

## Pantheon Report

Generated at 2018-09-11 02:31:35 (UTC).

Data path: AWS India 1 on `ens5` (*local*) → India cellular on `ppp0` (*remote*).

Repeated the test of 18 congestion control schemes 3 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

### System info:

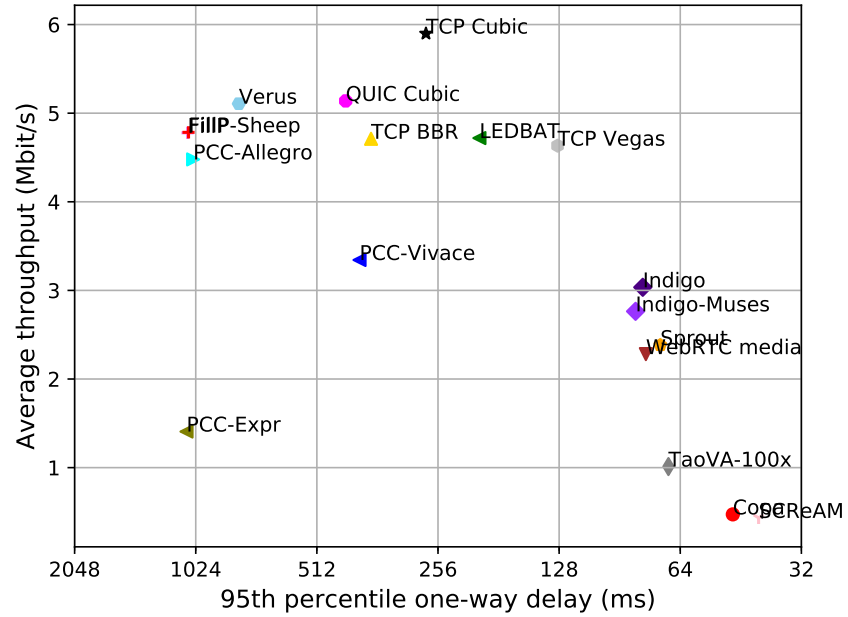
```
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 184101 245469 368202
```

### Git summary:

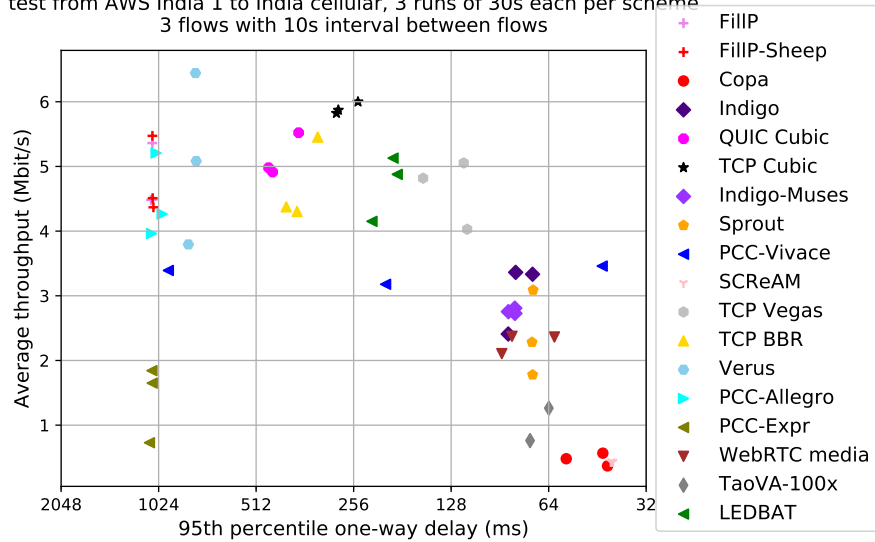
```
branch: muses @ f30bceca2aec2ef14a3cf71e25642f4a30905a03
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
  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 @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
```

```
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS India 1 to India cellular, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS India 1 to India cellular, 3 runs of 30s each per scheme  
 3 flows with 10s interval between flows



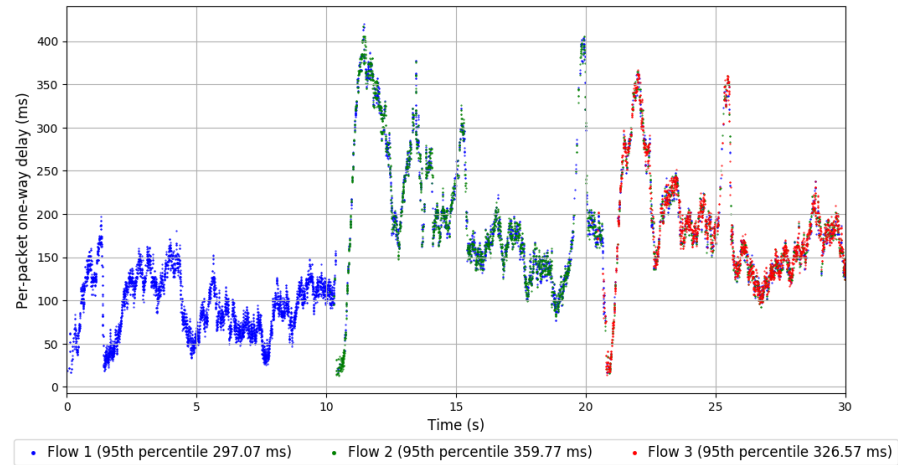
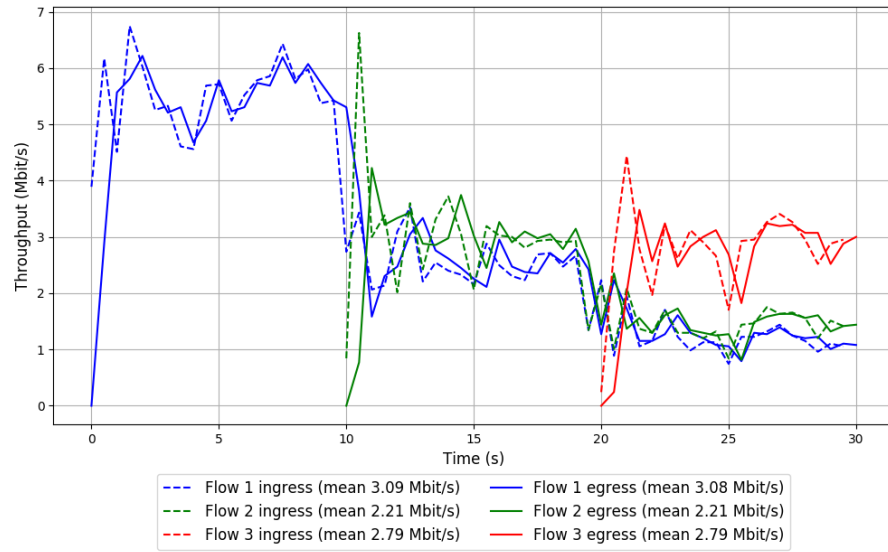
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	2.62	2.07	2.21	351.12	404.43	353.17	0.59	0.80	2.20
Copa	3	0.20	0.21	0.40	41.09	47.94	54.10	71.20	69.89	63.38
TCP Cubic	3	3.68	2.52	1.68	261.27	281.96	301.35	0.55	1.00	2.41
FillP	3	3.75	1.06	1.18	1072.97	1071.84	1074.27	65.62	40.06	53.49
FillP-Sheep	3	3.07	1.67	2.03	1052.64	1071.71	1079.88	20.34	32.22	53.04
Indigo	3	1.50	1.45	1.77	70.89	75.06	223.85	0.07	0.10	0.35
LEDBAT	3	3.06	1.76	1.50	192.20	210.15	219.83	0.18	0.60	1.40
Indigo-Muses	3	1.35	1.37	1.52	79.86	76.47	99.53	0.08	0.13	0.21
PCC-Allegro	3	2.84	1.66	1.67	1023.54	1039.43	1085.58	15.09	23.19	48.65
PCC-Expr	3	0.80	0.75	0.44	1071.96	1082.09	1090.34	83.37	86.30	85.08
QUIC Cubic	3	3.33	1.75	2.03	402.70	440.15	566.59	0.83	2.06	3.99
SCReAM	3	0.22	0.22	0.22	37.63	34.38	33.05	0.00	0.13	0.31
Sprout	3	1.17	1.27	1.13	65.46	75.14	75.23	0.01	0.38	0.23
TaoVA-100x	2	0.00	0.00	3.05	18.87	23.83	68.48	95.92	95.92	31.70
TCP Vegas	3	1.98	2.44	3.11	109.44	156.69	115.96	0.10	0.08	0.23
Verus	3	3.40	2.14	0.99	827.67	768.87	748.89	26.31	4.16	9.95
PCC-Vivace	3	1.67	1.78	1.51	347.84	397.55	432.48	1.01	1.15	3.33
WebRTC media	3	1.11	0.95	0.23	70.34	77.30	96.25	0.01	0.09	0.21

Run 1: Statistics of TCP BBR

Start at: 2018-09-11 01:49:41  
End at: 2018-09-11 01:50:11  
Local clock offset: 0.938 ms  
Remote clock offset: -4.428 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.45 Mbit/s  
95th percentile per-packet one-way delay: 330.493 ms  
Loss rate: 0.64%  
-- Flow 1:  
Average throughput: 3.08 Mbit/s  
95th percentile per-packet one-way delay: 297.073 ms  
Loss rate: 0.26%  
-- Flow 2:  
Average throughput: 2.21 Mbit/s  
95th percentile per-packet one-way delay: 359.767 ms  
Loss rate: 0.71%  
-- Flow 3:  
Average throughput: 2.79 Mbit/s  
95th percentile per-packet one-way delay: 326.572 ms  
Loss rate: 1.82%

# Run 1: Report of TCP BBR — Data Link

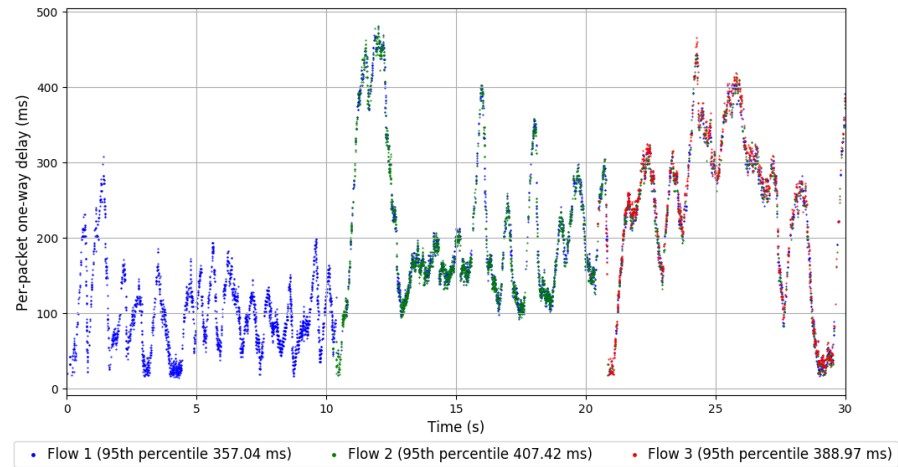
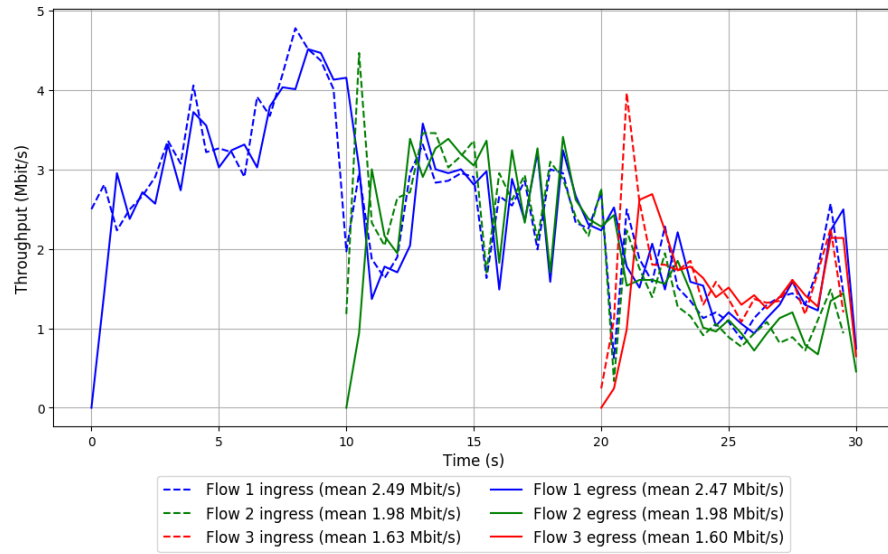


Run 2: Statistics of TCP BBR

Start at: 2018-09-11 02:09:47  
End at: 2018-09-11 02:10:17  
Local clock offset: 0.921 ms  
Remote clock offset: -4.461 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.30 Mbit/s  
95th percentile per-packet one-way delay: 382.730 ms  
Loss rate: 1.19%  
-- Flow 1:  
Average throughput: 2.47 Mbit/s  
95th percentile per-packet one-way delay: 357.042 ms  
Loss rate: 0.90%  
-- Flow 2:  
Average throughput: 1.98 Mbit/s  
95th percentile per-packet one-way delay: 407.419 ms  
Loss rate: 0.94%  
-- Flow 3:  
Average throughput: 1.60 Mbit/s  
95th percentile per-packet one-way delay: 388.974 ms  
Loss rate: 3.11%

## Run 2: Report of TCP BBR — Data Link



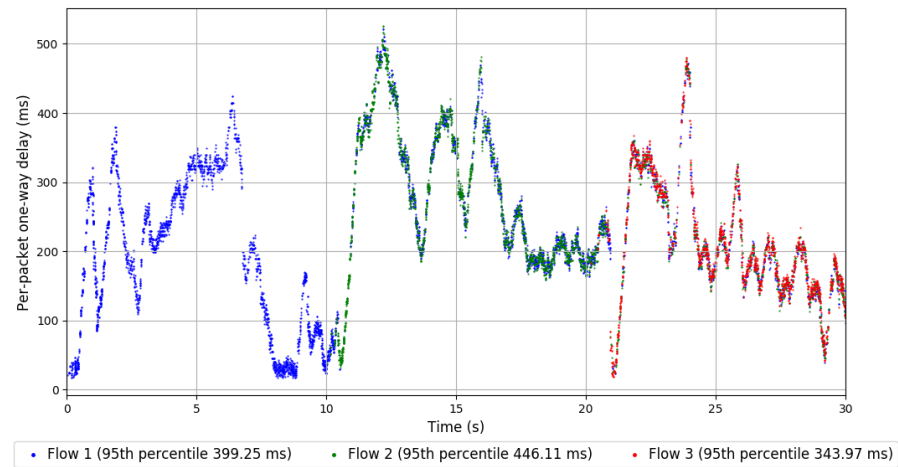
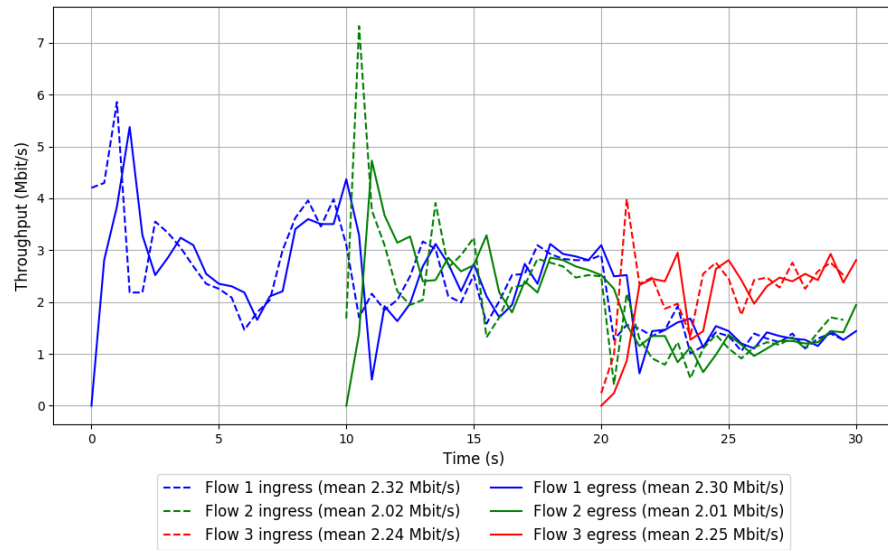


Run 3: Statistics of TCP BBR

Start at: 2018-09-11 02:30:01  
End at: 2018-09-11 02:30:31  
Local clock offset: 1.237 ms  
Remote clock offset: -5.143 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.38 Mbit/s  
95th percentile per-packet one-way delay: 413.232 ms  
Loss rate: 0.83%  
-- Flow 1:  
Average throughput: 2.30 Mbit/s  
95th percentile per-packet one-way delay: 399.252 ms  
Loss rate: 0.60%  
-- Flow 2:  
Average throughput: 2.01 Mbit/s  
95th percentile per-packet one-way delay: 446.108 ms  
Loss rate: 0.74%  
-- Flow 3:  
Average throughput: 2.25 Mbit/s  
95th percentile per-packet one-way delay: 343.969 ms  
Loss rate: 1.66%

### Run 3: Report of TCP BBR — Data Link

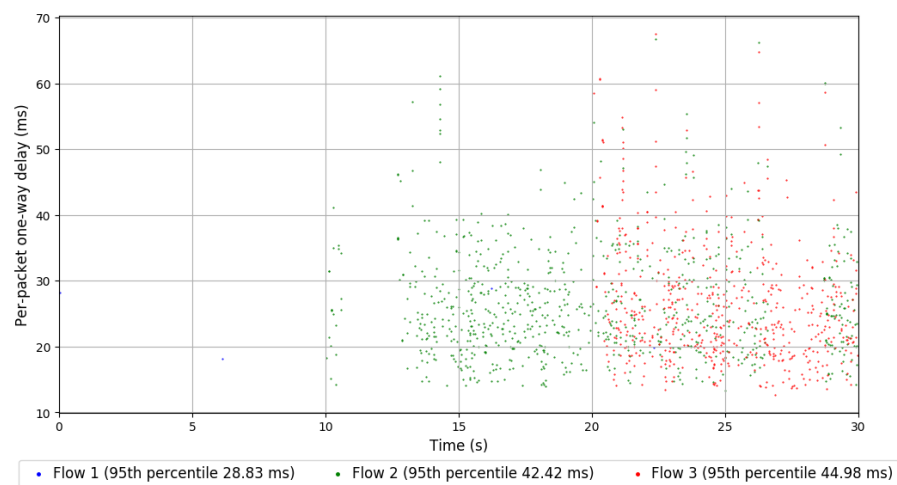
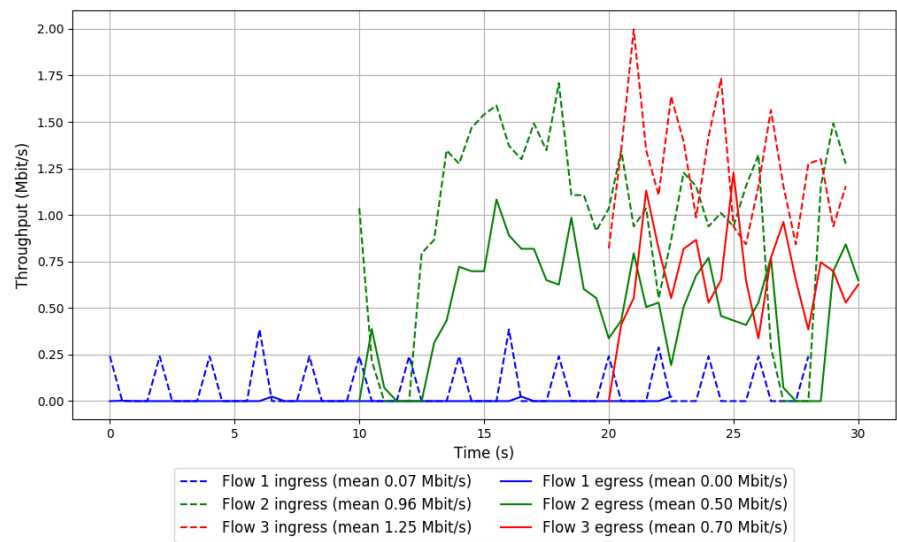


Run 1: Statistics of Copa

Start at: 2018-09-11 01:42:58  
End at: 2018-09-11 01:43:28  
Local clock offset: 0.309 ms  
Remote clock offset: -4.307 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.57 Mbit/s  
95th percentile per-packet one-way delay: 43.542 ms  
Loss rate: 49.44%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 28.834 ms  
Loss rate: 98.12%  
-- Flow 2:  
Average throughput: 0.50 Mbit/s  
95th percentile per-packet one-way delay: 42.422 ms  
Loss rate: 47.79%  
-- Flow 3:  
Average throughput: 0.70 Mbit/s  
95th percentile per-packet one-way delay: 44.981 ms  
Loss rate: 44.26%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-11 02:03:04

End at: 2018-09-11 02:03:34

Local clock offset: -0.2 ms

Remote clock offset: -3.99 ms

# Below is generated by plot.py at 2018-09-11 02:30:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.48 Mbit/s

95th percentile per-packet one-way delay: 56.481 ms

Loss rate: 57.25%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 52.616 ms

Loss rate: 59.32%

-- Flow 2:

Average throughput: 0.14 Mbit/s

95th percentile per-packet one-way delay: 55.301 ms

Loss rate: 63.63%

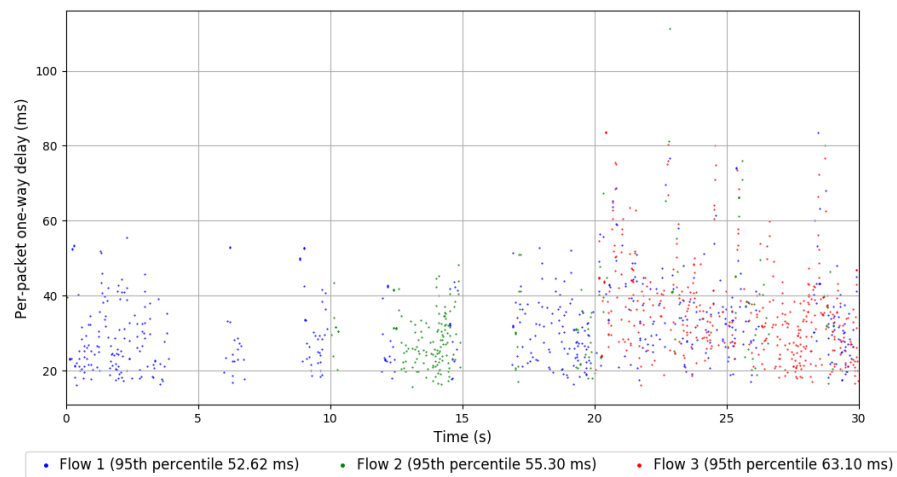
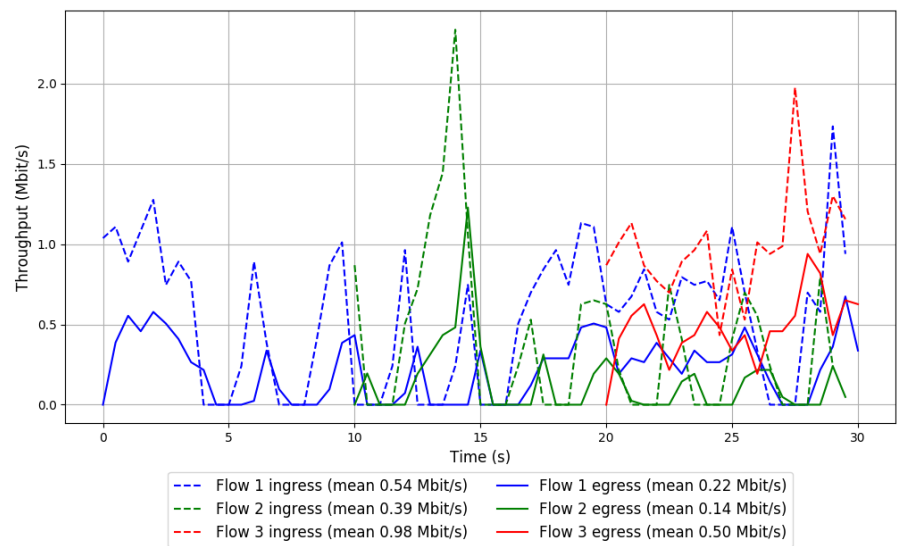
-- Flow 3:

Average throughput: 0.50 Mbit/s

95th percentile per-packet one-way delay: 63.105 ms

Loss rate: 48.89%

Run 2: Report of Copa — Data Link

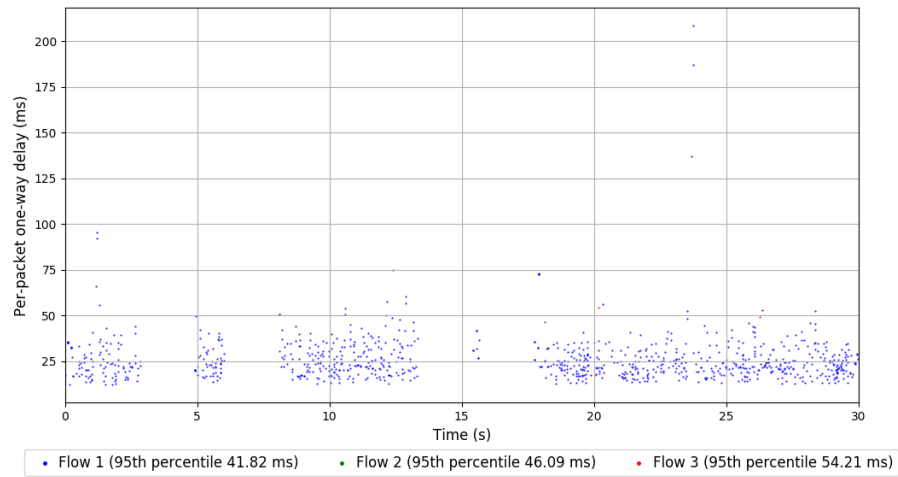
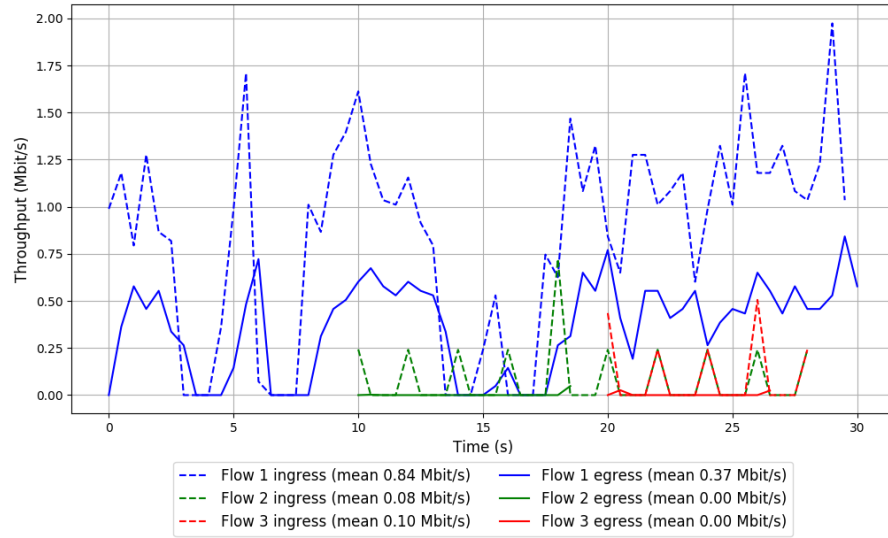


Run 3: Statistics of Copa

Start at: 2018-09-11 02:23:17  
End at: 2018-09-11 02:23:47  
Local clock offset: 2.43 ms  
Remote clock offset: -4.979 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.37 Mbit/s  
95th percentile per-packet one-way delay: 42.107 ms  
Loss rate: 59.62%  
-- Flow 1:  
Average throughput: 0.37 Mbit/s  
95th percentile per-packet one-way delay: 41.816 ms  
Loss rate: 56.16%  
-- Flow 2:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 46.093 ms  
Loss rate: 98.26%  
-- Flow 3:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 54.211 ms  
Loss rate: 96.98%

### Run 3: Report of Copa — Data Link



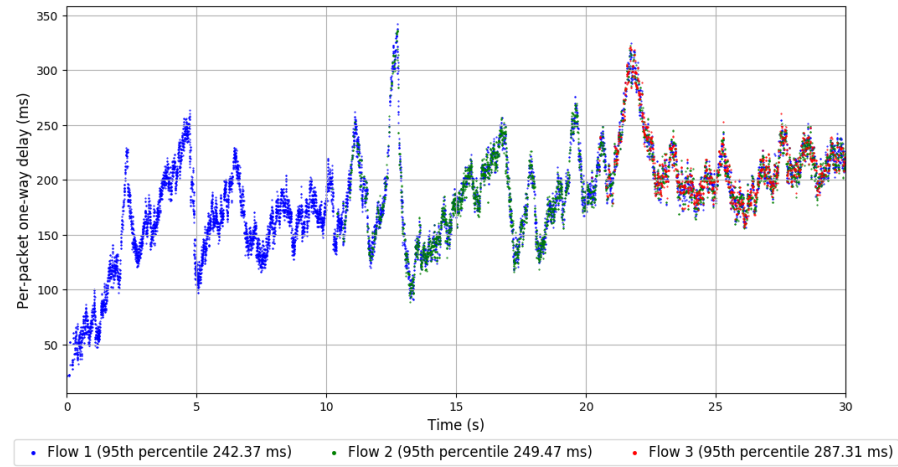
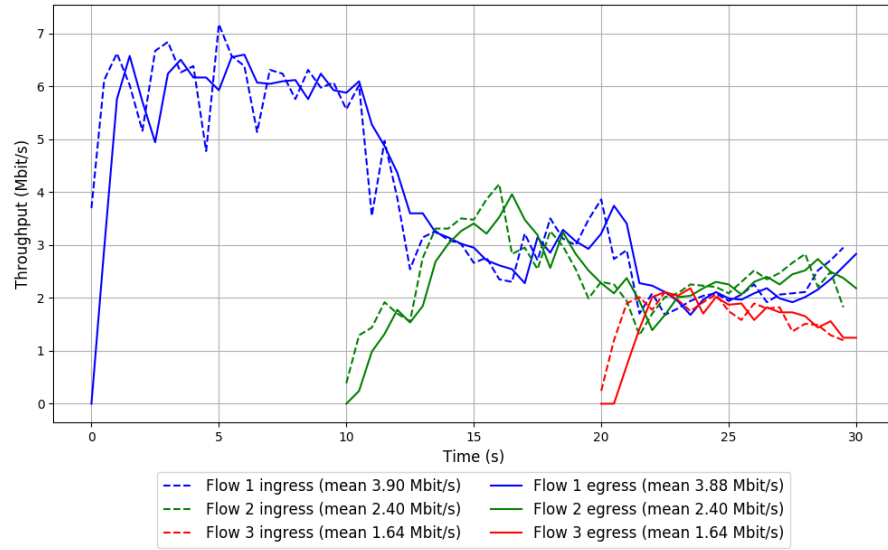


Run 1: Statistics of TCP Cubic

Start at: 2018-09-11 01:34:03  
End at: 2018-09-11 01:34:33  
Local clock offset: -0.389 ms  
Remote clock offset: -4.305 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.00 Mbit/s  
95th percentile per-packet one-way delay: 248.232 ms  
Loss rate: 0.85%  
-- Flow 1:  
Average throughput: 3.88 Mbit/s  
95th percentile per-packet one-way delay: 242.368 ms  
Loss rate: 0.66%  
-- Flow 2:  
Average throughput: 2.40 Mbit/s  
95th percentile per-packet one-way delay: 249.471 ms  
Loss rate: 0.93%  
-- Flow 3:  
Average throughput: 1.64 Mbit/s  
95th percentile per-packet one-way delay: 287.310 ms  
Loss rate: 2.06%

# Run 1: Report of TCP Cubic — Data Link

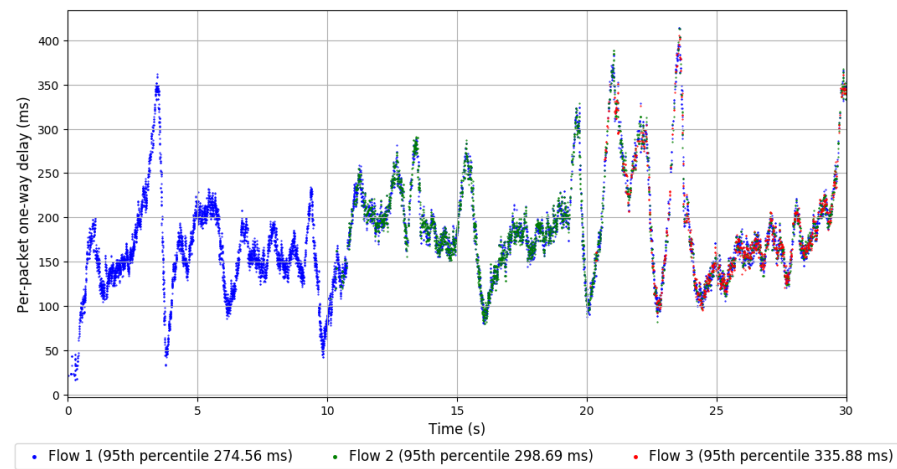
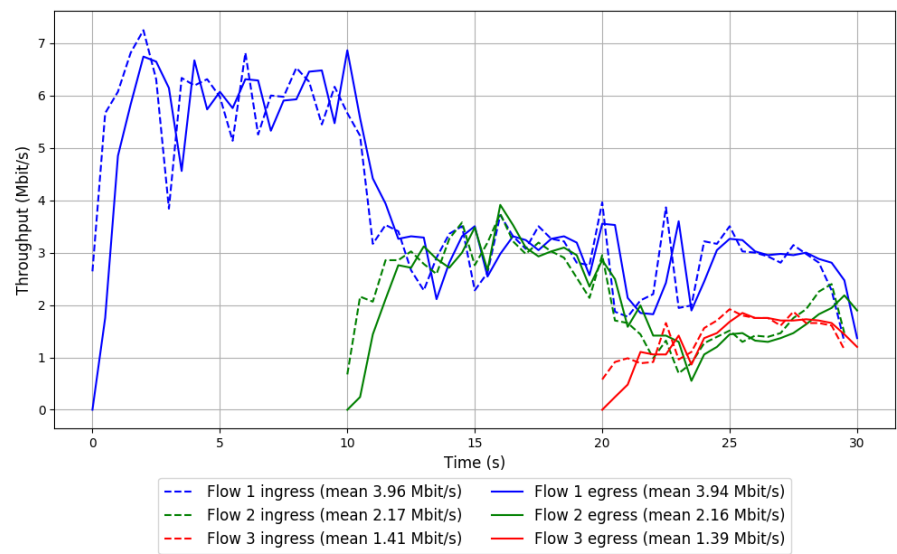


Run 2: Statistics of TCP Cubic

Start at: 2018-09-11 01:54:08  
End at: 2018-09-11 01:54:38  
Local clock offset: -1.514 ms  
Remote clock offset: -4.341 ms

# Below is generated by plot.py at 2018-09-11 02:30:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.82 Mbit/s  
95th percentile per-packet one-way delay: 289.227 ms  
Loss rate: 0.83%  
-- Flow 1:  
Average throughput: 3.94 Mbit/s  
95th percentile per-packet one-way delay: 274.556 ms  
Loss rate: 0.47%  
-- Flow 2:  
Average throughput: 2.16 Mbit/s  
95th percentile per-packet one-way delay: 298.685 ms  
Loss rate: 1.14%  
-- Flow 3:  
Average throughput: 1.39 Mbit/s  
95th percentile per-packet one-way delay: 335.878 ms  
Loss rate: 2.91%

Run 2: Report of TCP Cubic — Data Link

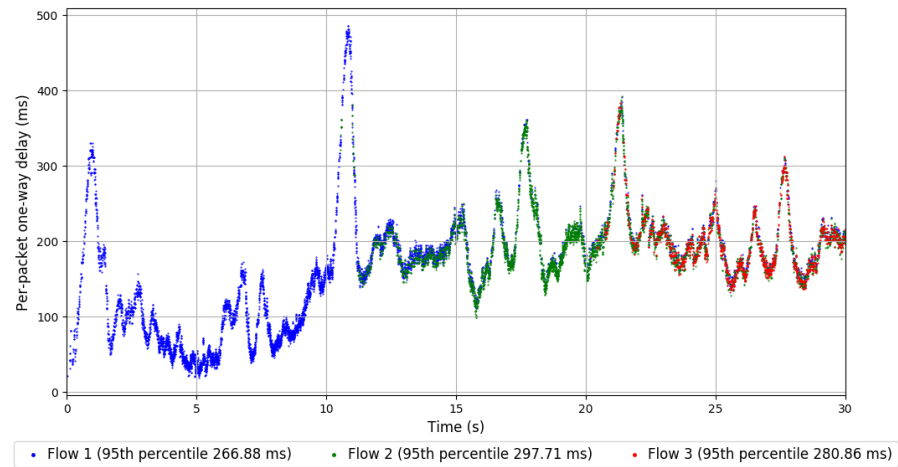
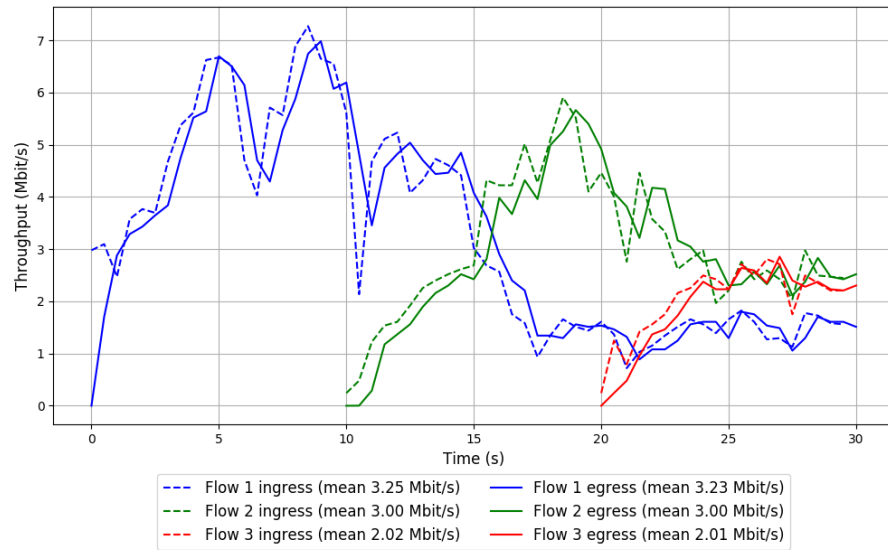


Run 3: Statistics of TCP Cubic

Start at: 2018-09-11 02:14:16  
End at: 2018-09-11 02:14:46  
Local clock offset: 0.184 ms  
Remote clock offset: -4.824 ms

# Below is generated by plot.py at 2018-09-11 02:30:50  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.87 Mbit/s  
95th percentile per-packet one-way delay: 285.354 ms  
Loss rate: 0.85%  
-- Flow 1:  
Average throughput: 3.23 Mbit/s  
95th percentile per-packet one-way delay: 266.877 ms  
Loss rate: 0.51%  
-- Flow 2:  
Average throughput: 3.00 Mbit/s  
95th percentile per-packet one-way delay: 297.714 ms  
Loss rate: 0.94%  
-- Flow 3:  
Average throughput: 2.01 Mbit/s  
95th percentile per-packet one-way delay: 280.857 ms  
Loss rate: 2.26%

### Run 3: Report of TCP Cubic — Data Link

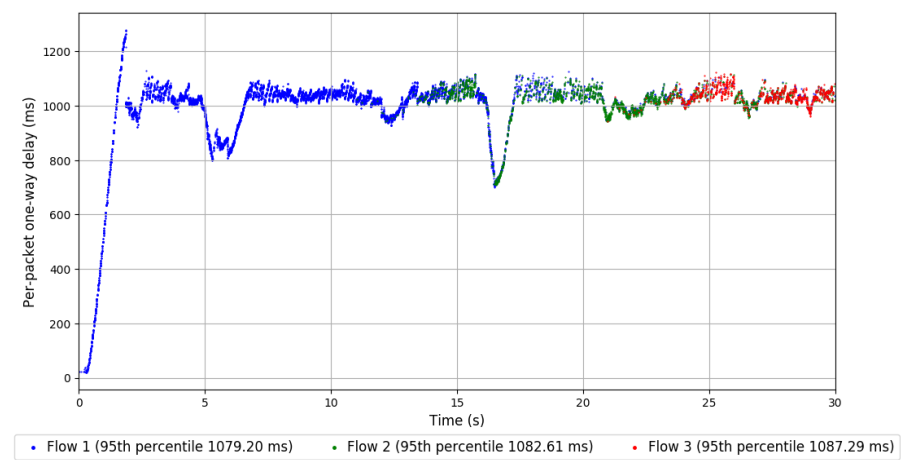
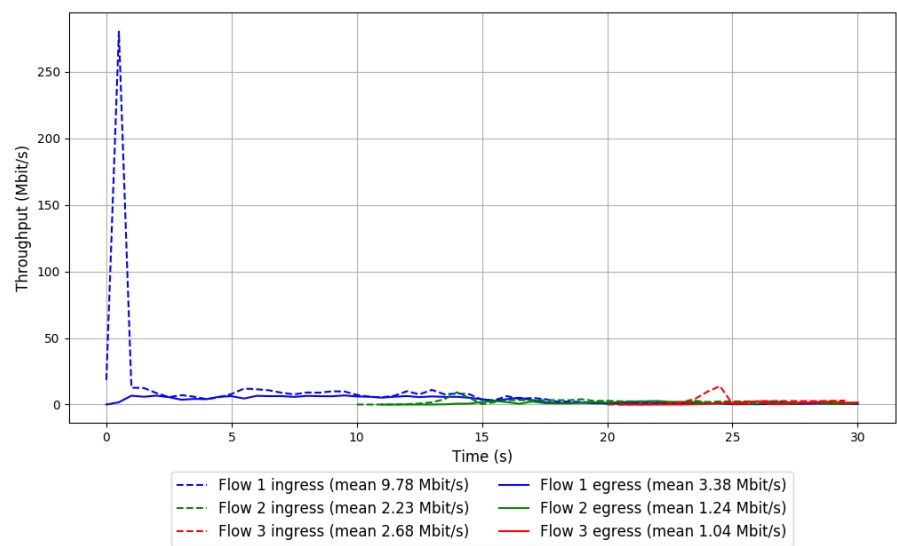


Run 1: Statistics of FillP

Start at: 2018-09-11 01:47:26  
End at: 2018-09-11 01:47:56  
Local clock offset: -0.425 ms  
Remote clock offset: -3.964 ms

# Below is generated by plot.py at 2018-09-11 02:30:54  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.48 Mbit/s  
95th percentile per-packet one-way delay: 1080.642 ms  
Loss rate: 63.12%  
-- Flow 1:  
Average throughput: 3.38 Mbit/s  
95th percentile per-packet one-way delay: 1079.198 ms  
Loss rate: 65.38%  
-- Flow 2:  
Average throughput: 1.24 Mbit/s  
95th percentile per-packet one-way delay: 1082.609 ms  
Loss rate: 47.10%  
-- Flow 3:  
Average throughput: 1.04 Mbit/s  
95th percentile per-packet one-way delay: 1087.288 ms  
Loss rate: 64.96%

Run 1: Report of FillP — Data Link



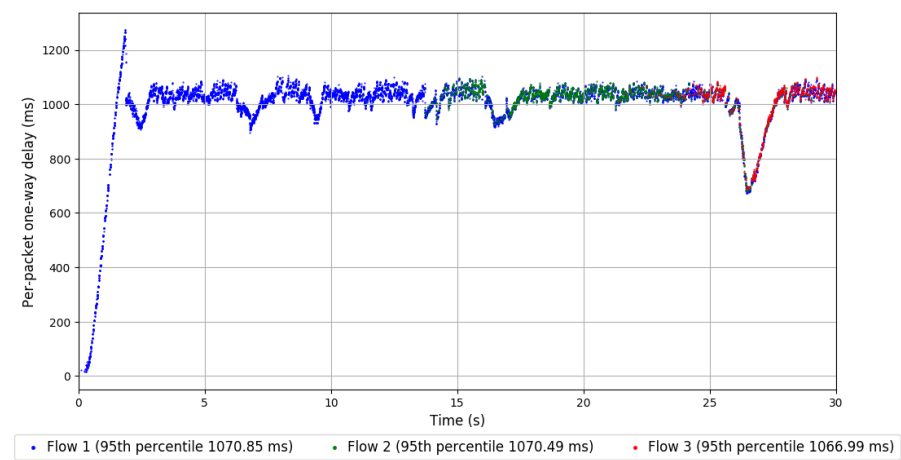
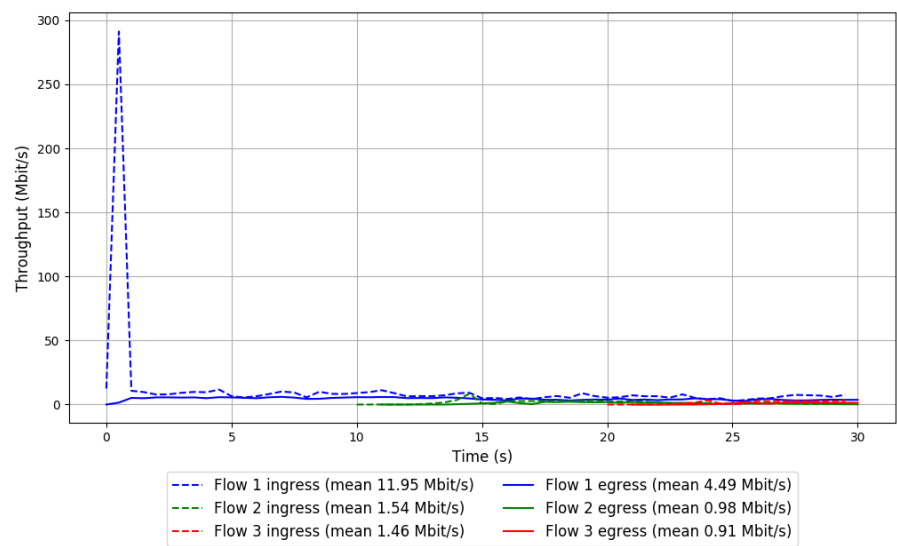


Run 2: Statistics of FillP

Start at: 2018-09-11 02:07:32  
End at: 2018-09-11 02:08:02  
Local clock offset: 1.686 ms  
Remote clock offset: -3.872 ms

# Below is generated by plot.py at 2018-09-11 02:30:56  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.36 Mbit/s  
95th percentile per-packet one-way delay: 1070.648 ms  
Loss rate: 60.20%  
-- Flow 1:  
Average throughput: 4.49 Mbit/s  
95th percentile per-packet one-way delay: 1070.847 ms  
Loss rate: 62.48%  
-- Flow 2:  
Average throughput: 0.98 Mbit/s  
95th percentile per-packet one-way delay: 1070.490 ms  
Loss rate: 40.03%  
-- Flow 3:  
Average throughput: 0.91 Mbit/s  
95th percentile per-packet one-way delay: 1066.988 ms  
Loss rate: 46.50%

Run 2: Report of FillP — Data Link

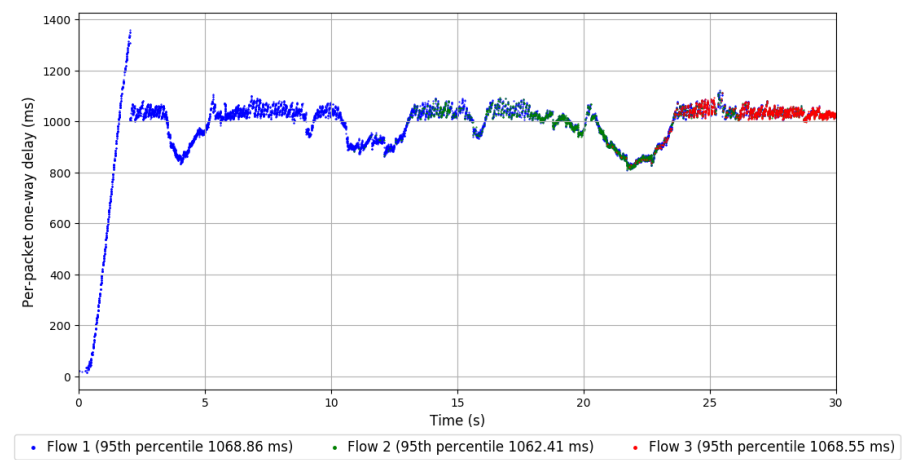
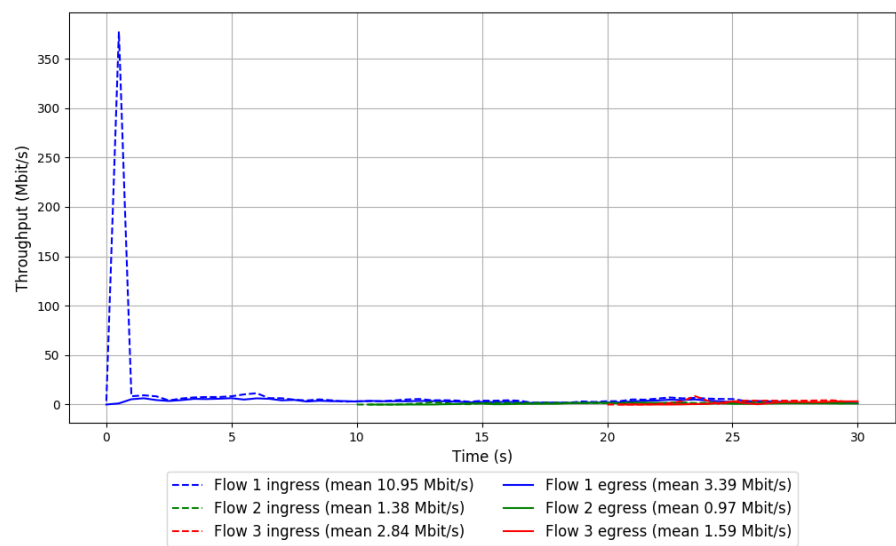


Run 3: Statistics of FillP

Start at: 2018-09-11 02:27:46  
End at: 2018-09-11 02:28:16  
Local clock offset: 2.203 ms  
Remote clock offset: -4.575 ms

# Below is generated by plot.py at 2018-09-11 02:31:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.49 Mbit/s  
95th percentile per-packet one-way delay: 1068.052 ms  
Loss rate: 64.95%  
-- Flow 1:  
Average throughput: 3.39 Mbit/s  
95th percentile per-packet one-way delay: 1068.858 ms  
Loss rate: 69.01%  
-- Flow 2:  
Average throughput: 0.97 Mbit/s  
95th percentile per-packet one-way delay: 1062.407 ms  
Loss rate: 33.06%  
-- Flow 3:  
Average throughput: 1.59 Mbit/s  
95th percentile per-packet one-way delay: 1068.548 ms  
Loss rate: 49.00%

Run 3: Report of FillP — Data Link

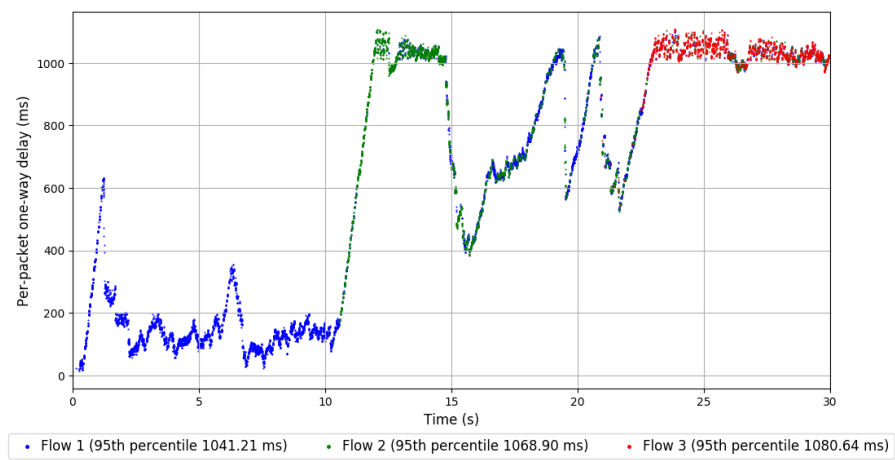
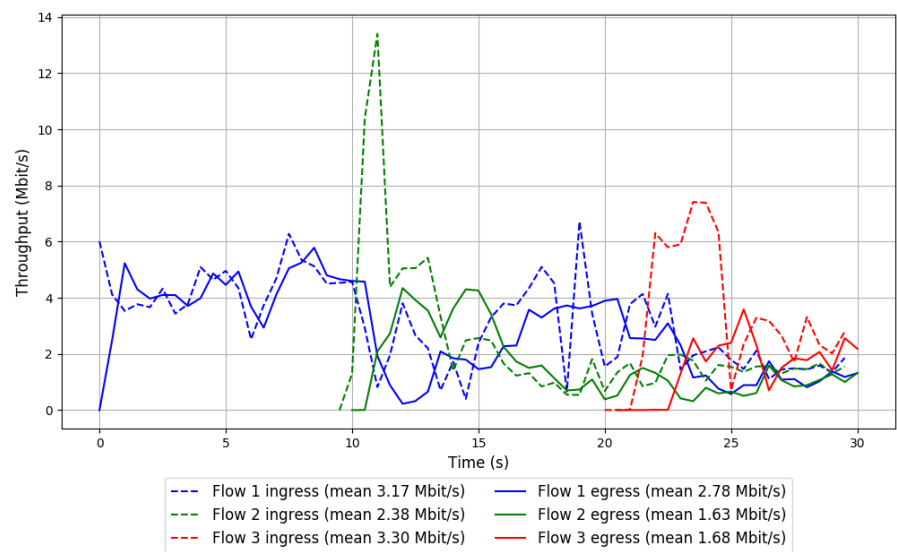


Run 1: Statistics of FillP-Sheep

Start at: 2018-09-11 01:45:12  
End at: 2018-09-11 01:45:42  
Local clock offset: 0.955 ms  
Remote clock offset: -4.376 ms

# Below is generated by plot.py at 2018-09-11 02:31:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.37 Mbit/s  
95th percentile per-packet one-way delay: 1062.679 ms  
Loss rate: 25.40%  
-- Flow 1:  
Average throughput: 2.78 Mbit/s  
95th percentile per-packet one-way delay: 1041.211 ms  
Loss rate: 12.38%  
-- Flow 2:  
Average throughput: 1.63 Mbit/s  
95th percentile per-packet one-way delay: 1068.899 ms  
Loss rate: 31.94%  
-- Flow 3:  
Average throughput: 1.68 Mbit/s  
95th percentile per-packet one-way delay: 1080.643 ms  
Loss rate: 53.70%

Run 1: Report of FillP-Sheep — Data Link

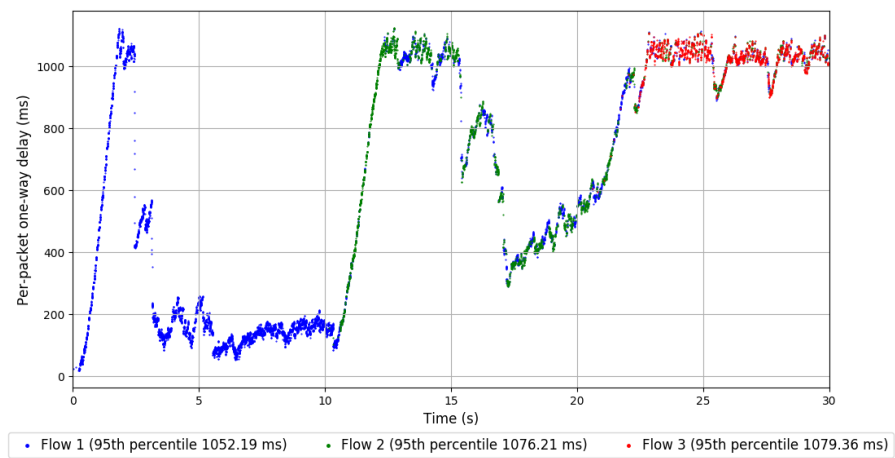
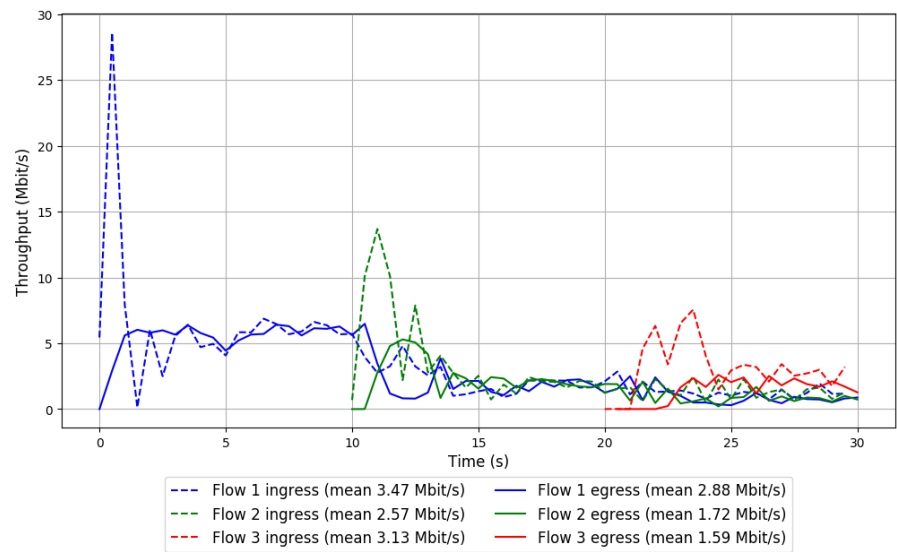


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-11 02:05:17  
End at: 2018-09-11 02:05:47  
Local clock offset: -0.445 ms  
Remote clock offset: -4.125 ms

# Below is generated by plot.py at 2018-09-11 02:31:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.51 Mbit/s  
95th percentile per-packet one-way delay: 1068.264 ms  
Loss rate: 27.44%  
-- Flow 1:  
Average throughput: 2.88 Mbit/s  
95th percentile per-packet one-way delay: 1052.187 ms  
Loss rate: 17.00%  
-- Flow 2:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 1076.206 ms  
Loss rate: 33.41%  
-- Flow 3:  
Average throughput: 1.59 Mbit/s  
95th percentile per-packet one-way delay: 1079.356 ms  
Loss rate: 52.47%

Run 2: Report of FillP-Sheep — Data Link



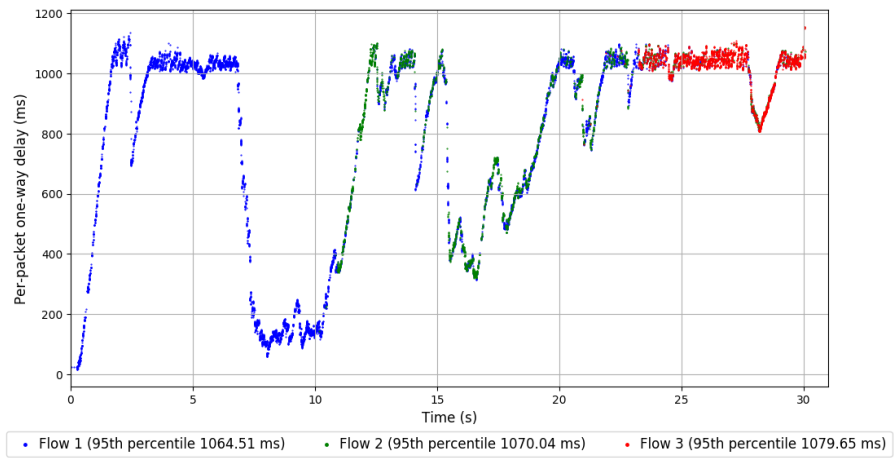
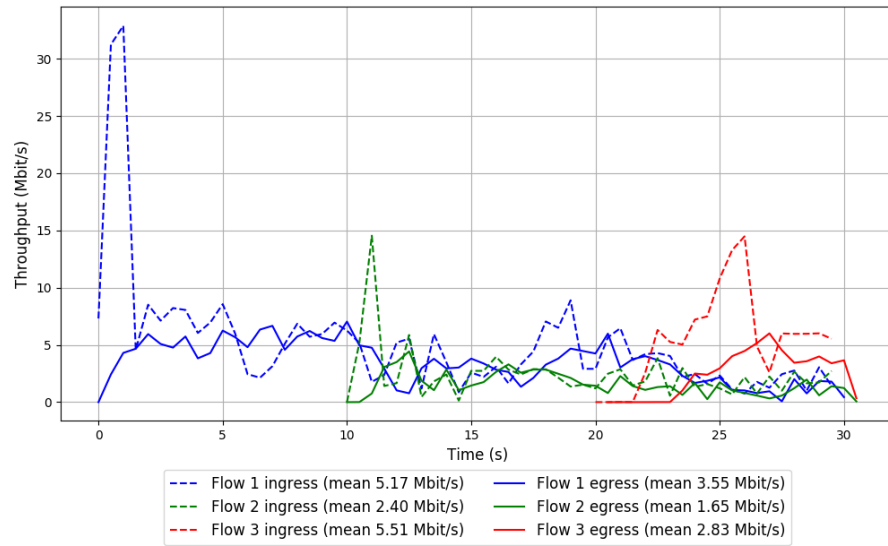


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-11 02:25:31  
End at: 2018-09-11 02:26:01  
Local clock offset: 0.949 ms  
Remote clock offset: -4.952 ms

# Below is generated by plot.py at 2018-09-11 02:31:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.47 Mbit/s  
95th percentile per-packet one-way delay: 1070.135 ms  
Loss rate: 36.12%  
-- Flow 1:  
Average throughput: 3.55 Mbit/s  
95th percentile per-packet one-way delay: 1064.508 ms  
Loss rate: 31.65%  
-- Flow 2:  
Average throughput: 1.65 Mbit/s  
95th percentile per-packet one-way delay: 1070.037 ms  
Loss rate: 31.32%  
-- Flow 3:  
Average throughput: 2.83 Mbit/s  
95th percentile per-packet one-way delay: 1079.647 ms  
Loss rate: 52.94%

### Run 3: Report of FillP-Sheep — Data Link

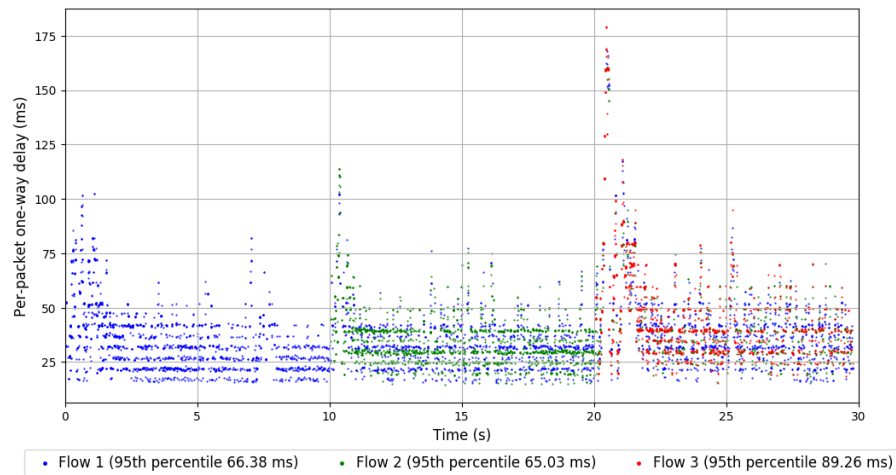
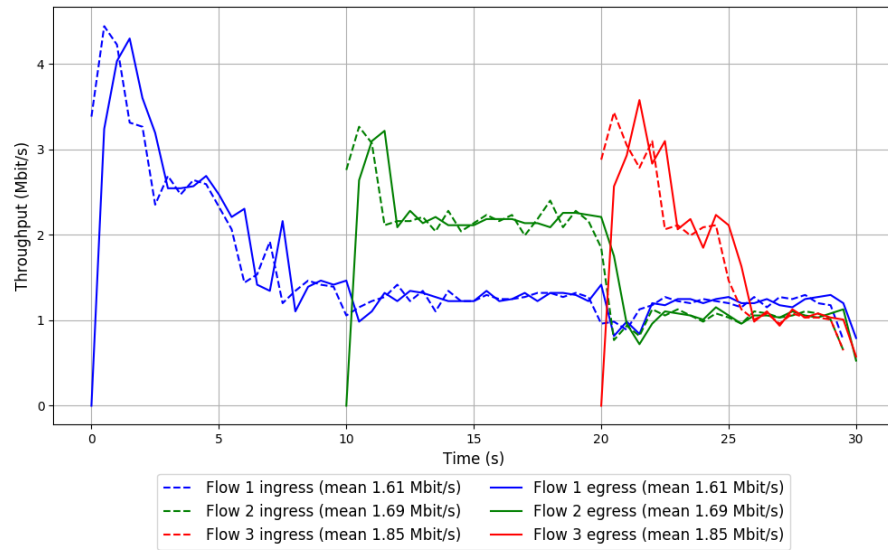


Run 1: Statistics of Indigo

Start at: 2018-09-11 01:31:48  
End at: 2018-09-11 01:32:18  
Local clock offset: 1.282 ms  
Remote clock offset: -3.466 ms

# Below is generated by plot.py at 2018-09-11 02:31:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.33 Mbit/s  
95th percentile per-packet one-way delay: 71.755 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 1.61 Mbit/s  
95th percentile per-packet one-way delay: 66.384 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 1.69 Mbit/s  
95th percentile per-packet one-way delay: 65.030 ms  
Loss rate: 0.18%  
-- Flow 3:  
Average throughput: 1.85 Mbit/s  
95th percentile per-packet one-way delay: 89.260 ms  
Loss rate: 0.27%

# Run 1: Report of Indigo — Data Link

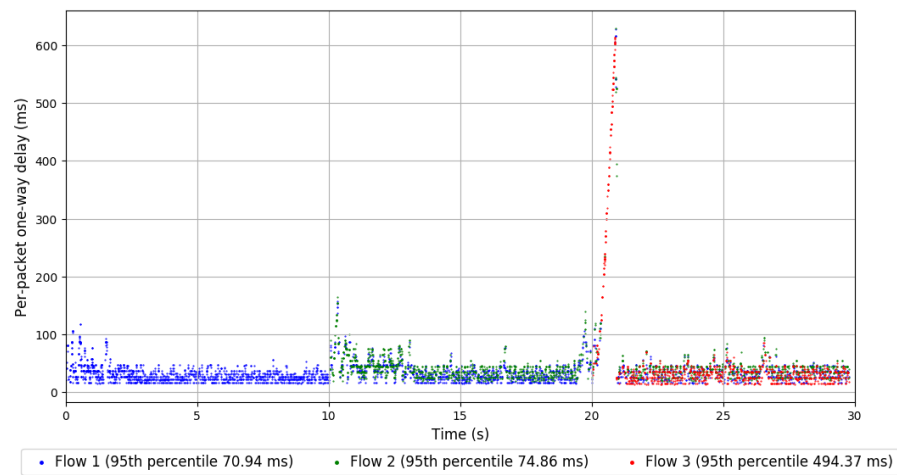
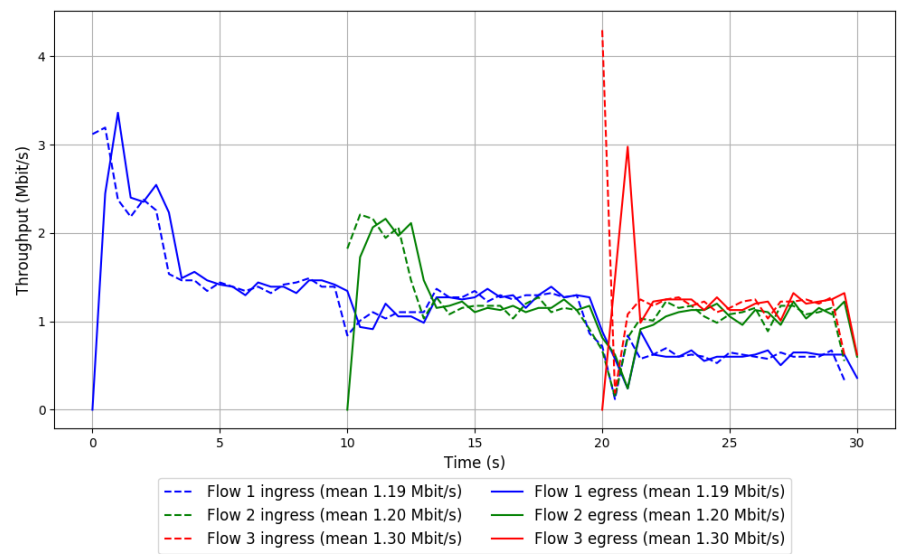


Run 2: Statistics of Indigo

Start at: 2018-09-11 01:51:54  
End at: 2018-09-11 01:52:24  
Local clock offset: 0.826 ms  
Remote clock offset: -4.801 ms

# Below is generated by plot.py at 2018-09-11 02:31:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.41 Mbit/s  
95th percentile per-packet one-way delay: 85.283 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 1.19 Mbit/s  
95th percentile per-packet one-way delay: 70.938 ms  
Loss rate: 0.07%  
-- Flow 2:  
Average throughput: 1.20 Mbit/s  
95th percentile per-packet one-way delay: 74.864 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 1.30 Mbit/s  
95th percentile per-packet one-way delay: 494.374 ms  
Loss rate: 0.09%

Run 2: Report of Indigo — Data Link

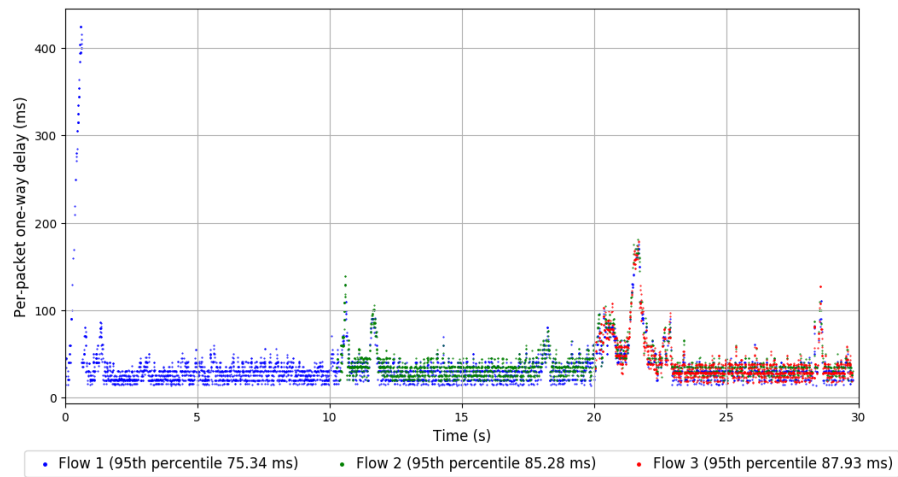
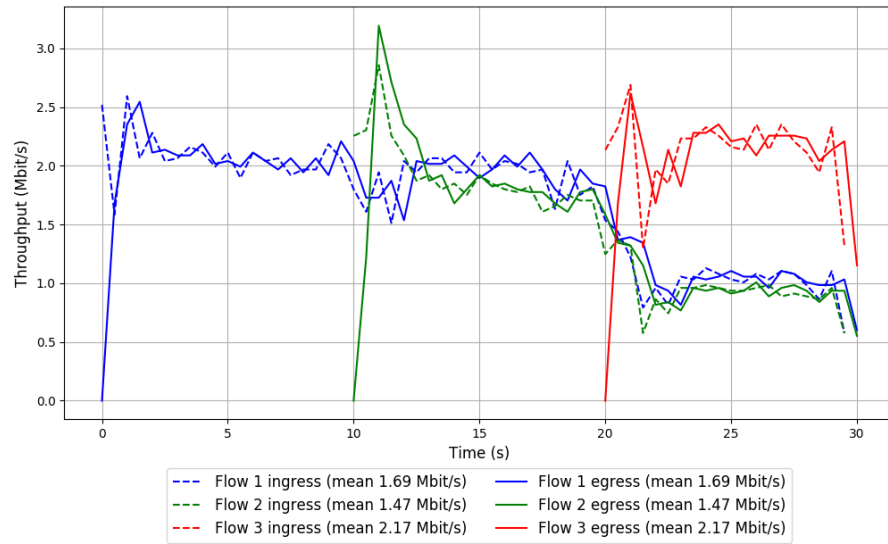


Run 3: Statistics of Indigo

Start at: 2018-09-11 02:12:01  
End at: 2018-09-11 02:12:31  
Local clock offset: 0.586 ms  
Remote clock offset: -4.432 ms

# Below is generated by plot.py at 2018-09-11 02:31:02  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.36 Mbit/s  
95th percentile per-packet one-way delay: 80.912 ms  
Loss rate: 0.23%  
-- Flow 1:  
Average throughput: 1.69 Mbit/s  
95th percentile per-packet one-way delay: 75.336 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 1.47 Mbit/s  
95th percentile per-packet one-way delay: 85.278 ms  
Loss rate: 0.13%  
-- Flow 3:  
Average throughput: 2.17 Mbit/s  
95th percentile per-packet one-way delay: 87.927 ms  
Loss rate: 0.68%

### Run 3: Report of Indigo — Data Link



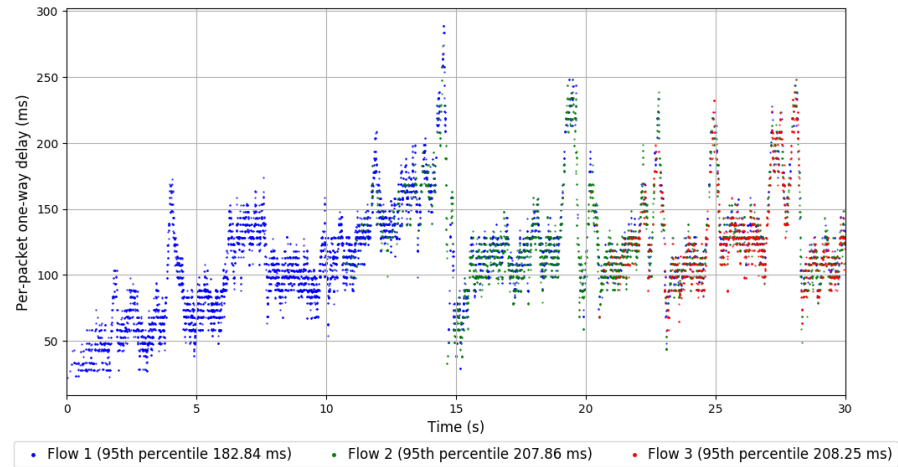
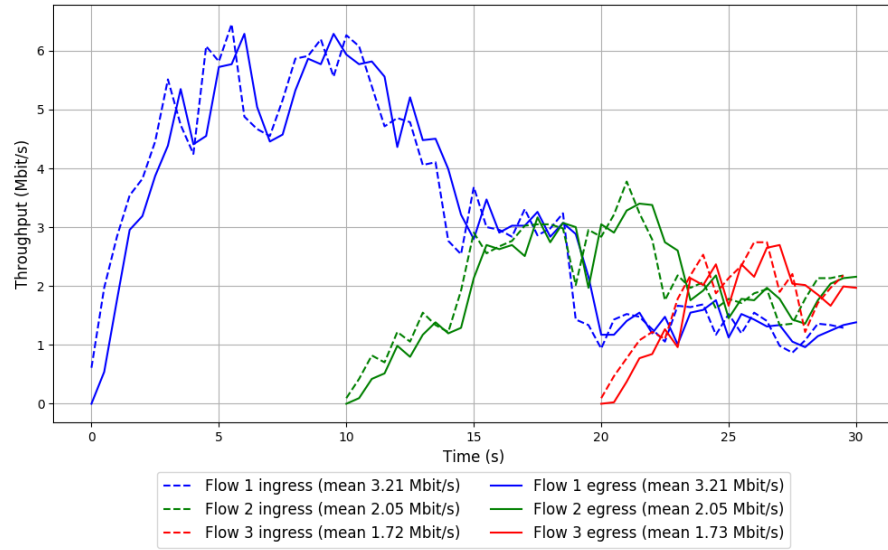


Run 1: Statistics of LEDBAT

Start at: 2018-09-11 01:46:19  
End at: 2018-09-11 01:46:49  
Local clock offset: -1.314 ms  
Remote clock offset: -4.218 ms

# Below is generated by plot.py at 2018-09-11 02:31:04  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.13 Mbit/s  
95th percentile per-packet one-way delay: 193.468 ms  
Loss rate: 0.48%  
-- Flow 1:  
Average throughput: 3.21 Mbit/s  
95th percentile per-packet one-way delay: 182.839 ms  
Loss rate: 0.19%  
-- Flow 2:  
Average throughput: 2.05 Mbit/s  
95th percentile per-packet one-way delay: 207.857 ms  
Loss rate: 0.83%  
-- Flow 3:  
Average throughput: 1.73 Mbit/s  
95th percentile per-packet one-way delay: 208.255 ms  
Loss rate: 1.23%

# Run 1: Report of LEDBAT — Data Link

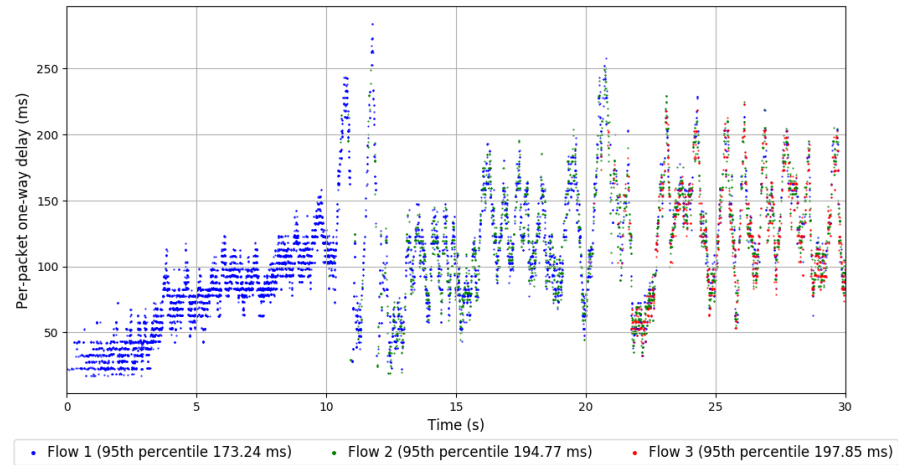
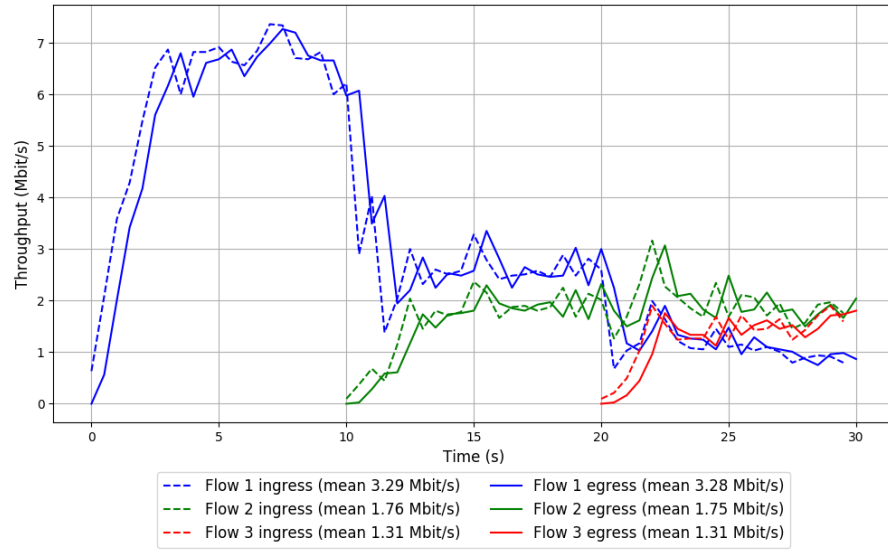


Run 2: Statistics of LEDBAT

Start at: 2018-09-11 02:06:25  
End at: 2018-09-11 02:06:55  
Local clock offset: -0.168 ms  
Remote clock offset: -3.977 ms

# Below is generated by plot.py at 2018-09-11 02:31:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.88 Mbit/s  
95th percentile per-packet one-way delay: 187.832 ms  
Loss rate: 0.35%  
-- Flow 1:  
Average throughput: 3.28 Mbit/s  
95th percentile per-packet one-way delay: 173.242 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 1.75 Mbit/s  
95th percentile per-packet one-way delay: 194.772 ms  
Loss rate: 0.60%  
-- Flow 3:  
Average throughput: 1.31 Mbit/s  
95th percentile per-packet one-way delay: 197.852 ms  
Loss rate: 1.44%

## Run 2: Report of LEDBAT — Data Link

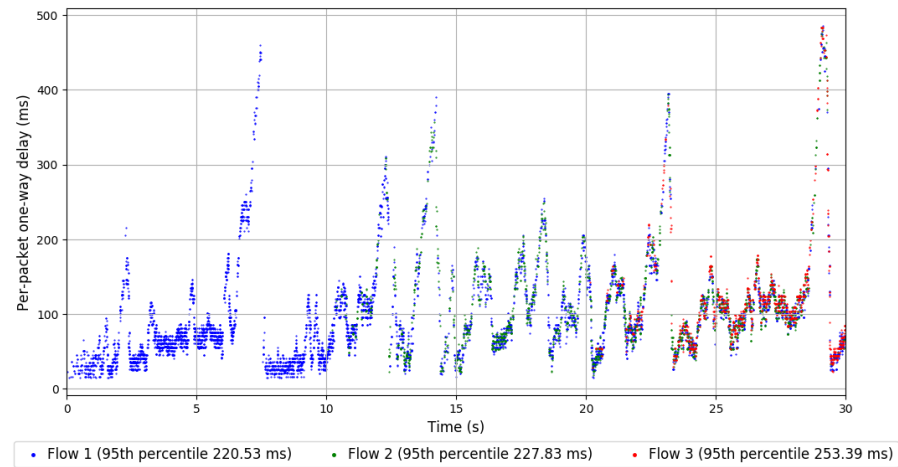
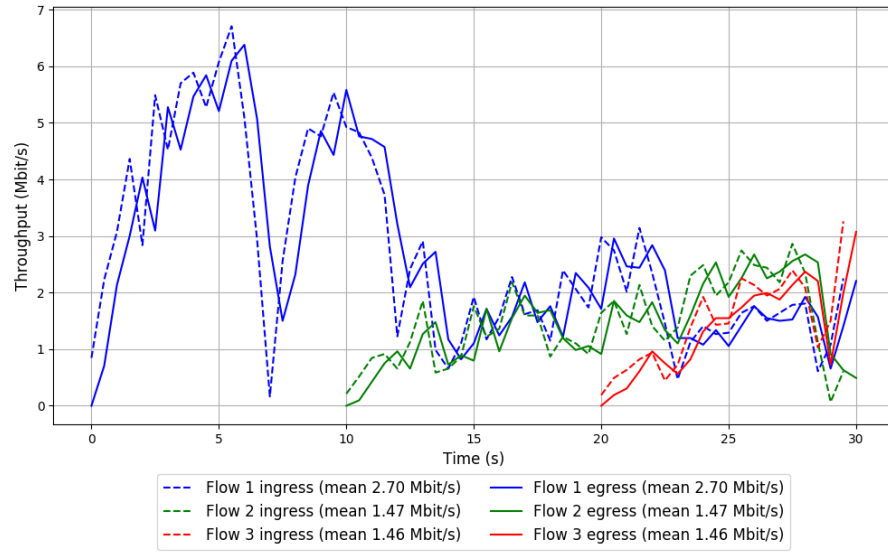


Run 3: Statistics of LEDBAT

Start at: 2018-09-11 02:26:38  
End at: 2018-09-11 02:27:08  
Local clock offset: 1.147 ms  
Remote clock offset: -4.434 ms

```
# Below is generated by plot.py at 2018-09-11 02:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 224.741 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 220.529 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 227.827 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 1.46 Mbit/s
95th percentile per-packet one-way delay: 253.389 ms
Loss rate: 1.53%
```

### Run 3: Report of LEDBAT — Data Link

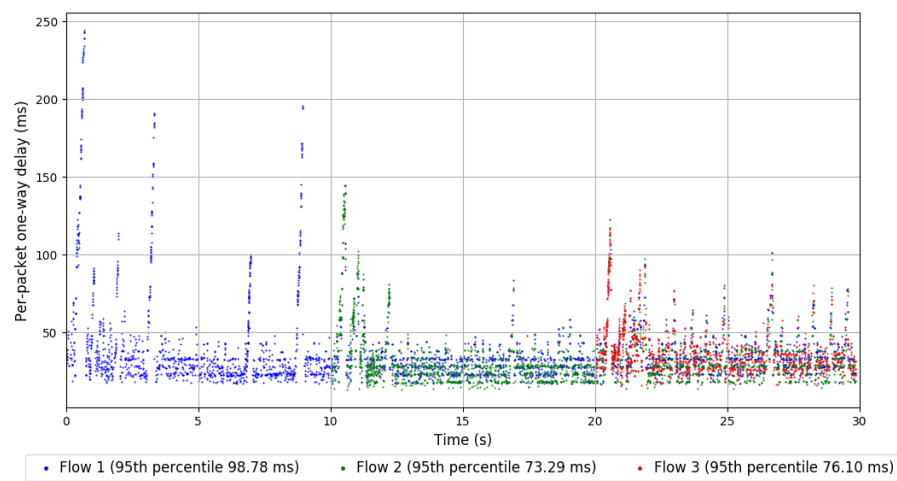
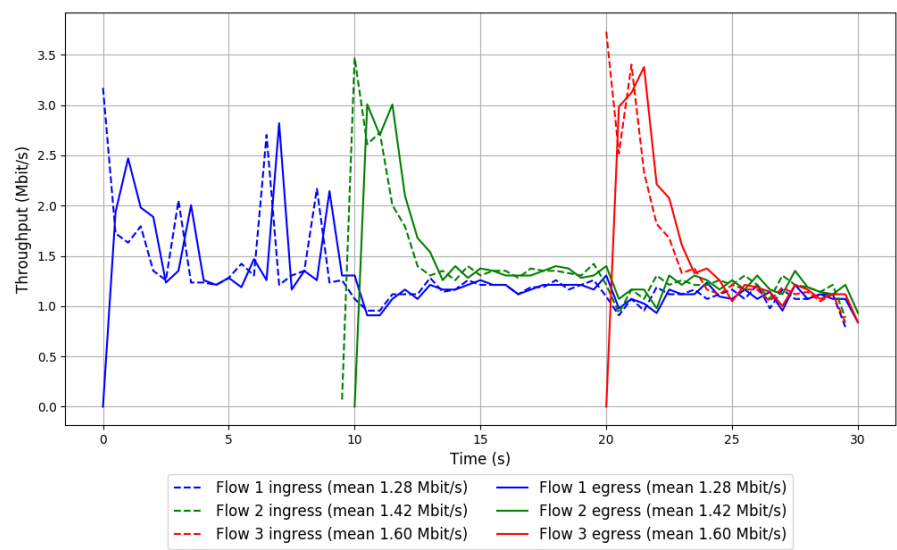


Run 1: Statistics of Indigo-Muses

Start at: 2018-09-11 01:38:31  
End at: 2018-09-11 01:39:01  
Local clock offset: 1.286 ms  
Remote clock offset: -3.884 ms

# Below is generated by plot.py at 2018-09-11 02:31:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.75 Mbit/s  
95th percentile per-packet one-way delay: 85.213 ms  
Loss rate: 0.16%  
-- Flow 1:  
Average throughput: 1.28 Mbit/s  
95th percentile per-packet one-way delay: 98.781 ms  
Loss rate: 0.15%  
-- Flow 2:  
Average throughput: 1.42 Mbit/s  
95th percentile per-packet one-way delay: 73.288 ms  
Loss rate: 0.17%  
-- Flow 3:  
Average throughput: 1.60 Mbit/s  
95th percentile per-packet one-way delay: 76.096 ms  
Loss rate: 0.15%

Run 1: Report of Indigo-Muses — Data Link



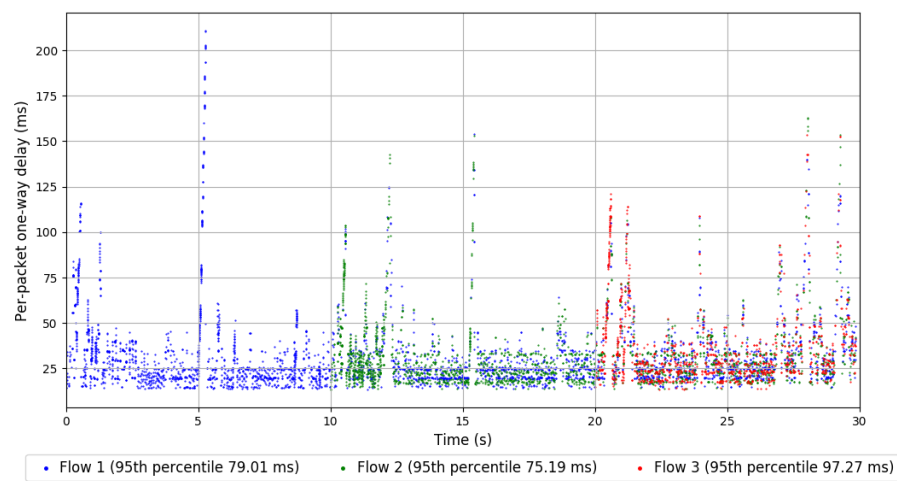
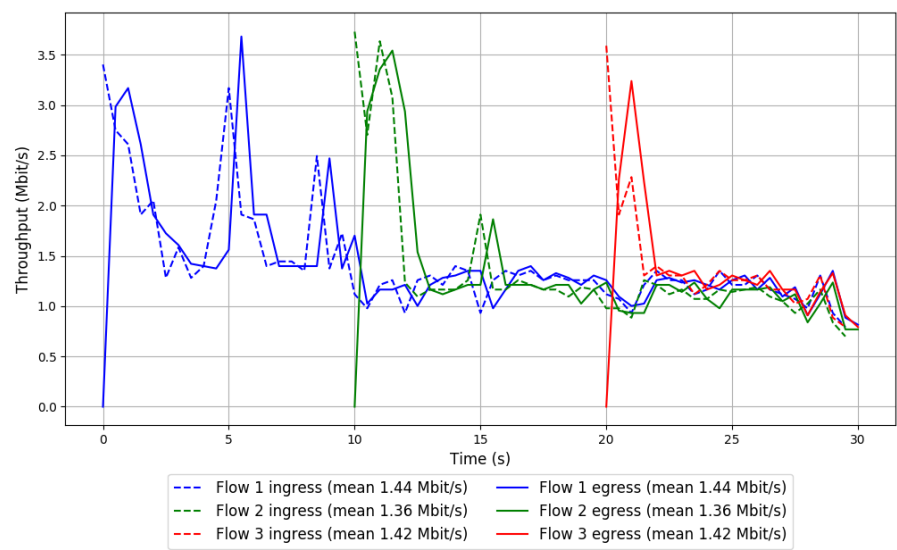


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-11 01:58:37  
End at: 2018-09-11 01:59:07  
Local clock offset: -3.202 ms  
Remote clock offset: -7.671 ms

# Below is generated by plot.py at 2018-09-11 02:31:05  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.81 Mbit/s  
95th percentile per-packet one-way delay: 81.418 ms  
Loss rate: 0.11%  
-- Flow 1:  
Average throughput: 1.44 Mbit/s  
95th percentile per-packet one-way delay: 79.008 ms  
Loss rate: 0.08%  
-- Flow 2:  
Average throughput: 1.36 Mbit/s  
95th percentile per-packet one-way delay: 75.190 ms  
Loss rate: 0.13%  
-- Flow 3:  
Average throughput: 1.42 Mbit/s  
95th percentile per-packet one-way delay: 97.273 ms  
Loss rate: 0.17%

Run 2: Report of Indigo-Muses — Data Link

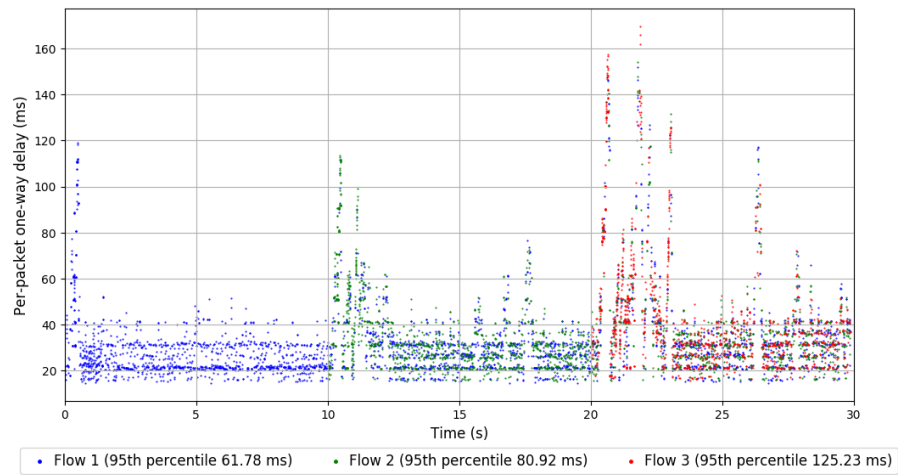
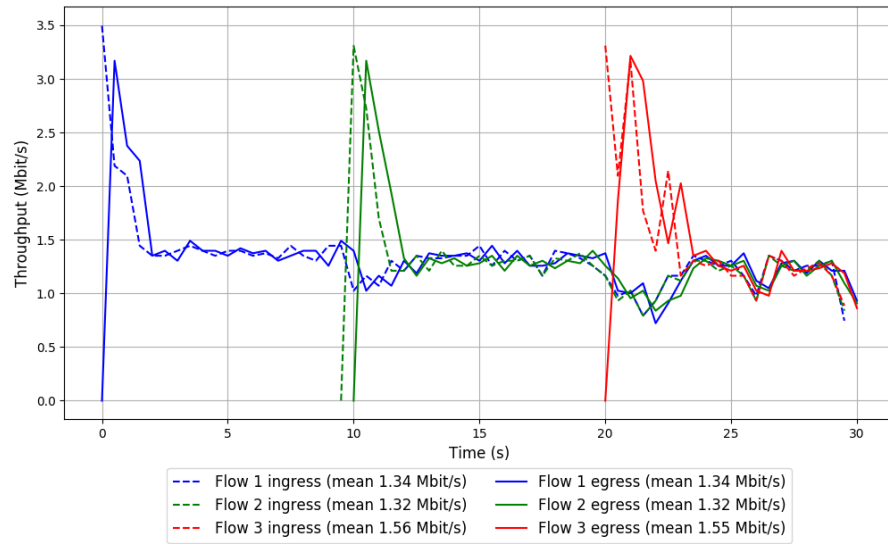


### Run 3: Statistics of Indigo-Muses

Start at: 2018-09-11 02:18:45  
End at: 2018-09-11 02:19:15  
Local clock offset: 1.548 ms  
Remote clock offset: -4.389 ms

```
# Below is generated by plot.py at 2018-09-11 02:31:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 81.351 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 61.776 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 80.918 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 125.230 ms
Loss rate: 0.30%
```

### Run 3: Report of Indigo-Muses — Data Link



Run 1: Statistics of PCC-Allegro

Start at: 2018-09-11 01:32:56

End at: 2018-09-11 01:33:26

Local clock offset: 0.477 ms

Remote clock offset: -4.13 ms

# Below is generated by plot.py at 2018-09-11 02:31:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.96 Mbit/s

95th percentile per-packet one-way delay: 1076.706 ms

Loss rate: 65.80%

-- Flow 1:

Average throughput: 2.83 Mbit/s

95th percentile per-packet one-way delay: 1064.395 ms

Loss rate: 31.71%

-- Flow 2:

Average throughput: 1.21 Mbit/s

95th percentile per-packet one-way delay: 1073.813 ms

Loss rate: 48.65%

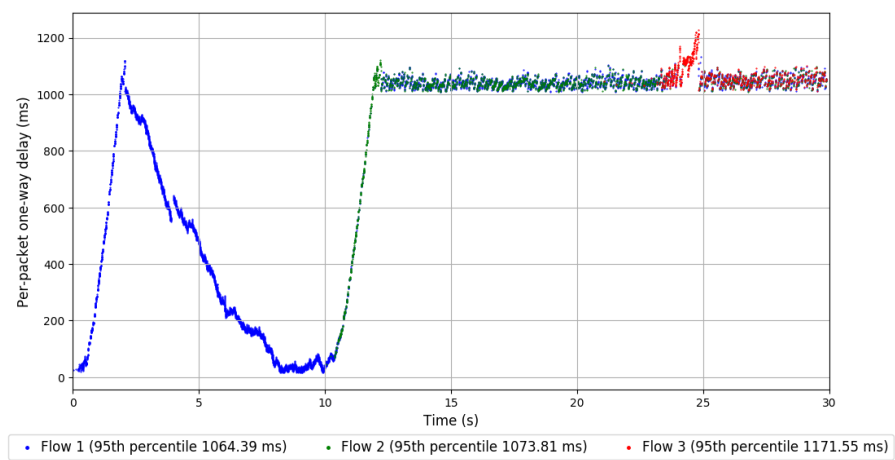
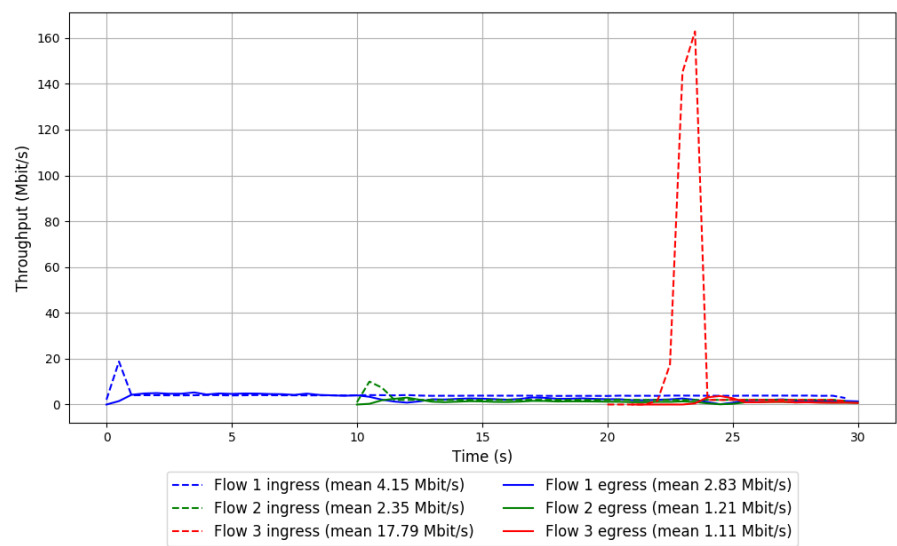
-- Flow 3:

Average throughput: 1.11 Mbit/s

95th percentile per-packet one-way delay: 1171.554 ms

Loss rate: 94.43%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-11 01:53:01

End at: 2018-09-11 01:53:31

Local clock offset: -0.333 ms

Remote clock offset: -4.3 ms

# Below is generated by plot.py at 2018-09-11 02:31:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 4.26 Mbit/s

95th percentile per-packet one-way delay: 998.496 ms

Loss rate: 5.02%

-- Flow 1:

Average throughput: 2.19 Mbit/s

95th percentile per-packet one-way delay: 970.676 ms

Loss rate: 3.49%

-- Flow 2:

Average throughput: 2.06 Mbit/s

95th percentile per-packet one-way delay: 1001.496 ms

Loss rate: 4.96%

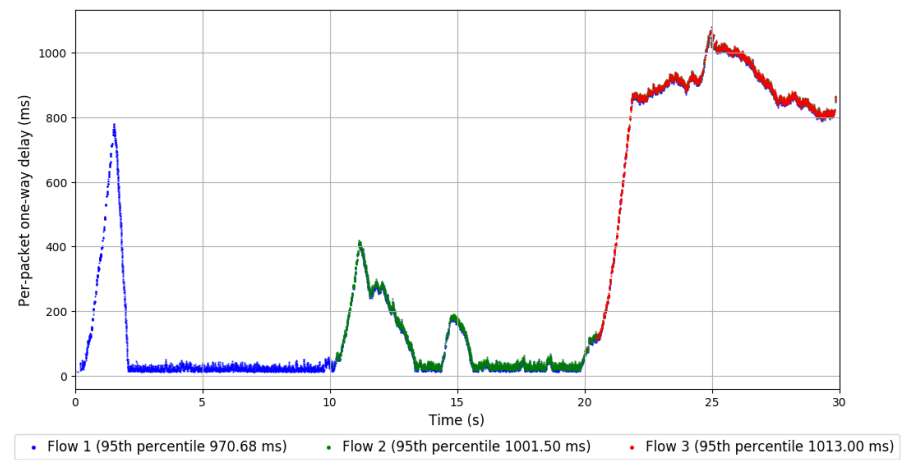
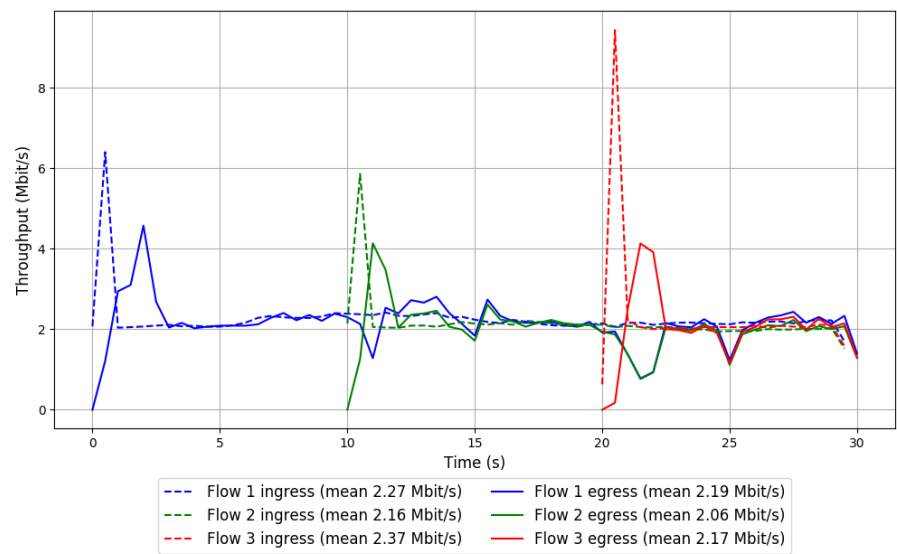
-- Flow 3:

Average throughput: 2.17 Mbit/s

95th percentile per-packet one-way delay: 1013.000 ms

Loss rate: 9.52%

Run 2: Report of PCC-Allegro — Data Link



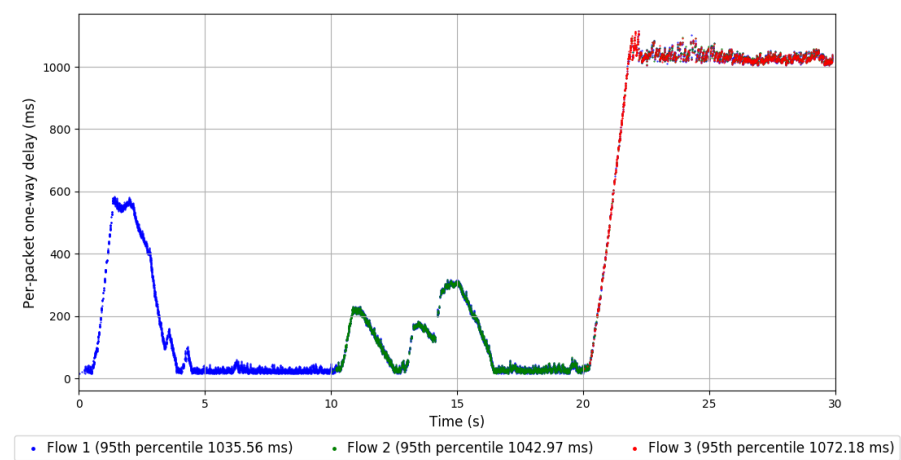
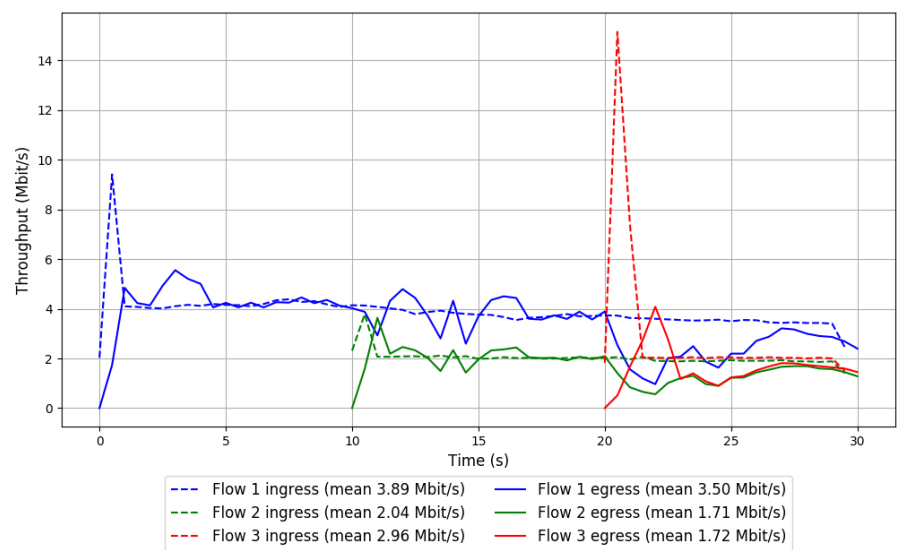


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-11 02:13:09  
End at: 2018-09-11 02:13:39  
Local clock offset: 0.426 ms  
Remote clock offset: -3.677 ms

# Below is generated by plot.py at 2018-09-11 02:31:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.21 Mbit/s  
95th percentile per-packet one-way delay: 1042.174 ms  
Loss rate: 16.35%  
-- Flow 1:  
Average throughput: 3.50 Mbit/s  
95th percentile per-packet one-way delay: 1035.556 ms  
Loss rate: 10.07%  
-- Flow 2:  
Average throughput: 1.71 Mbit/s  
95th percentile per-packet one-way delay: 1042.971 ms  
Loss rate: 15.95%  
-- Flow 3:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 1072.176 ms  
Loss rate: 42.00%

Run 3: Report of PCC-Allegro — Data Link

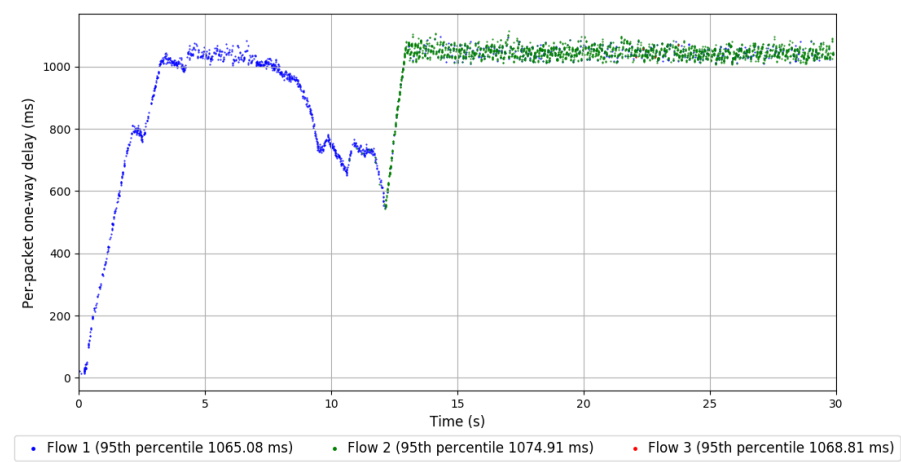
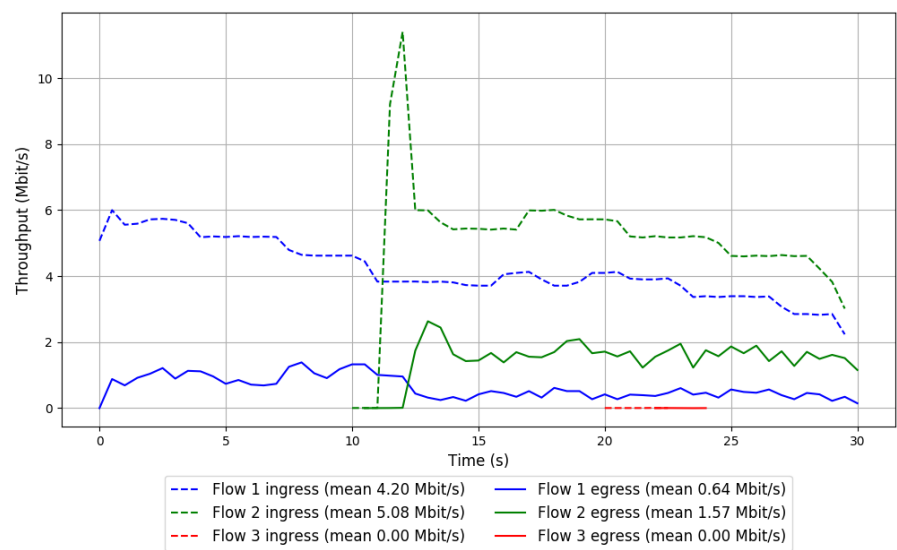


Run 1: Statistics of PCC-Expr

Start at: 2018-09-11 01:41:51  
End at: 2018-09-11 01:42:21  
Local clock offset: 0.659 ms  
Remote clock offset: -4.416 ms

# Below is generated by plot.py at 2018-09-11 02:31:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.65 Mbit/s  
95th percentile per-packet one-way delay: 1071.964 ms  
Loss rate: 78.26%  
-- Flow 1:  
Average throughput: 0.64 Mbit/s  
95th percentile per-packet one-way delay: 1065.081 ms  
Loss rate: 84.67%  
-- Flow 2:  
Average throughput: 1.57 Mbit/s  
95th percentile per-packet one-way delay: 1074.907 ms  
Loss rate: 70.29%  
-- Flow 3:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1068.814 ms  
Loss rate: 71.43%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-11 02:01:57

End at: 2018-09-11 02:02:27

Local clock offset: -0.556 ms

Remote clock offset: -4.7 ms

# Below is generated by plot.py at 2018-09-11 02:31:14

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.73 Mbit/s

95th percentile per-packet one-way delay: 1093.149 ms

Loss rate: 93.93%

-- Flow 1:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1082.636 ms

Loss rate: 91.78%

-- Flow 2:

Average throughput: 0.27 Mbit/s

95th percentile per-packet one-way delay: 1097.422 ms

Loss rate: 96.06%

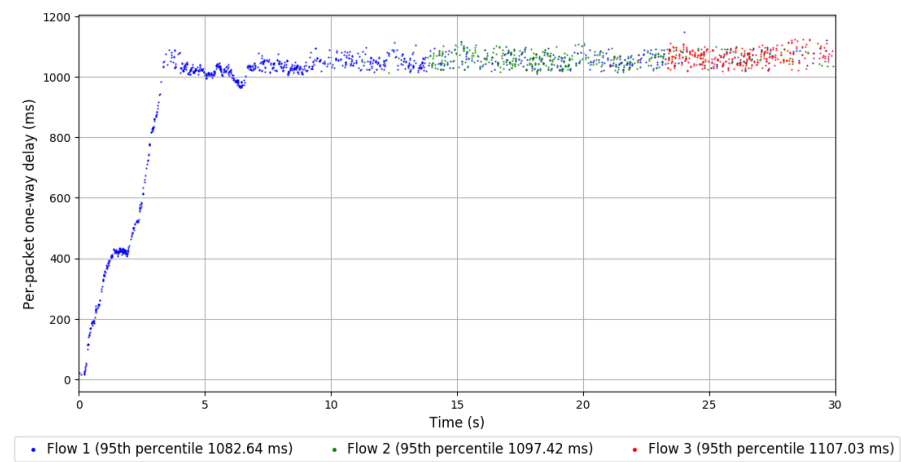
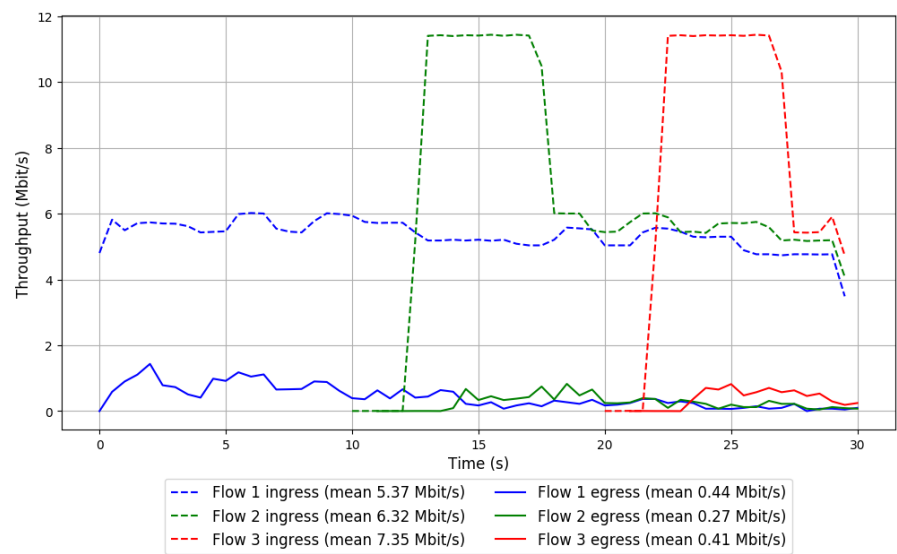
-- Flow 3:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 1107.030 ms

Loss rate: 95.01%

Run 2: Report of PCC-Expr — Data Link

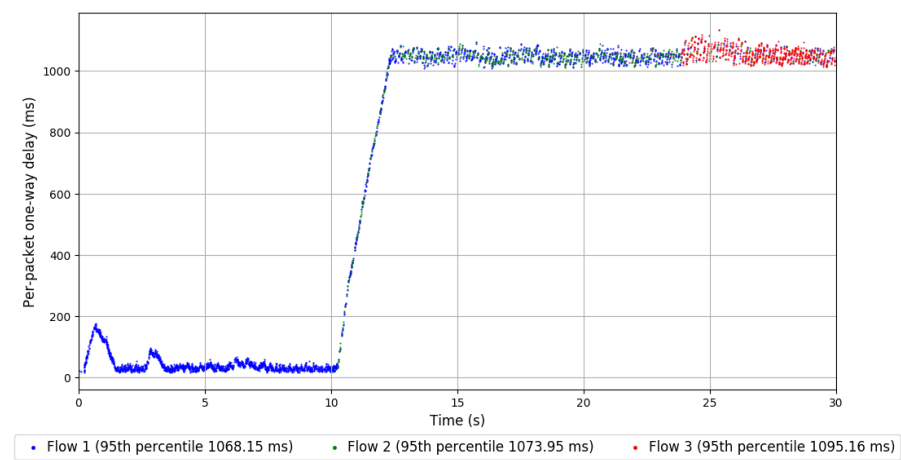
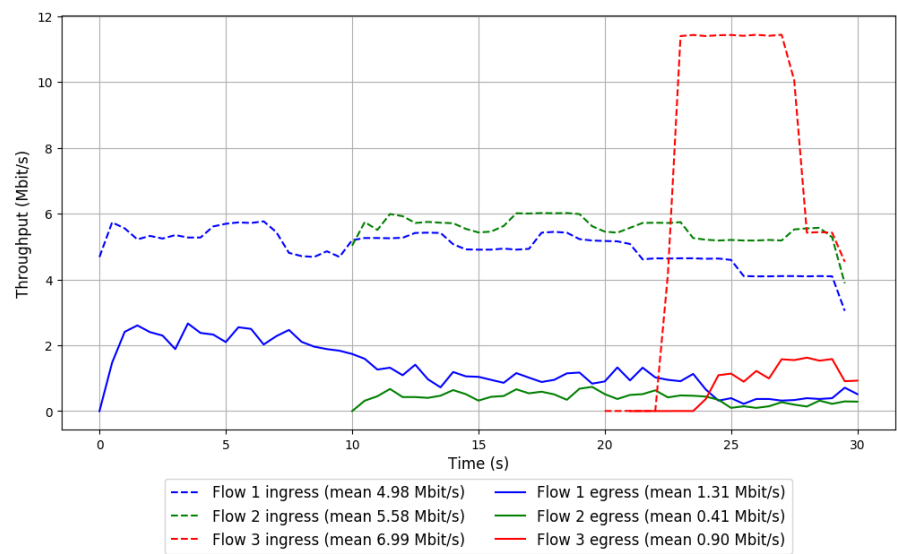


Run 3: Statistics of PCC-Expr

Start at: 2018-09-11 02:22:10  
End at: 2018-09-11 02:22:40  
Local clock offset: 0.114 ms  
Remote clock offset: -4.915 ms

# Below is generated by plot.py at 2018-09-11 02:31:14  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 1073.968 ms  
Loss rate: 83.21%  
-- Flow 1:  
Average throughput: 1.31 Mbit/s  
95th percentile per-packet one-way delay: 1068.151 ms  
Loss rate: 73.66%  
-- Flow 2:  
Average throughput: 0.41 Mbit/s  
95th percentile per-packet one-way delay: 1073.954 ms  
Loss rate: 92.56%  
-- Flow 3:  
Average throughput: 0.90 Mbit/s  
95th percentile per-packet one-way delay: 1095.161 ms  
Loss rate: 88.81%

Run 3: Report of PCC-Expr — Data Link



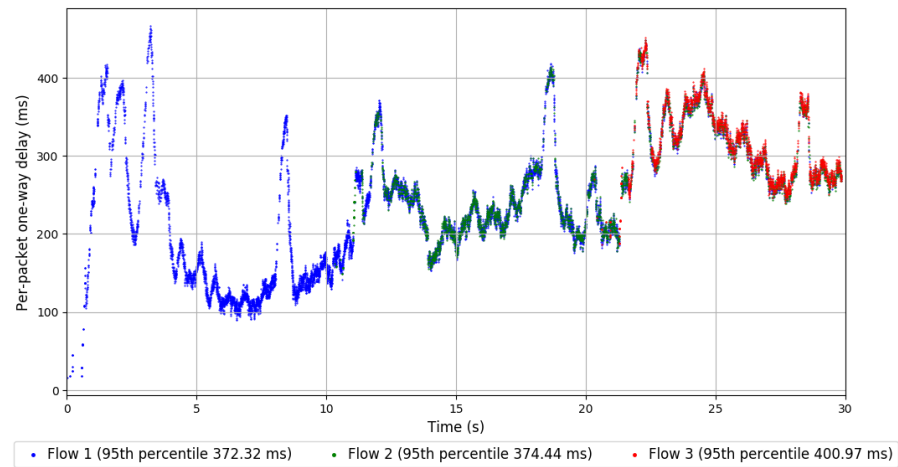
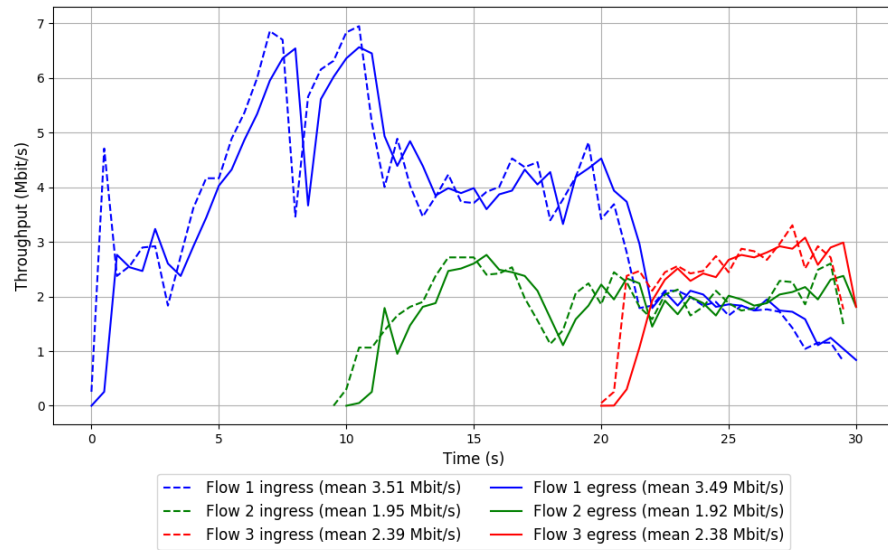


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-11 01:44:04  
End at: 2018-09-11 01:44:34  
Local clock offset: -0.875 ms  
Remote clock offset: -4.191 ms

# Below is generated by plot.py at 2018-09-11 02:31:16  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.52 Mbit/s  
95th percentile per-packet one-way delay: 378.531 ms  
Loss rate: 1.37%  
-- Flow 1:  
Average throughput: 3.49 Mbit/s  
95th percentile per-packet one-way delay: 372.324 ms  
Loss rate: 0.66%  
-- Flow 2:  
Average throughput: 1.92 Mbit/s  
95th percentile per-packet one-way delay: 374.435 ms  
Loss rate: 2.05%  
-- Flow 3:  
Average throughput: 2.38 Mbit/s  
95th percentile per-packet one-way delay: 400.968 ms  
Loss rate: 3.43%

## Run 1: Report of QUIC Cubic — Data Link

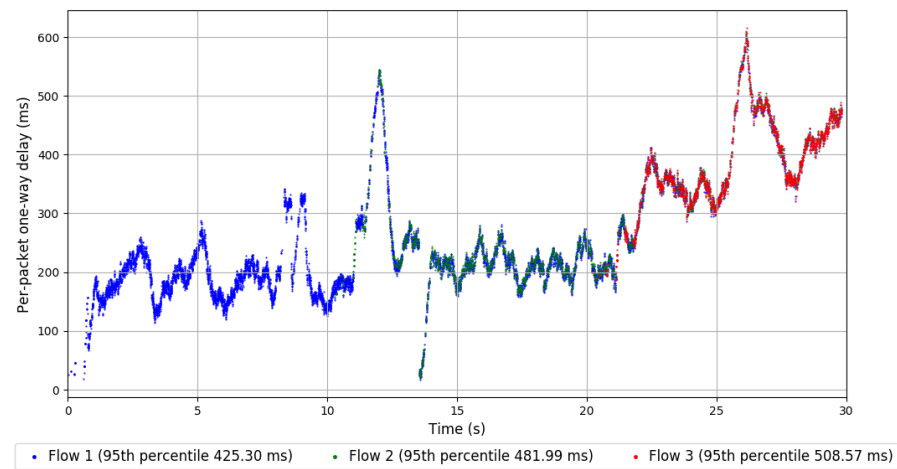
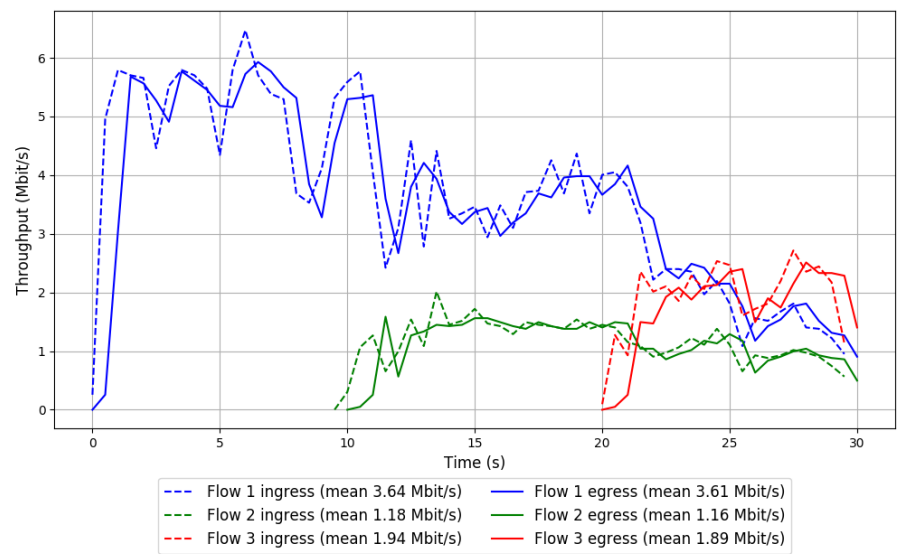


Run 2: Statistics of QUIC Cubic

Start at: 2018-09-11 02:04:10  
End at: 2018-09-11 02:04:40  
Local clock offset: 1.798 ms  
Remote clock offset: -4.938 ms

# Below is generated by plot.py at 2018-09-11 02:31:16  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.98 Mbit/s  
95th percentile per-packet one-way delay: 468.592 ms  
Loss rate: 1.89%  
-- Flow 1:  
Average throughput: 3.61 Mbit/s  
95th percentile per-packet one-way delay: 425.299 ms  
Loss rate: 1.18%  
-- Flow 2:  
Average throughput: 1.16 Mbit/s  
95th percentile per-packet one-way delay: 481.986 ms  
Loss rate: 2.80%  
-- Flow 3:  
Average throughput: 1.89 Mbit/s  
95th percentile per-packet one-way delay: 508.567 ms  
Loss rate: 4.81%

Run 2: Report of QUIC Cubic — Data Link

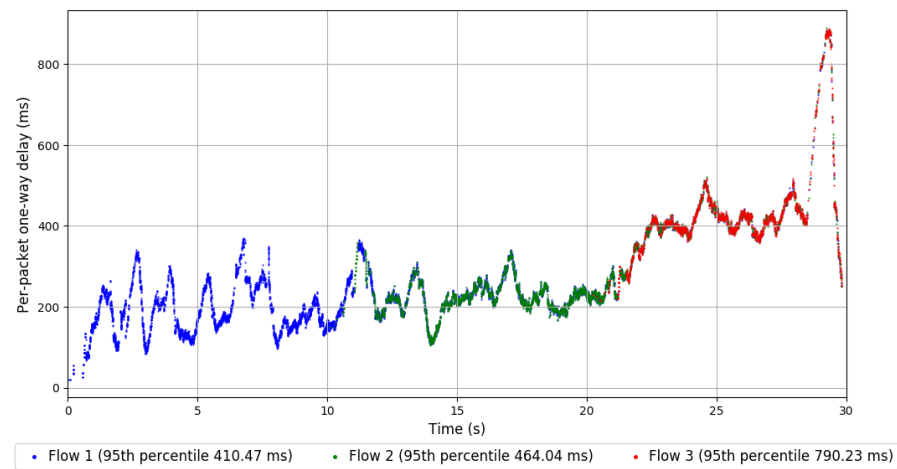
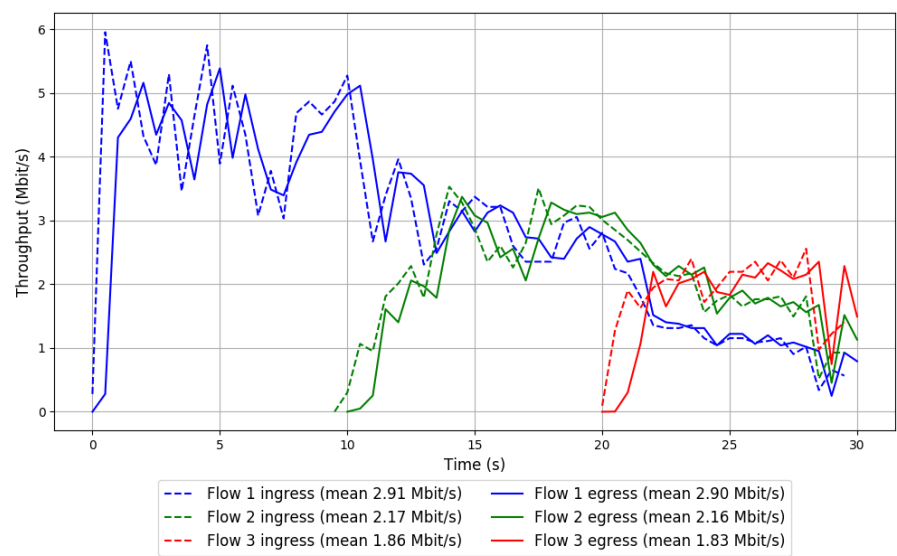


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-11 02:24:24  
End at: 2018-09-11 02:24:54  
Local clock offset: 0.352 ms  
Remote clock offset: -4.758 ms

# Below is generated by plot.py at 2018-09-11 02:31:21  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.91 Mbit/s  
95th percentile per-packet one-way delay: 455.313 ms  
Loss rate: 1.24%  
-- Flow 1:  
Average throughput: 2.90 Mbit/s  
95th percentile per-packet one-way delay: 410.469 ms  
Loss rate: 0.66%  
-- Flow 2:  
Average throughput: 2.16 Mbit/s  
95th percentile per-packet one-way delay: 464.039 ms  
Loss rate: 1.34%  
-- Flow 3:  
Average throughput: 1.83 Mbit/s  
95th percentile per-packet one-way delay: 790.232 ms  
Loss rate: 3.72%

Run 3: Report of QUIC Cubic — Data Link

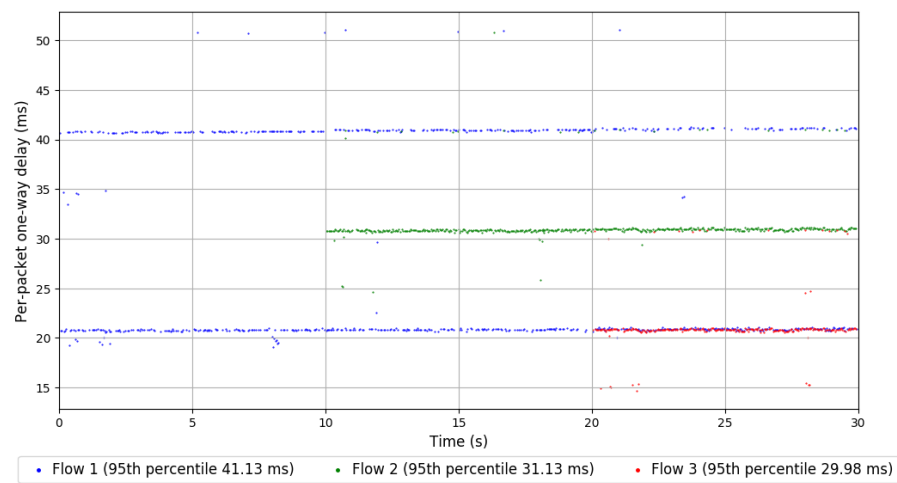
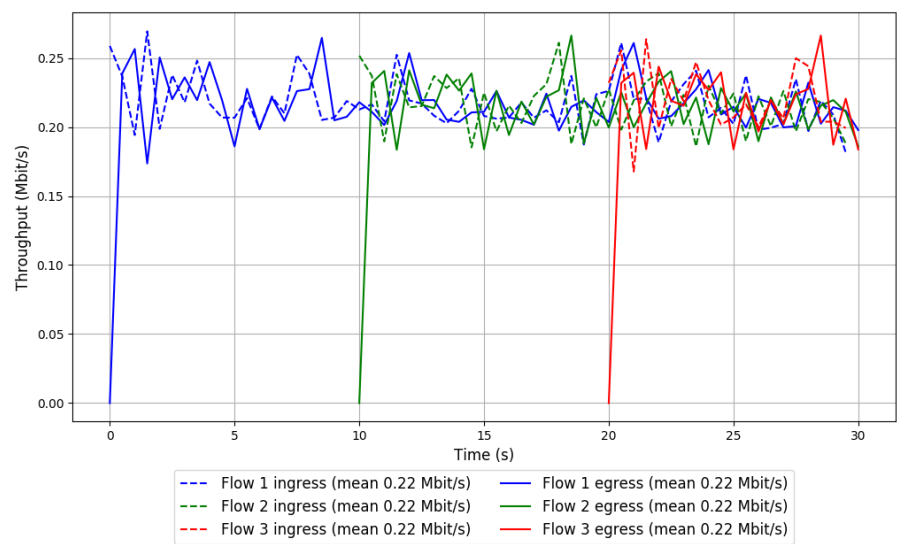


```
Run 1: Statistics of SReAM

Start at: 2018-09-11 01:30:42
End at: 2018-09-11 01:31:12
Local clock offset: -0.1 ms
Remote clock offset: -4.564 ms

# Below is generated by plot.py at 2018-09-11 02:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 41.022 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 41.130 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 31.126 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 29.977 ms
Loss rate: 0.35%
```

Run 1: Report of SReAM — Data Link



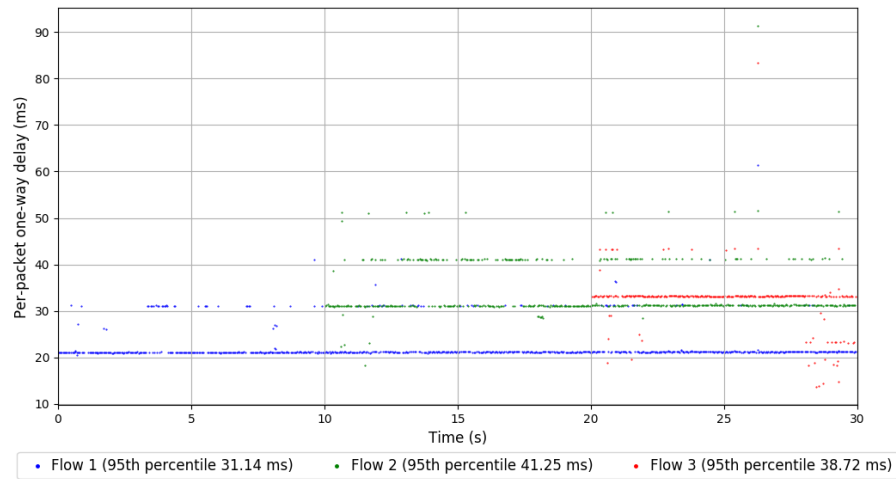
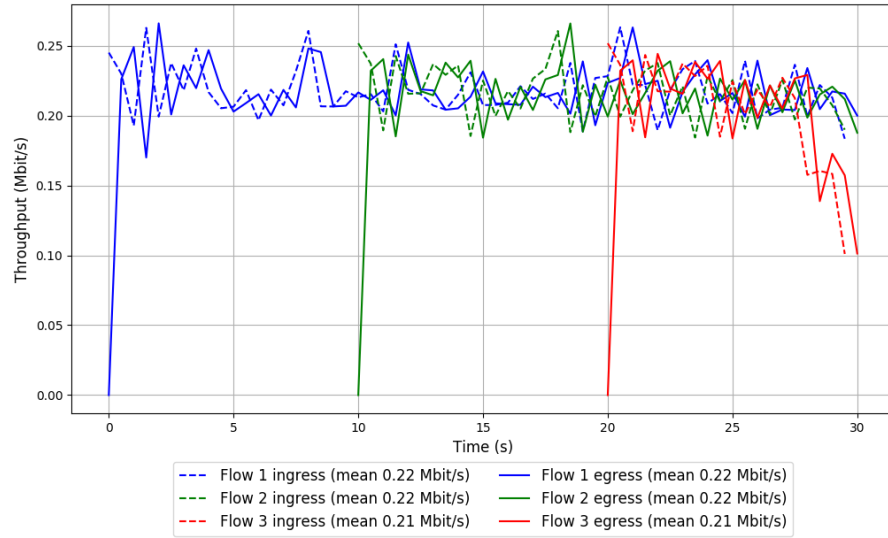


Run 2: Statistics of SReAM

Start at: 2018-09-11 01:50:48  
End at: 2018-09-11 01:51:18  
Local clock offset: -1.319 ms  
Remote clock offset: -4.771 ms

# Below is generated by plot.py at 2018-09-11 02:31:21  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 41.136 ms  
Loss rate: 0.10%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 31.136 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 41.251 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 38.720 ms  
Loss rate: 0.21%

## Run 2: Report of SReAM — Data Link

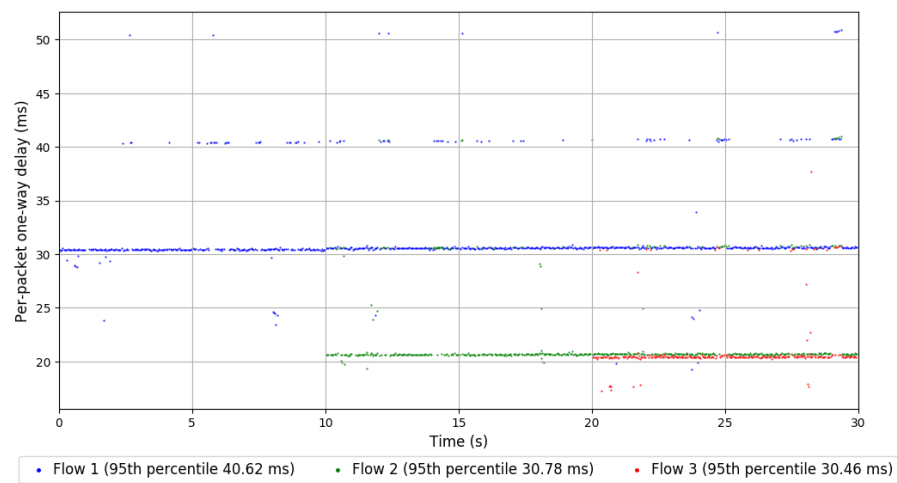
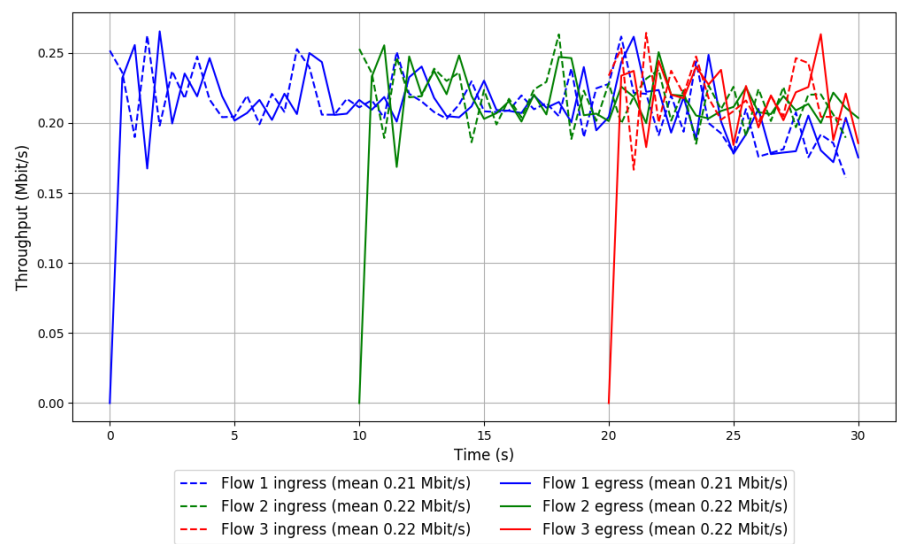


Run 3: Statistics of SReAM

Start at: 2018-09-11 02:10:54  
End at: 2018-09-11 02:11:24  
Local clock offset: 1.198 ms  
Remote clock offset: -4.447 ms

# Below is generated by plot.py at 2018-09-11 02:31:21  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 40.481 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 40.621 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 30.778 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 30.456 ms  
Loss rate: 0.36%

Run 3: Report of SReAM — Data Link

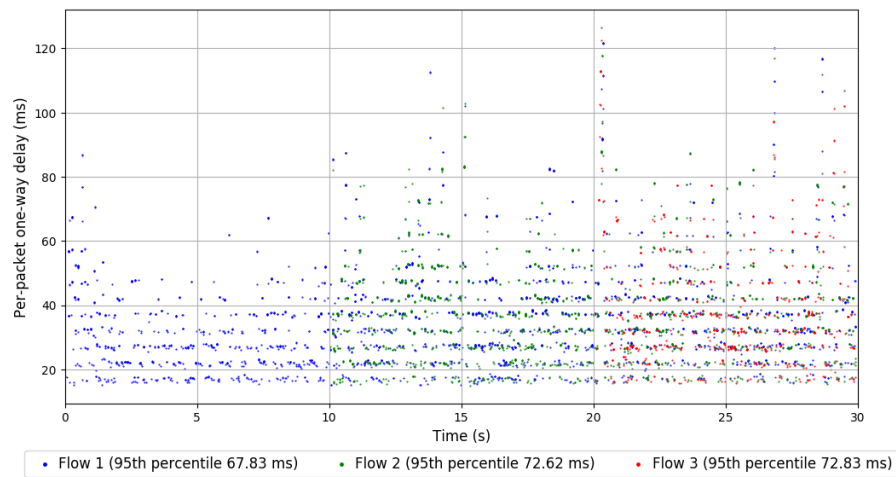
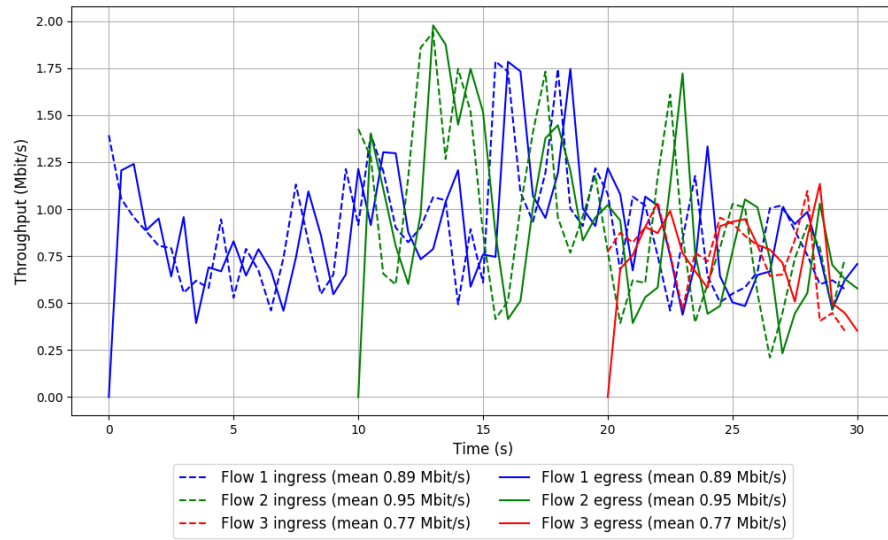


Run 1: Statistics of Sprout

Start at: 2018-09-11 01:37:24  
End at: 2018-09-11 01:37:54  
Local clock offset: -0.525 ms  
Remote clock offset: -4.526 ms

# Below is generated by plot.py at 2018-09-11 02:31:21  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1.78 Mbit/s  
95th percentile per-packet one-way delay: 71.730 ms  
Loss rate: 0.15%  
-- Flow 1:  
Average throughput: 0.89 Mbit/s  
95th percentile per-packet one-way delay: 67.829 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.95 Mbit/s  
95th percentile per-packet one-way delay: 72.623 ms  
Loss rate: 0.42%  
-- Flow 3:  
Average throughput: 0.77 Mbit/s  
95th percentile per-packet one-way delay: 72.833 ms  
Loss rate: 0.00%

## Run 1: Report of Sprout — Data Link

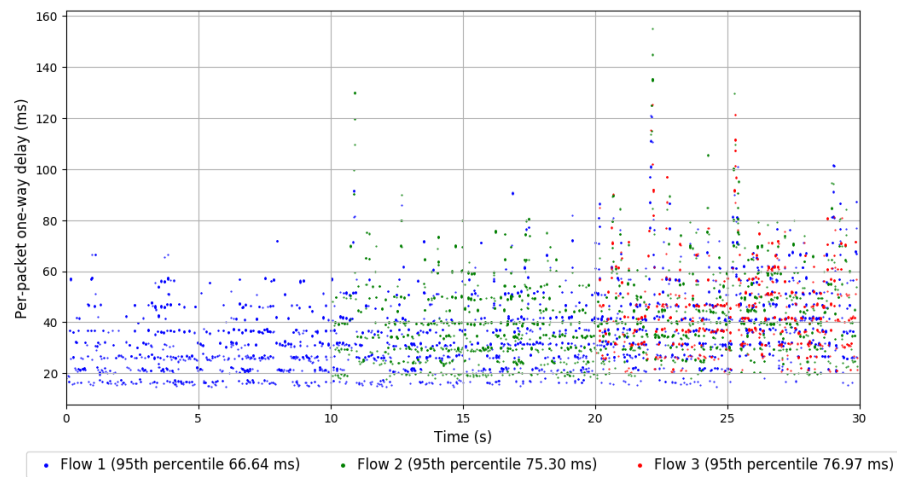
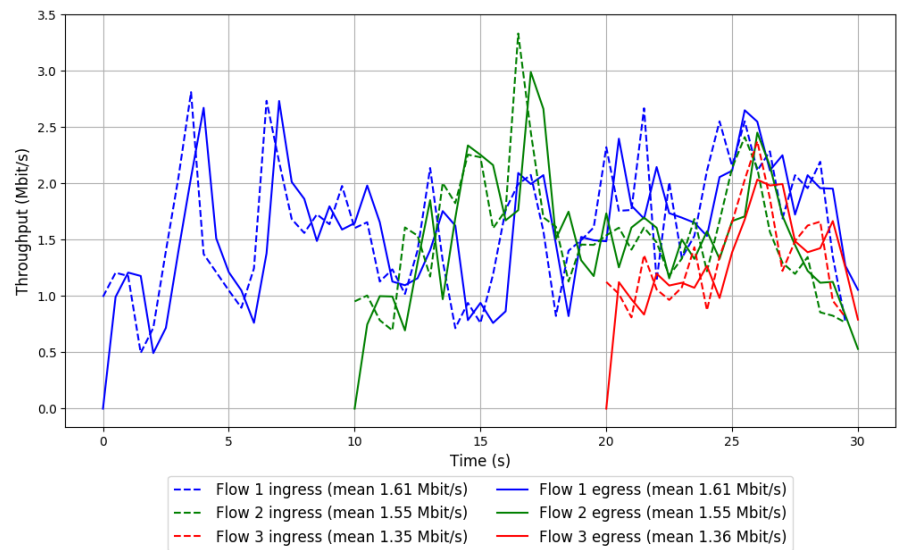


## Run 2: Statistics of Sprout

Start at: 2018-09-11 01:57:30  
End at: 2018-09-11 01:58:00  
Local clock offset: -1.54 ms  
Remote clock offset: -3.923 ms

```
# Below is generated by plot.py at 2018-09-11 02:31:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.09 Mbit/s
95th percentile per-packet one-way delay: 71.470 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 66.643 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 75.296 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 76.971 ms
Loss rate: 0.09%
```

Run 2: Report of Sprout — Data Link



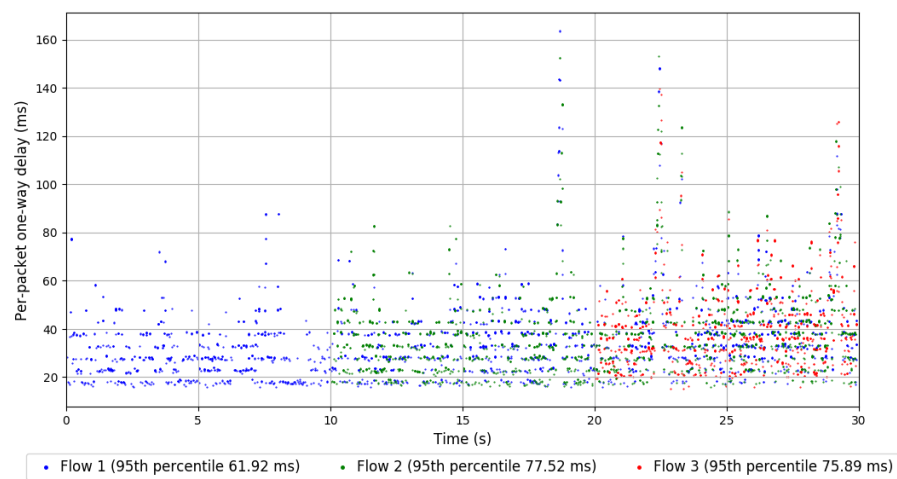
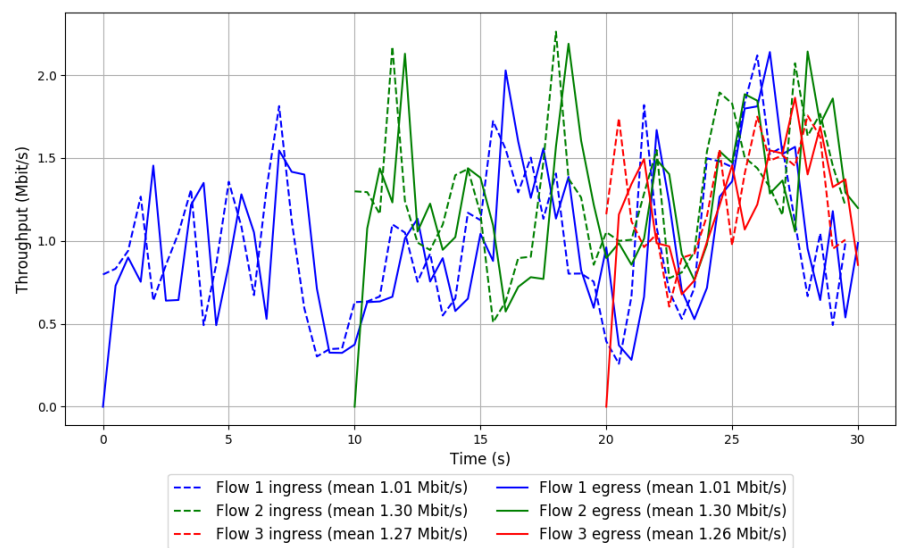


### Run 3: Statistics of Sprout

Start at: 2018-09-11 02:17:38  
End at: 2018-09-11 02:18:08  
Local clock offset: 0.291 ms  
Remote clock offset: -3.906 ms

```
# Below is generated by plot.py at 2018-09-11 02:31:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 72.033 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 61.917 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 77.516 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 75.885 ms
Loss rate: 0.61%
```

Run 3: Report of Sprout — Data Link

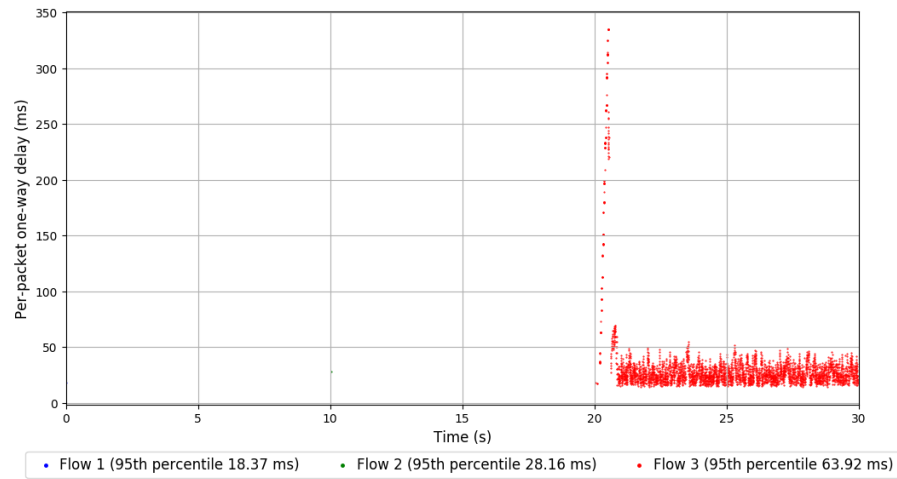
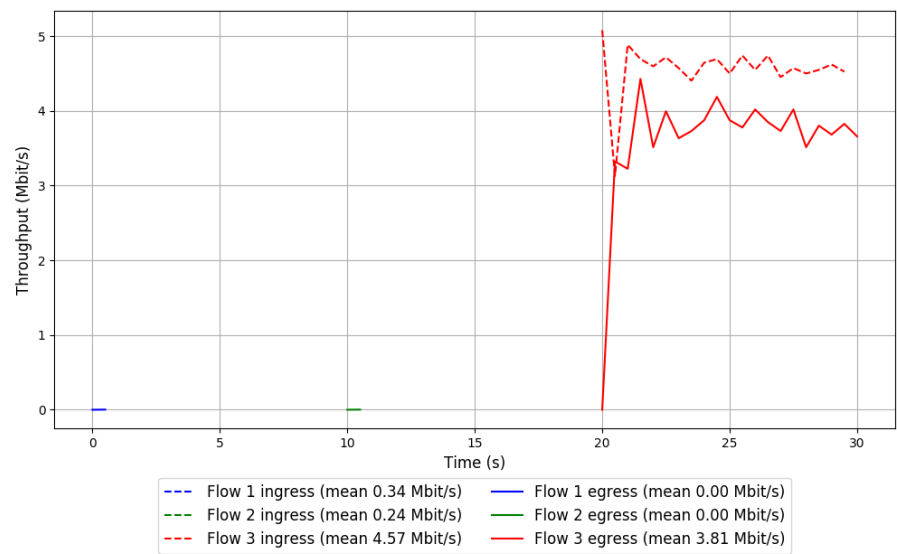


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-11 01:39:38
End at: 2018-09-11 01:40:08
Local clock offset: 1.153 ms
Remote clock offset: -3.43 ms

# Below is generated by plot.py at 2018-09-11 02:31:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 63.921 ms
Loss rate: 17.09%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 18.368 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 28.161 ms
Loss rate: 95.92%
-- Flow 3:
Average throughput: 3.81 Mbit/s
95th percentile per-packet one-way delay: 63.921 ms
Loss rate: 17.00%
```

Run 1: Report of TaoVA-100x — Data Link



Run 2: Statistics of TaoVA-100x

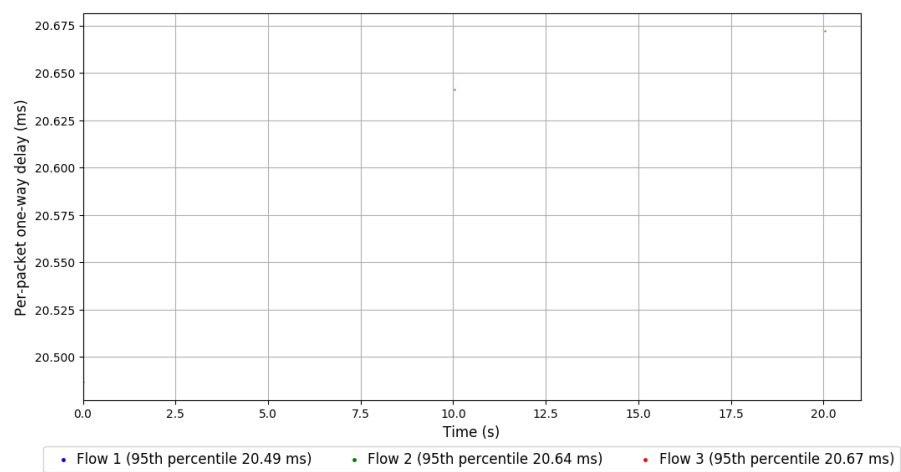
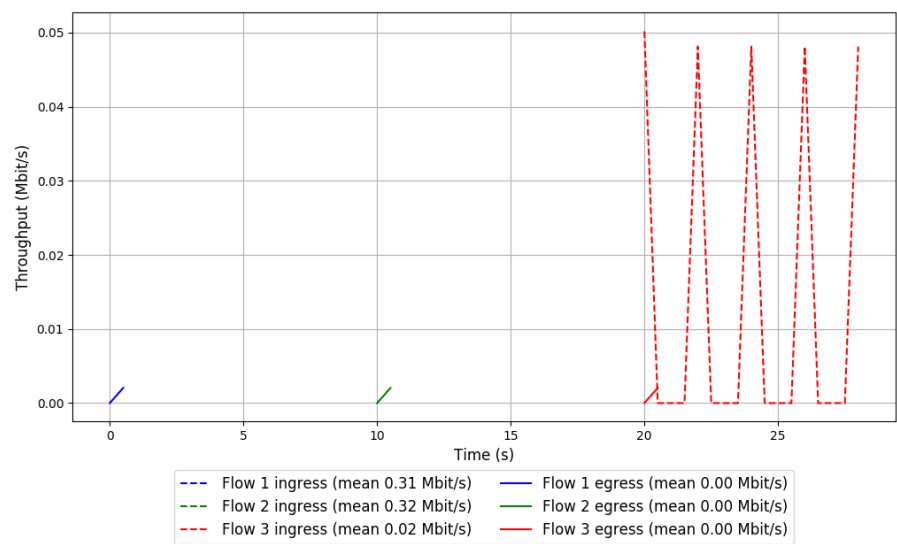
Start at: 2018-09-11 01:59:44

End at: 2018-09-11 02:00:14

Local clock offset: -2.441 ms

Remote clock offset: -4.573 ms

Run 2: Report of TaoVA-100x — Data Link

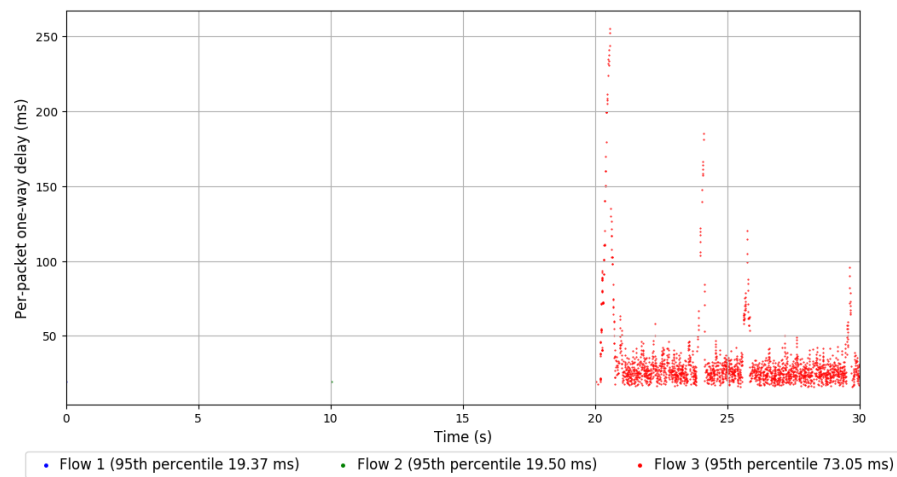
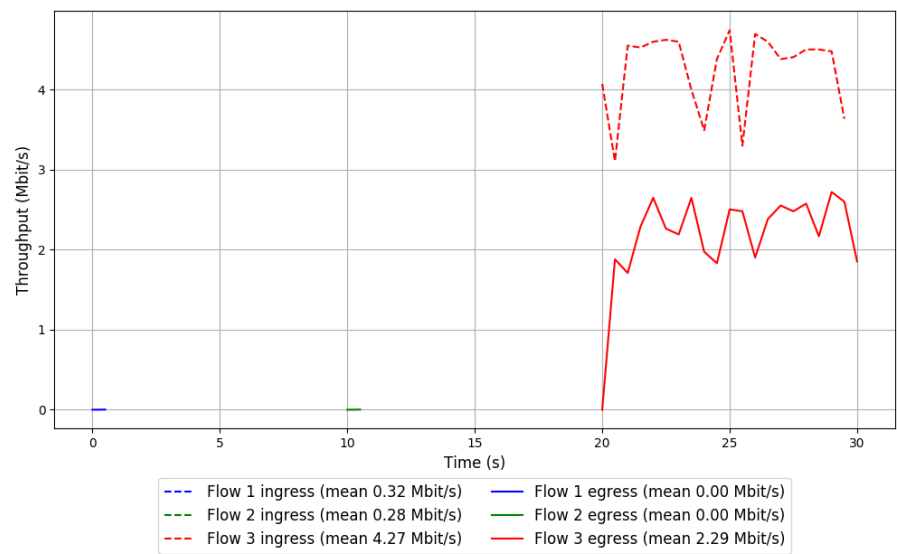


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-11 02:19:51  
End at: 2018-09-11 02:20:21  
Local clock offset: 1.129 ms  
Remote clock offset: -3.932 ms

# Below is generated by plot.py at 2018-09-11 02:31:22  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.76 Mbit/s  
95th percentile per-packet one-way delay: 73.047 ms  
Loss rate: 46.47%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 19.373 ms  
Loss rate: 95.92%  
-- Flow 2:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 19.499 ms  
Loss rate: 95.92%  
-- Flow 3:  
Average throughput: 2.29 Mbit/s  
95th percentile per-packet one-way delay: 73.047 ms  
Loss rate: 46.41%

Run 3: Report of TaoVA-100x — Data Link



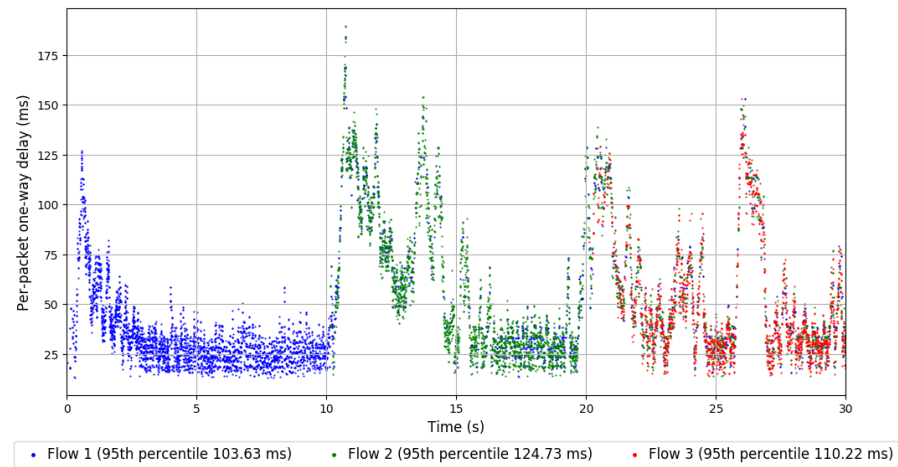
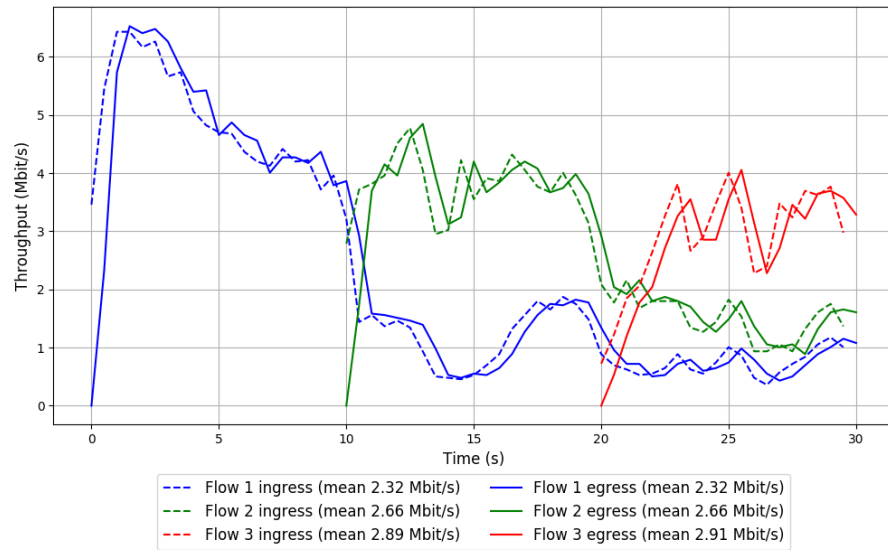


Run 1: Statistics of TCP Vegas

Start at: 2018-09-11 01:40:44  
End at: 2018-09-11 01:41:14  
Local clock offset: 0.083 ms  
Remote clock offset: -3.948 ms

# Below is generated by plot.py at 2018-09-11 02:31:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.05 Mbit/s  
95th percentile per-packet one-way delay: 117.039 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 2.32 Mbit/s  
95th percentile per-packet one-way delay: 103.629 ms  
Loss rate: 0.03%  
-- Flow 2:  
Average throughput: 2.66 Mbit/s  
95th percentile per-packet one-way delay: 124.734 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 2.91 Mbit/s  
95th percentile per-packet one-way delay: 110.224 ms  
Loss rate: 0.17%

# Run 1: Report of TCP Vegas — Data Link

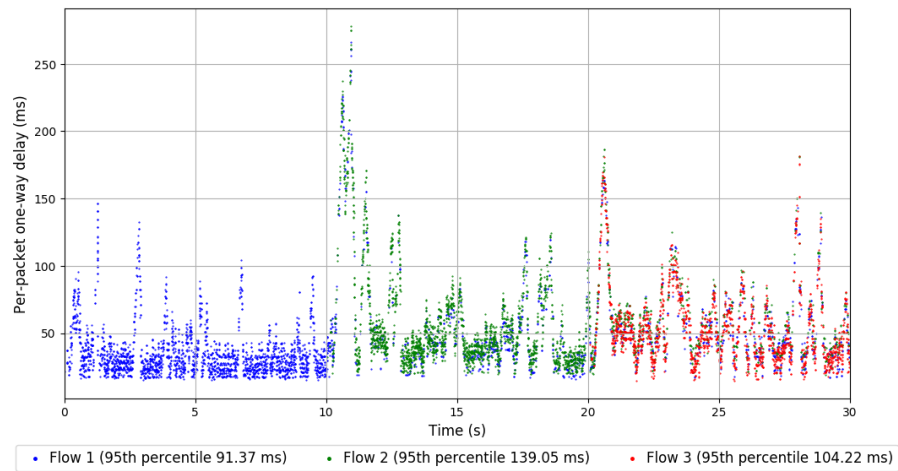
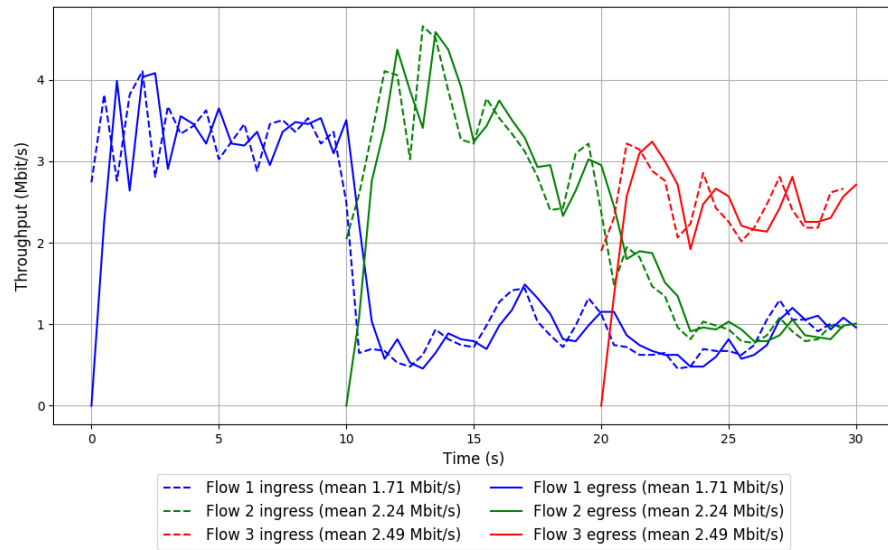


Run 2: Statistics of TCP Vegas

Start at: 2018-09-11 02:00:50  
End at: 2018-09-11 02:01:20  
Local clock offset: 0.013 ms  
Remote clock offset: -3.674 ms

# Below is generated by plot.py at 2018-09-11 02:31:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.03 Mbit/s  
95th percentile per-packet one-way delay: 114.233 ms  
Loss rate: 0.11%  
-- Flow 1:  
Average throughput: 1.71 Mbit/s  
95th percentile per-packet one-way delay: 91.367 ms  
Loss rate: 0.07%  
-- Flow 2:  
Average throughput: 2.24 Mbit/s  
95th percentile per-packet one-way delay: 139.053 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 2.49 Mbit/s  
95th percentile per-packet one-way delay: 104.222 ms  
Loss rate: 0.29%

## Run 2: Report of TCP Vegas — Data Link

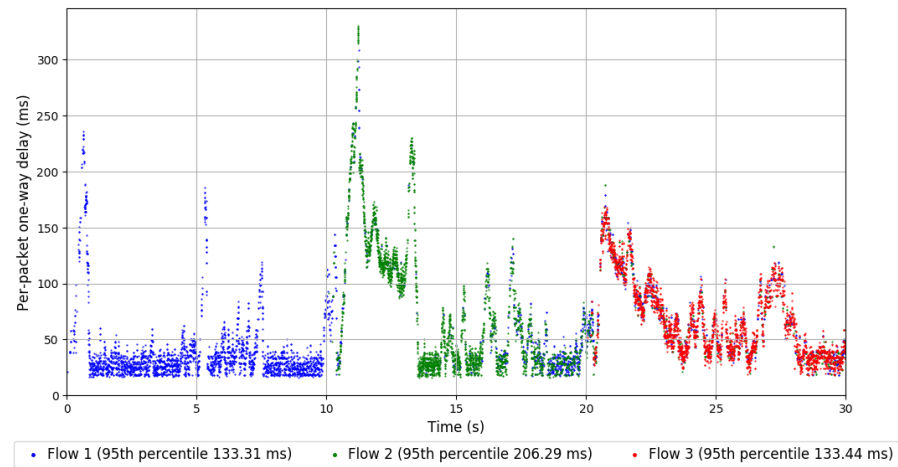
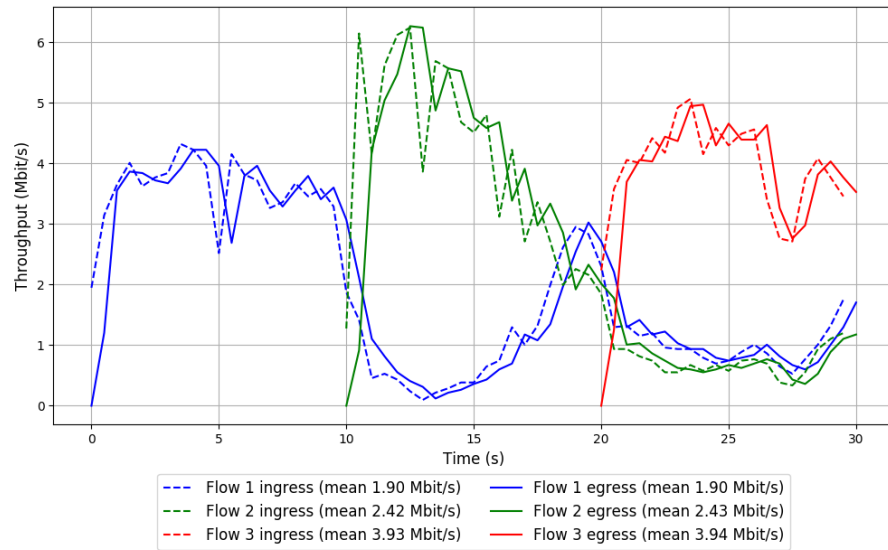


Run 3: Statistics of TCP Vegas

Start at: 2018-09-11 02:20:58  
End at: 2018-09-11 02:21:28  
Local clock offset: 0.81 ms  
Remote clock offset: -4.508 ms

# Below is generated by plot.py at 2018-09-11 02:31:28  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.82 Mbit/s  
95th percentile per-packet one-way delay: 156.196 ms  
Loss rate: 0.21%  
-- Flow 1:  
Average throughput: 1.90 Mbit/s  
95th percentile per-packet one-way delay: 133.309 ms  
Loss rate: 0.19%  
-- Flow 2:  
Average throughput: 2.43 Mbit/s  
95th percentile per-packet one-way delay: 206.287 ms  
Loss rate: 0.20%  
-- Flow 3:  
Average throughput: 3.94 Mbit/s  
95th percentile per-packet one-way delay: 133.441 ms  
Loss rate: 0.24%

### Run 3: Report of TCP Vegas — Data Link

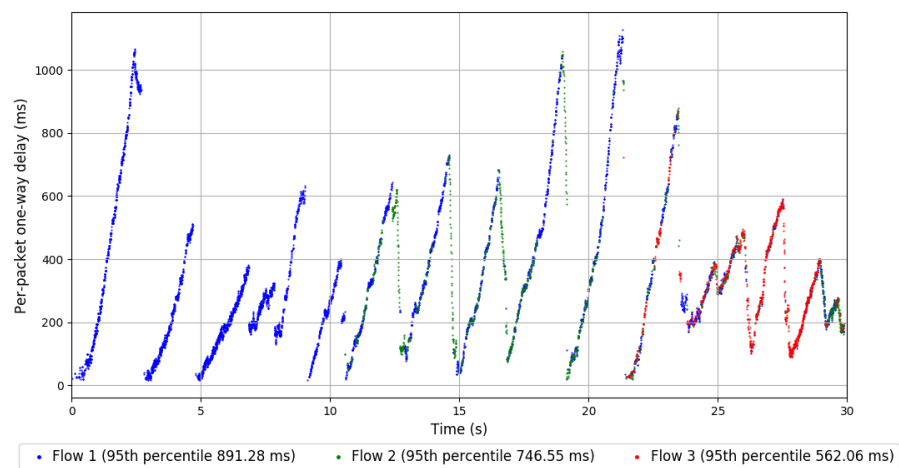
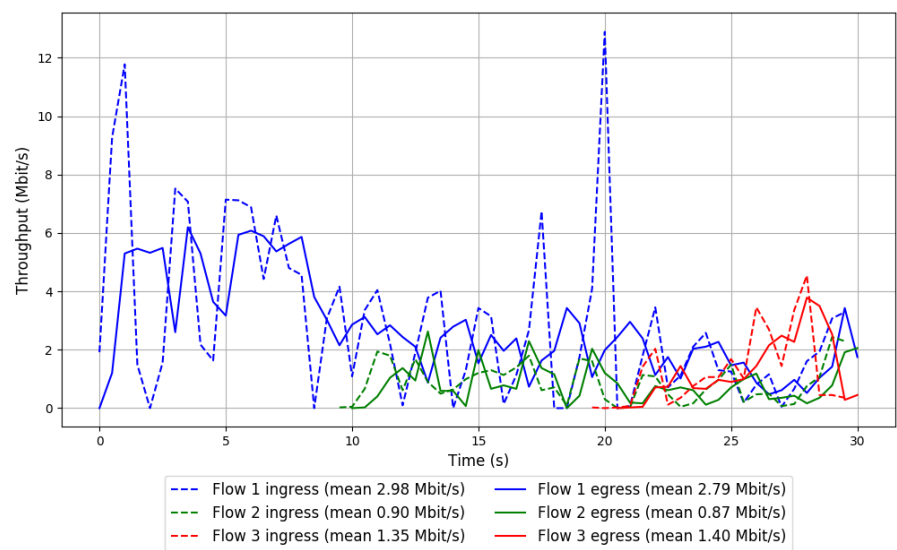


Run 1: Statistics of Verus

Start at: 2018-09-11 01:35:11  
End at: 2018-09-11 01:35:41  
Local clock offset: 0.273 ms  
Remote clock offset: -4.198 ms

# Below is generated by plot.py at 2018-09-11 02:31:28  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.79 Mbit/s  
95th percentile per-packet one-way delay: 828.770 ms  
Loss rate: 5.62%  
-- Flow 1:  
Average throughput: 2.79 Mbit/s  
95th percentile per-packet one-way delay: 891.278 ms  
Loss rate: 6.37%  
-- Flow 2:  
Average throughput: 0.87 Mbit/s  
95th percentile per-packet one-way delay: 746.548 ms  
Loss rate: 5.18%  
-- Flow 3:  
Average throughput: 1.40 Mbit/s  
95th percentile per-packet one-way delay: 562.060 ms  
Loss rate: 1.17%

Run 1: Report of Verus — Data Link



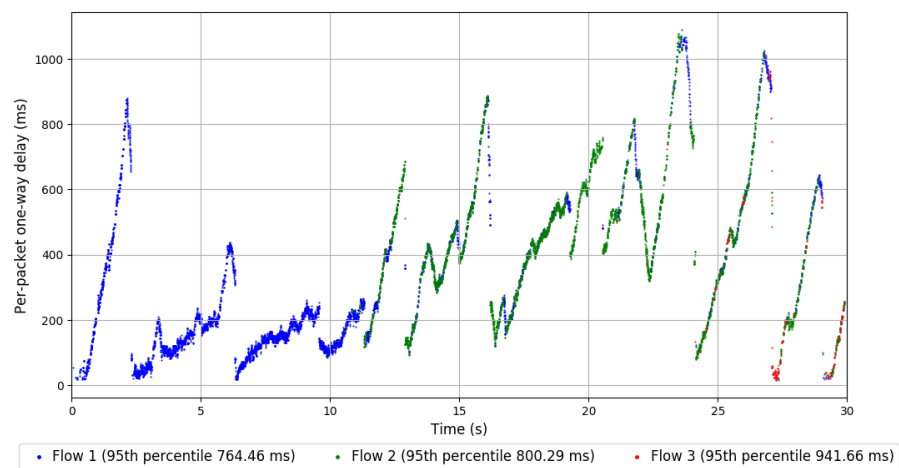
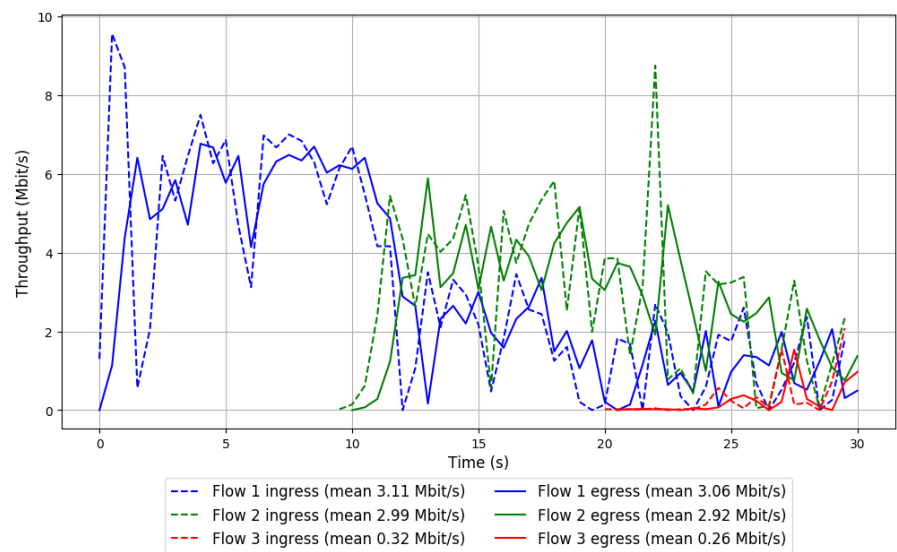


Run 2: Statistics of Verus

Start at: 2018-09-11 01:55:15  
End at: 2018-09-11 01:55:45  
Local clock offset: -0.613 ms  
Remote clock offset: -3.385 ms

# Below is generated by plot.py at 2018-09-11 02:31:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.08 Mbit/s  
95th percentile per-packet one-way delay: 784.156 ms  
Loss rate: 2.43%  
-- Flow 1:  
Average throughput: 3.06 Mbit/s  
95th percentile per-packet one-way delay: 764.464 ms  
Loss rate: 1.57%  
-- Flow 2:  
Average throughput: 2.92 Mbit/s  
95th percentile per-packet one-way delay: 800.288 ms  
Loss rate: 2.80%  
-- Flow 3:  
Average throughput: 0.26 Mbit/s  
95th percentile per-packet one-way delay: 941.663 ms  
Loss rate: 21.13%

Run 2: Report of Verus — Data Link

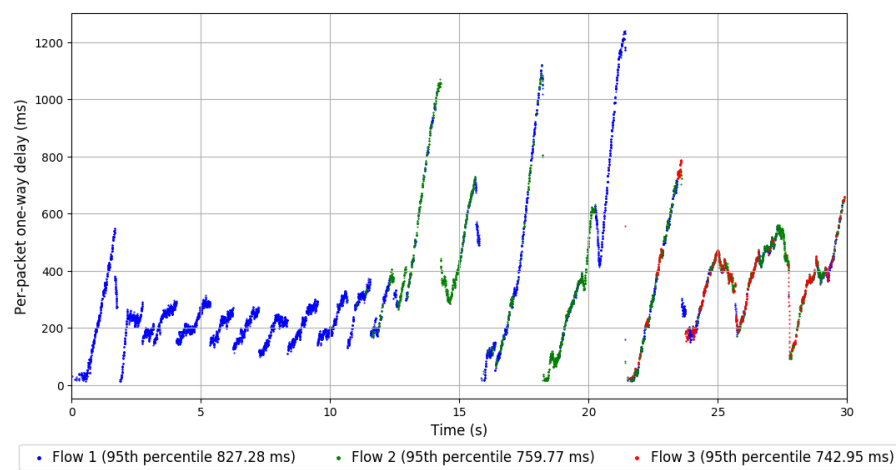
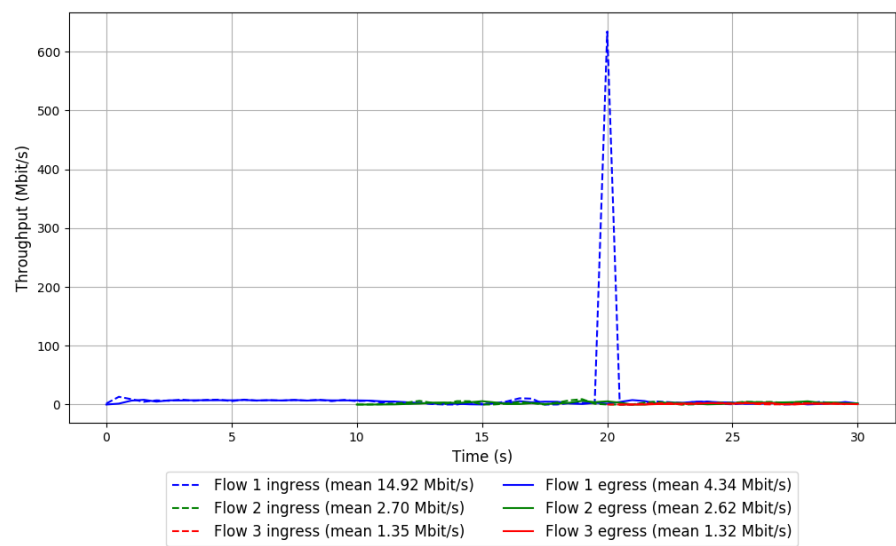


Run 3: Statistics of Verus

Start at: 2018-09-11 02:15:23  
End at: 2018-09-11 02:15:53  
Local clock offset: 2.712 ms  
Remote clock offset: -3.515 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.44 Mbit/s  
95th percentile per-packet one-way delay: 787.878 ms  
Loss rate: 62.41%  
-- Flow 1:  
Average throughput: 4.34 Mbit/s  
95th percentile per-packet one-way delay: 827.277 ms  
Loss rate: 70.99%  
-- Flow 2:  
Average throughput: 2.62 Mbit/s  
95th percentile per-packet one-way delay: 759.772 ms  
Loss rate: 4.51%  
-- Flow 3:  
Average throughput: 1.32 Mbit/s  
95th percentile per-packet one-way delay: 742.952 ms  
Loss rate: 7.56%

Run 3: Report of Verus — Data Link

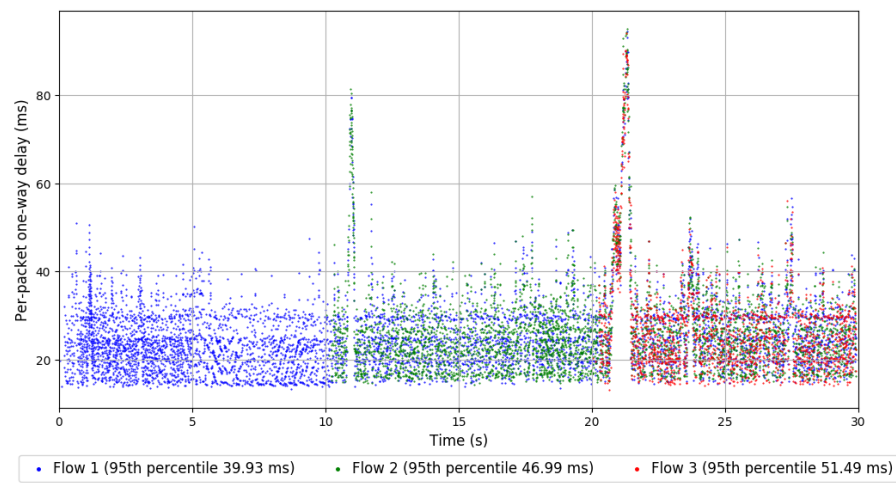
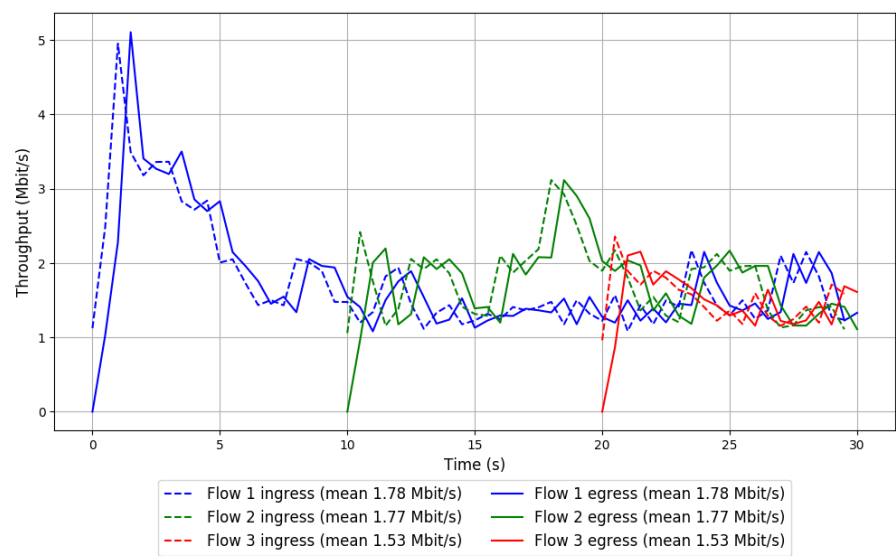


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-11 01:48:33  
End at: 2018-09-11 01:49:03  
Local clock offset: 0.832 ms  
Remote clock offset: -4.298 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.46 Mbit/s  
95th percentile per-packet one-way delay: 43.754 ms  
Loss rate: 0.06%  
-- Flow 1:  
Average throughput: 1.78 Mbit/s  
95th percentile per-packet one-way delay: 39.931 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.77 Mbit/s  
95th percentile per-packet one-way delay: 46.994 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 1.53 Mbit/s  
95th percentile per-packet one-way delay: 51.489 ms  
Loss rate: 0.23%

Run 1: Report of PCC-Vivace — Data Link

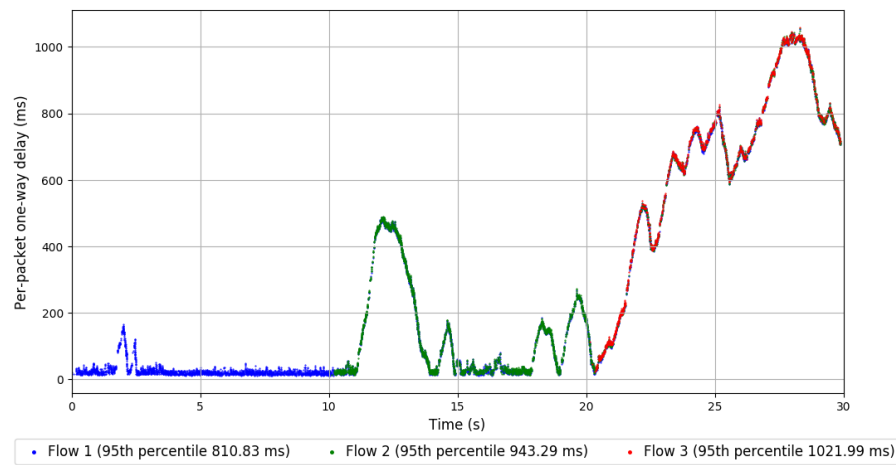
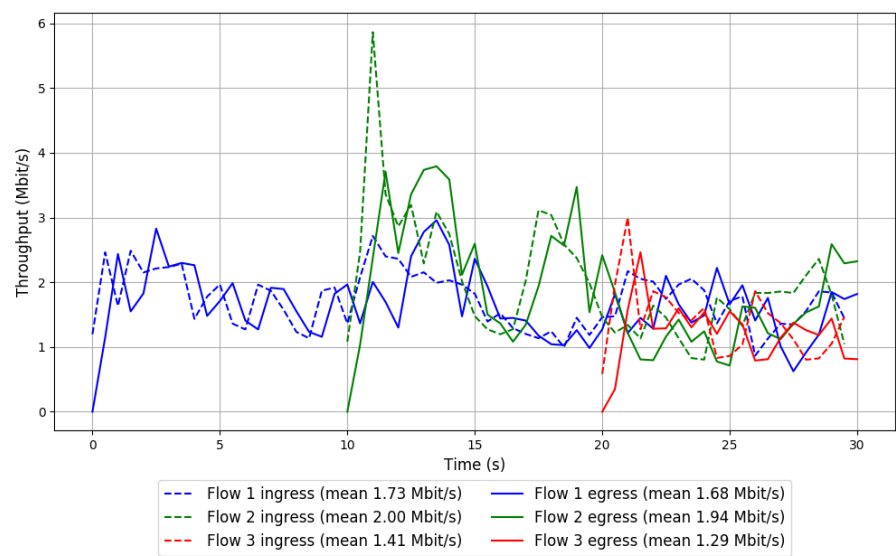


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-11 02:08:40  
End at: 2018-09-11 02:09:10  
Local clock offset: 2.45 ms  
Remote clock offset: -4.268 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.39 Mbit/s  
95th percentile per-packet one-way delay: 955.804 ms  
Loss rate: 3.93%  
-- Flow 1:  
Average throughput: 1.68 Mbit/s  
95th percentile per-packet one-way delay: 810.828 ms  
Loss rate: 2.94%  
-- Flow 2:  
Average throughput: 1.94 Mbit/s  
95th percentile per-packet one-way delay: 943.289 ms  
Loss rate: 3.32%  
-- Flow 3:  
Average throughput: 1.29 Mbit/s  
95th percentile per-packet one-way delay: 1021.993 ms  
Loss rate: 9.41%

Run 2: Report of PCC-Vivace — Data Link



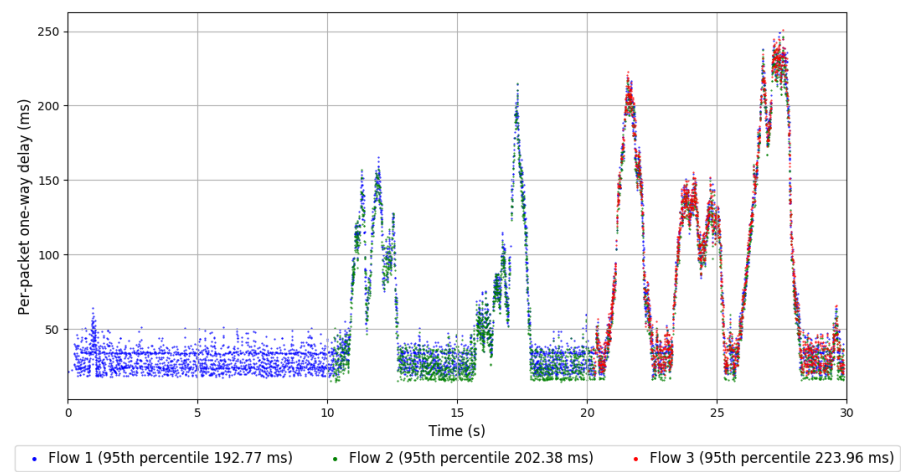
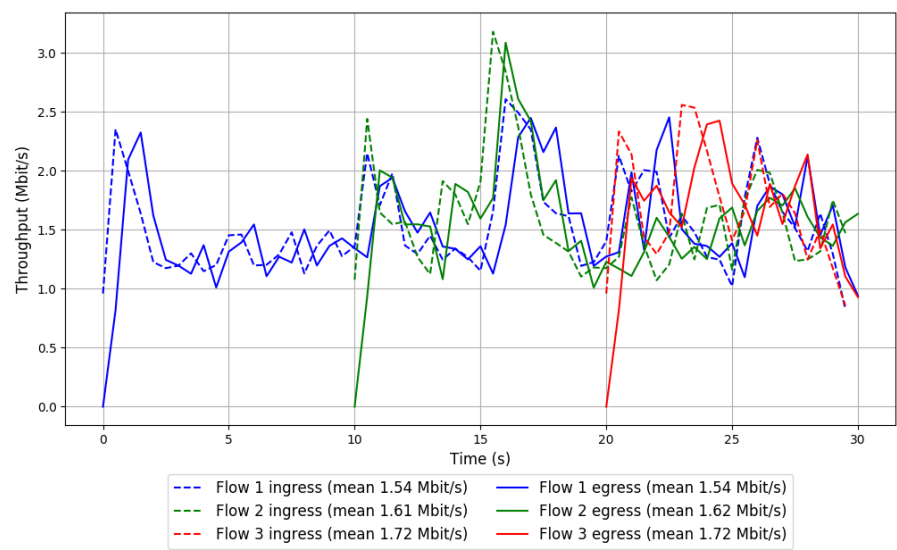


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-11 02:28:54  
End at: 2018-09-11 02:29:24  
Local clock offset: 1.257 ms  
Remote clock offset: -4.106 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.18 Mbit/s  
95th percentile per-packet one-way delay: 203.998 ms  
Loss rate: 0.14%  
-- Flow 1:  
Average throughput: 1.54 Mbit/s  
95th percentile per-packet one-way delay: 192.768 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 1.62 Mbit/s  
95th percentile per-packet one-way delay: 202.375 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 1.72 Mbit/s  
95th percentile per-packet one-way delay: 223.960 ms  
Loss rate: 0.34%

Run 3: Report of PCC-Vivace — Data Link

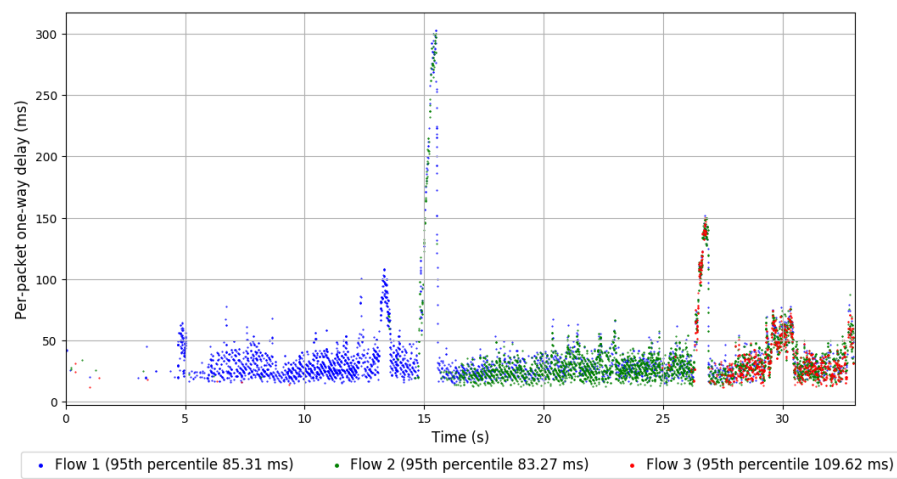
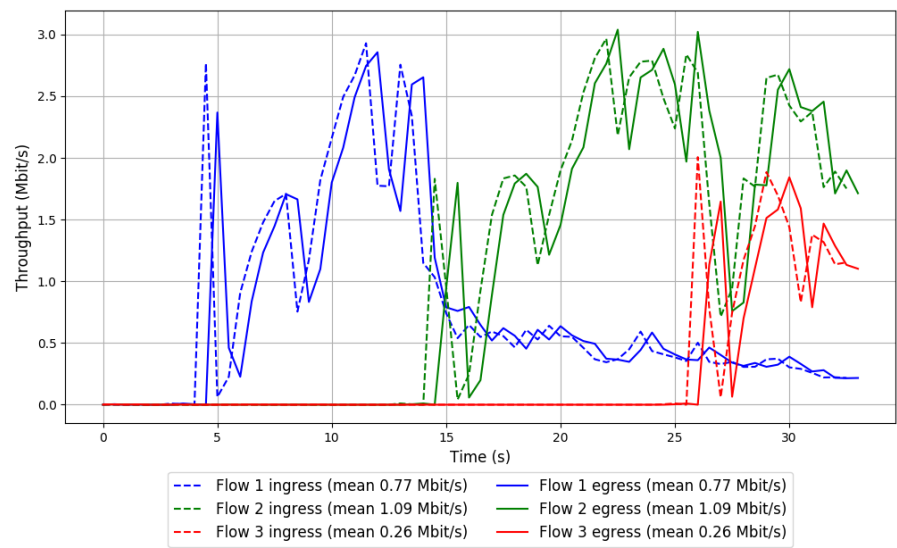


Run 1: Statistics of WebRTC media

Start at: 2018-09-11 01:36:18  
End at: 2018-09-11 01:36:48  
Local clock offset: 1.222 ms  
Remote clock offset: -4.359 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.11 Mbit/s  
95th percentile per-packet one-way delay: 89.298 ms  
Loss rate: 0.19%  
-- Flow 1:  
Average throughput: 0.77 Mbit/s  
95th percentile per-packet one-way delay: 85.311 ms  
Loss rate: 0.04%  
-- Flow 2:  
Average throughput: 1.09 Mbit/s  
95th percentile per-packet one-way delay: 83.271 ms  
Loss rate: 0.22%  
-- Flow 3:  
Average throughput: 0.26 Mbit/s  
95th percentile per-packet one-way delay: 109.618 ms  
Loss rate: 0.50%

Run 1: Report of WebRTC media — Data Link

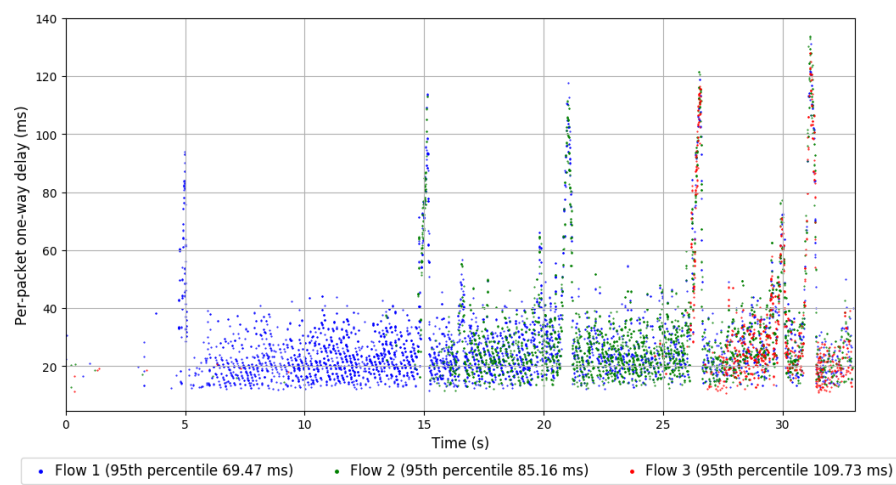
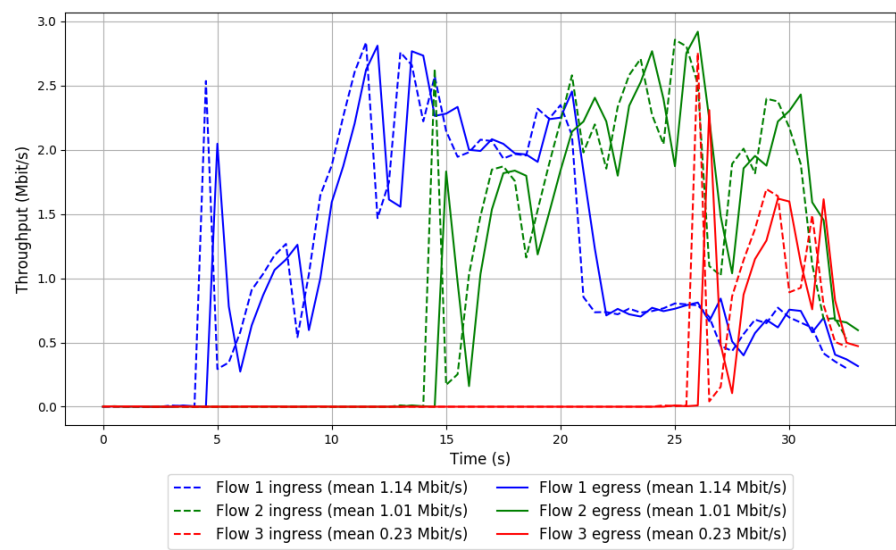


Run 2: Statistics of WebRTC media

Start at: 2018-09-11 01:56:23  
End at: 2018-09-11 01:56:53  
Local clock offset: 1.429 ms  
Remote clock offset: -3.913 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.37 Mbit/s  
95th percentile per-packet one-way delay: 83.042 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 1.14 Mbit/s  
95th percentile per-packet one-way delay: 69.468 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.01 Mbit/s  
95th percentile per-packet one-way delay: 85.160 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.23 Mbit/s  
95th percentile per-packet one-way delay: 109.728 ms  
Loss rate: 0.12%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-11 02:16:31  
End at: 2018-09-11 02:17:01  
Local clock offset: 1.545 ms  
Remote clock offset: -4.045 ms

# Below is generated by plot.py at 2018-09-11 02:31:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 2.36 Mbit/s  
95th percentile per-packet one-way delay: 61.434 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 1.42 Mbit/s  
95th percentile per-packet one-way delay: 56.242 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 63.483 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 69.402 ms  
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

