ingress (mean 212.78 Mbit/s)
- Flow 3 egress (mean 214.62 Mbit/s)
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-03 17:51:22
End at: 2018-11-03 17:51:52
Local clock offset: -0.208 ms
Remote clock offset: -0.118 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 498.50 Mbit/s
  95th percentile per-packet one-way delay: 84.568 ms
  Loss rate: 0.31%
-- Flow 1:
  Average throughput: 254.09 Mbit/s
  95th percentile per-packet one-way delay: 83.598 ms
  Loss rate: 0.10%
-- Flow 2:
  Average throughput: 258.47 Mbit/s
  95th percentile per-packet one-way delay: 91.258 ms
  Loss rate: 0.40%
-- Flow 3:
  Average throughput: 224.64 Mbit/s
  95th percentile per-packet one-way delay: 78.063 ms
  Loss rate: 0.78%
Run 4: Report of Indigo-96d2da3 — Data Link
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-03 18:25:43
End at: 2018-11-03 18:26:13
Local clock offset: 0.158 ms
Remote clock offset: -0.144 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 488.95 Mbit/s
   95th percentile per-packet one-way delay: 96.710 ms
   Loss rate: 0.61%
-- Flow 1:
   Average throughput: 261.40 Mbit/s
   95th percentile per-packet one-way delay: 97.867 ms
   Loss rate: 0.29%
-- Flow 2:
   Average throughput: 241.23 Mbit/s
   95th percentile per-packet one-way delay: 100.010 ms
   Loss rate: 0.48%
-- Flow 3:
   Average throughput: 209.15 Mbit/s
   95th percentile per-packet one-way delay: 75.783 ms
   Loss rate: 2.14%
Run 5: Report of Indigo-96d2da3 — Data Link

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

- Flow 1 ingress (mean 261.50 Mbit/s)
- Flow 1 egress (mean 261.40 Mbit/s)
- Flow 2 ingress (mean 242.14 Mbit/s)
- Flow 2 egress (mean 241.23 Mbit/s)
- Flow 3 ingress (mean 210.36 Mbit/s)
- Flow 3 egress (mean 209.15 Mbit/s)

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

- Flow 1 (95th percentile 97.87 ms)
- Flow 2 (95th percentile 100.01 ms)
- Flow 3 (95th percentile 75.78 ms)
Run 1: Statistics of LEDBAT

Start at: 2018-11-03 15:48:38
End at: 2018-11-03 15:49:08
Local clock offset: -0.063 ms
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.55 Mbit/s
95th percentile per-packet one-way delay: 57.906 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 26.75 Mbit/s
95th percentile per-packet one-way delay: 57.880 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 57.641 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 9.23 Mbit/s
95th percentile per-packet one-way delay: 58.202 ms
Loss rate: 2.33%
Run 1: Report of LEDBAT — Data Link

![Graph showing throughput and packet delay over time for different flows.](image-url)
Run 2: Statistics of LEDBAT

Start at: 2018-11-03 16:22:02
End at: 2018-11-03 16:22:32
Local clock offset: -0.363 ms
Remote clock offset: -1.417 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.30 Mbit/s
95th percentile per-packet one-way delay: 59.645 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 26.74 Mbit/s
95th percentile per-packet one-way delay: 59.932 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 18.78 Mbit/s
95th percentile per-packet one-way delay: 58.954 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 9.40 Mbit/s
95th percentile per-packet one-way delay: 59.137 ms
Loss rate: 2.24%
Run 3: Statistics of LEDBAT

Start at: 2018-11-03 16:55:46
End at: 2018-11-03 16:56:16
Local clock offset: -0.334 ms
Remote clock offset: -1.134 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.09 Mbit/s
95th percentile per-packet one-way delay: 59.455 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 28.23 Mbit/s
95th percentile per-packet one-way delay: 59.605 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 17.80 Mbit/s
95th percentile per-packet one-way delay: 59.132 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 9.28 Mbit/s
95th percentile per-packet one-way delay: 58.670 ms
Loss rate: 2.32%
Run 3: Report of LEDBAT — Data Link

![Graph showing throughput and per-packet one way delay over time for different flows.](image)

**Throughput (Mbps)**

- Flow 1 ingress (mean 28.34 Mbps)
- Flow 1 egress (mean 28.23 Mbps)
- Flow 2 ingress (mean 17.87 Mbps)
- Flow 2 egress (mean 17.80 Mbps)
- Flow 3 ingress (mean 9.40 Mbps)
- Flow 3 egress (mean 9.28 Mbps)

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

- Flow 1 (95th percentile 59.60 ms)
- Flow 2 (95th percentile 59.13 ms)
- Flow 3 (95th percentile 58.67 ms)
Run 4: Statistics of LEDBAT

Start at: 2018-11-03 17:29:37
End at: 2018-11-03 17:30:07
Local clock offset: 0.043 ms
Remote clock offset: 0.02 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.02 Mbit/s
95th percentile per-packet one-way delay: 61.122 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 28.22 Mbit/s
95th percentile per-packet one-way delay: 58.732 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 17.93 Mbit/s
95th percentile per-packet one-way delay: 61.426 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 8.79 Mbit/s
95th percentile per-packet one-way delay: 58.144 ms
Loss rate: 2.38%
Run 4: Report of LEDBAT — Data Link

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

- Flow 1 ingress (mean 28.33 Mbit/s)
- Flow 1 egress (mean 28.22 Mbit/s)
- Flow 2 ingress (mean 18.04 Mbit/s)
- Flow 2 egress (mean 17.93 Mbit/s)
- Flow 3 ingress (mean 8.89 Mbit/s)
- Flow 3 egress (mean 8.79 Mbit/s)

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

- Flow 1 (95th percentile 58.73 ms)
- Flow 2 (95th percentile 61.43 ms)
- Flow 3 (95th percentile 58.14 ms)
Run 5: Statistics of LEDBAT

Start at: 2018-11-03 18:03:07
End at: 2018-11-03 18:03:37
Local clock offset: 0.036 ms
Remote clock offset: -0.801 ms

# Below is generated by plot.py at 2018-11-03 20:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.69 Mbit/s
95th percentile per-packet one-way delay: 60.932 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 28.25 Mbit/s
95th percentile per-packet one-way delay: 58.946 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 18.88 Mbit/s
95th percentile per-packet one-way delay: 58.921 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 8.81 Mbit/s
95th percentile per-packet one-way delay: 61.460 ms
Loss rate: 2.38%
Run 5: Report of LEDBAT — Data Link

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

![Graph 2: Per-packet Delay vs Time](image2)
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-03 16:12:07
End at: 2018-11-03 16:12:37
Local clock offset: -0.124 ms
Remote clock offset: -1.432 ms

# Below is generated by plot.py at 2018-11-03 20:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1066.23 Mbit/s
95th percentile per-packet one-way delay: 92.284 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 609.70 Mbit/s
95th percentile per-packet one-way delay: 93.169 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 485.75 Mbit/s
95th percentile per-packet one-way delay: 93.498 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 411.03 Mbit/s
95th percentile per-packet one-way delay: 79.245 ms
Loss rate: 1.48%
Run 1: Report of Indigo-Muses — Data Link

![Graph showing throughput and packet loss over time for three flows.]

Throughput (Mbps) vs. Time (s)

- Flow 1 ingress (mean 609.49 Mbps)
- Flow 1 egress (mean 609.70 Mbps)
- Flow 2 ingress (mean 486.09 Mbps)
- Flow 2 egress (mean 485.75 Mbps)
- Flow 3 ingress (mean 412.38 Mbps)
- Flow 3 egress (mean 411.03 Mbps)

Packet loss over time for each flow:

- Flow 1 (95th percentile 93.17 ms)
- Flow 2 (95th percentile 93.50 ms)
- Flow 3 (95th percentile 79.25 ms)
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-03 16:45:36  
End at: 2018-11-03 16:46:06  
Local clock offset: 0.332 ms  
Remote clock offset: -0.173 ms

# Below is generated by plot.py at 2018-11-03 20:22:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 952.17 Mbit/s  
95th percentile per-packet one-way delay: 88.969 ms  
Loss rate: 0.65%  
-- Flow 1:  
Average throughput: 527.15 Mbit/s  
95th percentile per-packet one-way delay: 88.269 ms  
Loss rate: 0.33%  
-- Flow 2:  
Average throughput: 459.28 Mbit/s  
95th percentile per-packet one-way delay: 90.265 ms  
Loss rate: 0.71%  
-- Flow 3:  
Average throughput: 370.27 Mbit/s  
95th percentile per-packet one-way delay: 85.722 ms  
Loss rate: 1.84%
Run 2: Report of Indigo-Muses — Data Link

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

- **Flow 1 ingress (mean 526.88 Mbps)**
- **Flow 1 egress (mean 527.13 Mbps)**
- **Flow 2 ingress (mean 459.78 Mbps)**
- **Flow 2 egress (mean 459.28 Mbps)**
- **Flow 3 ingress (mean 373.01 Mbps)**
- **Flow 3 egress (mean 370.27 Mbps)**

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

- **Flow 1 (95th percentile 88.27 ms)**
- **Flow 2 (95th percentile 90.27 ms)**
- **Flow 3 (95th percentile 85.72 ms)**
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-03 17:19:42
End at: 2018-11-03 17:20:12
Local clock offset: -0.59 ms
Remote clock offset: 0.023 ms

# Below is generated by plot.py at 2018-11-03 20:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 958.46 Mbit/s
95th percentile per-packet one-way delay: 84.907 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 541.39 Mbit/s
95th percentile per-packet one-way delay: 88.082 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 438.81 Mbit/s
95th percentile per-packet one-way delay: 82.839 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 390.56 Mbit/s
95th percentile per-packet one-way delay: 82.017 ms
Loss rate: 1.83%
Run 3: Report of Indigo-Muses — Data Link

![Data Link Graph](image-url)

*Throughput (Mbps)*

- **Flow 1 ingress** (mean 541.29 Mbps)
- **Flow 1 egress** (mean 541.39 Mbps)
- **Flow 2 ingress** (mean 439.11 Mbps)
- **Flow 2 egress** (mean 438.81 Mbps)
- **Flow 3 ingress** (mean 393.02 Mbps)
- **Flow 3 egress** (mean 390.56 Mbps)

![Per-packet one-way delay (ms)](image-url)

*Time (s)*

- **Flow 1** (95th percentile 88.08 ms)
- **Flow 2** (95th percentile 82.84 ms)
- **Flow 3** (95th percentile 82.02 ms)
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-03 17:53:08
End at: 2018-11-03 17:53:38
Local clock offset: 0.081 ms
Remote clock offset: -0.062 ms

# Below is generated by plot.py at 2018-11-03 20:22:13
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 950.16 Mbit/s
  95th percentile per-packet one-way delay: 84.158 ms
  Loss rate: 0.60%
-- Flow 1:
  Average throughput: 531.20 Mbit/s
  95th percentile per-packet one-way delay: 84.750 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 452.34 Mbit/s
  95th percentile per-packet one-way delay: 84.308 ms
  Loss rate: 0.58%
-- Flow 3:
  Average throughput: 370.72 Mbit/s
  95th percentile per-packet one-way delay: 81.076 ms
  Loss rate: 1.70%
Run 4: Report of Indigo-Muses — Data Link
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-03 18:27:29
End at: 2018-11-03 18:27:59
Local clock offset: ~0.451 ms
Remote clock offset: 0.215 ms

# Below is generated by plot.py at 2018-11-03 20:22:13
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 978.72 Mbit/s
   95th percentile per-packet one-way delay: 80.709 ms
   Loss rate: 0.56%
-- Flow 1:
   Average throughput: 540.77 Mbit/s
   95th percentile per-packet one-way delay: 80.021 ms
   Loss rate: 0.33%
-- Flow 2:
   Average throughput: 483.30 Mbit/s
   95th percentile per-packet one-way delay: 81.788 ms
   Loss rate: 0.63%
-- Flow 3:
   Average throughput: 367.88 Mbit/s
   95th percentile per-packet one-way delay: 79.446 ms
   Loss rate: 1.42%
Run 5: Report of Indigo-Muses — Data Link
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-03 16:14:22
End at: 2018-11-03 16:14:52
Local clock offset: -0.579 ms
Remote clock offset: 0.547 ms

# Below is generated by plot.py at 2018-11-03 20:25:33
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 593.68 Mbit/s
  95th percentile per-packet one-way delay: 190.893 ms
  Loss rate: 4.55%
-- Flow 1:
  Average throughput: 304.19 Mbit/s
  95th percentile per-packet one-way delay: 221.759 ms
  Loss rate: 7.75%
-- Flow 2:
  Average throughput: 307.07 Mbit/s
  95th percentile per-packet one-way delay: 103.941 ms
  Loss rate: 0.74%
-- Flow 3:
  Average throughput: 262.72 Mbit/s
  95th percentile per-packet one-way delay: 99.898 ms
  Loss rate: 1.41%
Run 1: Report of PCC-Allegro — Data Link

Throughput (Mb/s)

0  5  10  15  20  25  30
Time (s)

Flow 1 ingress (mean 328.47 Mb/s)  Flow 1 egress (mean 304.19 Mb/s)
Flow 2 ingress (mean 307.57 Mb/s)  Flow 2 egress (mean 307.07 Mb/s)
Flow 3 ingress (mean 263.40 Mb/s)  Flow 3 egress (mean 262.72 Mb/s)

Round-trip ping delay (ms)

0  50  100  150  200  250
Time (s)

Flow 1 (95th percentile 221.76 ms)  Flow 2 (95th percentile 103.94 ms)  Flow 3 (95th percentile 99.90 ms)
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-03 16:47:46
End at: 2018-11-03 16:48:16
Local clock offset: -0.54 ms
Remote clock offset: 0.508 ms

# Below is generated by plot.py at 2018-11-03 20:30:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 665.48 Mbit/s
95th percentile per-packet one-way delay: 198.660 ms
Loss rate: 4.64%
-- Flow 1:
Average throughput: 387.06 Mbit/s
95th percentile per-packet one-way delay: 200.851 ms
Loss rate: 6.73%
-- Flow 2:
Average throughput: 295.21 Mbit/s
95th percentile per-packet one-way delay: 199.970 ms
Loss rate: 1.66%
-- Flow 3:
Average throughput: 253.10 Mbit/s
95th percentile per-packet one-way delay: 100.637 ms
Loss rate: 1.38%
Run 2: Report of PCC-Allegro — Data Link
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-03 17:21:49
End at: 2018-11-03 17:22:19
Local clock offset: ~0.443 ms
Remote clock offset: 0.704 ms

# Below is generated by plot.py at 2018-11-03 20:30:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 650.39 Mbit/s
95th percentile per-packet one-way delay: 207.682 ms
Loss rate: 7.57%
-- Flow 1:
Average throughput: 374.69 Mbit/s
95th percentile per-packet one-way delay: 216.012 ms
Loss rate: 11.73%
-- Flow 2:
Average throughput: 289.99 Mbit/s
95th percentile per-packet one-way delay: 69.448 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 255.59 Mbit/s
95th percentile per-packet one-way delay: 115.210 ms
Loss rate: 1.39%
Run 3: Report of PCC-Allegro — Data Link

Throughput (Mbit/s)

Flow 1 ingress (mean 422.86 Mbit/s)  Flow 1 egress (mean 374.69 Mbit/s)
Flow 2 ingress (mean 291.72 Mbit/s)  Flow 2 egress (mean 289.99 Mbit/s)
Flow 3 ingress (mean 256.14 Mbit/s)  Flow 3 egress (mean 255.59 Mbit/s)

Packet one way delay (ms)

Flow 1 (95th percentile 216.01 ms)  Flow 2 (95th percentile 69.45 ms)  Flow 3 (95th percentile 115.21 ms)
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-03 17:55:26
End at: 2018-11-03 17:55:56
Local clock offset: 0.054 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 642.15 Mbit/s
  95th percentile per-packet one-way delay: 190.397 ms
  Loss rate: 2.61%
-- Flow 1:
  Average throughput: 365.58 Mbit/s
  95th percentile per-packet one-way delay: 191.456 ms
  Loss rate: 3.11%
-- Flow 2:
  Average throughput: 292.25 Mbit/s
  95th percentile per-packet one-way delay: 72.254 ms
  Loss rate: 2.03%
-- Flow 3:
  Average throughput: 253.04 Mbit/s
  95th percentile per-packet one-way delay: 96.955 ms
  Loss rate: 1.69%
Run 4: Report of PCC-Allegro — Data Link
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-03 18:29:48
End at: 2018-11-03 18:30:18
Local clock offset: 0.327 ms
Remote clock offset: -0.134 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 611.42 Mbit/s
  95th percentile per-packet one-way delay: 205.564 ms
  Loss rate: 8.55%
-- Flow 1:
  Average throughput: 354.74 Mbit/s
  95th percentile per-packet one-way delay: 212.333 ms
  Loss rate: 13.12%
-- Flow 2:
  Average throughput: 267.32 Mbit/s
  95th percentile per-packet one-way delay: 140.415 ms
  Loss rate: 1.38%
-- Flow 3:
  Average throughput: 243.15 Mbit/s
  95th percentile per-packet one-way delay: 110.157 ms
  Loss rate: 1.39%

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Run 5: Report of PCC-Allegro — Data Link
Run 1: Statistics of PCC-Expr

Start at: 2018-11-03 16:04:32
End at: 2018-11-03 16:05:02
Local clock offset: 0.026 ms
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 518.37 Mbit/s
95th percentile per-packet one-way delay: 191.473 ms
Loss rate: 3.49%
-- Flow 1:
Average throughput: 300.65 Mbit/s
95th percentile per-packet one-way delay: 193.528 ms
Loss rate: 4.31%
-- Flow 2:
Average throughput: 232.02 Mbit/s
95th percentile per-packet one-way delay: 184.189 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 194.11 Mbit/s
95th percentile per-packet one-way delay: 125.930 ms
Loss rate: 3.48%
Run 2: Statistics of PCC-Expr

Start at: 2018-11-03 16:38:13
End at: 2018-11-03 16:38:43
Local clock offset: -0.085 ms
Remote clock offset: 0.089 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 462.95 Mbit/s
95th percentile per-packet one-way delay: 181.098 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 291.54 Mbit/s
95th percentile per-packet one-way delay: 182.786 ms
Loss rate: 3.28%
-- Flow 2:
Average throughput: 235.35 Mbit/s
95th percentile per-packet one-way delay: 179.723 ms
Loss rate: 2.33%
-- Flow 3:
Average throughput: 46.62 Mbit/s
95th percentile per-packet one-way delay: 57.269 ms
Loss rate: 1.68%
Run 2: Report of PCC-Expr — Data Link

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Run 3: Statistics of PCC-Expr

Start at: 2018-11-03 17:12:09
End at: 2018-11-03 17:12:39
Local clock offset: 0.059 ms
Remote clock offset: -1.335 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 471.90 Mbit/s
  95th percentile per-packet one-way delay: 133.411 ms
  Loss rate: 0.82%
-- Flow 1:
  Average throughput: 291.17 Mbit/s
  95th percentile per-packet one-way delay: 138.735 ms
  Loss rate: 0.84%
-- Flow 2:
  Average throughput: 240.42 Mbit/s
  95th percentile per-packet one-way delay: 83.912 ms
  Loss rate: 0.66%
-- Flow 3:
  Average throughput: 64.86 Mbit/s
  95th percentile per-packet one-way delay: 59.219 ms
  Loss rate: 1.81%
Run 3: Report of PCC-Expr — Data Link
Run 4: Statistics of PCC-Expr

Start at: 2018-11-03 17:45:33
End at: 2018-11-03 17:46:03
Local clock offset: -0.003 ms
Remote clock offset: 0.036 ms

# Below is generated by plot.py at 2018-11-03 20:48:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 483.64 Mbit/s
95th percentile per-packet one-way delay: 135.355 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 262.31 Mbit/s
95th percentile per-packet one-way delay: 159.258 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 245.80 Mbit/s
95th percentile per-packet one-way delay: 93.290 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 177.69 Mbit/s
95th percentile per-packet one-way delay: 70.806 ms
Loss rate: 1.39%
Run 4: Report of PCC-Expr — Data Link

![Graphs showing throughput and per-packet one-way delay over time for different flows.]

- Flow 1 ingress (mean 264.37 Mbit/s)
- Flow 1 egress (mean 262.31 Mbit/s)
- Flow 2 ingress (mean 246.01 Mbit/s)
- Flow 2 egress (mean 245.86 Mbit/s)
- Flow 3 ingress (mean 178.11 Mbit/s)
- Flow 3 egress (mean 177.69 Mbit/s)
Run 5: Statistics of PCC-Expr

Start at: 2018-11-03 18:19:48
End at: 2018-11-03 18:20:18
Local clock offset: -0.303 ms
Remote clock offset: -0.09 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 488.28 Mbit/s
95th percentile per-packet one-way delay: 176.920 ms
Loss rate: 2.59%
-- Flow 1:
Average throughput: 286.50 Mbit/s
95th percentile per-packet one-way delay: 165.703 ms
Loss rate: 1.72%
-- Flow 2:
Average throughput: 258.88 Mbit/s
95th percentile per-packet one-way delay: 186.576 ms
Loss rate: 4.20%
-- Flow 3:
Average throughput: 91.67 Mbit/s
95th percentile per-packet one-way delay: 62.090 ms
Loss rate: 1.46%
Run 5: Report of PCC-Expr — Data Link

![Graph of throughput and latency over time for different flows.]
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-03 15:58:15
End at: 2018-11-03 15:58:45
Local clock offset: -0.414 ms
Remote clock offset: -0.438 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.18 Mbit/s
95th percentile per-packet one-way delay: 57.301 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 53.89 Mbit/s
95th percentile per-packet one-way delay: 57.332 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 37.91 Mbit/s
95th percentile per-packet one-way delay: 57.058 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 59.10 Mbit/s
95th percentile per-packet one-way delay: 56.982 ms
Loss rate: 1.76%
Run 1: Report of QUIC Cubic — Data Link

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### Throughput (Mbps)

- **Flow 1 Ingress** (mean 53.97 Mbps)
- **Flow 1 Egress** (mean 53.89 Mbps)
- **Flow 2 Ingress** (mean 37.78 Mbps)
- **Flow 2 Egress** (mean 37.91 Mbps)
- **Flow 3 Ingress** (mean 59.49 Mbps)
- **Flow 3 Egress** (mean 59.10 Mbps)

### Packet Loss (ms)

- **Flow 1 (95th percentile 57.33 ms)**
- **Flow 2 (95th percentile 57.06 ms)**
- **Flow 3 (95th percentile 56.98 ms)**

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Run 2: Statistics of QUIC Cubic

Start at: 2018-11-03 16:31:56
End at: 2018-11-03 16:32:26
Local clock offset: -0.493 ms
Remote clock offset: -0.283 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.55 Mbit/s
95th percentile per-packet one-way delay: 56.940 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 65.31 Mbit/s
95th percentile per-packet one-way delay: 56.835 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 31.70 Mbit/s
95th percentile per-packet one-way delay: 56.835 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 18.91 Mbit/s
95th percentile per-packet one-way delay: 57.066 ms
Loss rate: 1.21%
Run 2: Report of QUIC Cubic — Data Link

![Graph showing network performance metrics for Run 2.](image)

- **Flow 1** (mean 65.40 Mbit/s)
- **Flow 2** (mean 31.61 Mbit/s)
- **Flow 3** (mean 18.92 Mbit/s)

For additional details:

- **Flow 1 (95th percentile 56.84 ms)**
- **Flow 2 (95th percentile 56.84 ms)**
- **Flow 3 (95th percentile 57.07 ms)**
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-03 17:05:45
End at: 2018-11-03 17:06:15
Local clock offset: -0.514 ms
Remote clock offset: 0.075 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.89 Mbit/s
95th percentile per-packet one-way delay: 56.950 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 51.35 Mbit/s
95th percentile per-packet one-way delay: 56.967 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 35.21 Mbit/s
95th percentile per-packet one-way delay: 56.630 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 18.75 Mbit/s
95th percentile per-packet one-way delay: 56.957 ms
Loss rate: 0.60%
Run 3: Report of QUIC Cubic — Data Link

![Graph showing throughput and round-trip time over time for different flows.](image)

Legend:
- Flow 1 ingress (mean 51.43 Mbit/s)
- Flow 1 egress (mean 51.35 Mbit/s)
- Flow 2 ingress (mean 35.46 Mbit/s)
- Flow 2 egress (mean 35.21 Mbit/s)
- Flow 3 ingress (mean 18.65 Mbit/s)
- Flow 3 egress (mean 18.75 Mbit/s)
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-03 17:39:10
End at: 2018-11-03 17:39:40
Local clock offset: -0.296 ms
Remote clock offset: -0.116 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.50 Mbit/s
95th percentile per-packet one-way delay: 57.129 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 46.34 Mbit/s
95th percentile per-packet one-way delay: 57.092 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 31.05 Mbit/s
95th percentile per-packet one-way delay: 56.649 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 28.92 Mbit/s
95th percentile per-packet one-way delay: 57.196 ms
Loss rate: 0.52%
Run 4: Report of QUIC Cubic — Data Link

![Throughput Graph](image1)

![Delay Graph](image2)

- Flow 1 ingress (mean 46.46 Mbit/s)
- Flow 1 egress (mean 46.34 Mbit/s)
- Flow 2 ingress (mean 31.10 Mbit/s)
- Flow 2 egress (mean 31.05 Mbit/s)
- Flow 3 ingress (mean 28.74 Mbit/s)
- Flow 3 egress (mean 28.92 Mbit/s)

Flow 1 (95th percentile 57.09 ms)
Flow 2 (95th percentile 56.65 ms)
Flow 3 (95th percentile 57.20 ms)
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-03 18:13:23
End at: 2018-11-03 18:13:53
Local clock offset: -0.466 ms
Remote clock offset: -1.298 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.50 Mbit/s
95th percentile per-packet one-way delay: 61.019 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 43.01 Mbit/s
95th percentile per-packet one-way delay: 57.964 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 38.24 Mbit/s
95th percentile per-packet one-way delay: 57.870 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 61.136 ms
Loss rate: 1.83%
Run 5: Report of QUIC Cubic — Data Link

![Graphs showing throughput and per-packet one-way delay for different flows.]

- **Flow 1 ingress (mean 43.09 Mbit/s)**
- **Flow 1 egress (mean 43.01 Mbit/s)**
- **Flow 2 ingress (mean 38.44 Mbit/s)**
- **Flow 2 egress (mean 38.24 Mbit/s)**
- **Flow 3 ingress (mean 48.65 Mbit/s)**
- **Flow 3 egress (mean 48.30 Mbit/s)**
Run 1: Statistics of SCReAM

Start at: 2018-11-03 16:20:49
End at: 2018-11-03 16:21:19
Local clock offset: -0.154 ms
Remote clock offset: -0.146 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
95th percentile per-packet one-way delay: 57.582 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.607 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.429 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.446 ms
Loss rate: 1.07%
Run 1: Report of SCReAM — Data Link

![Graph showing Throughput (Mbps) over time for different flows.]

![Graph showing Per-packet one-way delay (ms) over time for different flows.]

Flow 1 ingress (mean 0.22 Mbps)  Flow 1 egress (mean 0.22 Mbps)
Flow 2 ingress (mean 0.22 Mbps)  Flow 2 egress (mean 0.22 Mbps)
Flow 3 ingress (mean 0.22 Mbps)  Flow 3 egress (mean 0.22 Mbps)

Flow 1 (95th percentile 57.61 ms)  Flow 2 (95th percentile 57.43 ms)  Flow 3 (95th percentile 57.45 ms)
Run 2: Statistics of SCReAM

Start at: 2018-11-03 16:54:34
End at: 2018-11-03 16:55:04
Local clock offset: -0.087 ms
Remote clock offset: -0.088 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.470 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.244 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.214 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.544 ms
Loss rate: 1.08%
Run 2: Report of SCReAM — Data Link

- Flow 1 ingress (mean 0.22 Mbps)
- Flow 1 egress (mean 0.22 Mbps)
- Flow 2 ingress (mean 0.22 Mbps)
- Flow 2 egress (mean 0.22 Mbps)
- Flow 3 ingress (mean 0.22 Mbps)
- Flow 3 egress (mean 0.22 Mbps)

- Flow 1 (95th percentile 57.24 ms)
- Flow 2 (95th percentile 57.21 ms)
- Flow 3 (95th percentile 60.54 ms)
Run 3: Statistics of SCReAM

Start at: 2018-11-03 17:28:25
End at: 2018-11-03 17:28:55
Local clock offset: -0.402 ms
Remote clock offset: 1.281 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
 Average throughput: 0.43 Mbit/s
 95th percentile per-packet one-way delay: 58.822 ms
 Loss rate: 0.58%
-- Flow 1:
 Average throughput: 0.22 Mbit/s
 95th percentile per-packet one-way delay: 56.078 ms
 Loss rate: 0.38%
-- Flow 2:
 Average throughput: 0.22 Mbit/s
 95th percentile per-packet one-way delay: 55.634 ms
 Loss rate: 0.61%
-- Flow 3:
 Average throughput: 0.22 Mbit/s
 95th percentile per-packet one-way delay: 58.942 ms
 Loss rate: 1.08%
Run 3: Report of SCReAM — Data Link

[Graph showing throughput and per-packet round-trip delay over time for different flows.]
Run 4: Statistics of SCReAM

Start at: 2018-11-03 18:01:54
End at: 2018-11-03 18:02:24
Local clock offset: -0.229 ms
Remote clock offset: -1.101 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.43 Mbit/s
  95th percentile per-packet one-way delay: 61.189 ms
  Loss rate: 0.58%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 61.221 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 57.974 ms
  Loss rate: 0.61%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 61.071 ms
  Loss rate: 1.08%
Run 4: Report of SCReAM — Data Link
Run 5: Statistics of SCReAM

Start at: 2018-11-03 18:36:27
End at: 2018-11-03 18:36:57
Local clock offset: 0.383 ms
Remote clock offset: 0.065 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.43 Mbit/s
  95th percentile per-packet one-way delay: 57.539 ms
  Loss rate: 0.58%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 57.558 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 57.516 ms
  Loss rate: 0.61%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 57.386 ms
  Loss rate: 1.09%
Run 5: Report of SCReAM — Data Link
Run 1: Statistics of Sprout

Start at: 2018-11-03 16:06:52
End at: 2018-11-03 16:07:22
Local clock offset: -0.153 ms
Remote clock offset: -0.54 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.62 Mbit/s
95th percentile per-packet one-way delay: 58.132 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 6.94 Mbit/s
95th percentile per-packet one-way delay: 57.951 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 7.00 Mbit/s
95th percentile per-packet one-way delay: 58.231 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 6.26 Mbit/s
95th percentile per-packet one-way delay: 58.002 ms
Loss rate: 1.57%
Run 1: Report of Sprout — Data Link
Run 2: Statistics of Sprout

Start at: 2018-11-03 16:40:24
End at: 2018-11-03 16:40:54
Local clock offset: -0.451 ms
Remote clock offset: 1.204 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.11 Mbit/s
95th percentile per-packet one-way delay: 56.012 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 7.15 Mbit/s
95th percentile per-packet one-way delay: 56.066 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 55.929 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 7.20 Mbit/s
95th percentile per-packet one-way delay: 56.002 ms
Loss rate: 1.14%
Run 2: Report of Sprout — Data Link

![Graph showing throughput and delay per packet over time for different flows. The graphs indicate performance metrics for each flow, with mean throughput and 95th percentile delay values provided.]
Run 3: Statistics of Sprout

Start at: 2018-11-03 17:14:20
End at: 2018-11-03 17:14:50
Local clock offset: -0.204 ms
Remote clock offset: -0.075 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 15.27 Mbit/s
  95th percentile per-packet one-way delay: 57.882 ms
  Loss rate: 0.62%
-- Flow 1:
  Average throughput: 7.81 Mbit/s
  95th percentile per-packet one-way delay: 57.956 ms
  Loss rate: 0.33%
-- Flow 2:
  Average throughput: 7.60 Mbit/s
  95th percentile per-packet one-way delay: 57.666 ms
  Loss rate: 0.67%
-- Flow 3:
  Average throughput: 7.41 Mbit/s
  95th percentile per-packet one-way delay: 57.568 ms
  Loss rate: 1.40%
Run 3: Report of Sprout — Data Link

Graph 1: Throughput (Mbps)

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

Legend:
- Flow 1 ingress (mean 7.80 Mbps)
- Flow 1 egress (mean 7.81 Mbps)
- Flow 2 ingress (mean 7.61 Mbps)
- Flow 2 egress (mean 7.60 Mbps)
- Flow 3 ingress (mean 7.43 Mbps)
- Flow 3 egress (mean 7.41 Mbps)
Run 4: Statistics of Sprout

Start at: 2018-11-03 17:47:45
End at: 2018-11-03 17:48:15
Local clock offset: 0.048 ms
Remote clock offset: -0.038 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.21 Mbit/s
95th percentile per-packet one-way delay: 57.503 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 57.518 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 57.514 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 57.400 ms
Loss rate: 1.25%
Run 4: Report of Sprout — Data Link

![Graph of Throughput (Mbps) vs Time (s)]

- Flow 1 ingress (mean 7.82 Mbps)
- Flow 1 egress (mean 7.81 Mbps)
- Flow 2 ingress (mean 7.73 Mbps)
- Flow 2 egress (mean 7.73 Mbps)
- Flow 3 ingress (mean 6.94 Mbps)
- Flow 3 egress (mean 6.93 Mbps)

![Graph of Per-packet end-to-end delay (ms) vs Time (s)]

- Flow 1 (95th percentile 57.52 ms)
- Flow 2 (95th percentile 57.51 ms)
- Flow 3 (95th percentile 57.40 ms)
Run 5: Statistics of Sprout

End at: 2018-11-03 18:22:43
Local clock offset: -0.083 ms
Remote clock offset: -0.411 ms

# Below is generated by plot.py at 2018-11-03 20:51:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 15.35 Mbit/s
  95th percentile per-packet one-way delay: 58.076 ms
  Loss rate: 0.57%
-- Flow 1:
  Average throughput: 7.91 Mbit/s
  95th percentile per-packet one-way delay: 57.642 ms
  Loss rate: 0.22%
-- Flow 2:
  Average throughput: 7.70 Mbit/s
  95th percentile per-packet one-way delay: 58.038 ms
  Loss rate: 0.69%
-- Flow 3:
  Average throughput: 7.16 Mbit/s
  95th percentile per-packet one-way delay: 58.254 ms
  Loss rate: 1.46%
Run 5: Report of Sprout — Data Link
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-03 15:56:11
End at: 2018-11-03 15:56:41
Local clock offset: -0.316 ms
Remote clock offset: 1.267 ms

# Below is generated by plot.py at 2018-11-03 21:02:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 459.23 Mbit/s
95th percentile per-packet one-way delay: 57.890 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 234.01 Mbit/s
95th percentile per-packet one-way delay: 57.763 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 232.08 Mbit/s
95th percentile per-packet one-way delay: 57.594 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 215.49 Mbit/s
95th percentile per-packet one-way delay: 59.653 ms
Loss rate: 1.03%
Run 1: Report of TaoVA-100x — Data Link
Run 2: Statistics of TaoVA-100x

Start at: 2018-11-03 16:29:51
End at: 2018-11-03 16:30:21
Local clock offset: -0.084 ms
Remote clock offset: -0.036 ms

# Below is generated by plot.py at 2018-11-03 21:02:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 429.38 Mbit/s
95th percentile per-packet one-way delay: 64.032 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 224.84 Mbit/s
95th percentile per-packet one-way delay: 62.890 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 226.99 Mbit/s
95th percentile per-packet one-way delay: 65.650 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 163.00 Mbit/s
95th percentile per-packet one-way delay: 62.373 ms
Loss rate: 0.83%
Run 2: Report of TaoVA-100x — Data Link
Run 3: Statistics of TaoVA-100x

Start at: 2018-11-03 17:03:38
End at: 2018-11-03 17:04:08
Local clock offset: -0.552 ms
Remote clock offset: 0.017 ms

# Below is generated by plot.py at 2018-11-03 21:03:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 465.77 Mbit/s
95th percentile per-packet one-way delay: 57.663 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 236.82 Mbit/s
95th percentile per-packet one-way delay: 56.865 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 233.54 Mbit/s
95th percentile per-packet one-way delay: 58.751 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 223.69 Mbit/s
95th percentile per-packet one-way delay: 58.330 ms
Loss rate: 1.26%
Run 3: Report of TaoVA-100x — Data Link

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

- Flow 1 ingress (mean 236.87 Mbit/s)
- Flow 1 egress (mean 236.82 Mbit/s)
- Flow 2 ingress (mean 233.61 Mbit/s)
- Flow 2 egress (mean 233.54 Mbit/s)
- Flow 3 ingress (mean 223.90 Mbit/s)
- Flow 3 egress (mean 223.69 Mbit/s)
Run 4: Statistics of TaoVA-100x

Start at: 2018-11-03 17:37:00
End at: 2018-11-03 17:37:30
Local clock offset: -0.194 ms
Remote clock offset: 0.266 ms

# Below is generated by plot.py at 2018-11-03 21:03:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 460.97 Mbit/s
95th percentile per-packet one-way delay: 59.144 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 239.75 Mbit/s
95th percentile per-packet one-way delay: 58.363 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 232.24 Mbit/s
95th percentile per-packet one-way delay: 59.832 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 202.47 Mbit/s
95th percentile per-packet one-way delay: 60.283 ms
Loss rate: 1.03%
Run 4: Report of TaoVA-100x — Data Link
Run 5: Statistics of TaoVA-100x

Start at: 2018-11-03 18:11:14
End at: 2018-11-03 18:11:44
Local clock offset: 0.345 ms
Remote clock offset: 0.481 ms

# Below is generated by plot.py at 2018-11-03 21:03:54
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 428.10 Mbit/s
  95th percentile per-packet one-way delay: 61.397 ms
  Loss rate: 0.50%
-- Flow 1:
  Average throughput: 236.63 Mbit/s
  95th percentile per-packet one-way delay: 59.589 ms
  Loss rate: 0.39%
-- Flow 2:
  Average throughput: 215.95 Mbit/s
  95th percentile per-packet one-way delay: 61.974 ms
  Loss rate: 0.64%
-- Flow 3:
  Average throughput: 145.41 Mbit/s
  95th percentile per-packet one-way delay: 62.572 ms
  Loss rate: 0.62%
Run 5: Report of TaoVA-100x — Data Link

![Graph showing throughput and per-packet one-way delay over time for different flows. The graphs display the mean throughput and 95th percentile delay for each flow.](image-url)
Run 1: Statistics of TCP Vegas

Start at: 2018-11-03 16:08:06
End at: 2018-11-03 16:08:36
Local clock offset: -0.547 ms
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2018-11-03 21:08:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 934.70 Mbit/s
95th percentile per-packet one-way delay: 87.254 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 469.10 Mbit/s
95th percentile per-packet one-way delay: 71.453 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 475.78 Mbit/s
95th percentile per-packet one-way delay: 78.372 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 453.04 Mbit/s
95th percentile per-packet one-way delay: 118.199 ms
Loss rate: 1.55%
Run 1: Report of TCP Vegas — Data Link

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**Throughput (Mbps)**

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

**Per-packet round-trip delay (ms)**

![Graph showing per-packet round-trip delay over time for different flows.]

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Run 2: Statistics of TCP Vegas

Start at: 2018-11-03 16:41:38
End at: 2018-11-03 16:42:08
Local clock offset: -0.226 ms
Remote clock offset: -0.287 ms

# Below is generated by plot.py at 2018-11-03 21:08:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 911.30 Mbit/s
95th percentile per-packet one-way delay: 91.967 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 535.82 Mbit/s
95th percentile per-packet one-way delay: 94.062 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 450.85 Mbit/s
95th percentile per-packet one-way delay: 74.839 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 229.60 Mbit/s
95th percentile per-packet one-way delay: 57.888 ms
Loss rate: 1.28%
Run 2: Report of TCP Vegas — Data Link

![Graph 1: Throughput (Mbps)]

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

Start at: 2018-11-03 17:15:34
End at: 2018-11-03 17:16:04
Local clock offset: 0.087 ms
Remote clock offset: -0.041 ms

# Below is generated by plot.py at 2018-11-03 21:13:17
# Datalink statistics
-- Total of 3 flows:
95th percentile per-packet one-way delay: 103.296 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 510.41 Mbit/s
95th percentile per-packet one-way delay: 111.206 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 455.13 Mbit/s
95th percentile per-packet one-way delay: 82.721 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 410.93 Mbit/s
95th percentile per-packet one-way delay: 88.138 ms
Loss rate: 1.40%
Run 3: Report of TCP Vegas — Data Link
Run 4: Statistics of TCP Vegas

Start at: 2018-11-03 17:49:00
End at: 2018-11-03 17:49:30
Local clock offset: 0.076 ms
Remote clock offset: -0.797 ms

# Below is generated by plot.py at 2018-11-03 21:22:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 942.33 Mbit/s
95th percentile per-packet one-way delay: 107.564 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 501.03 Mbit/s
95th percentile per-packet one-way delay: 107.804 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 464.92 Mbit/s
95th percentile per-packet one-way delay: 110.411 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 401.18 Mbit/s
95th percentile per-packet one-way delay: 88.531 ms
Loss rate: 1.43%
Run 4: Report of TCP Vegas — Data Link
Run 5: Statistics of TCP Vegas

Start at: 2018-11-03 18:23:27
End at: 2018-11-03 18:23:57
Local clock offset: -0.056 ms
Remote clock offset: -0.719 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 951.02 Mbit/s
95th percentile per-packet one-way delay: 92.323 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 520.99 Mbit/s
95th percentile per-packet one-way delay: 93.394 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 410.56 Mbit/s
95th percentile per-packet one-way delay: 91.288 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 476.36 Mbit/s
95th percentile per-packet one-way delay: 92.661 ms
Loss rate: 1.49%
Run 5: Report of TCP Vegas — Data Link
Run 1: Statistics of Verus

Start at: 2018-11-03 15:59:34
End at: 2018-11-03 16:00:04
Local clock offset: -0.532 ms
Remote clock offset: -0.179 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
 Average throughput: 266.07 Mbit/s
 95th percentile per-packet one-way delay: 146.593 ms
 Loss rate: 0.34%
-- Flow 1:
 Average throughput: 143.15 Mbit/s
 95th percentile per-packet one-way delay: 127.336 ms
 Loss rate: 0.06%
-- Flow 2:
 Average throughput: 150.22 Mbit/s
 95th percentile per-packet one-way delay: 170.790 ms
 Loss rate: 0.33%
-- Flow 3:
 Average throughput: 71.11 Mbit/s
 95th percentile per-packet one-way delay: 85.464 ms
 Loss rate: 2.07%
Run 1: Report of Verus — Data Link
Run 2: Statistics of Verus

Start at: 2018-11-03 16:33:16
End at: 2018-11-03 16:33:46
Local clock offset: 0.387 ms
Remote clock offset: -0.254 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 238.61 Mbit/s
95th percentile per-packet one-way delay: 140.713 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 133.52 Mbit/s
95th percentile per-packet one-way delay: 195.149 ms
Loss rate: 3.36%
-- Flow 2:
Average throughput: 126.46 Mbit/s
95th percentile per-packet one-way delay: 111.122 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 64.45 Mbit/s
95th percentile per-packet one-way delay: 62.466 ms
Loss rate: 0.31%
Run 2: Report of Verus — Data Link

![Graph showing throughput and packet loss over time for different flows.](image)

- **Throughput** (Mbps):
  - Flow 1 ingress (mean 138.02 Mbps)
  - Flow 1 egress (mean 133.52 Mbps)
  - Flow 2 ingress (mean 127.10 Mbps)
  - Flow 2 egress (mean 126.46 Mbps)
  - Flow 3 ingress (mean 63.88 Mbps)
  - Flow 3 egress (mean 64.45 Mbps)

- **Packet Loss** (ms):
  - Flow 1 (95th percentile 195.15 ms)
  - Flow 2 (95th percentile 111.12 ms)
  - Flow 3 (95th percentile 62.47 ms)
Run 3: Statistics of Verus

Start at: 2018-11-03 17:07:04
End at: 2018-11-03 17:07:34
Local clock offset: -0.363 ms
Remote clock offset: -0.917 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 283.33 Mbit/s
95th percentile per-packet one-way delay: 166.400 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 157.96 Mbit/s
95th percentile per-packet one-way delay: 169.803 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 135.03 Mbit/s
95th percentile per-packet one-way delay: 167.950 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 108.49 Mbit/s
95th percentile per-packet one-way delay: 119.853 ms
Loss rate: 0.87%
Run 3: Report of Verus — Data Link

[Graphs showing data throughput and delay over time for different flows]
Run 4: Statistics of Verus

Start at: 2018-11-03 17:40:29
End at: 2018-11-03 17:40:59
Local clock offset: -0.317 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 287.00 Mbit/s
95th percentile per-packet one-way delay: 151.343 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 178.01 Mbit/s
95th percentile per-packet one-way delay: 141.144 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 123.10 Mbit/s
95th percentile per-packet one-way delay: 212.556 ms
Loss rate: 2.73%
-- Flow 3:
Average throughput: 83.69 Mbit/s
95th percentile per-packet one-way delay: 80.146 ms
Loss rate: 1.99%
Run 4: Report of Verus — Data Link

![Graphs showing throughput and round-trip time over time for different flows.]

- Flow 1 ingress (mean 178.23 Mbit/s)
- Flow 1 egress (mean 178.01 Mbit/s)
- Flow 2 ingress (mean 125.66 Mbit/s)
- Flow 2 egress (mean 123.10 Mbit/s)
- Flow 3 ingress (mean 84.41 Mbit/s)
- Flow 3 egress (mean 83.69 Mbit/s)

![Graph showing round-trip time delays over time for different flows.]

- Flow 1 (95th percentile 141.14 ms)
- Flow 2 (95th percentile 212.56 ms)
- Flow 3 (95th percentile 80.15 ms)
Run 5: Statistics of Verus

Start at: 2018-11-03 18:14:43
End at: 2018-11-03 18:15:13
Local clock offset: 0.35 ms
Remote clock offset: -0.853 ms

# Below is generated by plot.py at 2018-11-03 21:23:45
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 229.64 Mbit/s
  95th percentile per-packet one-way delay: 153.555 ms
  Loss rate: 1.26%
-- Flow 1:
  Average throughput: 125.77 Mbit/s
  95th percentile per-packet one-way delay: 111.683 ms
  Loss rate: 0.51%
-- Flow 2:
  Average throughput: 110.90 Mbit/s
  95th percentile per-packet one-way delay: 169.171 ms
  Loss rate: 1.01%
-- Flow 3:
  Average throughput: 93.40 Mbit/s
  95th percentile per-packet one-way delay: 263.278 ms
  Loss rate: 4.81%
Run 5: Report of Verus — Data Link
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-03 16:02:32
End at: 2018-11-03 16:03:02
Local clock offset: 0.056 ms
Remote clock offset: -0.188 ms

# Below is generated by plot.py at 2018-11-03 21:25:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 553.04 Mbit/s
95th percentile per-packet one-way delay: 81.960 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 321.66 Mbit/s
95th percentile per-packet one-way delay: 131.378 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 305.78 Mbit/s
95th percentile per-packet one-way delay: 61.717 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 86.80 Mbit/s
95th percentile per-packet one-way delay: 57.592 ms
Loss rate: 1.40%
Run 1: Report of PCC-Vivace — Data Link
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-03 16:36:10
End at: 2018-11-03 16:36:40
Local clock offset: 0.063 ms
Remote clock offset: -0.132 ms

# Below is generated by plot.py at 2018-11-03 21:25:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 574.22 Mbit/s
95th percentile per-packet one-way delay: 96.454 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 342.43 Mbit/s
95th percentile per-packet one-way delay: 137.504 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 263.28 Mbit/s
95th percentile per-packet one-way delay: 70.239 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 174.40 Mbit/s
95th percentile per-packet one-way delay: 59.439 ms
Loss rate: 1.54%
Run 2: Report of PCC-Vivace — Data Link
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-03 17:10:07
End at: 2018-11-03 17:10:37
Local clock offset: 0.031 ms
Remote clock offset: 0.507 ms

# Below is generated by plot.py at 2018-11-03 21:25:48
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 564.64 Mbit/s
  95th percentile per-packet one-way delay: 83.133 ms
  Loss rate: 0.57%
-- Flow 1:
  Average throughput: 333.05 Mbit/s
  95th percentile per-packet one-way delay: 59.656 ms
  Loss rate: 0.48%
-- Flow 2:
  Average throughput: 273.25 Mbit/s
  95th percentile per-packet one-way delay: 93.915 ms
  Loss rate: 0.42%
-- Flow 3:
  Average throughput: 153.58 Mbit/s
  95th percentile per-packet one-way delay: 60.274 ms
  Loss rate: 1.63%
Run 3: Report of PCC-Vivace — Data Link

![Graph showing throughput and packet delay over time for different flows.](image)

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 333.37 Mbps)
  - Flow 1 egress (mean 333.05 Mbps)
  - Flow 2 ingress (mean 272.77 Mbps)
  - Flow 2 egress (mean 273.25 Mbps)
  - Flow 3 ingress (mean 154.33 Mbps)
  - Flow 3 egress (mean 153.58 Mbps)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 59.66 ms)
  - Flow 2 (95th percentile 93.92 ms)
  - Flow 3 (95th percentile 60.27 ms)
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-03 17:43:29
End at: 2018-11-03 17:43:59
Local clock offset: -0.399 ms
Remote clock offset: -0.732 ms

# Below is generated by plot.py at 2018-11-03 21:26:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 527.33 Mbit/s
95th percentile per-packet one-way delay: 62.175 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 351.39 Mbit/s
95th percentile per-packet one-way delay: 66.360 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 242.88 Mbit/s
95th percentile per-packet one-way delay: 61.063 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 45.11 Mbit/s
95th percentile per-packet one-way delay: 57.611 ms
Loss rate: 2.47%
Run 4: Report of PCC-Vivace — Data Link

![Throughput Graph]

- **Flow 1 Ingress** (mean 351.73 Mbit/s)
- **Flow 1 Egress** (mean 351.39 Mbit/s)
- **Flow 2 Ingress** (mean 243.03 Mbit/s)
- **Flow 2 Egress** (mean 242.88 Mbit/s)
- **Flow 3 Ingress** (mean 45.72 Mbit/s)
- **Flow 3 Egress** (mean 45.11 Mbit/s)

![Per-packet delay Graph]

- **Flow 1** (95th percentile 66.36 ms)
- **Flow 2** (95th percentile 61.06 ms)
- **Flow 3** (95th percentile 57.61 ms)
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-03 18:17:46
End at: 2018-11-03 18:18:16
Local clock offset: -0.065 ms
Remote clock offset: -0.165 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 480.29 Mbit/s
  95th percentile per-packet one-way delay: 149.501 ms
  Loss rate: 1.03%
-- Flow 1:
  Average throughput: 295.41 Mbit/s
  95th percentile per-packet one-way delay: 193.364 ms
  Loss rate: 1.04%
-- Flow 2:
  Average throughput: 206.48 Mbit/s
  95th percentile per-packet one-way delay: 62.229 ms
  Loss rate: 0.85%
-- Flow 3:
  Average throughput: 146.26 Mbit/s
  95th percentile per-packet one-way delay: 64.573 ms
  Loss rate: 1.45%
Run 5: Report of PCC-Vivace — Data Link
Run 1: Statistics of WebRTC media

Start at: 2018-11-03 16:01:19
End at: 2018-11-03 16:01:49
Local clock offset: -0.575 ms
Remote clock offset: -0.156 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.14 Mbit/s
  95th percentile per-packet one-way delay: 56.737 ms
  Loss rate: 0.65%
-- Flow 1:
  Average throughput: 1.56 Mbit/s
  95th percentile per-packet one-way delay: 56.702 ms
  Loss rate: 0.45%
-- Flow 2:
  Average throughput: 1.16 Mbit/s
  95th percentile per-packet one-way delay: 56.685 ms
  Loss rate: 0.83%
-- Flow 3:
  Average throughput: 0.44 Mbit/s
  95th percentile per-packet one-way delay: 56.793 ms
  Loss rate: 0.92%
Run 1: Report of WebRTC media — Data Link

![Graph of throughput over time showing a fluctuating pattern.]

![Graph of per-packet delay over time with various data points.]

Flow 1 ingress (mean 1.56 Mbit/s) — Flow 1 egress (mean 1.56 Mbit/s)
Flow 2 ingress (mean 1.16 Mbit/s) — Flow 2 egress (mean 1.16 Mbit/s)
Flow 3 ingress (mean 0.45 Mbit/s) — Flow 3 egress (mean 0.44 Mbit/s)
Run 2: Statistics of WebRTC media

Start at: 2018-11-03 16:34:57
End at: 2018-11-03 16:35:27
Local clock offset: -0.073 ms
Remote clock offset: -0.307 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.44 Mbit/s
  95th percentile per-packet one-way delay: 57.518 ms
  Loss rate: 0.68%
-- Flow 1:
  Average throughput: 1.89 Mbit/s
  95th percentile per-packet one-way delay: 57.544 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 1.12 Mbit/s
  95th percentile per-packet one-way delay: 57.479 ms
  Loss rate: 0.91%
-- Flow 3:
  Average throughput: 0.46 Mbit/s
  95th percentile per-packet one-way delay: 57.438 ms
  Loss rate: 1.35%
Run 2: Report of WebRTC media — Data Link
Run 3: Statistics of WebRTC media

Start at: 2018-11-03 17:08:54
End at: 2018-11-03 17:09:24
Local clock offset: -0.163 ms
Remote clock offset: -0.002 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.42 Mbit/s
  95th percentile per-packet one-way delay: 60.815 ms
  Loss rate: 0.65%
-- Flow 1:
  Average throughput: 1.88 Mbit/s
  95th percentile per-packet one-way delay: 60.838 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 1.13 Mbit/s
  95th percentile per-packet one-way delay: 60.635 ms
  Loss rate: 0.62%
-- Flow 3:
  Average throughput: 0.43 Mbit/s
  95th percentile per-packet one-way delay: 60.581 ms
  Loss rate: 1.92%
Run 3: Report of WebRTC media — Data Link

![Throughput Graph](image)

![Latency Graph](image)

- Flow 1 ingress (mean 1.88 Mbit/s)
- Flow 1 egress (mean 1.88 Mbit/s)
- Flow 2 ingress (mean 1.13 Mbit/s)
- Flow 2 egress (mean 1.13 Mbit/s)
- Flow 3 ingress (mean 0.44 Mbit/s)
- Flow 3 egress (mean 0.43 Mbit/s)

- Flow 1 (95th percentile 60.84 ms)
- Flow 2 (95th percentile 60.63 ms)
- Flow 3 (95th percentile 60.58 ms)
Run 4: Statistics of WebRTC media

Start at: 2018-11-03 17:42:16
End at: 2018-11-03 17:42:46
Local clock offset: -0.021 ms
Remote clock offset: -0.359 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.46 Mbit/s
95th percentile per-packet one-way delay: 60.919 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 60.950 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 57.735 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.810 ms
Loss rate: 1.87%
Run 4: Report of WebRTC media — Data Link
Run 5: Statistics of WebRTC media

Start at: 2018-11-03 18:16:33
End at: 2018-11-03 18:17:03
Local clock offset: -0.078 ms
Remote clock offset: 0.165 ms

# Below is generated by plot.py at 2018-11-03 21:26:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 57.058 ms
Loss rate: 0.58%

-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 57.057 ms
Loss rate: 0.37%

-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 57.067 ms
Loss rate: 0.61%

-- Flow 3:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 57.020 ms
Loss rate: 1.59%
Run 5: Report of WebRTC media — Data Link