Pantheon Report

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

System info:
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5558e562f4
third_party/indigo @ 2601c92e4a9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bdefec06349ae986009b46f8643c40a
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fe872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143bce978f3c7ff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3b3db2
  M src/ScreamClient
  M src/ScreamServer
third_party/sprout @ 366e35c5678b0e1e31d4a46ad18c74f9415f19a26
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562539f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9ddde4735770d143a1fa2851
test from GCE London to GCE Sydney, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)
<table>
<thead>
<tr>
<th>scheme</th>
<th># runs</th>
<th>mean avg tput (Mbit/s)</th>
<th>mean 95th-%ile delay (ms)</th>
<th>mean loss rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>flow 1</td>
<td>flow 2</td>
<td>flow 3</td>
</tr>
<tr>
<td>TCP BBR</td>
<td>5</td>
<td>238.37</td>
<td>222.96</td>
<td>193.73</td>
</tr>
<tr>
<td>Copa</td>
<td>5</td>
<td>272.17</td>
<td>236.61</td>
<td>182.08</td>
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<td>TCP Cubic</td>
<td>5</td>
<td>244.95</td>
<td>232.57</td>
<td>195.61</td>
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<td>5</td>
<td>419.85</td>
<td>353.77</td>
<td>252.52</td>
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<tr>
<td>Indigo</td>
<td>5</td>
<td>176.24</td>
<td>150.65</td>
<td>150.14</td>
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<tr>
<td>Indigo-96d2da3</td>
<td>5</td>
<td>264.06</td>
<td>244.84</td>
<td>182.28</td>
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<td>LEDBAT</td>
<td>5</td>
<td>5.22</td>
<td>3.44</td>
<td>1.65</td>
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<tr>
<td>Indigo-Muses</td>
<td>5</td>
<td>502.72</td>
<td>441.00</td>
<td>271.18</td>
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<tr>
<td>PCC-Allegro</td>
<td>5</td>
<td>347.66</td>
<td>293.40</td>
<td>223.24</td>
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<tr>
<td>PCC-Expr</td>
<td>5</td>
<td>273.84</td>
<td>191.40</td>
<td>158.25</td>
</tr>
<tr>
<td>QUIC Cubic</td>
<td>5</td>
<td>52.91</td>
<td>49.31</td>
<td>30.01</td>
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<tr>
<td>SCReAM</td>
<td>5</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
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<tr>
<td>Sprout</td>
<td>5</td>
<td>0.64</td>
<td>0.58</td>
<td>0.64</td>
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<tr>
<td>TaoVA-100x</td>
<td>5</td>
<td>78.23</td>
<td>46.85</td>
<td>91.40</td>
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<tr>
<td>TCP Vegas</td>
<td>5</td>
<td>243.19</td>
<td>232.42</td>
<td>188.50</td>
</tr>
<tr>
<td>Verus</td>
<td>5</td>
<td>97.58</td>
<td>75.27</td>
<td>66.05</td>
</tr>
<tr>
<td>PCC-Vivace</td>
<td>5</td>
<td>309.06</td>
<td>185.45</td>
<td>150.87</td>
</tr>
<tr>
<td>WebRTC media</td>
<td>5</td>
<td>1.70</td>
<td>1.02</td>
<td>0.31</td>
</tr>
</tbody>
</table>
Run 1: Statistics of TCP BBR

Start at: 2018-11-15 14:44:15
End at: 2018-11-15 14:44:45
Local clock offset: 0.443 ms
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2018-11-15 17:46:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 448.50 Mbit/s
95th percentile per-packet one-way delay: 136.392 ms
Loss rate: 1.58%
-- Flow 1:
Average throughput: 237.97 Mbit/s
95th percentile per-packet one-way delay: 136.155 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 222.48 Mbit/s
95th percentile per-packet one-way delay: 136.601 ms
Loss rate: 1.61%
-- Flow 3:
Average throughput: 193.37 Mbit/s
95th percentile per-packet one-way delay: 133.917 ms
Loss rate: 3.67%
Run 1: Report of TCP BBR — Data Link

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

- **Flow 1** (ingress: 238.22 Mbps, egress: 237.97 Mbps)
- **Flow 2** (ingress: 223.02 Mbps, egress: 222.48 Mbps)
- **Flow 3** (ingress: 196.31 Mbps, egress: 193.37 Mbps)

![Graph showing packet delay distribution for three flows.]

- **Flow 1** (95th percentile: 136.16 ms)
- **Flow 2** (95th percentile: 136.60 ms)
- **Flow 3** (95th percentile: 133.92 ms)
Run 2: Statistics of TCP BBR

Start at: 2018-11-15 15:19:25
End at: 2018-11-15 15:19:55
Local clock offset: 0.149 ms
Remote clock offset: 0.042 ms

# Below is generated by plot.py at 2018-11-15 17:46:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 432.89 Mbit/s
95th percentile per-packet one-way delay: 133.840 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 238.97 Mbit/s
95th percentile per-packet one-way delay: 133.910 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 195.70 Mbit/s
95th percentile per-packet one-way delay: 133.559 ms
Loss rate: 1.82%
-- Flow 3:
Average throughput: 196.72 Mbit/s
95th percentile per-packet one-way delay: 133.573 ms
Loss rate: 3.60%
Run 2: Report of TCP BBR — Data Link

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

Flow 1 ingress (mean 239.22 Mbit/s)  Flow 1 egress (mean 238.97 Mbit/s)
Flow 2 ingress (mean 196.66 Mbit/s)  Flow 2 egress (mean 195.70 Mbit/s)
Flow 3 ingress (mean 196.82 Mbit/s)  Flow 3 egress (mean 196.72 Mbit/s)
Run 3: Statistics of TCP BBR

Start at: 2018-11-15 15:54:18
End at: 2018-11-15 15:54:48
Local clock offset: 0.595 ms
Remote clock offset: 0.063 ms

# Below is generated by plot.py at 2018-11-15 17:46:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 452.11 Mbit/s
95th percentile per-packet one-way delay: 136.559 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 234.85 Mbit/s
95th percentile per-packet one-way delay: 136.651 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 232.12 Mbit/s
95th percentile per-packet one-way delay: 133.870 ms
Loss rate: 1.54%
-- Flow 3:
Average throughput: 194.13 Mbit/s
95th percentile per-packet one-way delay: 135.734 ms
Loss rate: 3.65%
Run 3: Report of TCP BBR — Data Link

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

- Flow 1 (mean 235.11 Mbit/s)
- Flow 2 (mean 232.59 Mbit/s)
- Flow 3 (mean 196.06 Mbit/s)

![Graph showing per-packet delay over time for three flows.]

- Flow 1 (95th percentile 136.65 ms)
- Flow 2 (95th percentile 133.87 ms)
- Flow 3 (95th percentile 135.73 ms)
Run 4: Statistics of TCP BBR

Start at: 2018-11-15 16:29:30
End at: 2018-11-15 16:30:00
Local clock offset: 0.498 ms
Remote clock offset: 0.065 ms

# Below is generated by plot.py at 2018-11-15 17:46:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 457.90 Mbit/s
95th percentile per-packet one-way delay: 133.870 ms
Loss rate: 1.55%
-- Flow 1:
Average throughput: 239.86 Mbit/s
95th percentile per-packet one-way delay: 133.328 ms
Loss rate: 0.99%
-- Flow 2:
Average throughput: 232.09 Mbit/s
95th percentile per-packet one-way delay: 133.752 ms
Loss rate: 1.53%
-- Flow 3:
Average throughput: 196.68 Mbit/s
95th percentile per-packet one-way delay: 134.245 ms
Loss rate: 3.61%
Run 4: Report of TCP BBR — Data Link
Run 5: Statistics of TCP BBR

Start at: 2018-11-15 17:03:26
End at: 2018-11-15 17:03:56
Local clock offset: 0.494 ms
Remote clock offset: 0.425 ms

# Below is generated by plot.py at 2018-11-15 17:46:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 455.51 Mbit/s
95th percentile per-packet one-way delay: 133.311 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 240.20 Mbit/s
95th percentile per-packet one-way delay: 133.285 ms
Loss rate: 0.99%
-- Flow 2:
Average throughput: 232.41 Mbit/s
95th percentile per-packet one-way delay: 133.340 ms
Loss rate: 1.47%
-- Flow 3:
Average throughput: 187.74 Mbit/s
95th percentile per-packet one-way delay: 133.339 ms
Loss rate: 3.76%
Run 5: Report of TCP BBR — Data Link

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

- Flow 1-ingress (mean 240.43 Mbps)
- Flow 1-egress (mean 240.39 Mbps)
- Flow 2-ingress (mean 232.47 Mbps)
- Flow 2-egress (mean 232.41 Mbps)
- Flow 3-ingress (mean 189.89 Mbps)
- Flow 3-egress (mean 187.74 Mbps)

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

- Flow 1 (95th percentile 133.28 ms)
- Flow 2 (95th percentile 133.34 ms)
- Flow 3 (95th percentile 133.34 ms)
Run 1: Statistics of Copa

Start at: 2018-11-15 14:55:03
End at: 2018-11-15 14:55:33
Local clock offset: -0.346 ms
Remote clock offset: -0.024 ms

# Below is generated by plot.py at 2018-11-15 17:56:08
# Datalink statistics
--- Total of 3 flows:
Average throughput: 491.45 Mbit/s
95th percentile per-packet one-way delay: 201.172 ms
Loss rate: 1.62%
--- Flow 1:
Average throughput: 259.57 Mbit/s
95th percentile per-packet one-way delay: 162.508 ms
Loss rate: 0.95%
--- Flow 2:
Average throughput: 253.78 Mbit/s
95th percentile per-packet one-way delay: 220.209 ms
Loss rate: 1.79%
--- Flow 3:
Average throughput: 194.80 Mbit/s
95th percentile per-packet one-way delay: 199.381 ms
Loss rate: 3.84%
Run 1: Report of Copa — Data Link

![Graph 1: Throughput vs. Time]

- Flow 1 ingress (mean 259.71 Mbit/s)
- Flow 2 ingress (mean 254.96 Mbit/s)
- Flow 3 ingress (mean 197.10 Mbit/s)
- Flow 1 egress (mean 259.57 Mbit/s)
- Flow 2 egress (mean 253.78 Mbit/s)
- Flow 3 egress (mean 194.80 Mbit/s)

![Graph 2: Packet Delay vs. Time]

- Flow 1 (95th percentile 162.51 ms)
- Flow 2 (95th percentile 220.21 ms)
- Flow 3 (95th percentile 199.38 ms)
Run 2: Statistics of Copa

Start at: 2018-11-15 15:29:39
End at: 2018-11-15 15:30:09
Local clock offset: 0.583 ms
Remote clock offset: 0.018 ms

# Below is generated by plot.py at 2018-11-15 17:56:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 501.78 Mbit/s
95th percentile per-packet one-way delay: 169.998 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 283.51 Mbit/s
95th percentile per-packet one-way delay: 171.719 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 241.63 Mbit/s
95th percentile per-packet one-way delay: 141.599 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 177.59 Mbit/s
95th percentile per-packet one-way delay: 215.840 ms
Loss rate: 4.28%
Run 2: Report of Copa — Data Link

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

Legend:
- Flow 1 ingress (mean 283.39 Mbit/s)
- Flow 1 egress (mean 283.51 Mbit/s)
- Flow 2 ingress (mean 241.87 Mbit/s)
- Flow 2 egress (mean 241.63 Mbit/s)
- Flow 3 ingress (mean 180.55 Mbit/s)
- Flow 3 egress (mean 177.59 Mbit/s)

Legend for packet delay:
- Flow 1 (95th percentile 171.72 ms)
- Flow 2 (95th percentile 141.60 ms)
- Flow 3 (95th percentile 215.84 ms)
Run 3: Statistics of Copa

Start at: 2018-11-15 16:04:46
End at: 2018-11-15 16:05:16
Local clock offset: 0.22 ms
Remote clock offset: 0.043 ms

# Below is generated by plot.py at 2018-11-15 17:56:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 511.79 Mbit/s
95th percentile per-packet one-way delay: 219.725 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 290.49 Mbit/s
95th percentile per-packet one-way delay: 246.652 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 241.46 Mbit/s
95th percentile per-packet one-way delay: 156.721 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 187.58 Mbit/s
95th percentile per-packet one-way delay: 214.633 ms
Loss rate: 3.38%
Run 3: Report of Copa — Data Link
Run 4: Statistics of Copa

Start at: 2018-11-15 16:40:05
End at: 2018-11-15 16:40:35
Local clock offset: ~0.15 ms
Remote clock offset: 0.117 ms

# Below is generated by plot.py at 2018-11-15 18:03:36
# Datalink statistics
-- Total of 3 flows:
 Average throughput: 450.47 Mbit/s
 95th percentile per-packet one-way delay: 144.973 ms
 Loss rate: 1.21%
-- Flow 1:
 Average throughput: 252.57 Mbit/s
 95th percentile per-packet one-way delay: 146.348 ms
 Loss rate: 0.63%
-- Flow 2:
 Average throughput: 210.81 Mbit/s
 95th percentile per-packet one-way delay: 139.698 ms
 Loss rate: 1.20%
-- Flow 3:
 Average throughput: 178.15 Mbit/s
 95th percentile per-packet one-way delay: 149.568 ms
 Loss rate: 3.68%
Run 4: Report of Copa — Data Link
Run 5: Statistics of Copa

Start at: 2018-11-15 17:14:17
End at: 2018-11-15 17:14:47
Local clock offset: -0.077 ms
Remote clock offset: 0.086 ms

# Below is generated by plot.py at 2018-11-15 18:05:25
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 487.07 Mbit/s
  95th percentile per-packet one-way delay: 224.372 ms
  Loss rate: 1.19%
-- Flow 1:
  Average throughput: 274.70 Mbit/s
  95th percentile per-packet one-way delay: 164.813 ms
  Loss rate: 0.40%
-- Flow 2:
  Average throughput: 235.39 Mbit/s
  95th percentile per-packet one-way delay: 246.476 ms
  Loss rate: 1.55%
-- Flow 3:
  Average throughput: 172.26 Mbit/s
  95th percentile per-packet one-way delay: 236.223 ms
  Loss rate: 3.92%
Run 5: Report of Copa — Data Link
Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 14:38:00
End at: 2018-11-15 14:38:30
Local clock offset: 0.278 ms
Remote clock offset: -0.024 ms

# Below is generated by plot.py at 2018-11-15 18:05:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 465.72 Mbit/s
95th percentile per-packet one-way delay: 134.374 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 246.32 Mbit/s
95th percentile per-packet one-way delay: 134.188 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 234.33 Mbit/s
95th percentile per-packet one-way delay: 134.404 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 196.29 Mbit/s
95th percentile per-packet one-way delay: 134.587 ms
Loss rate: 3.59%
Run 1: Report of TCP Cubic — Data Link
Run 2: Statistics of TCP Cubic

End at: 2018-11-15 15:13:43
Local clock offset: 0.131 ms
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2018-11-15 18:05:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.12 Mbit/s
95th percentile per-packet one-way delay: 134.311 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 244.75 Mbit/s
95th percentile per-packet one-way delay: 133.982 ms
Loss rate: 0.97%
-- Flow 2:
Average throughput: 231.58 Mbit/s
95th percentile per-packet one-way delay: 134.425 ms
Loss rate: 1.54%
-- Flow 3:
Average throughput: 198.68 Mbit/s
95th percentile per-packet one-way delay: 135.122 ms
Loss rate: 3.57%
Run 2: Report of TCP Cubic — Data Link

![Graphs showing throughput and per-packet one-way delay over time for different flows.](image)
Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 15:48:00  
End at: 2018-11-15 15:48:30  
Local clock offset: 0.587 ms  
Remote clock offset: 0.034 ms

# Below is generated by plot.py at 2018-11-15 18:05:25  
# Datalink statistics

<table>
<thead>
<tr>
<th>Flow</th>
<th>Average throughput</th>
<th>95th percentile per-packet one-way delay</th>
<th>Loss rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>244.63 Mbit/s</td>
<td>134.710 ms</td>
<td>0.97%</td>
</tr>
<tr>
<td>2</td>
<td>233.33 Mbit/s</td>
<td>134.648 ms</td>
<td>1.53%</td>
</tr>
<tr>
<td>3</td>
<td>198.48 Mbit/s</td>
<td>135.281 ms</td>
<td>3.55%</td>
</tr>
</tbody>
</table>
Run 3: Report of TCP Cubic — Data Link

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**Throughput (Mbps):**
- **Flow 1 ingress (mean 244.83 Mbps)**
- **Flow 1 egress (mean 244.63 Mbps)**
- **Flow 2 ingress (mean 233.79 Mbps)**
- **Flow 2 egress (mean 233.33 Mbps)**
- **Flow 3 ingress (mean 200.30 Mbps)**
- **Flow 3 egress (mean 198.48 Mbps)**

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**Per-packet one-way delay (ms):**
- **Flow 1 (95th percentile 134.71 ms)**
- **Flow 2 (95th percentile 134.65 ms)**
- **Flow 3 (95th percentile 135.28 ms)**

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Run 4: Statistics of TCP Cubic

Local clock offset: 0.438 ms
Remote clock offset: 0.096 ms

# Below is generated by plot.py at 2018-11-15 18:05:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 464.91 Mbit/s
95th percentile per-packet one-way delay: 134.780 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 244.30 Mbit/s
95th percentile per-packet one-way delay: 134.868 ms
Loss rate: 0.97%
-- Flow 2:
Average throughput: 233.96 Mbit/s
95th percentile per-packet one-way delay: 134.838 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 200.38 Mbit/s
95th percentile per-packet one-way delay: 133.730 ms
Loss rate: 3.54%
Run 4: Report of TCP Cubic — Data Link
Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 16:57:22
End at: 2018-11-15 16:57:52
Local clock offset: -0.044 ms
Remote clock offset: 0.077 ms

# Below is generated by plot.py at 2018-11-15 18:05:46
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 457.11 Mbit/s
  95th percentile per-packet one-way delay: 133.853 ms
  Loss rate: 1.55%
-- Flow 1:
  Average throughput: 244.74 Mbit/s
  95th percentile per-packet one-way delay: 133.940 ms
  Loss rate: 0.97%
-- Flow 2:
  Average throughput: 229.63 Mbit/s
  95th percentile per-packet one-way delay: 133.765 ms
  Loss rate: 1.54%
-- Flow 3:
  Average throughput: 184.23 Mbit/s
  95th percentile per-packet one-way delay: 133.653 ms
  Loss rate: 3.84%
Run 5: Report of TCP Cubic — Data Link
Run 1: Statistics of FillP

Start at: 2018-11-15 15:03:07
End at: 2018-11-15 15:03:37
Local clock offset: 0.108 ms
Remote clock offset: 0.014 ms

# Below is generated by plot.py at 2018-11-15 18:17:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 835.08 Mbit/s
95th percentile per-packet one-way delay: 165.146 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 521.13 Mbit/s
95th percentile per-packet one-way delay: 172.274 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 349.21 Mbit/s
95th percentile per-packet one-way delay: 138.380 ms
Loss rate: 1.31%
-- Flow 3:
Average throughput: 254.18 Mbit/s
95th percentile per-packet one-way delay: 139.246 ms
Loss rate: 3.40%
Run 1: Report of FillP — Data Link
Run 2: Statistics of FillP

Start at: 2018-11-15 15:37:44
End at: 2018-11-15 15:38:14
Local clock offset: 0.134 ms
Remote clock offset: -0.035 ms

# Below is generated by plot.py at 2018-11-15 18:17:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 832.77 Mbit/s
95th percentile per-packet one-way delay: 146.545 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 496.44 Mbit/s
95th percentile per-packet one-way delay: 143.795 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 366.83 Mbit/s
95th percentile per-packet one-way delay: 142.919 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 286.83 Mbit/s
95th percentile per-packet one-way delay: 279.276 ms
Loss rate: 5.44%
Run 2: Report of FillP — Data Link

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

- **Flow 1 Ingress (mean 494.50 Mbps)**
- **Flow 1 Egress (mean 496.48 Mbps)**
- **Flow 2 Ingress (mean 365.61 Mbps)**
- **Flow 2 Egress (mean 366.63 Mbps)**
- **Flow 3 Ingress (mean 294.65 Mbps)**
- **Flow 3 Egress (mean 286.83 Mbps)**

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

- **Flow 1 (95th percentile 143.79 ms)**
- **Flow 2 (95th percentile 142.92 ms)**
- **Flow 3 (95th percentile 279.28 ms)**
Run 3: Statistics of FillP

Start at: 2018-11-15 16:12:51
End at: 2018-11-15 16:13:21
Local clock offset: 0.279 ms
Remote clock offset: 0.089 ms

# Below is generated by plot.py at 2018-11-15 18:17:23
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 388.86 Mbit/s
   95th percentile per-packet one-way delay: 142.515 ms
   Loss rate: 1.42%
-- Flow 1:
   Average throughput: 53.12 Mbit/s
   95th percentile per-packet one-way delay: 134.613 ms
   Loss rate: 0.00%
-- Flow 2:
   Average throughput: 367.47 Mbit/s
   95th percentile per-packet one-way delay: 140.249 ms
   Loss rate: 0.97%
-- Flow 3:
   Average throughput: 283.70 Mbit/s
   95th percentile per-packet one-way delay: 146.879 ms
   Loss rate: 3.33%
Run 3: Report of FillP — Data Link
Run 4: Statistics of FillP

Start at: 2018-11-15 16:47:38
End at: 2018-11-15 16:48:08
Local clock offset: 0.497 ms
Remote clock offset: 0.053 ms

# Below is generated by plot.py at 2018-11-15 18:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 848.42 Mbit/s
95th percentile per-packet one-way delay: 159.842 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 542.90 Mbit/s
95th percentile per-packet one-way delay: 164.794 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 355.04 Mbit/s
95th percentile per-packet one-way delay: 142.763 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 217.34 Mbit/s
95th percentile per-packet one-way delay: 136.671 ms
Loss rate: 3.32%
Run 4: Report of FillP — Data Link

![Graph](image1)

![Graph](image2)
Run 5: Statistics of FillP

End at: 2018-11-15 17:23:03  
Local clock offset: 0.382 ms  
Remote clock offset: 0.058 ms

# Below is generated by plot.py at 2018-11-15 18:23:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 775.95 Mbit/s
95th percentile per-packet one-way delay: 191.734 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 485.65 Mbit/s
95th percentile per-packet one-way delay: 196.345 ms
Loss rate: 1.76%
-- Flow 2:
Average throughput: 330.29 Mbit/s
95th percentile per-packet one-way delay: 176.766 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 220.57 Mbit/s
95th percentile per-packet one-way delay: 140.625 ms
Loss rate: 3.41%
Run 5: Report of FillP — Data Link

![Graph of Throughput vs Time]

- Flow 1 Ingress (mean 499.51 Mb/s)
- Flow 1 Egress (mean 485.65 Mb/s)
- Flow 2 Ingress (mean 330.53 Mb/s)
- Flow 2 Egress (mean 330.29 Mb/s)
- Flow 3 Ingress (mean 221.80 Mb/s)
- Flow 3 Egress (mean 220.57 Mb/s)

![Graph of Per-Packet One-way Delay vs Time]

- Flow 1 (95th percentile 196.34 ms)
- Flow 2 (95th percentile 176.77 ms)
- Flow 3 (95th percentile 140.62 ms)
Run 1: Statistics of Indigo

Start at: 2018-11-15 14:46:25
End at: 2018-11-15 14:46:55
Local clock offset: 0.252 ms
Remote clock offset: 0.03 ms

# Below is generated by plot.py at 2018-11-15 18:23:31
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 331.25 Mbit/s
  95th percentile per-packet one-way delay: 137.300 ms
  Loss rate: 1.29%
-- Flow 1:
  Average throughput: 171.45 Mbit/s
  95th percentile per-packet one-way delay: 134.415 ms
  Loss rate: 0.81%
-- Flow 2:
  Average throughput: 167.80 Mbit/s
  95th percentile per-packet one-way delay: 138.353 ms
  Loss rate: 1.27%
-- Flow 3:
  Average throughput: 135.61 Mbit/s
  95th percentile per-packet one-way delay: 139.191 ms
  Loss rate: 3.11%
Run 1: Report of Indigo — Data Link

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

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

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46
Run 2: Statistics of Indigo

End at: 2018-11-15 15:21:57
Local clock offset: -0.334 ms
Remote clock offset: -0.033 ms

# Below is generated by plot.py at 2018-11-15 18:23:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 308.31 Mbit/s
95th percentile per-packet one-way delay: 136.411 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 173.70 Mbit/s
95th percentile per-packet one-way delay: 136.674 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 128.85 Mbit/s
95th percentile per-packet one-way delay: 134.594 ms
Loss rate: 1.54%
-- Flow 3:
Average throughput: 155.34 Mbit/s
95th percentile per-packet one-way delay: 137.525 ms
Loss rate: 3.30%
Run 2: Report of Indigo — Data Link
Run 3: Statistics of Indigo

Start at: 2018-11-15 15:56:13
End at: 2018-11-15 15:56:43
Local clock offset: 0.381 ms
Remote clock offset: 0.073 ms

# Below is generated by plot.py at 2018-11-15 18:23:31
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 312.01 Mbit/s
  95th percentile per-packet one-way delay: 136.530 ms
  Loss rate: 1.36%
-- Flow 1:
  Average throughput: 178.81 Mbit/s
  95th percentile per-packet one-way delay: 134.308 ms
  Loss rate: 0.82%
-- Flow 2:
  Average throughput: 130.61 Mbit/s
  95th percentile per-packet one-way delay: 137.049 ms
  Loss rate: 1.53%
-- Flow 3:
  Average throughput: 147.78 Mbit/s
  95th percentile per-packet one-way delay: 140.345 ms
  Loss rate: 3.02%
Run 3: Report of Indigo — Data Link

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

- **Throughput (Mbps)**: The graphs show the throughput for different flows. Flow 1 has the highest peak, followed by Flow 2 and then Flow 3.
- **Packet Delay (ms)**: The graphs also show the 95th percentile delay for each flow. Flow 1 has the highest delay, followed by Flow 3 and then Flow 2.

Table: 
<table>
<thead>
<tr>
<th>Flow</th>
<th>Ingress (mean Mbps)</th>
<th>Egress (mean Mbps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow 1</td>
<td>178.67</td>
<td>178.81</td>
</tr>
<tr>
<td>Flow 2</td>
<td>130.82</td>
<td>130.61</td>
</tr>
<tr>
<td>Flow 3</td>
<td>148.19</td>
<td>147.78</td>
</tr>
</tbody>
</table>
Run 4: Statistics of Indigo

Start at: 2018-11-15 16:31:42
End at: 2018-11-15 16:32:12
Local clock offset: 0.258 ms
Remote clock offset: 0.074 ms

# Below is generated by plot.py at 2018-11-15 18:23:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 331.72 Mbit/s
95th percentile per-packet one-way delay: 137.182 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 174.35 Mbit/s
95th percentile per-packet one-way delay: 134.390 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 165.32 Mbit/s
95th percentile per-packet one-way delay: 135.565 ms
Loss rate: 1.29%
-- Flow 3:
Average throughput: 152.89 Mbit/s
95th percentile per-packet one-way delay: 146.117 ms
Loss rate: 3.36%
Run 4: Report of Indigo — Data Link

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

- **Flow 1 ingress (mean 174.19 Mbit/s)**
- **Flow 1 egress (mean 174.35 Mbit/s)**
- **Flow 2 ingress (mean 165.22 Mbit/s)**
- **Flow 2 egress (mean 165.32 Mbit/s)**
- **Flow 3 ingress (mean 153.78 Mbit/s)**
- **Flow 3 egress (mean 152.89 Mbit/s)**

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

- **Flow 1 (95th percentile 134.39 ms)**
- **Flow 2 (95th percentile 135.56 ms)**
- **Flow 3 (95th percentile 146.12 ms)**
Run 5: Statistics of Indigo

Start at: 2018-11-15 17:05:16
End at: 2018-11-15 17:05:46
Local clock offset: 0.428 ms
Remote clock offset: 0.147 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 339.56 Mbit/s
95th percentile per-packet one-way delay: 134.974 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 182.89 Mbit/s
95th percentile per-packet one-way delay: 134.807 ms
Loss rate: 0.87%
-- Flow 2:
Average throughput: 160.67 Mbit/s
95th percentile per-packet one-way delay: 135.071 ms
Loss rate: 1.32%
-- Flow 3:
Average throughput: 159.08 Mbit/s
95th percentile per-packet one-way delay: 135.619 ms
Loss rate: 3.40%
Run 5: Report of Indigo — Data Link
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 14:42:07
End at: 2018-11-15 14:42:37
Local clock offset: 0.199 ms
Remote clock offset: 0.033 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 481.35 Mbit/s
95th percentile per-packet one-way delay: 188.134 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 268.37 Mbit/s
95th percentile per-packet one-way delay: 188.102 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 241.17 Mbit/s
95th percentile per-packet one-way delay: 194.982 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 164.05 Mbit/s
95th percentile per-packet one-way delay: 166.121 ms
Loss rate: 8.03%
Run 1: Report of Indigo-96d2da3 — Data Link

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

- Flow 1 ingress (mean 267.02 Mbit/s)
- Flow 1 egress (mean 268.37 Mbit/s)
- Flow 2 ingress (mean 239.49 Mbit/s)
- Flow 2 egress (mean 241.17 Mbit/s)
- Flow 3 ingress (mean 173.71 Mbit/s)
- Flow 3 egress (mean 164.05 Mbit/s)

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

- Flow 1 (95th percentile 188.10 ms)
- Flow 2 (95th percentile 194.99 ms)
- Flow 3 (95th percentile 166.12 ms)
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 15:17:31
End at: 2018-11-15 15:18:01
Local clock offset: -0.04 ms
Remote clock offset: 0.011 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 481.53 Mbit/s
  95th percentile per-packet one-way delay: 172.926 ms
  Loss rate: 1.35%
-- Flow 1:
  Average throughput: 268.93 Mbit/s
  95th percentile per-packet one-way delay: 176.234 ms
  Loss rate: 0.89%
-- Flow 2:
  Average throughput: 235.28 Mbit/s
  95th percentile per-packet one-way delay: 163.828 ms
  Loss rate: 0.41%
-- Flow 3:
  Average throughput: 178.58 Mbit/s
  95th percentile per-packet one-way delay: 168.411 ms
  Loss rate: 5.85%
Run 2: Report of Indigo-96d2da3 — Data Link

![Graph showing data link performance](image)

- **Flow 1** (ingress: 268.93 Mbit/s; egress: 268.93 Mbit/s)
- **Flow 2** (ingress: 233.10 Mbit/s; egress: 235.28 Mbit/s)
- **Flow 3** (ingress: 180.54 Mbit/s; egress: 178.50 Mbit/s)

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

- **Flow 1** (95th percentile: 176.23 ms)
- **Flow 2** (95th percentile: 163.83 ms)
- **Flow 3** (95th percentile: 168.41 ms)
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 15:52:24
End at: 2018-11-15 15:52:54
Local clock offset: 0.211 ms
Remote clock offset: 0.419 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 482.86 Mbit/s
95th percentile per-packet one-way delay: 196.682 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 257.69 Mbit/s
95th percentile per-packet one-way delay: 191.922 ms
Loss rate: 1.50%
-- Flow 2:
Average throughput: 247.61 Mbit/s
95th percentile per-packet one-way delay: 197.880 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 190.65 Mbit/s
95th percentile per-packet one-way delay: 214.262 ms
Loss rate: 0.98%
Run 3: Report of Indigo-96d2da3 — Data Link
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 16:27:18
End at: 2018-11-15 16:27:48
Local clock offset: 0.743 ms
Remote clock offset: 0.073 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 487.43 Mbit/s
  95th percentile per-packet one-way delay: 182.284 ms
  Loss rate: 1.90%
-- Flow 1:
  Average throughput: 263.98 Mbit/s
  95th percentile per-packet one-way delay: 177.651 ms
  Loss rate: 1.91%
-- Flow 2:
  Average throughput: 250.30 Mbit/s
  95th percentile per-packet one-way delay: 186.581 ms
  Loss rate: 1.76%
-- Flow 3:
  Average throughput: 181.80 Mbit/s
  95th percentile per-packet one-way delay: 186.065 ms
  Loss rate: 2.23%
Run 4: Report of Indigo-96d2da3 — Data Link

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

- Flow 1 ingress (mean 266.70 Mbit/s)
- Flow 1 egress (mean 263.98 Mbit/s)
- Flow 2 ingress (mean 253.86 Mbit/s)
- Flow 2 egress (mean 250.50 Mbit/s)
- Flow 3 ingress (mean 180.50 Mbit/s)
- Flow 3 egress (mean 181.95 Mbit/s)

- Flow 1 (95th percentile 177.65 ms)
- Flow 2 (95th percentile 186.58 ms)
- Flow 3 (95th percentile 186.06 ms)
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 17:01:32
End at: 2018-11-15 17:02:02
Local clock offset: 0.338 ms
Remote clock offset: 0.067 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 489.39 Mbit/s
  95th percentile per-packet one-way delay: 188.739 ms
  Loss rate: 1.27%
-- Flow 1:
  Average throughput: 261.33 Mbit/s
  95th percentile per-packet one-way delay: 182.897 ms
  Loss rate: 0.44%
-- Flow 2:
  Average throughput: 249.86 Mbit/s
  95th percentile per-packet one-way delay: 199.431 ms
  Loss rate: 2.25%
-- Flow 3:
  Average throughput: 196.33 Mbit/s
  95th percentile per-packet one-way delay: 186.455 ms
  Loss rate: 2.05%
Run 5: Report of Indigo-96d2da3 — Data Link

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

- **Flow 1**, ingress (mean 260.68 Mbit/s), egress (mean 261.33 Mbit/s)
- **Flow 2**, ingress (mean 252.93 Mbit/s), egress (mean 249.86 Mbit/s)
- **Flow 3**, ingress (mean 196.86 Mbit/s), egress (mean 196.33 Mbit/s)

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

- **Flow 1** (95th percentile 182.90 ms)
- **Flow 2** (95th percentile 199.43 ms)
- **Flow 3** (95th percentile 186.46 ms)
Run 1: Statistics of LEDBAT

Start at: 2018-11-15 14:31:43
End at: 2018-11-15 14:32:13
Local clock offset: -0.419 ms
Remote clock offset: 0.068 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 8.05 Mbit/s
  95th percentile per-packet one-way delay: 133.408 ms
  Loss rate: 2.29%
-- Flow 1:
  Average throughput: 5.24 Mbit/s
  95th percentile per-packet one-way delay: 133.584 ms
  Loss rate: 1.79%
-- Flow 2:
  Average throughput: 3.49 Mbit/s
  95th percentile per-packet one-way delay: 132.511 ms
  Loss rate: 2.68%
-- Flow 3:
  Average throughput: 1.59 Mbit/s
  95th percentile per-packet one-way delay: 133.517 ms
  Loss rate: 5.57%
Run 1: Report of LEDBAT — Data Link

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

- **Throughput**
  - Flow 1 ingress (mean 5.28 Mbit/s)
  - Flow 1 egress (mean 5.24 Mbit/s)
  - Flow 2 ingress (mean 3.33 Mbit/s)
  - Flow 2 egress (mean 3.49 Mbit/s)
  - Flow 3 ingress (mean 1.64 Mbit/s)
  - Flow 3 egress (mean 1.59 Mbit/s)

- **Round-Trip Times**
  - Flow 1 (95th percentile 133.58 ms)
  - Flow 2 (95th percentile 132.51 ms)
  - Flow 3 (95th percentile 133.52 ms)
Run 2: Statistics of LEDBAT

Start at: 2018-11-15 15:06:45  
End at: 2018-11-15 15:07:15  
Local clock offset: 0.087 ms  
Remote clock offset: -0.025 ms

# Below is generated by plot.py at 2018-11-15 18:30:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.04 Mbit/s  
95th percentile per-packet one-way delay: 134.381 ms  
Loss rate: 2.30%  
-- Flow 1:  
Average throughput: 5.24 Mbit/s  
95th percentile per-packet one-way delay: 134.454 ms  
Loss rate: 1.79%  
-- Flow 2:  
Average throughput: 3.43 Mbit/s  
95th percentile per-packet one-way delay: 134.267 ms  
Loss rate: 2.71%  
-- Flow 3:  
Average throughput: 1.67 Mbit/s  
95th percentile per-packet one-way delay: 133.974 ms  
Loss rate: 5.37%
Run 2: Report of LEDBAT — Data Link
Run 3: Statistics of LEDBAT

Start at: 2018-11-15 15:41:33
End at: 2018-11-15 15:42:03
Local clock offset: 0.568 ms
Remote clock offset: 0.393 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.94 Mbit/s
95th percentile per-packet one-way delay: 136.687 ms
Loss rate: 2.32%
-- Flow 1:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 136.915 ms
Loss rate: 1.80%
-- Flow 2:
Average throughput: 3.42 Mbit/s
95th percentile per-packet one-way delay: 134.083 ms
Loss rate: 2.72%
-- Flow 3:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 133.591 ms
Loss rate: 5.40%
Run 3: Report of LEDBAT — Data Link

![Graph of throughput and packet latency over time]

**Throughput (Mbps)**

- **Flow 1 ingress (mean 5.20 Mbps)**
- **Flow 1 egress (mean 5.15 Mbps)**
- **Flow 2 ingress (mean 3.47 Mbps)**
- **Flow 2 egress (mean 3.42 Mbps)**
- **Flow 3 ingress (mean 1.72 Mbps)**
- **Flow 3 egress (mean 1.67 Mbps)**

**Packet latency (ms)**

- **Flow 1 (95th percentile 136.91 ms)**
- **Flow 2 (95th percentile 134.08 ms)**
- **Flow 3 (95th percentile 133.59 ms)**
Run 4: Statistics of LEDBAT

Start at: 2018-11-15 16:16:00
End at: 2018-11-15 16:16:30
Local clock offset: 0.668 ms
Remote clock offset: 0.024 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.02 Mbit/s
95th percentile per-packet one-way delay: 134.498 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 134.587 ms
Loss rate: 1.79%
-- Flow 2:
Average throughput: 3.43 Mbit/s
95th percentile per-packet one-way delay: 134.288 ms
Loss rate: 2.71%
-- Flow 3:
Average throughput: 1.66 Mbit/s
95th percentile per-packet one-way delay: 134.016 ms
Loss rate: 5.40%
Run 4: Report of LEDBAT — Data Link

[Graph showing throughput over time for different flows with legend]

[Graph showing per-packet one-way delay over time for different flows with legend]
Run 5: Statistics of LEDBAT

Start at: 2018-11-15 16:51:14
End at: 2018-11-15 16:51:44
Local clock offset: 0.09 ms
Remote clock offset: 0.415 ms

# Below is generated by plot.py at 2018-11-15 18:30:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.04 Mbit/s
95th percentile per-packet one-way delay: 133.336 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 133.058 ms
Loss rate: 1.79%
-- Flow 2:
Average throughput: 3.43 Mbit/s
95th percentile per-packet one-way delay: 133.459 ms
Loss rate: 2.71%
-- Flow 3:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 133.093 ms
Loss rate: 5.40%
Run 5: Report of LEDBAT — Data Link

![Throughput Graph]

- **Flow 1 ingress (mean 5.29 Mbit/s)**
- **Flow 1 egress (mean 5.24 Mbit/s)**
- **Flow 2 ingress (mean 3.46 Mbit/s)**
- **Flow 2 egress (mean 3.43 Mbit/s)**
- **Flow 3 ingress (mean 1.71 Mbit/s)**
- **Flow 3 egress (mean 1.67 Mbit/s)**

![Delay Graph]

- **Flow 1 (95th percentile 133.06 ms)**
- **Flow 2 (95th percentile 133.46 ms)**
- **Flow 3 (95th percentile 133.09 ms)**

74
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 14:52:23
End at: 2018-11-15 14:52:53
Local clock offset: 0.461 ms
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-11-15 18:38:28
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 892.50 Mbit/s
  95th percentile per-packet one-way delay: 222.962 ms
  Loss rate: 2.15%
-- Flow 1:
  Average throughput: 507.63 Mbit/s
  95th percentile per-packet one-way delay: 222.380 ms
  Loss rate: 1.20%
-- Flow 2:
  Average throughput: 426.78 Mbit/s
  95th percentile per-packet one-way delay: 221.135 ms
  Loss rate: 2.91%
-- Flow 3:
  Average throughput: 319.32 Mbit/s
  95th percentile per-packet one-way delay: 227.650 ms
  Loss rate: 4.61%
Run 1: Report of Indigo-Muses — Data Link

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

- Flow 1 ingress (mean 599.21 Mbps)
- Flow 1 egress (mean 507.63 Mbps)
- Flow 2 ingress (mean 433.47 Mbps)
- Flow 2 egress (mean 426.78 Mbps)
- Flow 3 ingress (mean 326.64 Mbps)
- Flow 3 egress (mean 319.32 Mbps)

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

- Flow 1 (95th percentile 222.38 ms)
- Flow 2 (95th percentile 221.13 ms)
- Flow 3 (95th percentile 227.65 ms)
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 15:27:00
End at: 2018-11-15 15:27:30
Local clock offset: -0.243 ms
Remote clock offset: 0.008 ms

# Below is generated by plot.py at 2018-11-15 18:42:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 906.07 Mbit/s
95th percentile per-packet one-way delay: 193.743 ms
Loss rate: 2.20%
-- Flow 1:
Average throughput: 502.65 Mbit/s
95th percentile per-packet one-way delay: 192.883 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 474.19 Mbit/s
95th percentile per-packet one-way delay: 196.359 ms
Loss rate: 1.89%
-- Flow 3:
Average throughput: 282.39 Mbit/s
95th percentile per-packet one-way delay: 192.867 ms
Loss rate: 8.24%
Run 2: Report of Indigo-Muses — Data Link

![Graph showing network throughput and delay for different flows.]
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 16:02:12
End at: 2018-11-15 16:02:42
Local clock offset: 0.717 ms
Remote clock offset: 0.058 ms

# Below is generated by plot.py at 2018-11-15 18:45:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 877.75 Mbit/s
95th percentile per-packet one-way delay: 199.083 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 509.65 Mbit/s
95th percentile per-packet one-way delay: 193.470 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 436.82 Mbit/s
95th percentile per-packet one-way delay: 203.150 ms
Loss rate: 1.86%
-- Flow 3:
Average throughput: 246.50 Mbit/s
95th percentile per-packet one-way delay: 218.486 ms
Loss rate: 5.24%
Run 3: Report of Indigo-Muses — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 510.10 Mbps)
  - Flow 1 egress (mean 509.65 Mbps)
  - Flow 2 ingress (mean 439.68 Mbps)
  - Flow 2 egress (mean 436.32 Mbps)
  - Flow 3 ingress (mean 253.07 Mbps)
  - Flow 3 egress (mean 246.59 Mbps)

- **Per-packet-one-way-delay (ms):**
  - Flow 1 (95th percentile 193.47 ms)
  - Flow 2 (95th percentile 203.15 ms)
  - Flow 3 (95th percentile 218.49 ms)
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 16:37:25  
End at: 2018-11-15 16:37:55  
Local clock offset: 0.569 ms  
Remote clock offset: 0.066 ms

# Below is generated by plot.py at 2018-11-15 18:46:08  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 882.79 Mbit/s  
95th percentile per-packet one-way delay: 207.977 ms  
Loss rate: 1.81%  
-- Flow 1:  
Average throughput: 509.44 Mbit/s  
95th percentile per-packet one-way delay: 195.759 ms  
Loss rate: 0.93%  
-- Flow 2:  
Average throughput: 432.11 Mbit/s  
95th percentile per-packet one-way delay: 228.255 ms  
Loss rate: 2.26%  
-- Flow 3:  
Average throughput: 275.59 Mbit/s  
95th percentile per-packet one-way delay: 200.742 ms  
Loss rate: 5.28%
Run 4: Report of Indigo-Muses — Data Link

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

- Blue: Flow 1 ingress (mean 509.66 Mbit/s)
- Green: Flow 2 ingress (mean 436.11 Mbit/s)
- Red: Flow 3 ingress (mean 283.01 Mbit/s)
- Purple: Flow 1 egress (mean 509.44 Mbit/s)
- Green: Flow 2 egress (mean 432.11 Mbit/s)
- Red: Flow 3 egress (mean 275.59 Mbit/s)

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

- Blue: Flow 1 (95th percentile 195.76 ms)
- Green: Flow 2 (95th percentile 228.25 ms)
- Red: Flow 3 (95th percentile 200.74 ms)
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 17:11:43
End at: 2018-11-15 17:12:13
Local clock offset: 0.545 ms
Remote clock offset: 0.083 ms

# Below is generated by plot.py at 2018-11-15 18:46:08
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 846.77 Mbit/s
  95th percentile per-packet one-way delay: 209.339 ms
  Loss rate: 1.87%
-- Flow 1:
  Average throughput: 484.24 Mbit/s
  95th percentile per-packet one-way delay: 201.633 ms
  Loss rate: 1.13%
-- Flow 2:
  Average throughput: 435.09 Mbit/s
  95th percentile per-packet one-way delay: 215.719 ms
  Loss rate: 1.82%
-- Flow 3:
  Average throughput: 232.12 Mbit/s
  95th percentile per-packet one-way delay: 255.547 ms
  Loss rate: 6.57%
Run 5: Report of Indigo-Muses — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 485.42 Mbps)
- Flow 1 egress (mean 484.24 Mbps)
- Flow 2 ingress (mean 437.19 Mbps)
- Flow 2 egress (mean 435.09 Mbps)
- Flow 3 ingress (mean 241.69 Mbps)
- Flow 3 egress (mean 232.22 Mbps)

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

- Flow 1 (95th percentile 201.63 ms)
- Flow 2 (95th percentile 215.72 ms)
- Flow 3 (95th percentile 255.55 ms)
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 14:59:06
End at: 2018-11-15 14:59:36
Local clock offset: -0.093 ms
Remote clock offset: -0.009 ms

# Below is generated by plot.py at 2018-11-15 18:53:03
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 619.91 Mbit/s
  95th percentile per-packet one-way delay: 271.036 ms
  Loss rate: 6.93%
-- Flow 1:
  Average throughput: 352.82 Mbit/s
  95th percentile per-packet one-way delay: 276.590 ms
  Loss rate: 9.32%
-- Flow 2:
  Average throughput: 294.65 Mbit/s
  95th percentile per-packet one-way delay: 264.830 ms
  Loss rate: 2.99%
-- Flow 3:
  Average throughput: 223.05 Mbit/s
  95th percentile per-packet one-way delay: 262.212 ms
  Loss rate: 5.14%
Run 1: Report of PCC-Allegro — Data Link

![Throughput vs Time Graph]

- Flow 1 ingress (mean 386.82 Mbit/s)
- Flow 1 egress (mean 352.82 Mbit/s)
- Flow 2 ingress (mean 299.64 Mbit/s)
- Flow 2 egress (mean 294.05 Mbit/s)
- Flow 3 ingress (mean 226.88 Mbit/s)
- Flow 3 egress (mean 223.05 Mbit/s)

![Per-packet one-way delay vs Time Graph]

- Flow 1 (95th percentile 276.59 ms)
- Flow 2 (95th percentile 264.83 ms)
- Flow 3 (95th percentile 262.21 ms)
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 15:33:21
End at: 2018-11-15 15:33:51
Local clock offset: -0.071 ms
Remote clock offset: 0.002 ms

# Below is generated by plot.py at 2018-11-15 18:54:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 652.43 Mbit/s
  95th percentile per-packet one-way delay: 261.642 ms
  Loss rate: 6.26%
-- Flow 1:
  Average throughput: 397.52 Mbit/s
  95th percentile per-packet one-way delay: 262.597 ms
  Loss rate: 7.19%
-- Flow 2:
  Average throughput: 279.14 Mbit/s
  95th percentile per-packet one-way delay: 191.401 ms
  Loss rate: 3.24%
-- Flow 3:
  Average throughput: 216.92 Mbit/s
  95th percentile per-packet one-way delay: 284.421 ms
  Loss rate: 8.53%
Run 2: Report of PCC-Allegro — Data Link

![Graph of Throughput and Delay](image-url)

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 424.44 Mbps)
  - Flow 2 ingress (mean 284.59 Mbps)
  - Flow 3 ingress (mean 230.60 Mbps)
  - Flow 1 egress (mean 397.52 Mbps)
  - Flow 2 egress (mean 279.14 Mbps)
  - Flow 3 egress (mean 216.92 Mbps)

- **Packet Flow Delay (ms):**
  - Flow 1 (95th percentile 262.60 ms)
  - Flow 2 (95th percentile 191.40 ms)
  - Flow 3 (95th percentile 284.42 ms)
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 16:08:38
End at: 2018-11-15 16:09:08
Local clock offset: 0.652 ms
Remote clock offset: 0.053 ms

# Below is generated by plot.py at 2018-11-15 18:55:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 624.52 Mbit/s
95th percentile per-packet one-way delay: 249.785 ms
Loss rate: 4.50%
-- Flow 1:
Average throughput: 357.44 Mbit/s
95th percentile per-packet one-way delay: 253.601 ms
Loss rate: 5.07%
-- Flow 2:
Average throughput: 290.93 Mbit/s
95th percentile per-packet one-way delay: 195.267 ms
Loss rate: 3.70%
-- Flow 3:
Average throughput: 230.89 Mbit/s
95th percentile per-packet one-way delay: 234.405 ms
Loss rate: 3.81%
Run 3: Report of PCC-Allegro — Data Link

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

Start at: 2018-11-15 16:43:49
End at: 2018-11-15 16:44:19
Local clock offset: 0.172 ms
Remote clock offset: 0.442 ms

# Below is generated by plot.py at 2018-11-15 19:04:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 587.90 Mbit/s
95th percentile per-packet one-way delay: 205.885 ms
Loss rate: 2.90%
-- Flow 1:
Average throughput: 321.62 Mbit/s
95th percentile per-packet one-way delay: 148.952 ms
Loss rate: 2.24%
-- Flow 2:
Average throughput: 293.99 Mbit/s
95th percentile per-packet one-way delay: 213.665 ms
Loss rate: 2.95%
-- Flow 3:
Average throughput: 221.66 Mbit/s
95th percentile per-packet one-way delay: 274.049 ms
Loss rate: 5.60%
Run 4: Report of PCC-Allegro — Data Link
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 17:18:08
End at: 2018-11-15 17:18:38
Local clock offset: 0.224 ms
Remote clock offset: 0.071 ms

# Below is generated by plot.py at 2018-11-15 19:08:04
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 585.05 Mbit/s
  95th percentile per-packet one-way delay: 247.768 ms
  Loss rate: 3.02%
-- Flow 1:
  Average throughput: 308.89 Mbit/s
  95th percentile per-packet one-way delay: 166.377 ms
  Loss rate: 1.65%
-- Flow 2:
  Average throughput: 308.29 Mbit/s
  95th percentile per-packet one-way delay: 258.766 ms
  Loss rate: 3.62%
-- Flow 3:
  Average throughput: 223.67 Mbit/s
  95th percentile per-packet one-way delay: 288.537 ms
  Loss rate: 6.94%
Run 5: Report of PCC-Allegro — Data Link
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 14:39:49
End at: 2018-11-15 14:40:19
Local clock offset: 0.291 ms
Remote clock offset: 0.033 ms

# Below is generated by plot.py at 2018-11-15 19:08:04
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 469.88 Mbit/s
  95th percentile per-packet one-way delay: 254.543 ms
  Loss rate: 5.86%
-- Flow 1:
  Average throughput: 290.74 Mbit/s
  95th percentile per-packet one-way delay: 247.939 ms
  Loss rate: 3.60%
-- Flow 2:
  Average throughput: 172.56 Mbit/s
  95th percentile per-packet one-way delay: 215.813 ms
  Loss rate: 2.19%
-- Flow 3:
  Average throughput: 201.06 Mbit/s
  95th percentile per-packet one-way delay: 274.074 ms
  Loss rate: 19.58%
Run 1: Report of PCC-Expr — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 298.90 Mbps)
- Flow 1 egress (mean 290.74 Mbps)
- Flow 2 ingress (mean 174.29 Mbps)
- Flow 2 egress (mean 172.56 Mbps)
- Flow 3 ingress (mean 243.25 Mbps)
- Flow 3 egress (mean 201.06 Mbps)

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

- Flow 1 (95th percentile 247.94 ms)
- Flow 2 (95th percentile 215.81 ms)
- Flow 3 (95th percentile 274.07 ms)
Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 15:15:09
End at: 2018-11-15 15:15:39
Local clock offset: -0.117 ms
Remote clock offset: -0.016 ms

# Below is generated by plot.py at 2018-11-15 19:08:04
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 493.82 Mbit/s
  95th percentile per-packet one-way delay: 243.555 ms
  Loss rate: 3.59%
-- Flow 1:
  Average throughput: 287.38 Mbit/s
  95th percentile per-packet one-way delay: 242.749 ms
  Loss rate: 3.43%
-- Flow 2:
  Average throughput: 238.85 Mbit/s
  95th percentile per-packet one-way delay: 247.031 ms
  Loss rate: 3.92%
-- Flow 3:
  Average throughput: 149.29 Mbit/s
  95th percentile per-packet one-way delay: 168.547 ms
  Loss rate: 3.44%
Run 2: Report of PCC-Expr — Data Link
Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 15:50:05
End at: 2018-11-15 15:50:35
Local clock offset: 0.631 ms
Remote clock offset: 0.368 ms

# Below is generated by plot.py at 2018-11-15 19:08:04
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 406.00 Mbit/s
  95th percentile per-packet one-way delay: 242.333 ms
  Loss rate: 3.35%
-- Flow 1:
  Average throughput: 241.43 Mbit/s
  95th percentile per-packet one-way delay: 244.134 ms
  Loss rate: 3.64%
-- Flow 2:
  Average throughput: 177.09 Mbit/s
  95th percentile per-packet one-way delay: 150.907 ms
  Loss rate: 1.62%
-- Flow 3:
  Average throughput: 146.26 Mbit/s
  95th percentile per-packet one-way delay: 254.036 ms
  Loss rate: 5.98%
Run 3: Report of PCC-Expr — Data Link

![Graph of Throughput (Mb/s) over Time (s)](image)

- **Flow 1 ingress (mean 248.31 Mb/s)**
- **Flow 1 egress (mean 241.43 Mb/s)**
- **Flow 2 ingress (mean 177.59 Mb/s)**
- **Flow 2 egress (mean 177.09 Mb/s)**
- **Flow 3 ingress (mean 151.33 Mb/s)**
- **Flow 3 egress (mean 146.26 Mb/s)**

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

- **Flow 1 (95th percentile 244.13 ms)**
- **Flow 2 (95th percentile 150.91 ms)**
- **Flow 3 (95th percentile 254.04 ms)**
Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 16:24:24
End at: 2018-11-15 16:24:54
Local clock offset: 0.287 ms
Remote clock offset: 0.08 ms

# Below is generated by plot.py at 2018-11-15 19:12:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 437.97 Mbit/s
95th percentile per-packet one-way delay: 240.565 ms
Loss rate: 3.88%
-- Flow 1:
Average throughput: 269.90 Mbit/s
95th percentile per-packet one-way delay: 246.685 ms
Loss rate: 4.71%
-- Flow 2:
Average throughput: 180.15 Mbit/s
95th percentile per-packet one-way delay: 136.881 ms
Loss rate: 1.70%
-- Flow 3:
Average throughput: 150.60 Mbit/s
95th percentile per-packet one-way delay: 238.557 ms
Loss rate: 4.51%
Run 4: Report of PCC-Expr — Data Link

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

Flow 1 ingress (mean 280.71 Mbit/s)  Flow 1 egress (mean 269.90 Mbit/s)
Flow 2 ingress (mean 180.80 Mbit/s)  Flow 2 egress (mean 180.15 Mbit/s)
Flow 3 ingress (mean 153.43 Mbit/s)  Flow 3 egress (mean 150.60 Mbit/s)
Run 5: Statistics of PCC-Expr

End at: 2018-11-15 16:59:43
Local clock offset: -0.009 ms
Remote clock offset: -0.274 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 451.07 Mbit/s
95th percentile per-packet one-way delay: 264.365 ms
Loss rate: 2.92%
-- Flow 1:
Average throughput: 279.76 Mbit/s
95th percentile per-packet one-way delay: 268.651 ms
Loss rate: 2.60%
-- Flow 2:
Average throughput: 188.35 Mbit/s
95th percentile per-packet one-way delay: 151.880 ms
Loss rate: 2.30%
-- Flow 3:
Average throughput: 144.03 Mbit/s
95th percentile per-packet one-way delay: 261.779 ms
Loss rate: 6.32%
Run 5: Report of PCC-Expr — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 284.67 Mbps)
  - Flow 1 egress (mean 279.76 Mbps)
  - Flow 2 ingress (mean 190.22 Mbps)
  - Flow 2 egress (mean 188.35 Mbps)
  - Flow 3 ingress (mean 149.55 Mbps)
  - Flow 3 egress (mean 144.03 Mbps)

- **Per-packet one way delay (ms):**
  - Flow 1 (95th percentile 268.65 ms)
  - Flow 2 (95th percentile 151.88 ms)
  - Flow 3 (95th percentile 261.78 ms)
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 14:34:22
End at: 2018-11-15 14:34:52
Local clock offset: -0.268 ms
Remote clock offset: 0.034 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.92 Mbit/s
95th percentile per-packet one-way delay: 132.944 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 52.56 Mbit/s
95th percentile per-packet one-way delay: 131.933 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 54.37 Mbit/s
95th percentile per-packet one-way delay: 133.003 ms
Loss rate: 1.89%
-- Flow 3:
Average throughput: 20.28 Mbit/s
95th percentile per-packet one-way delay: 132.851 ms
Loss rate: 9.36%
Run 1: Report of QUIC Cubic — Data Link
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 15:09:24
End at: 2018-11-15 15:09:54
Local clock offset: 0.511 ms
Remote clock offset: 0.331 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 103.77 Mbit/s
  95th percentile per-packet one-way delay: 135.779 ms
  Loss rate: 1.35%
-- Flow 1:
  Average throughput: 58.23 Mbit/s
  95th percentile per-packet one-way delay: 133.543 ms
  Loss rate: 1.12%
-- Flow 2:
  Average throughput: 51.15 Mbit/s
  95th percentile per-packet one-way delay: 133.118 ms
  Loss rate: 1.97%
-- Flow 3:
  Average throughput: 35.99 Mbit/s
  95th percentile per-packet one-way delay: 135.989 ms
  Loss rate: 0.64%
Run 2: Report of QUIC Cubic — Data Link
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 15:44:12
End at: 2018-11-15 15:44:42
Local clock offset: 0.412 ms
Remote clock offset: 0.024 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.86 Mbit/s
95th percentile per-packet one-way delay: 135.836 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 51.83 Mbit/s
95th percentile per-packet one-way delay: 133.578 ms
Loss rate: 1.37%
-- Flow 2:
Average throughput: 42.23 Mbit/s
95th percentile per-packet one-way delay: 133.334 ms
Loss rate: 2.30%
-- Flow 3:
Average throughput: 34.66 Mbit/s
95th percentile per-packet one-way delay: 136.074 ms
Loss rate: 0.00%
Run 3: Report of QUIC Cubic — Data Link
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 16:18:39
End at: 2018-11-15 16:19:09
Local clock offset: -0.019 ms
Remote clock offset: 0.092 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 101.70 Mbit/s
  95th percentile per-packet one-way delay: 135.287 ms
  Loss rate: 1.98%
-- Flow 1:
  Average throughput: 58.48 Mbit/s
  95th percentile per-packet one-way delay: 133.170 ms
  Loss rate: 1.23%
-- Flow 2:
  Average throughput: 53.21 Mbit/s
  95th percentile per-packet one-way delay: 133.053 ms
  Loss rate: 1.92%
-- Flow 3:
  Average throughput: 24.68 Mbit/s
  95th percentile per-packet one-way delay: 135.507 ms
  Loss rate: 7.35%
Run 4: Report of QUIC Cubic — Data Link

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

- Flow 1 ingress (mean 58.68 Mbit/s)
- Flow 1 egress (mean 58.48 Mbit/s)
- Flow 2 ingress (mean 53.52 Mbit/s)
- Flow 2 egress (mean 53.21 Mbit/s)
- Flow 3 ingress (mean 25.93 Mbit/s)
- Flow 3 egress (mean 24.68 Mbit/s)
Run 5: Statistics of QUIC Cubic

End at: 2018-11-15 16:54:23
Local clock offset: 0.34 ms
Remote clock offset: 0.092 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.25 Mbit/s
95th percentile per-packet one-way delay: 133.280 ms
Loss rate: 2.20%
-- Flow 1:
Average throughput: 43.44 Mbit/s
95th percentile per-packet one-way delay: 133.143 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 45.57 Mbit/s
95th percentile per-packet one-way delay: 133.375 ms
Loss rate: 2.07%
-- Flow 3:
Average throughput: 34.45 Mbit/s
95th percentile per-packet one-way delay: 133.104 ms
Loss rate: 5.08%
Run 5: Report of QUIC Cubic — Data Link
Run 1: Statistics of SCReAM

Start at: 2018-11-15 14:33:03
End at: 2018-11-15 14:33:33
Local clock offset: 0.429 ms
Remote clock offset: 0.047 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 133.624 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 133.644 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 133.580 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 133.583 ms
Loss rate: 2.13%
Run 1: Report of SCReAM — Data Link

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

- Flow 1 ingress (mean 0.15 Mbps/s)
- Flow 1 egress (mean 0.15 Mbps/s)
- Flow 2 ingress (mean 0.15 Mbps/s)
- Flow 2 egress (mean 0.15 Mbps/s)
- Flow 3 ingress (mean 0.16 Mbps/s)
- Flow 3 egress (mean 0.16 Mbps/s)

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

- Flow 1 (95th percentile 133.64 ms)
- Flow 2 (95th percentile 133.58 ms)
- Flow 3 (95th percentile 133.58 ms)
Run 2: Statistics of SCReAM

Start at: 2018-11-15 15:08:05
End at: 2018-11-15 15:08:35
Local clock offset: -0.144 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 135.433 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 135.481 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 133.049 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 135.179 ms
Loss rate: 2.60%
Run 2: Report of SCReAM — Data Link

![Graph of data link throughput and delay]

- Flow 1 ingress (mean 0.21 Mbit/s)
- Flow 1 egress (mean 0.21 Mbit/s)
- Flow 2 ingress (mean 0.19 Mbit/s)
- Flow 2 egress (mean 0.19 Mbit/s)
- Flow 3 ingress (mean 0.22 Mbit/s)
- Flow 3 egress (mean 0.22 Mbit/s)

- Flow 1 (95th percentile 135.48 ms)
- Flow 2 (95th percentile 133.05 ms)
- Flow 3 (95th percentile 135.18 ms)
Run 3: Statistics of SCReAM

End at: 2018-11-15 15:43:23
Local clock offset: 0.173 ms
Remote clock offset: -0.355 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.41 Mbit/s
  95th percentile per-packet one-way delay: 136.410 ms
  Loss rate: 1.28%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 136.445 ms
  Loss rate: 0.89%
-- Flow 2:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 136.411 ms
  Loss rate: 1.43%
-- Flow 3:
  Average throughput: 0.16 Mbit/s
  95th percentile per-packet one-way delay: 133.706 ms
  Loss rate: 2.44%
Run 3: Report of SCReAM — Data Link

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

- Blue line: Flow 1 ingress (mean 0.22 Mb/s)
- Purple line: Flow 1 egress (mean 0.22 Mb/s)
- Green line: Flow 2 ingress (mean 0.22 Mb/s)
- Red line: Flow 2 egress (mean 0.22 Mb/s)
- Black line: Flow 3 ingress (mean 0.19 Mb/s)
- Orange line: Flow 3 egress (mean 0.16 Mb/s)

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

- Blue dots: Flow 1 (95th percentile 136.64 ms)
- Green dots: Flow 2 (95th percentile 136.41 ms)
- Red dots: Flow 3 (95th percentile 133.71 ms)
Run 4: Statistics of SCReAM

Start at: 2018-11-15 16:17:21
End at: 2018-11-15 16:17:51
Local clock offset: 0.252 ms
Remote clock offset: 0.053 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 133.502 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 133.151 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 133.565 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 133.268 ms
Loss rate: 2.45%
Run 4: Report of SCReAM — Data Link
Run 5: Statistics of SCReAM

Start at: 2018-11-15 16:52:34
End at: 2018-11-15 16:53:04
Local clock offset: 0.742 ms
Remote clock offset: 0.049 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 136.366 ms
Loss rate: 1.37%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 133.553 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 136.445 ms
Loss rate: 1.43%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 133.748 ms
Loss rate: 2.26%
Run 5: Report of SCReAM — Data Link
Run 1: Statistics of Sprout

Start at: 2018-11-15 14:57:47
End at: 2018-11-15 14:58:17
Local clock offset: 0.064 ms
Remote clock offset: 0.0 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 136.075 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 133.231 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 136.170 ms
Loss rate: 1.37%
-- Flow 3:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 133.723 ms
Loss rate: 2.96%
Run 1: Report of Sprout — Data Link
Run 2: Statistics of Sprout

Start at: 2018-11-15 15:32:02
End at: 2018-11-15 15:32:32
Local clock offset: 0.411 ms
Remote clock offset: 0.003 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 135.413 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 133.903 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 135.483 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 134.178 ms
Loss rate: 2.75%
Run 2: Report of Sprout — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 0.67 Mbit/s)
  - Flow 1 egress (mean 0.67 Mbit/s)
  - Flow 2 ingress (mean 0.63 Mbit/s)
  - Flow 2 egress (mean 0.63 Mbit/s)
  - Flow 3 ingress (mean 0.70 Mbit/s)
  - Flow 3 egress (mean 0.71 Mbit/s)

- **Packet round-trip delay (ms):**
  - Flow 1 (95th percentile 133.90 ms)
  - Flow 2 (95th percentile 135.48 ms)
  - Flow 3 (95th percentile 134.18 ms)
Run 3: Statistics of Sprout

Start at: 2018-11-15 16:07:19
End at: 2018-11-15 16:07:49
Local clock offset: 0.641 ms
Remote clock offset: 0.07 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 133.955 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 133.798 ms
Loss rate: 0.99%
-- Flow 2:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 134.023 ms
Loss rate: 1.75%
-- Flow 3:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 133.788 ms
Loss rate: 3.00%
Run 3: Report of Sprout — Data Link
Run 4: Statistics of Sprout

Start at: 2018-11-15 16:42:30
End at: 2018-11-15 16:43:00
Local clock offset: 0.62 ms
Remote clock offset: 0.078 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1.26 Mbit/s
  95th percentile per-packet one-way delay: 136.353 ms
  Loss rate: 1.24%
-- Flow 1:
  Average throughput: 0.68 Mbit/s
  95th percentile per-packet one-way delay: 133.764 ms
  Loss rate: 0.94%
-- Flow 2:
  Average throughput: 0.56 Mbit/s
  95th percentile per-packet one-way delay: 133.672 ms
  Loss rate: 1.06%
-- Flow 3:
  Average throughput: 0.62 Mbit/s
  95th percentile per-packet one-way delay: 136.680 ms
  Loss rate: 2.55%
Run 5: Statistics of Sprout

Start at: 2018-11-15 17:16:49
End at: 2018-11-15 17:17:19
Local clock offset: 0.123 ms
Remote clock offset: 0.038 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1.34 Mbit/s
  95th percentile per-packet one-way delay: 133.392 ms
  Loss rate: 0.94%
-- Flow 1:
  Average throughput: 0.68 Mbit/s
  95th percentile per-packet one-way delay: 133.485 ms
  Loss rate: 0.03%
-- Flow 2:
  Average throughput: 0.67 Mbit/s
  95th percentile per-packet one-way delay: 133.091 ms
  Loss rate: 1.24%
-- Flow 3:
  Average throughput: 0.66 Mbit/s
  95th percentile per-packet one-way delay: 132.644 ms
  Loss rate: 3.12%
Run 5: Report of Sprout — Data Link

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Graph 1: Throughput (Mbps)

Graph 2: Per-packet round-trip delay (ms)

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134
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 15:01:39
End at: 2018-11-15 15:02:09
Local clock offset: 0.439 ms
Remote clock offset: 0.007 ms

# Below is generated by plot.py at 2018-11-15 19:14:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 65.34 Mbit/s
  95th percentile per-packet one-way delay: 138.141 ms
  Loss rate: 3.05%
-- Flow 1:
  Average throughput: 12.85 Mbit/s
  95th percentile per-packet one-way delay: 136.117 ms
  Loss rate: 0.92%
-- Flow 2:
  Average throughput: 12.77 Mbit/s
  95th percentile per-packet one-way delay: 133.584 ms
  Loss rate: 1.36%
-- Flow 3:
  Average throughput: 135.01 Mbit/s
  95th percentile per-packet one-way delay: 138.940 ms
  Loss rate: 3.97%
Run 1: Report of TaoVA-100x — Data Link

![Throughput vs Time graph](image)

![Per-packet delay vs Time graph](image)

136
Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 15:35:46
End at: 2018-11-15 15:36:16
Local clock offset: 0.177 ms
Remote clock offset: -0.015 ms

# Below is generated by plot.py at 2018-11-15 19:15:04
# Datalink statistics
-- Total of 3 flows:
95th percentile per-packet one-way delay: 136.367 ms
Loss rate: 1.52%
-- Flow 1:
95th percentile per-packet one-way delay: 136.435 ms
Loss rate: 1.01%
-- Flow 2:
95th percentile per-packet one-way delay: 136.005 ms
Loss rate: 1.41%
-- Flow 3:
95th percentile per-packet one-way delay: 133.462 ms
Loss rate: 3.37%
Run 2: Report of TaoVA-100x — Data Link
Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 16:11:04
End at: 2018-11-15 16:11:34
Local clock offset: 0.24 ms
Remote clock offset: 0.089 ms

# Below is generated by plot.py at 2018-11-15 19:15:04
# Datalink statistics
-- Total of 3 flows:
 Average throughput: 137.38 Mbit/s
 95th percentile per-packet one-way delay: 133.311 ms
 Loss rate: 1.46%
-- Flow 1:
 Average throughput: 13.05 Mbit/s
 95th percentile per-packet one-way delay: 133.380 ms
 Loss rate: 0.91%
-- Flow 2:
 Average throughput: 181.20 Mbit/s
 95th percentile per-packet one-way delay: 133.276 ms
 Loss rate: 1.47%
-- Flow 3:
 Average throughput: 12.82 Mbit/s
 95th percentile per-packet one-way delay: 133.038 ms
 Loss rate: 2.74%
Run 3: Report of TaoVA-100x — Data Link
Run 4: Statistics of TaoVA-100x

End at: 2018-11-15 16:46:44
Local clock offset: -0.083 ms
Remote clock offset: 0.082 ms

# Below is generated by plot.py at 2018-11-15 19:15:04
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 26.79 Mbit/s
  95th percentile per-packet one-way delay: 135.451 ms
  Loss rate: 1.34%
-- Flow 1:
  Average throughput: 13.02 Mbit/s
  95th percentile per-packet one-way delay: 135.512 ms
  Loss rate: 0.92%
-- Flow 2:
  Average throughput: 14.52 Mbit/s
  95th percentile per-packet one-way delay: 132.767 ms
  Loss rate: 1.24%
-- Flow 3:
  Average throughput: 12.68 Mbit/s
  95th percentile per-packet one-way delay: 132.907 ms
  Loss rate: 2.83%
Run 4: Report of TaoVA-100x — Data Link

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

- Flow 1 ingress (mean 13.02 Mbit/s)
- Flow 1 egress (mean 13.02 Mbit/s)
- Flow 2 ingress (mean 14.51 Mbit/s)
- Flow 2 egress (mean 14.52 Mbit/s)
- Flow 3 ingress (mean 12.70 Mbit/s)
- Flow 3 egress (mean 12.68 Mbit/s)
Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 17:20:25
End at: 2018-11-15 17:20:55
Local clock offset: 0.154 ms
Remote clock offset: 0.046 ms

# Below is generated by plot.py at 2018-11-15 19:16:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 235.75 Mbit/s
95th percentile per-packet one-way delay: 133.364 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 178.22 Mbit/s
95th percentile per-packet one-way delay: 133.305 ms
Loss rate: 1.01%
-- Flow 2:
Average throughput: 13.00 Mbit/s
95th percentile per-packet one-way delay: 132.772 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 149.90 Mbit/s
95th percentile per-packet one-way delay: 133.604 ms
Loss rate: 3.32%
Run 5: Report of TaoVA-100x — Data Link

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

- Flow 1 ingress (mean 178.44 Mbit/s)
- Flow 1 egress (mean 178.22 Mbit/s)
- Flow 2 ingress (mean 13.00 Mbit/s)
- Flow 2 egress (mean 13.00 Mbit/s)
- Flow 3 ingress (mean 156.96 Mbit/s)
- Flow 3 egress (mean 149.90 Mbit/s)
Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 14:50:18
End at: 2018-11-15 14:50:48
Local clock offset: 0.265 ms
Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2018-11-15 19:17:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 455.85 Mbit/s
95th percentile per-packet one-way delay: 137.106 ms
Loss rate: 1.55%
-- Flow 1:
Average throughput: 240.64 Mbit/s
95th percentile per-packet one-way delay: 137.350 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 230.35 Mbit/s
95th percentile per-packet one-way delay: 134.307 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 196.13 Mbit/s
95th percentile per-packet one-way delay: 134.987 ms
Loss rate: 3.61%
Run 1: Report of TCP Vegas — Data Link
Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 15:25:00
End at: 2018-11-15 15:25:30
Local clock offset: 0.333 ms
Remote clock offset: -0.034 ms

# Below is generated by plot.py at 2018-11-15 19:18:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 454.78 Mbit/s
95th percentile per-packet one-way delay: 135.131 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 245.19 Mbit/s
95th percentile per-packet one-way delay: 134.781 ms
Loss rate: 0.97%
-- Flow 2:
Average throughput: 234.03 Mbit/s
95th percentile per-packet one-way delay: 135.181 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 166.67 Mbit/s
95th percentile per-packet one-way delay: 141.293 ms
Loss rate: 2.51%
Run 2: Report of TCP Vegas — Data Link

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

Legend:
- Flow 1 ingress (mean 245.40 Mbit/s)
- Flow 1 egress (mean 245.19 Mbit/s)
- Flow 2 ingress (mean 234.49 Mbit/s)
- Flow 2 egress (mean 234.03 Mbit/s)
- Flow 3 ingress (mean 166.41 Mbit/s)
- Flow 3 egress (mean 166.67 Mbit/s)

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

Legend:
- Flow 1 (95th percentile 134.78 ms)
- Flow 2 (95th percentile 135.18 ms)
- Flow 3 (95th percentile 141.29 ms)
Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 16:00:18
End at: 2018-11-15 16:00:48
Local clock offset: 0.621 ms
Remote clock offset: -0.339 ms

# Below is generated by plot.py at 2018-11-15 19:18:15
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 457.32 Mbit/s
   95th percentile per-packet one-way delay: 135.644 ms
   Loss rate: 1.50%
-- Flow 1:
   Average throughput: 242.57 Mbit/s
   95th percentile per-packet one-way delay: 136.076 ms
   Loss rate: 0.98%
-- Flow 2:
   Average throughput: 234.28 Mbit/s
   95th percentile per-packet one-way delay: 134.992 ms
   Loss rate: 1.52%
-- Flow 3:
   Average throughput: 182.07 Mbit/s
   95th percentile per-packet one-way delay: 135.506 ms
   Loss rate: 3.54%
Run 3: Report of TCP Vegas — Data Link

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

Legend:
- Flow 1 ingress (mean 242.80 Mbit/s)
- Flow 1 egress (mean 242.57 Mbit/s)
- Flow 2 ingress (mean 234.73 Mbit/s)
- Flow 2 egress (mean 234.28 Mbit/s)
- Flow 3 ingress (mean 183.70 Mbit/s)
- Flow 3 egress (mean 182.07 Mbit/s)
Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 16:35:30
End at: 2018-11-15 16:36:00
Local clock offset: 0.678 ms
Remote clock offset: 0.063 ms

# Below is generated by plot.py at 2018-11-15 19:22:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 464.13 Mbit/s
95th percentile per-packet one-way delay: 134.831 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 244.80 Mbit/s
95th percentile per-packet one-way delay: 134.727 ms
Loss rate: 0.97%
-- Flow 2:
Average throughput: 233.31 Mbit/s
95th percentile per-packet one-way delay: 134.744 ms
Loss rate: 1.53%
-- Flow 3:
Average throughput: 198.27 Mbit/s
95th percentile per-packet one-way delay: 135.704 ms
Loss rate: 3.58%
Run 4: Report of TCP Vegas — Data Link

![Graph showing throughput and packet delay over time for different flows.](image-url)
Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 17:09:35
End at: 2018-11-15 17:10:05
Local clock offset: 0.819 ms
Remote clock offset: 0.025 ms

# Below is generated by plot.py at 2018-11-15 19:22:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 460.23 Mbit/s
95th percentile per-packet one-way delay: 135.227 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 242.77 Mbit/s
95th percentile per-packet one-way delay: 135.130 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 230.11 Mbit/s
95th percentile per-packet one-way delay: 135.722 ms
Loss rate: 1.55%
-- Flow 3:
Average throughput: 199.38 Mbit/s
95th percentile per-packet one-way delay: 134.706 ms
Loss rate: 3.55%
Run 5: Report of TCP Vegas — Data Link

[Graph showing throughput and packet delay over time for different flows with mean throughputs specified for ingress and egress.]
Run 1: Statistics of Verus

End at: 2018-11-15 14:49:03
Local clock offset: 0.04 ms
Remote clock offset: 0.019 ms

# Below is generated by plot.py at 2018-11-15 19:23:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 204.61 Mbit/s
95th percentile per-packet one-way delay: 254.613 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 171.63 Mbit/s
95th percentile per-packet one-way delay: 256.957 ms
Loss rate: 1.80%
-- Flow 2:
Average throughput: 27.87 Mbit/s
95th percentile per-packet one-way delay: 136.143 ms
Loss rate: 3.12%
-- Flow 3:
Average throughput: 44.41 Mbit/s
95th percentile per-packet one-way delay: 138.514 ms
Loss rate: 2.81%
Run 1: Report of Verus — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress: (mean 173.23 Mbps)
  - Flow 1 egress: (mean 171.63 Mbps)
  - Flow 2 ingress: (mean 28.49 Mbps)
  - Flow 2 egress: (mean 27.87 Mbps)
  - Flow 3 ingress: (mean 45.38 Mbps)
  - Flow 3 egress: (mean 44.41 Mbps)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile: 256.96 ms)
  - Flow 2 (95th percentile: 136.14 ms)
  - Flow 3 (95th percentile: 138.51 ms)
Run 2: Statistics of Verus

End at: 2018-11-15 15:23:55
Local clock offset: 0.365 ms
Remote clock offset: 0.357 ms

# Below is generated by plot.py at 2018-11-15 19:23:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.51 Mbit/s
95th percentile per-packet one-way delay: 152.250 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 64.25 Mbit/s
95th percentile per-packet one-way delay: 172.136 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 36.81 Mbit/s
95th percentile per-packet one-way delay: 140.885 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 47.34 Mbit/s
95th percentile per-packet one-way delay: 139.898 ms
Loss rate: 1.08%
Run 2: Report of Verus — Data Link

![Graph showing network data](image)

*Legend for Graph 1:*
- Flow 1 ingress (mean 64.54 Mbit/s)
- Flow 1 egress (mean 64.25 Mbit/s)
- Flow 2 ingress (mean 36.37 Mbit/s)
- Flow 2 egress (mean 36.81 Mbit/s)
- Flow 3 ingress (mean 46.91 Mbit/s)
- Flow 3 egress (mean 47.34 Mbit/s)

*Legend for Graph 2:*
- Flow 1 (95th percentile 172.14 ms)
- Flow 2 (95th percentile 140.88 ms)
- Flow 3 (95th percentile 139.90 ms)

158
Run 3: Statistics of Verus

Start at: 2018-11-15 15:58:27
End at: 2018-11-15 15:58:57
Local clock offset: -0.01 ms
Remote clock offset: 0.067 ms

# Below is generated by plot.py at 2018-11-15 19:24:20
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 179.22 Mbit/s
  95th percentile per-packet one-way delay: 247.088 ms
  Loss rate: 0.95%
-- Flow 1:
  Average throughput: 35.90 Mbit/s
  95th percentile per-packet one-way delay: 138.818 ms
  Loss rate: 0.82%
-- Flow 2:
  Average throughput: 141.84 Mbit/s
  95th percentile per-packet one-way delay: 220.198 ms
  Loss rate: 0.45%
-- Flow 3:
  Average throughput: 153.38 Mbit/s
  95th percentile per-packet one-way delay: 282.396 ms
  Loss rate: 1.96%
Run 3: Report of Verus — Data Link

[Graphs showing throughput and packet one-way delay over time for different flows, with annotations for mean and 95th percentile values.]
Run 4: Statistics of Verus

End at: 2018-11-15 16:34:25
Local clock offset: 0.279 ms
Remote clock offset: 0.069 ms

# Below is generated by plot.py at 2018-11-15 19:24:20
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 109.46 Mbit/s
  95th percentile per-packet one-way delay: 142.493 ms
  Loss rate: 0.17%
-- Flow 1:
  Average throughput: 73.64 Mbit/s
  95th percentile per-packet one-way delay: 145.836 ms
  Loss rate: 0.01%
-- Flow 2:
  Average throughput: 41.10 Mbit/s
  95th percentile per-packet one-way delay: 136.515 ms
  Loss rate: 0.23%
-- Flow 3:
  Average throughput: 27.29 Mbit/s
  95th percentile per-packet one-way delay: 136.122 ms
  Loss rate: 1.25%
Run 4: Report of Verus — Data Link
Run 5: Statistics of Verus

Start at: 2018-11-15 17:07:24
End at: 2018-11-15 17:07:54
Local clock offset: 0.538 ms
Remote clock offset: 0.046 ms

# Below is generated by plot.py at 2018-11-15 19:27:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 245.77 Mbit/s
95th percentile per-packet one-way delay: 302.228 ms
Loss rate: 6.95%
-- Flow 1:
Average throughput: 142.50 Mbit/s
95th percentile per-packet one-way delay: 297.665 ms
Loss rate: 9.00%
-- Flow 2:
Average throughput: 128.75 Mbit/s
95th percentile per-packet one-way delay: 307.967 ms
Loss rate: 4.82%
-- Flow 3:
Average throughput: 57.81 Mbit/s
95th percentile per-packet one-way delay: 164.866 ms
Loss rate: 0.00%
Run 5: Report of Verus — Data Link

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

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

Legend:
- Flow 1 ingress (mean 154.53 Mbps)
- Flow 1 egress (mean 142.50 Mbps)
- Flow 2 ingress (mean 134.28 Mbps)
- Flow 2 egress (mean 128.75 Mbps)
- Flow 3 ingress (mean 58.22 Mbps)
- Flow 3 egress (mean 57.81 Mbps)

Legend:
- Flow 1 (95th percentile 297.67 ms)
- Flow 2 (95th percentile 307.97 ms)
- Flow 3 (95th percentile 164.87 ms)
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 14:35:49
End at: 2018-11-15 14:36:19
Local clock offset: -0.156 ms
Remote clock offset: 0.048 ms

# Below is generated by plot.py at 2018-11-15 19:27:39
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 481.01 Mbit/s
  95th percentile per-packet one-way delay: 145.628 ms
  Loss rate: 1.07%
-- Flow 1:
  Average throughput: 320.65 Mbit/s
  95th percentile per-packet one-way delay: 144.669 ms
  Loss rate: 1.04%
-- Flow 2:
  Average throughput: 163.32 Mbit/s
  95th percentile per-packet one-way delay: 142.927 ms
  Loss rate: 1.66%
-- Flow 3:
  Average throughput: 173.11 Mbit/s
  95th percentile per-packet one-way delay: 152.314 ms
  Loss rate: 0.00%
Run 1: Report of PCC-Vivace — Data Link

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

**Throughput (Mbps)**
- Flow 1 ingress (mean 321.13 Mbps)
- Flow 1 egress (mean 320.65 Mbps)
- Flow 2 ingress (mean 163.85 Mbps)
- Flow 2 egress (mean 163.32 Mbps)
- Flow 3 ingress (mean 173.10 Mbps)
- Flow 3 egress (mean 173.11 Mbps)

**Packet Delay (ms)**
- Flow 1 (95th percentile 144.67 ms)
- Flow 2 (95th percentile 142.93 ms)
- Flow 3 (95th percentile 152.31 ms)
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 15:10:55
End at: 2018-11-15 15:11:25
Local clock offset: 0.101 ms
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-11-15 19:28:16
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 472.41 Mbit/s
  95th percentile per-packet one-way delay: 161.325 ms
  Loss rate: 1.35%
-- Flow 1:
  Average throughput: 317.83 Mbit/s
  95th percentile per-packet one-way delay: 151.836 ms
  Loss rate: 1.03%
-- Flow 2:
  Average throughput: 157.91 Mbit/s
  95th percentile per-packet one-way delay: 136.268 ms
  Loss rate: 1.18%
-- Flow 3:
  Average throughput: 154.92 Mbit/s
  95th percentile per-packet one-way delay: 262.685 ms
  Loss rate: 3.63%
Run 2: Report of PCC-Vivace — Data Link

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

- **Flow 1 Ingress**: Mean 318.27 Mbit/s
- **Flow 1 Egress**: Mean 317.83 Mbit/s
- **Flow 2 Ingress**: Mean 157.64 Mbit/s
- **Flow 2 Egress**: Mean 157.91 Mbit/s
- **Flow 3 Ingress**: Mean 156.40 Mbit/s
- **Flow 3 Egress**: Mean 154.92 Mbit/s

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

- **Flow 1 (95th percentile 151.94 ms)**
- **Flow 2 (95th percentile 136.27 ms)**
- **Flow 3 (95th percentile 262.69 ms)**
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 15:45:41
End at: 2018-11-15 15:46:11
Local clock offset: -0.025 ms
Remote clock offset: 0.023 ms

# Below is generated by plot.py at 2018-11-15 19:29:11
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 454.31 Mbit/s
  95th percentile per-packet one-way delay: 162.187 ms
  Loss rate: 1.83%
-- Flow 1:
  Average throughput: 295.68 Mbit/s
  95th percentile per-packet one-way delay: 182.036 ms
  Loss rate: 1.43%
-- Flow 2:
  Average throughput: 179.36 Mbit/s
  95th percentile per-packet one-way delay: 139.582 ms
  Loss rate: 1.80%
-- Flow 3:
  Average throughput: 123.22 Mbit/s
  95th percentile per-packet one-way delay: 169.843 ms
  Loss rate: 4.77%
Run 3: Report of PCC-Vivace — Data Link

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

Throughput (Mbps):
- Flow 1 ingress (mean 297.30 Mbps)
- Flow 1 egress (mean 295.68 Mbps)
- Flow 2 ingress (mean 180.16 Mbps)
- Flow 2 egress (mean 179.36 Mbps)
- Flow 3 ingress (mean 126.87 Mbps)
- Flow 3 egress (mean 123.22 Mbps)

Packet delay (ms):
- Flow 1 (95th percentile 182.04 ms)
- Flow 2 (95th percentile 139.58 ms)
- Flow 3 (95th percentile 169.84 ms)
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 16:20:09
End at: 2018-11-15 16:20:39
Local clock offset: 0.295 ms
Remote clock offset: 0.043 ms

# Below is generated by plot.py at 2018-11-15 19:29:29
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 498.60 Mbit/s
   95th percentile per-packet one-way delay: 173.151 ms
   Loss rate: 1.99%
-- Flow 1:
   Average throughput: 312.23 Mbit/s
   95th percentile per-packet one-way delay: 170.060 ms
   Loss rate: 1.22%
-- Flow 2:
   Average throughput: 227.06 Mbit/s
   95th percentile per-packet one-way delay: 220.044 ms
   Loss rate: 2.80%
-- Flow 3:
   Average throughput: 111.44 Mbit/s
   95th percentile per-packet one-way delay: 152.213 ms
   Loss rate: 5.11%
Run 4: Report of PCC-Vivace — Data Link

The first graph shows the throughput in Mbps over time for different flows:
- Flow 1 ingress (mean 313.26 Mbps)
- Flow 1 egress (mean 312.23 Mbps)
- Flow 2 ingress (mean 230.45 Mbps)
- Flow 2 egress (mean 227.06 Mbps)
- Flow 3 ingress (mean 114.26 Mbps)
- Flow 3 egress (mean 111.44 Mbps)

The second graph shows the per-packet one-way delay (ms) over time:
- Flow 1 (95th percentile 170.06 ms)
- Flow 2 (95th percentile 220.04 ms)
- Flow 3 (95th percentile 152.21 ms)
Run 5: Statistics of PCC-Vivace

End at: 2018-11-15 16:55:50
Local clock offset: 0.099 ms
Remote clock offset: 0.054 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 493.07 Mbit/s
  95th percentile per-packet one-way delay: 169.898 ms
  Loss rate: 1.65%
-- Flow 1:
  Average throughput: 298.90 Mbit/s
  95th percentile per-packet one-way delay: 144.771 ms
  Loss rate: 1.30%
-- Flow 2:
  Average throughput: 199.58 Mbit/s
  95th percentile per-packet one-way delay: 141.183 ms
  Loss rate: 1.71%
-- Flow 3:
  Average throughput: 191.68 Mbit/s
  95th percentile per-packet one-way delay: 230.258 ms
  Loss rate: 3.17%
Run 5: Report of PCC-Vivace — Data Link
Run 1: Statistics of WebRTC media

Start at: 2018-11-15 15:05:25
End at: 2018-11-15 15:05:55
Local clock offset: 0.506 ms
Remote clock offset: -0.026 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics

-- Total of 3 flows:
Average throughput: 2.67 Mbit/s
95th percentile per-packet one-way delay: 136.191 ms
Loss rate: 2.35%

-- Flow 1:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 136.255 ms
Loss rate: 1.43%

-- Flow 2:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 133.990 ms
Loss rate: 2.06%

-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 133.967 ms
Loss rate: 7.14%
Run 1: Report of WebRTC media — Data Link

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

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

Start at: 2018-11-15 15:40:14
End at: 2018-11-15 15:40:44
Local clock offset: -0.274 ms
Remote clock offset: 0.0 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 135.497 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 134.762 ms
Loss rate: 1.14%
-- Flow 2:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 132.903 ms
Loss rate: 2.05%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 135.763 ms
Loss rate: 6.30%
Run 2: Report of WebRTC media — Data Link

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

![Graph 2: Packet Delay vs Time](image)
Run 3: Statistics of WebRTC media

Start at: 2018-11-15 16:14:41
End at: 2018-11-15 16:15:11
Local clock offset: 0.458 ms
Remote clock offset: 0.052 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.10 Mbit/s
95th percentile per-packet one-way delay: 135.984 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 133.476 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 133.419 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 136.213 ms
Loss rate: 4.84%
Run 3: Report of WebRTC media — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 1.80 Mbit/s)
Flow 1 egress (mean 1.79 Mbit/s)
Flow 2 ingress (mean 1.04 Mbit/s)
Flow 2 egress (mean 1.03 Mbit/s)
Flow 3 ingress (mean 0.32 Mbit/s)
Flow 3 egress (mean 0.31 Mbit/s)

Percent one way delay (ms)

Time (s)

Flow 1 (95th percentile 133.48 ms)
Flow 2 (95th percentile 133.42 ms)
Flow 3 (95th percentile 136.21 ms)
Run 4: Statistics of WebRTC media

Start at: 2018-11-15 16:49:54
End at: 2018-11-15 16:50:24
Local clock offset: -0.127 ms
Remote clock offset: 0.475 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 132.769 ms
Loss rate: 1.90%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 132.815 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 132.674 ms
Loss rate: 2.03%
-- Flow 3:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 132.308 ms
Loss rate: 6.72%
Run 4: Report of WebRTC media — Data Link

Graph 1: Throughput vs Time

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

Legend:
- Flow 1 ingress (mean 1.80 Mbit/s)
- Flow 1 egress (mean 1.79 Mbit/s)
- Flow 2 ingress (mean 1.02 Mbit/s)
- Flow 2 egress (mean 1.00 Mbit/s)
- Flow 3 ingress (mean 0.34 Mbit/s)
- Flow 3 egress (mean 0.32 Mbit/s)
Run 5: Statistics of WebRTC media

Start at: 2018-11-15 17:25:09
End at: 2018-11-15 17:25:39
Local clock offset: 0.711 ms
Remote clock offset: 0.072 ms

# Below is generated by plot.py at 2018-11-15 19:29:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.08 Mbit/s
95th percentile per-packet one-way delay: 133.597 ms
Loss rate: 1.79%
-- Flow 1:
Average throughput: 1.78 Mbit/s
95th percentile per-packet one-way delay: 133.565 ms
Loss rate: 1.14%
-- Flow 2:
Average throughput: 1.03 Mbit/s
95th percentile per-packet one-way delay: 133.404 ms
Loss rate: 1.65%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 133.765 ms
Loss rate: 6.01%
Run 5: Report of WebRTC media — Data Link

![Graph of throughput vs. time for different flows]

![Graph of packet delay vs. time for different flows]

Legend:
- Flow 1: Ingress (mean 1.79 Mbit/s) / Egress (mean 1.78 Mbit/s)
- Flow 2: Ingress (mean 1.04 Mbit/s) / Egress (mean 1.03 Mbit/s)
- Flow 3: Ingress (mean 0.31 Mbit/s) / Egress (mean 0.30 Mbit/s)