Pantheon Report

Generated at 2018-10-10 20:16:27 (UTC).
Data path: GCE Sydney on ens4 (local) → GCE Tokyo on ens4 (remote).
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 @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa989e93b032143cedbdf5e562f4
third_party/indigo @ 2601c92e4aa9d58d33c4dfe0ecdbf99c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed70486ba8f994aab95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19b8fed00c6349ae98609b4f8643c40a
third_party/pantheon-tunnel @ f866d3f58d27a8d942717625ee3a354cc2e02bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55f8ec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8ac08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cf42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3dbb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562593f9a494
M src/verus.hpp
M tools/plot.py
test from GCE Sydney to GCE Tokyo, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)
<table>
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<th>mean avg tput (Mbit/s)</th>
<th>mean 95th-%ile delay (ms)</th>
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<td>TaoVA-100x</td>
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<td>WebRTC media</td>
<td>5</td>
<td>20.07</td>
<td>1.27</td>
<td>0.51</td>
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</table>
Run 1: Statistics of TCP BBR

Start at: 2018-10-10 15:08:02
End at: 2018-10-10 15:08:32
Local clock offset: -0.015 ms
Remote clock offset: -0.004 ms

# Below is generated by plot.py at 2018-10-10 18:16:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1148.40 Mbit/s
95th percentile per-packet one-way delay: 84.408 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 579.63 Mbit/s
95th percentile per-packet one-way delay: 85.511 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 602.95 Mbit/s
95th percentile per-packet one-way delay: 76.117 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 501.33 Mbit/s
95th percentile per-packet one-way delay: 84.057 ms
Loss rate: 0.28%
Run 1: Report of TCP BBR — Data Link

![Graph of network throughput and delay](image.png)

- **Throughput Graph**: Shows the throughput (in Mb/s) over time for different flows.
  - Flow 1 ingress (mean 579.98 Mb/s)
  - Flow 1 egress (mean 579.63 Mb/s)
  - Flow 2 ingress (mean 603.26 Mb/s)
  - Flow 2 egress (mean 602.95 Mb/s)
  - Flow 3 ingress (mean 502.95 Mb/s)
  - Flow 3 egress (mean 501.33 Mb/s)

- **Delay Graph**: Shows the per-packet one-way delay (in ms) over time for different flows.
  - Flow 1 (95th percentile 85.51 ms)
  - Flow 2 (95th percentile 76.12 ms)
  - Flow 3 (95th percentile 84.06 ms)
Run 2: Statistics of TCP BBR

Start at: 2018-10-10 15:39:27
End at: 2018-10-10 15:39:57
Local clock offset: 0.02 ms
Remote clock offset: -0.971 ms

# Below is generated by plot.py at 2018-10-10 18:16:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1092.56 Mbit/s
95th percentile per-packet one-way delay: 91.746 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 579.00 Mbit/s
95th percentile per-packet one-way delay: 81.286 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 526.70 Mbit/s
95th percentile per-packet one-way delay: 113.304 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 489.70 Mbit/s
95th percentile per-packet one-way delay: 88.343 ms
Loss rate: 0.27%
Run 2: Report of TCP BBR — Data Link

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

- **Flow 1 Ingress (mean 579.32 Mbit/s)**
- **Flow 1 Egress (mean 579.00 Mbit/s)**
- **Flow 2 Ingress (mean 526.69 Mbit/s)**
- **Flow 2 Egress (mean 526.70 Mbit/s)**
- **Flow 3 Ingress (mean 491.02 Mbit/s)**
- **Flow 3 Egress (mean 489.70 Mbit/s)**

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

- **Flow 1 (95th percentile 81.29 ms)**
- **Flow 2 (95th percentile 113.30 ms)**
- **Flow 3 (95th percentile 88.34 ms)**
Run 3: Statistics of TCP BBR

Start at: 2018-10-10 16:11:00
End at: 2018-10-10 16:11:30
Local clock offset: -0.352 ms
Remote clock offset: 0.237 ms

# Below is generated by plot.py at 2018-10-10 18:16:00
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1051.93 Mbit/s
  95th percentile per-packet one-way delay: 79.324 ms
  Loss rate: 0.12%
-- Flow 1:
  Average throughput: 558.61 Mbit/s
  95th percentile per-packet one-way delay: 77.716 ms
  Loss rate: 0.04%
-- Flow 2:
  Average throughput: 500.02 Mbit/s
  95th percentile per-packet one-way delay: 80.750 ms
  Loss rate: 0.17%
-- Flow 3:
  Average throughput: 482.03 Mbit/s
  95th percentile per-packet one-way delay: 80.406 ms
  Loss rate: 0.26%
Run 3: Report of TCP BBR — Data Link
Run 4: Statistics of TCP BBR

Start at: 2018-10-10 16:42:23
End at: 2018-10-10 16:42:53
Local clock offset: -0.394 ms
Remote clock offset: 0.297 ms

# Below is generated by plot.py at 2018-10-10 18:16:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1122.71 Mbit/s
95th percentile per-packet one-way delay: 90.115 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 577.91 Mbit/s
95th percentile per-packet one-way delay: 91.595 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 560.27 Mbit/s
95th percentile per-packet one-way delay: 88.525 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 515.25 Mbit/s
95th percentile per-packet one-way delay: 89.968 ms
Loss rate: 0.08%
Run 4: Report of TCP BBR — Data Link

![Throughput Graph]

![Packet Delay Graph]
Run 5: Statistics of TCP BBR

Start at: 2018-10-10 17:13:52
End at: 2018-10-10 17:14:22
Local clock offset: 0.156 ms
Remote clock offset: -0.455 ms

# Below is generated by plot.py at 2018-10-10 18:16:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1149.33 Mbit/s
95th percentile per-packet one-way delay: 75.141 ms
Loss rate: 0.08%

-- Flow 1:
Average throughput: 588.77 Mbit/s
95th percentile per-packet one-way delay: 74.340 ms
Loss rate: 0.06%

-- Flow 2:
Average throughput: 572.43 Mbit/s
95th percentile per-packet one-way delay: 70.880 ms
Loss rate: 0.08%

-- Flow 3:
Average throughput: 539.70 Mbit/s
95th percentile per-packet one-way delay: 81.172 ms
Loss rate: 0.12%
Run 5: Report of TCP BBR — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 589.19 Mbps)  
Flow 1 egress (mean 588.77 Mbps)

Flow 2 ingress (mean 572.94 Mbps)  
Flow 2 egress (mean 572.43 Mbps)

Flow 3 ingress (mean 540.54 Mbps)  
Flow 3 egress (mean 539.79 Mbps)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 74.34 ms)  
Flow 2 (95th percentile 70.88 ms)  
Flow 3 (95th percentile 81.17 ms)
Run 1: Statistics of Copa

Start at: 2018-10-10 15:10:08
End at: 2018-10-10 15:10:38
Local clock offset: -0.054 ms
Remote clock offset: 0.021 ms

# Below is generated by plot.py at 2018-10-10 18:16:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 593.96 Mbit/s
95th percentile per-packet one-way delay: 80.277 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 287.16 Mbit/s
95th percentile per-packet one-way delay: 76.654 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 317.18 Mbit/s
95th percentile per-packet one-way delay: 80.429 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 287.33 Mbit/s
95th percentile per-packet one-way delay: 82.803 ms
Loss rate: 0.00%
Run 2: Statistics of Copa

Start at: 2018-10-10 15:41:31
End at: 2018-10-10 15:42:01
Local clock offset: -0.036 ms
Remote clock offset: 0.092 ms

# Below is generated by plot.py at 2018-10-10 18:16:13
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 617.64 Mbit/s
  95th percentile per-packet one-way delay: 71.501 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 329.33 Mbit/s
  95th percentile per-packet one-way delay: 62.287 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 313.21 Mbit/s
  95th percentile per-packet one-way delay: 80.972 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 242.80 Mbit/s
  95th percentile per-packet one-way delay: 70.660 ms
  Loss rate: 0.00%
Run 2: Report of Copa — Data Link

![Graph showing throughput over time for different flows]

- Flow 1 ingress (mean 329.43 Mbit/s)
- Flow 1 egress (mean 329.33 Mbit/s)
- Flow 2 ingress (mean 311.64 Mbit/s)
- Flow 2 egress (mean 313.21 Mbit/s)
- Flow 3 ingress (mean 242.79 Mbit/s)
- Flow 3 egress (mean 242.99 Mbit/s)

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

- Flow 1 (95th percentile 62.29 ms)
- Flow 2 (95th percentile 80.97 ms)
- Flow 3 (95th percentile 70.66 ms)
Run 3: Statistics of Copa

Start at: 2018-10-10 16:13:04
End at: 2018-10-10 16:13:34
Local clock offset: -0.073 ms
Remote clock offset: 0.683 ms

# Below is generated by plot.py at 2018-10-10 18:16:31
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 626.59 Mbit/s
  95th percentile per-packet one-way delay: 69.942 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 326.34 Mbit/s
  95th percentile per-packet one-way delay: 67.302 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 319.92 Mbit/s
  95th percentile per-packet one-way delay: 69.753 ms
  Loss rate: 0.02%
-- Flow 3:
  Average throughput: 262.23 Mbit/s
  95th percentile per-packet one-way delay: 80.953 ms
  Loss rate: 0.00%
Run 3: Report of Copa — Data Link

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

- Flow 1 ingress (mean 326.36 Mbps)
- Flow 1 egress (mean 326.34 Mbps)
- Flow 2 ingress (mean 320.04 Mbps)
- Flow 2 egress (mean 319.92 Mbps)
- Flow 3 ingress (mean 262.29 Mbps)
- Flow 3 egress (mean 262.23 Mbps)

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

- Flow 1 (95th percentile 67.30 ms)
- Flow 2 (95th percentile 69.75 ms)
- Flow 3 (95th percentile 80.95 ms)
Run 4: Statistics of Copa

Start at: 2018-10-10 16:44:28
End at: 2018-10-10 16:44:58
Local clock offset: -0.298 ms
Remote clock offset: 0.149 ms

# Below is generated by plot.py at 2018-10-10 18:32:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 631.76 Mbit/s
95th percentile per-packet one-way delay: 69.536 ms
Loss rate: 0.00%

-- Flow 1:
Average throughput: 333.59 Mbit/s
95th percentile per-packet one-way delay: 63.969 ms
Loss rate: 0.00%

-- Flow 2:
Average throughput: 337.10 Mbit/s
95th percentile per-packet one-way delay: 68.699 ms
Loss rate: 0.01%

-- Flow 3:
Average throughput: 221.41 Mbit/s
95th percentile per-packet one-way delay: 119.382 ms
Loss rate: 0.00%
Run 4: Report of Copa — Data Link

![Graph showing data link performance metrics for different flows over time.]
Run 5: Statistics of Copa

Start at: 2018-10-10 17:15:58
End at: 2018-10-10 17:16:28
Local clock offset: 0.198 ms
Remote clock offset: 0.145 ms

# Below is generated by plot.py at 2018-10-10 18:33:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 621.51 Mbit/s
95th percentile per-packet one-way delay: 68.565 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 310.24 Mbit/s
95th percentile per-packet one-way delay: 65.041 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 311.60 Mbit/s
95th percentile per-packet one-way delay: 75.726 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 312.11 Mbit/s
95th percentile per-packet one-way delay: 67.813 ms
Loss rate: 0.07%
Run 5: Report of Copa — Data Link

**Graph 1:**
- Flow 1 ingress (mean 310.24 Mbit/s)
- Flow 1 egress (mean 310.24 Mbit/s)
- Flow 2 ingress (mean 311.67 Mbit/s)
- Flow 2 egress (mean 311.60 Mbit/s)
- Flow 3 ingress (mean 312.39 Mbit/s)
- Flow 3 egress (mean 312.11 Mbit/s)

**Graph 2:**
- Flow 1 (95th percentile 65.04 ms)
- Flow 2 (95th percentile 75.73 ms)
- Flow 3 (95th percentile 67.81 ms)
Run 1: Statistics of TCP Cubic

Start at: 2018-10-10 15:29:30
End at: 2018-10-10 15:30:00
Local clock offset: −0.066 ms
Remote clock offset: 0.025 ms

# Below is generated by plot.py at 2018-10-10 18:33:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 962.51 Mbit/s
95th percentile per-packet one-way delay: 84.859 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 494.61 Mbit/s
95th percentile per-packet one-way delay: 83.173 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 452.23 Mbit/s
95th percentile per-packet one-way delay: 75.121 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 502.72 Mbit/s
95th percentile per-packet one-way delay: 86.745 ms
Loss rate: 0.01%
Run 1: Report of TCP Cubic — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 494.62 Mbit/s) • Flow 1 egress (mean 494.61 Mbit/s)
Flow 2 ingress (mean 452.23 Mbit/s) • Flow 2 egress (mean 452.23 Mbit/s)
Flow 3 ingress (mean 502.79 Mbit/s) • Flow 3 egress (mean 502.72 Mbit/s)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 83.17 ms) • Flow 2 (95th percentile 75.12 ms) • Flow 3 (95th percentile 86.75 ms)
Run 2: Statistics of TCP Cubic

Start at: 2018-10-10 16:00:54
End at: 2018-10-10 16:01:24
Local clock offset: -0.182 ms
Remote clock offset: 0.145 ms

# Below is generated by plot.py at 2018-10-10 18:33:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1138.09 Mbit/s
95th percentile per-packet one-way delay: 86.718 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 598.39 Mbit/s
95th percentile per-packet one-way delay: 86.528 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 554.46 Mbit/s
95th percentile per-packet one-way delay: 90.849 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 512.76 Mbit/s
95th percentile per-packet one-way delay: 81.505 ms
Loss rate: 0.04%
Run 2: Report of TCP Cubic — Data Link
Run 3: Statistics of TCP Cubic

Start at: 2018-10-10 16:32:26
End at: 2018-10-10 16:32:56
Local clock offset: -0.199 ms
Remote clock offset: 0.064 ms

# Below is generated by plot.py at 2018-10-10 18:33:34
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1064.39 Mbit/s
  95th percentile per-packet one-way delay: 75.672 ms
  Loss rate: 0.02%
-- Flow 1:
  Average throughput: 560.73 Mbit/s
  95th percentile per-packet one-way delay: 74.821 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 515.41 Mbit/s
  95th percentile per-packet one-way delay: 72.562 ms
  Loss rate: 0.05%
-- Flow 3:
  Average throughput: 482.99 Mbit/s
  95th percentile per-packet one-way delay: 78.335 ms
  Loss rate: 0.02%
Run 3: Report of TCP Cubic — Data Link

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

- **Flow 1** (ingress: mean 560.73 Mbit/s, egress: mean 560.73 Mbit/s)
- **Flow 2** (ingress: mean 515.77 Mbit/s, egress: mean 515.41 Mbit/s)
- **Flow 3** (ingress: mean 483.07 Mbit/s, egress: mean 482.99 Mbit/s)

- **Flow 1** 95th percentile: 74.92 ms
- **Flow 2** 95th percentile: 72.56 ms
- **Flow 3** 95th percentile: 78.33 ms
Run 4: Statistics of TCP Cubic

Start at: 2018-10-10 17:03:49
End at: 2018-10-10 17:04:19
Local clock offset: 0.042 ms
Remote clock offset: -0.17 ms

# Below is generated by plot.py at 2018-10-10 18:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1144.72 Mbit/s
95th percentile per-packet one-way delay: 72.212 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 614.93 Mbit/s
95th percentile per-packet one-way delay: 71.604 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 576.01 Mbit/s
95th percentile per-packet one-way delay: 74.752 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 439.89 Mbit/s
95th percentile per-packet one-way delay: 67.336 ms
Loss rate: 0.00%
Run 4: Report of TCP Cubic — Data Link

![Graph showing throughput and per-packet one-way delay over time](image_url)

- Flow 1 ingress (mean 615.17 Mbit/s)
- Flow 1 egress (mean 614.93 Mbit/s)
- Flow 2 ingress (mean 576.03 Mbit/s)
- Flow 2 egress (mean 576.01 Mbit/s)
- Flow 3 ingress (mean 439.96 Mbit/s)
- Flow 3 egress (mean 439.99 Mbit/s)
Run 5: Statistics of TCP Cubic

Start at: 2018-10-10 17:35:09
End at: 2018-10-10 17:35:39
Local clock offset: -0.148 ms
Remote clock offset: -0.154 ms

# Below is generated by plot.py at 2018-10-10 18:34:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1149.05 Mbit/s
95th percentile per-packet one-way delay: 82.727 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 602.49 Mbit/s
95th percentile per-packet one-way delay: 83.449 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 574.87 Mbit/s
95th percentile per-packet one-way delay: 77.904 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 492.49 Mbit/s
95th percentile per-packet one-way delay: 84.347 ms
Loss rate: 0.37%
Run 5: Report of TCP Cubic — Data Link
Run 1: Statistics of FillP

Start at: 2018-10-10 15:22:31
End at: 2018-10-10 15:23:01
Local clock offset: -0.063 ms
Remote clock offset: -0.547 ms

# Below is generated by plot.py at 2018-10-10 18:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1393.67 Mbit/s
95th percentile per-packet one-way delay: 101.381 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 733.04 Mbit/s
95th percentile per-packet one-way delay: 113.954 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 685.78 Mbit/s
95th percentile per-packet one-way delay: 80.366 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 604.08 Mbit/s
95th percentile per-packet one-way delay: 81.644 ms
Loss rate: 0.11%
Run 1: Report of FillP — Data Link

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

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

Start at: 2018-10-10 15:53:52
End at: 2018-10-10 15:54:22
Local clock offset: 0.003 ms
Remote clock offset: -0.745 ms

# Below is generated by plot.py at 2018-10-10 18:57:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1344.58 Mbit/s
95th percentile per-packet one-way delay: 91.797 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 746.58 Mbit/s
95th percentile per-packet one-way delay: 95.048 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 651.73 Mbit/s
95th percentile per-packet one-way delay: 89.910 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 497.63 Mbit/s
95th percentile per-packet one-way delay: 57.682 ms
Loss rate: 0.00%
Run 2: Report of FillP — Data Link
Run 3: Statistics of FillP

Start at: 2018-10-10 16:25:30
End at: 2018-10-10 16:26:00
Local clock offset: -0.125 ms
Remote clock offset: 1.323 ms

# Below is generated by plot.py at 2018-10-10 19:00:28
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1390.01 Mbit/s
  95th percentile per-packet one-way delay: 107.084 ms
  Loss rate: 0.22%
-- Flow 1:
  Average throughput: 751.30 Mbit/s
  95th percentile per-packet one-way delay: 107.174 ms
  Loss rate: 0.19%
-- Flow 2:
  Average throughput: 683.51 Mbit/s
  95th percentile per-packet one-way delay: 105.511 ms
  Loss rate: 0.31%
-- Flow 3:
  Average throughput: 552.72 Mbit/s
  95th percentile per-packet one-way delay: 108.983 ms
  Loss rate: 0.09%
Run 3: Report of FillP — Data Link

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

- **Flow 1 Ingress** (mean 752.79 Mbps)
- **Flow 1 Egress** (mean 731.30 Mbps)
- **Flow 2 Ingress** (mean 685.61 Mbps)
- **Flow 2 Egress** (mean 683.51 Mbps)
- **Flow 3 Ingress** (mean 553.24 Mbps)
- **Flow 3 Egress** (mean 552.72 Mbps)

![Graph 2: Per-Packet Delay vs Time](image)

- **Flow 1** (95th percentile 107.17 ms)
- **Flow 2** (95th percentile 105.51 ms)
- **Flow 3** (95th percentile 108.99 ms)
Run 4: Statistics of FillP

Start at: 2018-10-10 16:56:50
End at: 2018-10-10 16:57:20
Local clock offset: -0.063 ms
Remote clock offset: 0.732 ms

# Below is generated by plot.py at 2018-10-10 19:02:05
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1439.98 Mbit/s
  95th percentile per-packet one-way delay: 99.796 ms
  Loss rate: 0.11%
-- Flow 1:
  Average throughput: 779.09 Mbit/s
  95th percentile per-packet one-way delay: 100.330 ms
  Loss rate: 0.06%
-- Flow 2:
  Average throughput: 717.43 Mbit/s
  95th percentile per-packet one-way delay: 101.936 ms
  Loss rate: 0.22%
-- Flow 3:
  Average throughput: 555.15 Mbit/s
  95th percentile per-packet one-way delay: 57.389 ms
  Loss rate: 0.00%
Run 4: Report of FillP — Data Link

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

- Flow 1 ingress (mean 779.57 Mbps/s)
- Flow 1 egress (mean 779.99 Mbps/s)
- Flow 2 ingress (mean 719.10 Mbps/s)
- Flow 2 egress (mean 717.43 Mbps/s)
- Flow 3 ingress (mean 555.15 Mbps/s)
- Flow 3 egress (mean 555.15 Mbps/s)

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

- Flow 1 (95th percentile 100.33 ms)
- Flow 2 (95th percentile 101.94 ms)
- Flow 3 (95th percentile 57.39 ms)
Run 5: Statistics of FillP

Start at: 2018-10-10 17:28:11
End at: 2018-10-10 17:28:41
Local clock offset: 0.182 ms
Remote clock offset: 1.125 ms

# Below is generated by plot.py at 2018-10-10 19:02:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1345.89 Mbit/s
95th percentile per-packet one-way delay: 97.639 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 737.70 Mbit/s
95th percentile per-packet one-way delay: 104.297 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 630.11 Mbit/s
95th percentile per-packet one-way delay: 74.510 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 566.37 Mbit/s
95th percentile per-packet one-way delay: 56.207 ms
Loss rate: 0.00%
Run 5: Report of FillP — Data Link

![Graph of Throughput and Delay]

Legend:
- Flow 1 Ingress (mean 737.92 Mbps)
- Flow 1 Egress (mean 737.70 Mbps)
- Flow 2 Ingress (mean 631.46 Mbps)
- Flow 2 Egress (mean 630.11 Mbps)
- Flow 3 Ingress (mean 566.38 Mbps)
- Flow 3 Egress (mean 566.37 Mbps)

![Graph of Per-Packet End-to-End Delay]

Legend:
- Flow 1 (95th percentile 104.30 ms)
- Flow 2 (95th percentile 74.51 ms)
- Flow 3 (95th percentile 56.21 ms)
Run 1: Statistics of Indigo

Start at: 2018-10-10 15:20:40
End at: 2018-10-10 15:21:10
Local clock offset: 0.021 ms
Remote clock offset: 0.398 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 430.19 Mbit/s
  95th percentile per-packet one-way delay: 54.869 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 234.76 Mbit/s
  95th percentile per-packet one-way delay: 54.087 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 200.99 Mbit/s
  95th percentile per-packet one-way delay: 56.097 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 190.97 Mbit/s
  95th percentile per-packet one-way delay: 52.103 ms
  Loss rate: 0.00%
Run 1: Report of Indigo — Data Link

Throughput (Mb/s)

Time (s)

Flow 1 ingress (mean 234.76 Mb/s)
Flow 1 egress (mean 234.76 Mb/s)
Flow 2 ingress (mean 201.00 Mb/s)
Flow 2 egress (mean 200.99 Mb/s)
Flow 3 ingress (mean 190.07 Mb/s)
Flow 3 egress (mean 190.07 Mb/s)

Packet error rate (Mb/s)

Time (s)

Flow 1 (95th percentile 54.09 ms)
Flow 2 (95th percentile 56.10 ms)
Flow 3 (95th percentile 52.10 ms)
Run 2: Statistics of Indigo

Start at: 2018-10-10 15:52:04
End at: 2018-10-10 15:52:34
Local clock offset: -0.124 ms
Remote clock offset: 0.57 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
平均吞吐量: 418.20 Mbit/s
95th percentile per-packet one-way delay: 55.111 ms
Loss rate: 0.00%
-- Flow 1:
平均吞吐量: 224.96 Mbit/s
95th percentile per-packet one-way delay: 54.704 ms
Loss rate: 0.00%
-- Flow 2:
平均吞吐量: 203.42 Mbit/s
95th percentile per-packet one-way delay: 55.487 ms
Loss rate: 0.00%
-- Flow 3:
平均吞吐量: 179.66 Mbit/s
95th percentile per-packet one-way delay: 55.341 ms
Loss rate: 0.00%
Run 2: Report of Indigo — Data Link

![Graph showing throughput and packet drop rate over time for different flows. The graphs display the performance metrics for each flow, indicating their ingress and egress speeds and packet delay.]
Run 3: Statistics of Indigo

Start at: 2018-10-10 16:23:40
End at: 2018-10-10 16:24:10
Local clock offset: -0.022 ms
Remote clock offset: 0.211 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 436.69 Mbit/s
95th percentile per-packet one-way delay: 54.748 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 237.26 Mbit/s
95th percentile per-packet one-way delay: 54.548 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 216.22 Mbit/s
95th percentile per-packet one-way delay: 54.891 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 172.37 Mbit/s
95th percentile per-packet one-way delay: 55.016 ms
Loss rate: 0.00%
Run 3: Report of Indigo — Data Link
Run 4: Statistics of Indigo

Start at: 2018-10-10 16:55:00
End at: 2018-10-10 16:55:30
Local clock offset: -0.066 ms
Remote clock offset: -1.235 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 441.13 Mbit/s
95th percentile per-packet one-way delay: 53.686 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 240.56 Mbit/s
95th percentile per-packet one-way delay: 53.539 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 214.62 Mbit/s
95th percentile per-packet one-way delay: 54.098 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 180.91 Mbit/s
95th percentile per-packet one-way delay: 53.283 ms
Loss rate: 0.00%
Run 4: Report of Indigo — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 240.56 Mbps)
  - Flow 1 egress (mean 240.56 Mbps)
  - Flow 2 ingress (mean 214.64 Mbps)
  - Flow 2 egress (mean 214.62 Mbps)
  - Flow 3 ingress (mean 180.91 Mbps)
  - Flow 3 egress (mean 180.91 Mbps)

- **Per-packet end-to-end delay (ms):**
  - Flow 1 (95th percentile 53.54 ms)
  - Flow 2 (95th percentile 54.10 ms)
  - Flow 3 (95th percentile 53.28 ms)
Run 5: Statistics of Indigo

Start at: 2018-10-10 17:26:24
End at: 2018-10-10 17:26:54
Local clock offset: -0.001 ms
Remote clock offset: -0.716 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 393.41 Mbit/s
95th percentile per-packet one-way delay: 52.657 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 205.15 Mbit/s
95th percentile per-packet one-way delay: 50.283 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 194.43 Mbit/s
95th percentile per-packet one-way delay: 53.255 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 182.62 Mbit/s
95th percentile per-packet one-way delay: 50.026 ms
Loss rate: 0.00%
Run 5: Report of Indigo — Data Link

![Graph showing throughput over time for different flows]

![Graph showing per-packet loss and delay over time for different flows]

Legend:
- Flow 1 ingress (mean 205.15 Mbit/s)
- Flow 1 egress (mean 205.15 Mbit/s)
- Flow 2 ingress (mean 194.42 Mbit/s)
- Flow 2 egress (mean 194.43 Mbit/s)
- Flow 3 ingress (mean 182.81 Mbit/s)
- Flow 3 egress (mean 182.62 Mbit/s)
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-10 15:24:35
End at: 2018-10-10 15:25:05
Local clock offset: -0.001 ms
Remote clock offset: -1.136 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 533.17 Mbit/s
95th percentile per-packet one-way delay: 73.652 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 281.75 Mbit/s
95th percentile per-packet one-way delay: 72.879 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 261.95 Mbit/s
95th percentile per-packet one-way delay: 76.194 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 238.87 Mbit/s
95th percentile per-packet one-way delay: 68.762 ms
Loss rate: 0.00%
Run 1: Report of Indigo-96d2da3 — Data Link

---

**Graph 1:**
Throughput (Mbps) vs. Time (s)

- **Flow 1 ingress** (mean 281.75 Mbps)
- **Flow 1 egress** (mean 281.75 Mbps)
- **Flow 2 ingress** (mean 262.03 Mbps)
- **Flow 2 egress** (mean 261.95 Mbps)
- **Flow 3 ingress** (mean 238.88 Mbps)
- **Flow 3 egress** (mean 238.87 Mbps)

---

**Graph 2:**
Per-packet round-trip delay (ms) vs. Time (s)

- **Flow 1 (95th percentile 72.88 ms)**
- **Flow 2 (95th percentile 76.19 ms)**
- **Flow 3 (95th percentile 68.76 ms)**

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Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-10 15:55:57
End at: 2018-10-10 15:56:27
Local clock offset: -0.142 ms
Remote clock offset: -0.106 ms

# Below is generated by plot.py at 2018-10-10 19:02:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 549.55 Mbit/s
95th percentile per-packet one-way delay: 77.066 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 287.18 Mbit/s
95th percentile per-packet one-way delay: 75.950 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 281.57 Mbit/s
95th percentile per-packet one-way delay: 81.979 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 232.55 Mbit/s
95th percentile per-packet one-way delay: 72.309 ms
Loss rate: 0.00%
Run 2: Report of Indigo-96d2da3 — Data Link

---

**Graph 1:**
Throughput (Mbps)

- **Flow 1 ingress (mean 287.25 Mbps)**
- **Flow 1 egress (mean 287.18 Mbps)**
- **Flow 2 ingress (mean 281.66 Mbps)**
- **Flow 2 egress (mean 281.57 Mbps)**
- **Flow 3 ingress (mean 232.57 Mbps)**
- **Flow 3 egress (mean 232.55 Mbps)**

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

- **Flow 1 (95th percentile 75.95 ms)**
- **Flow 2 (95th percentile 81.98 ms)**
- **Flow 3 (95th percentile 72.31 ms)**

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Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-10 16:27:37
End at: 2018-10-10 16:28:07
Local clock offset: -0.198 ms
Remote clock offset: 0.086 ms

# Below is generated by plot.py at 2018-10-10 19:05:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 546.13 Mbit/s
95th percentile per-packet one-way delay: 77.657 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 285.91 Mbit/s
95th percentile per-packet one-way delay: 79.760 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 269.90 Mbit/s
95th percentile per-packet one-way delay: 81.252 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 248.34 Mbit/s
95th percentile per-packet one-way delay: 63.935 ms
Loss rate: 0.24%
Run 3: Report of Indigo-96d2da3 — Data Link

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

- **Flow 1 ingress (mean 285.96 Mbit/s)**
- **Flow 1 egress (mean 285.91 Mbit/s)**
- **Flow 2 ingress (mean 270.12 Mbit/s)**
- **Flow 2 egress (mean 269.90 Mbit/s)**
- **Flow 3 ingress (mean 249.04 Mbit/s)**
- **Flow 3 egress (mean 248.34 Mbit/s)**

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

- **Flow 1 (95th percentile 79.76 ms)**
- **Flow 2 (95th percentile 81.25 ms)**
- **Flow 3 (95th percentile 63.94 ms)**

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Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-10 16:58:59
End at: 2018-10-10 16:59:29
Local clock offset: -0.052 ms
Remote clock offset: -1.343 ms

# Below is generated by plot.py at 2018-10-10 19:06:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 550.18 Mbit/s
95th percentile per-packet one-way delay: 80.981 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 285.58 Mbit/s
95th percentile per-packet one-way delay: 81.498 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 277.71 Mbit/s
95th percentile per-packet one-way delay: 80.750 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 245.22 Mbit/s
95th percentile per-packet one-way delay: 77.717 ms
Loss rate: 0.00%
Run 4: Report of Indigo-96d2da3 — Data Link

![Graph showing throughput and packet delay over time for different flows.]
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-10 17:30:15
End at: 2018-10-10 17:30:45
Local clock offset: 0.049 ms
Remote clock offset: 1.442 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 551.09 Mbit/s
95th percentile per-packet one-way delay: 79.749 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 303.10 Mbit/s
95th percentile per-packet one-way delay: 82.842 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 262.26 Mbit/s
95th percentile per-packet one-way delay: 76.548 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 226.70 Mbit/s
95th percentile per-packet one-way delay: 78.435 ms
Loss rate: 0.00%
Run 5: Report of Indigo-96d2da3 — Data Link

The graphs show the throughput and packet interarrival delay over time for three flows (1, 2, and 3). The throughput is measured in Mbps, and the packet interarrival delay is measured in milliseconds (ms).

- Flow 1 ingress (mean 303.30 Mbps)
- Flow 1 egress (mean 303.10 Mbps)
- Flow 2 ingress (mean 262.31 Mbps)
- Flow 2 egress (mean 262.26 Mbps)
- Flow 3 ingress (mean 226.69 Mbps)
- Flow 3 egress (mean 226.70 Mbps)

The graphs indicate variations in throughput and packet interarrival delay across different time intervals.
Run 1: Statistics of LEDBAT

Start at: 2018-10-10 15:15:23
End at: 2018-10-10 15:15:53
Local clock offset: -0.164 ms
Remote clock offset: 0.055 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.13 Mbit/s
95th percentile per-packet one-way delay: 54.311 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.29 Mbit/s
95th percentile per-packet one-way delay: 54.079 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 23.04 Mbit/s
95th percentile per-packet one-way delay: 54.405 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.70 Mbit/s
95th percentile per-packet one-way delay: 54.501 ms
Loss rate: 0.00%
Run 1: Report of LEDBAT — Data Link

![Throughput Graph]

![Packet Delay Graph]
Run 2: Statistics of LEDBAT

Start at: 2018-10-10 15:46:52
End at: 2018-10-10 15:47:22
Local clock offset: -0.279 ms
Remote clock offset: 0.386 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.10 Mbit/s
95th percentile per-packet one-way delay: 54.805 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.68 Mbit/s
95th percentile per-packet one-way delay: 54.942 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.65 Mbit/s
95th percentile per-packet one-way delay: 54.527 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.19 Mbit/s
95th percentile per-packet one-way delay: 50.922 ms
Loss rate: 0.00%
Run 2: Report of LEDBAT — Data Link

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

- **Flow 1:** Ingress (mean 34.68 Mb/s), Egress (mean 34.68 Mb/s)
- **Flow 2:** Ingress (mean 21.65 Mb/s), Egress (mean 21.65 Mb/s)
- **Flow 3:** Ingress (mean 12.19 Mb/s), Egress (mean 12.19 Mb/s)

![Graph showing packet delay distribution over time for different flows.]

- **Flow 1:** 95th percentile 54.94 ms
- **Flow 2:** 95th percentile 54.53 ms
- **Flow 3:** 95th percentile 50.92 ms
Run 3: Statistics of LEDBAT

Start at: 2018-10-10 16:18:25
End at: 2018-10-10 16:18:55
Local clock offset: -0.234 ms
Remote clock offset: 0.817 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.70 Mbit/s
95th percentile per-packet one-way delay: 54.743 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 36.41 Mbit/s
95th percentile per-packet one-way delay: 52.313 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.85 Mbit/s
95th percentile per-packet one-way delay: 55.273 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.39 Mbit/s
95th percentile per-packet one-way delay: 51.970 ms
Loss rate: 0.00%
Run 3: Report of LEDBAT — Data Link

The graphs show the throughput (top) and per-packet one-way delay (bottom) over time for different flows.


- **Bottom Graph**: Shows per-packet one-way delay for Flow 1 (95th percentile: 52.31 ms), Flow 2 (95th percentile: 55.27 ms), and Flow 3 (95th percentile: 51.97 ms).

![Graphs showing throughput and per-packet one-way delay for different flows.]
Run 4: Statistics of LEDBAT

Start at: 2018-10-10 16:49:49
End at: 2018-10-10 16:50:19
Local clock offset: 0.094 ms
Remote clock offset: 0.052 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.89 Mbit/s
95th percentile per-packet one-way delay: 53.475 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.06 Mbit/s
95th percentile per-packet one-way delay: 51.555 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.53 Mbit/s
95th percentile per-packet one-way delay: 50.880 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.73 Mbit/s
95th percentile per-packet one-way delay: 54.054 ms
Loss rate: 0.00%
Run 4: Report of LEDBAT — Data Link

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

- **Flow 1 ingress (mean 34.06 Mbit/s)**
- **Flow 1 egress (mean 34.06 Mbit/s)**
- **Flow 2 ingress (mean 24.33 Mbit/s)**
- **Flow 2 egress (mean 24.33 Mbit/s)**
- **Flow 3 ingress (mean 10.73 Mbit/s)**
- **Flow 3 egress (mean 10.73 Mbit/s)**

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

- **Flow 1 (95th percentile 51.55 ms)**
- **Flow 2 (95th percentile 50.88 ms)**
- **Flow 3 (95th percentile 54.05 ms)**
Run 5: Statistics of LEDBAT

Start at: 2018-10-10 17:21:19
End at: 2018-10-10 17:21:49
Local clock offset: 0.078 ms
Remote clock offset: 0.183 ms

# Below is generated by plot.py at 2018-10-10 19:06:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 56.78 Mbit/s
95th percentile per-packet one-way delay: 51.693 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 36.73 Mbit/s
95th percentile per-packet one-way delay: 51.772 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.42 Mbit/s
95th percentile per-packet one-way delay: 51.568 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.42 Mbit/s
95th percentile per-packet one-way delay: 50.995 ms
Loss rate: 0.00%
Run 5: Report of LEDBAT — Data Link

![Throughput Graph](image1)

![Packet Loss Graph](image2)

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Run 1: Statistics of Indigo-Muses

Start at: 2018-10-10 15:12:12
End at: 2018-10-10 15:12:42
Local clock offset: -0.008 ms
Remote clock offset: -1.285 ms

# Below is generated by plot.py at 2018-10-10 19:17:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1043.11 Mbit/s
95th percentile per-packet one-way delay: 78.094 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 497.75 Mbit/s
95th percentile per-packet one-way delay: 87.492 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 584.41 Mbit/s
95th percentile per-packet one-way delay: 64.577 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 483.27 Mbit/s
95th percentile per-packet one-way delay: 69.898 ms
Loss rate: 0.00%
Run 1: Report of Indigo-Muses — Data Link
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-10 15:43:38
End at: 2018-10-10 15:44:08
Local clock offset: -0.21 ms
Remote clock offset: 0.41 ms

# Below is generated by plot.py at 2018-10-10 19:18:42
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1120.99 Mbit/s
  95th percentile per-packet one-way delay: 73.965 ms
  Loss rate: 0.01%
-- Flow 1:
  Average throughput: 614.38 Mbit/s
  95th percentile per-packet one-way delay: 77.913 ms
  Loss rate: 0.02%
-- Flow 2:
  Average throughput: 553.42 Mbit/s
  95th percentile per-packet one-way delay: 70.303 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 427.51 Mbit/s
  95th percentile per-packet one-way delay: 63.703 ms
  Loss rate: 0.04%
Run 2: Report of Indigo-Muses — Data Link

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

- **Flow 1 ingress (mean 614.46 Mbit/s)**
- **Flow 1 egress (mean 614.38 Mbit/s)**
- **Flow 2 ingress (mean 553.42 Mbit/s)**
- **Flow 2 egress (mean 553.42 Mbit/s)**
- **Flow 3 ingress (mean 427.82 Mbit/s)**
- **Flow 3 egress (mean 427.51 Mbit/s)**
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-10 16:15:12
End at: 2018-10-10 16:15:42
Local clock offset: -0.329 ms
Remote clock offset: -0.948 ms

# Below is generated by plot.py at 2018-10-10 19:18:58
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1092.56 Mbit/s
  95th percentile per-packet one-way delay: 76.978 ms
  Loss rate: 0.04%
-- Flow 1:
  Average throughput: 599.99 Mbit/s
  95th percentile per-packet one-way delay: 79.151 ms
  Loss rate: 0.02%
-- Flow 2:
  Average throughput: 516.20 Mbit/s
  95th percentile per-packet one-way delay: 71.291 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 456.84 Mbit/s
  95th percentile per-packet one-way delay: 83.788 ms
  Loss rate: 0.22%
Run 3: Report of Indigo-Muses — Data Link
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-10 16:46:36
End at: 2018-10-10 16:47:06
Local clock offset: 0.006 ms
Remote clock offset: 0.132 ms

# Below is generated by plot.py at 2018-10-10 19:18:58
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1077.02 Mbit/s
  95th percentile per-packet one-way delay: 71.655 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 580.81 Mbit/s
  95th percentile per-packet one-way delay: 74.192 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 525.21 Mbit/s
  95th percentile per-packet one-way delay: 69.773 ms
  Loss rate: 0.01%
-- Flow 3:
  Average throughput: 450.53 Mbit/s
  95th percentile per-packet one-way delay: 66.899 ms
  Loss rate: 0.00%
Run 4: Report of Indigo-Muses — Data Link
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-10 17:18:05
End at: 2018-10-10 17:18:35
Local clock offset: 0.114 ms
Remote clock offset: 0.158 ms

# Below is generated by plot.py at 2018-10-10 19:19:13
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1084.83 Mbit/s
  95th percentile per-packet one-way delay: 70.325 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 592.40 Mbit/s
  95th percentile per-packet one-way delay: 70.052 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 521.96 Mbit/s
  95th percentile per-packet one-way delay: 73.677 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 444.71 Mbit/s
  95th percentile per-packet one-way delay: 61.247 ms
  Loss rate: 0.00%
Run 5: Report of Indigo-Muses — Data Link

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

- **Flow 1 ingress (mean 592.40 Mbit/s)**
- **Flow 1 egress (mean 592.40 Mbit/s)**
- **Flow 2 ingress (mean 521.96 Mbit/s)**
- **Flow 2 egress (mean 521.96 Mbit/s)**
- **Flow 3 ingress (mean 444.71 Mbit/s)**
- **Flow 3 egress (mean 444.71 Mbit/s)**

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

- **Flow 1 (95th percentile 70.05 ms)**
- **Flow 2 (95th percentile 73.68 ms)**
- **Flow 3 (95th percentile 61.25 ms)**
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-10 15:27:23
End at: 2018-10-10 15:27:53
Local clock offset: -0.075 ms
Remote clock offset: -0.004 ms

# Below is generated by plot.py at 2018-10-10 19:32:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 868.98 Mbit/s
95th percentile per-packet one-way delay: 190.123 ms
Loss rate: 6.53%
-- Flow 1:
Average throughput: 447.66 Mbit/s
95th percentile per-packet one-way delay: 190.710 ms
Loss rate: 5.93%
-- Flow 2:
Average throughput: 440.95 Mbit/s
95th percentile per-packet one-way delay: 190.890 ms
Loss rate: 8.16%
-- Flow 3:
Average throughput: 387.25 Mbit/s
95th percentile per-packet one-way delay: 159.337 ms
Loss rate: 4.75%
Run 1: Report of PCC-Allegro — Data Link
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-10 15:58:45
End at: 2018-10-10 15:59:15
Local clock offset: -0.244 ms
Remote clock offset: -0.4 ms

# Below is generated by plot.py at 2018-10-10 19:34:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 902.29 Mbit/s
95th percentile per-packet one-way delay: 179.109 ms
Loss rate: 4.85%
-- Flow 1:
Average throughput: 474.05 Mbit/s
95th percentile per-packet one-way delay: 175.998 ms
Loss rate: 3.28%
-- Flow 2:
Average throughput: 454.92 Mbit/s
95th percentile per-packet one-way delay: 176.781 ms
Loss rate: 3.92%
-- Flow 3:
Average throughput: 386.72 Mbit/s
95th percentile per-packet one-way delay: 188.826 ms
Loss rate: 12.27%
Run 2: Report of PCC-Allegro — Data Link

![Graph 1: Throughput vs Time (Mbps)]
- Flow 1 ingress (mean 490.13 Mbps)
- Flow 1 egress (mean 474.05 Mbps)
- Flow 2 ingress (mean 473.54 Mbps)
- Flow 2 egress (mean 454.92 Mbps)
- Flow 3 ingress (mean 440.81 Mbps)
- Flow 3 egress (mean 386.72 Mbps)

![Graph 2: Per-packet one-way delay (ms)]
- Flow 1 (95th percentile 176.00 ms)
- Flow 2 (95th percentile 176.78 ms)
- Flow 3 (95th percentile 188.83 ms)
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-10 16:30:25
End at: 2018-10-10 16:30:55
Local clock offset: -0.142 ms
Remote clock offset: 0.102 ms

# Below is generated by plot.py at 2018-10-10 19:34:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 783.87 Mbit/s
95th percentile per-packet one-way delay: 194.063 ms
Loss rate: 4.68%
-- Flow 1:
Average throughput: 474.17 Mbit/s
95th percentile per-packet one-way delay: 163.208 ms
Loss rate: 5.07%
-- Flow 2:
Average throughput: 328.20 Mbit/s
95th percentile per-packet one-way delay: 225.196 ms
Loss rate: 4.39%
-- Flow 3:
Average throughput: 278.22 Mbit/s
95th percentile per-packet one-way delay: 209.175 ms
Loss rate: 3.32%
Run 3: Report of PCC-Allegro — Data Link

![Graphs showing data link throughput and per-packet one-way delay over time for different flows.]
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-10 17:01:47
End at: 2018-10-10 17:02:17
Local clock offset: 0.107 ms
Remote clock offset: -0.307 ms

# Below is generated by plot.py at 2018-10-10 19:42:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 795.19 Mbit/s
95th percentile per-packet one-way delay: 193.812 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 495.07 Mbit/s
95th percentile per-packet one-way delay: 149.881 ms
Loss rate: 0.97%
-- Flow 2:
Average throughput: 330.48 Mbit/s
95th percentile per-packet one-way delay: 205.134 ms
Loss rate: 2.27%
-- Flow 3:
Average throughput: 243.87 Mbit/s
95th percentile per-packet one-way delay: 163.066 ms
Loss rate: 0.04%
Run 4: Report of PCC-Allegro — Data Link

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

- Flow 1 ingress (mean 499.98 Mbit/s)
- Flow 1 egress (mean 495.07 Mbit/s)
- Flow 2 ingress (mean 338.24 Mbit/s)
- Flow 2 egress (mean 330.48 Mbit/s)
- Flow 3 ingress (mean 243.98 Mbit/s)
- Flow 3 egress (mean 243.87 Mbit/s)
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-10 17:33:04
End at: 2018-10-10 17:33:34
Local clock offset: 0.105 ms
Remote clock offset: -0.18 ms

# Below is generated by plot.py at 2018-10-10 19:46:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 849.46 Mbit/s
95th percentile per-packet one-way delay: 187.756 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 452.42 Mbit/s
95th percentile per-packet one-way delay: 181.864 ms
Loss rate: 2.55%
-- Flow 2:
Average throughput: 433.64 Mbit/s
95th percentile per-packet one-way delay: 196.545 ms
Loss rate: 5.36%
-- Flow 3:
Average throughput: 330.48 Mbit/s
95th percentile per-packet one-way delay: 114.854 ms
Loss rate: 1.16%
Run 5: Report of PCC-Allegro — Data Link

![Graph of network throughput and delay over time]

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 464.26 Mbps) — Flow 1 egress (mean 452.42 Mbps)
Flow 2 ingress (mean 458.25 Mbps) — Flow 2 egress (mean 433.64 Mbps)
Flow 3 ingress (mean 334.30 Mbps) — Flow 3 egress (mean 330.48 Mbps)

Per packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 181.86 ms) — Flow 2 (95th percentile 196.54 ms) — Flow 3 (95th percentile 114.85 ms)
Run 1: Statistics of PCC-Expr

Start at: 2018-10-10 15:03:39
End at: 2018-10-10 15:04:09
Local clock offset: -0.033 ms
Remote clock offset: 0.212 ms

# Below is generated by plot.py at 2018-10-10 19:46:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 517.36 Mbit/s
95th percentile per-packet one-way delay: 129.814 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 297.89 Mbit/s
95th percentile per-packet one-way delay: 139.975 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 282.89 Mbit/s
95th percentile per-packet one-way delay: 54.837 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 93.56 Mbit/s
95th percentile per-packet one-way delay: 54.285 ms
Loss rate: 0.00%
Run 1: Report of PCC-Expr — Data Link
Run 2: Statistics of PCC-Expr

Start at: 2018-10-10 15:34:56
End at: 2018-10-10 15:35:26
Local clock offset: -0.17 ms
Remote clock offset: 0.042 ms

# Below is generated by plot.py at 2018-10-10 19:46:25
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 572.97 Mbit/s
  95th percentile per-packet one-way delay: 155.065 ms
  Loss rate: 5.49%
-- Flow 1:
  Average throughput: 366.29 Mbit/s
  95th percentile per-packet one-way delay: 157.053 ms
  Loss rate: 8.19%
-- Flow 2:
  Average throughput: 274.60 Mbit/s
  95th percentile per-packet one-way delay: 110.037 ms
  Loss rate: 0.34%
-- Flow 3:
  Average throughput: 72.97 Mbit/s
  95th percentile per-packet one-way delay: 53.769 ms
  Loss rate: 0.00%
Run 2: Report of PCC-Expr — Data Link

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

- Flow 1 ingress (mean 399.02 Mbit/s)
- Flow 1 egress (mean 366.29 Mbit/s)
- Flow 2 ingress (mean 275.55 Mbit/s)
- Flow 2 egress (mean 274.60 Mbit/s)
- Flow 3 ingress (mean 72.97 Mbit/s)
- Flow 3 egress (mean 72.97 Mbit/s)
Run 3: Statistics of PCC-Expr

Start at: 2018-10-10 16:06:32
End at: 2018-10-10 16:07:02
Local clock offset: ~0.236 ms
Remote clock offset: 0.167 ms

# Below is generated by plot.py at 2018-10-10 19:46:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 548.40 Mbit/s
95th percentile per-packet one-way delay: 152.488 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 319.79 Mbit/s
95th percentile per-packet one-way delay: 79.295 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 295.86 Mbit/s
95th percentile per-packet one-way delay: 160.099 ms
Loss rate: 1.92%
-- Flow 3:
Average throughput: 97.01 Mbit/s
95th percentile per-packet one-way delay: 169.396 ms
Loss rate: 8.86%
Run 3: Report of PCC-Expr — Data Link

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

- **Flow 1**:
  - Ingress: Mean 320.33 Mbit/s
  - Egress: Mean 319.79 Mbit/s
- **Flow 2**:
  - Ingress: Mean 291.76 Mbit/s
  - Egress: Mean 295.86 Mbit/s
- **Flow 3**:
  - Ingress: Mean 196.50 Mbit/s
  - Egress: Mean 97.01 Mbit/s

![Graph showing packet delay over time for different flows.]

- **Flow 1** (95th percentile): 79.30 ms
- **Flow 2** (95th percentile): 160.10 ms
- **Flow 3** (95th percentile): 169.40 ms
Run 4: Statistics of PCC-Expr

Start at: 2018-10-10 16:37:56
End at: 2018-10-10 16:38:26
Local clock offset: -0.003 ms
Remote clock offset: -0.168 ms

# Below is generated by plot.py at 2018-10-10 19:47:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.39 Mbit/s
95th percentile per-packet one-way delay: 142.849 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 315.82 Mbit/s
95th percentile per-packet one-way delay: 145.022 ms
Loss rate: 1.87%
-- Flow 2:
Average throughput: 245.88 Mbit/s
95th percentile per-packet one-way delay: 141.138 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 179.27 Mbit/s
95th percentile per-packet one-way delay: 71.155 ms
Loss rate: 0.00%
Run 4: Report of PCC-Expr — Data Link
Run 5: Statistics of PCC-Expr

Start at: 2018-10-10 17:09:26
End at: 2018-10-10 17:09:56
Local clock offset: 0.184 ms
Remote clock offset: 0.76 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 537.00 Mbit/s
95th percentile per-packet one-way delay: 134.931 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 305.83 Mbit/s
95th percentile per-packet one-way delay: 139.946 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 262.01 Mbit/s
95th percentile per-packet one-way delay: 73.085 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 172.59 Mbit/s
95th percentile per-packet one-way delay: 63.858 ms
Loss rate: 0.00%
Run 5: Report of PCC-Expr — Data Link
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-10 15:06:48
End at: 2018-10-10 15:07:18
Local clock offset: -0.051 ms
Remote clock offset: 0.089 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.62 Mbit/s
95th percentile per-packet one-way delay: 53.553 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 53.631 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.56 Mbit/s
95th percentile per-packet one-way delay: 53.563 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.92 Mbit/s
95th percentile per-packet one-way delay: 53.043 ms
Loss rate: 0.00%
Run 1: Report of QUIC Cubic — Data Link
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-10 15:38:11
End at: 2018-10-10 15:38:41
Local clock offset: -0.099 ms
Remote clock offset: 0.07 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 106.73 Mbit/s
  95th percentile per-packet one-way delay: 52.991 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 68.78 Mbit/s
  95th percentile per-packet one-way delay: 50.536 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 49.51 Mbit/s
  95th percentile per-packet one-way delay: 53.030 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 15.48 Mbit/s
  95th percentile per-packet one-way delay: 50.265 ms
  Loss rate: 0.00%
Run 2: Report of QUIC Cubic — Data Link

![Graphs showing throughput and packet delay over time for different flows.]

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 68.78 Mbps)
  - Flow 1 egress (mean 68.78 Mbps)
  - Flow 2 ingress (mean 49.51 Mbps)
  - Flow 2 egress (mean 49.51 Mbps)
  - Flow 3 ingress (mean 15.48 Mbps)
  - Flow 3 egress (mean 15.48 Mbps)

- **Per packet one way delay (ms):**
  - Flow 1 (95th percentile 50.54 ms)
  - Flow 2 (95th percentile 53.03 ms)
  - Flow 3 (95th percentile 50.27 ms)
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-10 16:09:44
End at: 2018-10-10 16:10:14
Local clock offset: -0.213 ms
Remote clock offset: 0.045 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.48 Mbit/s
95th percentile per-packet one-way delay: 53.641 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.97 Mbit/s
95th percentile per-packet one-way delay: 53.495 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.26 Mbit/s
95th percentile per-packet one-way delay: 53.709 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.76 Mbit/s
95th percentile per-packet one-way delay: 50.356 ms
Loss rate: 0.00%
Run 3: Report of QUIC Cubic — Data Link

![Throughput graph](image1)

Flow 1 ingress (mean 60.93 Mbit/s) — Flow 1 egress (mean 60.97 Mbit/s)
Flow 2 ingress (mean 35.26 Mbit/s) — Flow 2 egress (mean 35.26 Mbit/s)
Flow 3 ingress (mean 21.76 Mbit/s) — Flow 3 egress (mean 21.76 Mbit/s)

![Delay graph](image2)

Flow 1 (95th percentile 53.49 ms) — Flow 2 (95th percentile 53.71 ms) — Flow 3 (95th percentile 56.36 ms)
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-10 16:41:07
End at: 2018-10-10 16:41:37
Local clock offset: -0.093 ms
Remote clock offset: -1.255 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.57 Mbit/s
95th percentile per-packet one-way delay: 48.771 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.24 Mbit/s
95th percentile per-packet one-way delay: 48.784 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 38.25 Mbit/s
95th percentile per-packet one-way delay: 48.689 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.14 Mbit/s
95th percentile per-packet one-way delay: 48.711 ms
Loss rate: 0.00%
Run 4: Report of QUIC Cubic — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 56.24 Mbps)
- Flow 1 egress (mean 56.24 Mbps)
- Flow 2 ingress (mean 38.25 Mbps)
- Flow 2 egress (mean 38.25 Mbps)
- Flow 3 ingress (mean 24.14 Mbps)
- Flow 3 egress (mean 24.14 Mbps)

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

- Flow 1 (95th percentile 48.78 ms)
- Flow 2 (95th percentile 48.69 ms)
- Flow 3 (95th percentile 48.71 ms)
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-10 17:12:36
End at: 2018-10-10 17:13:06
Local clock offset: -0.045 ms
Remote clock offset: 0.108 ms

# Below is generated by plot.py at 2018-10-10 19:49:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.90 Mbit/s
95th percentile per-packet one-way delay: 53.627 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.05 Mbit/s
95th percentile per-packet one-way delay: 50.476 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.43 Mbit/s
95th percentile per-packet one-way delay: 53.663 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 28.50 Mbit/s
95th percentile per-packet one-way delay: 53.652 ms
Loss rate: 0.00%
Run 5: Report of QUIC Cubic — Data Link
Run 1: Statistics of SCReAM

Start at: 2018-10-10 15:14:13
End at: 2018-10-10 15:14:43
Local clock offset: ~0.06 ms
Remote clock offset: ~0.866 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 52.937 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 52.950 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 52.793 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.178 ms
Loss rate: 0.00%
Run 1: Report of SCReAM — Data Link

![Graph of throughput and packet loss over time]

- **Throughput (Mbps)**: The throughput is measured in Mbps (megabits per second). The graph shows the throughput over time for different flows, with each flow distinguished by a different line color and style.
- **Time (s)**: The x-axis represents the time in seconds, ranging from 0 to 30 seconds.
- **Per-packet one-way delay (ms)**: The y-axis represents the per-packet one-way delay in milliseconds. The graph shows the delay over time for different flows, with each flow distinguished by a different line color and style.

Legend:
- Flow 1 ingress (mean 0.21 Mbps)
- Flow 1 egress (mean 0.21 Mbps)
- Flow 2 ingress (mean 0.21 Mbps)
- Flow 2 egress (mean 0.21 Mbps)
- Flow 3 ingress (mean 0.22 Mbps)
- Flow 3 egress (mean 0.22 Mbps)

Flow 1 (95th percentile 52.95 ms)
Flow 2 (95th percentile 52.79 ms)
Flow 3 (95th percentile 49.18 ms)
Run 2: Statistics of SCReAM

Start at: 2018-10-10 15:45:42
End at: 2018-10-10 15:46:12
Local clock offset: -0.14 ms
Remote clock offset: -0.451 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 52.898 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 52.791 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 49.890 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.951 ms
Loss rate: 0.00%
Run 2: Report of SCReAM — Data Link
Run 3: Statistics of SCReAM

Start at: 2018-10-10 16:17:15
End at: 2018-10-10 16:17:45
Local clock offset: -0.161 ms
Remote clock offset: -0.16 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 53.200 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 49.811 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.230 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.243 ms
Loss rate: 0.00%
Run 3: Report of SCReAM — Data Link
Run 4: Statistics of SCReAM

Start at: 2018-10-10 16:48:39
End at: 2018-10-10 16:49:09
Local clock offset: -0.116 ms
Remote clock offset: -0.152 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 53.025 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 50.194 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.049 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.558 ms
Loss rate: 0.00%
Run 4: Report of SCReAM — Data Link

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

- Flow 1 ingress (mean 0.21 Mbps)
- Flow 1 egress (mean 0.21 Mbps)
- Flow 2 ingress (mean 0.21 Mbps)
- Flow 2 egress (mean 0.21 Mbps)
- Flow 3 ingress (mean 0.22 Mbps)
- Flow 3 egress (mean 0.22 Mbps)

![Graph 2: Per-packet loss rate vs. Time (Mbps)]

- Flow 1 (95th percentile 50.19 ms)
- Flow 2 (95th percentile 53.05 ms)
- Flow 3 (95th percentile 50.56 ms)
Run 5: Statistics of SCReAM

Start at: 2018-10-10 17:20:09
End at: 2018-10-10 17:20:39
Local clock offset: 0.24 ms
Remote clock offset: 0.159 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 50.432 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.230 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 50.289 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.471 ms
Loss rate: 0.00%
Run 5: Report of SCReAM — Data Link

![Graph: Throughput vs Time]

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 0.22 Mbps)
  - Flow 1 egress (mean 0.22 Mbps)
  - Flow 2 ingress (mean 0.21 Mbps)
  - Flow 2 egress (mean 0.21 Mbps)
  - Flow 3 ingress (mean 0.22 Mbps)
  - Flow 3 egress (mean 0.22 Mbps)

![Graph: Delay vs Time]

- **One packet one way delay (ms):**
  - Flow 1 (95th percentile 50.23 ms)
  - Flow 2 (95th percentile 50.29 ms)
  - Flow 3 (95th percentile 50.47 ms)
Run 1: Statistics of Sprout

Start at: 2018-10-10 15:05:36
End at: 2018-10-10 15:06:06
Local clock offset: 0.002 ms
Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 16.12 Mbit/s
  95th percentile per-packet one-way delay: 50.749 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 8.15 Mbit/s
  95th percentile per-packet one-way delay: 50.688 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 8.07 Mbit/s
  95th percentile per-packet one-way delay: 50.749 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 7.75 Mbit/s
  95th percentile per-packet one-way delay: 50.880 ms
  Loss rate: 0.00%
Run 1: Report of Sprout — Data Link

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

- Flow 1 ingress (mean 8.15 Mbit/s)
- Flow 1 egress (mean 8.15 Mbit/s)
- Flow 2 ingress (mean 8.07 Mbit/s)
- Flow 2 egress (mean 8.07 Mbit/s)
- Flow 3 ingress (mean 7.75 Mbit/s)
- Flow 3 egress (mean 7.75 Mbit/s)

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

- Flow 1 (95th percentile 50.69 ms)
- Flow 2 (95th percentile 50.75 ms)
- Flow 3 (95th percentile 50.88 ms)
Run 2: Statistics of Sprout

Start at: 2018-10-10 15:36:59
End at: 2018-10-10 15:37:29
Local clock offset: -0.125 ms
Remote clock offset: 0.074 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.08 Mbit/s
95th percentile per-packet one-way delay: 51.105 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 51.097 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.02 Mbit/s
95th percentile per-packet one-way delay: 50.600 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 51.292 ms
Loss rate: 0.00%
Run 2: Report of Sprout — Data Link
Run 3: Statistics of Sprout

Start at: 2018-10-10 16:08:32
End at: 2018-10-10 16:09:02
Local clock offset: -0.029 ms
Remote clock offset: 0.057 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.00 Mbit/s
95th percentile per-packet one-way delay: 53.782 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 53.663 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.86 Mbit/s
95th percentile per-packet one-way delay: 53.870 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 50.571 ms
Loss rate: 0.00%
Run 3: Report of Sprout — Data Link

Throughput (Mbps/s)

Time (s)

Flow 1 ingress (mean 8.20 Mbps/s)
Flow 1 egress (mean 8.20 Mbps/s)
Flow 2 ingress (mean 7.86 Mbps/s)
Flow 2 egress (mean 7.86 Mbps/s)
Flow 3 ingress (mean 7.79 Mbps/s)
Flow 3 egress (mean 7.79 Mbps/s)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 53.66 ms)
Flow 2 (95th percentile 53.87 ms)
Flow 3 (95th percentile 50.57 ms)
Run 4: Statistics of Sprout

Start at: 2018-10-10 16:39:55
End at: 2018-10-10 16:40:25
Local clock offset: -0.423 ms
Remote clock offset: -0.437 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.13 Mbit/s
95th percentile per-packet one-way delay: 53.903 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 53.969 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.07 Mbit/s
95th percentile per-packet one-way delay: 53.833 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 50.365 ms
Loss rate: 0.00%
Run 4: Report of Sprout — Data Link
Run 5: Statistics of Sprout

Start at: 2018-10-10 17:11:24
End at: 2018-10-10 17:11:54
Local clock offset: -0.035 ms
Remote clock offset: 0.699 ms

# Below is generated by plot.py at 2018-10-10 19:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.29 Mbit/s
95th percentile per-packet one-way delay: 51.503 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.31 Mbit/s
95th percentile per-packet one-way delay: 51.552 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 51.386 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.93 Mbit/s
95th percentile per-packet one-way delay: 51.477 ms
Loss rate: 0.00%
Run 5: Report of Sprout — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 8.31 Mbit/s)
  - Flow 1 egress (mean 8.31 Mbit/s)
  - Flow 2 ingress (mean 8.09 Mbit/s)
  - Flow 2 egress (mean 8.09 Mbit/s)
  - Flow 3 ingress (mean 7.93 Mbit/s)
  - Flow 3 egress (mean 7.93 Mbit/s)

- **Delay (ms):**
  - Flow 1 95th percentile 51.55 ms
  - Flow 2 95th percentile 51.39 ms
  - Flow 3 95th percentile 51.48 ms
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-10 15:18:45
End at: 2018-10-10 15:19:15
Local clock offset: 0.007 ms
Remote clock offset: 0.106 ms

# Below is generated by plot.py at 2018-10-10 19:54:09
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 490.54 Mbit/s
  95th percentile per-packet one-way delay: 53.081 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 247.18 Mbit/s
  95th percentile per-packet one-way delay: 50.513 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 249.08 Mbit/s
  95th percentile per-packet one-way delay: 53.220 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 233.27 Mbit/s
  95th percentile per-packet one-way delay: 50.687 ms
  Loss rate: 0.00%
Run 1: Report of TaoVA-100x — Data Link

![Throughput Plot]

![Delay Plot]

Legend:
- Flow 1 ingress (mean 247.18 Mbit/s)
- Flow 1 egress (mean 247.18 Mbit/s)
- Flow 2 ingress (mean 249.08 Mbit/s)
- Flow 2 egress (mean 249.08 Mbit/s)
- Flow 3 ingress (mean 233.26 Mbit/s)
- Flow 3 egress (mean 233.27 Mbit/s)

Legend (delay):
- Flow 1 (95th percentile 50.51 ms)
- Flow 2 (95th percentile 53.22 ms)
- Flow 3 (95th percentile 50.69 ms)
Run 2: Statistics of TaoVA-100x

Start at: 2018-10-10 15:50:07
End at: 2018-10-10 15:50:37
Local clock offset: -0.164 ms
Remote clock offset: 1.143 ms

# Below is generated by plot.py at 2018-10-10 19:54:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 492.78 Mbit/s
95th percentile per-packet one-way delay: 51.869 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 249.30 Mbit/s
95th percentile per-packet one-way delay: 51.834 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 248.81 Mbit/s
95th percentile per-packet one-way delay: 51.964 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 234.03 Mbit/s
95th percentile per-packet one-way delay: 51.584 ms
Loss rate: 0.00%
Run 2: Report of TaoVA-100x — Data Link
Run 3: Statistics of TaoVA-100x

Start at: 2018-10-10 16:21:47
End at: 2018-10-10 16:22:17
Local clock offset: -0.114 ms
Remote clock offset: 0.164 ms

# Below is generated by plot.py at 2018-10-10 19:54:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 457.48 Mbit/s
95th percentile per-packet one-way delay: 53.671 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 246.29 Mbit/s
95th percentile per-packet one-way delay: 53.675 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 242.81 Mbit/s
95th percentile per-packet one-way delay: 53.693 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 149.29 Mbit/s
95th percentile per-packet one-way delay: 50.339 ms
Loss rate: 0.00%
Run 3: Report of TaoVA-100x — Data Link

![Graph showing network throughput and delay over time with data points for different flows.](image)

Flow 1 ingress (mean 246.29 Mbit/s) — Flow 1 egress (mean 246.29 Mbit/s)
Flow 2 ingress (mean 242.80 Mbit/s) — Flow 2 egress (mean 242.81 Mbit/s)
Flow 3 ingress (mean 149.29 Mbit/s) — Flow 3 egress (mean 149.29 Mbit/s)

![Graph showing packet interarrival delay over time with data points for different flows.](image)

Flow 1 (95th percentile 53.67 ms) — Flow 2 (95th percentile 53.49 ms) — Flow 3 (95th percentile 50.34 ms)
Run 4: Statistics of TaoVA-100x

Start at: 2018-10-10 16:53:04
End at: 2018-10-10 16:53:34
Local clock offset: -0.325 ms
Remote clock offset: 1.549 ms

# Below is generated by plot.py at 2018-10-10 19:54:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 475.94 Mbit/s
95th percentile per-packet one-way delay: 54.980 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 244.92 Mbit/s
95th percentile per-packet one-way delay: 52.170 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 238.43 Mbit/s
95th percentile per-packet one-way delay: 52.382 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 217.44 Mbit/s
95th percentile per-packet one-way delay: 55.252 ms
Loss rate: 0.00%
Run 4: Report of TaoVA-100x — Data Link
Run 5: Statistics of TaoVA-100x

Start at: 2018-10-10 17:24:30
End at: 2018-10-10 17:25:00
Local clock offset: 0.151 ms
Remote clock offset: 0.705 ms

# Below is generated by plot.py at 2018-10-10 19:57:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 480.31 Mbit/s
95th percentile per-packet one-way delay: 51.091 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 239.39 Mbit/s
95th percentile per-packet one-way delay: 50.616 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 241.60 Mbit/s
95th percentile per-packet one-way delay: 51.194 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 240.91 Mbit/s
95th percentile per-packet one-way delay: 51.045 ms
Loss rate: 0.00%
Run 5: Report of TaoVA-100x — Data Link

![Graph of throughput and packet delay over time for different flows.]

- **Throughput (Mbps)**: The graph shows the throughput for different flows over time. The x-axis represents time in seconds, and the y-axis represents throughput in Mbps. Each flow is represented by a different line color.
- **Packet Delay (ms)**: Similarly, the graph illustrates the packet delay for each flow. The x-axis is time in seconds, and the y-axis shows packet delay in ms. The legend indicates the percentile of each flow's delay.

Legend:
- Flow 1 ingress (mean 239.39 Mbps)
- Flow 1 egress (mean 239.39 Mbps)
- Flow 2 ingress (mean 241.60 Mbps)
- Flow 2 egress (mean 241.60 Mbps)
- Flow 3 ingress (mean 240.91 Mbps)
- Flow 3 egress (mean 240.91 Mbps)

Legend for packet delay:
- Flow 1 (95th percentile 50.62 ms)
- Flow 2 (95th percentile 51.19 ms)
- Flow 3 (95th percentile 51.05 ms)
Run 1: Statistics of TCP Vegas

Start at: 2018-10-10 15:16:39
End at: 2018-10-10 15:17:09
Local clock offset: -0.072 ms
Remote clock offset: 0.026 ms

# Below is generated by plot.py at 2018-10-10 20:06:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1142.59 Mbit/s
95th percentile per-packet one-way delay: 85.622 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 612.48 Mbit/s
95th percentile per-packet one-way delay: 79.989 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 537.18 Mbit/s
95th percentile per-packet one-way delay: 91.613 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 518.72 Mbit/s
95th percentile per-packet one-way delay: 84.106 ms
Loss rate: 0.00%
Run 1: Report of TCP Vegas — Data Link

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

- **Throughput**: The top graph illustrates the throughput (bits per second) over time for various flows. The x-axis represents time in seconds, and the y-axis represents throughput in Mbps. Each line color corresponds to a specific flow:
  - Flow 1 ingress (mean 613.05 Mbps)
  - Flow 1 egress (mean 612.48 Mbps)
  - Flow 2 ingress (mean 537.19 Mbps)
  - Flow 2 egress (mean 537.18 Mbps)
  - Flow 3 ingress (mean 518.74 Mbps)
  - Flow 3 egress (mean 518.72 Mbps)

- **Packet Delay**: The bottom graph shows the per-packet round-trip delay over time. The x-axis represents time in seconds, and the y-axis represents delay in ms. The graph includes markers for the 95th percentile delay for each flow:
  - Flow 1 (95th percentile 79.99 ms)
  - Flow 2 (95th percentile 91.61 ms)
  - Flow 3 (95th percentile 84.11 ms)
Run 2: Statistics of TCP Vegas

Start at: 2018-10-10 15:48:08
End at: 2018-10-10 15:48:38
Local clock offset: 0.012 ms
Remote clock offset: 0.251 ms

# Below is generated by plot.py at 2018-10-10 20:06:23
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 994.59 Mbit/s
  95th percentile per-packet one-way delay: 69.831 ms
  Loss rate: 0.10%
-- Flow 1:
  Average throughput: 514.11 Mbit/s
  95th percentile per-packet one-way delay: 60.248 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 559.50 Mbit/s
  95th percentile per-packet one-way delay: 80.264 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 324.41 Mbit/s
  95th percentile per-packet one-way delay: 76.862 ms
  Loss rate: 0.86%
Run 2: Report of TCP Vegas — Data Link

Data Link Throughput

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 514.13 Mbps)
Flow 1 egress (mean 514.11 Mbps)
Flow 2 ingress (mean 559.50 Mbps)
Flow 2 egress (mean 559.50 Mbps)
Flow 3 ingress (mean 330.32 Mbps)
Flow 3 egress (mean 324.41 Mbps)

Packet Loss

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 60.25 ms)
Flow 2 (95th percentile 80.26 ms)
Flow 3 (95th percentile 76.86 ms)
Run 3: Statistics of TCP Vegas

Start at: 2018-10-10 16:19:41
End at: 2018-10-10 16:20:11
Local clock offset: -0.231 ms
Remote clock offset: 1.554 ms

# Below is generated by plot.py at 2018-10-10 20:09:37
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1142.69 Mbit/s
  95th percentile per-packet one-way delay: 94.396 ms
  Loss rate: 0.10%
-- Flow 1:
  Average throughput: 602.64 Mbit/s
  95th percentile per-packet one-way delay: 82.631 ms
  Loss rate: 0.04%
-- Flow 2:
  Average throughput: 549.30 Mbit/s
  95th percentile per-packet one-way delay: 108.558 ms
  Loss rate: 0.22%
-- Flow 3:
  Average throughput: 523.65 Mbit/s
  95th percentile per-packet one-way delay: 88.693 ms
  Loss rate: 0.04%
Run 3: Report of TCP Vegas — Data Link

[Graph showing throughput over time for different flows]

[Graph showing per-packet one-way delay over time for different flows]
Run 4: Statistics of TCP Vegas

Start at: 2018-10-10 16:51:05
End at: 2018-10-10 16:51:35
Local clock offset: 0.105 ms
Remote clock offset: -0.261 ms

# Below is generated by plot.py at 2018-10-10 20:10:42
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 989.09 Mbit/s
  95th percentile per-packet one-way delay: 75.133 ms
  Loss rate: 0.03%
-- Flow 1:
  Average throughput: 554.84 Mbit/s
  95th percentile per-packet one-way delay: 81.152 ms
  Loss rate: 0.06%
-- Flow 2:
  Average throughput: 516.51 Mbit/s
  95th percentile per-packet one-way delay: 71.867 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 271.47 Mbit/s
  95th percentile per-packet one-way delay: 50.829 ms
  Loss rate: 0.00%
Run 4: Report of TCP Vegas — Data Link
Run 5: Statistics of TCP Vegas

Start at: 2018-10-10 17:22:36
End at: 2018-10-10 17:23:06
Local clock offset: 0.025 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2018-10-10 20:10:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 898.83 Mbit/s
95th percentile per-packet one-way delay: 62.574 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 396.83 Mbit/s
95th percentile per-packet one-way delay: 50.564 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 512.70 Mbit/s
95th percentile per-packet one-way delay: 62.998 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 482.01 Mbit/s
95th percentile per-packet one-way delay: 65.416 ms
Loss rate: 0.00%
Run 5: Report of TCP Vegas — Data Link

![Graph 1: Throughput (Mbps)](image1)
- Flow 1 ingress (mean 396.83 Mbps)
- Flow 1 egress (mean 396.83 Mbps)
- Flow 2 ingress (mean 512.93 Mbps)
- Flow 2 egress (mean 512.70 Mbps)
- Flow 3 ingress (mean 482.02 Mbps)
- Flow 3 egress (mean 482.01 Mbps)

![Graph 2: Per-packet one-way delay (ms)](image2)
- Flow 1 (95th percentile 50.56 ms)
- Flow 2 (95th percentile 63.00 ms)
- Flow 3 (95th percentile 65.42 ms)
Run 1: Statistics of Verus

Start at: 2018-10-10 15:02:01
End at: 2018-10-10 15:02:31
Local clock offset: 0.017 ms
Remote clock offset: -1.473 ms

# Below is generated by plot.py at 2018-10-10 20:10:42
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 295.68 Mbit/s
  95th percentile per-packet one-way delay: 144.626 ms
  Loss rate: 0.37%
-- Flow 1:
  Average throughput: 198.14 Mbit/s
  95th percentile per-packet one-way delay: 151.241 ms
  Loss rate: 0.55%
-- Flow 2:
  Average throughput: 104.56 Mbit/s
  95th percentile per-packet one-way delay: 62.544 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 85.28 Mbit/s
  95th percentile per-packet one-way delay: 54.352 ms
  Loss rate: 0.00%
Run 1: Report of Verus — Data Link

![Graph 1: Throughput](image)

![Graph 2: Per-packet end-to-end delay](image)
Run 2: Statistics of Verus

Start at: 2018-10-10 15:33:16
End at: 2018-10-10 15:33:46
Local clock offset: -0.213 ms
Remote clock offset: 1.348 ms

# Below is generated by plot.py at 2018-10-10 20:10:42
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 307.73 Mbit/s
  95th percentile per-packet one-way delay: 115.012 ms
  Loss rate: 0.08%
-- Flow 1:
  Average throughput: 153.12 Mbit/s
  95th percentile per-packet one-way delay: 104.005 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 173.83 Mbit/s
  95th percentile per-packet one-way delay: 124.438 ms
  Loss rate: 0.21%
-- Flow 3:
  Average throughput: 120.21 Mbit/s
  95th percentile per-packet one-way delay: 89.512 ms
  Loss rate: 0.00%
Run 2: Report of Verus — Data Link

![Graph showing throughput and delay over time for different flows]

- Flow 1 ingress (mean 153.14 Mbit/s)
- Flow 1 egress (mean 153.12 Mbit/s)
- Flow 2 ingress (mean 174.34 Mbit/s)
- Flow 2 egress (mean 173.83 Mbit/s)
- Flow 3 ingress (mean 120.24 Mbit/s)
- Flow 3 egress (mean 120.21 Mbit/s)

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

- Flow 1 (95th percentile 104.00 ms)
- Flow 2 (95th percentile 124.44 ms)
- Flow 3 (95th percentile 89.51 ms)
Run 3: Statistics of Verus

Start at: 2018-10-10 16:04:51
End at: 2018-10-10 16:05:21
Local clock offset: -0.172 ms
Remote clock offset: -0.425 ms

# Below is generated by plot.py at 2018-10-10 20:10:42
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 332.11 Mbit/s
  95th percentile per-packet one-way delay: 151.143 ms
  Loss rate: 0.19%
-- Flow 1:
  Average throughput: 207.09 Mbit/s
  95th percentile per-packet one-way delay: 157.804 ms
  Loss rate: 0.22%
-- Flow 2:
  Average throughput: 145.64 Mbit/s
  95th percentile per-packet one-way delay: 130.424 ms
  Loss rate: 0.19%
-- Flow 3:
  Average throughput: 85.49 Mbit/s
  95th percentile per-packet one-way delay: 58.547 ms
  Loss rate: 0.00%
Run 4: Statistics of Verus

Start at: 2018-10-10 16:36:20
End at: 2018-10-10 16:36:50
Local clock offset: -0.202 ms
Remote clock offset: 1.637 ms

# Below is generated by plot.py at 2018-10-10 20:12:24
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 271.28 Mbit/s
  95th percentile per-packet one-way delay: 138.171 ms
  Loss rate: 0.29%
-- Flow 1:
  Average throughput: 131.23 Mbit/s
  95th percentile per-packet one-way delay: 158.030 ms
  Loss rate: 0.36%
-- Flow 2:
  Average throughput: 134.30 Mbit/s
  95th percentile per-packet one-way delay: 128.537 ms
  Loss rate: 0.35%
-- Flow 3:
  Average throughput: 155.44 Mbit/s
  95th percentile per-packet one-way delay: 103.332 ms
  Loss rate: 0.00%
Run 4: Report of Verus — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 131.70 Mbps)  
Flow 1 egress (mean 131.23 Mbps)  
Flow 2 ingress (mean 135.23 Mbps)  
Flow 2 egress (mean 134.30 Mbps)  
Flow 3 ingress (mean 159.52 Mbps)  
Flow 3 egress (mean 155.44 Mbps)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 158.03 ms)  
Flow 2 (95th percentile 128.54 ms)  
Flow 3 (95th percentile 103.33 ms)
Run 5: Statistics of Verus

Start at: 2018-10-10 17:07:47
End at: 2018-10-10 17:08:17
Local clock offset: 0.27 ms
Remote clock offset: -0.599 ms

# Below is generated by plot.py at 2018-10-10 20:13:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 301.93 Mbit/s
95th percentile per-packet one-way delay: 108.981 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 174.74 Mbit/s
95th percentile per-packet one-way delay: 104.268 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 109.00 Mbit/s
95th percentile per-packet one-way delay: 109.282 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 165.95 Mbit/s
95th percentile per-packet one-way delay: 116.194 ms
Loss rate: 0.04%
Run 5: Report of Verus — Data Link

![Graph of throughput and latency over time for different flows]

Legend:
- Flow 1 ingress (mean 174.75 Mbit/s)
- Flow 1 egress (mean 174.74 Mbit/s)
- Flow 2 ingress (mean 109.00 Mbit/s)
- Flow 2 egress (mean 109.00 Mbit/s)
- Flow 3 ingress (mean 165.96 Mbit/s)
- Flow 3 egress (mean 165.96 Mbit/s)

![Graph of per-packet one-way delay for different flows]

Legend:
- Flow 1 (95th percentile 104.27 ms)
- Flow 2 (95th percentile 109.28 ms)
- Flow 3 (95th percentile 116.19 ms)
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-10 15:31:28
End at: 2018-10-10 15:31:58
Local clock offset: 0.027 ms
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2018-10-10 20:14:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 560.51 Mbit/s
95th percentile per-packet one-way delay: 52.367 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 332.26 Mbit/s
95th percentile per-packet one-way delay: 53.733 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 294.10 Mbit/s
95th percentile per-packet one-way delay: 51.008 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 98.47 Mbit/s
95th percentile per-packet one-way delay: 50.468 ms
Loss rate: 0.39%
Run 1: Report of PCC-Vivace — Data Link

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

Start at: 2018-10-10 16:03:01
End at: 2018-10-10 16:03:31
Local clock offset: 0.188 ms
Remote clock offset: 0.508 ms

# Below is generated by plot.py at 2018-10-10 20:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 575.98 Mbit/s
95th percentile per-packet one-way delay: 53.594 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 349.98 Mbit/s
95th percentile per-packet one-way delay: 53.559 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 284.51 Mbit/s
95th percentile per-packet one-way delay: 51.755 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 112.13 Mbit/s
95th percentile per-packet one-way delay: 54.365 ms
Loss rate: 0.00%
Run 2: Report of PCC-Vivace — Data Link

![Graph of network throughput and packet delay over time]

- Flow 1 ingress (mean 349.97 Mbit/s)
- Flow 1 egress (mean 349.98 Mbit/s)
- Flow 2 ingress (mean 284.51 Mbit/s)
- Flow 2 egress (mean 284.51 Mbit/s)
- Flow 3 ingress (mean 112.13 Mbit/s)
- Flow 3 egress (mean 112.13 Mbit/s)
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-10 16:34:29
End at: 2018-10-10 16:34:59
Local clock offset: -0.222 ms
Remote clock offset: 0.785 ms

# Below is generated by plot.py at 2018-10-10 20:16:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 596.39 Mbit/s
95th percentile per-packet one-way delay: 61.688 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 368.32 Mbit/s
95th percentile per-packet one-way delay: 66.745 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 326.99 Mbit/s
95th percentile per-packet one-way delay: 59.398 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.27 Mbit/s
95th percentile per-packet one-way delay: 54.355 ms
Loss rate: 0.00%
Run 3: Report of PCC-Vivace — Data Link

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

- **Flow 1 Ingress (mean 368.31 Mb/s)**
- **Flow 1 Egress (mean 368.32 Mb/s)**
- **Flow 2 Ingress (mean 326.99 Mb/s)**
- **Flow 2 Egress (mean 326.99 Mb/s)**
- **Flow 3 Ingress (mean 32.27 Mb/s)**
- **Flow 3 Egress (mean 32.27 Mb/s)**

![Graph showing packet loss delay over time for different flows.](image-url)

- **Flow 1 (95th percentile 66.75 ms)**
- **Flow 2 (95th percentile 59.40 ms)**
- **Flow 3 (95th percentile 54.35 ms)**
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-10 17:05:56
End at: 2018-10-10 17:06:26
Local clock offset: 0.032 ms
Remote clock offset: -1.115 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 608.34 Mbit/s
95th percentile per-packet one-way delay: 55.403 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 327.19 Mbit/s
95th percentile per-packet one-way delay: 50.998 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 347.60 Mbit/s
95th percentile per-packet one-way delay: 58.280 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 152.33 Mbit/s
95th percentile per-packet one-way delay: 50.252 ms
Loss rate: 0.00%
Run 4: Report of PCC-Vivace — Data Link

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

Legend:
- Flow 1 ingress (mean 327.19 Mbit/s) — Flow 1 egress (mean 327.19 Mbit/s)
- Flow 2 ingress (mean 347.68 Mbit/s) — Flow 2 egress (mean 347.68 Mbit/s)
- Flow 3 ingress (mean 152.33 Mbit/s) — Flow 3 egress (mean 152.33 Mbit/s)
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-10 17:37:16
End at: 2018-10-10 17:37:46
Local clock offset: -0.037 ms
Remote clock offset: 0.071 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 553.29 Mbit/s
95th percentile per-packet one-way delay: 55.613 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 335.27 Mbit/s
95th percentile per-packet one-way delay: 55.136 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 288.59 Mbit/s
95th percentile per-packet one-way delay: 56.784 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 79.50 Mbit/s
95th percentile per-packet one-way delay: 50.556 ms
Loss rate: 0.00%
Run 5: Report of PCC-Vivace — Data Link
Run 1: Statistics of WebRTC media

Start at: 2018-10-10 15:26:13
End at: 2018-10-10 15:26:43
Local clock offset: -0.198 ms
Remote clock offset: 0.512 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 4.06 Mbit/s
  95th percentile per-packet one-way delay: 54.469 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 2.15 Mbit/s
  95th percentile per-packet one-way delay: 51.310 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 1.41 Mbit/s
  95th percentile per-packet one-way delay: 54.507 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 0.57 Mbit/s
  95th percentile per-packet one-way delay: 53.949 ms
  Loss rate: 0.00%
Run 1: Report of WebRTC media — Data Link

Throughput (Mbps)

Time (s)

Flow 1 ingress (mean 2.15 Mbit/s)
Flow 1 egress (mean 2.15 Mbit/s)
Flow 2 ingress (mean 1.41 Mbit/s)
Flow 2 egress (mean 1.41 Mbit/s)
Flow 3 ingress (mean 0.57 Mbit/s)
Flow 3 egress (mean 0.57 Mbit/s)

Per packet one-way delay [ms]

Time (s)

Flow 1 (95th percentile 51.31 ms)
Flow 2 (95th percentile 54.51 ms)
Flow 3 (95th percentile 53.95 ms)
Run 2: Statistics of WebRTC media

Start at: 2018-10-10 15:57:35
End at: 2018-10-10 15:58:05
Local clock offset: -0.135 ms
Remote clock offset: 0.33 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.63 Mbit/s
  95th percentile per-packet one-way delay: 53.923 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 1.92 Mbit/s
  95th percentile per-packet one-way delay: 50.323 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 1.24 Mbit/s
  95th percentile per-packet one-way delay: 53.961 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 0.49 Mbit/s
  95th percentile per-packet one-way delay: 53.548 ms
  Loss rate: 0.00%
Run 2: Report of WebRTC media — Data Link

![Throughput Graph]

![Per-packet one-way delay Graph]

- Flow 1 ingress (mean 1.92 Mbit/s)
- Flow 1 egress (mean 1.92 Mbit/s)
- Flow 2 ingress (mean 1.24 Mbit/s)
- Flow 2 egress (mean 1.24 Mbit/s)
- Flow 3 ingress (mean 0.49 Mbit/s)
- Flow 3 egress (mean 0.49 Mbit/s)

- Flow 1 (95th percentile 50.32 ms)
- Flow 2 (95th percentile 53.96 ms)
- Flow 3 (95th percentile 53.55 ms)
Run 3: Statistics of WebRTC media

Start at: 2018-10-10 16:29:14
End at: 2018-10-10 16:29:44
Local clock offset: -0.125 ms
Remote clock offset: 0.31 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.73 Mbit/s
  95th percentile per-packet one-way delay: 53.820 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 2.01 Mbit/s
  95th percentile per-packet one-way delay: 53.838 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 1.23 Mbit/s
  95th percentile per-packet one-way delay: 50.461 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 0.50 Mbit/s
  95th percentile per-packet one-way delay: 50.651 ms
  Loss rate: 0.00%
Run 3: Report of WebRTC media — Data Link

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

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

Flow 1 ingress (mean 2.01 Mbit/s)  
Flow 1 egress (mean 2.01 Mbit/s)  
Flow 2 ingress (mean 1.23 Mbit/s)  
Flow 2 egress (mean 1.23 Mbit/s)  
Flow 3 ingress (mean 0.50 Mbit/s)  
Flow 3 egress (mean 0.50 Mbit/s)

Flow 1 (95th percentile 53.84 ms)  
Flow 2 (95th percentile 50.46 ms)  
Flow 3 (95th percentile 50.65 ms)
Run 4: Statistics of WebRTC media

Start at: 2018-10-10 17:00:36
End at: 2018-10-10 17:01:06
Local clock offset: 0.005 ms
Remote clock offset: 0.087 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.78 Mbit/s
95th percentile per-packet one-way delay: 53.312 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 50.615 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 53.348 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 50.664 ms
Loss rate: 0.00%
Run 4: Report of WebRTC media — Data Link

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

- Flow 1 ingress (mean 2.06 Mbit/s)
- Flow 1 egress (mean 2.06 Mbit/s)
- Flow 2 ingress (mean 1.23 Mbit/s)
- Flow 2 egress (mean 1.23 Mbit/s)
- Flow 3 ingress (mean 0.50 Mbit/s)
- Flow 3 egress (mean 0.50 Mbit/s)

[Graph showing packet delay over time for different flows]

- Flow 1 (95th percentile 50.62 ms)
- Flow 2 (95th percentile 53.35 ms)
- Flow 3 (95th percentile 50.66 ms)
Run 5: Statistics of WebRTC media

Start at: 2018-10-10 17:31:53
End at: 2018-10-10 17:32:23
Local clock offset: -0.04 ms
Remote clock offset: 0.422 ms

# Below is generated by plot.py at 2018-10-10 20:16:22
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.76 Mbit/s
  95th percentile per-packet one-way delay: 51.100 ms
  Loss rate: 0.00%
-- Flow 1:
  Average throughput: 2.03 Mbit/s
  95th percentile per-packet one-way delay: 51.105 ms
  Loss rate: 0.00%
-- Flow 2:
  Average throughput: 1.24 Mbit/s
  95th percentile per-packet one-way delay: 50.538 ms
  Loss rate: 0.00%
-- Flow 3:
  Average throughput: 0.49 Mbit/s
  95th percentile per-packet one-way delay: 51.142 ms
  Loss rate: 0.00%
Run 5: Report of WebRTC media — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 2.03 Mbps)
  - Flow 1 egress (mean 2.03 Mbps)
  - Flow 2 ingress (mean 1.24 Mbps)
  - Flow 2 egress (mean 1.24 Mbps)
  - Flow 3 ingress (mean 0.49 Mbps)
  - Flow 3 egress (mean 0.49 Mbps)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 51.10 ms)
  - Flow 2 (95th percentile 50.54 ms)
  - Flow 3 (95th percentile 51.14 ms)