Pantheon Report

Generated at 2018-11-16 05:19:50 (UTC).
Data path: GCE Iowa on ens4 (remote) → GCE London 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 @ d6da1459332fcee56963885d7ebe17e6a32d4519
third_party/genericCC @ d0153f8e94a89e3b032143ce67de58e562f4
third_party/indigo @ 2601c92e4aa9d58d38d4dfe0edbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed70486a8f994ab95
third_party/libutp @ b3465b942e2826f2b179eaaab4a906ce6b7c7f3cf
third_party/muses @ 65ac1b19bfe0d0c6349ae986e009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27af0a94271762b5183a354cc2e802bd
third_party/pcc @ 1af9c958fa0d6618b23c09a5f6e8c872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8ac0d8fab92c4eb2f974ab
third_party/proto-quic @ 77961fa82733a86b42f1bc8143ebc978f3cfff42
third_party/scream-reproduce @ f099d18d1421aa313bf11ff1964974e1da3dbd2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af262956293f9a494
M src/verus.hpp
M tools/plot.py

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test from GCE Iowa to GCE London, 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>531.36</td>
<td>515.76</td>
<td>472.66</td>
</tr>
<tr>
<td>Copa</td>
<td>5</td>
<td>289.32</td>
<td>282.21</td>
<td>242.93</td>
</tr>
<tr>
<td>TCP Cubic</td>
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<td>568.44</td>
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<tr>
<td>Indigo</td>
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<td>218.70</td>
<td>201.95</td>
<td>175.92</td>
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<td>Indigo-96d2da3</td>
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<td>Indigo-Muses</td>
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<td>567.58</td>
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<tr>
<td>PCC-Allegro</td>
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<td>412.77</td>
<td>370.53</td>
<td>281.40</td>
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<tr>
<td>PCC-Expr</td>
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<td>293.29</td>
<td>250.68</td>
<td>86.28</td>
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<tr>
<td>QUIC Cubic</td>
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<td>64.24</td>
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<td>SCReAM</td>
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<td>0.22</td>
<td>0.22</td>
<td>0.22</td>
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<tr>
<td>Sprout</td>
<td>5</td>
<td>9.63</td>
<td>9.46</td>
<td>9.25</td>
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<tr>
<td>TaoVA-100x</td>
<td>5</td>
<td>245.74</td>
<td>242.04</td>
<td>226.95</td>
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<tr>
<td>TCP Vegas</td>
<td>5</td>
<td>471.05</td>
<td>514.61</td>
<td>433.20</td>
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<tr>
<td>Verus</td>
<td>5</td>
<td>150.83</td>
<td>125.32</td>
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<tr>
<td>PCC-Vivace</td>
<td>5</td>
<td>323.56</td>
<td>286.17</td>
<td>88.65</td>
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<tr>
<td>WebRTC media</td>
<td>5</td>
<td>1.82</td>
<td>1.20</td>
<td>0.46</td>
</tr>
</tbody>
</table>
Run 1: Statistics of TCP BBR

Start at: 2018-11-16 00:23:23
End at: 2018-11-16 00:23:53
Local clock offset: -0.011 ms
Remote clock offset: 0.027 ms

# Below is generated by plot.py at 2018-11-16 03:06:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1028.35 Mbit/s
95th percentile per-packet one-way delay: 109.530 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 526.55 Mbit/s
95th percentile per-packet one-way delay: 109.533 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 528.22 Mbit/s
95th percentile per-packet one-way delay: 103.929 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 454.64 Mbit/s
95th percentile per-packet one-way delay: 116.988 ms
Loss rate: 1.57%
Run 1: Report of TCP BBR — Data Link

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

- Flow 1 ingress (mean 527.26 Mbps)
- Flow 1 egress (mean 526.55 Mbps)
- Flow 2 ingress (mean 529.27 Mbps)
- Flow 2 egress (mean 528.22 Mbps)
- Flow 3 ingress (mean 457.55 Mbps)
- Flow 3 egress (mean 454.64 Mbps)

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

- Flow 1 (95th percentile 109.53 ms)
- Flow 2 (95th percentile 103.93 ms)
- Flow 3 (95th percentile 116.99 ms)
Run 2: Statistics of TCP BBR

Start at: 2018-11-16 00:54:33
End at: 2018-11-16 00:55:03
Local clock offset: 0.395 ms
Remote clock offset: -0.081 ms

# Below is generated by plot.py at 2018-11-16 03:06:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1031.99 Mbit/s
95th percentile per-packet one-way delay: 110.379 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 539.41 Mbit/s
95th percentile per-packet one-way delay: 109.382 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 500.89 Mbit/s
95th percentile per-packet one-way delay: 113.694 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 482.49 Mbit/s
95th percentile per-packet one-way delay: 92.760 ms
Loss rate: 1.40%
Run 2: Report of TCP BBR — Data Link

![Graph of Throughput vs Time](image1)

![Graph of Per-packet one way delay vs Time](image2)
Run 3: Statistics of TCP BBR

Start at: 2018-11-16 01:25:32
End at: 2018-11-16 01:26:02
Local clock offset: 0.13 ms
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-11-16 03:06:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 977.83 Mbit/s
95th percentile per-packet one-way delay: 147.266 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 508.63 Mbit/s
95th percentile per-packet one-way delay: 152.437 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 474.04 Mbit/s
95th percentile per-packet one-way delay: 150.815 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 465.93 Mbit/s
95th percentile per-packet one-way delay: 107.768 ms
Loss rate: 1.53%
Run 3: Report of TCP BBR — Data Link

![Graph: Throughput (Mbps)]

- Flow 1 ingress (mean 509.38 Mbps)
- Flow 1 egress (mean 508.63 Mbps)
- Flow 2 ingress (mean 475.36 Mbps)
- Flow 2 egress (mean 474.04 Mbps)
- Flow 3 ingress (mean 468.65 Mbps)
- Flow 3 egress (mean 465.93 Mbps)

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

- Flow 1 (95th percentile 152.44 ms)
- Flow 2 (95th percentile 150.81 ms)
- Flow 3 (95th percentile 107.77 ms)
Run 4: Statistics of TCP BBR

Start at: 2018-11-16 01:56:40
End at: 2018-11-16 01:57:10
Local clock offset: 0.134 ms
Remote clock offset: -0.103 ms

# Below is generated by plot.py at 2018-11-16 03:06:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1064.98 Mbit/s
95th percentile per-packet one-way delay: 99.844 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 541.79 Mbit/s
95th percentile per-packet one-way delay: 99.594 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 548.30 Mbit/s
95th percentile per-packet one-way delay: 98.977 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 479.89 Mbit/s
95th percentile per-packet one-way delay: 102.687 ms
Loss rate: 1.28%
Run 4: Report of TCP BBR — Data Link
Run 5: Statistics of TCP BBR

Start at: 2018-11-16 02:27:48  
End at: 2018-11-16 02:28:18  
Local clock offset: 0.041 ms  
Remote clock offset: -0.046 ms

# Below is generated by plot.py at 2018-11-16 03:06:54  
# Datalink statistics
-- Total of 3 flows:  
Average throughput: 1049.96 Mbit/s  
95th percentile per-packet one-way delay: 95.251 ms  
Loss rate: 0.66%  
-- Flow 1:  
Average throughput: 540.42 Mbit/s  
95th percentile per-packet one-way delay: 98.267 ms  
Loss rate: 0.43%  
-- Flow 2:  
Average throughput: 527.35 Mbit/s  
95th percentile per-packet one-way delay: 88.714 ms  
Loss rate: 0.67%  
-- Flow 3:  
Average throughput: 480.35 Mbit/s  
95th percentile per-packet one-way delay: 96.260 ms  
Loss rate: 1.42%
Run 5: Report of TCP BBR — Data Link

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

- Flow 1 ingress (mean 541.05 Mbit/s)
- Flow 1 egress (mean 540.42 Mbit/s)
- Flow 2 ingress (mean 528.45 Mbit/s)
- Flow 2 egress (mean 527.35 Mbit/s)
- Flow 3 ingress (mean 482.53 Mbit/s)
- Flow 3 egress (mean 480.35 Mbit/s)
Run 1: Statistics of Copa

Start at: 2018-11-16 00:05:42
End at: 2018-11-16 00:06:12
Local clock offset: -0.008 ms
Remote clock offset: 0.242 ms

# Below is generated by plot.py at 2018-11-16 03:07:29
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 585.94 Mbit/s
  95th percentile per-packet one-way delay: 64.479 ms
  Loss rate: 0.48%
-- Flow 1:
  Average throughput: 313.42 Mbit/s
  95th percentile per-packet one-way delay: 65.497 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 281.60 Mbit/s
  95th percentile per-packet one-way delay: 63.908 ms
  Loss rate: 0.43%
-- Flow 3:
  Average throughput: 258.22 Mbit/s
  95th percentile per-packet one-way delay: 61.109 ms
  Loss rate: 1.04%
Run 1: Report of Copa — Data Link
Run 2: Statistics of Copa

Start at: 2018-11-16 00:36:59
End at: 2018-11-16 00:37:29
Local clock offset: -0.049 ms
Remote clock offset: -0.1 ms

# Below is generated by plot.py at 2018-11-16 03:07:29
# Datalink statistics
  -- Total of 3 flows:
  Average throughput: 522.50 Mbit/s
  95th percentile per-packet one-way delay: 74.548 ms
  Loss rate: 0.28%
  -- Flow 1:
  Average throughput: 281.90 Mbit/s
  95th percentile per-packet one-way delay: 57.535 ms
  Loss rate: 0.23%
  -- Flow 2:
  Average throughput: 264.42 Mbit/s
  95th percentile per-packet one-way delay: 78.107 ms
  Loss rate: 0.20%
  -- Flow 3:
  Average throughput: 195.68 Mbit/s
  95th percentile per-packet one-way delay: 96.051 ms
  Loss rate: 0.67%
Run 2: Report of Copa — Data Link

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**Throughput (Mbps)**

- Flow 1 ingress (mean 281.68 Mbps)
- Flow 1 egress (mean 281.90 Mbps)
- Flow 2 ingress (mean 263.70 Mbps)
- Flow 2 egress (mean 264.42 Mbps)
- Flow 3 ingress (mean 195.14 Mbps)
- Flow 3 egress (mean 195.68 Mbps)

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

- Flow 1 (95th percentile 57.53 ms)
- Flow 2 (95th percentile 78.11 ms)
- Flow 3 (95th percentile 96.05 ms)
Run 3: Statistics of Copa

Start at: 2018-11-16 01:08:08
End at: 2018-11-16 01:08:38
Local clock offset: 0.059 ms
Remote clock offset: -0.082 ms

# Below is generated by plot.py at 2018-11-16 03:07:29
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 574.75 Mbit/s
  95th percentile per-packet one-way delay: 62.475 ms
  Loss rate: 0.48%
-- Flow 1:
  Average throughput: 298.36 Mbit/s
  95th percentile per-packet one-way delay: 57.727 ms
  Loss rate: 0.30%
-- Flow 2:
  Average throughput: 283.69 Mbit/s
  95th percentile per-packet one-way delay: 64.775 ms
  Loss rate: 0.50%
-- Flow 3:
  Average throughput: 265.80 Mbit/s
  95th percentile per-packet one-way delay: 63.478 ms
  Loss rate: 1.03%
Run 3: Report of Copa — Data Link

[Graph showing throughput and per-packet one-way delay over time for different flows, indicating data link performance metrics.]
Run 4: Statistics of Copa

Start at: 2018-11-16 01:39:01
End at: 2018-11-16 01:39:31
Local clock offset: 0.103 ms
Remote clock offset: -0.089 ms

# Below is generated by plot.py at 2018-11-16 03:25:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 564.12 Mbit/s
95th percentile per-packet one-way delay: 60.800 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 291.20 Mbit/s
95th percentile per-packet one-way delay: 53.542 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 299.14 Mbit/s
95th percentile per-packet one-way delay: 63.673 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 223.94 Mbit/s
95th percentile per-packet one-way delay: 63.938 ms
Loss rate: 0.56%
Run 4: Report of Copa — Data Link
Run 5: Statistics of Copa

Start at: 2018-11-16 02:10:03
End at: 2018-11-16 02:10:33
Local clock offset: 0.035 ms
Remote clock offset: -0.074 ms

# Below is generated by plot.py at 2018-11-16 03:25:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.87 Mbit/s
95th percentile per-packet one-way delay: 61.343 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 261.70 Mbit/s
95th percentile per-packet one-way delay: 61.389 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 282.20 Mbit/s
95th percentile per-packet one-way delay: 60.182 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 271.01 Mbit/s
95th percentile per-packet one-way delay: 62.093 ms
Loss rate: 1.09%
Run 5: Report of Copa — Data Link
Run 1: Statistics of TCP Cubic

Start at: 2018-11-16 00:20:08
End at: 2018-11-16 00:20:38
Local clock offset: 0.017 ms
Remote clock offset: 0.083 ms

# Below is generated by plot.py at 2018-11-16 03:25:51
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1014.56 Mbit/s
  95th percentile per-packet one-way delay: 131.708 ms
  Loss rate: 0.64%
-- Flow 1:
  Average throughput: 552.71 Mbit/s
  95th percentile per-packet one-way delay: 87.645 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 491.39 Mbit/s
  95th percentile per-packet one-way delay: 123.789 ms
  Loss rate: 0.62%
-- Flow 3:
  Average throughput: 413.70 Mbit/s
  95th percentile per-packet one-way delay: 143.701 ms
  Loss rate: 1.70%
Run 1: Report of TCP Cubic — Data Link

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

- Flow 1 ingress (mean 553.09 Mbit/s)
- Flow 1 egress (mean 552.71 Mbit/s)
- Flow 2 ingress (mean 492.15 Mbit/s)
- Flow 2 egress (mean 491.39 Mbit/s)
- Flow 3 ingress (mean 422.84 Mbit/s)
- Flow 3 egress (mean 413.70 Mbit/s)
Run 2: Statistics of TCP Cubic

Start at: 2018-11-16 00:51:13
End at: 2018-11-16 00:51:43
Local clock offset: 0.403 ms
Remote clock offset: -0.134 ms

# Below is generated by plot.py at 2018-11-16 03:27:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1099.82 Mbit/s
95th percentile per-packet one-way delay: 110.995 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 591.74 Mbit/s
95th percentile per-packet one-way delay: 108.387 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 510.24 Mbit/s
95th percentile per-packet one-way delay: 115.770 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 510.94 Mbit/s
95th percentile per-packet one-way delay: 110.849 ms
Loss rate: 1.39%
Run 2: Report of TCP Cubic — Data Link

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**Throughput (Mbps)**

- **Flow 1 ingress (mean 591.73 Mbps)**
- **Flow 1 egress (mean 591.74 Mbps)**
- **Flow 2 ingress (mean 511.43 Mbps)**
- **Flow 2 egress (mean 510.24 Mbps)**
- **Flow 3 ingress (mean 513.32 Mbps)**
- **Flow 3 egress (mean 510.04 Mbps)**

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

- **Flow 1 (95th percentile 108.39 ms)**
- **Flow 2 (95th percentile 115.77 ms)**
- **Flow 3 (95th percentile 110.85 ms)**

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Run 3: Statistics of TCP Cubic

Start at: 2018-11-16 01:22:15
End at: 2018-11-16 01:22:45
Local clock offset: 0.491 ms
Remote clock offset: -0.039 ms

# Below is generated by plot.py at 2018-11-16 03:27:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1043.06 Mbit/s
95th percentile per-packet one-way delay: 98.875 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 572.17 Mbit/s
95th percentile per-packet one-way delay: 93.623 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 524.83 Mbit/s
95th percentile per-packet one-way delay: 104.715 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 369.00 Mbit/s
95th percentile per-packet one-way delay: 84.923 ms
Loss rate: 1.20%
Run 3: Report of TCP Cubic — Data Link

[Graph of network throughput vs time showing three flows: Flow 1 ingress and egress, Flow 2 ingress and egress, Flow 3 ingress and egress.]

[Graph of packet one-way delay vs time showing three flows: Flow 1 (95th percentile 93.62 ms), Flow 2 (95th percentile 104.72 ms), Flow 3 (95th percentile 84.92 ms).]
Run 4: Statistics of TCP Cubic

Start at: 2018-11-16 01:53:20
End at: 2018-11-16 01:53:50
Local clock offset: 0.145 ms
Remote clock offset: -0.092 ms

# Below is generated by plot.py at 2018-11-16 03:28:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1084.71 Mbit/s
95th percentile per-packet one-way delay: 100.885 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 565.05 Mbit/s
95th percentile per-packet one-way delay: 92.954 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 568.91 Mbit/s
95th percentile per-packet one-way delay: 92.551 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 427.34 Mbit/s
95th percentile per-packet one-way delay: 106.237 ms
Loss rate: 1.36%
Run 4: Report of TCP Cubic — Data Link

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**Throughput (Mbps)**

- **Flow 1 ingress (mean 565.24 Mbps)**
- **Flow 1 egress (mean 565.05 Mbps)**
- **Flow 2 ingress (mean 569.79 Mbps)**
- **Flow 2 egress (mean 568.91 Mbps)**
- **Flow 3 ingress (mean 426.12 Mbps)**
- **Flow 3 egress (mean 427.34 Mbps)**

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

- **Flow 1 (95th percentile 92.95 ms)**
- **Flow 2 (95th percentile 92.55 ms)**
- **Flow 3 (95th percentile 106.24 ms)**
Run 5: Statistics of TCP Cubic

Start at: 2018-11-16 02:24:29
End at: 2018-11-16 02:24:59
Local clock offset: 0.01 ms
Remote clock offset: -0.097 ms

# Below is generated by plot.py at 2018-11-16 03:28:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1082.46 Mbit/s
95th percentile per-packet one-way delay: 81.176 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 560.53 Mbit/s
95th percentile per-packet one-way delay: 77.918 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 521.63 Mbit/s
95th percentile per-packet one-way delay: 77.345 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 530.01 Mbit/s
95th percentile per-packet one-way delay: 86.505 ms
Loss rate: 1.34%
Run 5: Report of TCP Cubic — Data Link

[Graph showing data link performance metrics over time, with labels for flow ingress and egress throughputs and per-packet end-to-end delay statistics.]
Run 1: Statistics of FillP

Start at: 2018-11-15 23:54:19
End at: 2018-11-15 23:54:49
Local clock offset: -0.019 ms
Remote clock offset: 0.216 ms

# Below is generated by plot.py at 2018-11-16 03:28:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 879.66 Mbit/s
95th percentile per-packet one-way delay: 55.111 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 576.52 Mbit/s
95th percentile per-packet one-way delay: 59.724 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 343.84 Mbit/s
95th percentile per-packet one-way delay: 51.861 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 233.87 Mbit/s
95th percentile per-packet one-way delay: 49.952 ms
Loss rate: 1.61%
Run 1: Report of FillP — Data Link

Throughput (Mbps): Flow 1 Ingress (mean 575.10 Mbps), Flow 1 Egress (mean 576.52 Mbps), Flow 2 Ingress (mean 342.20 Mbps), Flow 2 Egress (mean 343.84 Mbps), Flow 3 Ingress (mean 237.01 Mbps), Flow 3 Egress (mean 233.87 Mbps)

Per-packet one-way delay (ms): Flow 1 (95th percentile 59.72 ms), Flow 2 (95th percentile 51.86 ms), Flow 3 (95th percentile 49.95 ms)
Run 2: Statistics of FillP

Start at: 2018-11-16 00:25:26
End at: 2018-11-16 00:25:56
Local clock offset: -0.384 ms
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-11-16 03:48:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 961.80 Mbit/s
95th percentile per-packet one-way delay: 58.470 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 610.78 Mbit/s
95th percentile per-packet one-way delay: 81.294 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 392.90 Mbit/s
95th percentile per-packet one-way delay: 54.197 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 274.29 Mbit/s
95th percentile per-packet one-way delay: 49.773 ms
Loss rate: 1.14%
Run 2: Report of FillP — Data Link

![Graph of throughput over time for different flows]

*Flow 1 ingress (mean 611.43 Mbps) — Flow 1 egress (mean 610.78 Mbps)*
*Flow 2 ingress (mean 392.63 Mbps) — Flow 2 egress (mean 392.90 Mbps)*
*Flow 3 ingress (mean 274.55 Mbps) — Flow 3 egress (mean 274.29 Mbps)*

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

*Flow 1 (95th percentile 81.29 ms) — Flow 2 (95th percentile 54.20 ms) — Flow 3 (95th percentile 49.77 ms)
Run 3: Statistics of FillP

Start at: 2018-11-16 00:56:36
End at: 2018-11-16 00:57:06
Local clock offset: 0.043 ms
Remote clock offset: -0.054 ms

# Below is generated by plot.py at 2018-11-16 03:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 910.66 Mbit/s
95th percentile per-packet one-way delay: 89.843 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 576.35 Mbit/s
95th percentile per-packet one-way delay: 94.399 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 382.26 Mbit/s
95th percentile per-packet one-way delay: 52.107 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 244.76 Mbit/s
95th percentile per-packet one-way delay: 52.100 ms
Loss rate: 0.78%
Run 3: Report of FillP — Data Link

![Graph 1: Throughput](image1)

- **Flow 1 Ingress** (mean 577.09 Mbit/s)
- **Flow 1 Egress** (mean 576.35 Mbit/s)
- **Flow 2 Ingress** (mean 383.95 Mbit/s)
- **Flow 2 Egress** (mean 382.26 Mbit/s)
- **Flow 3 Ingress** (mean 244.23 Mbit/s)
- **Flow 3 Egress** (mean 244.76 Mbit/s)

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

- Flow 1 (95th percentile 94.40 ms)
- Flow 2 (95th percentile 52.31 ms)
- Flow 3 (95th percentile 52.10 ms)
Run 4: Statistics of FillP

Start at: 2018-11-16 01:27:33
End at: 2018-11-16 01:28:03
Local clock offset: 0.126 ms
Remote clock offset: -0.071 ms

# Below is generated by plot.py at 2018-11-16 03:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 899.76 Mbit/s
95th percentile per-packet one-way delay: 73.149 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 578.78 Mbit/s
95th percentile per-packet one-way delay: 81.667 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 364.69 Mbit/s
95th percentile per-packet one-way delay: 54.483 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 239.37 Mbit/s
95th percentile per-packet one-way delay: 52.054 ms
Loss rate: 0.95%
Run 4: Report of FillP — Data Link

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

- Flow 1 Ingress (mean 578.27 Mbps)
- Flow 1 Egress (mean 578.78 Mbps)
- Flow 2 Ingress (mean 364.30 Mbps)
- Flow 2 Egress (mean 364.69 Mbps)
- Flow 3 Ingress (mean 239.57 Mbps)
- Flow 3 Egress (mean 239.37 Mbps)

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

- Flow 1 (95th percentile 81.67 ms)
- Flow 2 (95th percentile 54.48 ms)
- Flow 3 (95th percentile 52.05 ms)
Run 5: Statistics of FillP

Start at: 2018-11-16 01:58:45
End at: 2018-11-16 01:59:15
Local clock offset: 0.117 ms
Remote clock offset: -0.091 ms

# Below is generated by plot.py at 2018-11-16 03:49:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 953.51 Mbit/s
95th percentile per-packet one-way delay: 64.160 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 611.50 Mbit/s
95th percentile per-packet one-way delay: 71.880 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 381.65 Mbit/s
95th percentile per-packet one-way delay: 51.019 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 269.09 Mbit/s
95th percentile per-packet one-way delay: 52.206 ms
Loss rate: 1.28%
Run 5: Report of FillP — Data Link

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

- Flow 1 ingress (mean 610.61 Mbps)
- Flow 1 egress (mean 611.50 Mbps)
- Flow 2 ingress (mean 389.99 Mbps)
- Flow 2 egress (mean 383.65 Mbps)
- Flow 3 ingress (mean 270.28 Mbps)
- Flow 3 egress (mean 269.09 Mbps)

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

- Flow 1 (95th percentile 71.88 ms)
- Flow 2 (95th percentile 51.02 ms)
- Flow 3 (95th percentile 52.21 ms)
Run 1: Statistics of Indigo

Start at: 2018-11-15 23:56:07
End at: 2018-11-15 23:56:37
Local clock offset: -0.079 ms
Remote clock offset: 0.212 ms

# Below is generated by plot.py at 2018-11-16 03:49:30
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 409.79 Mbit/s
  95th percentile per-packet one-way delay: 49.040 ms
  Loss rate: 0.48%
-- Flow 1:
  Average throughput: 214.97 Mbit/s
  95th percentile per-packet one-way delay: 49.017 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 200.81 Mbit/s
  95th percentile per-packet one-way delay: 48.842 ms
  Loss rate: 0.49%
-- Flow 3:
  Average throughput: 175.20 Mbit/s
  95th percentile per-packet one-way delay: 49.368 ms
  Loss rate: 1.11%
Run 1: Report of Indigo — Data Link
Run 2: Statistics of Indigo

Start at: 2018-11-16 00:27:16
End at: 2018-11-16 00:27:46
Local clock offset: -0.048 ms
Remote clock offset: 0.007 ms

# Below is generated by plot.py at 2018-11-16 03:49:30
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 420.26 Mbit/s
  95th percentile per-packet one-way delay: 48.598 ms
  Loss rate: 0.47%
-- Flow 1:
  Average throughput: 224.60 Mbit/s
  95th percentile per-packet one-way delay: 48.191 ms
  Loss rate: 0.30%
-- Flow 2:
  Average throughput: 208.30 Mbit/s
  95th percentile per-packet one-way delay: 49.423 ms
  Loss rate: 0.49%
-- Flow 3:
  Average throughput: 177.29 Mbit/s
  95th percentile per-packet one-way delay: 48.096 ms
  Loss rate: 1.10%
Run 2: Report of Indigo — Data Link

Throughput (Mbit/s)

Time (s)

Flow 1 ingress (mean 224.58 Mbit/s)
Flow 1 egress (mean 224.60 Mbit/s)
Flow 2 ingress (mean 208.33 Mbit/s)
Flow 2 egress (mean 208.39 Mbit/s)
Flow 3 ingress (mean 177.55 Mbit/s)
Flow 3 egress (mean 177.29 Mbit/s)

Per-packet one way delay (ms)

Time (s)

Flow 1 (95th percentile 48.19 ms)
Flow 2 (95th percentile 49.42 ms)
Flow 3 (95th percentile 48.10 ms)
Run 3: Statistics of Indigo

Start at: 2018-11-16 00:58:26
End at: 2018-11-16 00:58:56
Local clock offset: 0.406 ms
Remote clock offset: -0.061 ms

# Below is generated by plot.py at 2018-11-16 03:49:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 407.18 Mbit/s
95th percentile per-packet one-way delay: 49.807 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 218.89 Mbit/s
95th percentile per-packet one-way delay: 49.903 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 199.21 Mbit/s
95th percentile per-packet one-way delay: 50.068 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 173.77 Mbit/s
95th percentile per-packet one-way delay: 48.971 ms
Loss rate: 1.06%
Run 3: Report of Indigo — Data Link

![Graph showing throughput and per-packet one-way delay](image-url)
Run 4: Statistics of Indigo

Start at: 2018-11-16 01:29:21
End at: 2018-11-16 01:29:51
Local clock offset: 0.155 ms
Remote clock offset: -0.085 ms

# Below is generated by plot.py at 2018-11-16 03:49:30
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 404.79 Mbit/s
  95th percentile per-packet one-way delay: 49.850 ms
  Loss rate: 0.50%
-- Flow 1:
  Average throughput: 216.00 Mbit/s
  95th percentile per-packet one-way delay: 49.697 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 198.64 Mbit/s
  95th percentile per-packet one-way delay: 49.883 ms
  Loss rate: 0.49%
-- Flow 3:
  Average throughput: 176.39 Mbit/s
  95th percentile per-packet one-way delay: 50.338 ms
  Loss rate: 1.06%
Run 4: Report of Indigo — Data Link
Run 5: Statistics of Indigo

Start at: 2018-11-16 02:00:37
End at: 2018-11-16 02:01:07
Local clock offset: 0.09 ms
Remote clock offset: -0.088 ms

# Below is generated by plot.py at 2018-11-16 03:58:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 411.33 Mbit/s
95th percentile per-packet one-way delay: 50.241 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 219.02 Mbit/s
95th percentile per-packet one-way delay: 50.187 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 202.79 Mbit/s
95th percentile per-packet one-way delay: 50.434 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 176.94 Mbit/s
95th percentile per-packet one-way delay: 49.986 ms
Loss rate: 0.98%
Run 5: Report of Indigo — Data Link
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-16 00:09:51
End at: 2018-11-16 00:10:21
Local clock offset: -0.054 ms
Remote clock offset: 0.266 ms

# Below is generated by plot.py at 2018-11-16 03:58:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 527.98 Mbit/s
95th percentile per-packet one-way delay: 64.691 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 272.31 Mbit/s
95th percentile per-packet one-way delay: 64.534 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 261.27 Mbit/s
95th percentile per-packet one-way delay: 64.982 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 249.10 Mbit/s
95th percentile per-packet one-way delay: 64.556 ms
Loss rate: 1.41%
Run 1: Report of Indigo-96d2da3 — Data Link

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

- **Throughput (Mb/s):**
  - Flow 1 ingress (mean 272.66 Mb/s)
  - Flow 1 egress (mean 272.31 Mb/s)
  - Flow 2 ingress (mean 262.28 Mb/s)
  - Flow 2 egress (mean 261.27 Mb/s)
  - Flow 3 ingress (mean 250.26 Mb/s)
  - Flow 3 egress (mean 249.10 Mb/s)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 64.53 ms)
  - Flow 2 (95th percentile 64.98 ms)
  - Flow 3 (95th percentile 64.56 ms)
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-16 00:41:02
End at: 2018-11-16 00:41:32
Local clock offset: -0.05 ms
Remote clock offset: -0.058 ms

# Below is generated by plot.py at 2018-11-16 03:58:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 514.34 Mbit/s
  95th percentile per-packet one-way delay: 65.703 ms
  Loss rate: 0.37%
-- Flow 1:
  Average throughput: 267.87 Mbit/s
  95th percentile per-packet one-way delay: 64.821 ms
  Loss rate: 0.27%
-- Flow 2:
  Average throughput: 258.28 Mbit/s
  95th percentile per-packet one-way delay: 65.584 ms
  Loss rate: 0.38%
-- Flow 3:
  Average throughput: 230.52 Mbit/s
  95th percentile per-packet one-way delay: 68.692 ms
  Loss rate: 0.70%
Run 2: Report of Indigo-96d2da3 — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 267.71 Mbps)
- Flow 1 egress (mean 267.87 Mbps)
- Flow 2 ingress (mean 258.30 Mbps)
- Flow 2 egress (mean 258.28 Mbps)
- Flow 3 ingress (mean 230.26 Mbps)
- Flow 3 egress (mean 230.52 Mbps)

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

- Flow 1 (95th percentile 64.82 ms)
- Flow 2 (95th percentile 65.58 ms)
- Flow 3 (95th percentile 68.69 ms)
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-16 01:12:14
End at: 2018-11-16 01:12:44
Local clock offset: 0.108 ms
Remote clock offset: -0.105 ms

# Below is generated by plot.py at 2018-11-16 03:58:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 500.81 Mbit/s
  95th percentile per-packet one-way delay: 63.510 ms
  Loss rate: 0.49%
-- Flow 1:
  Average throughput: 263.18 Mbit/s
  95th percentile per-packet one-way delay: 63.716 ms
  Loss rate: 0.23%
-- Flow 2:
  Average throughput: 253.39 Mbit/s
  95th percentile per-packet one-way delay: 64.362 ms
  Loss rate: 0.56%
-- Flow 3:
  Average throughput: 216.63 Mbit/s
  95th percentile per-packet one-way delay: 59.349 ms
  Loss rate: 1.31%
Run 3: Report of Indigo-96d2da3 — Data Link

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

- Flow 1 ingress (mean 263.02 Mbps)
- Flow 1 egress (mean 263.18 Mbps)
- Flow 2 ingress (mean 253.11 Mbps)
- Flow 2 egress (mean 253.39 Mbps)
- Flow 3 ingress (mean 217.76 Mbps)
- Flow 3 egress (mean 216.63 Mbps)

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

- Flow 1 (95th percentile 63.72 ms)
- Flow 2 (95th percentile 64.36 ms)
- Flow 3 (95th percentile 59.35 ms)
Run 4: Statistics of Indigo-962da3

Start at: 2018-11-16 01:43:07
End at: 2018-11-16 01:43:37
Local clock offset: 0.138 ms
Remote clock offset: -0.098 ms

# Below is generated by plot.py at 2018-11-16 03:58:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 529.84 Mbit/s
95th percentile per-packet one-way delay: 65.285 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 265.81 Mbit/s
95th percentile per-packet one-way delay: 64.202 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 270.62 Mbit/s
95th percentile per-packet one-way delay: 66.829 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 259.00 Mbit/s
95th percentile per-packet one-way delay: 64.476 ms
Loss rate: 1.77%
Run 4: Report of Indigo-96d2da3 — Data Link

![Data Link Graph]

- Flow 1 ingress (mean 265.72 Mbit/s)
- Flow 1 egress (mean 265.81 Mbit/s)
- Flow 2 ingress (mean 271.11 Mbit/s)
- Flow 2 egress (mean 270.62 Mbit/s)
- Flow 3 ingress (mean 260.50 Mbit/s)
- Flow 3 egress (mean 259.00 Mbit/s)

![Per-packet one way delay Graph]

- Flow 1 (95th percentile 64.20 ms)
- Flow 2 (95th percentile 66.83 ms)
- Flow 3 (95th percentile 64.48 ms)
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-16 02:14:17
End at: 2018-11-16 02:14:47
Local clock offset: 0.025 ms
Remote clock offset: -0.073 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 524.48 Mbit/s
95th percentile per-packet one-way delay: 64.851 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 272.98 Mbit/s
95th percentile per-packet one-way delay: 65.351 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 261.27 Mbit/s
95th percentile per-packet one-way delay: 63.664 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 238.87 Mbit/s
95th percentile per-packet one-way delay: 66.597 ms
Loss rate: 0.52%
Run 5: Report of Indigo-96d2da3 — Data Link
Run 1: Statistics of LEDBAT

Start at: 2018-11-16 00:04:24
End at: 2018-11-16 00:04:54
Local clock offset: -0.073 ms
Remote clock offset: 0.238 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.12 Mbit/s
95th percentile per-packet one-way delay: 48.099 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 42.47 Mbit/s
95th percentile per-packet one-way delay: 47.747 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 27.29 Mbit/s
95th percentile per-packet one-way delay: 48.494 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 13.83 Mbit/s
95th percentile per-packet one-way delay: 48.084 ms
Loss rate: 1.90%
Run 1: Report of LEDBAT — Data Link

The first graph shows the throughput (Mbps) over time (s) for three different flows labeled as Flow 1, Flow 2, and Flow 3. The throughput is measured at both ingress and egress. The legend indicates the mean throughput rates for each flow, with Flow 1 having a mean of 42.60 Mbps, Flow 2 at 27.42 Mbps, and Flow 3 at 13.97 Mbps.

The second graph illustrates the per-packet one-way delay (ms) over time (s). The legend specifies the 95th percentile delay for each flow, with Flow 1 at 47.75 ms, Flow 2 at 48.49 ms, and Flow 3 at 48.08 ms.
Run 2: Statistics of LEDBAT

Start at: 2018-11-16 00:35:41
End at: 2018-11-16 00:36:11
Local clock offset: -0.046 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 64.61 Mbit/s
  95th percentile per-packet one-way delay: 48.425 ms
  Loss rate: 0.81%
-- Flow 1:
  Average throughput: 41.91 Mbit/s
  95th percentile per-packet one-way delay: 48.424 ms
  Loss rate: 0.62%
-- Flow 2:
  Average throughput: 27.43 Mbit/s
  95th percentile per-packet one-way delay: 48.474 ms
  Loss rate: 0.95%
-- Flow 3:
  Average throughput: 13.61 Mbit/s
  95th percentile per-packet one-way delay: 48.115 ms
  Loss rate: 1.92%
Run 2: Report of LEDBAT — Data Link

**Throughput (Mbps)**

- **Flow 1 ingress (mean 42.04 Mbps)**
- **Flow 1 egress (mean 41.91 Mbps)**
- **Flow 2 ingress (mean 27.57 Mbps)**
- **Flow 2 egress (mean 27.43 Mbps)**
- **Flow 3 ingress (mean 13.74 Mbps)**
- **Flow 3 egress (mean 13.61 Mbps)**

**Packet round-trip delay (ms)**

- **Flow 1 (95th percentile 48.42 ms)**
- **Flow 2 (95th percentile 48.47 ms)**
- **Flow 3 (95th percentile 48.12 ms)**

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Run 3: Statistics of LEDBAT

Start at: 2018-11-16 01:06:50
End at: 2018-11-16 01:07:20
Local clock offset: 0.051 ms
Remote clock offset: -0.044 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.73 Mbit/s
95th percentile per-packet one-way delay: 48.827 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 41.72 Mbit/s
95th percentile per-packet one-way delay: 48.890 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 27.80 Mbit/s
95th percentile per-packet one-way delay: 48.764 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 13.85 Mbit/s
95th percentile per-packet one-way delay: 48.223 ms
Loss rate: 1.90%
Run 3: Report of LEDBAT — Data Link

![Graph 1: Throughput (Mbps/s) vs. Time (s)]
Flow 1 ingress (mean 41.85 Mbps/s)  
Flow 1 egress (mean 41.72 Mbps/s)  
Flow 2 ingress (mean 27.94 Mbps/s)  
Flow 2 egress (mean 27.80 Mbps/s)  
Flow 3 ingress (mean 13.99 Mbps/s)  
Flow 3 egress (mean 13.85 Mbps/s)

![Graph 2: Per-packet one-way delay (ms) vs. Time (s)]
Flow 1 (95th percentile 48.89 ms)  
Flow 2 (95th percentile 48.76 ms)  
Flow 3 (95th percentile 48.22 ms)
Run 4: Statistics of LEDBAT

Start at: 2018-11-16 01:37:43
End at: 2018-11-16 01:38:13
Local clock offset: 0.146 ms
Remote clock offset: -0.087 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 64.69 Mbit/s
  95th percentile per-packet one-way delay: 48.780 ms
  Loss rate: 0.81%
-- Flow 1:
  Average throughput: 41.75 Mbit/s
  95th percentile per-packet one-way delay: 48.990 ms
  Loss rate: 0.62%
-- Flow 2:
  Average throughput: 27.87 Mbit/s
  95th percentile per-packet one-way delay: 48.463 ms
  Loss rate: 0.94%
-- Flow 3:
  Average throughput: 13.56 Mbit/s
  95th percentile per-packet one-way delay: 48.216 ms
  Loss rate: 1.92%
Run 4: Report of LEDBAT — Data Link

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

- **Flow 1 Ingress**: Mean 41.88 Mbit/s
- **Flow 1 Egress**: Mean 41.75 Mbit/s
- **Flow 2 Ingress**: Mean 28.00 Mbit/s
- **Flow 2 Egress**: Mean 27.87 Mbit/s
- **Flow 3 Ingress**: Mean 13.70 Mbit/s
- **Flow 3 Egress**: Mean 13.56 Mbit/s

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

- **Flow 1 (95th percentile)**: 48.99 ms
- **Flow 2 (95th percentile)**: 48.46 ms
- **Flow 3 (95th percentile)**: 48.22 ms
Run 5: Statistics of LEDBAT

Start at: 2018-11-16 02:08:45
End at: 2018-11-16 02:09:15
Local clock offset: -0.013 ms
Remote clock offset: -0.016 ms

# Below is generated by plot.py at 2018-11-16 03:58:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.94 Mbit/s
95th percentile per-packet one-way delay: 48.414 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 41.21 Mbit/s
95th percentile per-packet one-way delay: 48.482 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 27.54 Mbit/s
95th percentile per-packet one-way delay: 48.334 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 13.57 Mbit/s
95th percentile per-packet one-way delay: 48.187 ms
Loss rate: 1.92%
Run 5: Report of LEDBAT — Data Link

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

- Flow 1 ingress (mean 41.34 Mbps/s)
- Flow 1 egress (mean 41.21 Mbps/s)
- Flow 2 ingress (mean 27.67 Mbps/s)
- Flow 2 egress (mean 27.54 Mbps/s)
- Flow 3 ingress (mean 13.70 Mbps/s)
- Flow 3 egress (mean 13.57 Mbps/s)

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

- Flow 1 (95th percentile 48.48 ms)
- Flow 2 (95th percentile 48.33 ms)
- Flow 3 (95th percentile 48.19 ms)
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-16 00:07:47
End at: 2018-11-16 00:08:17
Local clock offset: -0.033 ms
Remote clock offset: 0.291 ms

# Below is generated by plot.py at 2018-11-16 04:14:48
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1049.60 Mbit/s
  95th percentile per-packet one-way delay: 61.385 ms
  Loss rate: 0.47%
-- Flow 1:
  Average throughput: 583.72 Mbit/s
  95th percentile per-packet one-way delay: 61.146 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 503.72 Mbit/s
  95th percentile per-packet one-way delay: 61.352 ms
  Loss rate: 0.43%
-- Flow 3:
  Average throughput: 404.41 Mbit/s
  95th percentile per-packet one-way delay: 62.286 ms
  Loss rate: 1.27%
Run 1: Report of Indigo-Muses — Data Link
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-16 00:38:59
End at: 2018-11-16 00:39:29
Local clock offset: -0.404 ms
Remote clock offset: -0.042 ms

# Below is generated by plot.py at 2018-11-16 04:14:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1026.52 Mbit/s
95th percentile per-packet one-way delay: 67.199 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 559.09 Mbit/s
95th percentile per-packet one-way delay: 69.164 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 504.70 Mbit/s
95th percentile per-packet one-way delay: 67.553 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 407.29 Mbit/s
95th percentile per-packet one-way delay: 63.353 ms
Loss rate: 1.26%
Run 2: Report of Indigo-Muses — Data Link

[Graph showing throughput and per-packet one-way delay over time for different flows.]
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-16 01:10:13
End at: 2018-11-16 01:10:43
Local clock offset: -0.27 ms
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-11-16 04:14:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 971.17 Mbit/s
95th percentile per-packet one-way delay: 72.167 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 557.15 Mbit/s
95th percentile per-packet one-way delay: 73.254 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 437.63 Mbit/s
95th percentile per-packet one-way delay: 73.034 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 384.35 Mbit/s
95th percentile per-packet one-way delay: 62.936 ms
Loss rate: 1.39%
Run 3: Report of Indigo-Muses — Data Link
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-16 01:41:05
End at: 2018-11-16 01:41:35
Local clock offset: 0.507 ms
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2018-11-16 04:15:32
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1025.41 Mbit/s
  95th percentile per-packet one-way delay: 70.659 ms
  Loss rate: 0.49%
-- Flow 1:
  Average throughput: 569.94 Mbit/s
  95th percentile per-packet one-way delay: 71.085 ms
  Loss rate: 0.24%
-- Flow 2:
  Average throughput: 488.36 Mbit/s
  95th percentile per-packet one-way delay: 73.070 ms
  Loss rate: 0.56%
-- Flow 3:
  Average throughput: 403.55 Mbit/s
  95th percentile per-packet one-way delay: 63.103 ms
  Loss rate: 1.38%
Run 4: Report of Indigo-Muses — Data Link

Graph 1: Throughput (Mbps)
- Blue dashed line: Flow 1 ingress (mean 569.43 Mbps)
- Blue solid line: Flow 1 egress (mean 569.94 Mbps)
- Green dashed line: Flow 2 ingress (mean 488.81 Mbps)
- Green solid line: Flow 2 egress (mean 488.36 Mbps)
- Red dashed line: Flow 3 ingress (mean 400.14 Mbps)
- Red solid line: Flow 3 egress (mean 403.55 Mbps)

Graph 2: Per-packet round-trip delay (ms)
- Blue line: Flow 1 (95th percentile 71.08 ms)
- Green line: Flow 2 (95th percentile 73.07 ms)
- Red line: Flow 3 (95th percentile 63.10 ms)
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-16 02:12:11
End at: 2018-11-16 02:12:41
Local clock offset: 0.009 ms
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-11-16 04:16:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1023.41 Mbit/s
95th percentile per-packet one-way delay: 66.040 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 567.98 Mbit/s
95th percentile per-packet one-way delay: 66.355 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 493.62 Mbit/s
95th percentile per-packet one-way delay: 65.266 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 397.72 Mbit/s
95th percentile per-packet one-way delay: 65.985 ms
Loss rate: 1.02%
Run 5: Report of Indigo-Muses — Data Link

![Graph of Throughput and Latency](chart.png)

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 568.13 Mbps)
  - Flow 1 egress (mean 567.98 Mbps)
  - Flow 2 ingress (mean 493.53 Mbps)
  - Flow 2 egress (mean 493.62 Mbps)
  - Flow 3 ingress (mean 397.87 Mbps)
  - Flow 3 egress (mean 397.72 Mbps)

- **Ping Latency (ms):**
  - Flow 1 (95th percentile 66.36 ms)
  - Flow 2 (95th percentile 65.27 ms)
  - Flow 3 (95th percentile 65.98 ms)
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-16 00:02:23
End at: 2018-11-16 00:02:53
Local clock offset: -0.064 ms
Remote clock offset: 0.243 ms

# Below is generated by plot.py at 2018-11-16 04:26:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 741.97 Mbit/s
95th percentile per-packet one-way delay: 174.813 ms
Loss rate: 5.36%
-- Flow 1:
Average throughput: 407.51 Mbit/s
95th percentile per-packet one-way delay: 177.693 ms
Loss rate: 5.72%
-- Flow 2:
Average throughput: 304.75 Mbit/s
95th percentile per-packet one-way delay: 93.707 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 404.04 Mbit/s
95th percentile per-packet one-way delay: 175.903 ms
Loss rate: 10.85%
Run 1: Report of PCC-Allegro — Data Link

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

- **Flow 1 ingress (mean 430.86 Mbit/s)**
- **Flow 1 egress (mean 407.51 Mbit/s)**
- **Flow 2 ingress (mean 335.24 Mbit/s)**
- **Flow 2 egress (mean 364.75 Mbit/s)**
- **Flow 3 ingress (mean 448.91 Mbit/s)**
- **Flow 3 egress (mean 404.04 Mbit/s)**

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

- **Flow 1 (95th percentile 177.69 ms)**
- **Flow 2 (95th percentile 93.71 ms)**
- **Flow 3 (95th percentile 175.90 ms)**
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-16 00:33:34
End at: 2018-11-16 00:34:04
Local clock offset: -0.051 ms
Remote clock offset: -0.094 ms

# Below is generated by plot.py at 2018-11-16 04:28:40
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 771.76 Mbit/s
  95th percentile per-packet one-way delay: 174.115 ms
  Loss rate: 6.06%
-- Flow 1:
  Average throughput: 446.10 Mbit/s
  95th percentile per-packet one-way delay: 176.029 ms
  Loss rate: 9.26%
-- Flow 2:
  Average throughput: 362.64 Mbit/s
  95th percentile per-packet one-way delay: 148.164 ms
  Loss rate: 1.26%
-- Flow 3:
  Average throughput: 259.53 Mbit/s
  95th percentile per-packet one-way delay: 114.590 ms
  Loss rate: 1.40%
Run 2: Report of PCC-Allegro — Data Link

[Throughput Graph]

[Packet Delay Graph]

Legend:
- Flow 1 ingress (mean 490.06 Mbit/s)
- Flow 1 egress (mean 446.10 Mbit/s)
- Flow 2 ingress (mean 365.51 Mbit/s)
- Flow 2 egress (mean 362.64 Mbit/s)
- Flow 3 ingress (mean 260.68 Mbit/s)
- Flow 3 egress (mean 259.53 Mbit/s)

Legend:
- Flow 1 (95th percentile 176.03 ms)
- Flow 2 (95th percentile 148.16 ms)
- Flow 3 (95th percentile 114.59 ms)
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-16 01:04:45
End at: 2018-11-16 01:05:15
Local clock offset: -0.005 ms
Remote clock offset: -0.054 ms

# Below is generated by plot.py at 2018-11-16 04:28:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 757.40 Mbit/s
95th percentile per-packet one-way delay: 186.256 ms
Loss rate: 6.45%
-- Flow 1:
Average throughput: 379.97 Mbit/s
95th percentile per-packet one-way delay: 190.572 ms
Loss rate: 3.82%
-- Flow 2:
Average throughput: 428.22 Mbit/s
95th percentile per-packet one-way delay: 180.938 ms
Loss rate: 11.22%
-- Flow 3:
Average throughput: 284.80 Mbit/s
95th percentile per-packet one-way delay: 107.009 ms
Loss rate: 1.24%
Run 3: Report of PCC-Allegro — Data Link

![Graph showing throughput and latency over time for different flow scenarios.]
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-16 01:35:36
End at: 2018-11-16 01:36:06
Local clock offset: 0.176 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 786.20 Mbit/s
95th percentile per-packet one-way delay: 178.163 ms
Loss rate: 7.84%
-- Flow 1:
Average throughput: 448.28 Mbit/s
95th percentile per-packet one-way delay: 179.717 ms
Loss rate: 8.73%
-- Flow 2:
Average throughput: 426.45 Mbit/s
95th percentile per-packet one-way delay: 177.652 ms
Loss rate: 7.63%
-- Flow 3:
Average throughput: 167.53 Mbit/s
95th percentile per-packet one-way delay: 71.814 ms
Loss rate: 1.22%
Run 4: Report of PCC-Allegro — Data Link

Graph 1: Throughput (Mbps)
- Flow 1 ingress (mean 489.56 Mbps)  - Flow 1 egress (mean 448.28 Mbps)
- Flow 2 ingress (mean 459.44 Mbps)  - Flow 2 egress (mean 426.45 Mbps)
- Flow 3 ingress (mean 167.95 Mbps)  - Flow 3 egress (mean 167.53 Mbps)

Graph 2: One-way delay (ms)
- Flow 1 (95th percentile 179.72 ms)  - Flow 2 (95th percentile 177.65 ms)  - Flow 3 (95th percentile 71.81 ms)
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-16 02:06:47
End at: 2018-11-16 02:07:18
Local clock offset: 0.03 ms
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 696.58 Mbit/s
95th percentile per-packet one-way delay: 166.653 ms
Loss rate: 2.46%
-- Flow 1:
Average throughput: 381.99 Mbit/s
95th percentile per-packet one-way delay: 163.314 ms
Loss rate: 2.94%
-- Flow 2:
Average throughput: 330.60 Mbit/s
95th percentile per-packet one-way delay: 179.683 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 291.11 Mbit/s
95th percentile per-packet one-way delay: 158.237 ms
Loss rate: 3.13%
Run 5: Report of PCC-Allegro — Data Link

![Graph showing network throughput and packet delay](image)

- **Throughput**: Flow 1 ingress (mean 392.29 Mbit/s), Flow 1 egress (mean 381.99 Mbit/s), Flow 2 ingress (mean 333.43 Mbit/s), Flow 2 egress (mean 330.66 Mbit/s), Flow 3 ingress (mean 297.60 Mbit/s), Flow 3 egress (mean 291.11 Mbit/s)

- **Packet Delay**: Flow 1 (95th percentile 163.31 ms), Flow 2 (95th percentile 179.68 ms), Flow 3 (95th percentile 158.24 ms)
Run 1: Statistics of PCC-Expr

End at: 2018-11-15 23:59:42
Local clock offset: -0.077 ms
Remote clock offset: 0.241 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 528.99 Mbit/s
95th percentile per-packet one-way delay: 176.272 ms
Loss rate: 4.82%
-- Flow 1:
Average throughput: 311.27 Mbit/s
95th percentile per-packet one-way delay: 171.623 ms
Loss rate: 3.17%
-- Flow 2:
Average throughput: 305.78 Mbit/s
95th percentile per-packet one-way delay: 182.931 ms
Loss rate: 7.39%
-- Flow 3:
Average throughput: 44.81 Mbit/s
95th percentile per-packet one-way delay: 48.235 ms
Loss rate: 2.71%
Run 2: Statistics of PCC-Expr

Start at: 2018-11-16 00:30:26
End at: 2018-11-16 00:30:56
Local clock offset: -0.023 ms
Remote clock offset: -0.057 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
   Average throughput: 470.84 Mbit/s
   95th percentile per-packet one-way delay: 154.867 ms
   Loss rate: 2.59%
-- Flow 1:
   Average throughput: 291.93 Mbit/s
   95th percentile per-packet one-way delay: 157.608 ms
   Loss rate: 3.83%
-- Flow 2:
   Average throughput: 249.31 Mbit/s
   95th percentile per-packet one-way delay: 109.579 ms
   Loss rate: 0.43%
-- Flow 3:
   Average throughput: 40.69 Mbit/s
   95th percentile per-packet one-way delay: 48.068 ms
   Loss rate: 1.57%
Run 2: Report of PCC-Expr — Data Link

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

- **Flow 1** (ingress mean 302.60 Mbit/s, egress mean 291.93 Mbit/s)
- **Flow 2** (ingress mean 249.17 Mbit/s, egress mean 249.31 Mbit/s)
- **Flow 3** (ingress mean 40.04 Mbit/s, egress mean 40.69 Mbit/s)

- **Flow 1** (95th percentile 157.61 ms)
- **Flow 2** (95th percentile 109.58 ms)
- **Flow 3** (95th percentile 48.07 ms)
Run 3: Statistics of PCC-Expr

Start at: 2018-11-16 01:01:34
End at: 2018-11-16 01:02:04
Local clock offset: 0.071 ms
Remote clock offset: -0.037 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 519.96 Mbit/s
  95th percentile per-packet one-way delay: 167.350 ms
  Loss rate: 2.70%
-- Flow 1:
  Average throughput: 291.28 Mbit/s
  95th percentile per-packet one-way delay: 153.713 ms
  Loss rate: 2.98%
-- Flow 2:
  Average throughput: 233.77 Mbit/s
  95th percentile per-packet one-way delay: 177.949 ms
  Loss rate: 2.86%
-- Flow 3:
  Average throughput: 224.08 Mbit/s
  95th percentile per-packet one-way delay: 83.216 ms
  Loss rate: 1.20%
Run 3: Report of PCC-Expr — Data Link

![Graph showing throughput and packet round-trip delay over time]

Flow 1 ingress (mean 299.22 Mbit/s) — Flow 1 egress (mean 291.28 Mbit/s)
Flow 2 ingress (mean 239.51 Mbit/s) — Flow 2 egress (mean 233.77 Mbit/s)
Flow 3 ingress (mean 224.56 Mbit/s) — Flow 3 egress (mean 224.08 Mbit/s)

Packet round-trip delay (ms):
- Flow 1 (95th percentile 153.71 ms)
- Flow 2 (95th percentile 177.95 ms)
- Flow 3 (95th percentile 83.22 ms)
Run 4: Statistics of PCC-Expr

Start at: 2018-11-16 01:32:28
End at: 2018-11-16 01:32:58
Local clock offset: 0.161 ms
Remote clock offset: -0.076 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 482.93 Mbit/s
  95th percentile per-packet one-way delay: 147.239 ms
  Loss rate: 0.99%
-- Flow 1:
  Average throughput: 316.74 Mbit/s
  95th percentile per-packet one-way delay: 144.027 ms
  Loss rate: 0.94%
-- Flow 2:
  Average throughput: 240.59 Mbit/s
  95th percentile per-packet one-way delay: 151.108 ms
  Loss rate: 1.05%
-- Flow 3:
  Average throughput: 19.66 Mbit/s
  95th percentile per-packet one-way delay: 47.576 ms
  Loss rate: 1.87%
Run 4: Report of PCC-Expr — Data Link

![Graph 1: Throughput (Mbps)]

- **Flow 1 ingress** (mean 318.72 Mbps)
- **Flow 1 egress** (mean 316.74 Mbps)
- **Flow 2 ingress** (mean 241.94 Mbps)
- **Flow 2 egress** (mean 240.59 Mbps)
- **Flow 3 ingress** (mean 19.64 Mbps)
- **Flow 3 egress** (mean 19.66 Mbps)

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

- Flow 1 (95th percentile 144.03 ms)
- Flow 2 (95th percentile 151.11 ms)
- Flow 3 (95th percentile 47.58 ms)
Run 5: Statistics of PCC-Expr

Start at: 2018-11-16 02:03:45
End at: 2018-11-16 02:04:15
Local clock offset: 0.064 ms
Remote clock offset: -0.029 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 437.34 Mbit/s
  95th percentile per-packet one-way delay: 136.927 ms
  Loss rate: 1.07%
-- Flow 1:
  Average throughput: 255.21 Mbit/s
  95th percentile per-packet one-way delay: 141.729 ms
  Loss rate: 1.39%
-- Flow 2:
  Average throughput: 223.97 Mbit/s
  95th percentile per-packet one-way delay: 62.553 ms
  Loss rate: 0.53%
-- Flow 3:
  Average throughput: 102.14 Mbit/s
  95th percentile per-packet one-way delay: 48.571 ms
  Loss rate: 1.07%
Run 5: Report of PCC-Expr — Data Link
Run 1: Statistics of QUIC Cubic

End at: 2018-11-15 23:58:25
Local clock offset: 0.318 ms
Remote clock offset: 0.244 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.99 Mbit/s
95th percentile per-packet one-way delay: 47.584 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 49.03 Mbit/s
95th percentile per-packet one-way delay: 46.882 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 48.03 Mbit/s
95th percentile per-packet one-way delay: 46.859 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 51.19 Mbit/s
95th percentile per-packet one-way delay: 47.672 ms
Loss rate: 0.89%
Run 1: Report of QUIC Cubic — Data Link
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-16 00:29:07
End at: 2018-11-16 00:29:37
Local clock offset: -0.404 ms
Remote clock offset: -0.042 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 130.24 Mbit/s
  95th percentile per-packet one-way delay: 46.914 ms
  Loss rate: 0.59%
-- Flow 1:
  Average throughput: 79.45 Mbit/s
  95th percentile per-packet one-way delay: 46.142 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 46.99 Mbit/s
  95th percentile per-packet one-way delay: 47.032 ms
  Loss rate: 0.78%
-- Flow 3:
  Average throughput: 59.64 Mbit/s
  95th percentile per-packet one-way delay: 46.824 ms
  Loss rate: 1.42%
Run 2: Report of QUIC Cubic — Data Link
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-16 01:00:15
End at: 2018-11-16 01:00:46
Local clock offset: 0.062 ms
Remote clock offset: -0.066 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 121.58 Mbit/s
95th percentile per-packet one-way delay: 47.320 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 57.50 Mbit/s
95th percentile per-packet one-way delay: 46.564 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 66.18 Mbit/s
95th percentile per-packet one-way delay: 47.378 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 61.48 Mbit/s
95th percentile per-packet one-way delay: 47.219 ms
Loss rate: 0.70%
Run 3: Report of QUIC Cubic — Data Link

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

- Flow 1 ingress (mean 57.55 Mbit/s)
- Flow 1 egress (mean 57.50 Mbit/s)
- Flow 2 ingress (mean 66.25 Mbit/s)
- Flow 2 egress (mean 66.18 Mbit/s)
- Flow 3 ingress (mean 61.32 Mbit/s)
- Flow 3 egress (mean 61.48 Mbit/s)

![Graph 2: Per Packet One-Way Delay](image2)

- Flow 1 (95th percentile 46.56 ms)
- Flow 2 (95th percentile 47.38 ms)
- Flow 3 (95th percentile 47.22 ms)
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-16 01:31:10
End at: 2018-11-16 01:31:40
Local clock offset: 0.136 ms
Remote clock offset: -0.073 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 108.78 Mbit/s
95th percentile per-packet one-way delay: 47.240 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 59.30 Mbit/s
95th percentile per-packet one-way delay: 47.219 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 49.00 Mbit/s
95th percentile per-packet one-way delay: 46.527 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 51.51 Mbit/s
95th percentile per-packet one-way delay: 47.308 ms
Loss rate: 1.25%
Run 4: Report of QUIC Cubic — Data Link

[Graph showing network performance metrics over time for different flows.]
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-16 02:02:27
End at: 2018-11-16 02:02:57
Local clock offset: 0.057 ms
Remote clock offset: -0.078 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 116.45 Mbit/s
95th percentile per-packet one-way delay: 47.324 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 75.93 Mbit/s
95th percentile per-packet one-way delay: 47.318 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 31.54 Mbit/s
95th percentile per-packet one-way delay: 47.375 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 58.07 Mbit/s
95th percentile per-packet one-way delay: 47.120 ms
Loss rate: 1.30%
Run 5: Report of QUIC Cubic — Data Link
Run 1: Statistics of SCReAM

Start at: 2018-11-16 00:01:12
End at: 2018-11-16 00:01:42
Local clock offset: -0.005 ms
Remote clock offset: 0.246 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 47.501 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.712 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.510 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.547 ms
Loss rate: 1.09%
Run 1: Report of SCReAM — Data Link

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

- Flow 1 ingress (mean 0.22 Mbit/s)
- Flow 1 egress (mean 0.22 Mbit/s)
- Flow 2 ingress (mean 0.22 Mbit/s)
- Flow 2 egress (mean 0.22 Mbit/s)
- Flow 3 ingress (mean 0.22 Mbit/s)
- Flow 3 egress (mean 0.22 Mbit/s)
Run 2: Statistics of SCReAM

Start at: 2018-11-16 00:32:23
End at: 2018-11-16 00:32:53
Local clock offset: -0.028 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 47.460 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.473 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.348 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.472 ms
Loss rate: 1.09%
Run 2: Report of SCReAM — Data Link

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

- Flow 1 ingress (mean 0.22 Mbit/s)
- Flow 1 egress (mean 0.22 Mbit/s)
- Flow 2 ingress (mean 0.22 Mbit/s)
- Flow 2 egress (mean 0.22 Mbit/s)
- Flow 3 ingress (mean 0.22 Mbit/s)
- Flow 3 egress (mean 0.22 Mbit/s)
Run 3: Statistics of SCReAM

Start at: 2018-11-16 01:03:34
End at: 2018-11-16 01:04:04
Local clock offset: 0.05 ms
Remote clock offset: -0.048 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 47.426 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.372 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.459 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 46.701 ms
Loss rate: 0.74%
Run 3: Report of SCReAM — Data Link

![Throughput Graph]

![Per-packet one-way delay Graph]
Run 4: Statistics of SCReAM

Start at: 2018-11-16 01:34:25
End at: 2018-11-16 01:34:55
Local clock offset: 0.116 ms
Remote clock offset: -0.099 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 47.526 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.496 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.526 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 47.565 ms
Loss rate: 0.70%
Run 4: Report of SCReAM — Data Link

![Graph showing data link performance metrics over time, including throughput and per-packet one-way delay graphs.](image-url)
Run 5: Statistics of SCReAM

Start at: 2018-11-16 02:05:36
End at: 2018-11-16 02:06:06
Local clock offset: 0.078 ms
Remote clock offset: -0.068 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 0.44 Mbit/s
  95th percentile per-packet one-way delay: 47.564 ms
  Loss rate: 0.52%
-- Flow 1:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.578 ms
  Loss rate: 0.26%
-- Flow 2:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.524 ms
  Loss rate: 0.62%
-- Flow 3:
  Average throughput: 0.22 Mbit/s
  95th percentile per-packet one-way delay: 47.569 ms
  Loss rate: 1.09%
Run 5: Report of SCReAM — Data Link

[Graphs showing throughput and packet loss over time for different flows.]
Run 1: Statistics of Sprout

Start at: 2018-11-16 00:22:10
End at: 2018-11-16 00:22:40
Local clock offset: -0.003 ms
Remote clock offset: 0.027 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 18.64 Mbit/s
  95th percentile per-packet one-way delay: 47.742 ms
  Loss rate: 0.49%
-- Flow 1:
  Average throughput: 9.58 Mbit/s
  95th percentile per-packet one-way delay: 47.756 ms
  Loss rate: 0.31%
-- Flow 2:
  Average throughput: 9.03 Mbit/s
  95th percentile per-packet one-way delay: 47.713 ms
  Loss rate: 0.47%
-- Flow 3:
  Average throughput: 9.31 Mbit/s
  95th percentile per-packet one-way delay: 47.729 ms
  Loss rate: 1.08%
Run 1: Report of Sprout — Data Link

![Data Link Graph](image)

![Delay Graph](image)

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Run 2: Statistics of Sprout

Start at: 2018-11-16 00:53:20
End at: 2018-11-16 00:53:50
Local clock offset: -0.003 ms
Remote clock offset: -0.06 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.98 Mbit/s
95th percentile per-packet one-way delay: 47.919 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 47.914 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 47.985 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 9.42 Mbit/s
95th percentile per-packet one-way delay: 47.789 ms
Loss rate: 1.10%
Run 2: Report of Sprout — Data Link

Throughput (Mbps):

Time (s):

Flow 1 ingress (mean 9.55 Mbps)
Flow 1 egress (mean 9.55 Mbps)
Flow 2 ingress (mean 9.36 Mbps)
Flow 2 egress (mean 9.37 Mbps)
Flow 3 ingress (mean 9.43 Mbps)
Flow 3 egress (mean 9.42 Mbps)

Per packet one way delay (ms):

Time (s):

Flow 1 (95th percentile 47.91 ms)
Flow 2 (95th percentile 47.98 ms)
Flow 3 (95th percentile 47.79 ms)
Run 3: Statistics of Sprout

Start at: 2018-11-16 01:24:19
End at: 2018-11-16 01:24:49
Local clock offset: 0.109 ms
Remote clock offset: -0.049 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.92 Mbit/s
95th percentile per-packet one-way delay: 47.823 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 9.62 Mbit/s
95th percentile per-packet one-way delay: 47.884 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 9.60 Mbit/s
95th percentile per-packet one-way delay: 47.103 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 8.93 Mbit/s
95th percentile per-packet one-way delay: 47.909 ms
Loss rate: 1.14%
Run 3: Report of Sprout — Data Link
Run 4: Statistics of Sprout

Start at: 2018-11-16 01:55:26
End at: 2018-11-16 01:55:56
Local clock offset: 0.211 ms
Remote clock offset: -0.151 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 19.07 Mbit/s
  95th percentile per-packet one-way delay: 47.883 ms
  Loss rate: 0.53%
-- Flow 1:
  Average throughput: 9.69 Mbit/s
  95th percentile per-packet one-way delay: 47.884 ms
  Loss rate: 0.35%
-- Flow 2:
  Average throughput: 9.57 Mbit/s
  95th percentile per-packet one-way delay: 47.848 ms
  Loss rate: 0.54%
-- Flow 3:
  Average throughput: 9.28 Mbit/s
  95th percentile per-packet one-way delay: 47.942 ms
  Loss rate: 1.10%
Run 4: Report of Sprout — Data Link
Run 5: Statistics of Sprout

Start at: 2018-11-16 02:26:35
End at: 2018-11-16 02:27:05
Local clock offset: -0.009 ms
Remote clock offset: -0.098 ms

# Below is generated by plot.py at 2018-11-16 04:46:02
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 19.08 Mbit/s
  95th percentile per-packet one-way delay: 47.746 ms
  Loss rate: 0.36%
-- Flow 1:
  Average throughput: 9.69 Mbit/s
  95th percentile per-packet one-way delay: 47.618 ms
  Loss rate: 0.27%
-- Flow 2:
  Average throughput: 9.55 Mbit/s
  95th percentile per-packet one-way delay: 47.819 ms
  Loss rate: 0.53%
-- Flow 3:
  Average throughput: 9.30 Mbit/s
  95th percentile per-packet one-way delay: 47.782 ms
  Loss rate: 0.29%
Run 5: Report of Sprout — Data Link
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-16 00:18:13
End at: 2018-11-16 00:18:43
Local clock offset: -0.082 ms
Remote clock offset: 0.175 ms

# Below is generated by plot.py at 2018-11-16 04:56:48
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 481.48 Mbit/s
  95th percentile per-packet one-way delay: 50.357 ms
  Loss rate: 0.51%
-- Flow 1:
  Average throughput: 246.16 Mbit/s
  95th percentile per-packet one-way delay: 51.616 ms
  Loss rate: 0.33%
-- Flow 2:
  Average throughput: 244.58 Mbit/s
  95th percentile per-packet one-way delay: 47.165 ms
  Loss rate: 0.51%
-- Flow 3:
  Average throughput: 219.95 Mbit/s
  95th percentile per-packet one-way delay: 53.044 ms
  Loss rate: 1.12%
Run 1: Report of TaoVA-100x — Data Link

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

- **Throughput (Mbps)**: The graph shows the throughput over time for three different flows, labeled as Flow 1, Flow 2, and Flow 3. The y-axis represents throughput in Mbps, ranging from 0 to 250 Mbps. The x-axis represents time in seconds, ranging from 0 to 30 seconds.

- **Packet Delay (ms)**: The second graph shows the packet delay over time for the same flows. The y-axis represents packet delay in milliseconds, ranging from 0 to 85 ms. The x-axis represents time in seconds, ranging from 0 to 30 seconds.
Run 2: Statistics of TaoVA-100x

Start at: 2018-11-16 00:49:18
End at: 2018-11-16 00:49:48
Local clock offset: -0.015 ms
Remote clock offset: -0.12 ms

# Below is generated by plot.py at 2018-11-16 04:56:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 471.29 Mbit/s
95th percentile per-packet one-way delay: 50.477 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 240.10 Mbit/s
95th percentile per-packet one-way delay: 49.152 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 237.52 Mbit/s
95th percentile per-packet one-way delay: 53.228 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 221.75 Mbit/s
95th percentile per-packet one-way delay: 48.590 ms
Loss rate: 0.83%
Run 2: Report of TaoVA-100x — Data Link

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

- **Flow 1 ingress** (mean 240.20 Mbit/s)
- **Flow 1 egress** (mean 240.10 Mbit/s)
- **Flow 2 ingress** (mean 237.65 Mbit/s)
- **Flow 2 egress** (mean 237.52 Mbit/s)
- **Flow 3 ingress** (mean 221.62 Mbit/s)
- **Flow 3 egress** (mean 221.75 Mbit/s)

- **Flow 1 (95th percentile 49.15 ms)**
- **Flow 2 (95th percentile 53.23 ms)**
- **Flow 3 (95th percentile 48.59 ms)**

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Run 3: Statistics of TaoVA-100x

Start at: 2018-11-16 01:20:18
End at: 2018-11-16 01:20:48
Local clock offset: 0.436 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2018-11-16 04:57:21
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 488.00 Mbit/s
  95th percentile per-packet one-way delay: 48.346 ms
  Loss rate: 0.48%
  -- Flow 1:
  Average throughput: 247.73 Mbit/s
  95th percentile per-packet one-way delay: 48.016 ms
  Loss rate: 0.29%
  -- Flow 2:
  Average throughput: 243.49 Mbit/s
  95th percentile per-packet one-way delay: 48.506 ms
  Loss rate: 0.51%
  -- Flow 3:
  Average throughput: 237.02 Mbit/s
  95th percentile per-packet one-way delay: 48.819 ms
  Loss rate: 1.02%
Run 3: Report of TaoVA-100x — Data Link
Run 4: Statistics of TaoVA-100x

Start at: 2018-11-16 01:51:22
End at: 2018-11-16 01:51:52
Local clock offset: 0.529 ms
Remote clock offset: -0.084 ms

# Below is generated by plot.py at 2018-11-16 04:57:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 483.81 Mbit/s
95th percentile per-packet one-way delay: 48.323 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 250.66 Mbit/s
95th percentile per-packet one-way delay: 48.185 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 241.02 Mbit/s
95th percentile per-packet one-way delay: 48.306 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 221.03 Mbit/s
95th percentile per-packet one-way delay: 48.656 ms
Loss rate: 1.08%
Run 4: Report of TaoVA-100x — Data Link
Run 5: Statistics of TaoVA-100x

Start at: 2018-11-16 02:22:33
End at: 2018-11-16 02:23:03
Local clock offset: -0.0 ms
Remote clock offset: -0.081 ms

# Below is generated by plot.py at 2018-11-16 05:01:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 483.7 Mbit/s
95th percentile per-packet one-way delay: 48.550 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 244.03 Mbit/s
95th percentile per-packet one-way delay: 48.519 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 243.61 Mbit/s
95th percentile per-packet one-way delay: 48.133 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 235.00 Mbit/s
95th percentile per-packet one-way delay: 49.205 ms
Loss rate: 1.05%
Run 5: Report of TaoVA-100x — Data Link
Run 1: Statistics of TCP Vegas

Start at: 2018-11-16 00:16:10
End at: 2018-11-16 00:16:40
Local clock offset: -0.056 ms
Remote clock offset: 0.162 ms

# Below is generated by plot.py at 2018-11-16 05:07:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 1041.90 Mbit/s
  95th percentile per-packet one-way delay: 83.349 ms
  Loss rate: 0.54%
-- Flow 1:
  Average throughput: 551.52 Mbit/s
  95th percentile per-packet one-way delay: 76.833 ms
  Loss rate: 0.34%
-- Flow 2:
  Average throughput: 520.87 Mbit/s
  95th percentile per-packet one-way delay: 83.577 ms
  Loss rate: 0.54%
-- Flow 3:
  Average throughput: 436.46 Mbit/s
  95th percentile per-packet one-way delay: 86.647 ms
  Loss rate: 1.31%
Run 1: Report of TCP Vegas — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 551.66 Mbps)
  - Flow 1 egress (mean 551.52 Mbps)
  - Flow 2 ingress (mean 521.26 Mbps)
  - Flow 2 egress (mean 520.87 Mbps)
  - Flow 3 ingress (mean 436.04 Mbps)
  - Flow 3 egress (mean 436.46 Mbps)

- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 76.83 ms)
  - Flow 2 (95th percentile 83.58 ms)
  - Flow 3 (95th percentile 86.65 ms)
Run 2: Statistics of TCP Vegas

Start at: 2018-11-16 00:47:16
End at: 2018-11-16 00:47:46
Local clock offset: -0.05 ms
Remote clock offset: -0.118 ms

# Below is generated by plot.py at 2018-11-16 05:07:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1013.52 Mbit/s
95th percentile per-packet one-way delay: 114.565 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 522.06 Mbit/s
95th percentile per-packet one-way delay: 105.425 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 512.02 Mbit/s
95th percentile per-packet one-way delay: 123.579 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 457.73 Mbit/s
95th percentile per-packet one-way delay: 85.222 ms
Loss rate: 1.24%
Run 2: Report of TCP Vegas — Data Link

![Graph showing network throughput and delay over time for different flow types.](image)
Run 3: Statistics of TCP Vegas

Start at: 2018-11-16 01:18:28
End at: 2018-11-16 01:18:58
Local clock offset: 0.099 ms
Remote clock offset: -0.078 ms

# Below is generated by plot.py at 2018-11-16 05:07:15
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 751.72 Mbit/s
  95th percentile per-packet one-way delay: 59.509 ms
  Loss rate: 0.37%
-- Flow 1:
  Average throughput: 296.01 Mbit/s
  95th percentile per-packet one-way delay: 60.353 ms
  Loss rate: 0.28%
-- Flow 2:
  Average throughput: 543.68 Mbit/s
  95th percentile per-packet one-way delay: 60.035 ms
  Loss rate: 0.26%
-- Flow 3:
  Average throughput: 285.25 Mbit/s
  95th percentile per-packet one-way delay: 47.626 ms
  Loss rate: 1.04%
Run 3: Report of TCP Vegas — Data Link
Run 4: Statistics of TCP Vegas

Start at: 2018-11-16 01:49:19
End at: 2018-11-16 01:49:49
Local clock offset: 0.513 ms
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1019.07 Mbit/s
95th percentile per-packet one-way delay: 97.673 ms
Loss rate: 0.46%

-- Flow 1:
Average throughput: 541.22 Mbit/s
95th percentile per-packet one-way delay: 101.189 ms
Loss rate: 0.34%

-- Flow 2:
Average throughput: 475.37 Mbit/s
95th percentile per-packet one-way delay: 80.980 ms
Loss rate: 0.30%

-- Flow 3:
Average throughput: 489.93 Mbit/s
95th percentile per-packet one-way delay: 90.682 ms
Loss rate: 1.17%
Run 4: Report of TCP Vegas — Data Link

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

Start at: 2018-11-16 02:20:33
End at: 2018-11-16 02:21:03
Local clock offset: 0.399 ms
Remote clock offset: -0.092 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 955.04 Mbit/s
  95th percentile per-packet one-way delay: 74.000 ms
  Loss rate: 0.45%
-- Flow 1:
  Average throughput: 444.45 Mbit/s
  95th percentile per-packet one-way delay: 68.868 ms
  Loss rate: 0.11%
-- Flow 2:
  Average throughput: 521.10 Mbit/s
  95th percentile per-packet one-way delay: 79.379 ms
  Loss rate: 0.54%
-- Flow 3:
  Average throughput: 496.65 Mbit/s
  95th percentile per-packet one-way delay: 66.967 ms
  Loss rate: 1.15%
Run 5: Report of TCP Vegas — Data Link

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

- **Throughput (Mbps):**
  - Flow 1 ingress (mean 443.55 Mbps)
  - Flow 1 egress (mean 444.45 Mbps)
  - Flow 2 ingress (mean 521.46 Mbps)
  - Flow 2 egress (mean 521.10 Mbps)
  - Flow 3 ingress (mean 497.66 Mbps)
  - Flow 3 egress (mean 496.65 Mbps)

- **Packet Loss (ms):**
  - Flow 1 (95th percentile 68.87 ms)
  - Flow 2 (95th percentile 79.38 ms)
  - Flow 3 (95th percentile 66.97 ms)
Run 1: Statistics of Verus

Start at: 2018-11-16 00:14:32
End at: 2018-11-16 00:15:02
Local clock offset: -0.406 ms
Remote clock offset: 0.158 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 275.97 Mbit/s
95th percentile per-packet one-way delay: 138.818 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 138.88 Mbit/s
95th percentile per-packet one-way delay: 81.497 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 136.43 Mbit/s
95th percentile per-packet one-way delay: 109.637 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 141.86 Mbit/s
95th percentile per-packet one-way delay: 219.026 ms
Loss rate: 5.37%
Run 1: Report of Verus — Data Link

**Throughput (Mbps)**

- **Flow 1 ingress** (mean 138.69 Mbps)
- **Flow 1 egress** (mean 138.88 Mbps)
- **Flow 2 ingress** (mean 136.62 Mbps)
- **Flow 2 egress** (mean 136.43 Mbps)
- **Flow 3 ingress** (mean 148.42 Mbps)
- **Flow 3 egress** (mean 141.96 Mbps)

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

- **Flow 1** (95th percentile 81.50 ms)
- **Flow 2** (95th percentile 109.64 ms)
- **Flow 3** (95th percentile 219.03 ms)
Run 2: Statistics of Verus

Start at: 2018-11-16 00:45:37
End at: 2018-11-16 00:46:07
Local clock offset: -0.009 ms
Remote clock offset: -0.101 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 289.40 Mbit/s
95th percentile per-packet one-way delay: 144.601 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 166.19 Mbit/s
95th percentile per-packet one-way delay: 153.192 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 124.70 Mbit/s
95th percentile per-packet one-way delay: 105.195 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 123.36 Mbit/s
95th percentile per-packet one-way delay: 91.727 ms
Loss rate: 0.01%
Run 2: Report of Verus — Data Link

![Graph 1: Throughput (Mbps)]

- Flow 1 ingress (mean 166.05 Mbps)
- Flow 1 egress (mean 166.19 Mbps)
- Flow 2 ingress (mean 124.42 Mbps)
- Flow 2 egress (mean 124.70 Mbps)
- Flow 3 ingress (mean 122.19 Mbps)
- Flow 3 egress (mean 123.36 Mbps)

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

- Flow 1 (95th percentile 153.19 ms)
- Flow 2 (95th percentile 105.19 ms)
- Flow 3 (95th percentile 91.73 ms)
Run 3: Statistics of Verus

Start at: 2018-11-16 01:16:51
End at: 2018-11-16 01:17:21
Local clock offset: 0.091 ms
Remote clock offset: -0.073 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 259.30 Mbit/s
95th percentile per-packet one-way delay: 153.146 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 178.28 Mbit/s
95th percentile per-packet one-way delay: 162.477 ms
Loss rate: 1.26%
-- Flow 2:
Average throughput: 85.22 Mbit/s
95th percentile per-packet one-way delay: 55.425 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 73.78 Mbit/s
95th percentile per-packet one-way delay: 62.499 ms
Loss rate: 1.30%
Run 3: Report of Verus — Data Link

**Graph 1:**
- **Throughput (Mbps):**
  - Flow 1 ingress (mean 180.00 Mbps)
  - Flow 1 egress (mean 178.28 Mbps)
  - Flow 2 ingress (mean 85.59 Mbps)
  - Flow 2 egress (mean 85.22 Mbps)
  - Flow 3 ingress (mean 74.04 Mbps)
  - Flow 3 egress (mean 73.78 Mbps)

**Graph 2:**
- **Per-packet one-way delay (ms):**
  - Flow 1 (95th percentile 162.48 ms)
  - Flow 2 (95th percentile 55.42 ms)
  - Flow 3 (95th percentile 62.50 ms)
Run 4: Statistics of Verus

Start at: 2018-11-16 01:47:43
End at: 2018-11-16 01:48:13
Local clock offset: 0.192 ms
Remote clock offset: -0.088 ms

# Below is generated by plot.py at 2018-11-16 05:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 263.98 Mbit/s
95th percentile per-packet one-way delay: 130.683 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 143.01 Mbit/s
95th percentile per-packet one-way delay: 140.762 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 127.30 Mbit/s
95th percentile per-packet one-way delay: 102.820 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 110.74 Mbit/s
95th percentile per-packet one-way delay: 132.661 ms
Loss rate: 0.40%
Run 4: Report of Verus — Data Link
Run 5: Statistics of Verus

Start at: 2018-11-16 02:18:56
End at: 2018-11-16 02:19:26
Local clock offset: -0.007 ms
Remote clock offset: -0.053 ms

# Below is generated by plot.py at 2018-11-16 05:17:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 269.28 Mbit/s
95th percentile per-packet one-way delay: 130.734 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 127.81 Mbit/s
95th percentile per-packet one-way delay: 63.543 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 152.93 Mbit/s
95th percentile per-packet one-way delay: 161.069 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 121.91 Mbit/s
95th percentile per-packet one-way delay: 59.860 ms
Loss rate: 0.00%
Run 5: Report of Verus — Data Link

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

Legend:
- Flow 1 ingress (mean 127.56 Mbit/s)
- Flow 1 egress (mean 127.81 Mbit/s)
- Flow 2 ingress (mean 154.07 Mbit/s)
- Flow 2 egress (mean 152.93 Mbit/s)
- Flow 3 ingress (mean 120.75 Mbit/s)
- Flow 3 egress (mean 121.91 Mbit/s)

Legend for packet delay:
- Flow 1 (95th percentile 63.54 ms)
- Flow 2 (95th percentile 161.07 ms)
- Flow 3 (95th percentile 59.86 ms)
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-16 00:11:28
End at: 2018-11-16 00:11:58
Local clock offset: ~0.063 ms
Remote clock offset: 0.287 ms

# Below is generated by plot.py at 2018-11-16 05:19:11
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 609.09 Mbit/s
  95th percentile per-packet one-way delay: 54.977 ms
  Loss rate: 0.40%
-- Flow 1:
  Average throughput: 321.63 Mbit/s
  95th percentile per-packet one-way delay: 72.601 ms
  Loss rate: 0.29%
-- Flow 2:
  Average throughput: 329.90 Mbit/s
  95th percentile per-packet one-way delay: 50.586 ms
  Loss rate: 0.47%
-- Flow 3:
  Average throughput: 208.85 Mbit/s
  95th percentile per-packet one-way delay: 53.416 ms
  Loss rate: 0.74%
Run 1: Report of PCC-Vivace — Data Link

[Graph showing throughput and packet loss over time for different flows.]
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-16 00:42:39
End at: 2018-11-16 00:43:09
Local clock offset: -0.039 ms
Remote clock offset: -0.082 ms

# Below is generated by plot.py at 2018-11-16 05:19:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 520.36 Mbit/s
95th percentile per-packet one-way delay: 50.128 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 335.50 Mbit/s
95th percentile per-packet one-way delay: 50.588 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 253.26 Mbit/s
95th percentile per-packet one-way delay: 49.734 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 50.89 Mbit/s
95th percentile per-packet one-way delay: 47.343 ms
Loss rate: 1.33%
Run 2: Report of PCC-Vivace — Data Link

![Graphs showing data link performance over time](image)

1. **Throughput (Mb/s)**
   - Flow 1 ingress (mean 335.47 Mb/s)
   - Flow 1 egress (mean 335.50 Mb/s)
   - Flow 2 ingress (mean 253.63 Mb/s)
   - Flow 2 egress (mean 253.26 Mb/s)
   - Flow 3 ingress (mean 51.08 Mb/s)
   - Flow 3 egress (mean 50.89 Mb/s)

2. **Per-packet one way delay (ms)**
   - Flow 1 (95th percentile 50.59 ms)
   - Flow 2 (95th percentile 49.73 ms)
   - Flow 3 (95th percentile 47.34 ms)
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-16 01:13:51
End at: 2018-11-16 01:14:21
Local clock offset: 0.455 ms
Remote clock offset: -0.074 ms

# Below is generated by plot.py at 2018-11-16 05:19:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 540.59 Mbit/s
95th percentile per-packet one-way delay: 58.279 ms
Loss rate: 0.46%

-- Flow 1:
Average throughput: 320.08 Mbit/s
95th percentile per-packet one-way delay: 59.587 ms
Loss rate: 0.20%

-- Flow 2:
Average throughput: 296.20 Mbit/s
95th percentile per-packet one-way delay: 56.710 ms
Loss rate: 0.61%

-- Flow 3:
Average throughput: 73.07 Mbit/s
95th percentile per-packet one-way delay: 48.056 ms
Loss rate: 2.57%
Run 3: Report of PCC-Vivace — Data Link

![Graph showing throughput and packet loss](image-url)

**Throughput (Mbps):**
- **Flow 1 ingress:** Mean 319.70 Mbps (320.08 Mbps)
- **Flow 1 egress:** Mean 320.08 Mbps
- **Flow 2 ingress:** Mean 296.62 Mbps (296.20 Mbps)
- **Flow 2 egress:** Mean 296.20 Mbps
- **Flow 3 ingress:** Mean 74.27 Mbps (73.07 Mbps)
- **Flow 3 egress:** Mean 73.07 Mbps

**Per-packet one-way delay (ms):**
- **Flow 1:** 59.59 ms
- **Flow 2:** 56.71 ms
- **Flow 3:** 48.06 ms
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-16 01:44:46  
End at: 2018-11-16 01:45:16  
Local clock offset: 0.159 ms  
Remote clock offset: -0.091 ms

# Below is generated by plot.py at 2018-11-16 05:19:39  
# Datalink statistics

-- Total of 3 flows:  
Average throughput: 494.60 Mbit/s  
95th percentile per-packet one-way delay: 79.510 ms  
Loss rate: 0.35%

-- Flow 1:  
Average throughput: 293.88 Mbit/s  
95th percentile per-packet one-way delay: 50.662 ms  
Loss rate: 0.19%

-- Flow 2:  
Average throughput: 277.08 Mbit/s  
95th percentile per-packet one-way delay: 109.306 ms  
Loss rate: 0.54%

-- Flow 3:  
Average throughput: 51.08 Mbit/s  
95th percentile per-packet one-way delay: 47.470 ms  
Loss rate: 1.18%
Run 4: Report of PCC-Vivace — Data Link

![Throughput Graph]

- Flow 1 ingress (mean 293.48 Mbit/s)
- Flow 1 egress (mean 293.88 Mbit/s)
- Flow 2 ingress (mean 277.26 Mbit/s)
- Flow 2 egress (mean 277.08 Mbit/s)
- Flow 3 ingress (mean 51.19 Mbit/s)
- Flow 3 egress (mean 51.09 Mbit/s)

![Delay Graph]

- Flow 1 (95th percentile 50.66 ms)
- Flow 2 (95th percentile 109.31 ms)
- Flow 3 (95th percentile 47.47 ms)
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-16 02:15:55
End at: 2018-11-16 02:16:25
Local clock offset: 0.054 ms
Remote clock offset: -0.047 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 548.39 Mbit/s
95th percentile per-packet one-way delay: 89.595 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 346.73 Mbit/s
95th percentile per-packet one-way delay: 77.811 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 274.40 Mbit/s
95th percentile per-packet one-way delay: 155.169 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 59.37 Mbit/s
95th percentile per-packet one-way delay: 47.637 ms
Loss rate: 1.55%
Run 5: Report of PCC-Vivace — Data Link

![Graph of Throughput vs Time](image1)

- Flow 1 ingress (mean 347.24 Mbit/s)
- Flow 1 egress (mean 346.73 Mbit/s)
- Flow 2 ingress (mean 275.98 Mbit/s)
- Flow 2 egress (mean 274.40 Mbit/s)
- Flow 3 ingress (mean 59.72 Mbit/s)
- Flow 3 egress (mean 59.37 Mbit/s)

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

- Flow 1 (95th percentile 77.81 ms)
- Flow 2 (95th percentile 155.17 ms)
- Flow 3 (95th percentile 47.64 ms)
Run 1: Statistics of WebRTC media

Start at: 2018-11-16 00:13:20
End at: 2018-11-16 00:13:51
Local clock offset: -0.051 ms
Remote clock offset: 0.226 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 47.354 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 47.368 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 47.345 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 46.688 ms
Loss rate: 0.84%
Run 1: Report of WebRTC media — Data Link
Run 2: Statistics of WebRTC media

Start at: 2018-11-16 00:44:26
End at: 2018-11-16 00:44:56
Local clock offset: -0.04 ms
Remote clock offset: -0.126 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.54 Mbit/s
  95th percentile per-packet one-way delay: 47.492 ms
  Loss rate: 0.71%
-- Flow 1:
  Average throughput: 1.89 Mbit/s
  95th percentile per-packet one-way delay: 47.415 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 1.22 Mbit/s
  95th percentile per-packet one-way delay: 47.544 ms
  Loss rate: 0.59%
-- Flow 3:
  Average throughput: 0.45 Mbit/s
  95th percentile per-packet one-way delay: 47.410 ms
  Loss rate: 2.42%
Run 2: Report of WebRTC media — Data Link

![Graph showing throughput and per-packet round-trip time over time for different flows.](image-url)
Run 3: Statistics of WebRTC media

Start at: 2018-11-16 01:15:39
End at: 2018-11-16 01:16:09
Local clock offset: 0.093 ms
Remote clock offset: -0.021 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 47.528 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 47.502 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 47.566 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 47.465 ms
Loss rate: 0.08%
Run 3: Report of WebRTC media — Data Link

![First Graph](image)

![Second Graph](image)
Run 4: Statistics of WebRTC media

Start at: 2018-11-16 01:46:31
End at: 2018-11-16 01:47:01
Local clock offset: 0.145 ms
Remote clock offset: -0.058 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.55 Mbit/s
  95th percentile per-packet one-way delay: 47.489 ms
  Loss rate: 0.46%
-- Flow 1:
  Average throughput: 1.90 Mbit/s
  95th percentile per-packet one-way delay: 47.483 ms
  Loss rate: 0.36%
-- Flow 2:
  Average throughput: 1.20 Mbit/s
  95th percentile per-packet one-way delay: 47.510 ms
  Loss rate: 0.53%
-- Flow 3:
  Average throughput: 0.47 Mbit/s
  95th percentile per-packet one-way delay: 47.439 ms
  Loss rate: 0.69%
Run 4: Report of WebRTC media — Data Link

Diagram 1:
- **Throughput (Mbit/s)** vs **Time (s)**
  - Flow 1 ingress (mean 1.90 Mbit/s)
  - Flow 1 egress (mean 1.90 Mbit/s)
  - Flow 2 ingress (mean 1.20 Mbit/s)
  - Flow 2 egress (mean 1.20 Mbit/s)
  - Flow 3 ingress (mean 0.48 Mbit/s)
  - Flow 3 egress (mean 0.47 Mbit/s)

Diagram 2:
- **Per-packet one-way delay [ms]** vs **Time (s)**
  - Flow 1 (95th percentile 47.48 ms)
  - Flow 2 (95th percentile 47.51 ms)
  - Flow 3 (95th percentile 47.44 ms)
Run 5: Statistics of WebRTC media

Start at: 2018-11-16 02:17:44
End at: 2018-11-16 02:18:14
Local clock offset: 0.057 ms
Remote clock offset: -0.069 ms

# Below is generated by plot.py at 2018-11-16 05:19:47
# Datalink statistics
-- Total of 3 flows:
  Average throughput: 3.47 Mbit/s
  95th percentile per-packet one-way delay: 47.599 ms
  Loss rate: 0.72%
-- Flow 1:
  Average throughput: 1.87 Mbit/s
  95th percentile per-packet one-way delay: 47.572 ms
  Loss rate: 0.38%
-- Flow 2:
  Average throughput: 1.17 Mbit/s
  95th percentile per-packet one-way delay: 47.624 ms
  Loss rate: 0.60%
-- Flow 3:
  Average throughput: 0.46 Mbit/s
  95th percentile per-packet one-way delay: 47.588 ms
  Loss rate: 2.41%
Run 5: Report of WebRTC media — Data Link

![Throughput Graph]

![Delay Graph]

Flow 1 ingress (mean 1.87 Mbit/s)  Flow 1 egress (mean 1.87 Mbit/s)
Flow 2 ingress (mean 1.18 Mbit/s)  Flow 2 egress (mean 1.17 Mbit/s)
Flow 3 ingress (mean 0.47 Mbit/s)  Flow 3 egress (mean 0.46 Mbit/s)