Pantheon Report

Generated at 2018-09-08 12:42:11 (UTC).
Data path: GCE Tokyo on ens4 (remote) → GCE Sydney on ens4 (local).
Repeated the test of 18 congestion control schemes 5 times.
Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
NTP offsets were measured against time.google.com and have been applied to correct the timestamps in logs.

System info:
Linux 4.15.0-1018-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
net.ipv4.tcp_mem = 190986 254651 381972

Git summary:
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436d4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf85e562f4
third_party/indigo @ 2601c92e4a9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b346b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631ae3932a3598767ce87765ae5103ac9678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
third_party/pcc @ 1af9c958fa0d66d18b623c091a55f6cec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f613e8ac08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a8642f1bc8143ebc978f3c4f24
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3db2
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 @ 4dab447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp

1
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)
<table>
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<th>mean avg tput (Mbit/s)</th>
<th>mean 95th-%ile delay (ms)</th>
<th>mean loss rate (%)</th>
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<td>468.75</td>
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<td>PCC-Allegro</td>
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<td>0.21</td>
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<td>Sprout</td>
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<td>8.15</td>
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<td>TaoVA-100x</td>
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<td>Verus</td>
<td>5</td>
<td>172.43</td>
<td>148.76</td>
<td>117.78</td>
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<td>PCC-Vivace</td>
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<td>357.22</td>
<td>297.97</td>
<td>88.62</td>
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<td>WebRTC media</td>
<td>5</td>
<td>1.85</td>
<td>1.20</td>
<td>0.49</td>
</tr>
</tbody>
</table>
Run 1: Statistics of TCP BBR

Start at: 2018-09-08 07:30:04
End at: 2018-09-08 07:30:34
Local clock offset: 0.033 ms
Remote clock offset: -0.582 ms

# Below is generated by plot.py at 2018-09-08 10:38:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1077.67 Mbit/s
95th percentile per-packet one-way delay: 190.133 ms
Loss rate: 3.53%
-- Flow 1:
Average throughput: 545.13 Mbit/s
95th percentile per-packet one-way delay: 193.202 ms
Loss rate: 3.27%
-- Flow 2:
Average throughput: 512.62 Mbit/s
95th percentile per-packet one-way delay: 192.525 ms
Loss rate: 5.19%
-- Flow 3:
Average throughput: 580.51 Mbit/s
95th percentile per-packet one-way delay: 68.354 ms
Loss rate: 1.23%
Run 1: Report of TCP BBR — Data Link

![Graph 1: Throughput (Mbps)]

![Graph 2: End-to-End Delay (ms)]

Legend:
- Flow 1 ingress (mean 561.54 Mbps)
- Flow 1 egress (mean 545.13 Mbps)
- Flow 2 ingress (mean 537.81 Mbps)
- Flow 2 egress (mean 512.62 Mbps)
- Flow 3 ingress (mean 581.44 Mbps)
- Flow 3 egress (mean 580.51 Mbps)

Legend for Delay:
- Flow 1 (95th percentile 193.20 ms)
- Flow 2 (95th percentile 192.53 ms)
- Flow 3 (95th percentile 68.35 ms)
Run 2: Statistics of TCP BBR

Start at: 2018-09-08 08:02:15
End at: 2018-09-08 08:02:45
Local clock offset: -0.075 ms
Remote clock offset: -0.864 ms

# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 1115.94 Mbit/s
   95th percentile per-packet one-way delay: 173.754 ms
   Loss rate: 2.82%
-- Flow 1:
   Average throughput: 584.08 Mbit/s
   95th percentile per-packet one-way delay: 168.953 ms
   Loss rate: 2.04%
-- Flow 2:
   Average throughput: 561.02 Mbit/s
   95th percentile per-packet one-way delay: 166.493 ms
   Loss rate: 1.84%
-- Flow 3:
   Average throughput: 481.01 Mbit/s
   95th percentile per-packet one-way delay: 189.766 ms
   Loss rate: 7.67%
Run 2: Report of TCP BBR — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 594.11 Mbps)
- Flow 1 egress (mean 584.08 Mbps)
- Flow 2 ingress (mean 568.49 Mbps)
- Flow 2 egress (mean 561.02 Mbps)
- Flow 3 ingress (mean 515.36 Mbps)
- Flow 3 egress (mean 481.01 Mbps)

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

- Flow 1 (95th percentile 168.95 ms)
- Flow 2 (95th percentile 166.49 ms)
- Flow 3 (95th percentile 189.77 ms)
Run 3: Statistics of TCP BBR

Start at: 2018-09-08 08:34:33
End at: 2018-09-08 08:35:03
Local clock offset: 0.026 ms
Remote clock offset: 0.042 ms

# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 916.66 Mbit/s
95th percentile per-packet one-way delay: 141.531 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 488.73 Mbit/s
95th percentile per-packet one-way delay: 142.470 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 447.27 Mbit/s
95th percentile per-packet one-way delay: 146.045 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 394.95 Mbit/s
95th percentile per-packet one-way delay: 85.572 ms
Loss rate: 2.06%
Run 3: Report of TCP BBR — Data Link

![Chart 1: Throughput (Mbps)]

- Flow 1 ingress (mean 489.62 Mbps)
- Flow 1 egress (mean 488.73 Mbps)
- Flow 2 ingress (mean 447.45 Mbps)
- Flow 2 egress (mean 447.27 Mbps)
- Flow 3 ingress (mean 396.93 Mbps)
- Flow 3 egress (mean 394.95 Mbps)

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

- Flow 1 (95th percentile 142.47 ms)
- Flow 2 (95th percentile 146.04 ms)
- Flow 3 (95th percentile 85.57 ms)
Run 4: Statistics of TCP BBR

Start at: 2018-09-08 09:05:52
End at: 2018-09-08 09:06:22
Local clock offset: 0.049 ms
Remote clock offset: -0.576 ms

# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1013.70 Mbit/s
95th percentile per-packet one-way delay: 145.609 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 527.44 Mbit/s
95th percentile per-packet one-way delay: 160.168 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 508.95 Mbit/s
95th percentile per-packet one-way delay: 122.368 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 447.41 Mbit/s
95th percentile per-packet one-way delay: 148.295 ms
Loss rate: 1.63%
Run 4: Report of TCP BBR — Data Link

![Graph showing throughput vs time for different flows]

- Flow 1 ingress (mean 532.89 Mbit/s)
- Flow 1 egress (mean 527.44 Mbit/s)
- Flow 2 ingress (mean 508.65 Mbit/s)
- Flow 2 egress (mean 508.95 Mbit/s)
- Flow 3 ingress (mean 450.09 Mbit/s)
- Flow 3 egress (mean 447.41 Mbit/s)

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

- Flow 1 (95th percentile 160.17 ms)
- Flow 2 (95th percentile 122.37 ms)
- Flow 3 (95th percentile 148.29 ms)
Run 5: Statistics of TCP BBR

Start at: 2018-09-08 09:37:10
End at: 2018-09-08 09:37:40
Local clock offset: -0.299 ms
Remote clock offset: -0.456 ms

# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 998.96 Mbit/s
95th percentile per-packet one-way delay: 131.207 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 525.90 Mbit/s
95th percentile per-packet one-way delay: 139.859 ms
Loss rate: 0.87%
-- Flow 2:
Average throughput: 485.02 Mbit/s
95th percentile per-packet one-way delay: 83.208 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 456.39 Mbit/s
95th percentile per-packet one-way delay: 119.556 ms
Loss rate: 1.28%
Run 5: Report of TCP BBR — Data Link

![Graph showing throughput and packet loss over time for different flows.]
Run 1: Statistics of Copa

Start at: 2018-09-08 07:32:13
End at: 2018-09-08 07:32:43
Local clock offset: -0.046 ms
Remote clock offset: -0.044 ms

# Below is generated by plot.py at 2018-09-08 10:40:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 641.09 Mbit/s
95th percentile per-packet one-way delay: 72.272 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 345.12 Mbit/s
95th percentile per-packet one-way delay: 71.914 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 320.12 Mbit/s
95th percentile per-packet one-way delay: 64.505 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 251.56 Mbit/s
95th percentile per-packet one-way delay: 94.899 ms
Loss rate: 1.33%
Run 1: Report of Copa — Data Link

![Graph of Throughput (Mbps)](#)

- **Flow 1 ingress (mean 345.10 Mbps)**
- **Flow 1 egress (mean 345.12 Mbps)**
- **Flow 2 ingress (mean 320.14 Mbps)**
- **Flow 2 egress (mean 320.12 Mbps)**
- **Flow 3 ingress (mean 252.30 Mbps)**
- **Flow 3 egress (mean 251.56 Mbps)**

![Graph of Per-packet one-way delay (ms)](#)

- **Flow 1 (95th percentile 71.91 ms)**
- **Flow 2 (95th percentile 64.50 ms)**
- **Flow 3 (95th percentile 94.90 ms)**
Run 2: Statistics of Copa

Start at: 2018-09-08 08:04:24
End at: 2018-09-08 08:04:54
Local clock offset: 0.056 ms
Remote clock offset: -0.253 ms

# Below is generated by plot.py at 2018-09-08 10:40:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 658.34 Mbit/s
95th percentile per-packet one-way delay: 70.209 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 345.22 Mbit/s
95th percentile per-packet one-way delay: 66.041 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 318.11 Mbit/s
95th percentile per-packet one-way delay: 67.927 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 307.38 Mbit/s
95th percentile per-packet one-way delay: 123.574 ms
Loss rate: 1.33%
Run 2: Report of Copa — Data Link
Run 3: Statistics of Copa

Start at: 2018-09-08 08:36:33
End at: 2018-09-08 08:37:03
Local clock offset: 0.01 ms
Remote clock offset: -0.258 ms

# Below is generated by plot.py at 2018-09-08 10:40:45
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 649.35 Mbit/s
  95th percentile per-packet one-way delay: 76.335 ms
  Loss rate: 0.49%
-- Flow 1:
  Average throughput: 347.31 Mbit/s
  95th percentile per-packet one-way delay: 62.829 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 318.52 Mbit/s
  95th percentile per-packet one-way delay: 89.495 ms
  Loss rate: 0.51%
-- Flow 3:
  Average throughput: 273.84 Mbit/s
  95th percentile per-packet one-way delay: 61.540 ms
  Loss rate: 1.16%
Run 3: Report of Copa — Data Link
Run 4: Statistics of Copa

Start at: 2018-09-08 09:07:56
End at: 2018-09-08 09:08:26
Local clock offset: 0.026 ms
Remote clock offset: -0.124 ms

# Below is generated by plot.py at 2018-09-08 10:53:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 602.93 Mbit/s
95th percentile per-packet one-way delay: 60.438 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 324.36 Mbit/s
95th percentile per-packet one-way delay: 59.300 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 269.52 Mbit/s
95th percentile per-packet one-way delay: 62.761 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 301.12 Mbit/s
95th percentile per-packet one-way delay: 60.415 ms
Loss rate: 1.26%
Run 4: Report of Copa — Data Link

![Graph showing network throughput and delay over time]
Run 5: Statistics of Copa

Start at: 2018-09-08 09:39:14
End at: 2018-09-08 09:39:44
Local clock offset: -0.106 ms
Remote clock offset: -0.702 ms

# Below is generated by plot.py at 2018-09-08 10:55:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 654.58 Mbit/s
95th percentile per-packet one-way delay: 62.354 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 341.64 Mbit/s
95th percentile per-packet one-way delay: 60.001 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 324.93 Mbit/s
95th percentile per-packet one-way delay: 65.817 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 293.36 Mbit/s
95th percentile per-packet one-way delay: 57.788 ms
Loss rate: 1.27%
Run 5: Report of Copa — Data Link

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

*Legend for Graph 1:
- Flow 1 ingress (mean 341.67 Mbit/s)
- Flow 1 egress (mean 341.64 Mbit/s)
- Flow 2 ingress (mean 325.02 Mbit/s)
- Flow 2 egress (mean 324.93 Mbit/s)
- Flow 3 ingress (mean 293.90 Mbit/s)
- Flow 3 egress (mean 293.36 Mbit/s)*

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

*Legend for Graph 2:
- Flow 1 (95th percentile 60.00 ms)
- Flow 2 (95th percentile 65.82 ms)
- Flow 3 (95th percentile 57.79 ms)*
Run 1: Statistics of TCP Cubic

Start at: 2018-09-08 07:53:31
End at: 2018-09-08 07:54:01
Local clock offset: -0.07 ms
Remote clock offset: 0.033 ms

# Below is generated by plot.py at 2018-09-08 10:55:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1146.67 Mbit/s
95th percentile per-packet one-way delay: 123.290 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 584.82 Mbit/s
95th percentile per-packet one-way delay: 100.207 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 567.54 Mbit/s
95th percentile per-packet one-way delay: 153.222 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 558.40 Mbit/s
95th percentile per-packet one-way delay: 93.295 ms
Loss rate: 1.44%
Run 1: Report of TCP Cubic — Data Link
Run 2: Statistics of TCP Cubic

Start at: 2018-09-08 08:25:52
End at: 2018-09-08 08:26:22
Local clock offset: 0.372 ms
Remote clock offset: -0.481 ms

# Below is generated by plot.py at 2018-09-08 10:55:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1149.25 Mbit/s
95th percentile per-packet one-way delay: 131.173 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 605.73 Mbit/s
95th percentile per-packet one-way delay: 128.373 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 573.30 Mbit/s
95th percentile per-packet one-way delay: 133.207 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 491.42 Mbit/s
95th percentile per-packet one-way delay: 89.560 ms
Loss rate: 1.26%
Run 2: Report of TCP Cubic — Data Link

Throughput (Mbps)

Time (s)

- Flow 1 ingress (mean 696.31 Mbps)
- Flow 1 egress (mean 605.73 Mbps)
- Flow 2 ingress (mean 575.54 Mbps)
- Flow 2 egress (mean 573.36 Mbps)
- Flow 3 ingress (mean 492.52 Mbps)
- Flow 3 egress (mean 491.42 Mbps)

Per-packet one-way delay (ms)

Time (s)

- Flow 1 (95th percentile 128.37 ms)
- Flow 2 (95th percentile 133.21 ms)
- Flow 3 (95th percentile 89.56 ms)
Run 3: Statistics of TCP Cubic

Start at: 2018-09-08 08:57:14
End at: 2018-09-08 08:57:44
Local clock offset: -0.032 ms
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2018-09-08 10:55:53
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1087.39 Mbit/s
  95th percentile per-packet one-way delay: 89.528 ms
  Loss rate: 0.56%
-- Flow 1:
  Average throughput: 584.72 Mbit/s
  95th percentile per-packet one-way delay: 84.464 ms
  Loss rate: 0.40%
-- Flow 2:
  Average throughput: 524.93 Mbit/s
  95th percentile per-packet one-way delay: 98.207 ms
  Loss rate: 0.47%
-- Flow 3:
  Average throughput: 465.10 Mbit/s
  95th percentile per-packet one-way delay: 69.904 ms
  Loss rate: 1.37%
Run 3: Report of TCP Cubic — Data Link

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

- Flow 1 ingress (mean 585.03 Mbit/s)
- Flow 1 egress (mean 584.72 Mbit/s)
- Flow 2 ingress (mean 524.78 Mbit/s)
- Flow 2 egress (mean 524.93 Mbit/s)
- Flow 3 ingress (mean 466.52 Mbit/s)
- Flow 3 egress (mean 465.10 Mbit/s)

- Flow 1 (95th percentile 84.46 ms)
- Flow 2 (95th percentile 98.21 ms)
- Flow 3 (95th percentile 69.90 ms)
Run 4: Statistics of TCP Cubic

Start at: 2018-09-08 09:28:36
End at: 2018-09-08 09:29:06
Local clock offset: -0.118 ms
Remote clock offset: -0.18 ms

# Below is generated by plot.py at 2018-09-08 10:56:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1049.26 Mbit/s
95th percentile per-packet one-way delay: 126.028 ms
Loss rate: 0.50%

-- Flow 1:
Average throughput: 601.03 Mbit/s
95th percentile per-packet one-way delay: 98.071 ms
Loss rate: 0.38%

-- Flow 2:
Average throughput: 453.81 Mbit/s
95th percentile per-packet one-way delay: 144.406 ms
Loss rate: 0.41%

-- Flow 3:
Average throughput: 443.76 Mbit/s
95th percentile per-packet one-way delay: 54.460 ms
Loss rate: 1.20%
Run 4: Report of TCP Cubic — Data Link

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

- Flow 1 ingress (mean 601.24 Mbit/s)
- Flow 1 egress (mean 601.03 Mbit/s)
- Flow 2 ingress (mean 453.31 Mbit/s)
- Flow 2 egress (mean 453.81 Mbit/s)
- Flow 3 ingress (mean 444.59 Mbit/s)
- Flow 3 egress (mean 443.76 Mbit/s)

- Flow 1 (95th percentile 98.07 ms)
- Flow 2 (95th percentile 144.41 ms)
- Flow 3 (95th percentile 54.46 ms)
Run 5: Statistics of TCP Cubic

Start at: 2018-09-08 10:00:18
End at: 2018-09-08 10:00:48
Local clock offset: -0.24 ms
Remote clock offset: -0.237 ms

# Below is generated by plot.py at 2018-09-08 10:57:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1115.54 Mbit/s
95th percentile per-packet one-way delay: 117.748 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 570.55 Mbit/s
95th percentile per-packet one-way delay: 100.243 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 597.39 Mbit/s
95th percentile per-packet one-way delay: 128.355 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 447.78 Mbit/s
95th percentile per-packet one-way delay: 84.277 ms
Loss rate: 1.31%
Run 5: Report of TCP Cubic — Data Link
Run 1: Statistics of FillP

Start at: 2018-09-08 07:40:55
End at: 2018-09-08 07:41:25
Local clock offset: -0.109 ms
Remote clock offset: -0.233 ms

# Below is generated by plot.py at 2018-09-08 11:07:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1528.76 Mbit/s
95th percentile per-packet one-way delay: 131.798 ms
Loss rate: 4.98%
-- Flow 1:
Average throughput: 744.51 Mbit/s
95th percentile per-packet one-way delay: 137.093 ms
Loss rate: 6.80%
-- Flow 2:
Average throughput: 793.10 Mbit/s
95th percentile per-packet one-way delay: 124.770 ms
Loss rate: 3.20%
-- Flow 3:
Average throughput: 780.04 Mbit/s
95th percentile per-packet one-way delay: 120.355 ms
Loss rate: 3.16%
Run 1: Report of FillP — Data Link

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

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

Legend:
- Flow 1 ingress (mean 796.17 Mb/s)
- Flow 1 egress (mean 744.51 Mb/s)
- Flow 2 ingress (mean 815.27 Mb/s)
- Flow 2 egress (mean 793.10 Mb/s)
- Flow 3 ingress (mean 796.81 Mb/s)
- Flow 3 egress (mean 780.04 Mb/s)

Legend:
- Flow 1 (95th percentile 137.09 ms)
- Flow 2 (95th percentile 124.77 ms)
- Flow 3 (95th percentile 120.36 ms)
Run 2: Statistics of FillP

Start at: 2018-09-08 08:13:03
End at: 2018-09-08 08:13:33
Local clock offset: 0.039 ms
Remote clock offset: 0.144 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1630.79 Mbit/s
95th percentile per-packet one-way delay: 126.096 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 867.84 Mbit/s
95th percentile per-packet one-way delay: 124.017 ms
Loss rate: 2.95%
-- Flow 2:
Average throughput: 797.09 Mbit/s
95th percentile per-packet one-way delay: 123.685 ms
Loss rate: 2.11%
-- Flow 3:
Average throughput: 709.05 Mbit/s
95th percentile per-packet one-way delay: 133.892 ms
Loss rate: 5.96%
Run 2: Report of FillP — Data Link

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

- **Flow 1 Ingress** (mean 891.02 Mbit/s)
- **Flow 1 Egress** (mean 867.84 Mbit/s)
- **Flow 2 Ingress** (mean 809.85 Mbit/s)
- **Flow 2 Egress** (mean 797.09 Mbit/s)
- **Flow 3 Ingress** (mean 746.09 Mbit/s)
- **Flow 3 Egress** (mean 709.05 Mbit/s)

- **Flow 1 95th percentile delay**: 124.02 ms
- **Flow 2 95th percentile delay**: 123.69 ms
- **Flow 3 95th percentile delay**: 133.89 ms
Run 3: Statistics of FillP

Start at: 2018-09-08 08:45:12
End at: 2018-09-08 08:45:42
Local clock offset: -0.025 ms
Remote clock offset: -0.815 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1384.19 Mbit/s
95th percentile per-packet one-way delay: 124.558 ms
Loss rate: 2.57%
-- Flow 1:
Average throughput: 704.96 Mbit/s
95th percentile per-packet one-way delay: 128.222 ms
Loss rate: 3.97%
-- Flow 2:
Average throughput: 734.23 Mbit/s
95th percentile per-packet one-way delay: 94.181 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 582.42 Mbit/s
95th percentile per-packet one-way delay: 89.744 ms
Loss rate: 1.85%
Run 3: Report of FillP — Data Link

Throughput (Mbps/s)

Time (s)

Flow 1 ingress (mean 731.53 Mbps/s)
Flow 1 egress (mean 704.96 Mbps/s)
Flow 2 ingress (mean 736.14 Mbps/s)
Flow 2 egress (mean 734.23 Mbps/s)
Flow 3 ingress (mean 587.08 Mbps/s)
Flow 3 egress (mean 582.42 Mbps/s)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 128.22 ms)
Flow 2 (95th percentile 94.18 ms)
Flow 3 (95th percentile 89.74 ms)
Run 4: Statistics of FillP

Start at: 2018-09-08 09:16:30
End at: 2018-09-08 09:17:00
Local clock offset: 0.082 ms
Remote clock offset: -0.211 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1353.08 Mbit/s
95th percentile per-packet one-way delay: 116.124 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 734.06 Mbit/s
95th percentile per-packet one-way delay: 112.202 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 651.62 Mbit/s
95th percentile per-packet one-way delay: 123.412 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 565.62 Mbit/s
95th percentile per-packet one-way delay: 54.645 ms
Loss rate: 0.88%
Run 4: Report of FillP — Data Link

![Graph showing network performance metrics over time](image1)

- **Throughput (Mbps)**
  - Flow 1 Ingress (mean 739.23 Mbps)
  - Flow 1 Egress (mean 734.06 Mbps)
  - Flow 2 Ingress (mean 660.51 Mbps)
  - Flow 2 Egress (mean 652.62 Mbps)
  - Flow 3 Ingress (mean 564.71 Mbps)
  - Flow 3 Egress (mean 565.62 Mbps)

![Graph showing packet delay over time](image2)

- **Per-packet one-way delays (ms)**
  - Flow 1 (95th percentile 112.20 ms)
  - Flow 2 (95th percentile 123.41 ms)
  - Flow 3 (95th percentile 54.65 ms)
Run 5: Statistics of FillP

Start at: 2018-09-08 09:47:57
End at: 2018-09-08 09:48:27
Local clock offset: -0.23 ms
Remote clock offset: -0.483 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1378.13 Mbit/s
95th percentile per-packet one-way delay: 119.169 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 736.88 Mbit/s
95th percentile per-packet one-way delay: 123.203 ms
Loss rate: 2.78%
-- Flow 2:
Average throughput: 687.15 Mbit/s
95th percentile per-packet one-way delay: 118.367 ms
Loss rate: 2.85%
-- Flow 3:
Average throughput: 561.36 Mbit/s
95th percentile per-packet one-way delay: 72.815 ms
Loss rate: 1.45%
Run 5: Report of FillP — Data Link

![Graph of network traffic and delay](image)

- **Flow 1 Ingress (mean 755.30 Mbit/s)**
- **Flow 1 Egress (mean 736.88 Mbit/s)**
- **Flow 2 Ingress (mean 703.60 Mbit/s)**
- **Flow 2 Egress (mean 687.15 Mbit/s)**
- **Flow 3 Ingress (mean 563.49 Mbit/s)**
- **Flow 3 Egress (mean 561.36 Mbit/s)**

![Graph of packet delay](image)

- **Flow 1 (95th percentile 123.20 ms)**
- **Flow 2 (95th percentile 118.37 ms)**
- **Flow 3 (95th percentile 72.81 ms)**

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Run 1: Statistics of FillP-Sheep

Start at: 2018-09-08 07:45:13
End at: 2018-09-08 07:45:43
Local clock offset: 0.056 ms
Remote clock offset: 0.525 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1432.30 Mbit/s
95th percentile per-packet one-way delay: 130.056 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 727.22 Mbit/s
95th percentile per-packet one-way delay: 130.622 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 739.10 Mbit/s
95th percentile per-packet one-way delay: 127.313 ms
Loss rate: 2.11%
-- Flow 3:
Average throughput: 650.67 Mbit/s
95th percentile per-packet one-way delay: 135.961 ms
Loss rate: 2.31%
Run 1: Report of FillP-Sheep — Data Link

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

Legend:
- Flow 1 Ingress (mean 735.71 Mbit/s)
- Flow 1 Egress (mean 727.22 Mbit/s)
- Flow 2 Ingress (mean 750.97 Mbit/s)
- Flow 2 Egress (mean 739.16 Mbit/s)
- Flow 3 Ingress (mean 658.82 Mbit/s)
- Flow 3 Egress (mean 650.67 Mbit/s)
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-08 08:17:27
End at: 2018-09-08 08:17:57
Local clock offset: 0.01 ms
Remote clock offset: 0.467 ms

# Below is generated by plot.py at 2018-09-08 11:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1548.61 Mbit/s
95th percentile per-packet one-way delay: 111.825 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 813.69 Mbit/s
95th percentile per-packet one-way delay: 108.904 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 789.80 Mbit/s
95th percentile per-packet one-way delay: 111.100 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 637.77 Mbit/s
95th percentile per-packet one-way delay: 122.175 ms
Loss rate: 1.25%
Run 2: Report of FillP-Sheep — Data Link

![Graph of Throughput vs. Time]

- Flow 1 Ingress (mean 814.65 Mb/s)
- Flow 1 Egress (mean 813.69 Mb/s)
- Flow 2 Ingress (mean 794.38 Mb/s)
- Flow 2 Egress (mean 789.80 Mb/s)
- Flow 3 Ingress (mean 639.13 Mb/s)
- Flow 3 Egress (mean 637.77 Mb/s)

![Graph of Packet Delay vs. Time]

- Flow 1 (95th percentile 108.90 ms)
- Flow 2 (95th percentile 111.10 ms)
- Flow 3 (95th percentile 122.17 ms)
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-08 08:49:16
End at: 2018-09-08 08:49:46
Local clock offset: -0.089 ms
Remote clock offset: 0.996 ms

# Below is generated by plot.py at 2018-09-08 11:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1218.84 Mbit/s
95th percentile per-packet one-way delay: 85.519 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 681.60 Mbit/s
95th percentile per-packet one-way delay: 91.000 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 573.88 Mbit/s
95th percentile per-packet one-way delay: 71.446 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 473.98 Mbit/s
95th percentile per-packet one-way delay: 62.702 ms
Loss rate: 1.15%
Run 3: Report of FillP-Sheep — Data Link

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

- **Flow 1** (ingress: 681.52 Mbit/s, egress: 681.60 Mbit/s)
- **Flow 2** (ingress: 573.50 Mbit/s, egress: 573.88 Mbit/s)
- **Flow 3** (ingress: 473.52 Mbit/s, egress: 473.98 Mbit/s)

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

- **Flow 1** (95th percentile: 91.00 ms)
- **Flow 2** (95th percentile: 71.45 ms)
- **Flow 3** (95th percentile: 62.70 ms)
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-08 09:20:36
End at: 2018-09-08 09:21:06
Local clock offset: -0.366 ms
Remote clock offset: -0.788 ms

# Below is generated by plot.py at 2018-09-08 11:34:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1218.10 Mbit/s
95th percentile per-packet one-way delay: 106.389 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 675.88 Mbit/s
95th percentile per-packet one-way delay: 108.676 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 572.81 Mbit/s
95th percentile per-packet one-way delay: 106.897 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 491.32 Mbit/s
95th percentile per-packet one-way delay: 59.531 ms
Loss rate: 1.08%
Run 4: Report of FillP-Sheep — Data Link

![Graph 1: Throughput (Mbps)]

- Blue dashed line: Flow 1 ingress (mean 677.21 Mbps)
- Blue solid line: Flow 1 egress (mean 675.88 Mbps)
- Green dashed line: Flow 2 ingress (mean 572.89 Mbps)
- Green solid line: Flow 2 egress (mean 572.81 Mbps)
- Red dashed line: Flow 3 ingress (mean 491.00 Mbps)
- Red solid line: Flow 3 egress (mean 491.32 Mbps)

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

- Blue dashed line: Flow 1 (95th percentile 108.60 ms)
- Green dashed line: Flow 2 (95th percentile 106.90 ms)
- Red dashed line: Flow 3 (95th percentile 59.53 ms)
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-08 09:52:02
End at: 2018-09-08 09:52:32
Local clock offset: 0.195 ms
Remote clock offset: -1.433 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1380.92 Mbit/s
95th percentile per-packet one-way delay: 102.707 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 749.03 Mbit/s
95th percentile per-packet one-way delay: 106.850 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 684.88 Mbit/s
95th percentile per-packet one-way delay: 98.485 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 537.63 Mbit/s
95th percentile per-packet one-way delay: 71.435 ms
Loss rate: 1.01%
Run 5: Report of FillP-Sheep — Data Link

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

Legend:
- Flow 1 ingress (mean 751.32 Mbit/s)
- Flow 1 egress (mean 749.03 Mbit/s)
- Flow 2 ingress (mean 684.29 Mbit/s)
- Flow 2 egress (mean 684.88 Mbit/s)
- Flow 3 ingress (mean 536.84 Mbit/s)
- Flow 3 egress (mean 537.63 Mbit/s)]
Run 1: Statistics of Indigo

Start at: 2018-09-08 07:47:20
End at: 2018-09-08 07:47:50
Local clock offset: -0.029 ms
Remote clock offset: -0.254 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 458.94 Mbit/s
  95th percentile per-packet one-way delay: 55.300 ms
  Loss rate: 0.56%
-- Flow 1:
  Average throughput: 230.50 Mbit/s
  95th percentile per-packet one-way delay: 56.078 ms
  Loss rate: 0.37%
-- Flow 2:
  Average throughput: 241.62 Mbit/s
  95th percentile per-packet one-way delay: 52.198 ms
  Loss rate: 0.51%
-- Flow 3:
  Average throughput: 191.92 Mbit/s
  95th percentile per-packet one-way delay: 51.517 ms
  Loss rate: 1.33%
Run 1: Report of Indigo — Data Link

![Graph showing throughput over time for different flows]

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

Flow 1 ingress (mean 230.50 Mbit/s)  
Flow 1 egress (mean 230.50 Mbit/s)  
Flow 2 ingress (mean 241.58 Mbit/s)  
Flow 2 egress (mean 241.62 Mbit/s)  
Flow 3 ingress (mean 190.43 Mbit/s)  
Flow 3 egress (mean 191.92 Mbit/s)  

Flow 1 (95th percentile 56.08 ms)  
Flow 2 (95th percentile 52.20 ms)  
Flow 3 (95th percentile 51.52 ms)
Run 2: Statistics of Indigo

Start at: 2018-09-08 08:19:37
End at: 2018-09-08 08:20:07
Local clock offset: 0.408 ms
Remote clock offset: 0.343 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 465.90 Mbit/s
95th percentile per-packet one-way delay: 55.439 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 232.53 Mbit/s
95th percentile per-packet one-way delay: 54.856 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 239.79 Mbit/s
95th percentile per-packet one-way delay: 52.592 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 227.38 Mbit/s
95th percentile per-packet one-way delay: 59.515 ms
Loss rate: 1.18%
Run 2: Report of Indigo — Data Link
Run 3: Statistics of Indigo

Start at: 2018-09-08 08:51:15
End at: 2018-09-08 08:51:45
Local clock offset: 0.055 ms
Remote clock offset: -0.216 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 373.15 Mbit/s
95th percentile per-packet one-way delay: 54.435 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 179.89 Mbit/s
95th percentile per-packet one-way delay: 53.850 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 195.67 Mbit/s
95th percentile per-packet one-way delay: 54.927 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 196.36 Mbit/s
95th percentile per-packet one-way delay: 52.372 ms
Loss rate: 1.24%
Run 3: Report of Indigo — Data Link

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

- **Flow 1 ingress (mean 179.97 Mbit/s)**
- **Flow 1 egress (mean 179.89 Mbit/s)**
- **Flow 2 ingress (mean 195.74 Mbit/s)**
- **Flow 2 egress (mean 195.67 Mbit/s)**
- **Flow 3 ingress (mean 196.72 Mbit/s)**
- **Flow 3 egress (mean 196.36 Mbit/s)**

- [Flow 1 (95th percentile 53.85 ms)]
- [Flow 2 (95th percentile 54.93 ms)]
- [Flow 3 (95th percentile 52.37 ms)]
Run 4: Statistics of Indigo

Start at: 2018-09-08 09:22:35  
End at: 2018-09-08 09:23:05  
Local clock offset: -0.124 ms  
Remote clock offset: 0.093 ms

# Below is generated by plot.py at 2018-09-08 11:46:11  
# Datalink statistics

-- Total of 3 flows:
Average throughput: 354.23 Mbit/s
95th percentile per-packet one-way delay: 53.759 ms
Loss rate: 0.58%

-- Flow 1:
Average throughput: 177.62 Mbit/s
95th percentile per-packet one-way delay: 50.442 ms
Loss rate: 0.37%

-- Flow 2:
Average throughput: 185.82 Mbit/s
95th percentile per-packet one-way delay: 54.311 ms
Loss rate: 0.60%

-- Flow 3:
Average throughput: 164.51 Mbit/s
95th percentile per-packet one-way delay: 54.355 ms
Loss rate: 1.20%
Run 4: Report of Indigo — Data Link
Run 5: Statistics of Indigo

Start at: 2018-09-08 09:54:07
End at: 2018-09-08 09:54:37
Local clock offset: 0.057 ms
Remote clock offset: -1.59 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 422.77 Mbit/s
95th percentile per-packet one-way delay: 56.138 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 220.88 Mbit/s
95th percentile per-packet one-way delay: 53.646 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 213.53 Mbit/s
95th percentile per-packet one-way delay: 56.616 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 184.75 Mbit/s
95th percentile per-packet one-way delay: 56.564 ms
Loss rate: 1.17%
Run 5: Report of Indigo — Data Link
Run 1: Statistics of LEDBAT

Start at: 2018-09-08 07:34:21
End at: 2018-09-08 07:34:51
Local clock offset: 0.067 ms
Remote clock offset: 0.348 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 54.47 Mbit/s
  95th percentile per-packet one-way delay: 51.128 ms
  Loss rate: 0.88%
-- Flow 1:
  Average throughput: 34.59 Mbit/s
  95th percentile per-packet one-way delay: 50.805 ms
  Loss rate: 0.69%
-- Flow 2:
  Average throughput: 24.35 Mbit/s
  95th percentile per-packet one-way delay: 51.300 ms
  Loss rate: 1.01%
-- Flow 3:
  Average throughput: 11.32 Mbit/s
  95th percentile per-packet one-way delay: 50.993 ms
  Loss rate: 2.10%
Run 1: Report of LEDBAT — Data Link

![Graph 1: Throughput over time for different flows]

- **Flow 1 Ingress**: (mean 34.71 Mbit/s)
- **Flow 1 Egress**: (mean 34.59 Mbit/s)
- **Flow 2 Ingress**: (mean 24.47 Mbit/s)
- **Flow 2 Egress**: (mean 24.35 Mbit/s)
- **Flow 3 Ingress**: (mean 11.44 Mbit/s)
- **Flow 3 Egress**: (mean 11.32 Mbit/s)

![Graph 2: Per-packet one-way delay over time for different flows]

- **Flow 1 95th percentile**: 50.80 ms
- **Flow 2 95th percentile**: 51.30 ms
- **Flow 3 95th percentile**: 50.99 ms

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Run 2: Statistics of LEDBAT

Start at: 2018-09-08 08:06:33
End at: 2018-09-08 08:07:03
Local clock offset: 0.057 ms
Remote clock offset: 0.093 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 53.27 Mbit/s
  95th percentile per-packet one-way delay: 54.642 ms
  Loss rate: 0.89%
-- Flow 1:
  Average throughput: 34.13 Mbit/s
  95th percentile per-packet one-way delay: 54.689 ms
  Loss rate: 0.69%
-- Flow 2:
  Average throughput: 22.90 Mbit/s
  95th percentile per-packet one-way delay: 54.652 ms
  Loss rate: 1.04%
-- Flow 3:
  Average throughput: 12.18 Mbit/s
  95th percentile per-packet one-way delay: 50.609 ms
  Loss rate: 1.97%
Run 3: Statistics of LEDBAT

Start at: 2018-09-08 08:38:43
End at: 2018-09-08 08:39:13
Local clock offset: 0.082 ms
Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.03 Mbit/s
95th percentile per-packet one-way delay: 54.979 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 55.128 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 24.61 Mbit/s
95th percentile per-packet one-way delay: 50.877 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 53.572 ms
Loss rate: 2.11%
Run 4: Statistics of LEDBAT

Start at: 2018-09-08 09:10:01
End at: 2018-09-08 09:10:31
Local clock offset: -0.067 ms
Remote clock offset: 0.579 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.81 Mbit/s
95th percentile per-packet one-way delay: 53.408 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 34.03 Mbit/s
95th percentile per-packet one-way delay: 50.686 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 22.68 Mbit/s
95th percentile per-packet one-way delay: 53.812 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 11.29 Mbit/s
95th percentile per-packet one-way delay: 53.283 ms
Loss rate: 2.11%
Run 4: Report of LEDBAT — Data Link

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

- **Flow 1 ingress (mean 34.15 Mbit/s)**
- **Flow 1 egress (mean 34.03 Mbit/s)**
- **Flow 2 ingress (mean 22.80 Mbit/s)**
- **Flow 2 egress (mean 22.68 Mbit/s)**
- **Flow 3 ingress (mean 11.41 Mbit/s)**
- **Flow 3 egress (mean 11.29 Mbit/s)**
Run 5: Statistics of LEDBAT

Start at: 2018-09-08 09:41:23
End at: 2018-09-08 09:41:53
Local clock offset: -0.074 ms
Remote clock offset: -0.931 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 50.10 Mbit/s
95th percentile per-packet one-way delay: 55.656 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 55.795 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 21.34 Mbit/s
95th percentile per-packet one-way delay: 55.408 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 51.439 ms
Loss rate: 2.04%
Run 5: Report of LEDBAT — Data Link

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**Throughput (Mbps)**

- **Flow 1 ingress (mean 32.13 Mbit/s)**
- **Flow 1 egress (mean 32.01 Mbit/s)**
- **Flow 2 ingress (mean 21.46 Mbit/s)**
- **Flow 2 egress (mean 21.34 Mbit/s)**
- **Flow 3 ingress (mean 12.20 Mbit/s)**
- **Flow 3 egress (mean 12.07 Mbit/s)**

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

- **Flow 1 (95th percentile 55.80 ms)**
- **Flow 2 (95th percentile 55.41 ms)**
- **Flow 3 (95th percentile 51.44 ms)**

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Run 1: Statistics of Indigo-Muses

Start at: 2018-09-08 07:50:22
End at: 2018-09-08 07:50:52
Local clock offset: -0.309 ms
Remote clock offset: -1.513 ms

# Below is generated by plot.py at 2018-09-08 11:46:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1005.93 Mbit/s
95th percentile per-packet one-way delay: 62.008 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 531.26 Mbit/s
95th percentile per-packet one-way delay: 60.687 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 506.71 Mbit/s
95th percentile per-packet one-way delay: 65.307 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 417.98 Mbit/s
95th percentile per-packet one-way delay: 59.058 ms
Loss rate: 1.02%
Run 1: Report of Indigo-Muses — Data Link
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-08 08:22:41
End at: 2018-09-08 08:23:11
Local clock offset: 0.184 ms
Remote clock offset: 1.363 ms

# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1040.39 Mbit/s
  95th percentile per-packet one-way delay: 59.478 ms
  Loss rate: 0.51%
-- Flow 1:
  Average throughput: 582.52 Mbit/s
  95th percentile per-packet one-way delay: 59.458 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 494.34 Mbit/s
  95th percentile per-packet one-way delay: 62.463 ms
  Loss rate: 0.53%
-- Flow 3:
  Average throughput: 399.26 Mbit/s
  95th percentile per-packet one-way delay: 54.891 ms
  Loss rate: 1.29%
Run 2: Report of Indigo-Muses — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 582.28 Mbit/s)
Flow 1 egress (mean 582.52 Mbit/s)
Flow 2 ingress (mean 494.43 Mbit/s)
Flow 2 egress (mean 494.34 Mbit/s)
Flow 3 ingress (mean 400.15 Mbit/s)
Flow 3 egress (mean 399.26 Mbit/s)

Per-packet one-way delay (ms)

Time (s)

Flow 1 (95th percentile 59.46 ms)
Flow 2 (95th percentile 62.46 ms)
Flow 3 (95th percentile 54.89 ms)
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-08 08:54:12
End at: 2018-09-08 08:54:42
Local clock offset: 0.007 ms
Remote clock offset: -0.839 ms

# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 841.07 Mbit/s
95th percentile per-packet one-way delay: 58.769 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 466.08 Mbit/s
95th percentile per-packet one-way delay: 56.154 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 403.02 Mbit/s
95th percentile per-packet one-way delay: 60.817 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 328.06 Mbit/s
95th percentile per-packet one-way delay: 56.849 ms
Loss rate: 1.17%
Run 3: Report of Indigo-Muses — Data Link

![Graph showing throughput over time for different flows.](image1)

![Graph showing per-packet one-way delay for different flows.](image2)
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-08 09:25:30
End at: 2018-09-08 09:26:00
Local clock offset: -0.15 ms
Remote clock offset: -1.06 ms

# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 899.50 Mbit/s
  95th percentile per-packet one-way delay: 59.917 ms
  Loss rate: 0.52%
-- Flow 1:
  Average throughput: 500.97 Mbit/s
  95th percentile per-packet one-way delay: 61.261 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 422.78 Mbit/s
  95th percentile per-packet one-way delay: 56.355 ms
  Loss rate: 0.56%
-- Flow 3:
  Average throughput: 361.69 Mbit/s
  95th percentile per-packet one-way delay: 58.635 ms
  Loss rate: 1.29%
Run 4: Report of Indigo-Muses — Data Link
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-08 09:57:09
End at: 2018-09-08 09:57:39
Local clock offset: -0.169 ms
Remote clock offset: -0.207 ms

# Below is generated by plot.py at 2018-09-08 11:48:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 975.91 Mbit/s
95th percentile per.packet one-way delay: 60.235 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 516.05 Mbit/s
95th percentile per.packet one-way delay: 61.377 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 516.92 Mbit/s
95th percentile per.packet one-way delay: 59.915 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 360.29 Mbit/s
95th percentile per.packet one-way delay: 55.271 ms
Loss rate: 1.78%
Run 5: Report of Indigo-Muses — Data Link
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-08 07:43:05
End at: 2018-09-08 07:43:35
Local clock offset: -0.07 ms
Remote clock offset: 0.318 ms

# Below is generated by plot.py at 2018-09-08 12:01:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 894.64 Mbit/s
95th percentile per-packet one-way delay: 216.185 ms
Loss rate: 7.60%
-- Flow 1:
Average throughput: 475.39 Mbit/s
95th percentile per-packet one-way delay: 167.984 ms
Loss rate: 3.73%
-- Flow 2:
Average throughput: 444.42 Mbit/s
95th percentile per-packet one-way delay: 240.693 ms
Loss rate: 10.06%
-- Flow 3:
Average throughput: 379.87 Mbit/s
95th percentile per-packet one-way delay: 244.526 ms
Loss rate: 15.17%
Run 1: Report of PCC-Allegro — Data Link

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

- **Flow 1** (ingress: mean 492.02 Mbit/s, egress: mean 475.39 Mbit/s)
- **Flow 2** (ingress: mean 491.50 Mbit/s, egress: mean 444.42 Mbit/s)
- **Flow 3** (ingress: mean 442.90 Mbit/s, egress: mean 379.67 Mbit/s)

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

- **Flow 1** (95th percentile: 167.98 ms)
- **Flow 2** (95th percentile: 240.69 ms)
- **Flow 3** (95th percentile: 244.53 ms)
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-08 08:15:19
End at: 2018-09-08 08:15:49
Local clock offset: 0.195 ms
Remote clock offset: -0.444 ms

# Below is generated by plot.py at 2018-09-08 12:03:46
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 876.82 Mbit/s
  95th percentile per-packet one-way delay: 184.010 ms
  Loss rate: 5.85%
-- Flow 1:
  Average throughput: 481.30 Mbit/s
  95th percentile per-packet one-way delay: 183.522 ms
  Loss rate: 5.72%
-- Flow 2:
  Average throughput: 456.72 Mbit/s
  95th percentile per-packet one-way delay: 185.028 ms
  Loss rate: 7.04%
-- Flow 3:
  Average throughput: 282.84 Mbit/s
  95th percentile per-packet one-way delay: 143.839 ms
  Loss rate: 2.42%
Run 2: Report of PCC-Allegro — Data Link
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-08 08:47:18
End at: 2018-09-08 08:47:48
Local clock offset: 0.021 ms
Remote clock offset: -1.386 ms

# Below is generated by plot.py at 2018-09-08 12:08:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 765.15 Mbit/s
95th percentile per-packet one-way delay: 166.417 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 420.39 Mbit/s
95th percentile per-packet one-way delay: 171.640 ms
Loss rate: 2.21%
-- Flow 2:
Average throughput: 354.84 Mbit/s
95th percentile per-packet one-way delay: 93.156 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 334.38 Mbit/s
95th percentile per-packet one-way delay: 75.763 ms
Loss rate: 1.34%
Run 3: Report of PCC-Allegro — Data Link
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-08 09:18:35
End at: 2018-09-08 09:19:05
Local clock offset: 0.071 ms
Remote clock offset: -0.343 ms

# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 799.08 Mbit/s
95th percentile per-packet one-way delay: 154.018 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 437.01 Mbit/s
95th percentile per-packet one-way delay: 158.507 ms
Loss rate: 1.88%
-- Flow 2:
Average throughput: 395.67 Mbit/s
95th percentile per-packet one-way delay: 112.772 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 304.49 Mbit/s
95th percentile per-packet one-way delay: 161.622 ms
Loss rate: 3.19%
Run 4: Report of PCC-Allegro — Data Link

The diagrams show the throughput and per-packet delay over time for different flows. The text below the diagrams provides details on the mean throughput and delay for each flow.

Throughput (Mbps):
- Flow 1 ingress: mean 443.83 Mbps
- Flow 1 egress: mean 437.01 Mbps
- Flow 2 ingress: mean 395.92 Mbps
- Flow 2 egress: mean 395.67 Mbps
- Flow 3 ingress: mean 311.23 Mbps
- Flow 3 egress: mean 304.49 Mbps

Per-packet delay (ms):
- Flow 1 (95th percentile): 158.51 ms
- Flow 2 (95th percentile): 112.77 ms
- Flow 3 (95th percentile): 161.62 ms
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-08 09:50:03
End at: 2018-09-08 09:50:33
Local clock offset: -0.005 ms
Remote clock offset: -0.848 ms

# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 752.38 Mbit/s
95th percentile per-packet one-way delay: 178.925 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 424.74 Mbit/s
95th percentile per-packet one-way delay: 182.703 ms
Loss rate: 2.60%
-- Flow 2:
Average throughput: 349.20 Mbit/s
95th percentile per-packet one-way delay: 176.046 ms
Loss rate: 3.97%
-- Flow 3:
Average throughput: 293.54 Mbit/s
95th percentile per-packet one-way delay: 163.650 ms
Loss rate: 3.33%
Run 5: Report of PCC-Allegro — Data Link

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

- Flow 1 ingress (mean 434.56 Mbit/s)
- Flow 1 egress (mean 424.74 Mbit/s)
- Flow 2 ingress (mean 361.78 Mbit/s)
- Flow 2 egress (mean 349.20 Mbit/s)
- Flow 3 ingress (mean 300.48 Mbit/s)
- Flow 3 egress (mean 293.54 Mbit/s)

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

- Flow 1 (95th percentile 182.70 ms)
- Flow 2 (95th percentile 176.05 ms)
- Flow 3 (95th percentile 163.65 ms)
Run 1: Statistics of PCC-Expr

Start at: 2018-09-08 07:38:54
End at: 2018-09-08 07:39:24
Local clock offset: 0.064 ms
Remote clock offset: -0.106 ms

# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 561.21 Mbit/s
95th percentile per-packet one-way delay: 141.294 ms
Loss rate: 1.59%
-- Flow 1:
Average throughput: 316.25 Mbit/s
95th percentile per-packet one-way delay: 149.201 ms
Loss rate: 1.39%
-- Flow 2:
Average throughput: 301.12 Mbit/s
95th percentile per-packet one-way delay: 96.208 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 137.67 Mbit/s
95th percentile per-packet one-way delay: 51.063 ms
Loss rate: 1.80%
Run 1: Report of PCC-Expr — Data Link

![Graph showing data link performance over time with throughput and per-packet end-to-end delay measurements.]

- Flow 1 ingress (mean 319.56 Mbit/s)
- Flow 1 egress (mean 316.25 Mbit/s)
- Flow 2 ingress (mean 305.06 Mbit/s)
- Flow 2 egress (mean 301.12 Mbit/s)
- Flow 3 ingress (mean 136.72 Mbit/s)
- Flow 3 egress (mean 137.67 Mbit/s)
Run 2: Statistics of PCC-Expr

Start at: 2018-09-08 08:11:07
End at: 2018-09-08 08:11:37
Local clock offset: 0.028 ms
Remote clock offset: -0.154 ms

# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 531.16 Mbit/s
95th percentile per-packet one-way delay: 122.093 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 321.48 Mbit/s
95th percentile per-packet one-way delay: 125.142 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 289.27 Mbit/s
95th percentile per-packet one-way delay: 119.269 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 54.26 Mbit/s
95th percentile per-packet one-way delay: 53.952 ms
Loss rate: 1.66%
Run 2: Report of PCC-Expr — Data Link

![Graph showing throughput and delay over time for different flows. The graphs display throughput in Mbps and per-packet one-way delay in ms. The legend provides the mean rates for each flow: Flow 1 ingress (mean 322.54 Mbps), Flow 1 egress (mean 321.48 Mbps), Flow 2 ingress (mean 289.87 Mbps), Flow 2 egress (mean 289.27 Mbps), Flow 3 ingress (mean 54.37 Mbps), Flow 3 egress (mean 54.26 Mbps).]
Run 3: Statistics of PCC-Expr

Start at: 2018-09-08 08:43:13
End at: 2018-09-08 08:43:43
Local clock offset: 0.091 ms
Remote clock offset: -0.104 ms

# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 553.77 Mbit/s
95th percentile per-packet one-way delay: 124.099 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 315.34 Mbit/s
95th percentile per-packet one-way delay: 133.331 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 292.59 Mbit/s
95th percentile per-packet one-way delay: 97.997 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 134.86 Mbit/s
95th percentile per-packet one-way delay: 50.308 ms
Loss rate: 2.30%
Run 3: Report of PCC-Expr — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 317.03 Mbit/s)  Flow 1 egress (mean 315.34 Mbit/s)
Flow 2 ingress (mean 293.05 Mbit/s)  Flow 2 egress (mean 292.59 Mbit/s)
Flow 3 ingress (mean 136.58 Mbit/s)  Flow 3 egress (mean 134.66 Mbit/s)

Per packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 133.33 ms)  Flow 2 (95th percentile 98.00 ms)  Flow 3 (95th percentile 50.31 ms)
Run 4: Statistics of PCC-Expr

Start at: 2018-09-08 09:14:29
End at: 2018-09-08 09:14:59
Local clock offset: -0.08 ms
Remote clock offset: -0.765 ms

# Below is generated by plot.py at 2018-09-08 12:18:33
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 572.80 Mbit/s
  95th percentile per-packet one-way delay: 141.293 ms
  Loss rate: 1.31%
-- Flow 1:
  Average throughput: 282.93 Mbit/s
  95th percentile per-packet one-way delay: 140.642 ms
  Loss rate: 0.78%
-- Flow 2:
  Average throughput: 306.01 Mbit/s
  95th percentile per-packet one-way delay: 158.469 ms
  Loss rate: 2.15%
-- Flow 3:
  Average throughput: 264.71 Mbit/s
  95th percentile per-packet one-way delay: 108.974 ms
  Loss rate: 1.09%
Run 4: Report of PCC-Expr — Data Link

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

- Flow 1 ingress (mean 284.15 Mbps)
- Flow 1 egress (mean 292.93 Mbps)
- Flow 2 ingress (mean 311.09 Mbps)
- Flow 2 egress (mean 306.01 Mbps)
- Flow 3 ingress (mean 264.77 Mbps)
- Flow 3 egress (mean 264.71 Mbps)

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

- Flow 1 (95th percentile 140.64 ms)
- Flow 2 (95th percentile 158.47 ms)
- Flow 3 (95th percentile 108.97 ms)
Run 5: Statistics of PCC-Expr

Start at: 2018-09-08 09:45:55
End at: 2018-09-08 09:46:25
Local clock offset: 0.045 ms
Remote clock offset: -0.609 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 582.80 Mbit/s
95th percentile per-packet one-way delay: 121.268 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 317.36 Mbit/s
95th percentile per-packet one-way delay: 112.363 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 272.57 Mbit/s
95th percentile per-packet one-way delay: 108.163 ms
Loss rate: 1.66%
-- Flow 3:
Average throughput: 258.57 Mbit/s
95th percentile per-packet one-way delay: 182.702 ms
Loss rate: 3.74%
Run 5: Report of PCC-Expr — Data Link

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

- Flow 1 ingress (mean 320.13 Mbit/s)
- Flow 1 egress (mean 317.36 Mbit/s)
- Flow 2 ingress (mean 276.02 Mbit/s)
- Flow 2 egress (mean 272.57 Mbit/s)
- Flow 3 ingress (mean 265.75 Mbit/s)
- Flow 3 egress (mean 258.57 Mbit/s)

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

- Flow 1 (95th percentile 112.36 ms)
- Flow 2 (95th percentile 108.16 ms)
- Flow 3 (95th percentile 102.70 ms)
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-08 07:37:37
End at: 2018-09-08 07:38:07
Local clock offset: -0.215 ms
Remote clock offset: -0.992 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 114.67 Mbit/s
  95th percentile per-packet one-way delay: 54.390 ms
  Loss rate: 0.69%
  -- Flow 1:
    Average throughput: 57.49 Mbit/s
    95th percentile per-packet one-way delay: 50.774 ms
    Loss rate: 0.50%
  -- Flow 2:
    Average throughput: 61.21 Mbit/s
    95th percentile per-packet one-way delay: 54.417 ms
    Loss rate: 1.08%
  -- Flow 3:
    Average throughput: 42.83 Mbit/s
    95th percentile per-packet one-way delay: 51.213 ms
    Loss rate: 0.25%
Run 1: Report of QUIC Cubic — Data Link
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-08 08:09:51
End at: 2018-09-08 08:10:21
Local clock offset: 0.071 ms
Remote clock offset: -0.188 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.23 Mbit/s
95th percentile per-packet one-way delay: 53.649 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 61.51 Mbit/s
95th percentile per-packet one-way delay: 53.632 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 48.50 Mbit/s
95th percentile per-packet one-way delay: 53.661 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 19.82 Mbit/s
95th percentile per-packet one-way delay: 53.655 ms
Loss rate: 0.34%
Run 2: Report of QUIC Cubic — Data Link
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-08 08:41:58
End at: 2018-09-08 08:42:28
Local clock offset: 0.131 ms
Remote clock offset: -0.369 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.61 Mbit/s
95th percentile per-packet one-way delay: 54.104 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 54.45 Mbit/s
95th percentile per-packet one-way delay: 51.093 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 34.03 Mbit/s
95th percentile per-packet one-way delay: 53.975 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 32.14 Mbit/s
95th percentile per-packet one-way delay: 54.172 ms
Loss rate: 0.31%
Run 3: Report of QUIC Cubic — Data Link
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-08 09:13:14
End at: 2018-09-08 09:13:44
Local clock offset: 0.078 ms
Remote clock offset: 1.298 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 96.02 Mbit/s
  95th percentile per-packet one-way delay: 52.252 ms
  Loss rate: 0.57%
-- Flow 1:
  Average throughput: 51.97 Mbit/s
  95th percentile per-packet one-way delay: 48.968 ms
  Loss rate: 0.49%
-- Flow 2:
  Average throughput: 53.26 Mbit/s
  95th percentile per-packet one-way delay: 52.289 ms
  Loss rate: 0.75%
-- Flow 3:
  Average throughput: 24.91 Mbit/s
  95th percentile per-packet one-way delay: 52.271 ms
  Loss rate: 0.32%
Run 4: Report of QUIC Cubic — Data Link
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-08 09:44:39
End at: 2018-09-08 09:45:09
Local clock offset: -0.027 ms
Remote clock offset: -1.199 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.76 Mbit/s
95th percentile per-packet one-way delay: 54.758 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 60.17 Mbit/s
95th percentile per-packet one-way delay: 51.042 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 41.95 Mbit/s
95th percentile per-packet one-way delay: 54.800 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 17.39 Mbit/s
95th percentile per-packet one-way delay: 51.263 ms
Loss rate: 4.46%
Run 5: Report of QUIC Cubic — Data Link
Run 1: Statistics of SCReAM

Start at: 2018-09-08 07:55:37
End at: 2018-09-08 07:56:07
Local clock offset: 0.068 ms
Remote clock offset: -0.836 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.43 Mbit/s
  95th percentile per-packet one-way delay: 54.420 ms
  Loss rate: 0.51%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 51.156 ms
  Loss rate: 0.26%
-- Flow 2:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 51.147 ms
  Loss rate: 0.61%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 54.514 ms
  Loss rate: 1.09%
Run 1: Report of SCReAM — Data Link

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

- Flow 1 ingress (mean 0.22 Mb/s)
- Flow 1 egress (mean 0.22 Mb/s)
- Flow 2 ingress (mean 0.22 Mb/s)
- Flow 2 egress (mean 0.22 Mb/s)
- Flow 3 ingress (mean 0.22 Mb/s)
- Flow 3 egress (mean 0.22 Mb/s)

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

- Flow 1 (95th percentile 51.16 ms)
- Flow 2 (95th percentile 51.15 ms)
- Flow 3 (95th percentile 54.51 ms)
Run 2: Statistics of SCReAM

Start at: 2018-09-08 08:27:59
End at: 2018-09-08 08:28:29
Local clock offset: -0.048 ms
Remote clock offset: -0.904 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 54.324 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 50.777 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 51.369 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.413 ms
Loss rate: 1.09%
Run 2: Report of SCReAM — Data Link

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**Graph 1:** Throughput (Mbps) over Time (s)
- **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 one-way delay (ms)
- **Flow 1 (95th percentile 50.78 ms)**
- **Flow 2 (95th percentile 51.37 ms)**
- **Flow 3 (95th percentile 54.41 ms)**
Run 3: Statistics of SCReAM

Start at: 2018-09-08 08:59:18
End at: 2018-09-08 08:59:48
Local clock offset: -0.019 ms
Remote clock offset: 0.145 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.43 Mbit/s
  95th percentile per-packet one-way delay: 53.529 ms
  Loss rate: 0.58%
-- Flow 1:
  Average throughput: 0.21 Mbit/s
  95th percentile per-packet one-way delay: 53.542 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 0.21 Mbit/s
  95th percentile per-packet one-way delay: 53.523 ms
  Loss rate: 0.62%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 52.983 ms
  Loss rate: 1.09%
Run 3: Report of SCReAM — Data Link
Run 4: Statistics of SCReAM

Start at: 2018-09-08 09:30:38
End at: 2018-09-08 09:31:08
Local clock offset: -0.172 ms
Remote clock offset: 1.099 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.42 Mbit/s
  95th percentile per-packet one-way delay: 52.666 ms
  Loss rate: 0.52%
-- Flow 1:
  Average throughput: 0.21 Mbit/s
  95th percentile per-packet one-way delay: 52.699 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 0.21 Mbit/s
  95th percentile per-packet one-way delay: 52.530 ms
  Loss rate: 0.61%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 48.901 ms
  Loss rate: 0.74%
Run 4: Report of SCReAM — Data Link

![Graph of Throughput and Packet Loss Over Time]

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

**Throughput (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)

**Packet Loss Delay (ms):**
- Flow 1 (95th percentile 52.70 ms)
- Flow 2 (95th percentile 52.53 ms)
- Flow 3 (95th percentile 48.90 ms)
Run 5: Statistics of SCReAM

Start at: 2018-09-08 10:02:24
End at: 2018-09-08 10:02:54
Local clock offset: -0.113 ms
Remote clock offset: -0.287 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 53.901 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.281 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.965 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.166 ms
Loss rate: 1.09%
Run 5: Report of SCReAM — Data Link

[Graph showing throughput and packet round trip delay over time]
Run 1: Statistics of Sprout

Start at: 2018-09-08 07:49:10
End at: 2018-09-08 07:49:41
Local clock offset: -0.178 ms
Remote clock offset: -0.335 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.04 Mbit/s
95th percentile per-packet one-way delay: 54.349 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 54.421 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 51.181 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 7.62 Mbit/s
95th percentile per-packet one-way delay: 54.406 ms
Loss rate: 1.26%
Run 1: Report of Sprout — Data Link
Run 2: Statistics of Sprout

Start at: 2018-09-08 08:21:29
End at: 2018-09-08 08:21:59
Local clock offset: 0.275 ms
Remote clock offset: 1.199 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 53.347 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 8.17 Mbit/s
95th percentile per-packet one-way delay: 53.306 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 8.12 Mbit/s
95th percentile per-packet one-way delay: 53.243 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 7.68 Mbit/s
95th percentile per-packet one-way delay: 53.648 ms
Loss rate: 1.28%
Run 2: Report of Sprout — Data Link

![Graph showing network performance metrics]

- Throughput (Mbps/s)
- Time (s)

- Flow 1 ingress (mean 8.17 Mbps/s)
- Flow 1 egress (mean 8.17 Mbps/s)
- Flow 2 ingress (mean 8.06 Mbps/s)
- Flow 2 egress (mean 8.12 Mbps/s)
- Flow 3 ingress (mean 7.73 Mbps/s)
- Flow 3 egress (mean 7.66 Mbps/s)

![Graph showing packet round-trip delay (ms)]

- Time (s)

- Flow 1 (95th percentile 53.31 ms)
- Flow 2 (95th percentile 53.24 ms)
- Flow 3 (95th percentile 53.65 ms)
Run 3: Statistics of Sprout

Start at: 2018-09-08 08:53:00
End at: 2018-09-08 08:53:30
Local clock offset: 0.059 ms
Remote clock offset: 0.182 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.18 Mbit/s
95th percentile per-packet one-way delay: 53.722 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 8.26 Mbit/s
95th percentile per-packet one-way delay: 50.898 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 53.870 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 50.980 ms
Loss rate: 1.30%
Run 3: Report of Sprout — Data Link
Run 4: Statistics of Sprout

Start at: 2018-09-08 09:24:18
End at: 2018-09-08 09:24:48
Local clock offset: -0.154 ms
Remote clock offset: -0.272 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 15.99 Mbit/s
  95th percentile per-packet one-way delay: 53.874 ms
  Loss rate: 0.54%
-- Flow 1:
  Average throughput: 8.16 Mbit/s
  95th percentile per-packet one-way delay: 50.641 ms
  Loss rate: 0.20%
-- Flow 2:
  Average throughput: 8.12 Mbit/s
  95th percentile per-packet one-way delay: 51.342 ms
  Loss rate: 0.74%
-- Flow 3:
  Average throughput: 7.47 Mbit/s
  95th percentile per-packet one-way delay: 54.215 ms
  Loss rate: 1.22%
Run 4: Report of Sprout — Data Link

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

- Flow 1 ingress (mean 8.14 Mbit/s)
- Flow 1 egress (mean 8.16 Mbit/s)
- Flow 2 ingress (mean 8.12 Mbit/s)
- Flow 2 egress (mean 8.12 Mbit/s)
- Flow 3 ingress (mean 7.51 Mbit/s)
- Flow 3 egress (mean 7.47 Mbit/s)
Run 5: Statistics of Sprout

Start at: 2018-09-08 09:55:57
End at: 2018-09-08 09:56:27
Local clock offset: 0.005 ms
Remote clock offset: 0.478 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.00 Mbit/s
95th percentile per-packet one-way delay: 53.171 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 8.06 Mbit/s
95th percentile per-packet one-way delay: 53.170 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 50.373 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 53.337 ms
Loss rate: 1.19%
Run 5: Report of Sprout — Data Link
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-08 07:24:43
End at: 2018-09-08 07:25:13
Local clock offset: -0.084 ms
Remote clock offset: -0.533 ms

# Below is generated by plot.py at 2018-09-08 12:21:37
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 488.87 Mbit/s
  95th percentile per-packet one-way delay: 55.683 ms
  Loss rate: 0.55%
-- Flow 1:
  Average throughput: 253.73 Mbit/s
  95th percentile per-packet one-way delay: 54.883 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 238.46 Mbit/s
  95th percentile per-packet one-way delay: 58.581 ms
  Loss rate: 0.57%
-- Flow 3:
  Average throughput: 232.28 Mbit/s
  95th percentile per-packet one-way delay: 54.846 ms
  Loss rate: 1.21%
Run 1: Report of TaoVA-100x — Data Link

![Graph showing data link performance metrics over time.]

**Throughput (Mbps):**
- **Flow 1 ingress (mean 253.73 Mbps):**
- **Flow 1 egress (mean 253.73 Mbps):**
- **Flow 2 ingress (mean 238.53 Mbps):**
- **Flow 2 egress (mean 238.46 Mbps):**
- **Flow 3 ingress (mean 232.59 Mbps):**
- **Flow 3 egress (mean 232.28 Mbps):**

**Per-packet end-to-end delay (ms):**
- **Flow 1 (95th percentile 54.88 ms):**
- **Flow 2 (95th percentile 58.58 ms):**
- **Flow 3 (95th percentile 54.85 ms):**
Run 2: Statistics of TaoVA-100x

Start at: 2018-09-08 07:56:47
End at: 2018-09-08 07:57:17
Local clock offset: 0.219 ms
Remote clock offset: -0.272 ms

# Below is generated by plot.py at 2018-09-08 12:21:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 491.45 Mbit/s
95th percentile per-packet one-way delay: 53.930 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 255.01 Mbit/s
95th percentile per-packet one-way delay: 52.418 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 249.49 Mbit/s
95th percentile per-packet one-way delay: 51.471 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 214.08 Mbit/s
95th percentile per-packet one-way delay: 54.025 ms
Loss rate: 1.32%
Run 2: Report of TaoVA-100x — Data Link

![Graph showing throughput and packet delay](#)
Run 3: Statistics of TaoVA-100x

Start at: 2018-09-08 08:29:10
End at: 2018-09-08 08:29:40
Local clock offset: 0.054 ms
Remote clock offset: 0.007 ms

# Below is generated by plot.py at 2018-09-08 12:21:50
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 480.62 Mbit/s
  95th percentile per-packet one-way delay: 53.562 ms
  Loss rate: 0.42%
-- Flow 1:
  Average throughput: 243.41 Mbit/s
  95th percentile per-packet one-way delay: 53.482 ms
  Loss rate: 0.40%
-- Flow 2:
  Average throughput: 243.58 Mbit/s
  95th percentile per-packet one-way delay: 49.881 ms
  Loss rate: 0.09%
-- Flow 3:
  Average throughput: 227.96 Mbit/s
  95th percentile per-packet one-way delay: 53.627 ms
  Loss rate: 1.21%
Run 3: Report of TaoVA-100x — Data Link

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

- **Flow 1 ingress (mean 243.51 Mbps)**
- **Flow 1 egress (mean 243.41 Mbps)**
- **Flow 2 ingress (mean 242.53 Mbps)**
- **Flow 2 egress (mean 243.58 Mbps)**
- **Flow 3 ingress (mean 228.24 Mbps)**
- **Flow 3 egress (mean 227.96 Mbps)**

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

- **Flow 1 (95th percentile 53.48 ms)**
- **Flow 2 (95th percentile 49.88 ms)**
- **Flow 3 (95th percentile 53.63 ms)**
Run 4: Statistics of TaoVA-100x

Start at: 2018-09-08 09:00:28
End at: 2018-09-08 09:00:58
Local clock offset: -0.199 ms
Remote clock offset: 0.593 ms

# Below is generated by plot.py at 2018-09-08 12:22:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 479.08 Mbit/s
95th percentile per-packet one-way delay: 52.715 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 242.59 Mbit/s
95th percentile per-packet one-way delay: 52.809 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 240.34 Mbit/s
95th percentile per-packet one-way delay: 49.372 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 232.22 Mbit/s
95th percentile per-packet one-way delay: 49.148 ms
Loss rate: 1.12%
Run 4: Report of TaoVA-100x — Data Link

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

- **Flow 1 Ingress (mean 242.62 Mbps)**
- **Flow 1 Egress (mean 242.59 Mbps)**
- **Flow 2 Ingress (mean 240.31 Mbps)**
- **Flow 2 Egress (mean 240.34 Mbps)**
- **Flow 3 Ingress (mean 232.39 Mbps)**
- **Flow 3 Egress (mean 232.22 Mbps)**
Run 5: Statistics of TaoVA-100x

Start at: 2018-09-08 09:31:48
End at: 2018-09-08 09:32:18
Local clock offset: -0.28 ms
Remote clock offset: -0.321 ms

# Below is generated by plot.py at 2018-09-08 12:23:26
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 471.53 Mbit/s
  95th percentile per-packet one-way delay: 53.773 ms
  Loss rate: 0.56%
-- Flow 1:
  Average throughput: 234.19 Mbit/s
  95th percentile per-packet one-way delay: 53.752 ms
  Loss rate: 0.39%
-- Flow 2:
  Average throughput: 240.53 Mbit/s
  95th percentile per-packet one-way delay: 53.943 ms
  Loss rate: 0.55%
-- Flow 3:
  Average throughput: 234.44 Mbit/s
  95th percentile per-packet one-way delay: 51.151 ms
  Loss rate: 1.10%
Run 5: Report of TaoVA-100x — Data Link

**Throughput (Mbps):**

- Flow 1 ingress (mean 234.24 Mbps)
- Flow 1 egress (mean 234.19 Mbps)
- Flow 2 ingress (mean 240.53 Mbps)
- Flow 2 egress (mean 240.53 Mbps)
- Flow 3 ingress (mean 234.51 Mbps)
- Flow 3 egress (mean 234.44 Mbps)

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

- Flow 1 (95th percentile 53.75 ms)
- Flow 2 (95th percentile 53.94 ms)
- Flow 3 (95th percentile 51.15 ms)
Run 1: Statistics of TCP Vegas

Start at: 2018-09-08 07:35:37  
End at: 2018-09-08 07:36:07  
Local clock offset: -0.093 ms  
Remote clock offset: -0.696 ms

# Below is generated by plot.py at 2018-09-08 12:27:16  
# Datalink statistics
-- Total of 3 flows:  
Average throughput: 1044.44 Mbit/s  
95th percentile per-packet one-way delay: 76.746 ms  
Loss rate: 0.59%  
-- Flow 1:  
Average throughput: 522.67 Mbit/s  
95th percentile per-packet one-way delay: 68.927 ms  
Loss rate: 0.38%  
-- Flow 2:  
Average throughput: 529.57 Mbit/s  
95th percentile per-packet one-way delay: 54.665 ms  
Loss rate: 0.52%  
-- Flow 3:  
Average throughput: 513.53 Mbit/s  
95th percentile per-packet one-way delay: 80.696 ms  
Loss rate: 1.39%
Run 1: Report of TCP Vegas — Data Link
Run 2: Statistics of TCP Vegas

Start at: 2018-09-08 08:07:49
End at: 2018-09-08 08:08:19
Local clock offset: 0.153 ms
Remote clock offset: 0.078 ms

# Below is generated by plot.py at 2018-09-08 12:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1054.13 Mbit/s
95th percentile per-packet one-way delay: 85.034 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 531.40 Mbit/s
95th percentile per-packet one-way delay: 56.507 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 515.80 Mbit/s
95th percentile per-packet one-way delay: 80.121 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 544.60 Mbit/s
95th percentile per-packet one-way delay: 103.343 ms
Loss rate: 1.54%
Run 2: Report of TCP Vegas — Data Link

![Graph 1: Throughput (Mbps)]

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

Start at: 2018-09-08 08:39:59
End at: 2018-09-08 08:40:29
Local clock offset: 0.022 ms
Remote clock offset: -0.192 ms

# Below is generated by plot.py at 2018-09-08 12:35:50
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 991.23 Mbit/s
  95th percentile per-packet one-way delay: 60.297 ms
  Loss rate: 0.47%
-- Flow 1:
  Average throughput: 518.67 Mbit/s
  95th percentile per-packet one-way delay: 59.859 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 484.35 Mbit/s
  95th percentile per-packet one-way delay: 57.627 ms
  Loss rate: 0.30%
-- Flow 3:
  Average throughput: 454.90 Mbit/s
  95th percentile per-packet one-way delay: 62.837 ms
  Loss rate: 1.26%
Run 3: Report of TCP Vegas — Data Link

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

- **Flow 1 ingress** (mean 518.69 Mbit/s)
- **Flow 1 egress** (mean 518.67 Mbit/s)
- **Flow 2 ingress** (mean 483.28 Mbit/s)
- **Flow 2 egress** (mean 484.35 Mbit/s)
- **Flow 3 ingress** (mean 455.97 Mbit/s)
- **Flow 3 egress** (mean 454.90 Mbit/s)

![Graph showing per-packet end-to-end delay over time for different flows.]

- **Flow 1** (95th percentile 59.06 ms)
- **Flow 2** (95th percentile 57.63 ms)
- **Flow 3** (95th percentile 62.84 ms)
Run 4: Statistics of TCP Vegas

Start at: 2018-09-08 09:11:17
End at: 2018-09-08 09:11:47
Local clock offset: -0.046 ms
Remote clock offset: -0.275 ms

# Below is generated by plot.py at 2018-09-08 12:36:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 936.33 Mbit/s
95th percentile per-packet one-way delay: 55.499 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 515.49 Mbit/s
95th percentile per-packet one-way delay: 54.329 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 406.29 Mbit/s
95th percentile per-packet one-way delay: 55.560 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 455.80 Mbit/s
95th percentile per-packet one-way delay: 57.509 ms
Loss rate: 1.23%
Run 4: Report of TCP Vegas — Data Link
Run 5: Statistics of TCP Vegas

Start at: 2018-09-08 09:42:38
End at: 2018-09-08 09:43:08
Local clock offset: 0.092 ms
Remote clock offset: -0.349 ms

# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1021.35 Mbit/s
95th percentile per-packet one-way delay: 64.511 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 530.27 Mbit/s
95th percentile per-packet one-way delay: 61.122 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 514.31 Mbit/s
95th percentile per-packet one-way delay: 66.900 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 451.80 Mbit/s
95th percentile per-packet one-way delay: 56.985 ms
Loss rate: 1.17%
Run 5: Report of TCP Vegas — Data Link
Run 1: Statistics of Verus

Start at: 2018-09-08 07:28:27
End at: 2018-09-08 07:28:57
Local clock offset: -0.137 ms
Remote clock offset: 0.207 ms

# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 289.58 Mbit/s
  95th percentile per-packet one-way delay: 92.753 ms
  Loss rate: 0.57%
-- Flow 1:
  Average throughput: 164.50 Mbit/s
  95th percentile per-packet one-way delay: 98.430 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 132.76 Mbit/s
  95th percentile per-packet one-way delay: 91.436 ms
  Loss rate: 0.68%
-- Flow 3:
  Average throughput: 112.14 Mbit/s
  95th percentile per-packet one-way delay: 65.609 ms
  Loss rate: 1.20%
Run 1: Report of Verus — Data Link

[Graph showing throughput and per-packet round-trip delay for different flows over time]
Run 2: Statistics of Verus

Start at: 2018-09-08 08:00:34
End at: 2018-09-08 08:01:04
Local clock offset: -0.016 ms
Remote clock offset: 0.822 ms

# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 326.95 Mbit/s
95th percentile per-packet one-way delay: 191.997 ms
Loss rate: 3.57%

-- Flow 1:
Average throughput: 162.69 Mbit/s
95th percentile per-packet one-way delay: 88.947 ms
Loss rate: 0.44%

-- Flow 2:
Average throughput: 194.53 Mbit/s
95th percentile per-packet one-way delay: 214.307 ms
Loss rate: 7.55%

-- Flow 3:
Average throughput: 106.92 Mbit/s
95th percentile per-packet one-way delay: 105.991 ms
Loss rate: 2.30%
Run 2: Report of Verus — Data Link

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

**Throughput (Mbps):**
- **Flow 1 ingress (mean 162.82 Mbps)**
- **Flow 1 egress (mean 162.69 Mbps)**
- **Flow 2 ingress (mean 209.29 Mbps)**
- **Flow 2 egress (mean 194.53 Mbps)**
- **Flow 3 ingress (mean 107.74 Mbps)**
- **Flow 3 egress (mean 106.92 Mbps)**

**Round-trip delay (ms):**
- **Flow 1 (95th percentile 88.95 ms)**
- **Flow 2 (95th percentile 214.31 ms)**
- **Flow 3 (95th percentile 105.99 ms)**
Run 3: Statistics of Verus

Start at: 2018-09-08 08:32:54
End at: 2018-09-08 08:33:24
Local clock offset: 0.055 ms
Remote clock offset: 1.288 ms

# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
# Total of 3 flows:
Average throughput: 302.01 Mbit/s
95th percentile per-packet one-way delay: 175.763 ms
Loss rate: 1.19%

-- Flow 1:
Average throughput: 203.04 Mbit/s
95th percentile per-packet one-way delay: 185.027 ms
Loss rate: 1.72%

-- Flow 2:
Average throughput: 106.20 Mbit/s
95th percentile per-packet one-way delay: 59.653 ms
Loss rate: 0.13%

-- Flow 3:
Average throughput: 85.66 Mbit/s
95th percentile per-packet one-way delay: 87.199 ms
Loss rate: 0.00%
Run 3: Report of Verus — Data Link

The diagrams show the throughput and per-packet one-way delay over time for different flows. The throughput is measured in Mbps, and the per-packet one-way delay is measured in ms.

Throughput (Mbps):
- Flow 1 ingress (mean 207.35 Mbps)
- Flow 1 egress (mean 203.04 Mbps)
- Flow 2 ingress (mean 106.09 Mbps)
- Flow 2 egress (mean 106.20 Mbps)
- Flow 3 ingress (mean 85.69 Mbps)
- Flow 3 egress (mean 85.66 Mbps)

Per-packet one-way delay (ms):
- Flow 1 (95th percentile 185.03 ms)
- Flow 2 (95th percentile 59.65 ms)
- Flow 3 (95th percentile 87.20 ms)
Run 4: Statistics of Verus

Start at: 2018-09-08 09:04:14
End at: 2018-09-08 09:04:44
Local clock offset: -0.034 ms
Remote clock offset: 0.613 ms

# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 290.93 Mbit/s
95th percentile per-packet one-way delay: 92.585 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 145.50 Mbit/s
95th percentile per-packet one-way delay: 92.873 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 157.29 Mbit/s
95th percentile per-packet one-way delay: 95.866 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 123.33 Mbit/s
95th percentile per-packet one-way delay: 63.834 ms
Loss rate: 0.84%
Run 4: Report of Verus — Data Link

The graphs show the throughput and packet delay over time for three different flows. The throughput graph indicates the data rate at different time intervals, while the packet delay graph shows the delay experienced by packets from the ingress to egress of the network.

Legend:
- Flow 1 ingress (mean 145.32 Mb/s)
- Flow 1 egress (mean 145.50 Mb/s)
- Flow 2 ingress (mean 157.49 Mb/s)
- Flow 2 egress (mean 157.29 Mb/s)
- Flow 3 ingress (mean 123.06 Mb/s)
- Flow 3 egress (mean 123.33 Mb/s)

The graphs provide insights into the network's performance under varying conditions.
Run 5: Statistics of Verus

Start at: 2018-09-08 09:35:28
End at: 2018-09-08 09:35:58
Local clock offset: -0.198 ms
Remote clock offset: 1.136 ms

# Below is generated by plot.py at 2018-09-08 12:39:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 340.71 Mbit/s
95th percentile per-packet one-way delay: 133.740 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 186.41 Mbit/s
95th percentile per-packet one-way delay: 140.043 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 153.02 Mbit/s
95th percentile per-packet one-way delay: 122.956 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 160.86 Mbit/s
95th percentile per-packet one-way delay: 145.088 ms
Loss rate: 0.00%
Run 5: Report of Verus — Data Link

[Graphs showing throughput and per-packet one-way delay for different flows over time]
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-08 07:26:38
End at: 2018-09-08 07:27:08
Local clock offset: 0.022 ms
Remote clock offset: -1.025 ms

# Below is generated by plot.py at 2018-09-08 12:40:21
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 593.50 Mbit/s
  95th percentile per-packet one-way delay: 56.440 ms
  Loss rate: 0.37%
-- Flow 1:
  Average throughput: 375.64 Mbit/s
  95th percentile per-packet one-way delay: 55.942 ms
  Loss rate: 0.32%
-- Flow 2:
  Average throughput: 287.49 Mbit/s
  95th percentile per-packet one-way delay: 57.788 ms
  Loss rate: 0.30%
-- Flow 3:
  Average throughput: 82.63 Mbit/s
  95th percentile per-packet one-way delay: 51.419 ms
  Loss rate: 1.54%
Run 1: Report of PCC-Vivace — Data Link

Throughput (Mb/s)

Time (s)

0 5 10 15 20 25 30

Flow 1 ingress (mean 375.51 Mb/s) — Flow 1 egress (mean 375.64 Mb/s)
Flow 2 ingress (mean 286.83 Mb/s) — Flow 2 egress (mean 287.49 Mb/s)
Flow 3 ingress (mean 83.03 Mb/s) — Flow 3 egress (mean 82.63 Mb/s)

Per packet one way delay (ms)

0 50 75 100 125 150 175 200 225

Flow 1 (95th percentile 55.94 ms) — Flow 2 (95th percentile 57.79 ms) — Flow 3 (95th percentile 51.42 ms)
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-08 07:58:42
End at: 2018-09-08 07:59:12
Local clock offset: 0.118 ms
Remote clock offset: -0.279 ms

# Below is generated by plot.py at 2018-09-08 12:41:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 620.59 Mbit/s
95th percentile per-packet one-way delay: 120.635 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 358.86 Mbit/s
95th percentile per-packet one-way delay: 137.583 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 329.30 Mbit/s
95th percentile per-packet one-way delay: 70.842 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 131.27 Mbit/s
95th percentile per-packet one-way delay: 54.929 ms
Loss rate: 1.90%
Run 2: Report of PCC-Vivace — Data Link
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-08 08:31:04
End at: 2018-09-08 08:31:34
Local clock offset: 0.22 ms
Remote clock offset: 0.016 ms

# Below is generated by plot.py at 2018-09-08 12:42:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.16 Mbit/s
95th percentile per-packet one-way delay: 53.709 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 364.60 Mbit/s
95th percentile per-packet one-way delay: 51.611 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 286.82 Mbit/s
95th percentile per-packet one-way delay: 77.629 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 79.78 Mbit/s
95th percentile per-packet one-way delay: 53.925 ms
Loss rate: 1.34%
Run 3: Report of PCC-Vivace — Data Link
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-08 09:02:23
End at: 2018-09-08 09:02:53
Local clock offset: 0.128 ms
Remote clock offset: -0.71 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 591.59 Mbit/s
  95th percentile per-packet one-way delay: 55.899 ms
  Loss rate: 0.48%
-- Flow 1:
  Average throughput: 355.73 Mbit/s
  95th percentile per-packet one-way delay: 56.643 ms
  Loss rate: 0.32%
-- Flow 2:
  Average throughput: 327.84 Mbit/s
  95th percentile per-packet one-way delay: 52.922 ms
  Loss rate: 0.58%
-- Flow 3:
  Average throughput: 56.51 Mbit/s
  95th percentile per-packet one-way delay: 50.901 ms
  Loss rate: 2.46%
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-08 09:33:41
End at: 2018-09-08 09:34:11
Local clock offset: -0.332 ms
Remote clock offset: -0.256 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 533.28 Mbit/s
  95th percentile per-packet one-way delay: 53.788 ms
  Loss rate: 0.55%
-- Flow 1:
  Average throughput: 331.28 Mbit/s
  95th percentile per-packet one-way delay: 51.181 ms
  Loss rate: 0.33%
-- Flow 2:
  Average throughput: 258.42 Mbit/s
  95th percentile per-packet one-way delay: 54.528 ms
  Loss rate: 0.81%
-- Flow 3:
  Average throughput: 92.90 Mbit/s
  95th percentile per-packet one-way delay: 53.775 ms
  Loss rate: 1.44%
Run 5: Report of PCC-Vivace — Data Link
Run 1: Statistics of WebRTC media

Start at: 2018-09-08 07:52:21
End at: 2018-09-08 07:52:51
Local clock offset: 0.037 ms
Remote clock offset: 0.349 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 53.431 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 52.966 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 53.486 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 50.285 ms
Loss rate: 0.68%
Run 1: Report of WebRTC media — Data Link

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

Start at: 2018-09-08 08:24:42
End at: 2018-09-08 08:25:12
Local clock offset: -0.072 ms
Remote clock offset: 0.151 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 53.365 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 53.399 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 50.381 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 49.933 ms
Loss rate: 2.45%
Run 2: Report of WebRTC media — Data Link

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

Flow 1 ingress (mean 1.92 Mbps)  Flow 1 egress (mean 1.92 Mbps)
Flow 2 ingress (mean 1.22 Mbps)  Flow 2 egress (mean 1.22 Mbps)
Flow 3 ingress (mean 0.49 Mbps)  Flow 3 egress (mean 0.48 Mbps)

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

Flow 1 (95th percentile 53.40 ms)  Flow 2 (95th percentile 50.38 ms)  Flow 3 (95th percentile 49.93 ms)
Run 3: Statistics of WebRTC media

Start at: 2018-09-08 08:56:03
End at: 2018-09-08 08:56:33
Local clock offset: 0.162 ms
Remote clock offset: 0.157 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 53.644 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 53.649 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 53.659 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 50.012 ms
Loss rate: 1.78%
Run 3: Report of WebRTC media — Data Link
Run 4: Statistics of WebRTC media

Start at: 2018-09-08 09:27:25  
End at: 2018-09-08 09:27:55  
Local clock offset: 0.002 ms  
Remote clock offset: -0.177 ms

# Below is generated by plot.py at 2018-09-08 12:42:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.58 Mbit/s  
95th percentile per-packet one-way delay: 53.905 ms  
Loss rate: 0.51%  
-- Flow 1:  
Average throughput: 1.92 Mbit/s  
95th percentile per-packet one-way delay: 53.932 ms  
Loss rate: 0.36%  
-- Flow 2:  
Average throughput: 1.19 Mbit/s  
95th percentile per-packet one-way delay: 53.608 ms  
Loss rate: 0.60%  
-- Flow 3:  
Average throughput: 0.49 Mbit/s  
95th percentile per-packet one-way delay: 50.554 ms  
Loss rate: 0.88%
Run 4: Report of WebRTC media — Data Link

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

- **Flow 1**: Ingress (mean 1.92 Mbit/s), Egress (mean 1.92 Mbit/s)
- **Flow 2**: Ingress (mean 1.20 Mbit/s), Egress (mean 1.19 Mbit/s)
- **Flow 3**: Ingress (mean 0.49 Mbit/s), Egress (mean 0.49 Mbit/s)

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

- **Flow 1 (95th percentile 53.93 ms)**
- **Flow 2 (95th percentile 53.61 ms)**
- **Flow 3 (95th percentile 50.55 ms)**
Run 5: Statistics of WebRTC media

Start at: 2018-09-08 09:59:07
End at: 2018-09-08 09:59:37
Local clock offset: -0.058 ms
Remote clock offset: -0.301 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 50.567 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 50.570 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 50.251 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 50.632 ms
Loss rate: 2.26%
Run 5: Report of WebRTC media — Data Link