

## Pantheon Report

Generated at 2018-11-15 07:52:32 (UTC).

Data path: AWS California 1 on `ens5` (*local*) → Stanford on `eno1` (*remote*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

### System info:

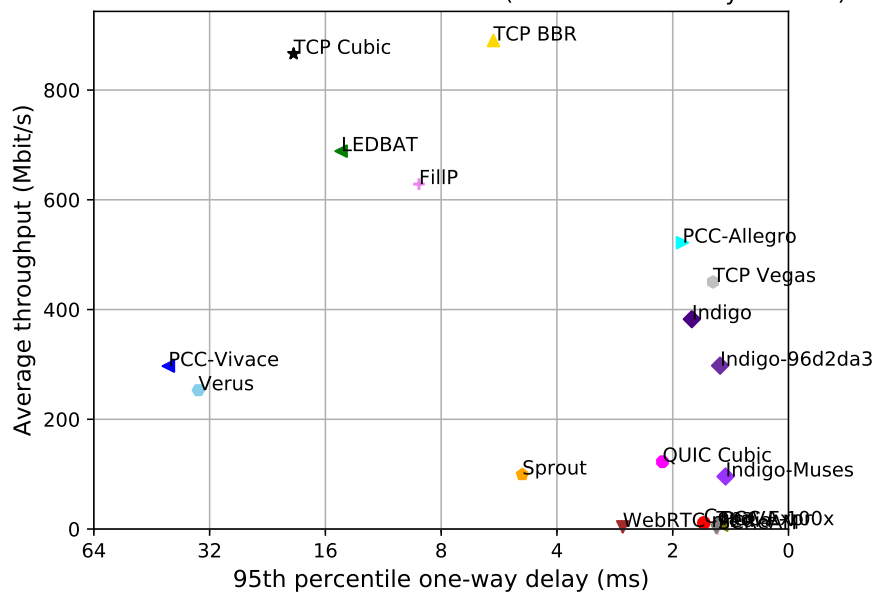
```
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

### Git summary:

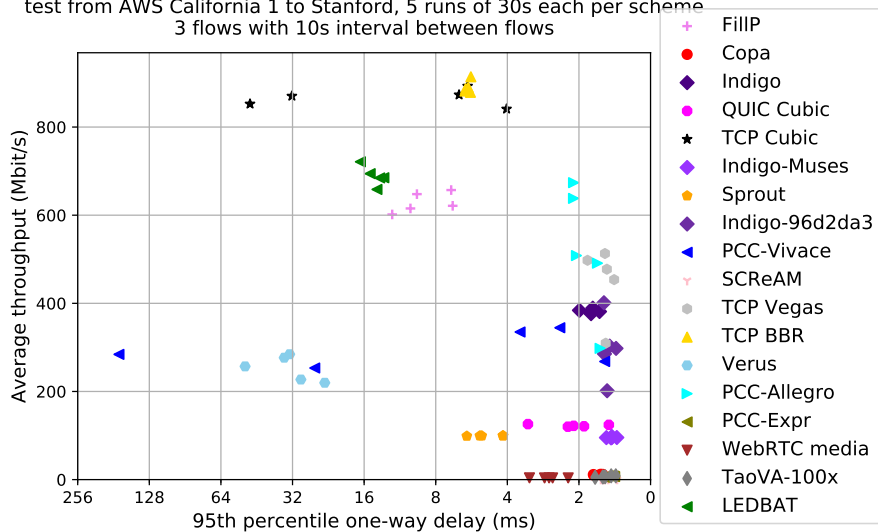
```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
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 California 1 to Stanford, 5 runs of 30s each per scheme  
3 flows with 10s interval between flows (mean of all runs by scheme)



test from AWS California 1 to Stanford, 5 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	5	509.27	414.14	316.03	5.74	6.18	3.47	5.62	9.96	13.14
Copa	5	7.44	4.04	6.04	1.42	1.67	1.76	49.11	52.50	48.39
TCP Cubic	5	502.22	391.85	309.27	21.72	2.29	2.26	0.06	0.06	0.07
FillP	5	430.34	236.48	123.69	10.30	4.12	3.24	10.20	16.41	10.67
Indigo	5	198.46	186.49	186.37	1.51	1.66	1.98	0.01	0.01	0.01
Indigo-96d2da3	5	152.54	133.95	170.72	1.24	1.11	1.09	0.01	0.01	0.00
LEDBAT	5	425.92	276.06	265.35	15.84	8.32	6.85	0.13	0.33	0.27
Indigo-Muses	5	47.83	47.48	49.87	1.10	1.09	1.02	0.00	0.00	0.00
PCC-Allegro	5	303.37	243.63	171.25	1.79	1.74	1.81	0.17	0.10	0.32
PCC-Expr	5	0.75	7.14	7.02	1.20	1.16	1.14	85.71	12.16	6.98
QUIC Cubic	5	65.17	61.38	50.79	0.99	2.14	4.37	0.00	0.01	0.00
SCReAM	5	0.22	0.22	0.22	1.23	1.21	1.19	0.00	0.00	0.00
Sprout	5	49.92	49.76	49.46	4.80	5.04	5.04	0.06	0.14	0.20
TaoVA-100x	5	0.00	6.43	8.21	1.20	1.26	1.22	95.92	39.22	50.01
TCP Vegas	5	244.60	204.53	208.60	1.30	1.29	1.35	0.00	0.01	0.01
Verus	5	133.44	119.88	120.42	25.57	56.33	41.35	4.57	6.34	6.64
PCC-Vivace	5	146.53	167.95	117.33	39.07	16.67	13.88	1.39	0.32	0.80
WebRTC media	5	1.98	1.38	0.52	2.62	2.59	3.29	0.00	0.01	0.00

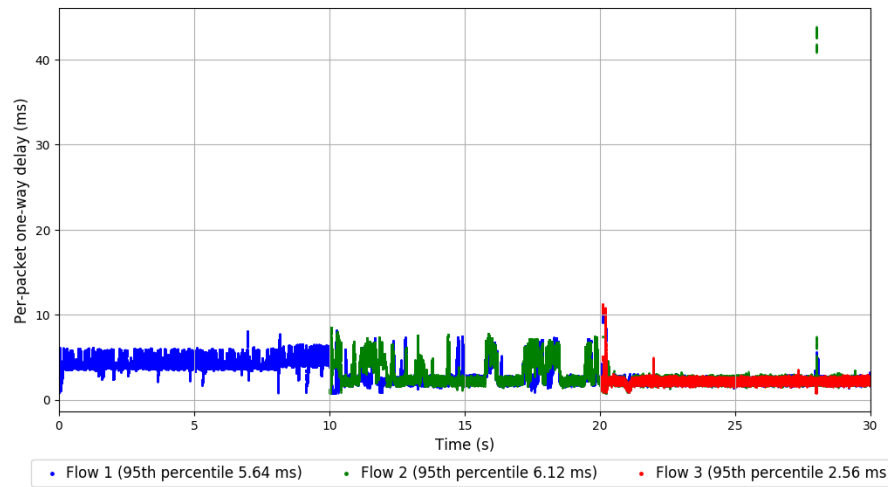
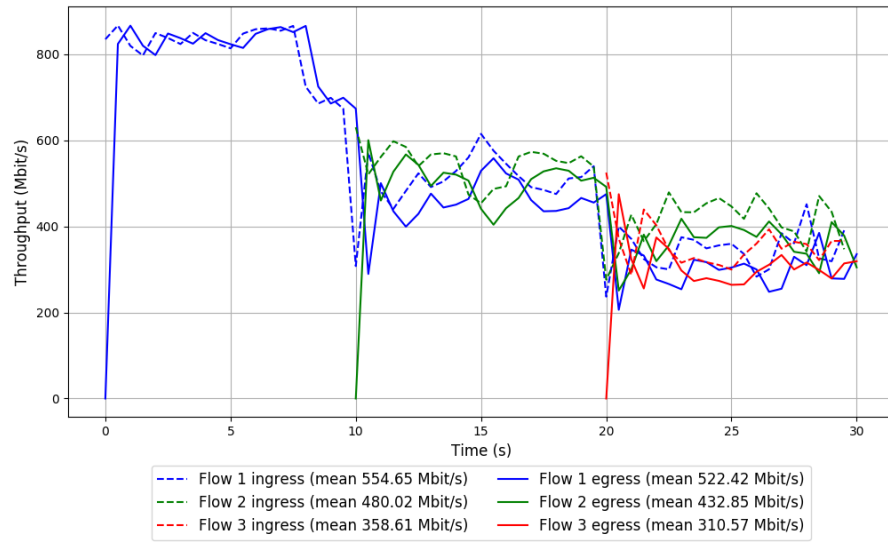


Run 1: Statistics of TCP BBR

Start at: 2018-11-15 05:03:18  
End at: 2018-11-15 05:03:48  
Local clock offset: 4.039 ms  
Remote clock offset: -3.969 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 914.04 Mbit/s  
95th percentile per-packet one-way delay: 5.694 ms  
Loss rate: 8.01%  
-- Flow 1:  
Average throughput: 522.42 Mbit/s  
95th percentile per-packet one-way delay: 5.637 ms  
Loss rate: 5.81%  
-- Flow 2:  
Average throughput: 432.85 Mbit/s  
95th percentile per-packet one-way delay: 6.119 ms  
Loss rate: 9.82%  
-- Flow 3:  
Average throughput: 310.57 Mbit/s  
95th percentile per-packet one-way delay: 2.562 ms  
Loss rate: 13.39%

# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-11-15 05:30:26

End at: 2018-11-15 05:30:56

Local clock offset: 4.528 ms

Remote clock offset: 2.674 ms

# Below is generated by plot.py at 2018-11-15 07:19:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 889.39 Mbit/s

95th percentile per-packet one-way delay: 5.836 ms

Loss rate: 7.73%

-- Flow 1:

Average throughput: 517.01 Mbit/s

95th percentile per-packet one-way delay: 5.950 ms

Loss rate: 4.94%

-- Flow 2:

Average throughput: 349.90 Mbit/s

95th percentile per-packet one-way delay: 5.642 ms

Loss rate: 11.28%

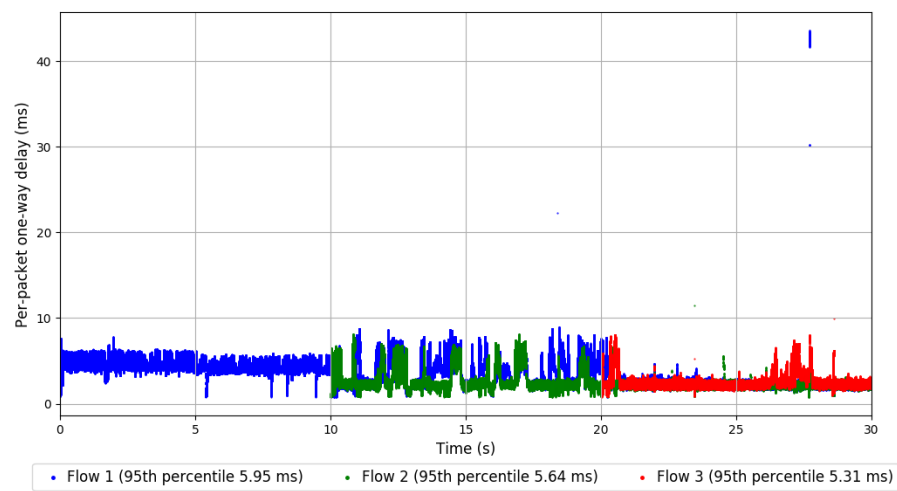
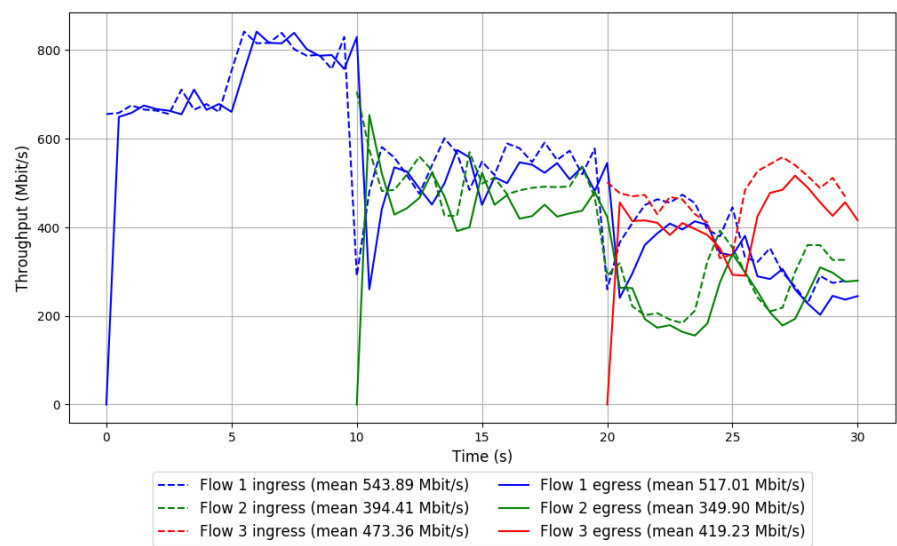
-- Flow 3:

Average throughput: 419.23 Mbit/s

95th percentile per-packet one-way delay: 5.312 ms

Loss rate: 11.43%

Run 2: Report of TCP BBR — Data Link

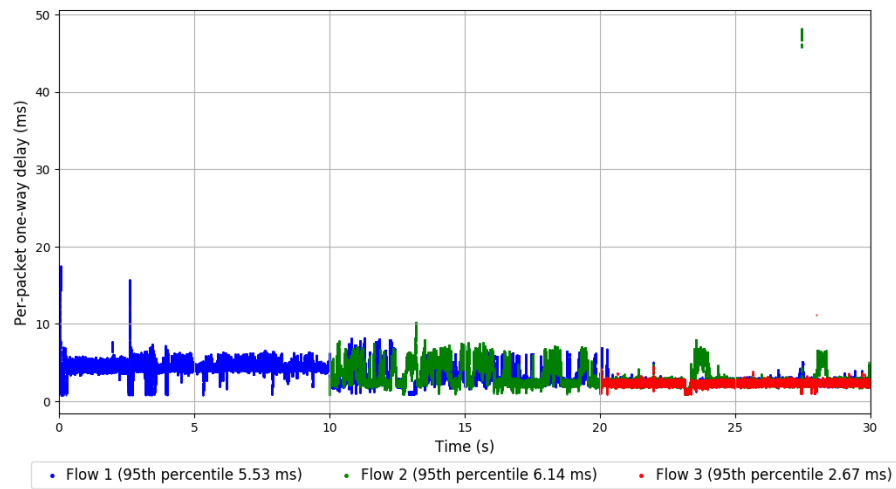
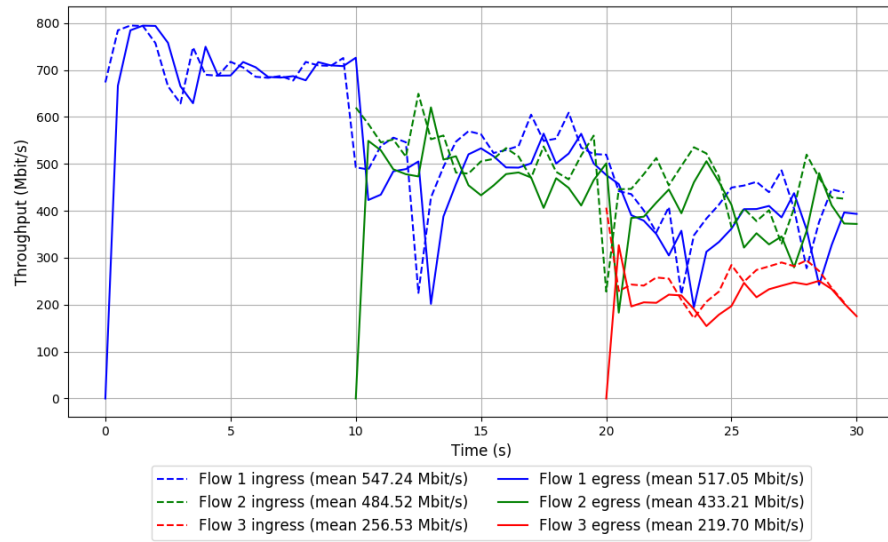


Run 3: Statistics of TCP BBR

Start at: 2018-11-15 05:57:35  
End at: 2018-11-15 05:58:05  
Local clock offset: 5.212 ms  
Remote clock offset: -0.143 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 878.84 Mbit/s  
95th percentile per-packet one-way delay: 5.719 ms  
Loss rate: 8.02%  
-- Flow 1:  
Average throughput: 517.05 Mbit/s  
95th percentile per-packet one-way delay: 5.530 ms  
Loss rate: 5.51%  
-- Flow 2:  
Average throughput: 433.21 Mbit/s  
95th percentile per-packet one-way delay: 6.141 ms  
Loss rate: 10.58%  
-- Flow 3:  
Average throughput: 219.70 Mbit/s  
95th percentile per-packet one-way delay: 2.674 ms  
Loss rate: 14.35%

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

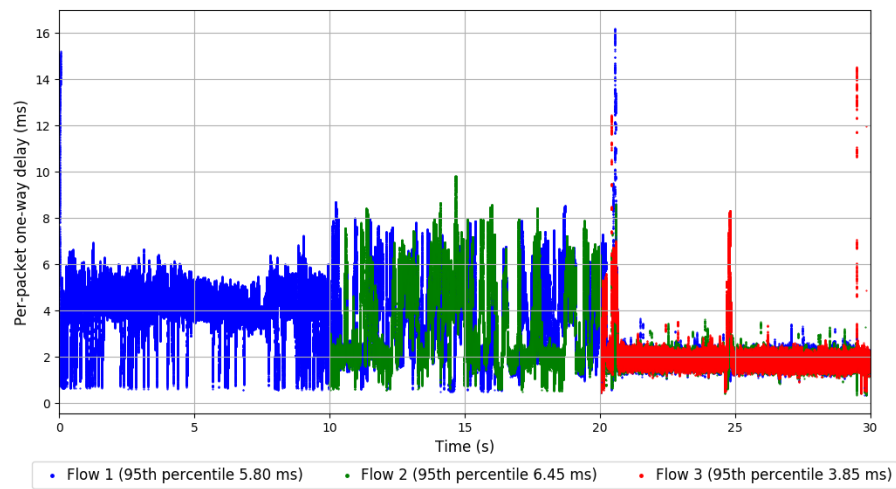
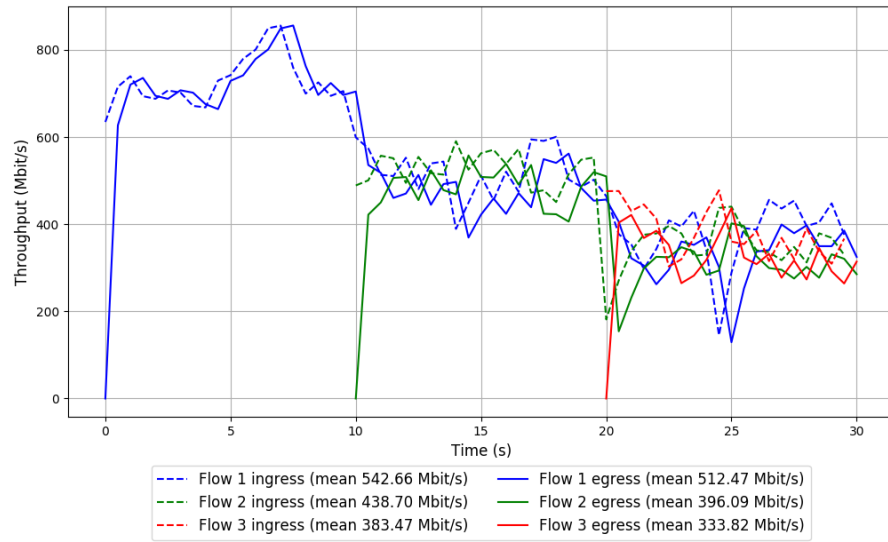


Run 4: Statistics of TCP BBR

Start at: 2018-11-15 06:24:48  
End at: 2018-11-15 06:25:18  
Local clock offset: 4.473 ms  
Remote clock offset: -5.816 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 887.27 Mbit/s  
95th percentile per-packet one-way delay: 5.987 ms  
Loss rate: 7.80%  
-- Flow 1:  
Average throughput: 512.47 Mbit/s  
95th percentile per-packet one-way delay: 5.797 ms  
Loss rate: 5.56%  
-- Flow 2:  
Average throughput: 396.09 Mbit/s  
95th percentile per-packet one-way delay: 6.451 ms  
Loss rate: 9.71%  
-- Flow 3:  
Average throughput: 333.82 Mbit/s  
95th percentile per-packet one-way delay: 3.849 ms  
Loss rate: 12.93%

#### Run 4: Report of TCP BBR — Data Link



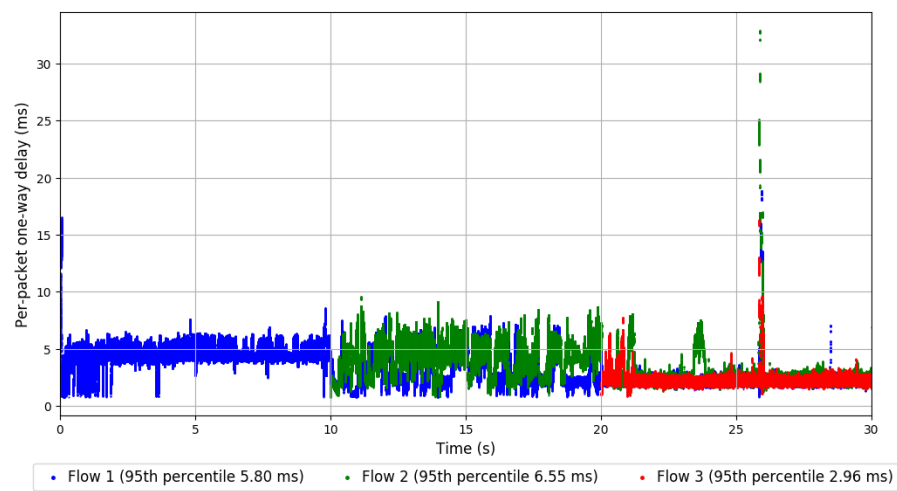
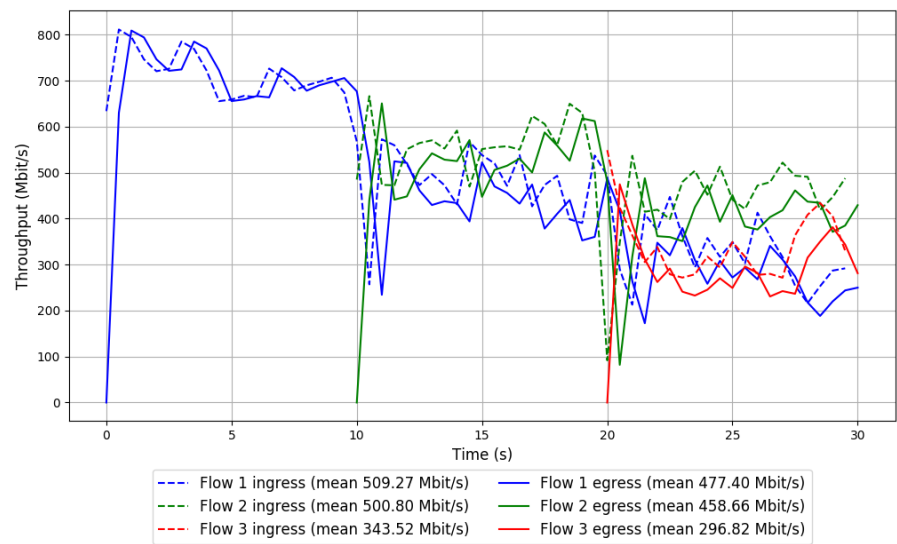


Run 5: Statistics of TCP BBR

Start at: 2018-11-15 06:51:47  
End at: 2018-11-15 06:52:17  
Local clock offset: 3.552 ms  
Remote clock offset: -0.604 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 881.75 Mbit/s  
95th percentile per-packet one-way delay: 6.022 ms  
Loss rate: 7.88%  
-- Flow 1:  
Average throughput: 477.40 Mbit/s  
95th percentile per-packet one-way delay: 5.799 ms  
Loss rate: 6.26%  
-- Flow 2:  
Average throughput: 458.66 Mbit/s  
95th percentile per-packet one-way delay: 6.553 ms  
Loss rate: 8.39%  
-- Flow 3:  
Average throughput: 296.82 Mbit/s  
95th percentile per-packet one-way delay: 2.959 ms  
Loss rate: 13.60%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-11-15 05:09:37

End at: 2018-11-15 05:10:07

Local clock offset: 4.162 ms

Remote clock offset: -3.89 ms

# Below is generated by plot.py at 2018-11-15 07:19:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.01 Mbit/s

95th percentile per-packet one-way delay: 1.400 ms

Loss rate: 49.02%

-- Flow 1:

Average throughput: 6.52 Mbit/s

95th percentile per-packet one-way delay: 1.377 ms

Loss rate: 44.38%

-- Flow 2:

Average throughput: 6.78 Mbit/s

95th percentile per-packet one-way delay: 1.419 ms

Loss rate: 54.78%

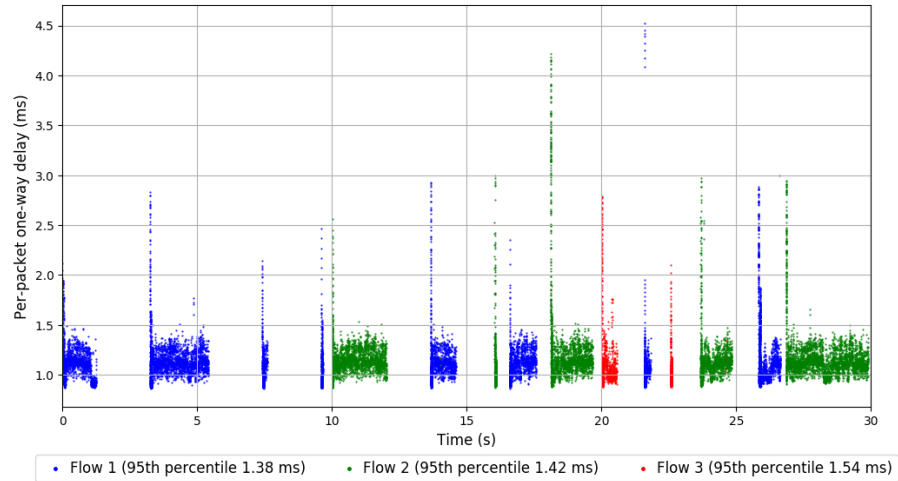
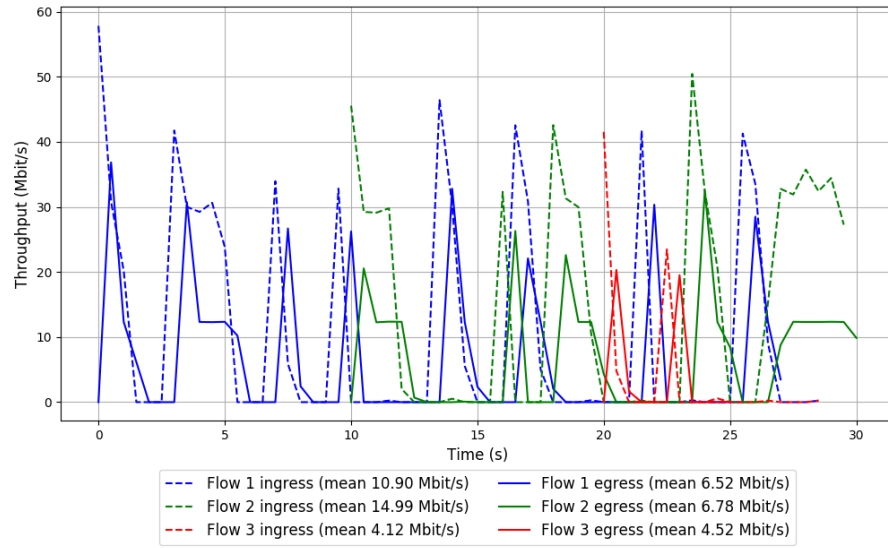
-- Flow 3:

Average throughput: 4.52 Mbit/s

95th percentile per-packet one-way delay: 1.545 ms

Loss rate: 41.37%

# Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-11-15 05:36:46

End at: 2018-11-15 05:37:16

Local clock offset: 4.852 ms

Remote clock offset: 3.796 ms

# Below is generated by plot.py at 2018-11-15 07:19:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.76 Mbit/s

95th percentile per-packet one-way delay: 1.334 ms

Loss rate: 52.91%

-- Flow 1:

Average throughput: 6.95 Mbit/s

95th percentile per-packet one-way delay: 1.243 ms

Loss rate: 53.80%

-- Flow 2:

Average throughput: 4.70 Mbit/s

95th percentile per-packet one-way delay: 1.465 ms

Loss rate: 54.88%

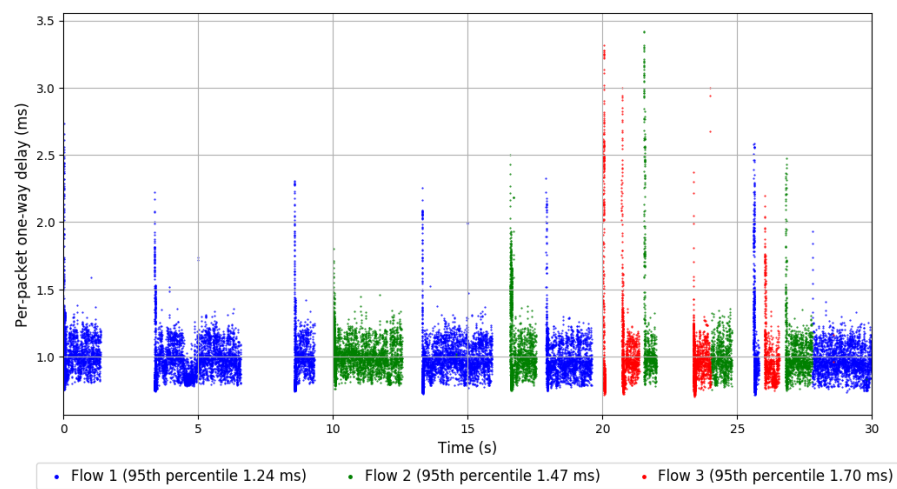
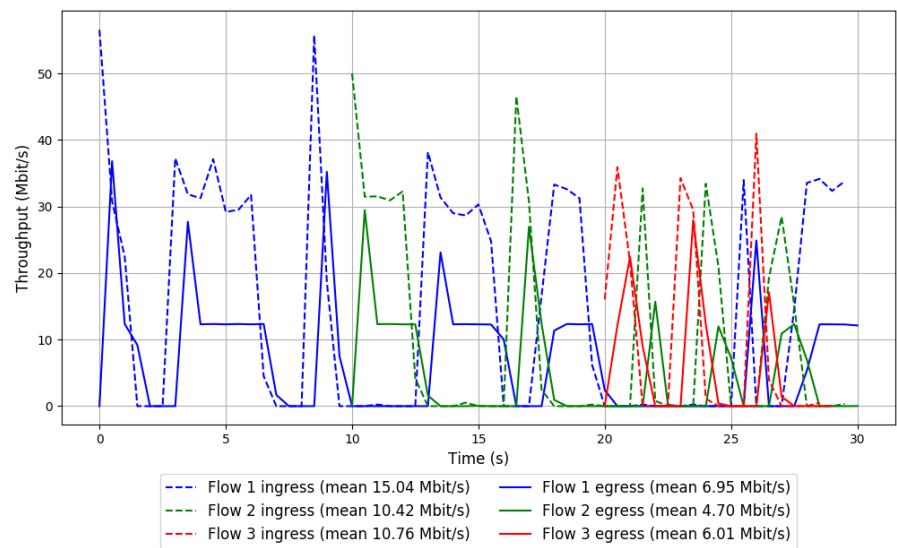
-- Flow 3:

Average throughput: 6.01 Mbit/s

95th percentile per-packet one-way delay: 1.698 ms

Loss rate: 44.14%

Run 2: Report of Copa — Data Link

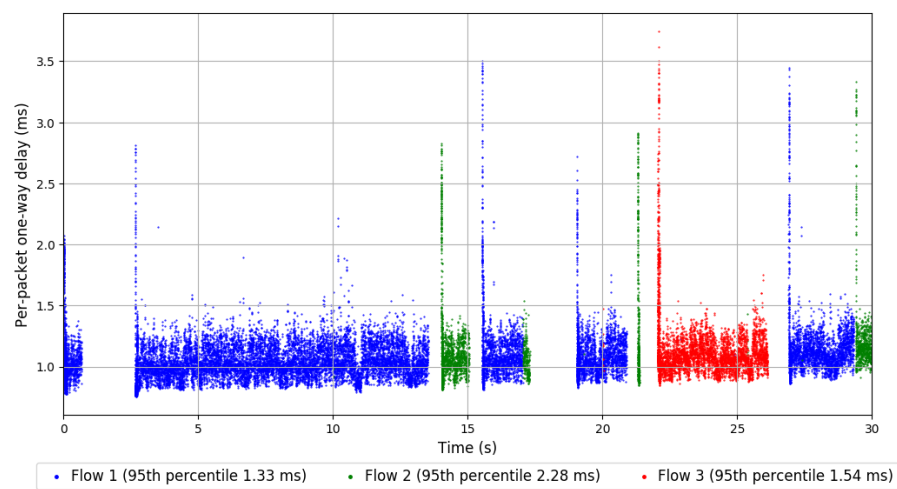
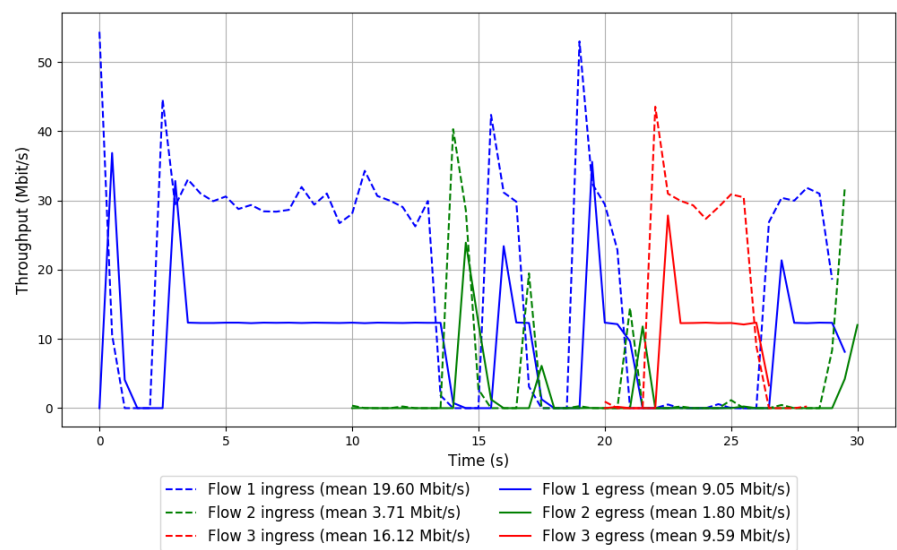


Run 3: Statistics of Copa

Start at: 2018-11-15 06:03:57  
End at: 2018-11-15 06:04:27  
Local clock offset: 4.818 ms  
Remote clock offset: -2.615 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 12.01 Mbit/s  
95th percentile per-packet one-way delay: 1.395 ms  
Loss rate: 53.81%  
-- Flow 1:  
Average throughput: 9.05 Mbit/s  
95th percentile per-packet one-way delay: 1.335 ms  
Loss rate: 53.79%  
-- Flow 2:  
Average throughput: 1.80 Mbit/s  
95th percentile per-packet one-way delay: 2.276 ms  
Loss rate: 51.56%  
-- Flow 3:  
Average throughput: 9.59 Mbit/s  
95th percentile per-packet one-way delay: 1.543 ms  
Loss rate: 55.19%

Run 3: Report of Copa — Data Link



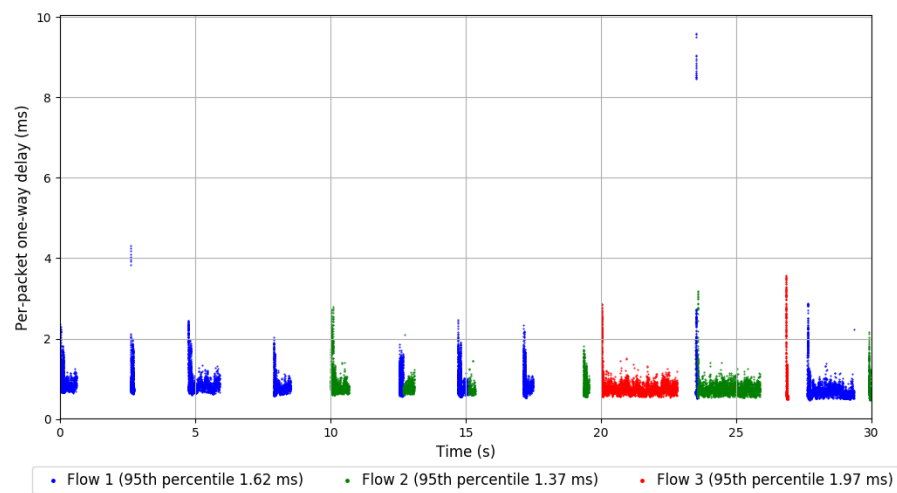
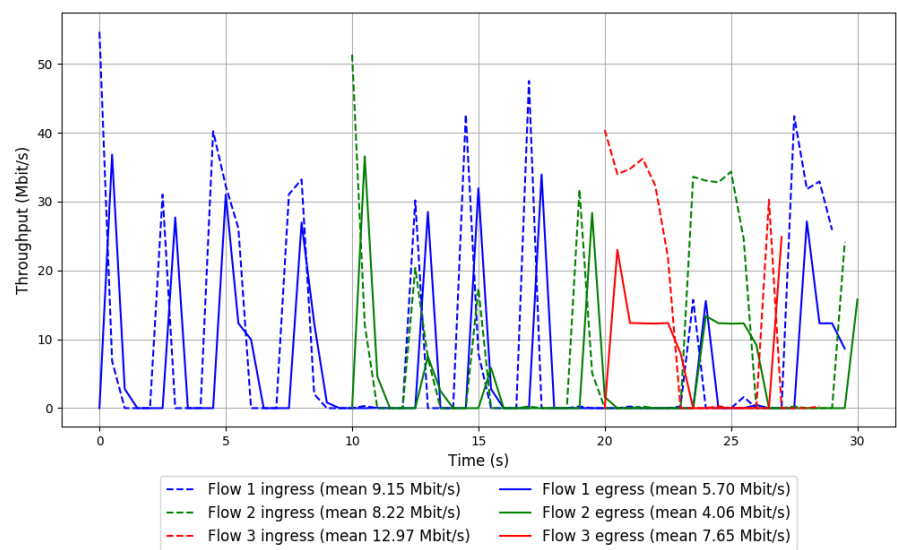


Run 4: Statistics of Copa

Start at: 2018-11-15 06:31:07  
End at: 2018-11-15 06:31:37  
Local clock offset: 4.163 ms  
Remote clock offset: -2.902 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 10.03 Mbit/s  
95th percentile per-packet one-way delay: 1.586 ms  
Loss rate: 45.10%  
-- Flow 1:  
Average throughput: 5.70 Mbit/s  
95th percentile per-packet one-way delay: 1.618 ms  
Loss rate: 37.76%  
-- Flow 2:  
Average throughput: 4.06 Mbit/s  
95th percentile per-packet one-way delay: 1.367 ms  
Loss rate: 50.61%  
-- Flow 3:  
Average throughput: 7.65 Mbit/s  
95th percentile per-packet one-way delay: 1.974 ms  
Loss rate: 54.35%

Run 4: Report of Copa — Data Link

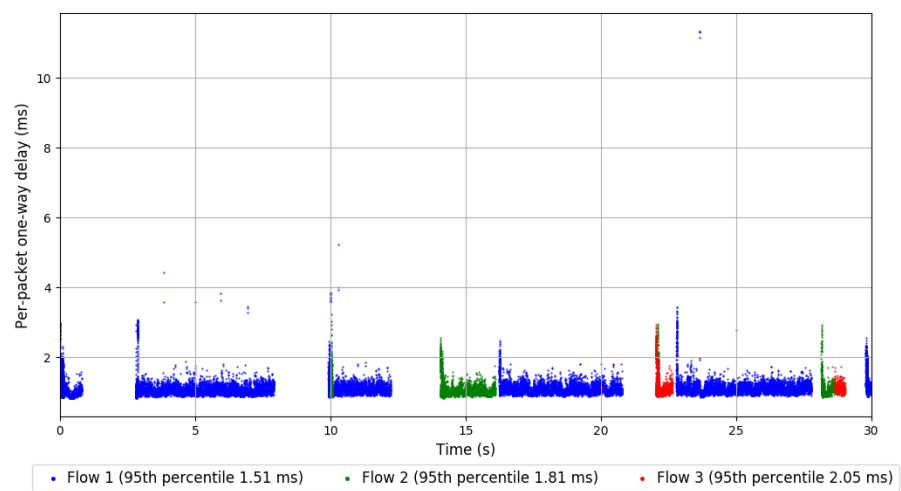
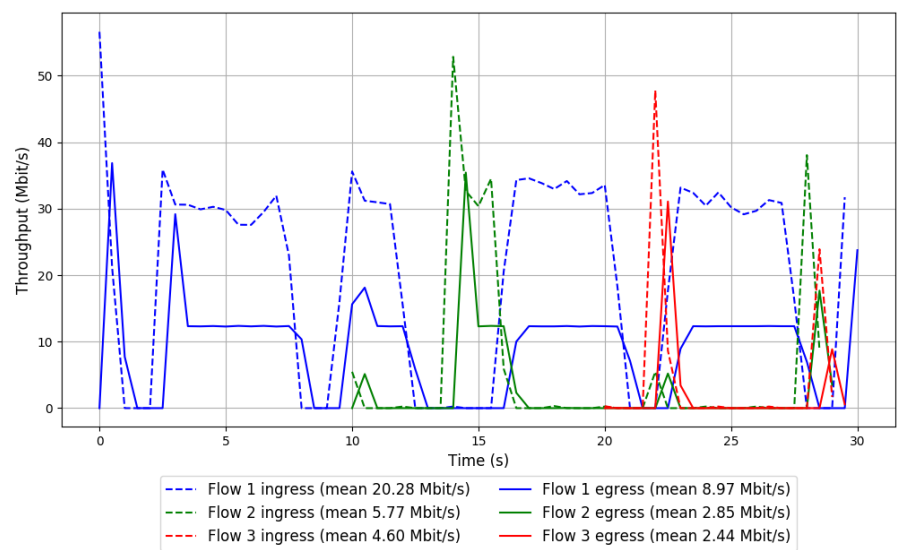


Run 5: Statistics of Copa

Start at: 2018-11-15 06:58:08  
End at: 2018-11-15 06:58:38  
Local clock offset: 3.624 ms  
Remote clock offset: -0.602 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.47 Mbit/s  
95th percentile per-packet one-way delay: 1.598 ms  
Loss rate: 54.58%  
-- Flow 1:  
Average throughput: 8.97 Mbit/s  
95th percentile per-packet one-way delay: 1.511 ms  
Loss rate: 55.80%  
-- Flow 2:  
Average throughput: 2.85 Mbit/s  
95th percentile per-packet one-way delay: 1.810 ms  
Loss rate: 50.65%  
-- Flow 3:  
Average throughput: 2.44 Mbit/s  
95th percentile per-packet one-way delay: 2.053 ms  
Loss rate: 46.90%

Run 5: Report of Copa — Data Link

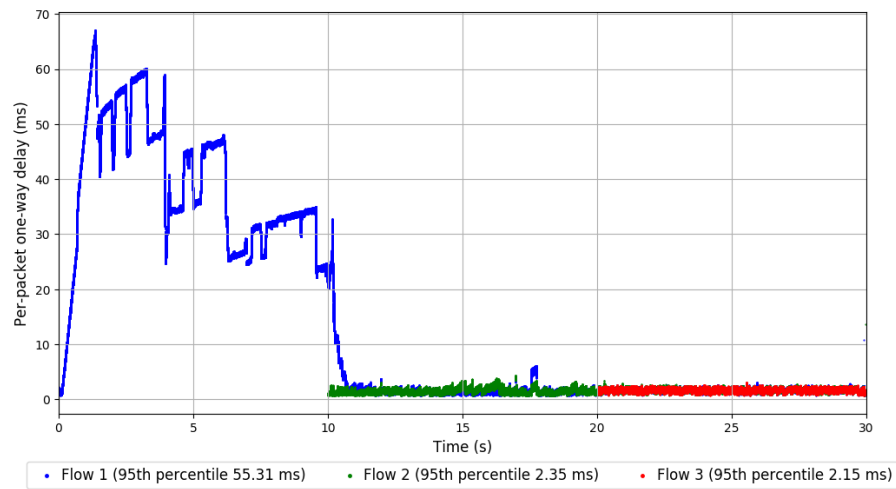
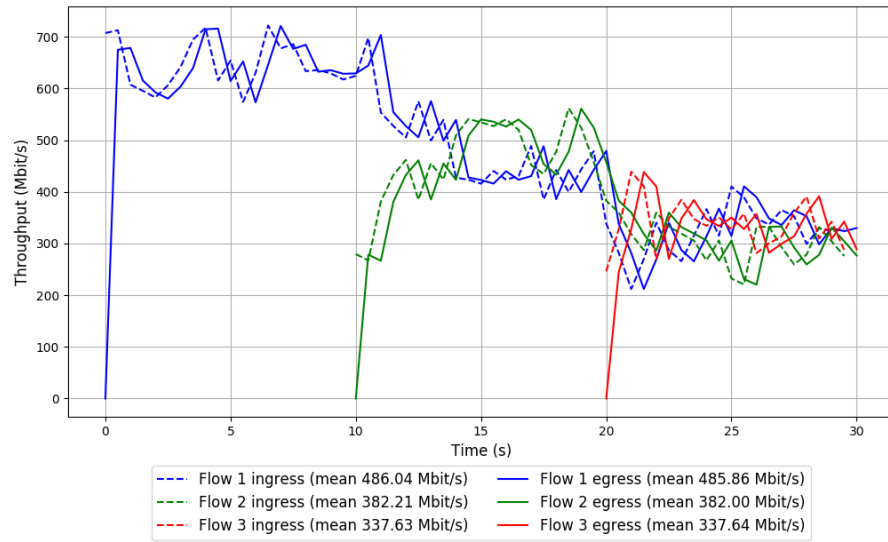


Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 04:55:50  
End at: 2018-11-15 04:56:21  
Local clock offset: 3.763 ms  
Remote clock offset: -4.042 ms

# Below is generated by plot.py at 2018-11-15 07:19:49  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 852.49 Mbit/s  
95th percentile per-packet one-way delay: 48.290 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 485.86 Mbit/s  
95th percentile per-packet one-way delay: 55.314 ms  
Loss rate: 0.04%  
-- Flow 2:  
Average throughput: 382.00 Mbit/s  
95th percentile per-packet one-way delay: 2.353 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 337.64 Mbit/s  
95th percentile per-packet one-way delay: 2.147 ms  
Loss rate: 0.06%

# Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 05:22:52

End at: 2018-11-15 05:23:22

Local clock offset: 4.251 ms

Remote clock offset: 0.298 ms

# Below is generated by plot.py at 2018-11-15 07:19:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 870.41 Mbit/s

95th percentile per-packet one-way delay: 32.199 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 499.70 Mbit/s

95th percentile per-packet one-way delay: 35.547 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 401.31 Mbit/s

95th percentile per-packet one-way delay: 1.993 ms

Loss rate: 0.06%

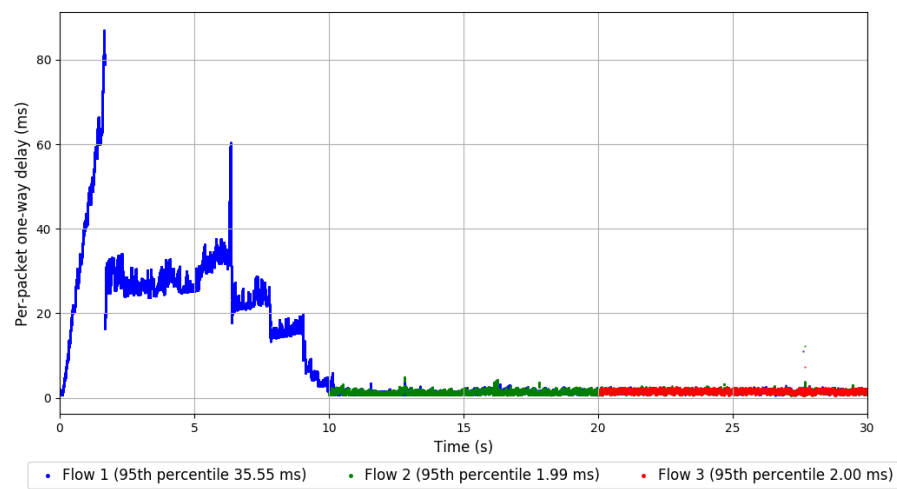
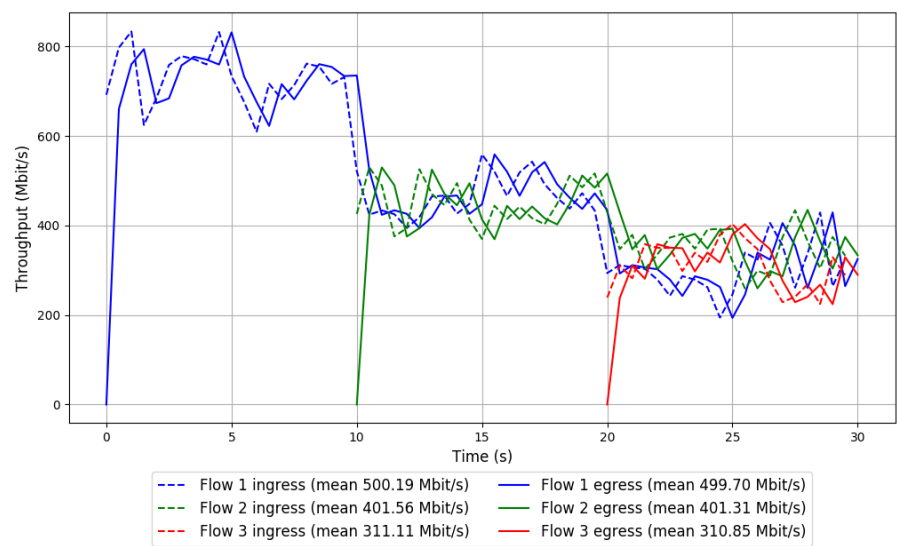
-- Flow 3:

Average throughput: 310.85 Mbit/s

95th percentile per-packet one-way delay: 2.005 ms

Loss rate: 0.07%

Run 2: Report of TCP Cubic — Data Link





Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 05:50:01

End at: 2018-11-15 05:50:31

Local clock offset: 5.171 ms

Remote clock offset: 5.338 ms

# Below is generated by plot.py at 2018-11-15 07:19:49

# Datalink statistics

-- Total of 3 flows:

Average throughput: 893.03 Mbit/s

95th percentile per-packet one-way delay: 5.875 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 519.08 Mbit/s

95th percentile per-packet one-way delay: 6.397 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 398.38 Mbit/s

95th percentile per-packet one-way delay: 2.544 ms

Loss rate: 0.05%

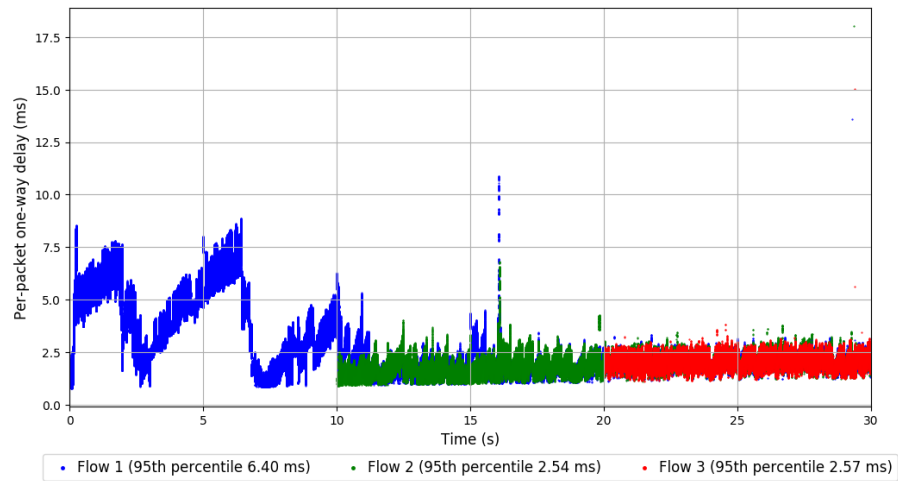
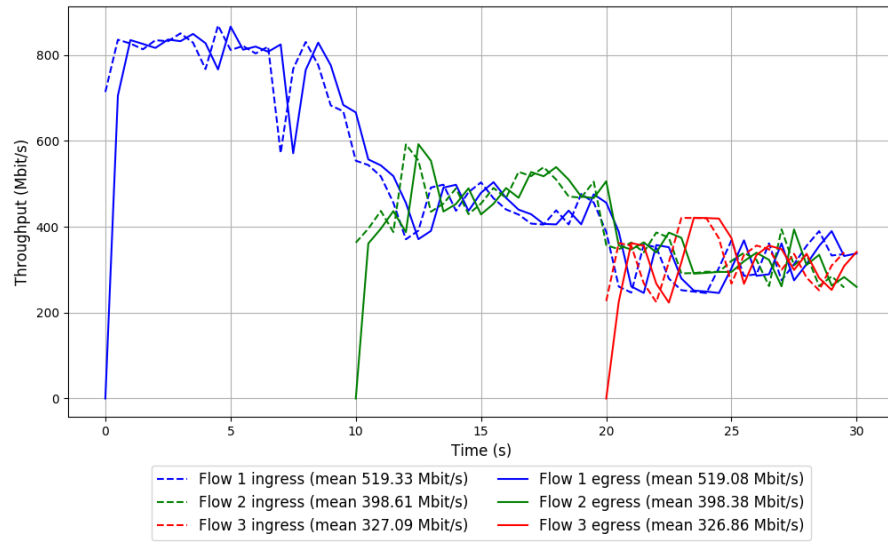
-- Flow 3:

Average throughput: 326.86 Mbit/s

95th percentile per-packet one-way delay: 2.571 ms

Loss rate: 0.06%

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

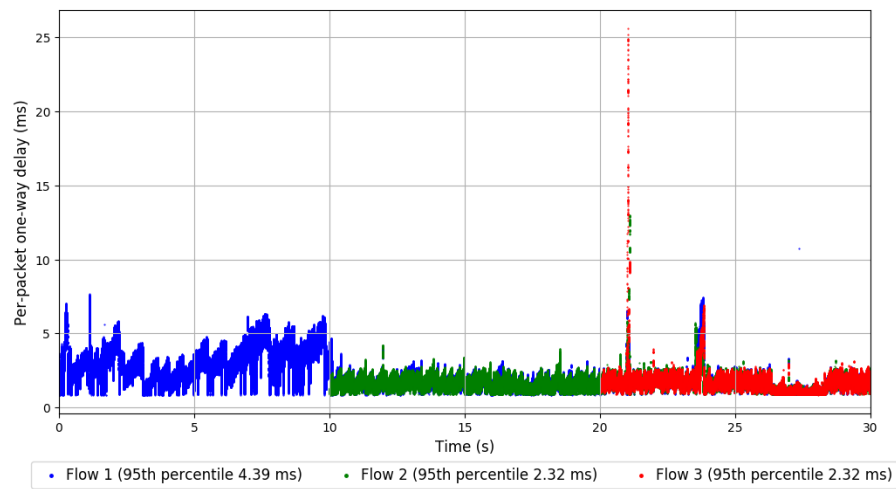
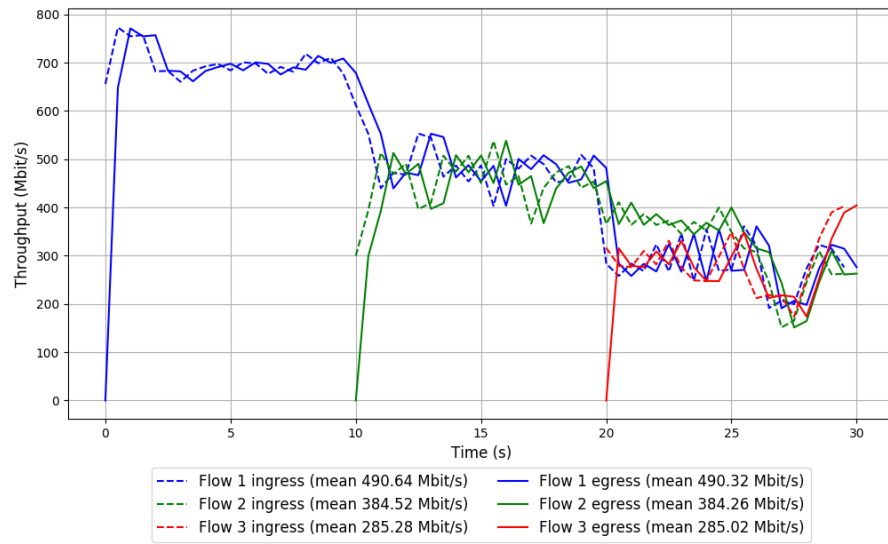


Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 06:17:14  
End at: 2018-11-15 06:17:44  
Local clock offset: 4.54 ms  
Remote clock offset: -5.139 ms

# Below is generated by plot.py at 2018-11-15 07:28:39  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 841.09 Mbit/s  
95th percentile per-packet one-way delay: 4.030 ms  
Loss rate: 0.07%  
-- Flow 1:  
Average throughput: 490.32 Mbit/s  
95th percentile per-packet one-way delay: 4.390 ms  
Loss rate: 0.06%  
-- Flow 2:  
Average throughput: 384.26 Mbit/s  
95th percentile per-packet one-way delay: 2.318 ms  
Loss rate: 0.07%  
-- Flow 3:  
Average throughput: 285.02 Mbit/s  
95th percentile per-packet one-way delay: 2.318 ms  
Loss rate: 0.09%

#### Run 4: Report of TCP Cubic — Data Link

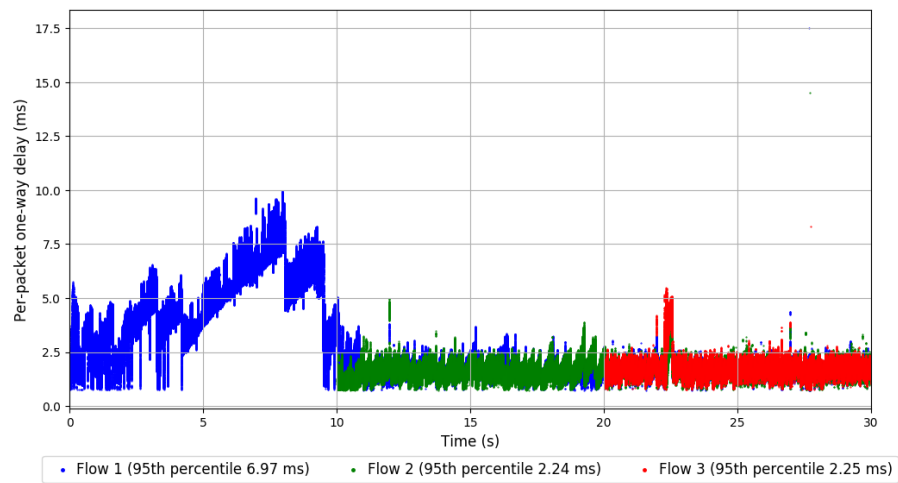
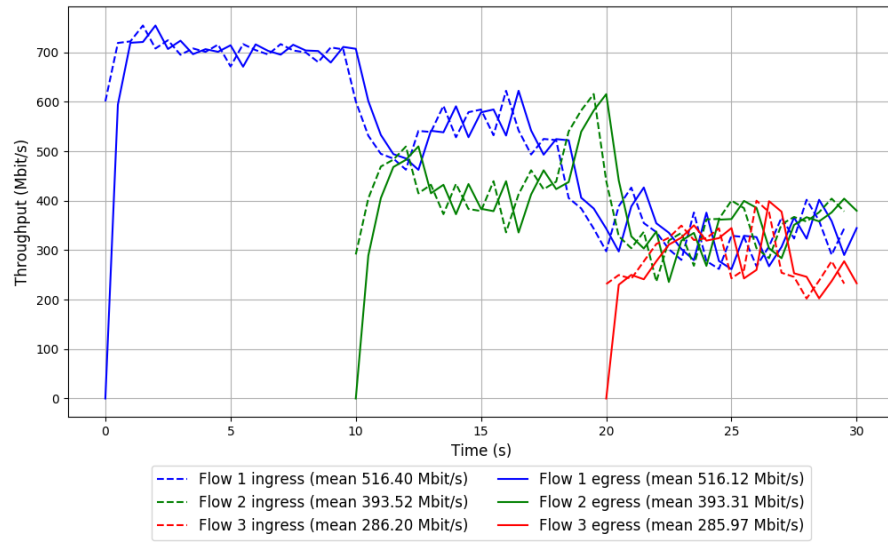


Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 06:44:16  
End at: 2018-11-15 06:44:46  
Local clock offset: 3.69 ms  
Remote clock offset: -0.865 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 873.19 Mbit/s  
95th percentile per-packet one-way delay: 6.384 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 516.12 Mbit/s  
95th percentile per-packet one-way delay: 6.970 ms  
Loss rate: 0.05%  
-- Flow 2:  
Average throughput: 393.31 Mbit/s  
95th percentile per-packet one-way delay: 2.244 ms  
Loss rate: 0.05%  
-- Flow 3:  
Average throughput: 285.97 Mbit/s  
95th percentile per-packet one-way delay: 2.255 ms  
Loss rate: 0.08%

### Run 5: Report of TCP Cubic — Data Link

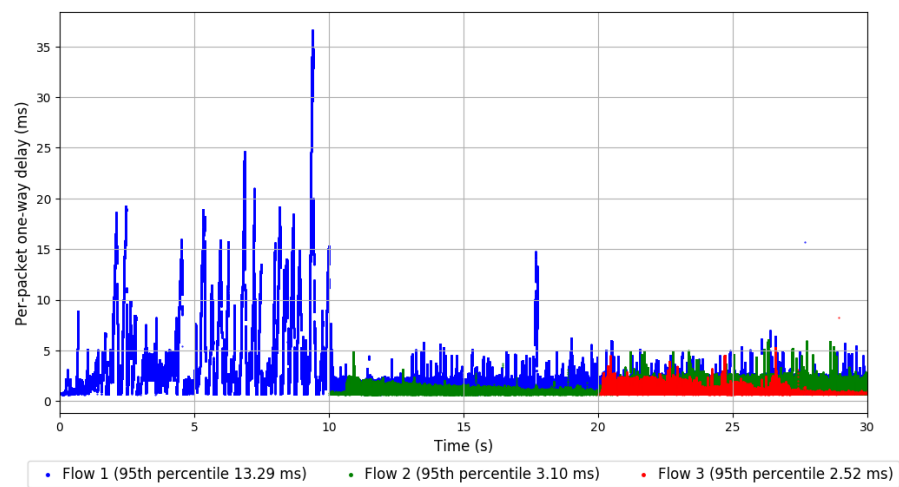
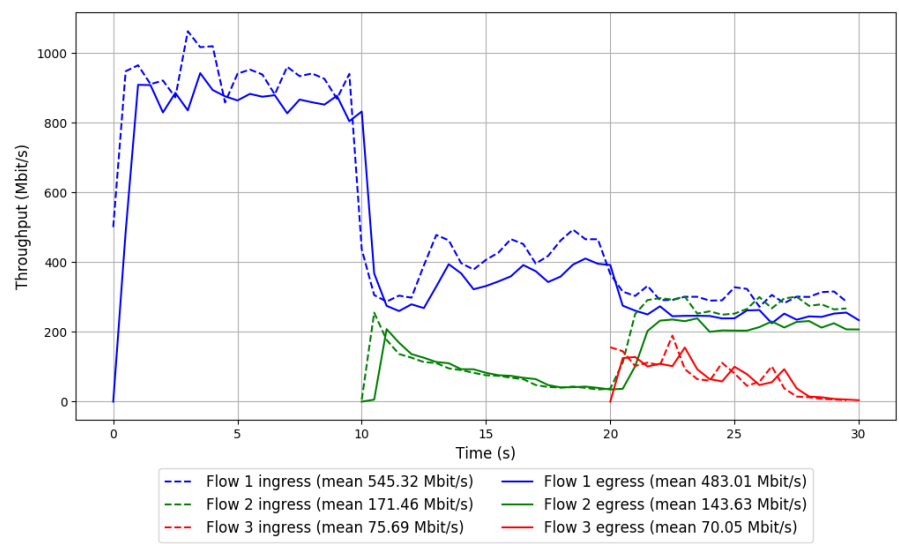


Run 1: Statistics of FillP

Start at: 2018-11-15 05:07:59  
End at: 2018-11-15 05:08:29  
Local clock offset: 4.147 ms  
Remote clock offset: -4.008 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 601.69 Mbit/s  
95th percentile per-packet one-way delay: 12.192 ms  
Loss rate: 12.08%  
-- Flow 1:  
Average throughput: 483.01 Mbit/s  
95th percentile per-packet one-way delay: 13.285 ms  
Loss rate: 11.43%  
-- Flow 2:  
Average throughput: 143.63 Mbit/s  
95th percentile per-packet one-way delay: 3.102 ms  
Loss rate: 16.23%  
-- Flow 3:  
Average throughput: 70.05 Mbit/s  
95th percentile per-packet one-way delay: 2.524 ms  
Loss rate: 7.45%

Run 1: Report of FillP — Data Link





Run 2: Statistics of FillP

Start at: 2018-11-15 05:35:07

End at: 2018-11-15 05:35:37

Local clock offset: 4.781 ms

Remote clock offset: 3.528 ms

# Below is generated by plot.py at 2018-11-15 07:29:26

# Datalink statistics

-- Total of 3 flows:

Average throughput: 615.30 Mbit/s

95th percentile per-packet one-way delay: 10.219 ms

Loss rate: 12.10%

-- Flow 1:

Average throughput: 416.58 Mbit/s

95th percentile per-packet one-way delay: 11.015 ms

Loss rate: 11.01%

-- Flow 2:

Average throughput: 250.40 Mbit/s

95th percentile per-packet one-way delay: 3.998 ms

Loss rate: 15.07%

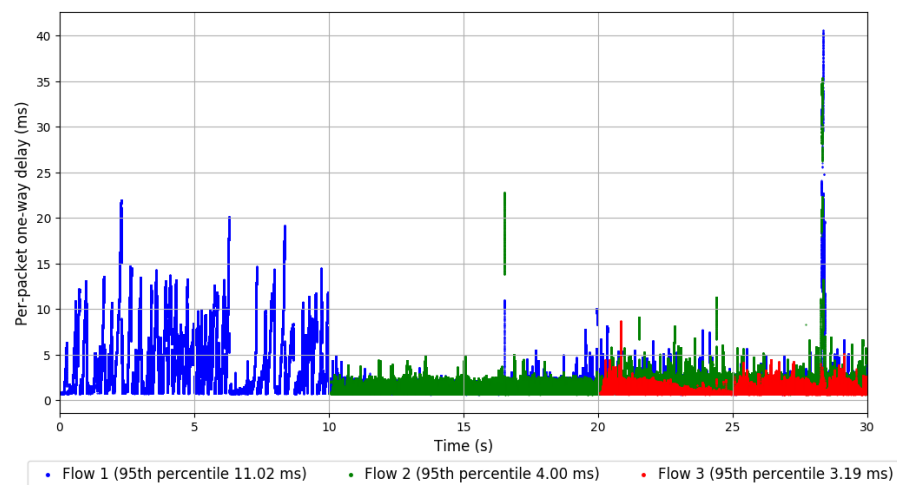
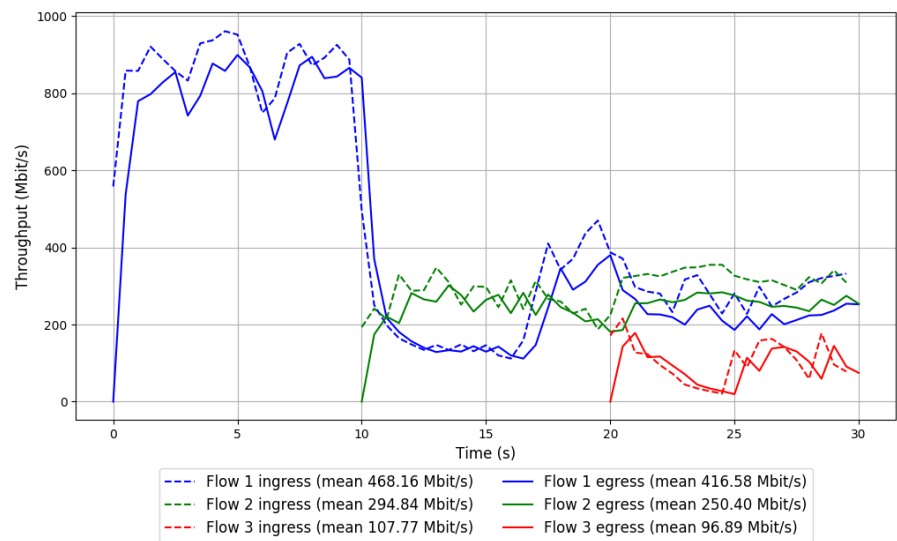
-- Flow 3:

Average throughput: 96.89 Mbit/s

95th percentile per-packet one-way delay: 3.192 ms

Loss rate: 10.10%

Run 2: Report of FillP — Data Link

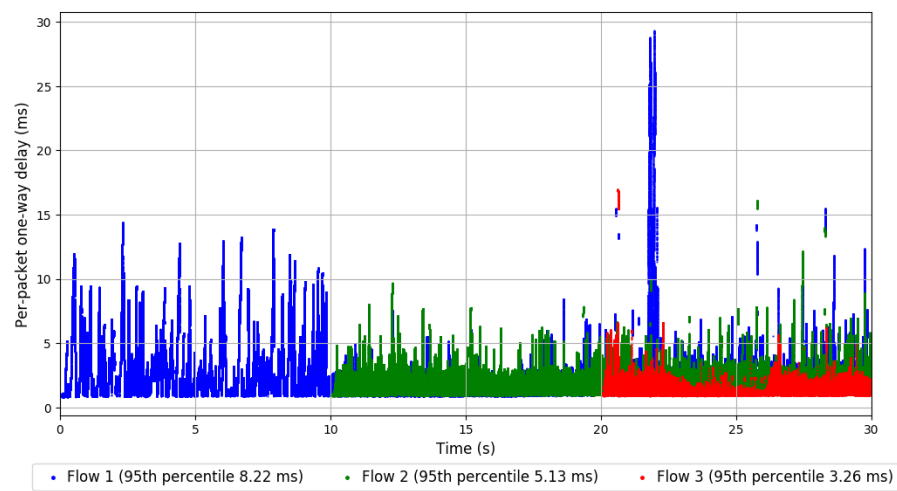
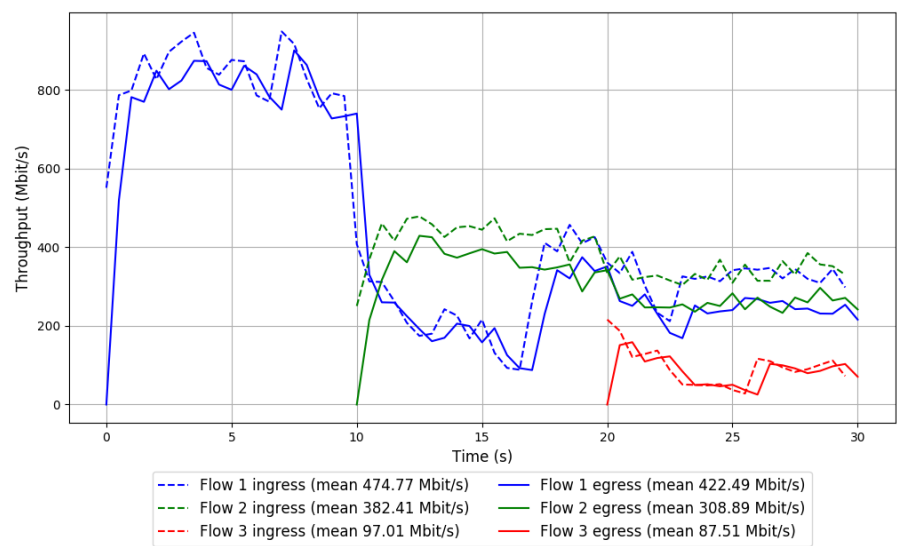


Run 3: Statistics of FillP

Start at: 2018-11-15 06:02:16  
End at: 2018-11-15 06:02:46  
Local clock offset: 4.886 ms  
Remote clock offset: -1.964 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 657.04 Mbit/s  
95th percentile per-packet one-way delay: 6.889 ms  
Loss rate: 13.70%  
-- Flow 1:  
Average throughput: 422.49 Mbit/s  
95th percentile per-packet one-way delay: 8.224 ms  
Loss rate: 11.01%  
-- Flow 2:  
Average throughput: 308.89 Mbit/s  
95th percentile per-packet one-way delay: 5.131 ms  
Loss rate: 19.22%  
-- Flow 3:  
Average throughput: 87.51 Mbit/s  
95th percentile per-packet one-way delay: 3.261 ms  
Loss rate: 9.79%

Run 3: Report of FillP — Data Link

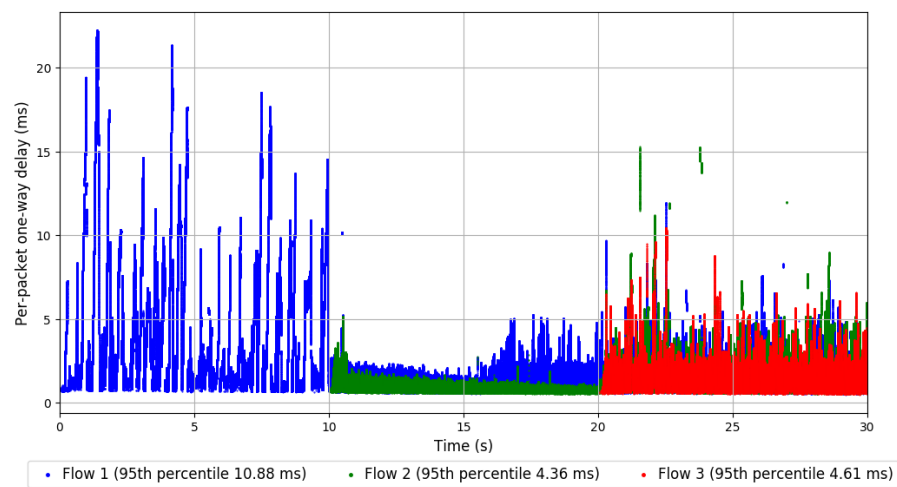
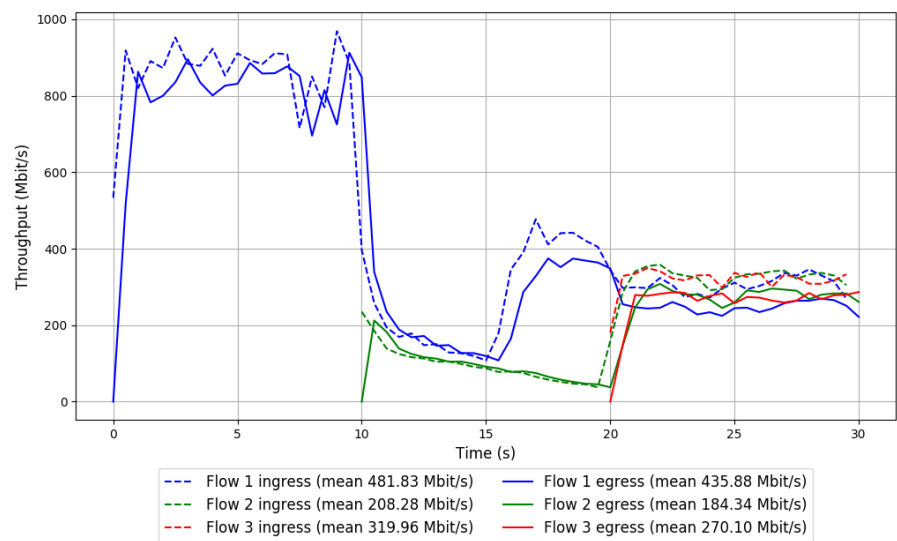


Run 4: Statistics of FillP

Start at: 2018-11-15 06:29:28  
End at: 2018-11-15 06:29:58  
Local clock offset: 4.275 ms  
Remote clock offset: -3.339 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 647.80 Mbit/s  
95th percentile per-packet one-way delay: 9.598 ms  
Loss rate: 10.79%  
-- Flow 1:  
Average throughput: 435.88 Mbit/s  
95th percentile per-packet one-way delay: 10.876 ms  
Loss rate: 9.53%  
-- Flow 2:  
Average throughput: 184.34 Mbit/s  
95th percentile per-packet one-way delay: 4.356 ms  
Loss rate: 11.48%  
-- Flow 3:  
Average throughput: 270.10 Mbit/s  
95th percentile per-packet one-way delay: 4.605 ms  
Loss rate: 15.58%

Run 4: Report of FillP — Data Link

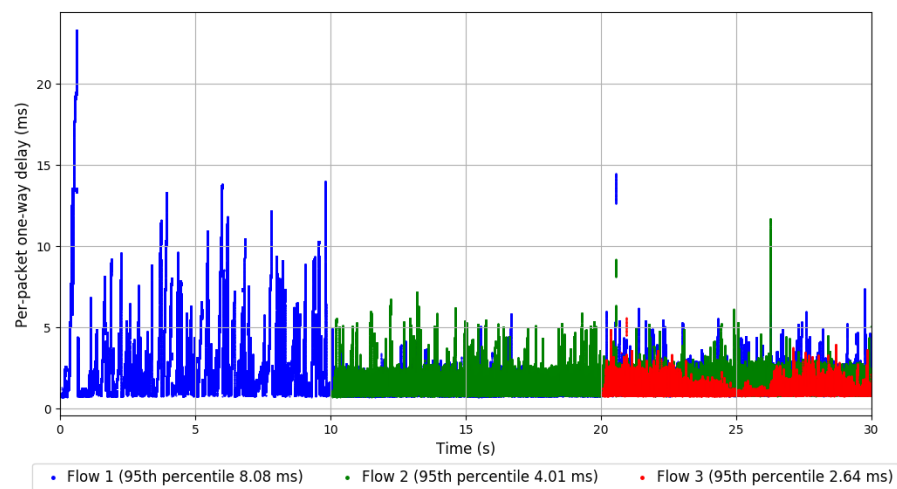
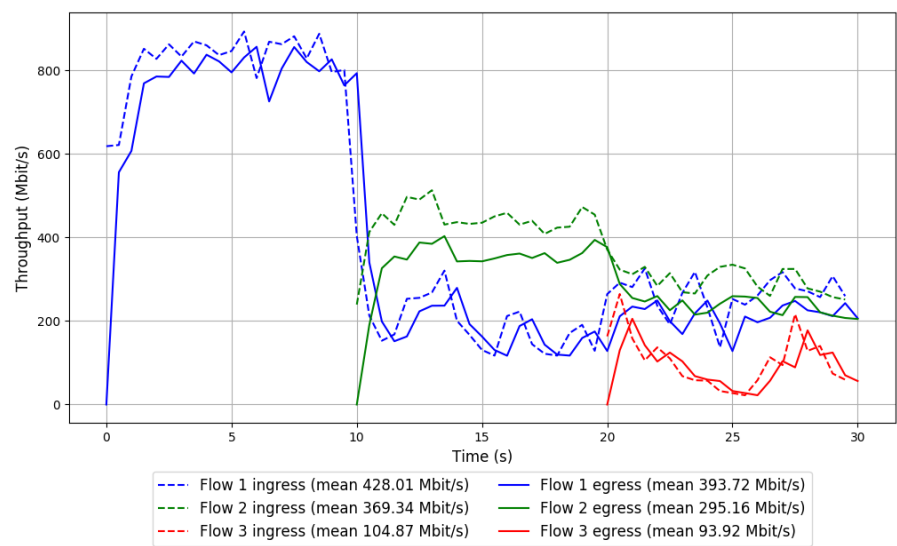


Run 5: Statistics of FillP

Start at: 2018-11-15 06:56:28  
End at: 2018-11-15 06:56:58  
Local clock offset: 3.51 ms  
Remote clock offset: -0.546 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 621.28 Mbit/s  
95th percentile per-packet one-way delay: 6.789 ms  
Loss rate: 12.32%  
-- Flow 1:  
Average throughput: 393.72 Mbit/s  
95th percentile per-packet one-way delay: 8.077 ms  
Loss rate: 8.01%  
-- Flow 2:  
Average throughput: 295.16 Mbit/s  
95th percentile per-packet one-way delay: 4.008 ms  
Loss rate: 20.07%  
-- Flow 3:  
Average throughput: 93.92 Mbit/s  
95th percentile per-packet one-way delay: 2.640 ms  
Loss rate: 10.44%

Run 5: Report of FillP — Data Link



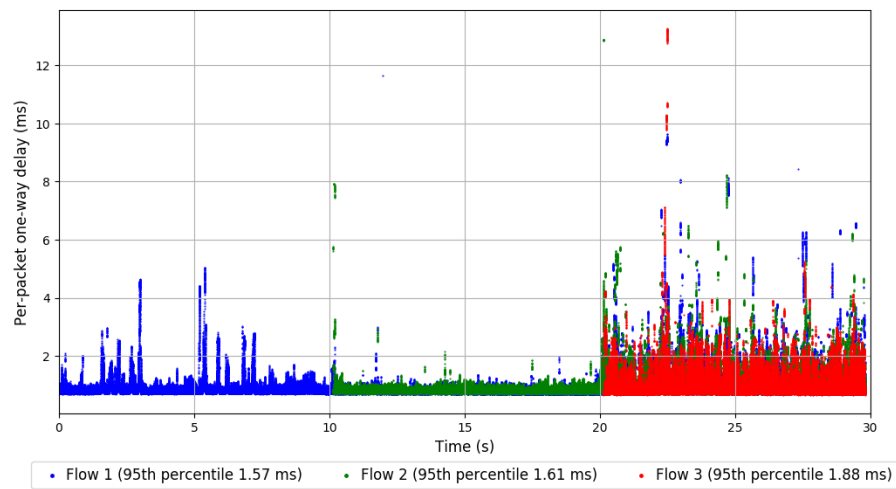
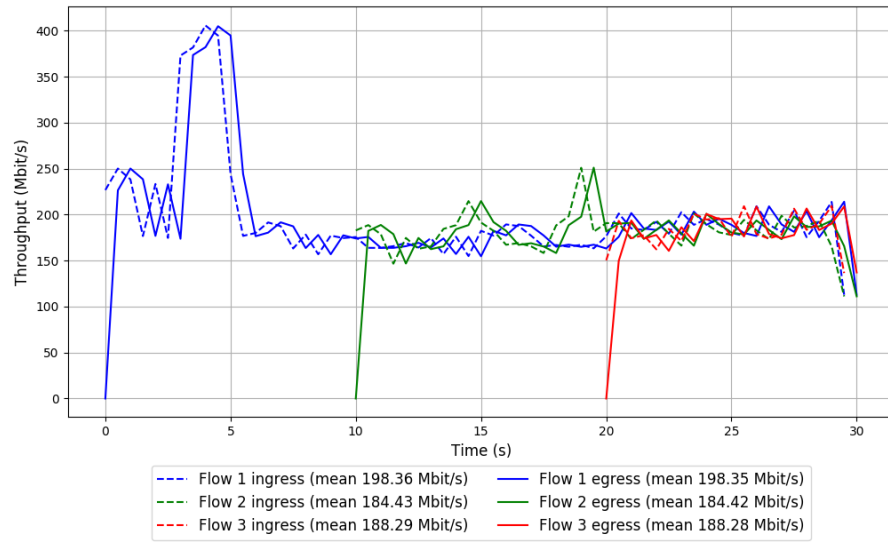


```
Run 1: Statistics of Indigo

Start at: 2018-11-15 04:54:15
End at: 2018-11-15 04:54:45
Local clock offset: 3.788 ms
Remote clock offset: -4.135 ms

# Below is generated by plot.py at 2018-11-15 07:29:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 381.37 Mbit/s
95th percentile per-packet one-way delay: 1.661 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 198.35 Mbit/s
95th percentile per-packet one-way delay: 1.569 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 184.42 Mbit/s
95th percentile per-packet one-way delay: 1.614 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 188.28 Mbit/s
95th percentile per-packet one-way delay: 1.883 ms
Loss rate: 0.00%
```

## Run 1: Report of Indigo — Data Link

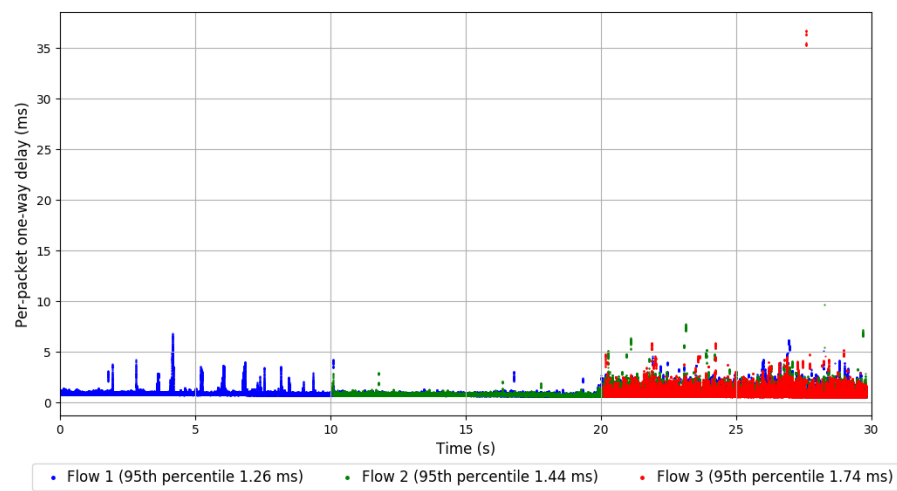
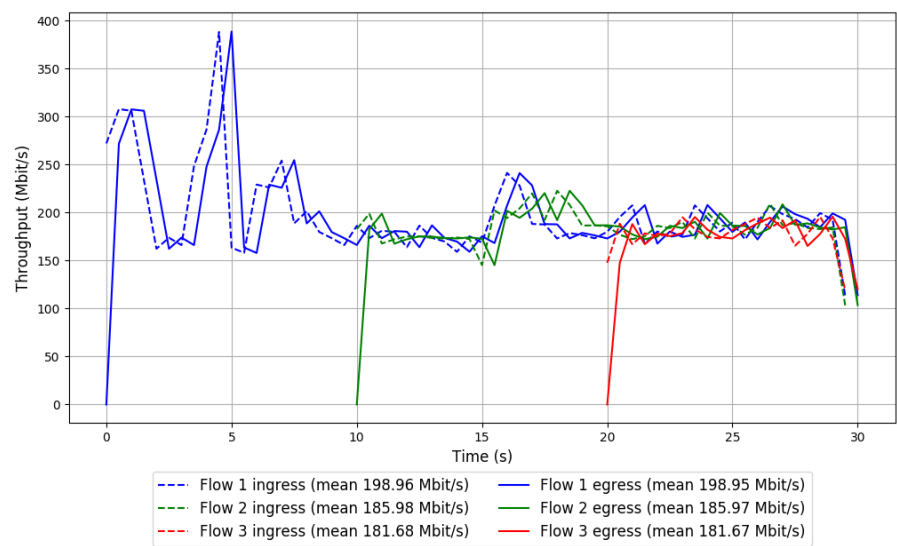


Run 2: Statistics of Indigo

Start at: 2018-11-15 05:21:16  
End at: 2018-11-15 05:21:46  
Local clock offset: 4.235 ms  
Remote clock offset: -0.465 ms

# Below is generated by plot.py at 2018-11-15 07:29:26  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 381.37 Mbit/s  
95th percentile per-packet one-way delay: 1.425 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 198.95 Mbit/s  
95th percentile per-packet one-way delay: 1.258 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 185.97 Mbit/s  
95th percentile per-packet one-way delay: 1.435 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 181.67 Mbit/s  
95th percentile per-packet one-way delay: 1.743 ms  
Loss rate: 0.01%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-11-15 05:48:25

End at: 2018-11-15 05:48:55

Local clock offset: 5.144 ms

Remote clock offset: 5.123 ms

# Below is generated by plot.py at 2018-11-15 07:33:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 389.02 Mbit/s

95th percentile per-packet one-way delay: 1.614 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 201.78 Mbit/s

95th percentile per-packet one-way delay: 1.492 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 192.52 Mbit/s

95th percentile per-packet one-way delay: 1.564 ms

Loss rate: 0.00%

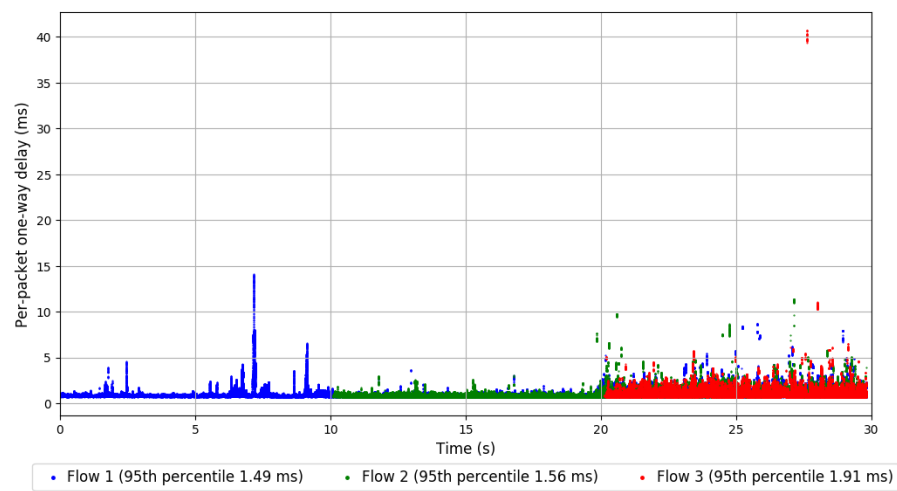
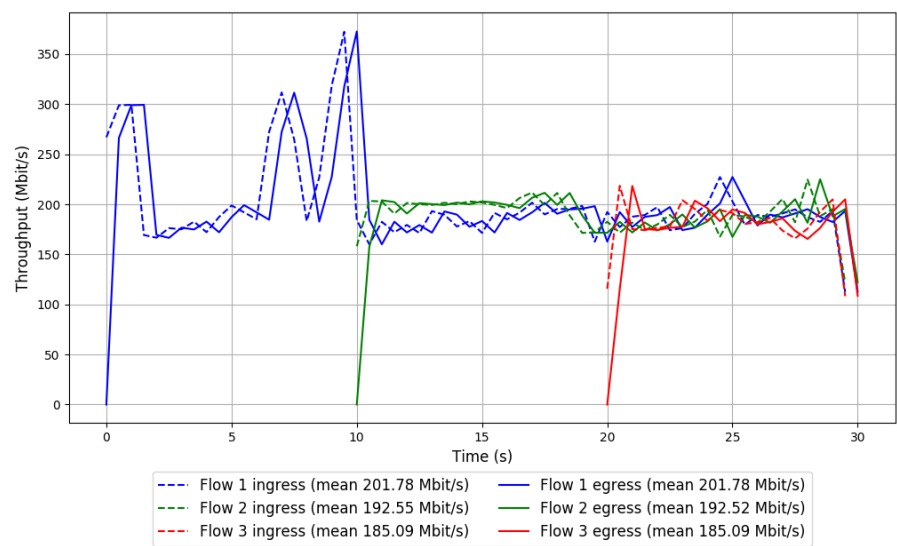
-- Flow 3:

Average throughput: 185.09 Mbit/s

95th percentile per-packet one-way delay: 1.912 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

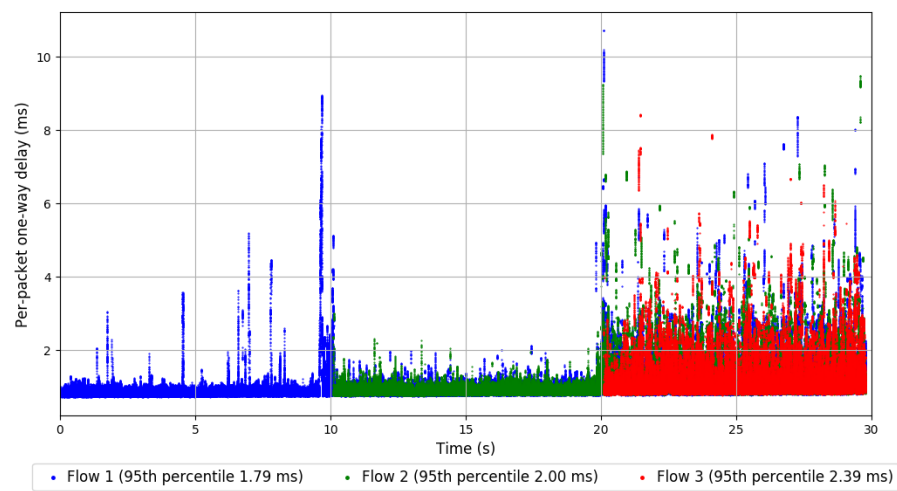
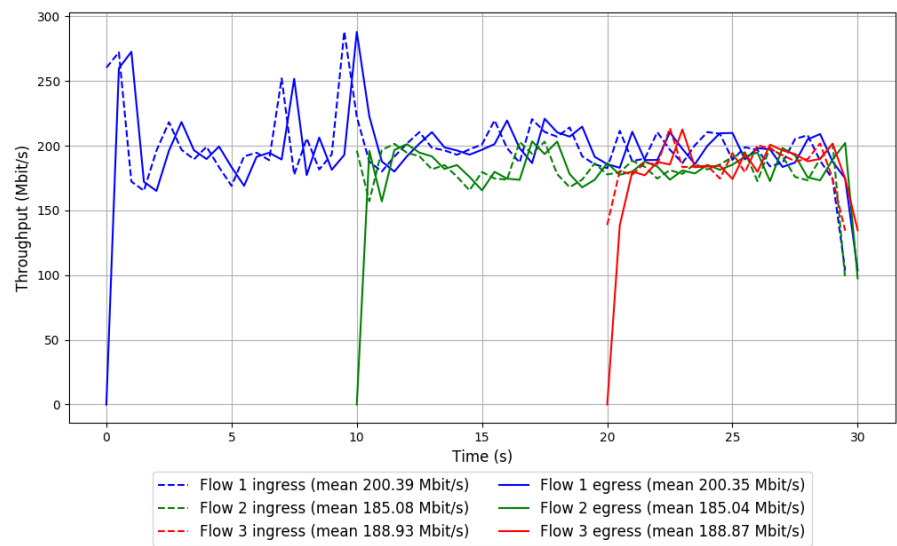


Run 4: Statistics of Indigo

Start at: 2018-11-15 06:15:39  
End at: 2018-11-15 06:16:09  
Local clock offset: 4.579 ms  
Remote clock offset: -4.984 ms

# Below is generated by plot.py at 2018-11-15 07:33:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 384.12 Mbit/s  
95th percentile per-packet one-way delay: 1.987 ms  
Loss rate: 0.02%  
-- Flow 1:  
Average throughput: 200.35 Mbit/s  
95th percentile per-packet one-way delay: 1.786 ms  
Loss rate: 0.02%  
-- Flow 2:  
Average throughput: 185.04 Mbit/s  
95th percentile per-packet one-way delay: 1.996 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 188.87 Mbit/s  
95th percentile per-packet one-way delay: 2.386 ms  
Loss rate: 0.05%

Run 4: Report of Indigo — Data Link



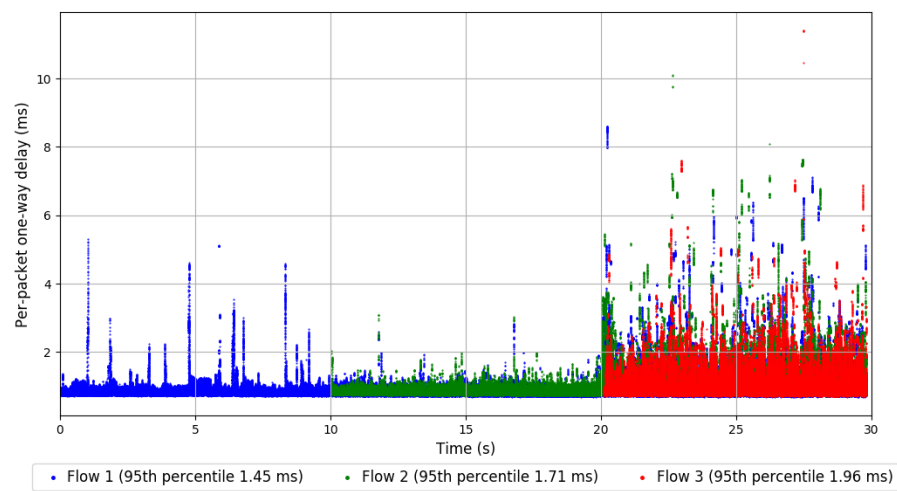
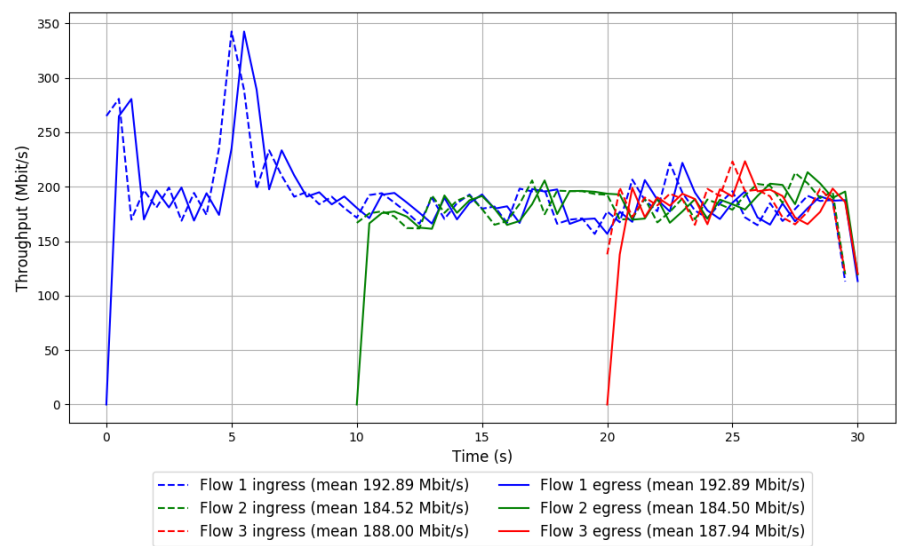


Run 5: Statistics of Indigo

Start at: 2018-11-15 06:42:40  
End at: 2018-11-15 06:43:10  
Local clock offset: 3.738 ms  
Remote clock offset: -0.967 ms

# Below is generated by plot.py at 2018-11-15 07:33:09  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 376.48 Mbit/s  
95th percentile per-packet one-way delay: 1.662 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 192.89 Mbit/s  
95th percentile per-packet one-way delay: 1.451 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 184.50 Mbit/s  
95th percentile per-packet one-way delay: 1.714 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 187.94 Mbit/s  
95th percentile per-packet one-way delay: 1.963 ms  
Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

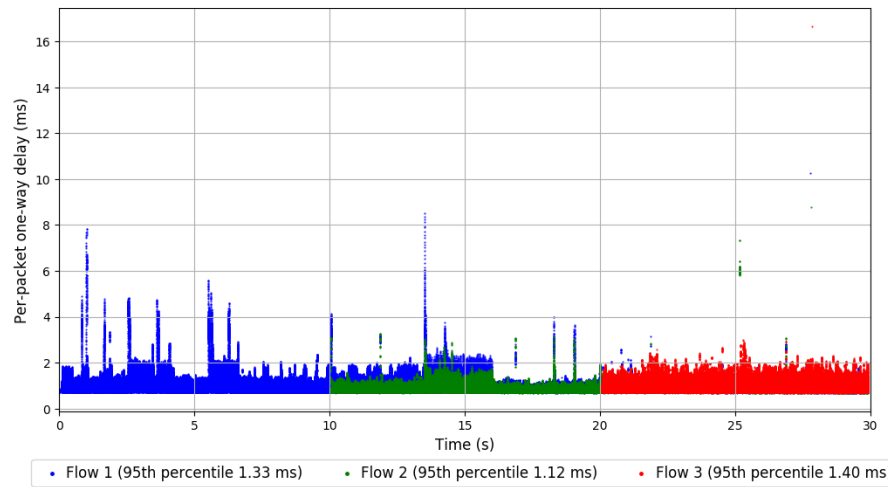
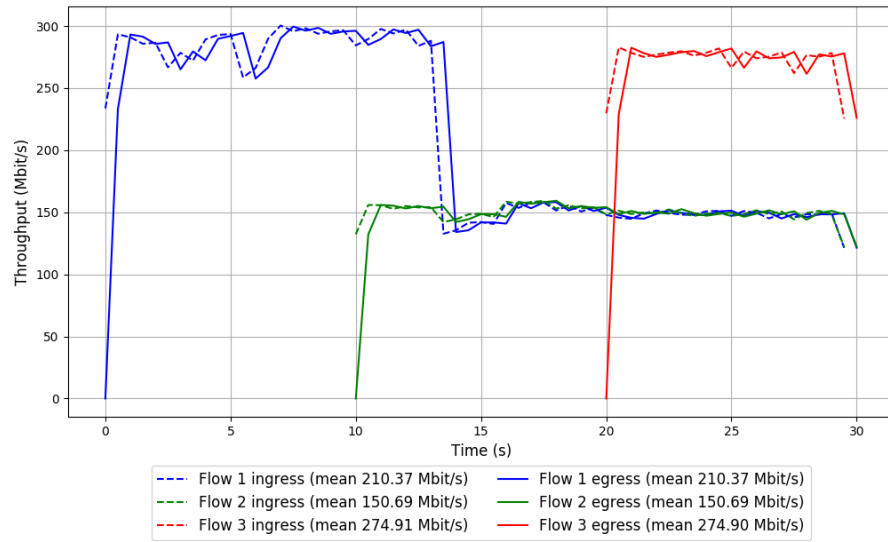


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 04:52:43  
End at: 2018-11-15 04:53:13  
Local clock offset: 3.795 ms  
Remote clock offset: -4.198 ms

# Below is generated by plot.py at 2018-11-15 07:33:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 401.33 Mbit/s  
95th percentile per-packet one-way delay: 1.302 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 210.37 Mbit/s  
95th percentile per-packet one-way delay: 1.330 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 150.69 Mbit/s  
95th percentile per-packet one-way delay: 1.125 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 274.90 Mbit/s  
95th percentile per-packet one-way delay: 1.399 ms  
Loss rate: 0.00%

# Run 1: Report of Indigo-96d2da3 — Data Link

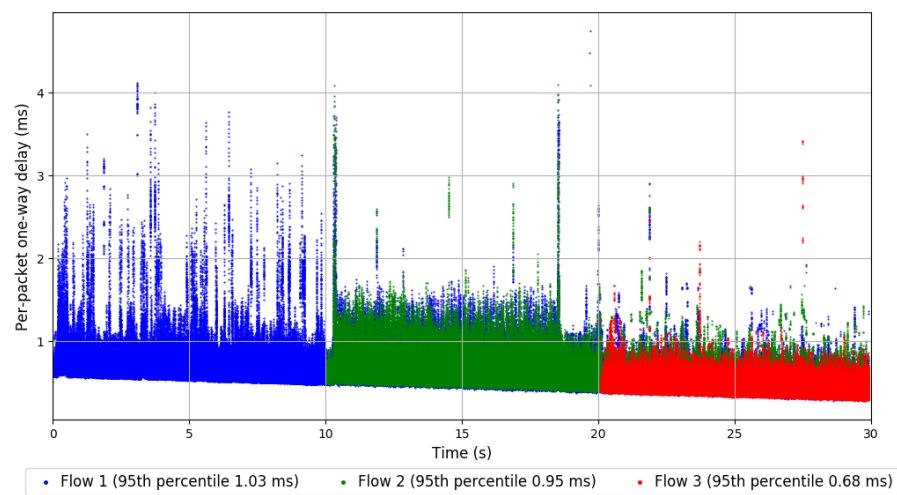
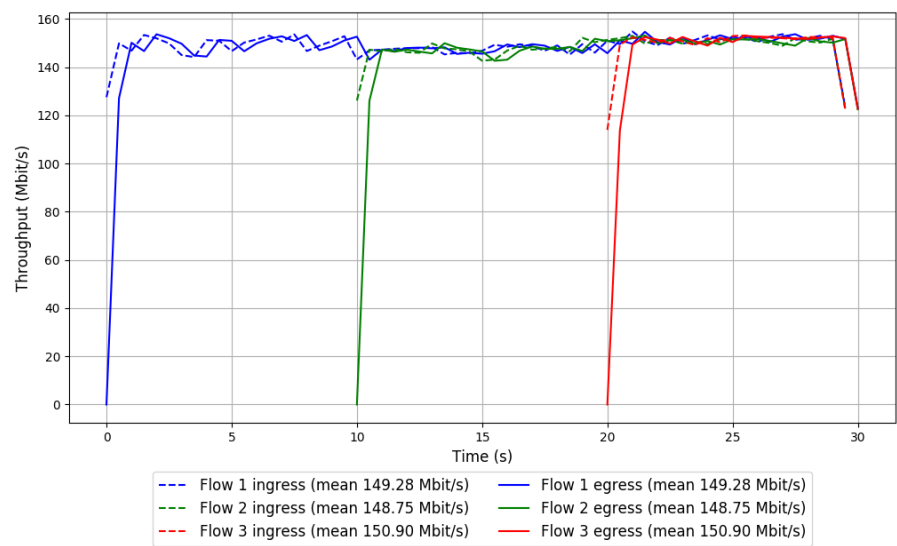


Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 05:19:47  
End at: 2018-11-15 05:20:17  
Local clock offset: 4.232 ms  
Remote clock offset: -1.454 ms

# Below is generated by plot.py at 2018-11-15 07:33:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 297.78 Mbit/s  
95th percentile per-packet one-way delay: 0.964 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 149.28 Mbit/s  
95th percentile per-packet one-way delay: 1.033 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 148.75 Mbit/s  
95th percentile per-packet one-way delay: 0.947 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 150.90 Mbit/s  
95th percentile per-packet one-way delay: 0.682 ms  
Loss rate: 0.00%

Run 2: Report of Indigo-96d2da3 — Data Link



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 05:46:56

End at: 2018-11-15 05:47:26

Local clock offset: 5.115 ms

Remote clock offset: 4.993 ms

# Below is generated by plot.py at 2018-11-15 07:33:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 302.85 Mbit/s

95th percentile per-packet one-way delay: 1.142 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 149.03 Mbit/s

95th percentile per-packet one-way delay: 1.185 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 157.55 Mbit/s

95th percentile per-packet one-way delay: 1.131 ms

Loss rate: 0.06%

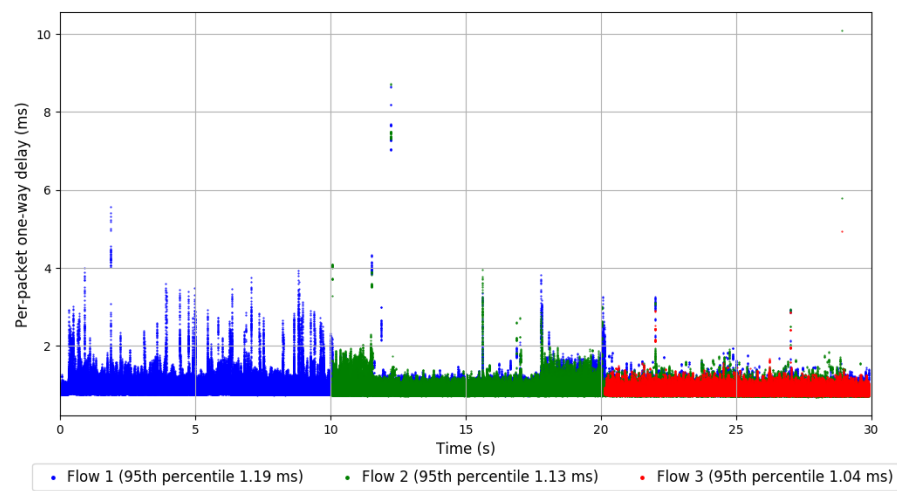
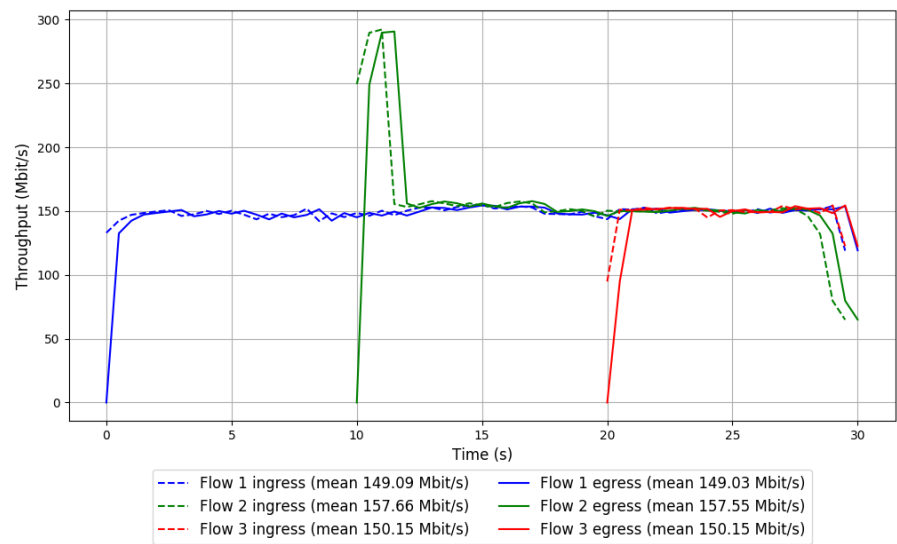
-- Flow 3:

Average throughput: 150.15 Mbit/s

95th percentile per-packet one-way delay: 1.036 ms

Loss rate: 0.00%

Run 3: Report of Indigo-96d2da3 — Data Link



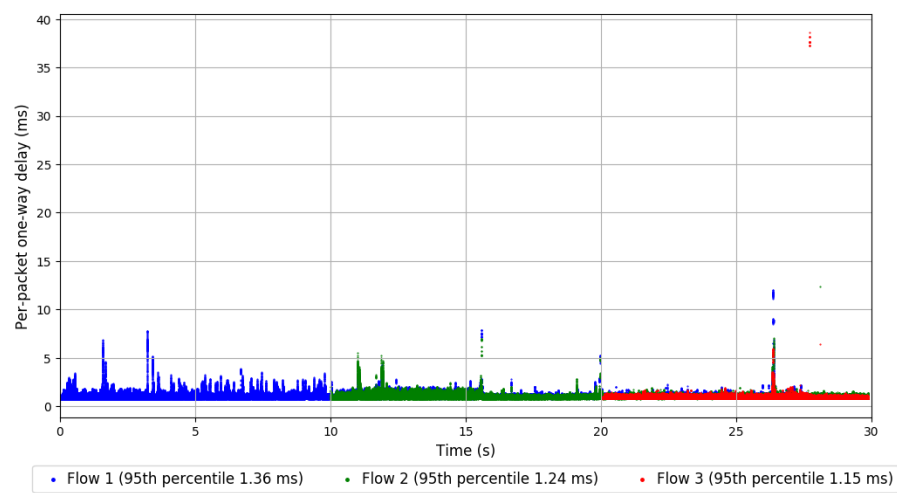
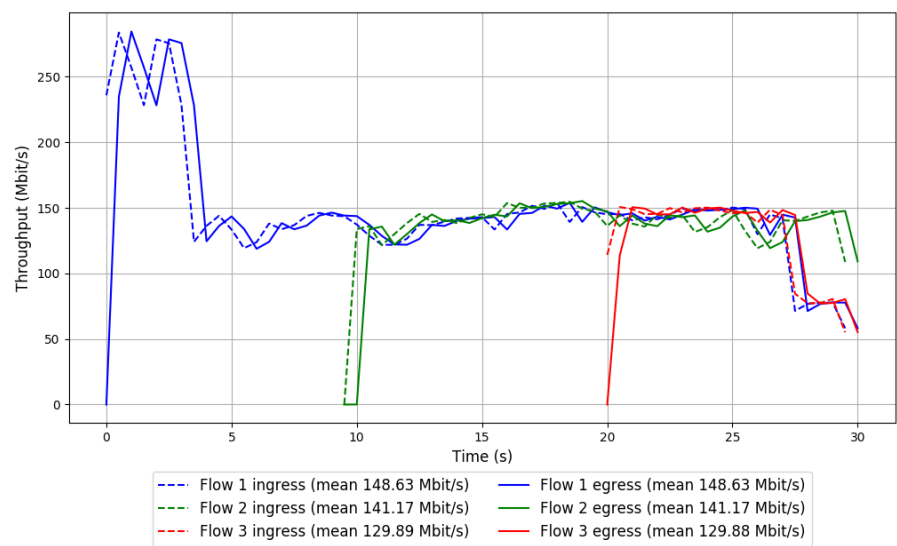


Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 06:14:10  
End at: 2018-11-15 06:14:40  
Local clock offset: 4.592 ms  
Remote clock offset: -4.747 ms

# Below is generated by plot.py at 2018-11-15 07:33:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 285.22 Mbit/s  
95th percentile per-packet one-way delay: 1.287 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 148.63 Mbit/s  
95th percentile per-packet one-way delay: 1.364 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 141.17 Mbit/s  
95th percentile per-packet one-way delay: 1.242 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 129.88 Mbit/s  
95th percentile per-packet one-way delay: 1.154 ms  
Loss rate: 0.00%

Run 4: Report of Indigo-96d2da3 — Data Link

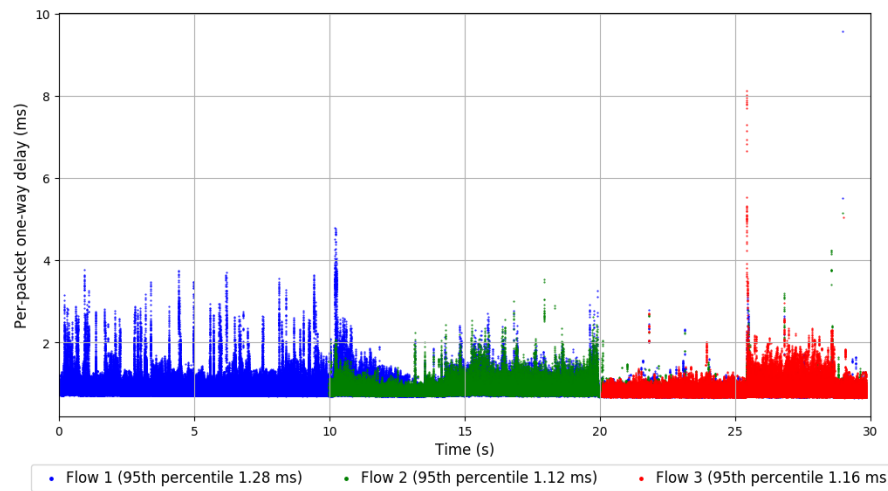
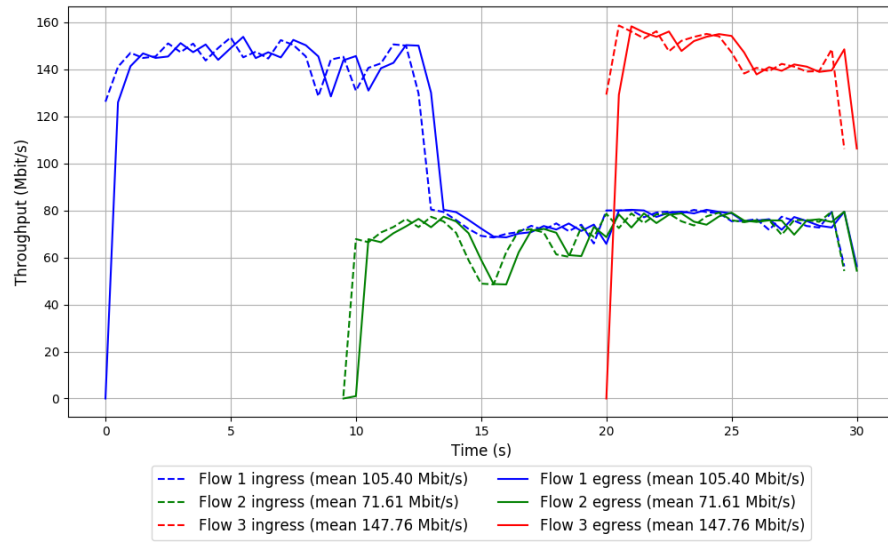


Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 06:41:15  
End at: 2018-11-15 06:41:45  
Local clock offset: 3.759 ms  
Remote clock offset: -1.112 ms

# Below is generated by plot.py at 2018-11-15 07:33:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 201.62 Mbit/s  
95th percentile per-packet one-way delay: 1.213 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 105.40 Mbit/s  
95th percentile per-packet one-way delay: 1.282 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 71.61 Mbit/s  
95th percentile per-packet one-way delay: 1.119 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 147.76 Mbit/s  
95th percentile per-packet one-way delay: 1.162 ms  
Loss rate: 0.00%

## Run 5: Report of Indigo-96d2da3 — Data Link

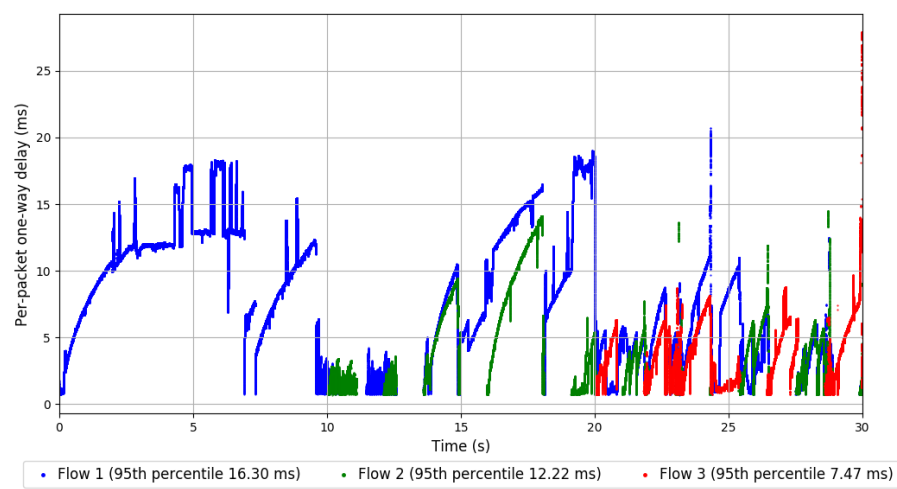
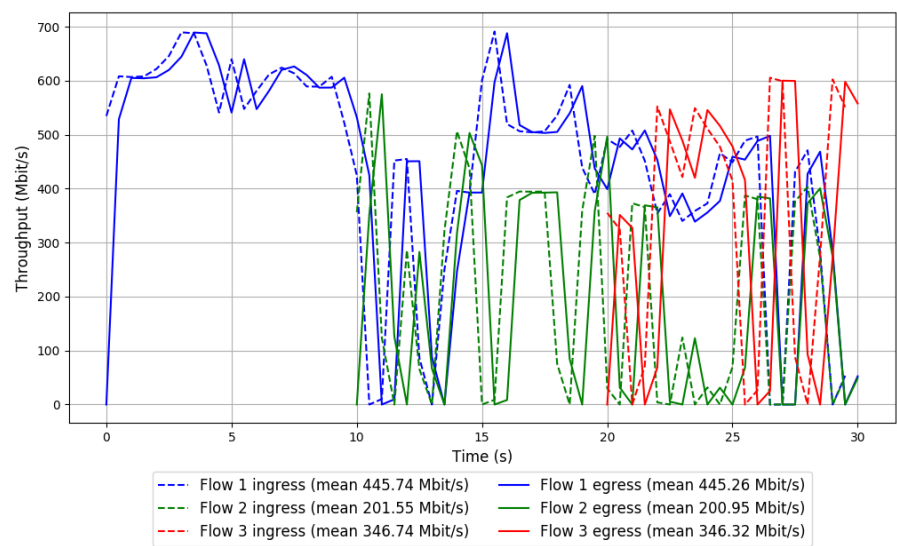


Run 1: Statistics of LEDBAT

Start at: 2018-11-15 04:50:53  
End at: 2018-11-15 04:51:23  
Local clock offset: 3.82 ms  
Remote clock offset: -4.317 ms

# Below is generated by plot.py at 2018-11-15 07:39:57  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 694.25 Mbit/s  
95th percentile per-packet one-way delay: 15.097 ms  
Loss rate: 0.15%  
-- Flow 1:  
Average throughput: 445.26 Mbit/s  
95th percentile per-packet one-way delay: 16.305 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 200.95 Mbit/s  
95th percentile per-packet one-way delay: 12.217 ms  
Loss rate: 0.30%  
-- Flow 3:  
Average throughput: 346.32 Mbit/s  
95th percentile per-packet one-way delay: 7.468 ms  
Loss rate: 0.13%

Run 1: Report of LEDBAT — Data Link

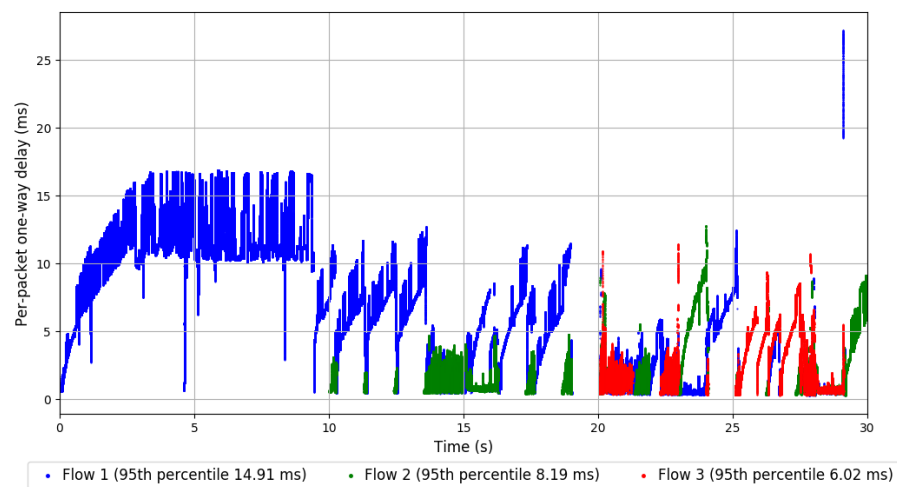
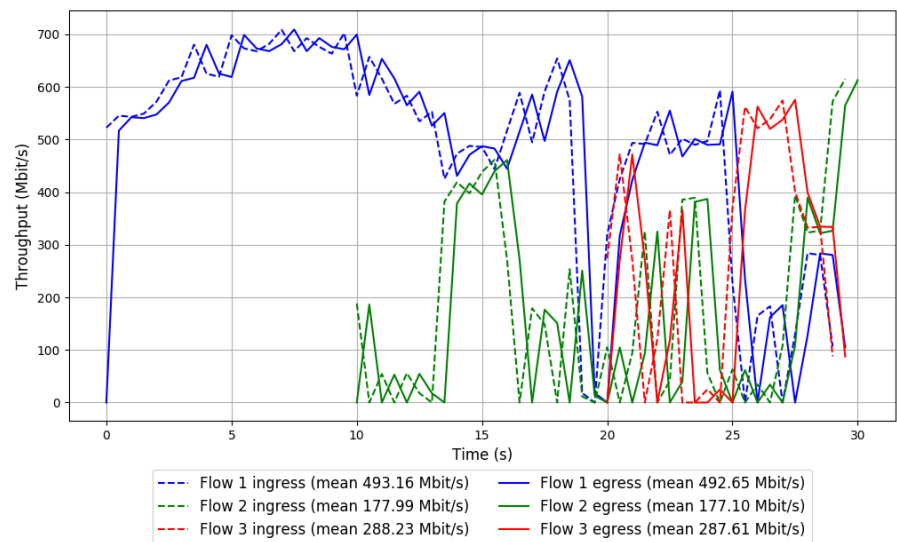


Run 2: Statistics of LEDBAT

Start at: 2018-11-15 05:17:59  
End at: 2018-11-15 05:18:29  
Local clock offset: 4.234 ms  
Remote clock offset: -2.572 ms

# Below is generated by plot.py at 2018-11-15 07:40:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 684.60 Mbit/s  
95th percentile per-packet one-way delay: 13.764 ms  
Loss rate: 0.19%  
-- Flow 1:  
Average throughput: 492.65 Mbit/s  
95th percentile per-packet one-way delay: 14.911 ms  
Loss rate: 0.10%  
-- Flow 2:  
Average throughput: 177.10 Mbit/s  
95th percentile per-packet one-way delay: 8.190 ms  
Loss rate: 0.50%  
-- Flow 3:  
Average throughput: 287.61 Mbit/s  
95th percentile per-packet one-way delay: 6.017 ms  
Loss rate: 0.22%

Run 2: Report of LEDBAT — Data Link





Run 3: Statistics of LEDBAT

Start at: 2018-11-15 05:45:09

End at: 2018-11-15 05:45:39

Local clock offset: 5.076 ms

Remote clock offset: 4.817 ms

# Below is generated by plot.py at 2018-11-15 07:40:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 658.43 Mbit/s

95th percentile per-packet one-way delay: 14.137 ms

Loss rate: 0.23%

-- Flow 1:

Average throughput: 367.67 Mbit/s

95th percentile per-packet one-way delay: 15.863 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 311.68 Mbit/s

95th percentile per-packet one-way delay: 7.400 ms

Loss rate: 0.31%

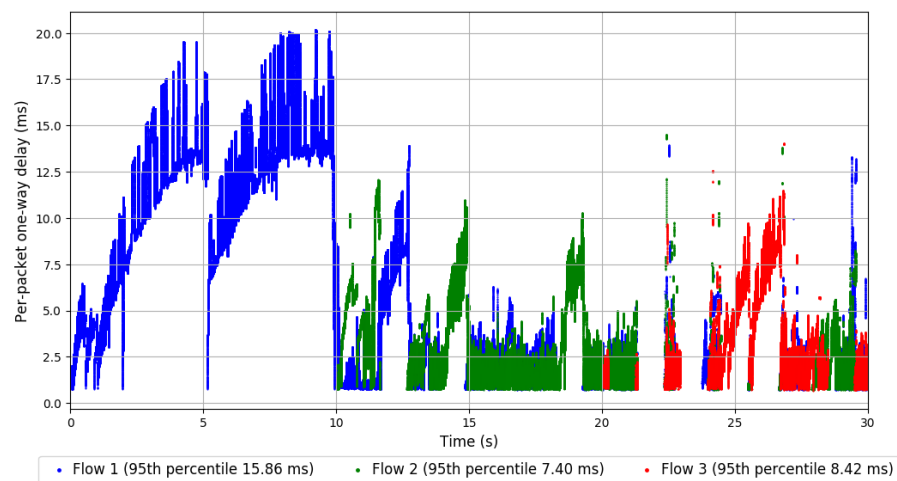
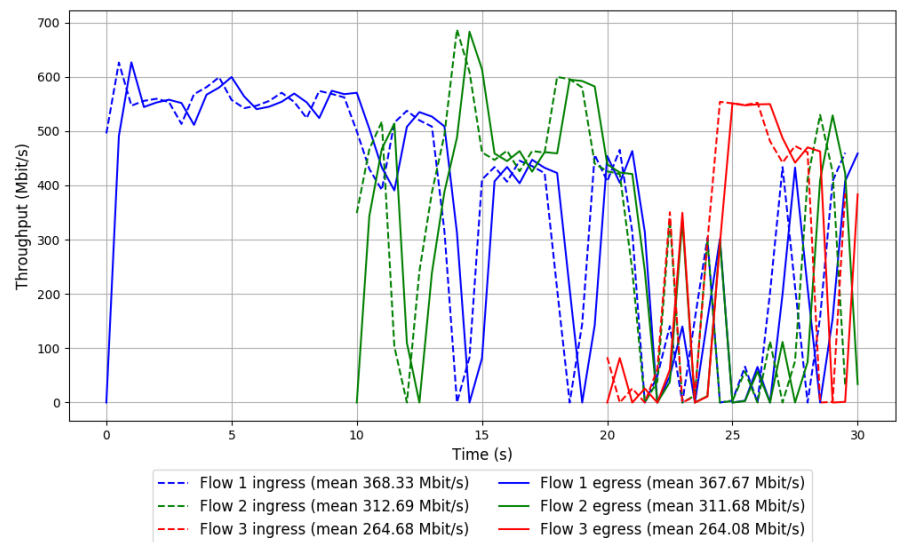
-- Flow 3:

Average throughput: 264.08 Mbit/s

95th percentile per-packet one-way delay: 8.423 ms

Loss rate: 0.23%

Run 3: Report of LEDBAT — Data Link

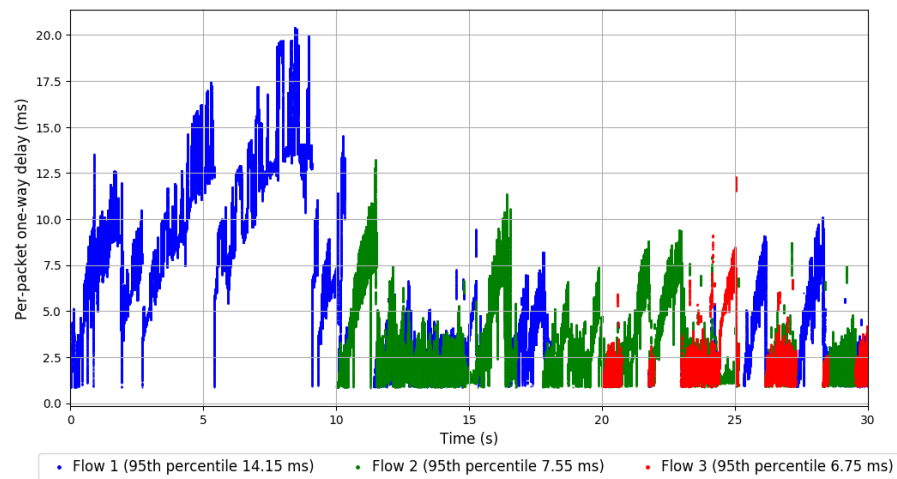
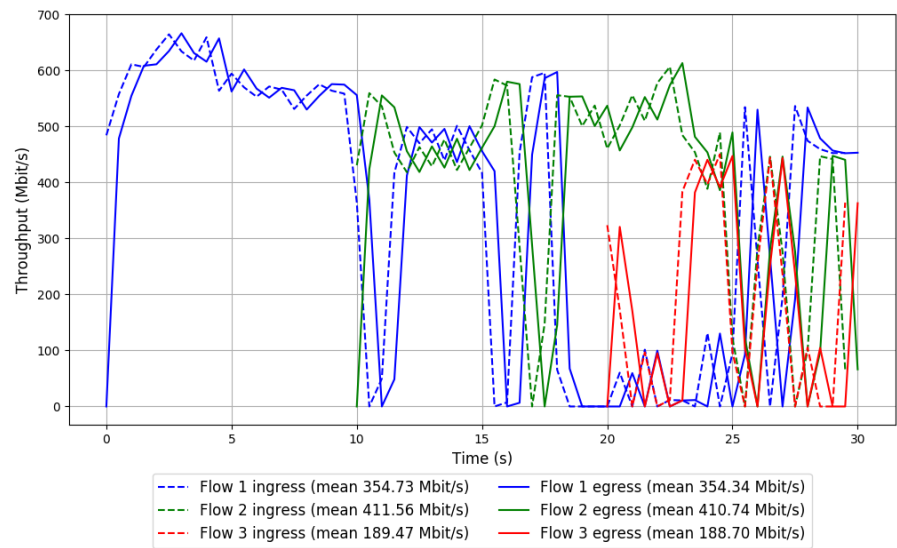


Run 4: Statistics of LEDBAT

Start at: 2018-11-15 06:12:22  
End at: 2018-11-15 06:12:52  
Local clock offset: 4.54 ms  
Remote clock offset: -4.442 ms

# Below is generated by plot.py at 2018-11-15 07:41:00  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 685.03 Mbit/s  
95th percentile per-packet one-way delay: 13.222 ms  
Loss rate: 0.17%  
-- Flow 1:  
Average throughput: 354.34 Mbit/s  
95th percentile per-packet one-way delay: 14.152 ms  
Loss rate: 0.11%  
-- Flow 2:  
Average throughput: 410.74 Mbit/s  
95th percentile per-packet one-way delay: 7.547 ms  
Loss rate: 0.19%  
-- Flow 3:  
Average throughput: 188.70 Mbit/s  
95th percentile per-packet one-way delay: 6.745 ms  
Loss rate: 0.40%

Run 4: Report of LEDBAT — Data Link

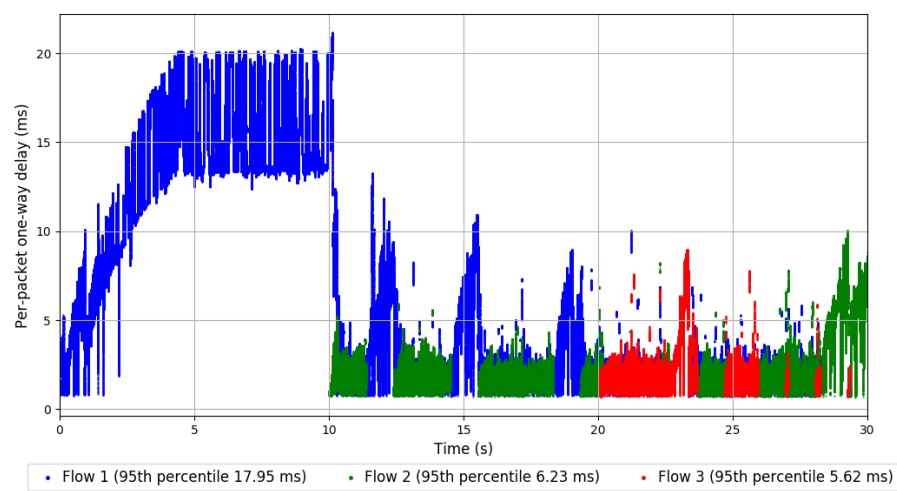
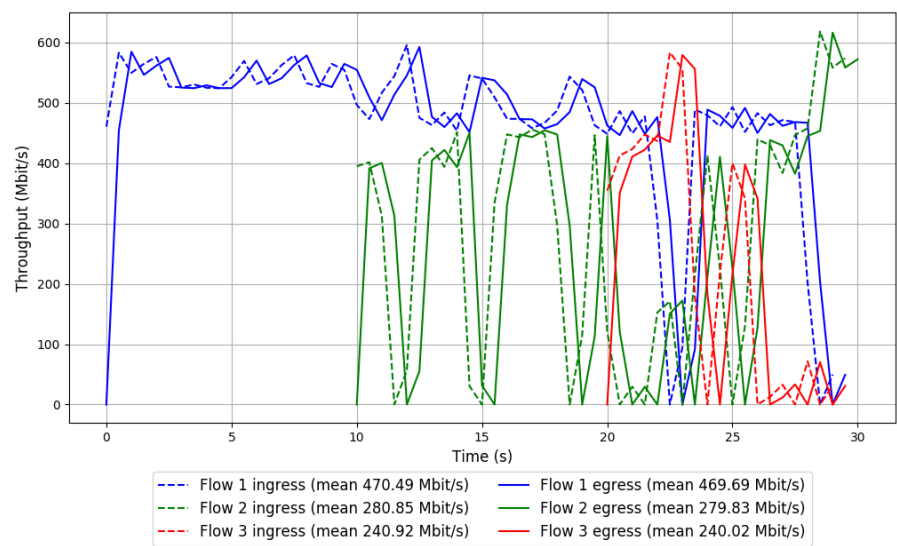


Run 5: Statistics of LEDBAT

Start at: 2018-11-15 06:39:26  
End at: 2018-11-15 06:39:56  
Local clock offset: 3.814 ms  
Remote clock offset: -1.225 ms

# Below is generated by plot.py at 2018-11-15 07:41:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 721.18 Mbit/s  
95th percentile per-packet one-way delay: 16.597 ms  
Loss rate: 0.24%  
-- Flow 1:  
Average throughput: 469.69 Mbit/s  
95th percentile per-packet one-way delay: 17.953 ms  
Loss rate: 0.17%  
-- Flow 2:  
Average throughput: 279.83 Mbit/s  
95th percentile per-packet one-way delay: 6.231 ms  
Loss rate: 0.36%  
-- Flow 3:  
Average throughput: 240.02 Mbit/s  
95th percentile per-packet one-way delay: 5.618 ms  
Loss rate: 0.37%

Run 5: Report of LEDBAT — Data Link

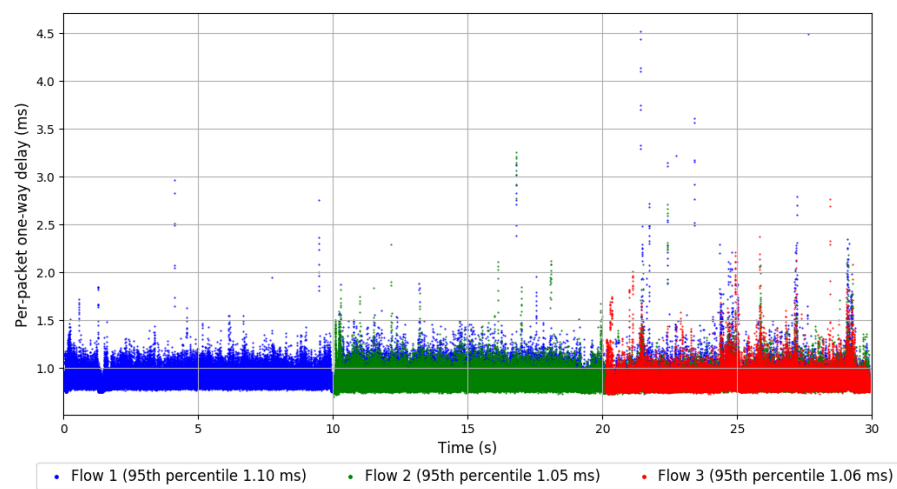
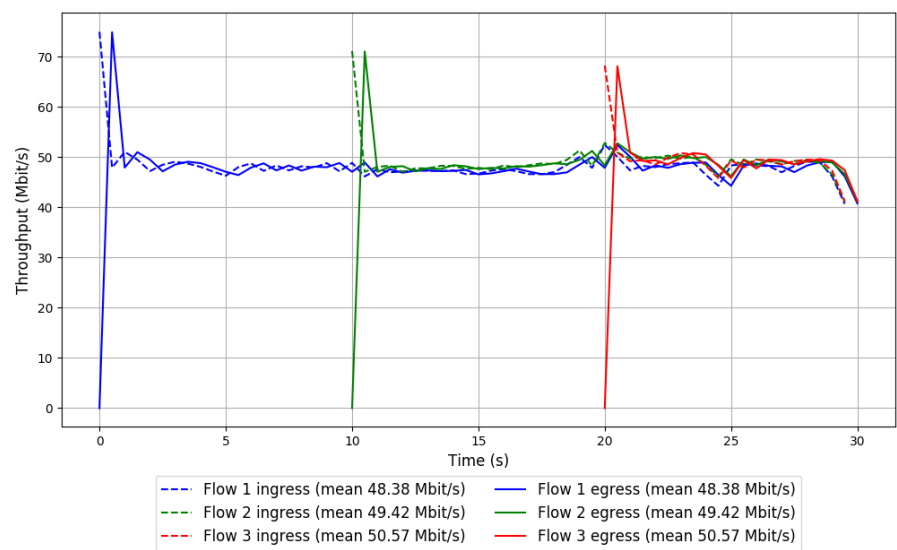


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 05:06:37
End at: 2018-11-15 05:07:07
Local clock offset: 4.13 ms
Remote clock offset: -3.976 ms

# Below is generated by plot.py at 2018-11-15 07:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.83 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.38 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 49.42 Mbit/s
95th percentile per-packet one-way delay: 1.049 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 50.57 Mbit/s
95th percentile per-packet one-way delay: 1.059 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-Muses — Data Link





Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 05:33:45

End at: 2018-11-15 05:34:15

Local clock offset: 4.721 ms

Remote clock offset: 3.271 ms

# Below is generated by plot.py at 2018-11-15 07:41:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.66 Mbit/s

95th percentile per-packet one-way delay: 1.079 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.89 Mbit/s

95th percentile per-packet one-way delay: 1.091 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.90 Mbit/s

95th percentile per-packet one-way delay: 1.086 ms

Loss rate: 0.00%

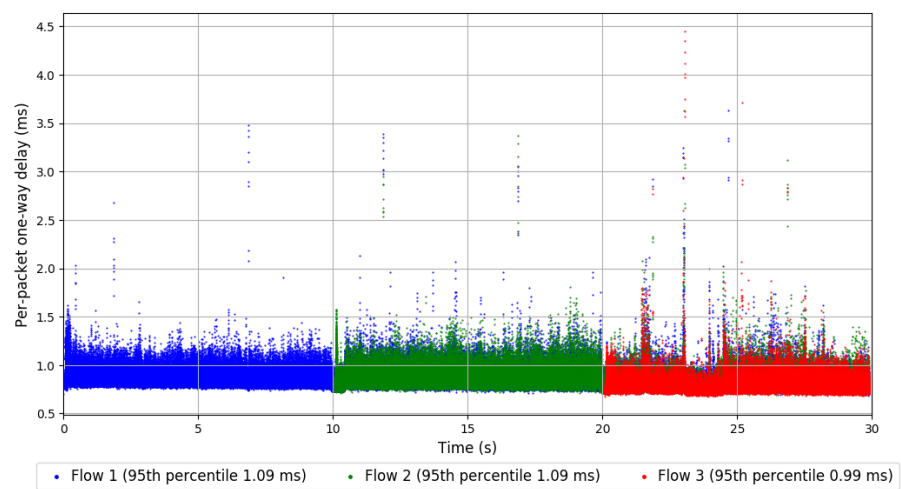
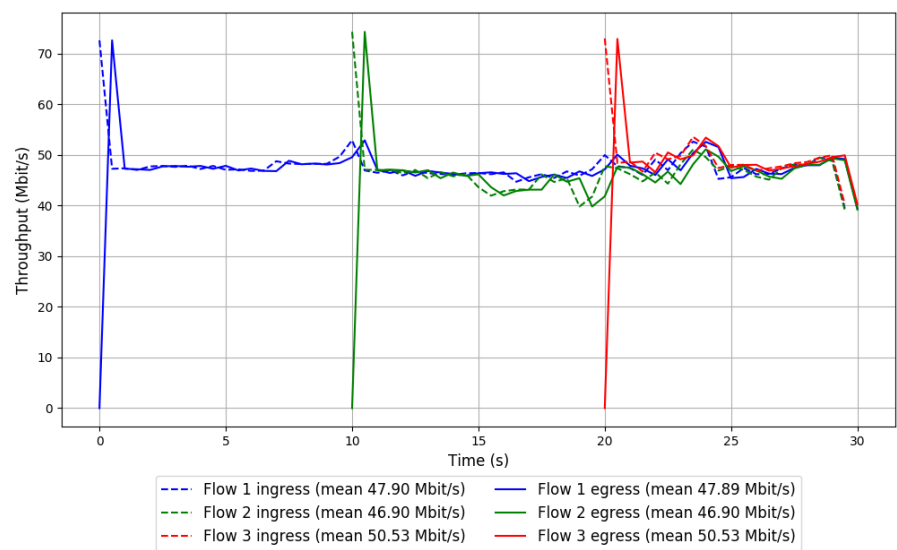
-- Flow 3:

Average throughput: 50.53 Mbit/s

95th percentile per-packet one-way delay: 0.992 ms

Loss rate: 0.00%

Run 2: Report of Indigo-Muses — Data Link

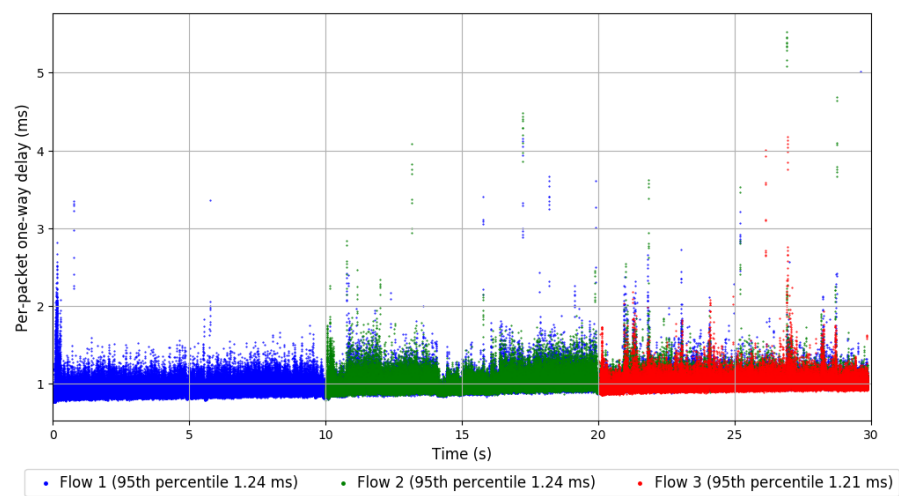
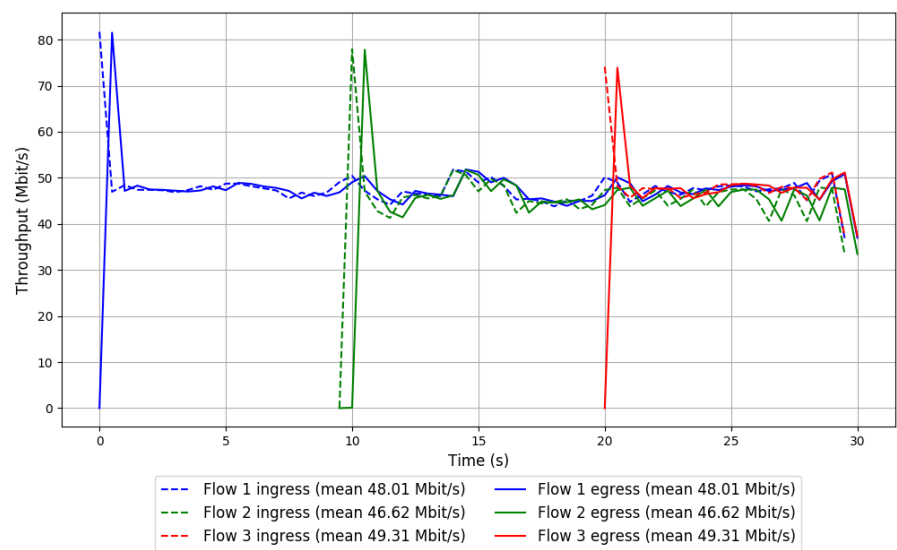


Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 06:00:54  
End at: 2018-11-15 06:01:24  
Local clock offset: 4.976 ms  
Remote clock offset: -1.585 ms

# Below is generated by plot.py at 2018-11-15 07:41:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.27 Mbit/s  
95th percentile per-packet one-way delay: 1.234 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 48.01 Mbit/s  
95th percentile per-packet one-way delay: 1.236 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 46.62 Mbit/s  
95th percentile per-packet one-way delay: 1.244 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 49.31 Mbit/s  
95th percentile per-packet one-way delay: 1.205 ms  
Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link

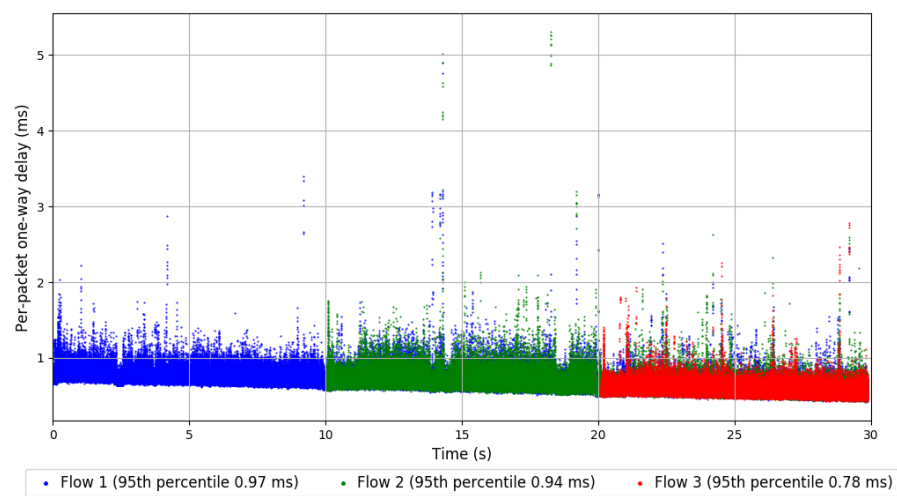
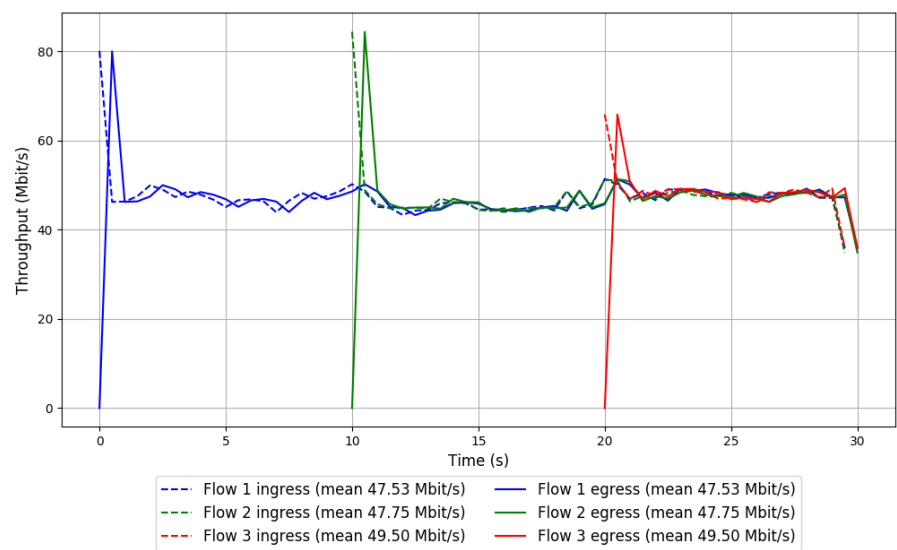


Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 06:28:06  
End at: 2018-11-15 06:28:36  
Local clock offset: 4.358 ms  
Remote clock offset: -3.994 ms

# Below is generated by plot.py at 2018-11-15 07:41:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.51 Mbit/s  
95th percentile per-packet one-way delay: 0.942 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 47.53 Mbit/s  
95th percentile per-packet one-way delay: 0.970 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 47.75 Mbit/s  
95th percentile per-packet one-way delay: 0.935 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 49.50 Mbit/s  
95th percentile per-packet one-way delay: 0.776 ms  
Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 06:55:06

End at: 2018-11-15 06:55:36

Local clock offset: 3.502 ms

Remote clock offset: -0.64 ms

# Below is generated by plot.py at 2018-11-15 07:41:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 94.63 Mbit/s

95th percentile per-packet one-way delay: 1.104 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 47.32 Mbit/s

95th percentile per-packet one-way delay: 1.111 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.69 Mbit/s

95th percentile per-packet one-way delay: 1.117 ms

Loss rate: 0.00%

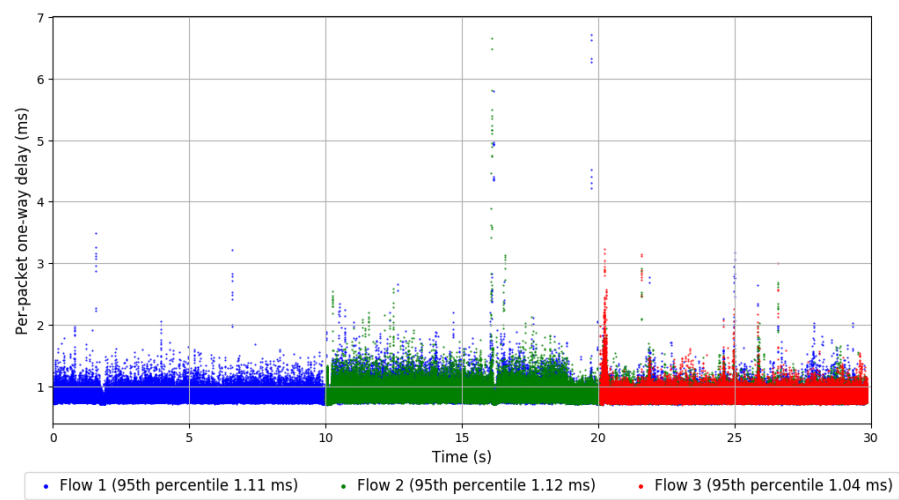
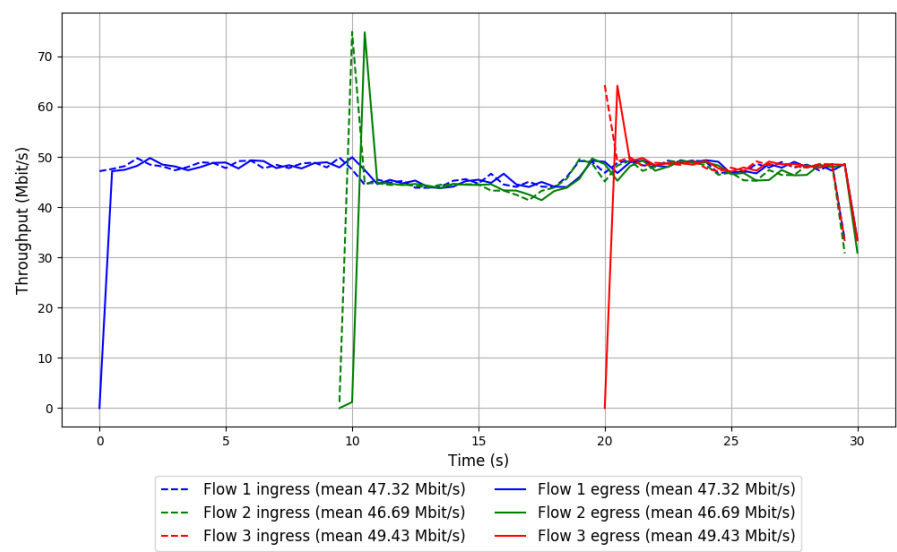
-- Flow 3:

Average throughput: 49.43 Mbit/s

95th percentile per-packet one-way delay: 1.044 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link



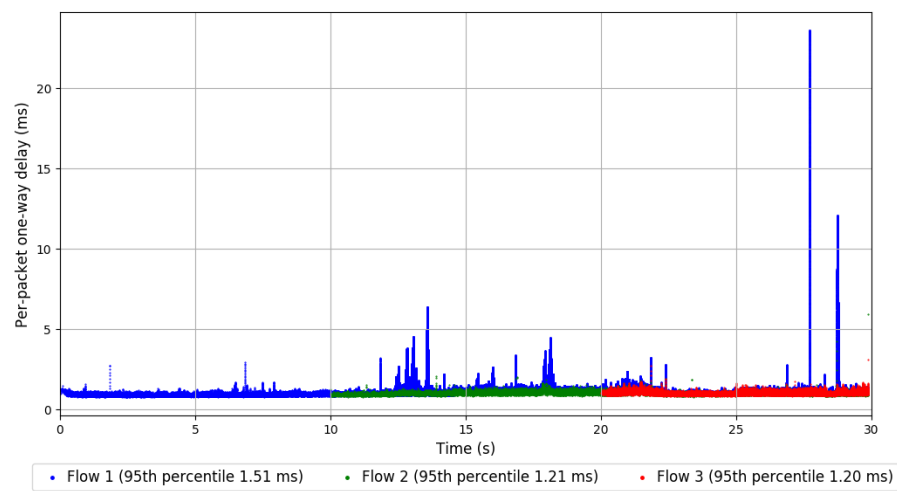
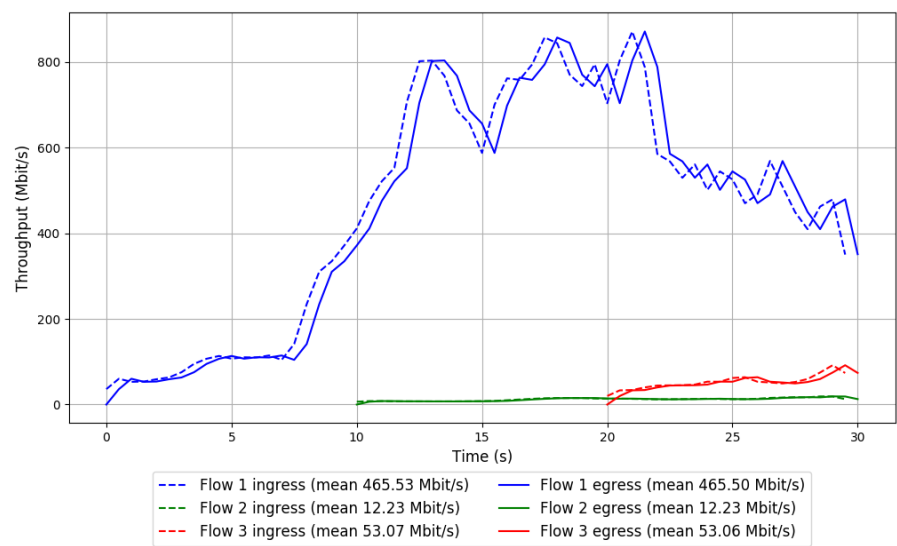


Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 05:10:57  
End at: 2018-11-15 05:11:27  
Local clock offset: 4.18 ms  
Remote clock offset: -3.941 ms

# Below is generated by plot.py at 2018-11-15 07:41:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 491.07 Mbit/s  
95th percentile per-packet one-way delay: 1.483 ms  
Loss rate: 0.01%  
-- Flow 1:  
Average throughput: 465.50 Mbit/s  
95th percentile per-packet one-way delay: 1.514 ms  
Loss rate: 0.01%  
-- Flow 2:  
Average throughput: 12.23 Mbit/s  
95th percentile per-packet one-way delay: 1.207 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 53.06 Mbit/s  
95th percentile per-packet one-way delay: 1.201 ms  
Loss rate: 0.00%

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 05:38:06

End at: 2018-11-15 05:38:36

Local clock offset: 4.898 ms

Remote clock offset: 3.973 ms

# Below is generated by plot.py at 2018-11-15 07:43:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 673.79 Mbit/s

95th percentile per-packet one-way delay: 2.107 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 381.36 Mbit/s

95th percentile per-packet one-way delay: 2.173 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 428.73 Mbit/s

95th percentile per-packet one-way delay: 1.964 ms

Loss rate: 0.13%

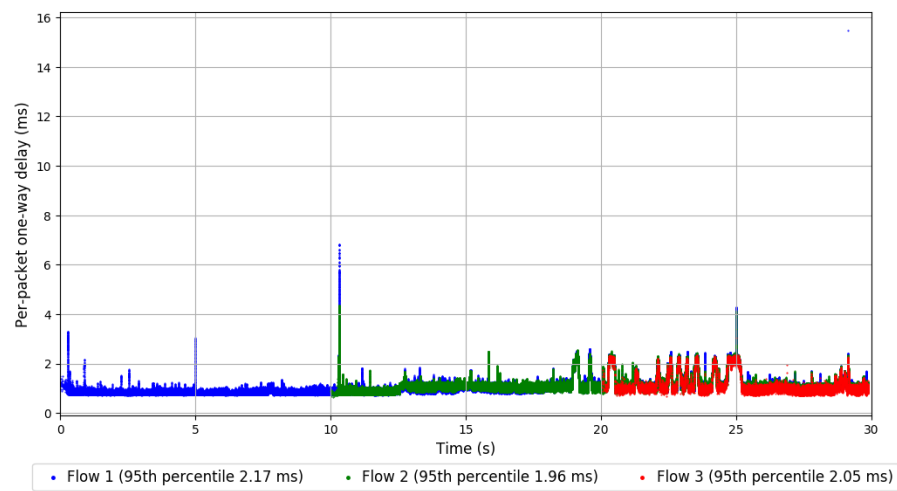
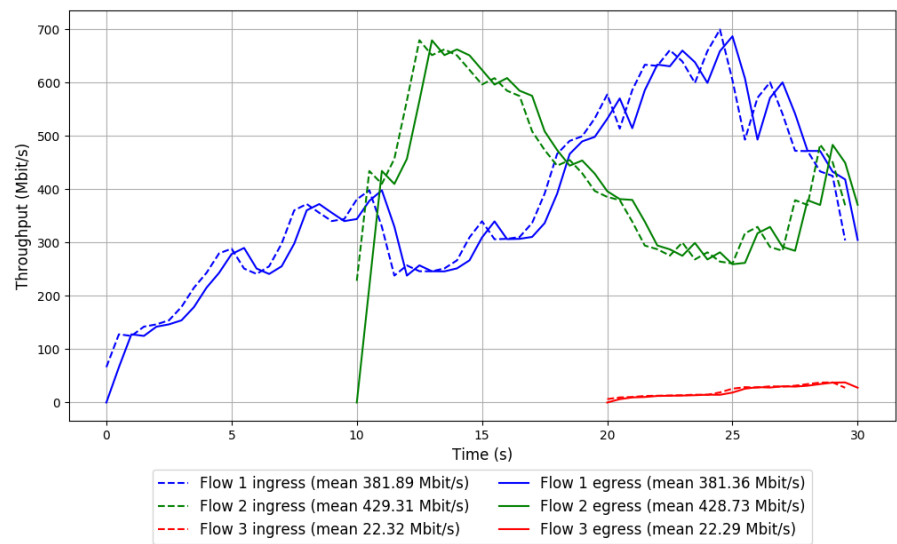
-- Flow 3:

Average throughput: 22.29 Mbit/s

95th percentile per-packet one-way delay: 2.048 ms

Loss rate: 0.13%

Run 2: Report of PCC-Allegro — Data Link

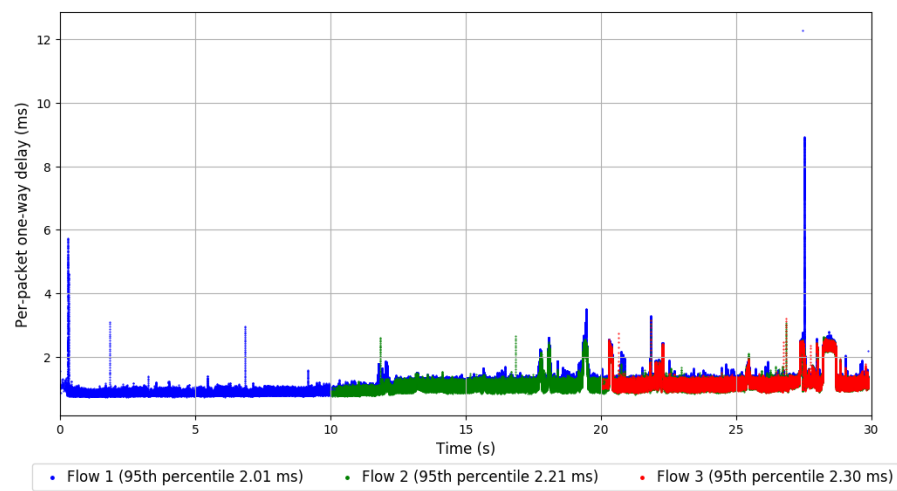
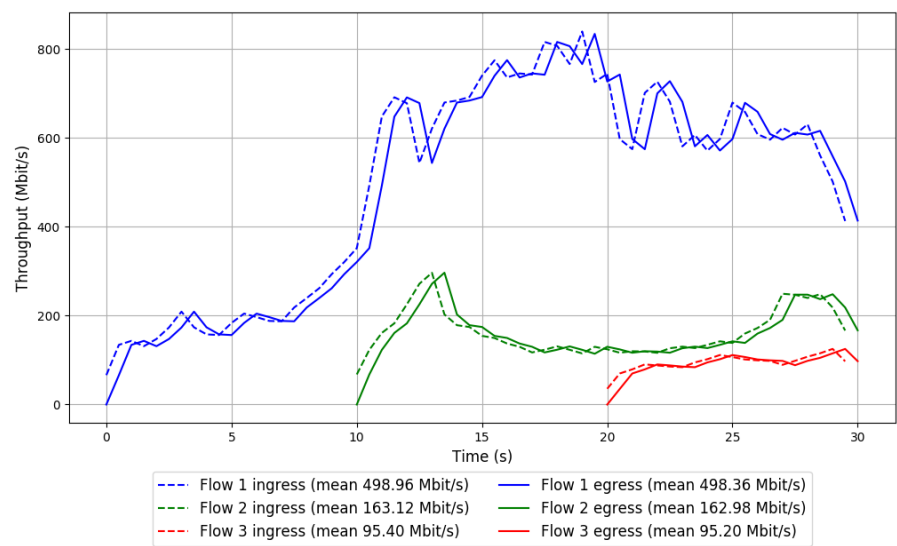


Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 06:05:17  
End at: 2018-11-15 06:05:47  
Local clock offset: 4.757 ms  
Remote clock offset: -2.965 ms

# Below is generated by plot.py at 2018-11-15 07:43:42  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 638.12 Mbit/s  
95th percentile per-packet one-way delay: 2.108 ms  
Loss rate: 0.12%  
-- Flow 1:  
Average throughput: 498.36 Mbit/s  
95th percentile per-packet one-way delay: 2.011 ms  
Loss rate: 0.12%  
-- Flow 2:  
Average throughput: 162.98 Mbit/s  
95th percentile per-packet one-way delay: 2.210 ms  
Loss rate: 0.09%  
-- Flow 3:  
Average throughput: 95.20 Mbit/s  
95th percentile per-packet one-way delay: 2.299 ms  
Loss rate: 0.21%

Run 3: Report of PCC-Allegro — Data Link

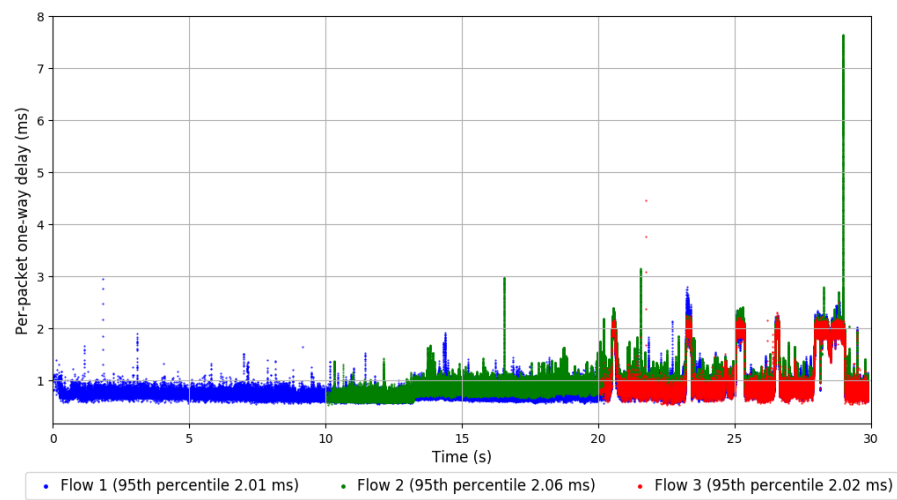
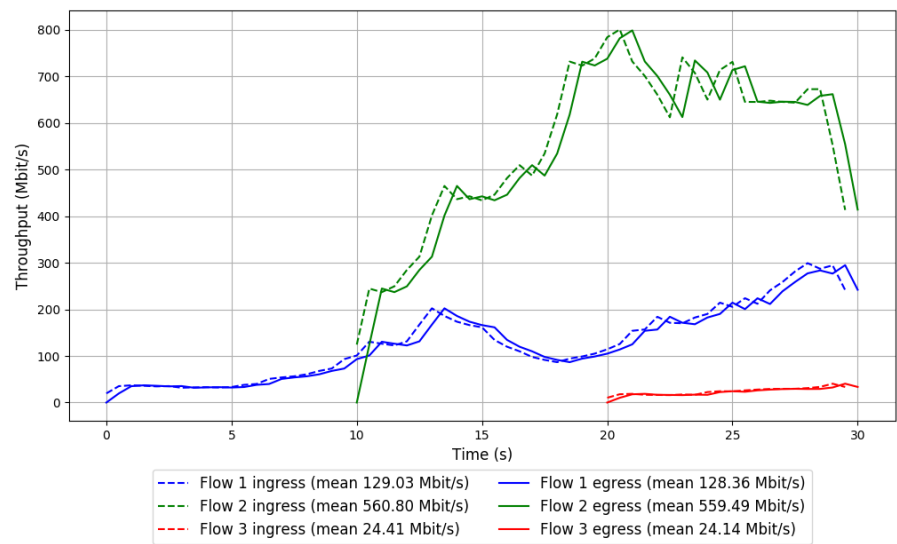


Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 06:32:26  
End at: 2018-11-15 06:32:56  
Local clock offset: 4.105 ms  
Remote clock offset: -2.514 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 508.37 Mbit/s  
95th percentile per-packet one-way delay: 2.049 ms  
Loss rate: 0.32%  
-- Flow 1:  
Average throughput: 128.36 Mbit/s  
95th percentile per-packet one-way delay: 2.009 ms  
Loss rate: 0.52%  
-- Flow 2:  
Average throughput: 559.49 Mbit/s  
95th percentile per-packet one-way delay: 2.058 ms  
Loss rate: 0.23%  
-- Flow 3:  
Average throughput: 24.14 Mbit/s  
95th percentile per-packet one-way delay: 2.017 ms  
Loss rate: 1.09%

Run 4: Report of PCC-Allegro — Data Link



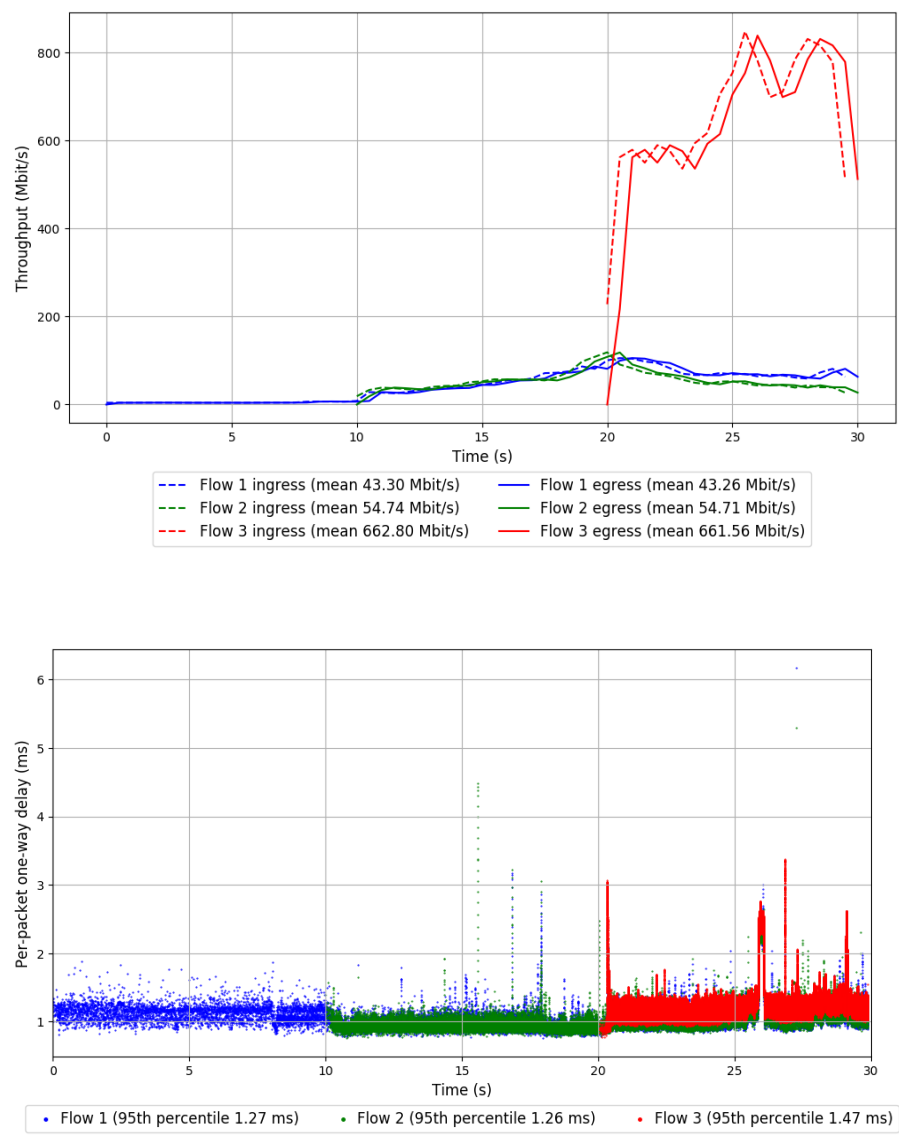


Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 06:59:27  
End at: 2018-11-15 06:59:57  
Local clock offset: 3.767 ms  
Remote clock offset: -0.516 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 297.82 Mbit/s  
95th percentile per-packet one-way delay: 1.409 ms  
Loss rate: 0.15%  
-- Flow 1:  
Average throughput: 43.26 Mbit/s  
95th percentile per-packet one-way delay: 1.267 ms  
Loss rate: 0.08%  
-- Flow 2:  
Average throughput: 54.71 Mbit/s  
95th percentile per-packet one-way delay: 1.264 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 661.56 Mbit/s  
95th percentile per-packet one-way delay: 1.465 ms  
Loss rate: 0.18%

Run 5: Report of PCC-Allegro — Data Link

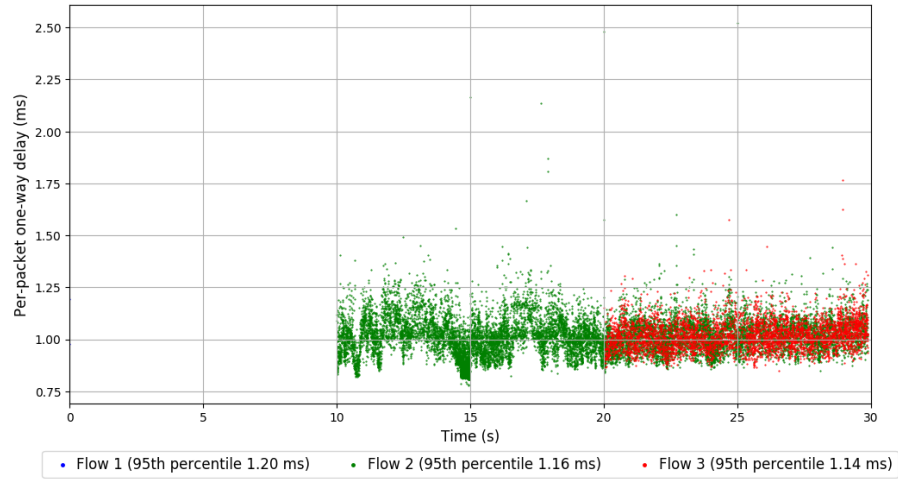
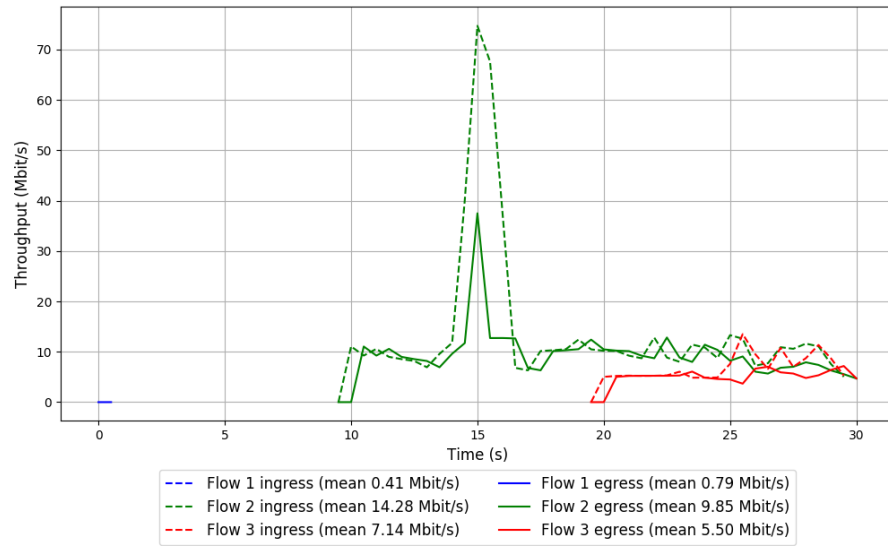


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 05:12:27
End at: 2018-11-15 05:12:57
Local clock offset: 4.2 ms
Remote clock offset: -3.985 ms

# Below is generated by plot.py at 2018-11-15 07:46:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.38 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 29.41%
-- Flow 1:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 1.195 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 9.85 Mbit/s
95th percentile per-packet one-way delay: 1.163 ms
Loss rate: 31.02%
-- Flow 3:
Average throughput: 5.50 Mbit/s
95th percentile per-packet one-way delay: 1.139 ms
Loss rate: 22.92%
```

## Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 05:39:41

End at: 2018-11-15 05:40:11

Local clock offset: 4.953 ms

Remote clock offset: 4.126 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 7.98 Mbit/s

95th percentile per-packet one-way delay: 1.037 ms

Loss rate: 4.30%

-- Flow 1:

Average throughput: 0.79 Mbit/s

95th percentile per-packet one-way delay: 1.040 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 8.71 Mbit/s

95th percentile per-packet one-way delay: 1.028 ms

Loss rate: 5.82%

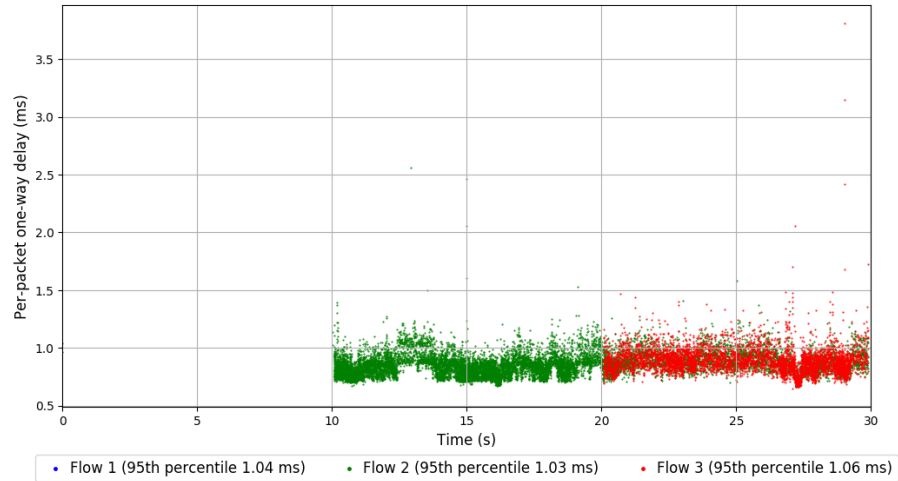
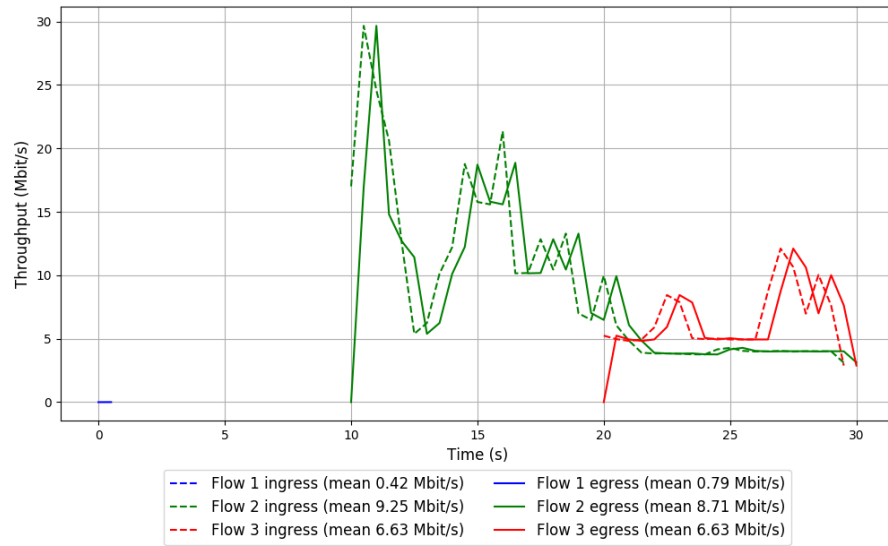
-- Flow 3:

Average throughput: 6.63 Mbit/s

95th percentile per-packet one-way delay: 1.065 ms

Loss rate: 0.00%

## Run 2: Report of PCC-Expr — Data Link

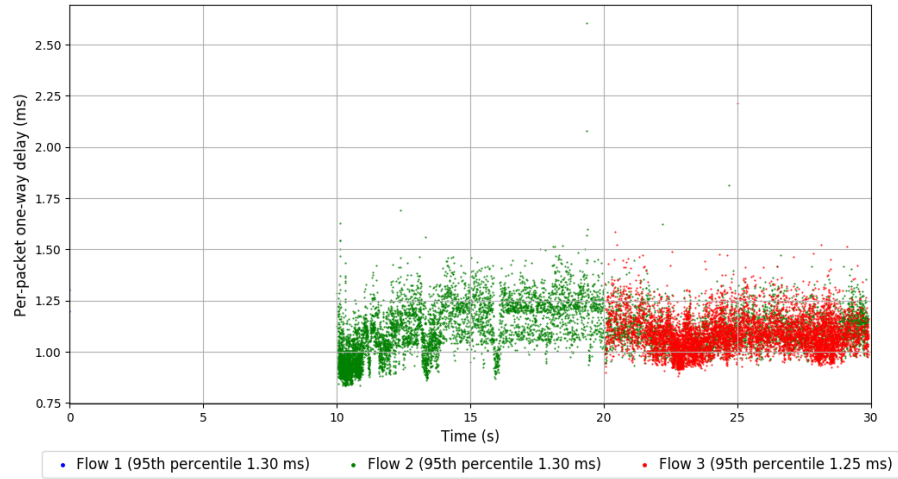
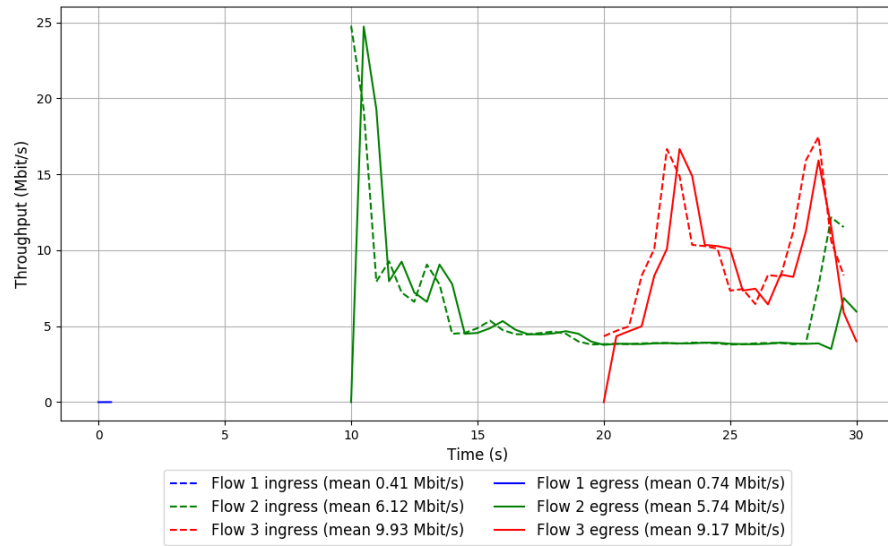


Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 06:06:52  
End at: 2018-11-15 06:07:22  
Local clock offset: 4.715 ms  
Remote clock offset: -3.328 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.85 Mbit/s  
95th percentile per-packet one-way delay: 1.280 ms  
Loss rate: 6.83%  
-- Flow 1:  
Average throughput: 0.74 Mbit/s  
95th percentile per-packet one-way delay: 1.305 ms  
Loss rate: 85.71%  
-- Flow 2:  
Average throughput: 5.74 Mbit/s  
95th percentile per-packet one-way delay: 1.300 ms  
Loss rate: 6.17%  
-- Flow 3:  
Average throughput: 9.17 Mbit/s  
95th percentile per-packet one-way delay: 1.245 ms  
Loss rate: 7.64%

### Run 3: Report of PCC-Expr — Data Link



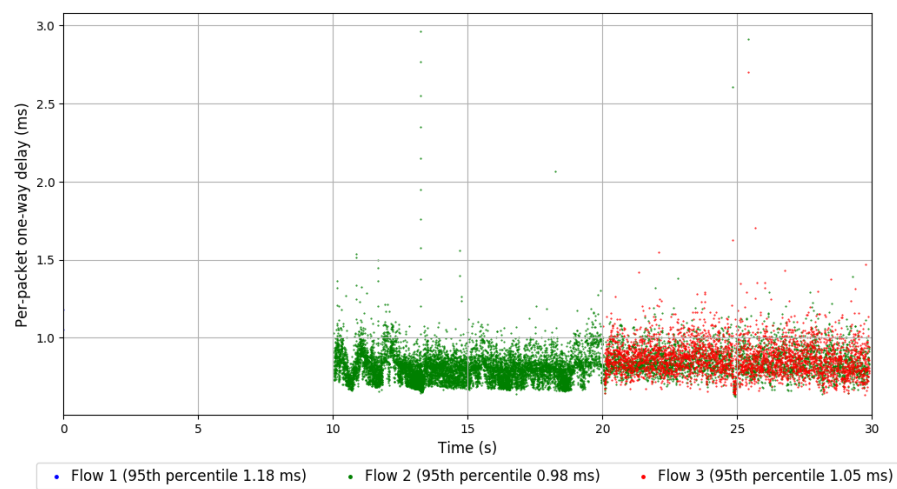
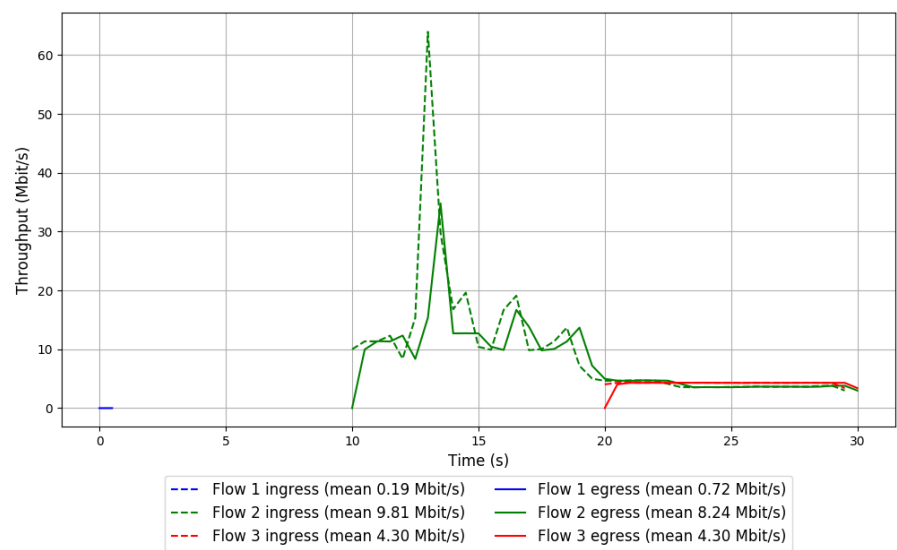


Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 06:33:57  
End at: 2018-11-15 06:34:27  
Local clock offset: 4.016 ms  
Remote clock offset: -2.133 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.90 Mbit/s  
95th percentile per-packet one-way delay: 1.003 ms  
Loss rate: 13.17%  
-- Flow 1:  
Average throughput: 0.72 Mbit/s  
95th percentile per-packet one-way delay: 1.180 ms  
Loss rate: 85.71%  
-- Flow 2:  
Average throughput: 8.24 Mbit/s  
95th percentile per-packet one-way delay: 0.981 ms  
Loss rate: 16.03%  
-- Flow 3:  
Average throughput: 4.30 Mbit/s  
95th percentile per-packet one-way delay: 1.055 ms  
Loss rate: 0.00%

Run 4: Report of PCC-Expr — Data Link

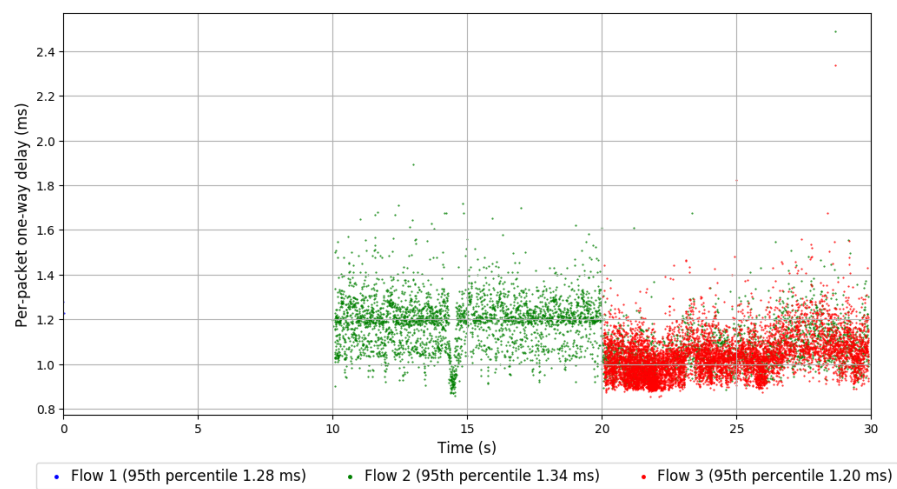
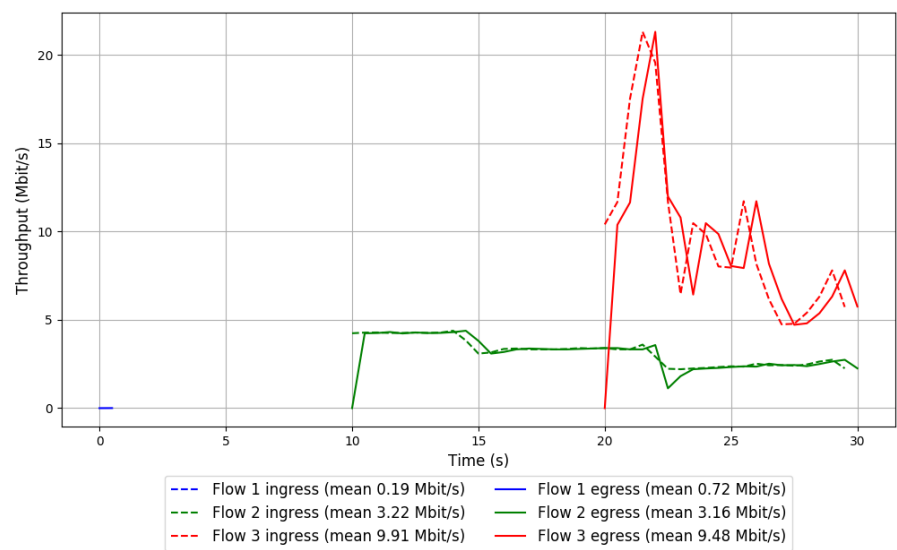


Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 07:00:53  
End at: 2018-11-15 07:01:23  
Local clock offset: 3.894 ms  
Remote clock offset: -0.468 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 5.23 Mbit/s  
95th percentile per-packet one-way delay: 1.288 ms  
Loss rate: 3.33%  
-- Flow 1:  
Average throughput: 0.72 Mbit/s  
95th percentile per-packet one-way delay: 1.278 ms  
Loss rate: 85.71%  
-- Flow 2:  
Average throughput: 3.16 Mbit/s  
95th percentile per-packet one-way delay: 1.338 ms  
Loss rate: 1.75%  
-- Flow 3:  
Average throughput: 9.48 Mbit/s  
95th percentile per-packet one-way delay: 1.197 ms  
Loss rate: 4.36%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 05:05:14

End at: 2018-11-15 05:05:44

Local clock offset: 4.1 ms

Remote clock offset: -3.927 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 120.07 Mbit/s

95th percentile per-packet one-way delay: 2.226 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 62.42 Mbit/s

95th percentile per-packet one-way delay: 0.974 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 61.50 Mbit/s

95th percentile per-packet one-way delay: 1.058 ms

Loss rate: 0.03%

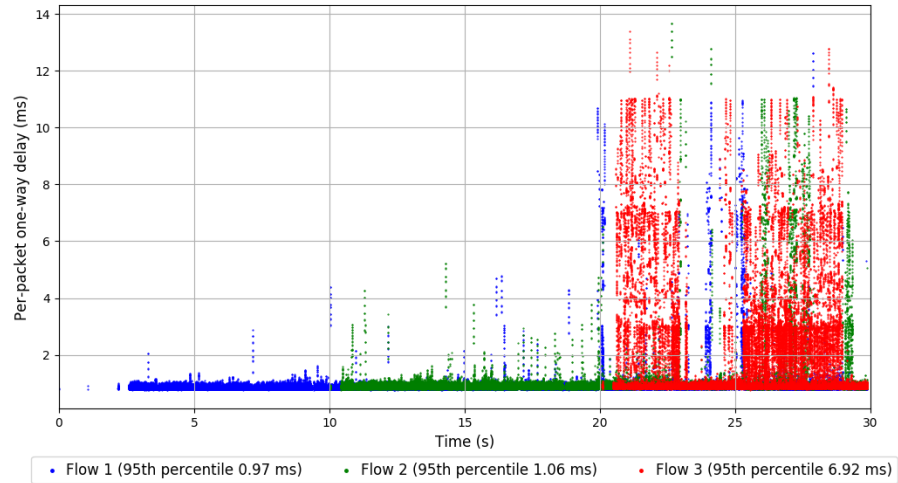
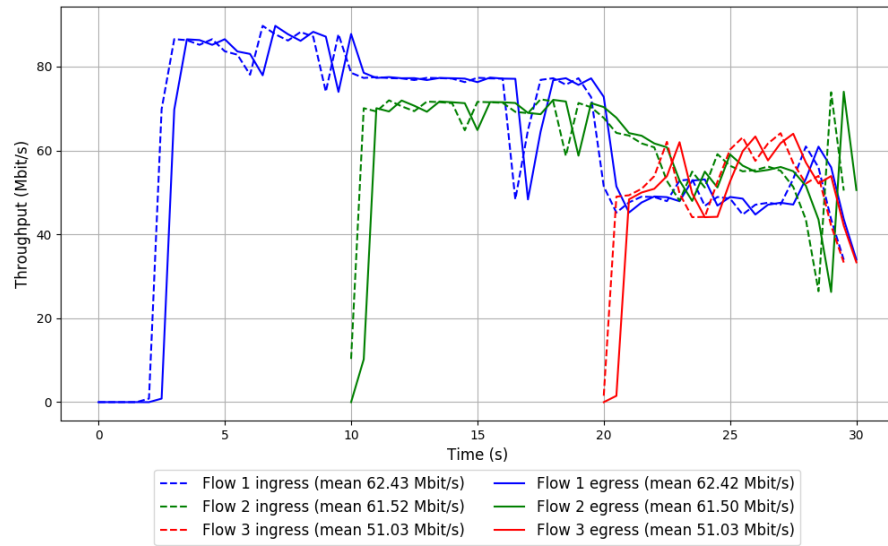
-- Flow 3:

Average throughput: 51.03 Mbit/s

95th percentile per-packet one-way delay: 6.925 ms

Loss rate: 0.00%

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



Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 05:32:22

End at: 2018-11-15 05:32:52

Local clock offset: 4.642 ms

Remote clock offset: 2.989 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 125.96 Mbit/s

95th percentile per-packet one-way delay: 3.277 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 69.63 Mbit/s

95th percentile per-packet one-way delay: 1.055 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 58.18 Mbit/s

95th percentile per-packet one-way delay: 3.339 ms

Loss rate: 0.00%

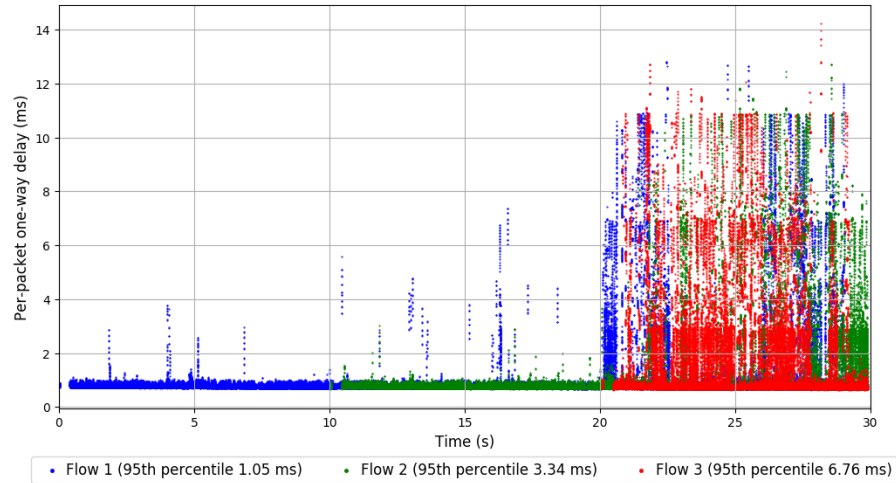
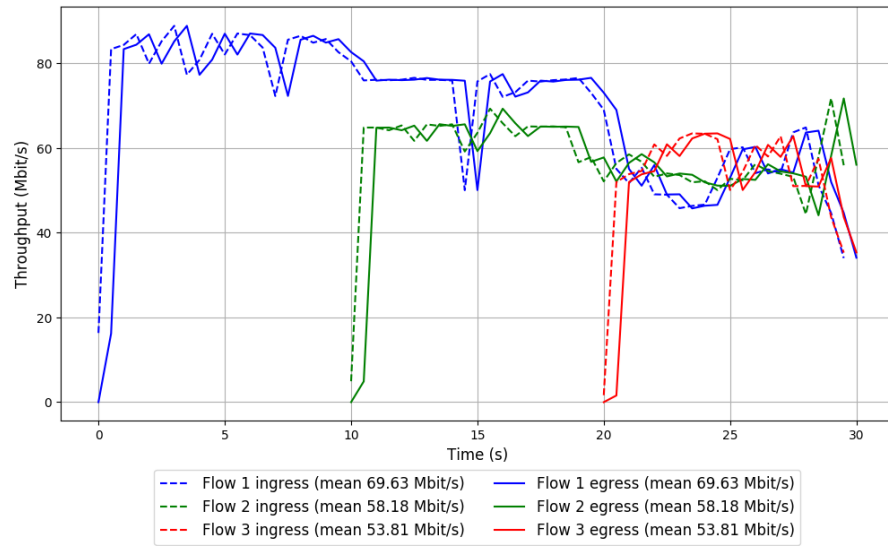
-- Flow 3:

Average throughput: 53.81 Mbit/s

95th percentile per-packet one-way delay: 6.756 ms

Loss rate: 0.00%

## Run 2: Report of QUIC Cubic — Data Link



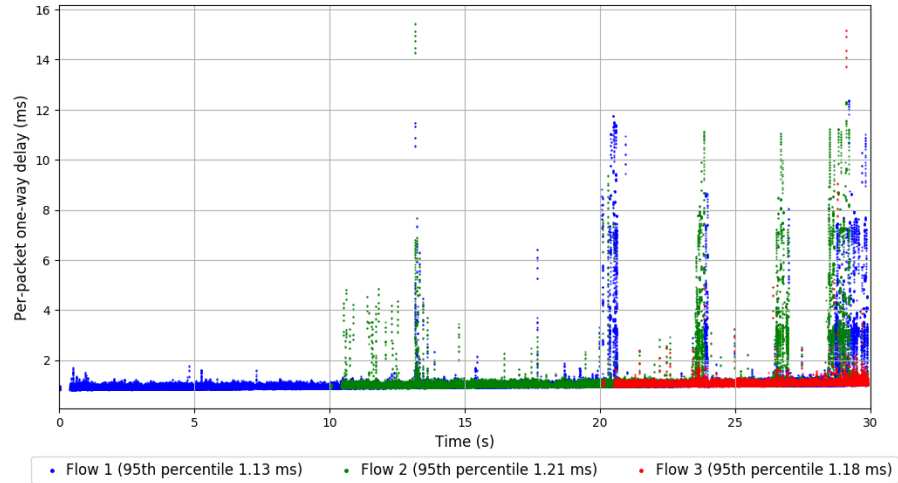
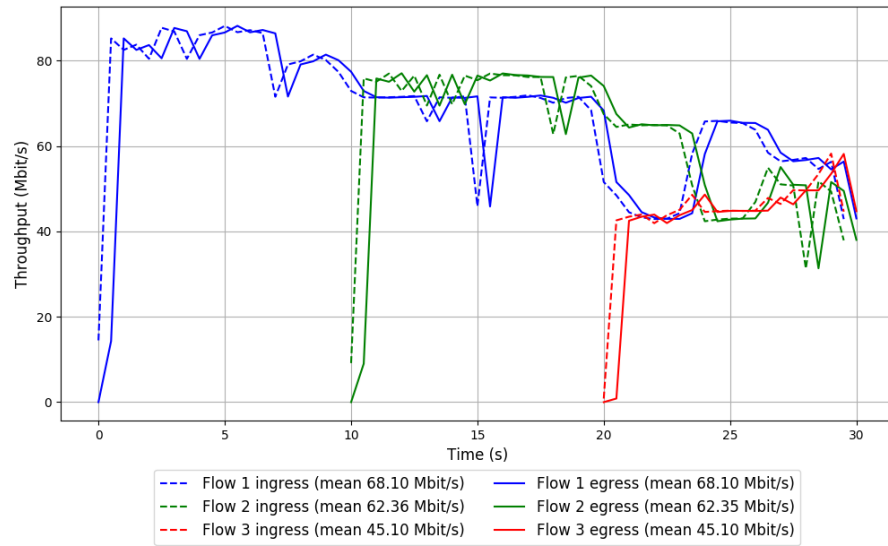


Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 05:59:30  
End at: 2018-11-15 06:00:00  
Local clock offset: 5.074 ms  
Remote clock offset: -0.962 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 124.30 Mbit/s  
95th percentile per-packet one-way delay: 1.165 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 68.10 Mbit/s  
95th percentile per-packet one-way delay: 1.133 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 62.35 Mbit/s  
95th percentile per-packet one-way delay: 1.213 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 45.10 Mbit/s  
95th percentile per-packet one-way delay: 1.178 ms  
Loss rate: 0.00%

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

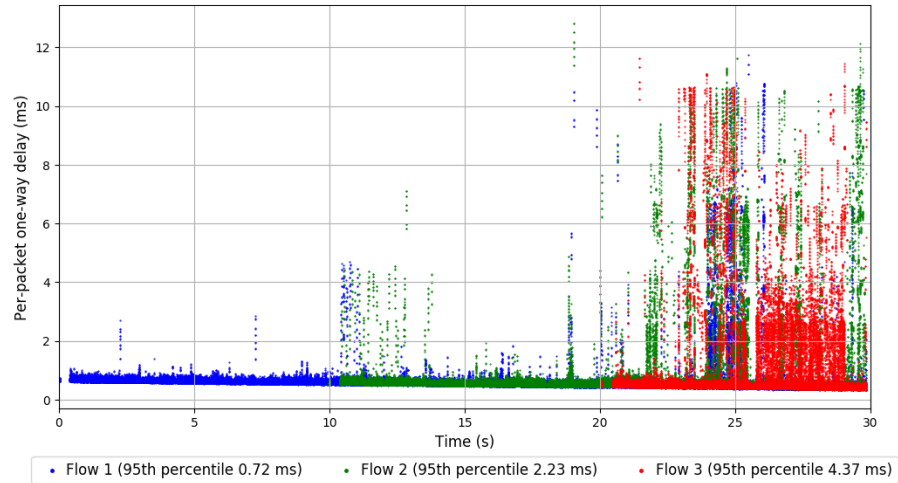
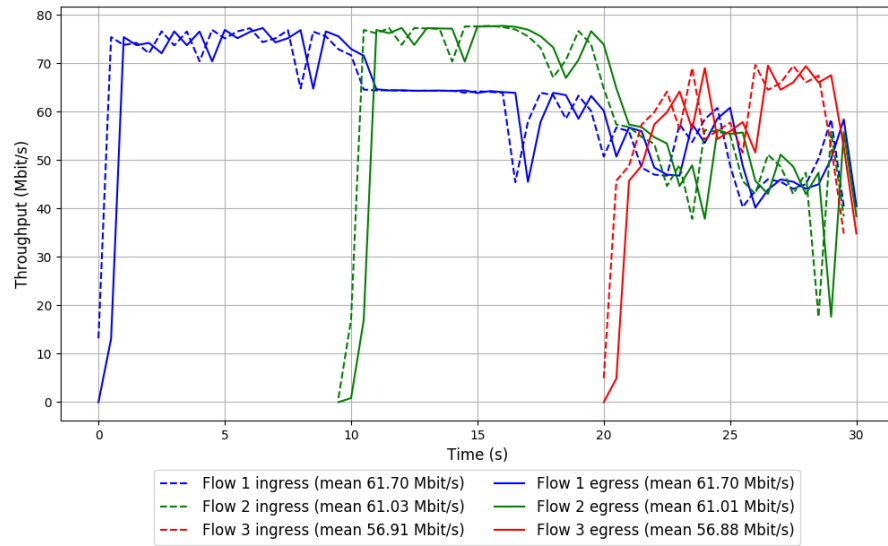


Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 06:26:42  
End at: 2018-11-15 06:27:12  
Local clock offset: 4.48 ms  
Remote clock offset: -4.678 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 121.02 Mbit/s  
95th percentile per-packet one-way delay: 1.859 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 61.70 Mbit/s  
95th percentile per-packet one-way delay: 0.720 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 61.01 Mbit/s  
95th percentile per-packet one-way delay: 2.232 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 56.88 Mbit/s  
95th percentile per-packet one-way delay: 4.373 ms  
Loss rate: 0.00%

#### Run 4: Report of QUIC Cubic — Data Link

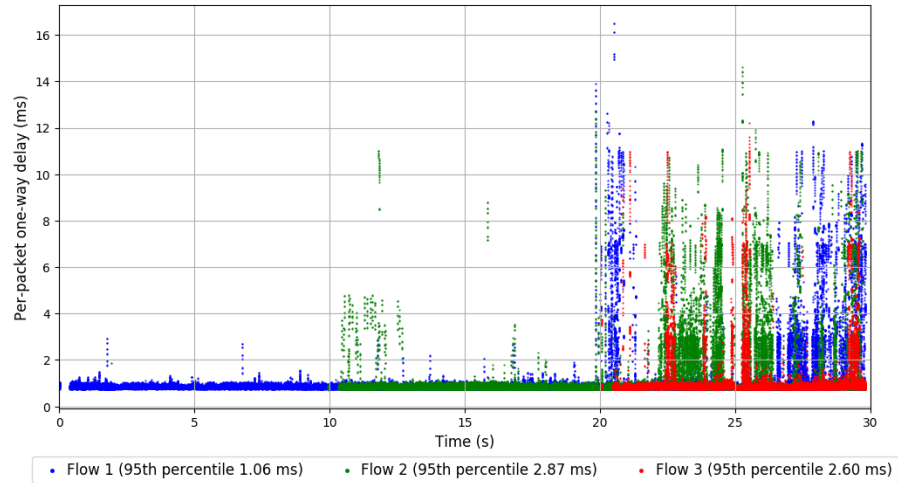
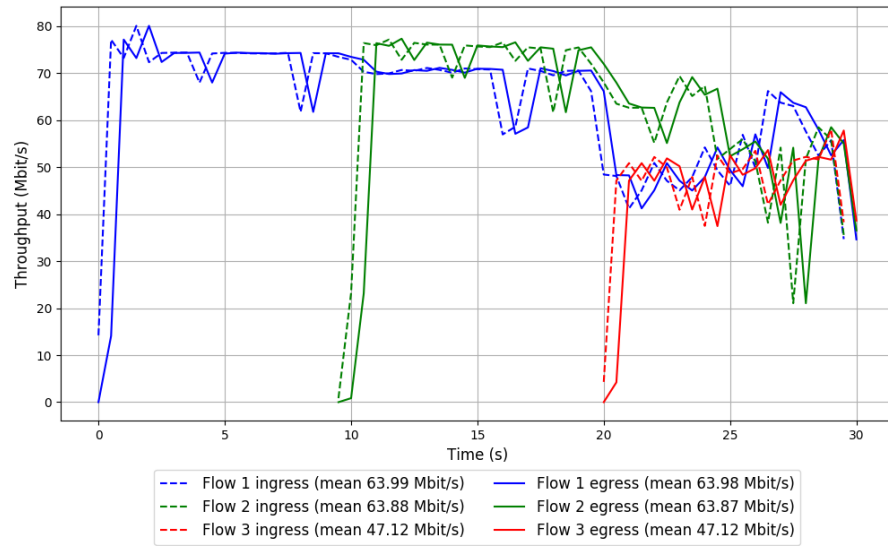


Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 06:53:43  
End at: 2018-11-15 06:54:13  
Local clock offset: 3.529 ms  
Remote clock offset: -0.601 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 122.03 Mbit/s  
95th percentile per-packet one-way delay: 2.105 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 63.98 Mbit/s  
95th percentile per-packet one-way delay: 1.063 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 63.87 Mbit/s  
95th percentile per-packet one-way delay: 2.865 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 47.12 Mbit/s  
95th percentile per-packet one-way delay: 2.598 ms  
Loss rate: 0.00%

## Run 5: Report of QUIC Cubic — Data Link

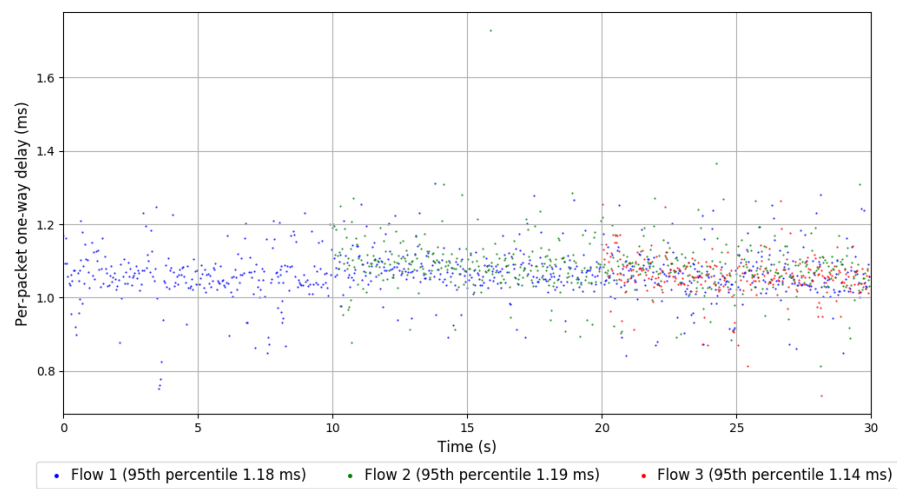
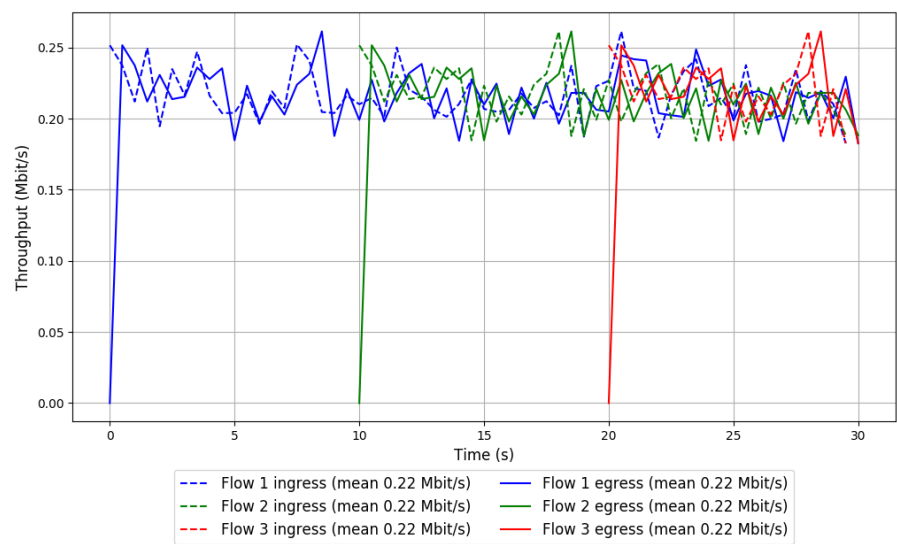


```
Run 1: Statistics of SReAM

Start at: 2018-11-15 04:49:35
End at: 2018-11-15 04:50:05
Local clock offset: 3.841 ms
Remote clock offset: -4.407 ms

# Below is generated by plot.py at 2018-11-15 07:46:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.179 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.181 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.192 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



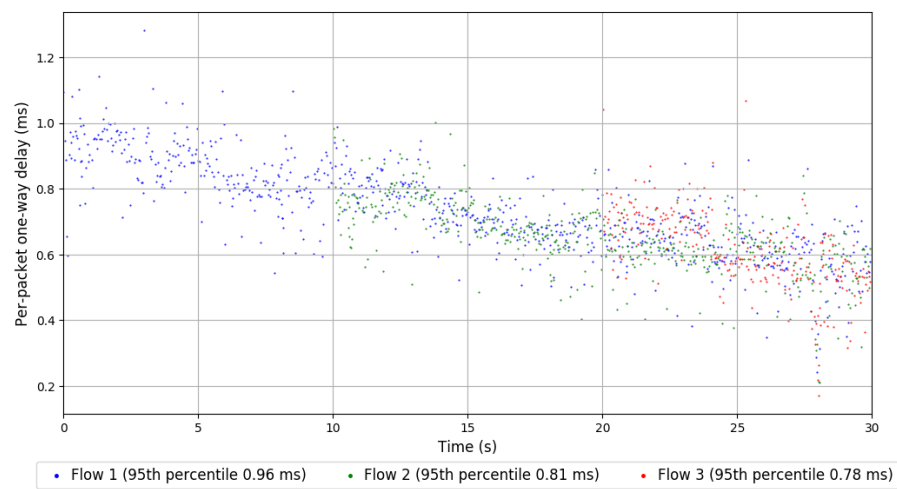
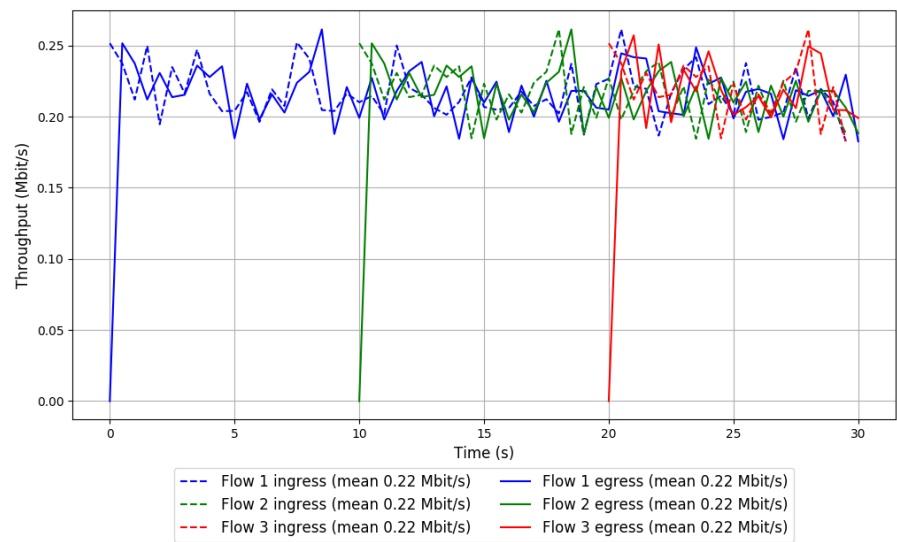


Run 2: Statistics of SReAM

Start at: 2018-11-15 05:16:40  
End at: 2018-11-15 05:17:10  
Local clock offset: 4.215 ms  
Remote clock offset: -3.667 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 0.934 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 0.964 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 0.809 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 0.784 ms  
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

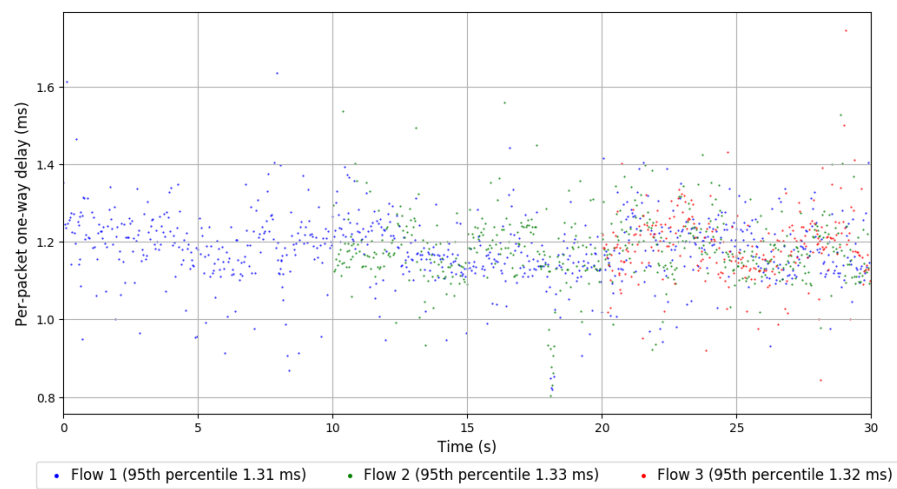
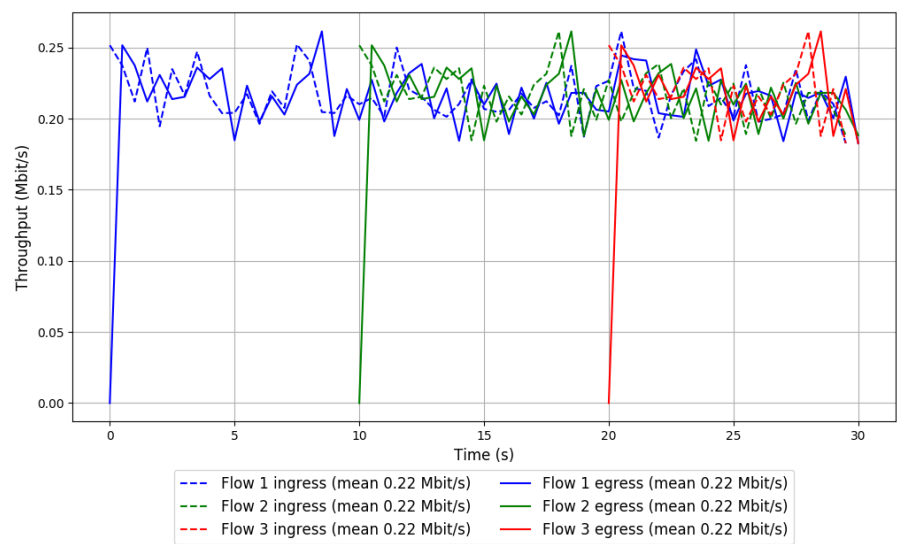


Run 3: Statistics of SReAM

Start at: 2018-11-15 05:43:50  
End at: 2018-11-15 05:44:20  
Local clock offset: 5.042 ms  
Remote clock offset: 4.734 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.320 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.315 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.330 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.319 ms  
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

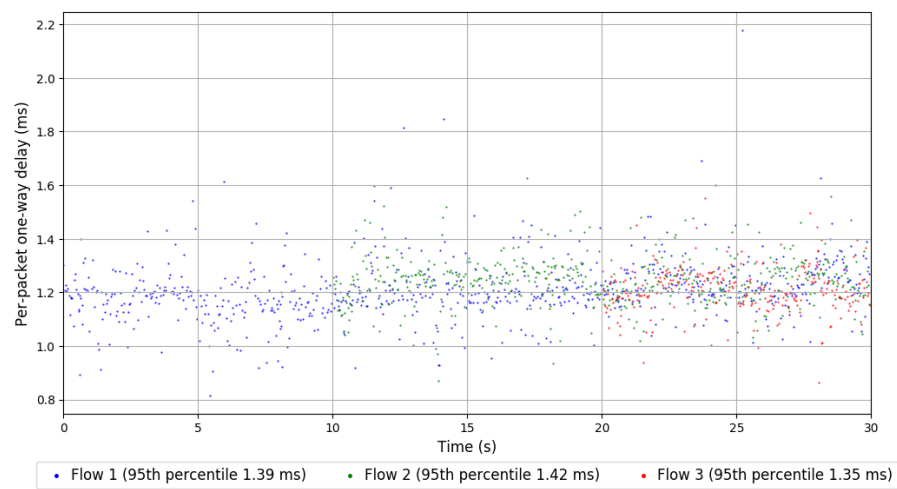
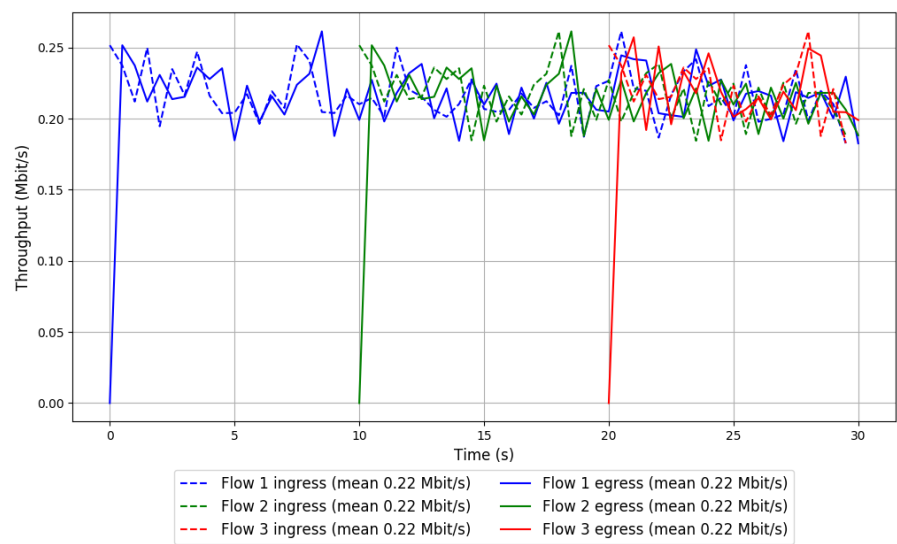


Run 4: Statistics of SCReAM

Start at: 2018-11-15 06:11:03  
End at: 2018-11-15 06:11:33  
Local clock offset: 4.615 ms  
Remote clock offset: -4.209 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.385 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.388 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.415 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.352 ms  
Loss rate: 0.00%

Run 4: Report of SCSReAM — Data Link

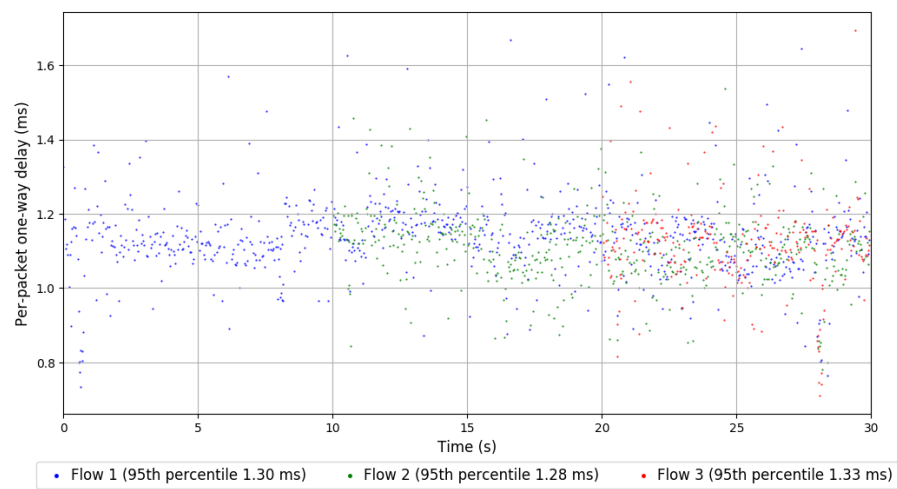
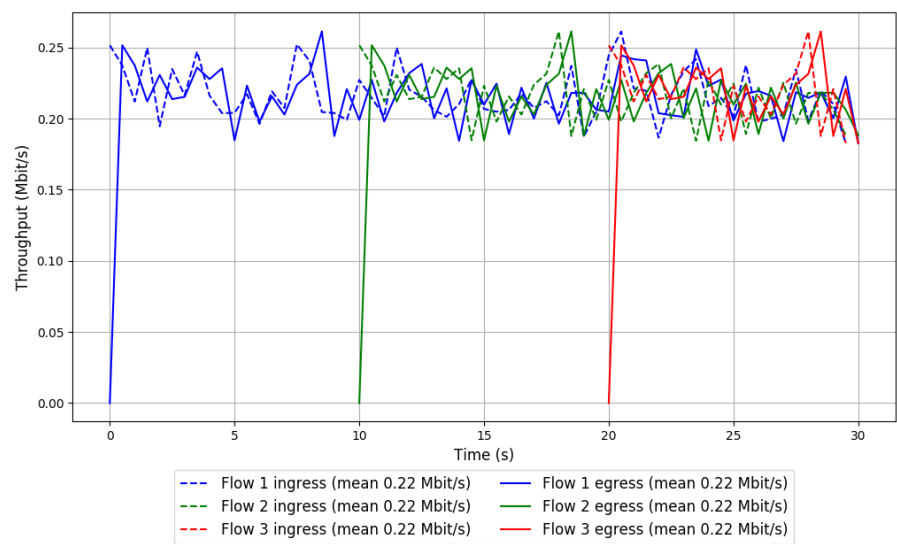


Run 5: Statistics of SReAM

Start at: 2018-11-15 06:38:07  
End at: 2018-11-15 06:38:37  
Local clock offset: 3.855 ms  
Remote clock offset: -1.381 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 1.293 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.296 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.280 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 1.335 ms  
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



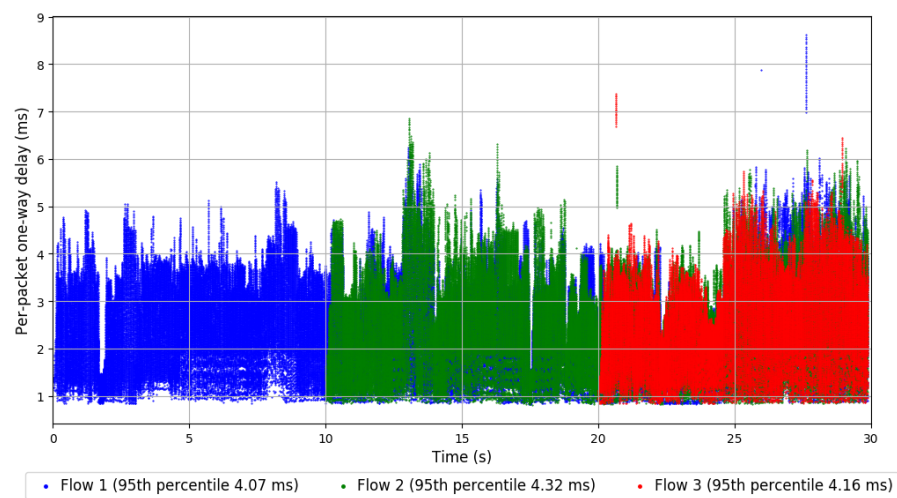
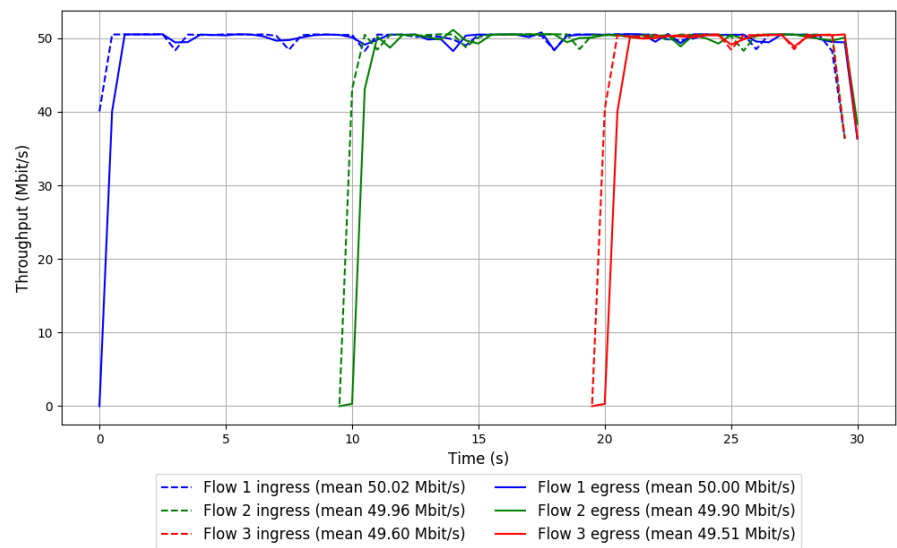


Run 1: Statistics of Sprout

Start at: 2018-11-15 04:59:06  
End at: 2018-11-15 04:59:36  
Local clock offset: 3.884 ms  
Remote clock offset: -3.936 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 99.62 Mbit/s  
95th percentile per-packet one-way delay: 4.175 ms  
Loss rate: 0.08%  
-- Flow 1:  
Average throughput: 50.00 Mbit/s  
95th percentile per-packet one-way delay: 4.068 ms  
Loss rate: 0.04%  
-- Flow 2:  
Average throughput: 49.90 Mbit/s  
95th percentile per-packet one-way delay: 4.319 ms  
Loss rate: 0.09%  
-- Flow 3:  
Average throughput: 49.51 Mbit/s  
95th percentile per-packet one-way delay: 4.160 ms  
Loss rate: 0.16%

Run 1: Report of Sprout — Data Link



## Run 2: Statistics of Sprout

Start at: 2018-11-15 05:26:13

End at: 2018-11-15 05:26:43

Local clock offset: 4.261 ms

Remote clock offset: 1.481 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.59 Mbit/s

95th percentile per-packet one-way delay: 4.169 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 50.01 Mbit/s

95th percentile per-packet one-way delay: 4.153 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 49.94 Mbit/s

95th percentile per-packet one-way delay: 4.288 ms

Loss rate: 0.04%

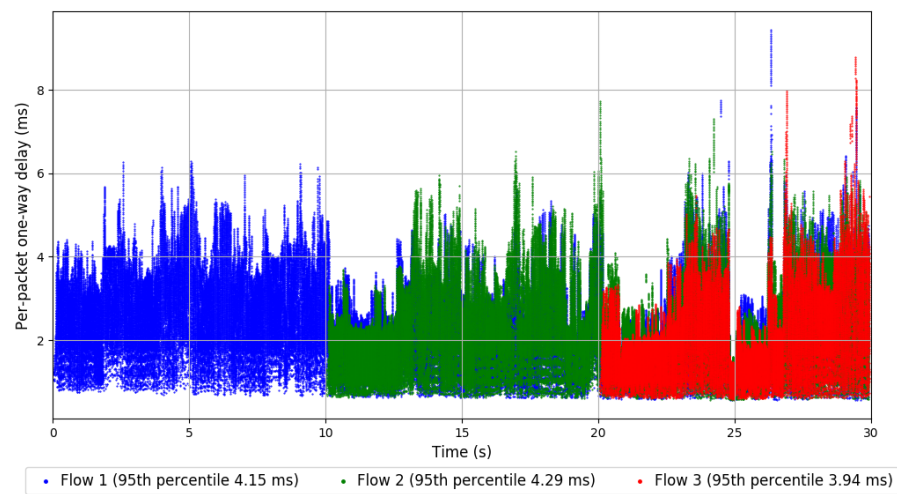
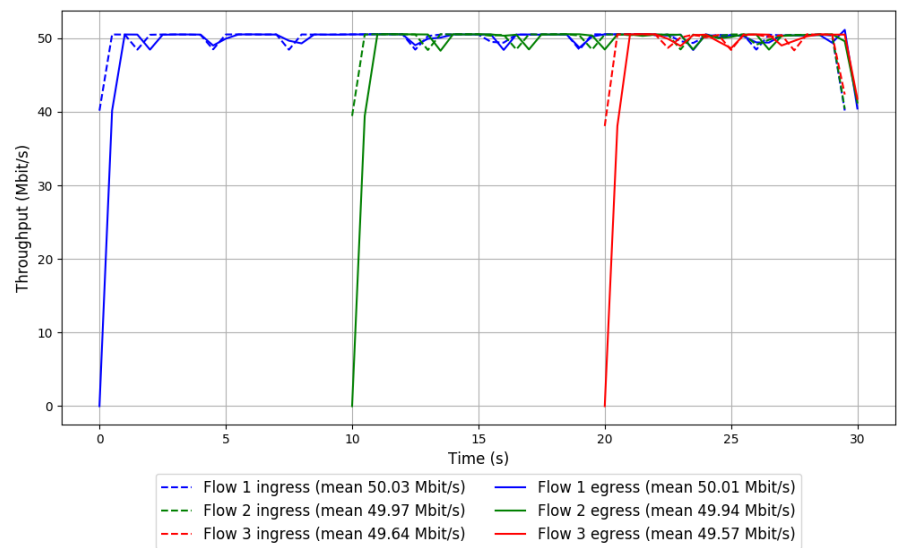
-- Flow 3:

Average throughput: 49.57 Mbit/s

95th percentile per-packet one-way delay: 3.942 ms

Loss rate: 0.10%

Run 2: Report of Sprout — Data Link



### Run 3: Statistics of Sprout

Start at: 2018-11-15 05:53:25

End at: 2018-11-15 05:53:55

Local clock offset: 5.232 ms

Remote clock offset: 2.513 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 99.48 Mbit/s

95th percentile per-packet one-way delay: 5.219 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 49.95 Mbit/s

95th percentile per-packet one-way delay: 5.194 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 49.80 Mbit/s

95th percentile per-packet one-way delay: 5.236 ms

Loss rate: 0.07%

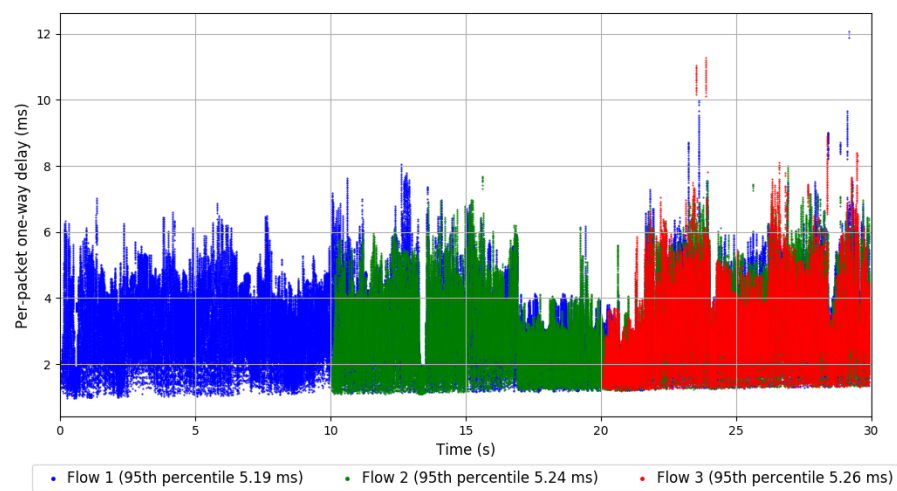
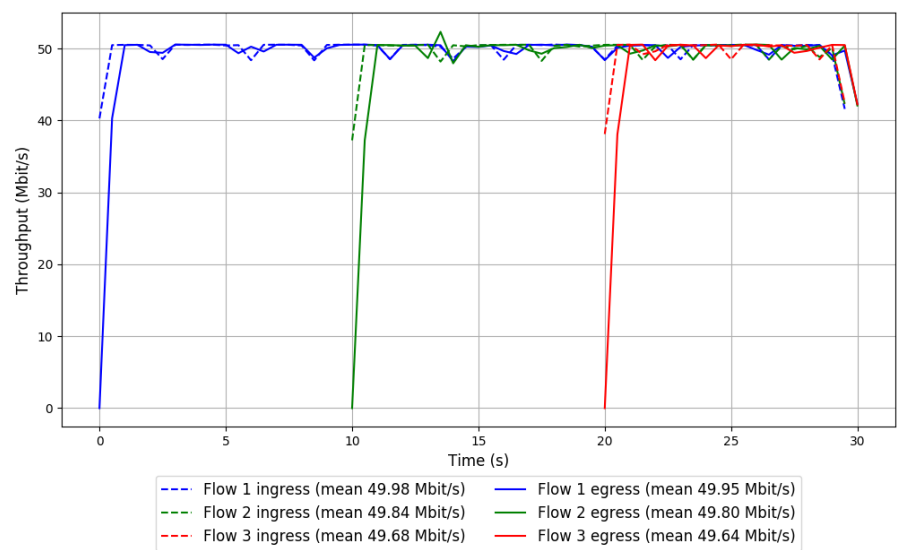
-- Flow 3:

Average throughput: 49.64 Mbit/s

95th percentile per-packet one-way delay: 5.265 ms

Loss rate: 0.06%

Run 3: Report of Sprout — Data Link

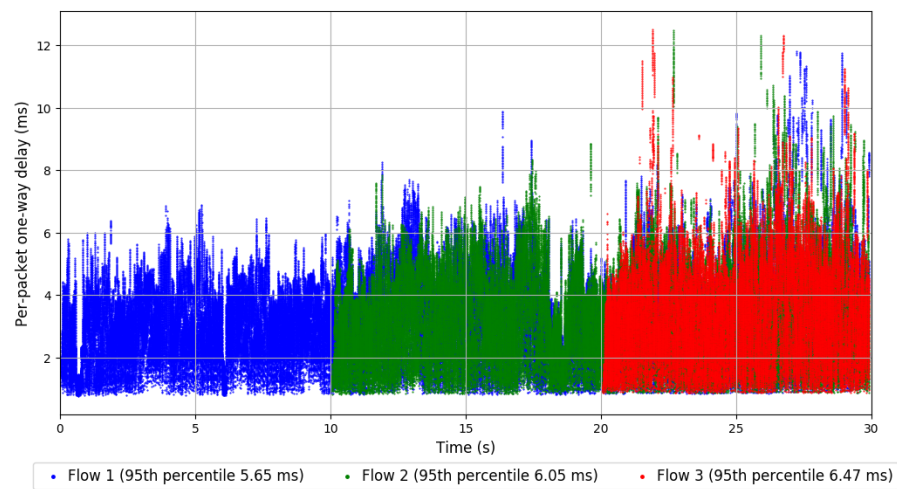
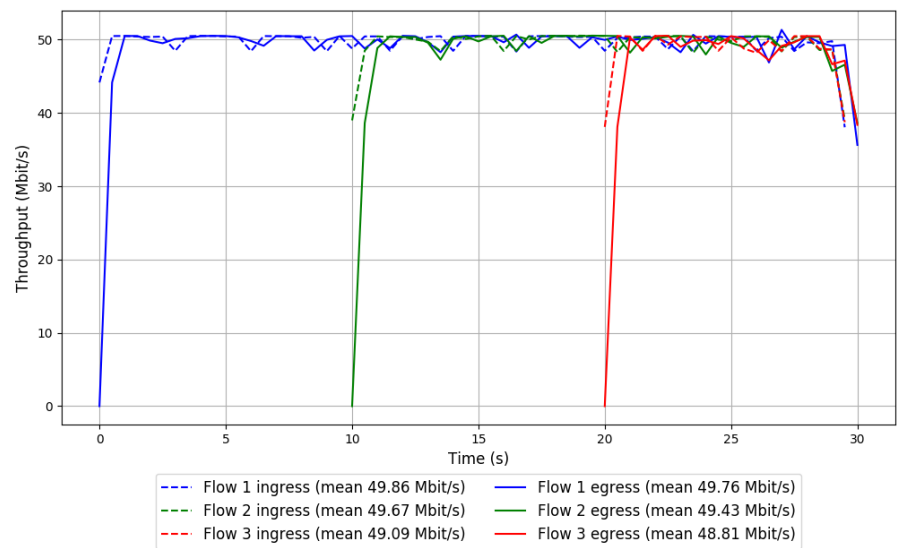


#### Run 4: Statistics of Sprout

Start at: 2018-11-15 06:20:37  
End at: 2018-11-15 06:21:07  
Local clock offset: 4.503 ms  
Remote clock offset: -5.652 ms

```
# Below is generated by plot.py at 2018-11-15 07:46:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 98.77 Mbit/s
95th percentile per-packet one-way delay: 5.922 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 49.76 Mbit/s
95th percentile per-packet one-way delay: 5.647 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 49.43 Mbit/s
95th percentile per-packet one-way delay: 6.048 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 48.81 Mbit/s
95th percentile per-packet one-way delay: 6.470 ms
Loss rate: 0.54%
```

Run 4: Report of Sprout — Data Link



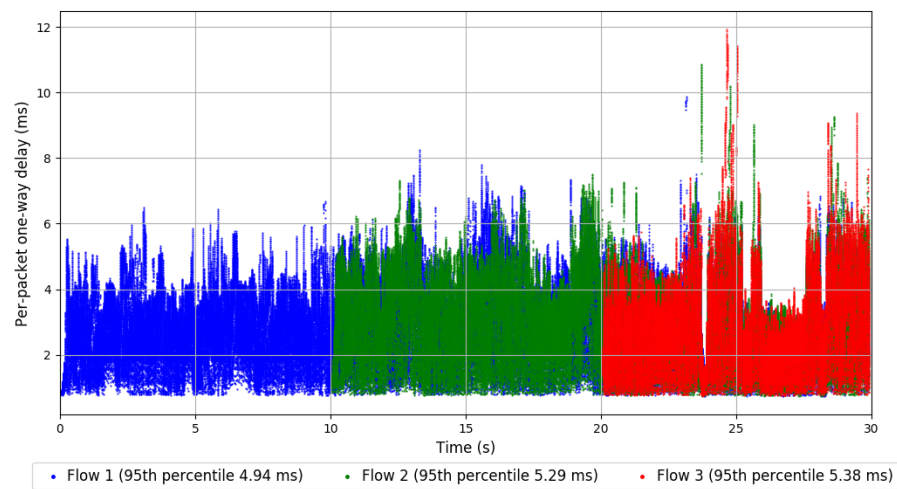
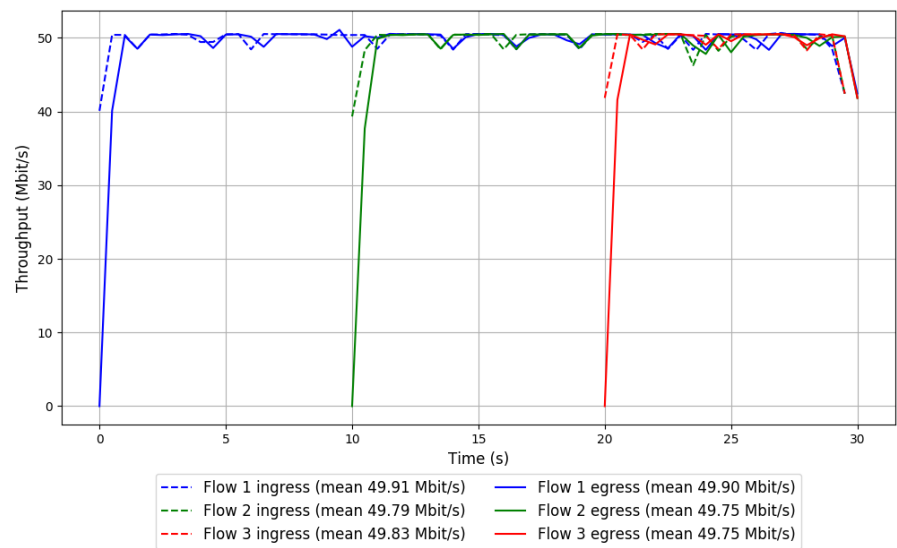


#### Run 5: Statistics of Sprout

Start at: 2018-11-15 06:47:38  
End at: 2018-11-15 06:48:08  
Local clock offset: 3.636 ms  
Remote clock offset: -0.73 ms

```
# Below is generated by plot.py at 2018-11-15 07:46:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.44 Mbit/s
95th percentile per-packet one-way delay: 5.126 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 49.90 Mbit/s
95th percentile per-packet one-way delay: 4.944 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 49.75 Mbit/s
95th percentile per-packet one-way delay: 5.287 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 49.75 Mbit/s
95th percentile per-packet one-way delay: 5.382 ms
Loss rate: 0.12%
```

Run 5: Report of Sprout — Data Link

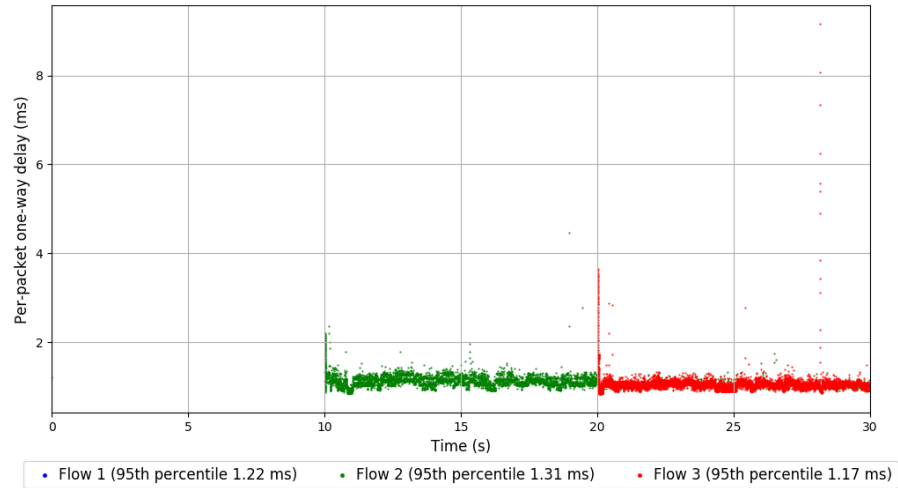
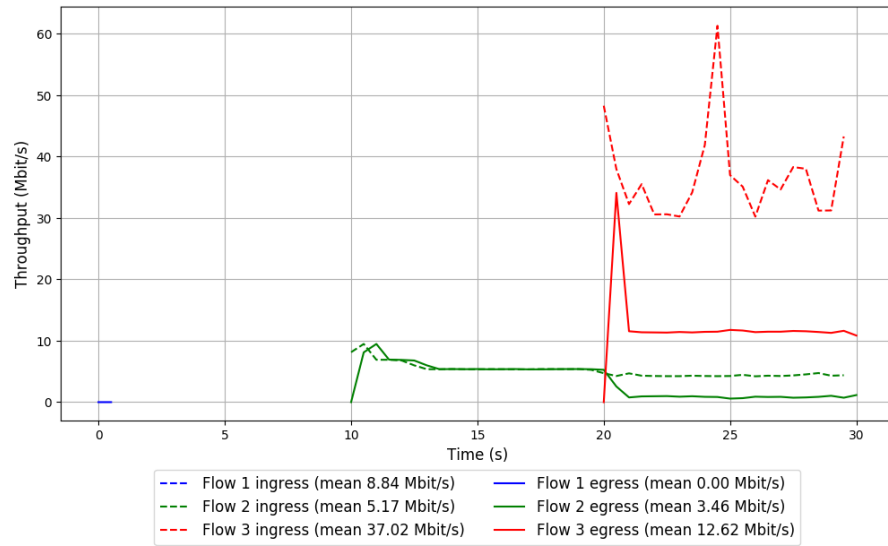


Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 05:00:27  
End at: 2018-11-15 05:00:57  
Local clock offset: 3.929 ms  
Remote clock offset: -3.907 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.50 Mbit/s  
95th percentile per-packet one-way delay: 1.268 ms  
Loss rate: 58.75%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.220 ms  
Loss rate: 95.92%  
-- Flow 2:  
Average throughput: 3.46 Mbit/s  
95th percentile per-packet one-way delay: 1.310 ms  
Loss rate: 33.14%  
-- Flow 3:  
Average throughput: 12.62 Mbit/s  
95th percentile per-packet one-way delay: 1.165 ms  
Loss rate: 65.91%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 05:27:34

End at: 2018-11-15 05:28:04

Local clock offset: 4.288 ms

Remote clock offset: 1.846 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 0.972 ms

Loss rate: 87.00%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.188 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 9.54 Mbit/s

95th percentile per-packet one-way delay: 0.976 ms

Loss rate: 83.07%

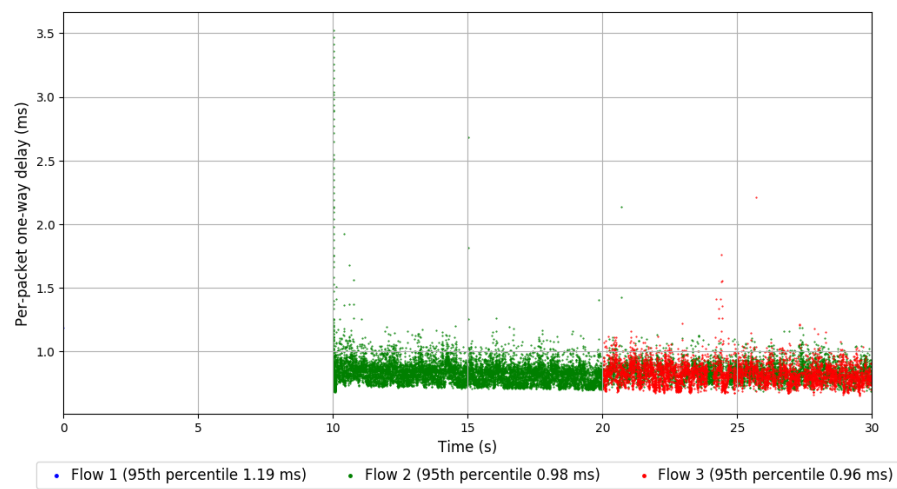
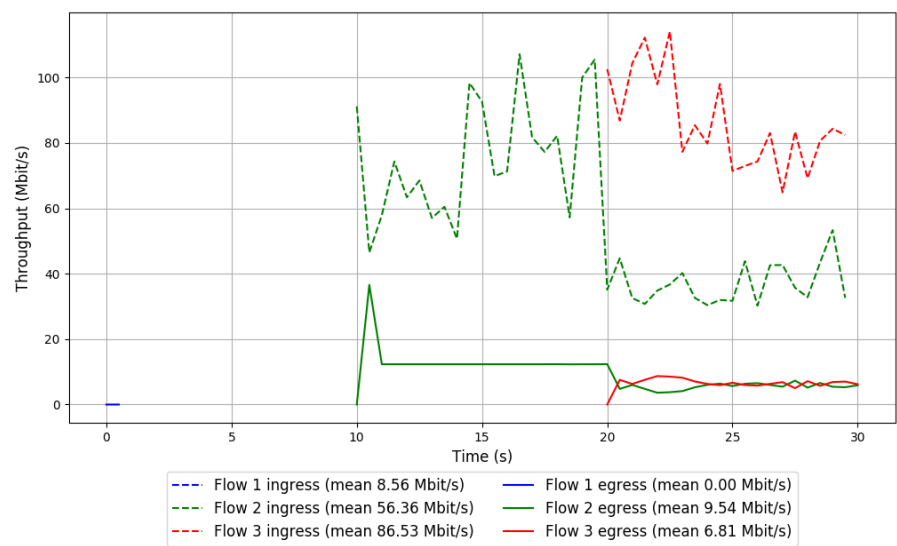
-- Flow 3:

Average throughput: 6.81 Mbit/s

95th percentile per-packet one-way delay: 0.958 ms

Loss rate: 92.13%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 05:54:46

End at: 2018-11-15 05:55:16

Local clock offset: 5.216 ms

Remote clock offset: 1.485 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 5.26 Mbit/s

95th percentile per-packet one-way delay: 1.548 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.104 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 4.41 Mbit/s

95th percentile per-packet one-way delay: 1.547 ms

Loss rate: 0.00%

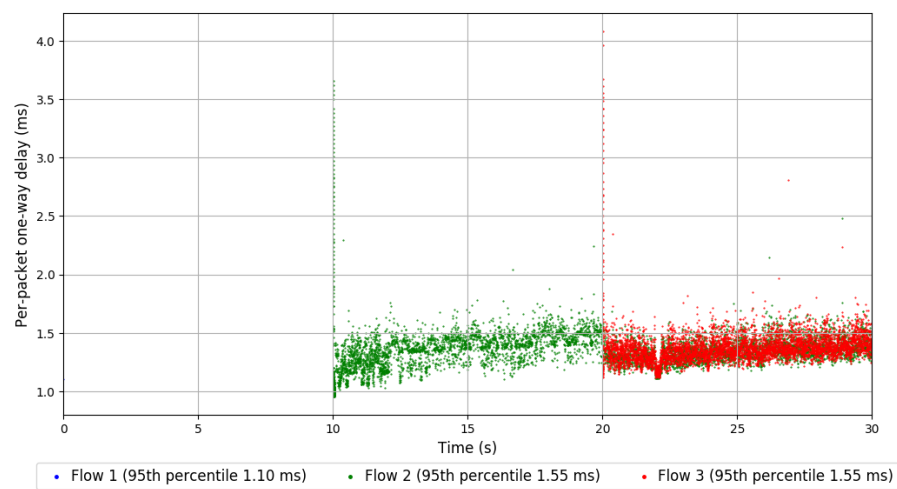
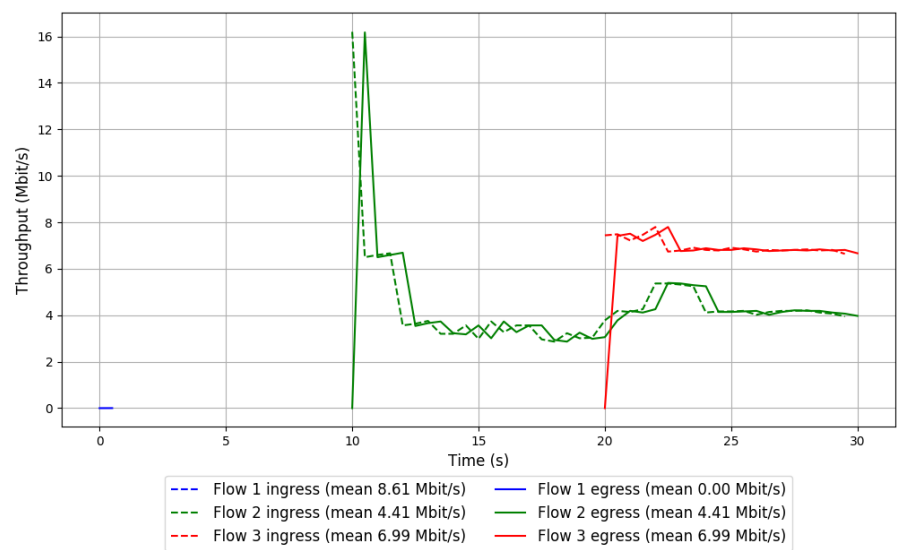
-- Flow 3:

Average throughput: 6.99 Mbit/s

95th percentile per-packet one-way delay: 1.550 ms

Loss rate: 0.00%

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



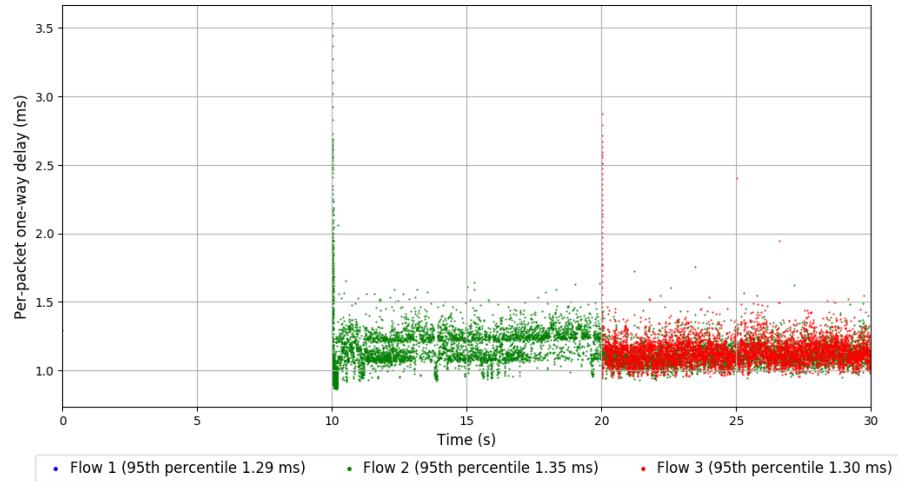
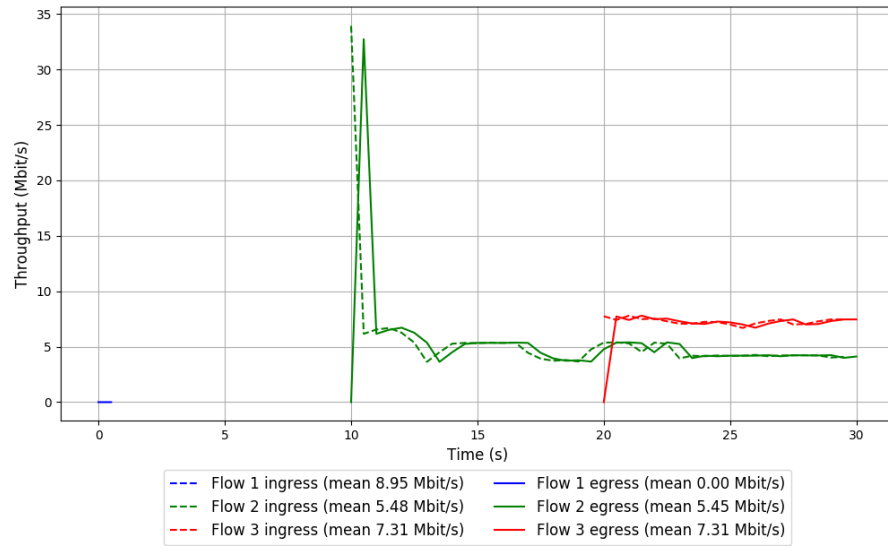


Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 06:21:58  
End at: 2018-11-15 06:22:28  
Local clock offset: 4.486 ms  
Remote clock offset: -5.734 ms

# Below is generated by plot.py at 2018-11-15 07:46:15  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 6.06 Mbit/s  
95th percentile per-packet one-way delay: 1.333 ms  
Loss rate: 0.34%  
-- Flow 1:  
Average throughput: 0.00 Mbit/s  
95th percentile per-packet one-way delay: 1.293 ms  
Loss rate: 95.92%  
-- Flow 2:  
Average throughput: 5.45 Mbit/s  
95th percentile per-packet one-way delay: 1.351 ms  
Loss rate: 0.55%  
-- Flow 3:  
Average throughput: 7.31 Mbit/s  
95th percentile per-packet one-way delay: 1.297 ms  
Loss rate: 0.00%

#### Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 06:48:59

End at: 2018-11-15 06:49:29

Local clock offset: 3.607 ms

Remote clock offset: -0.63 ms

# Below is generated by plot.py at 2018-11-15 07:46:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.62 Mbit/s

95th percentile per-packet one-way delay: 1.100 ms

Loss rate: 85.71%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 1.206 ms

Loss rate: 95.92%

-- Flow 2:

Average throughput: 9.29 Mbit/s

95th percentile per-packet one-way delay: 1.093 ms

Loss rate: 79.32%

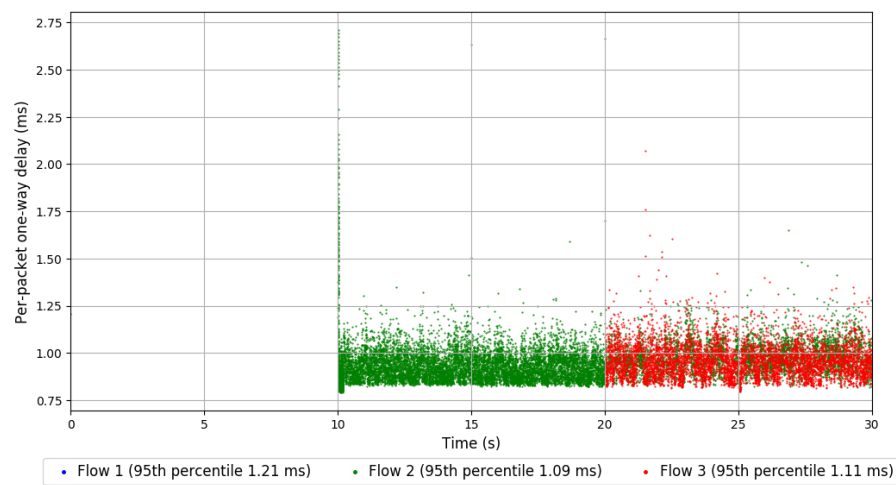
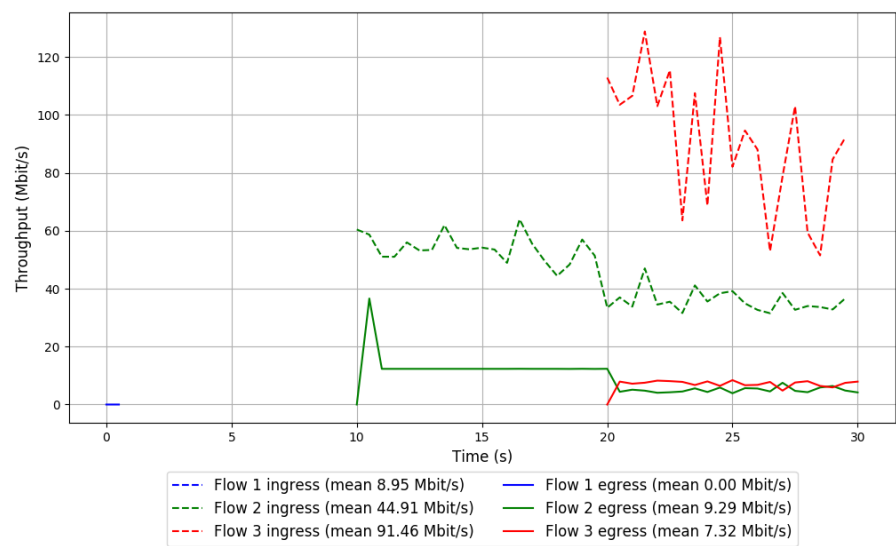
-- Flow 3:

Average throughput: 7.32 Mbit/s

95th percentile per-packet one-way delay: 1.115 ms

Loss rate: 92.00%

Run 5: Report of TaoVA-100x — Data Link

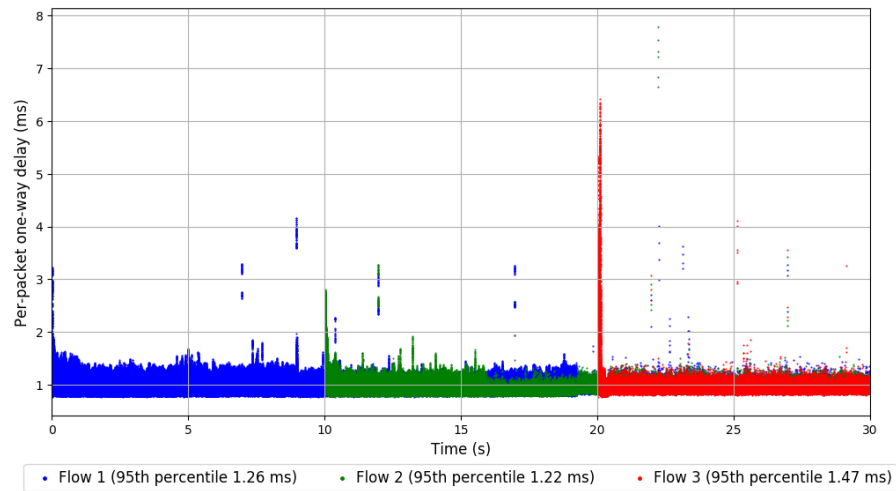
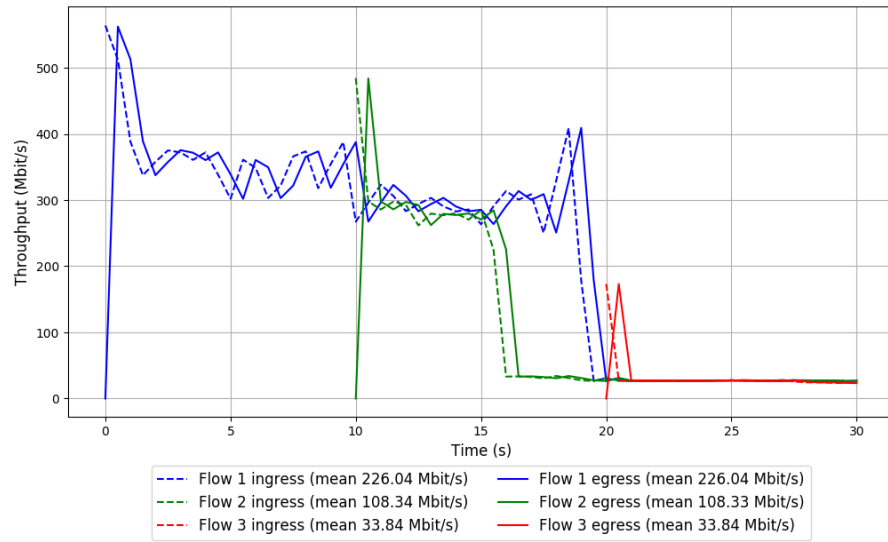


Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 04:57:37  
End at: 2018-11-15 04:58:07  
Local clock offset: 3.792 ms  
Remote clock offset: -3.985 ms

# Below is generated by plot.py at 2018-11-15 07:47:28  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 309.46 Mbit/s  
95th percentile per-packet one-way delay: 1.253 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 226.04 Mbit/s  
95th percentile per-packet one-way delay: 1.258 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 108.33 Mbit/s  
95th percentile per-packet one-way delay: 1.217 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 33.84 Mbit/s  
95th percentile per-packet one-way delay: 1.466 ms  
Loss rate: 0.01%

## Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 05:24:39

End at: 2018-11-15 05:25:09

Local clock offset: 4.232 ms

Remote clock offset: 0.875 ms

# Below is generated by plot.py at 2018-11-15 07:49:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 453.80 Mbit/s

95th percentile per-packet one-way delay: 1.017 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 210.33 Mbit/s

95th percentile per-packet one-way delay: 1.042 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 191.02 Mbit/s

95th percentile per-packet one-way delay: 1.008 ms

Loss rate: 0.01%

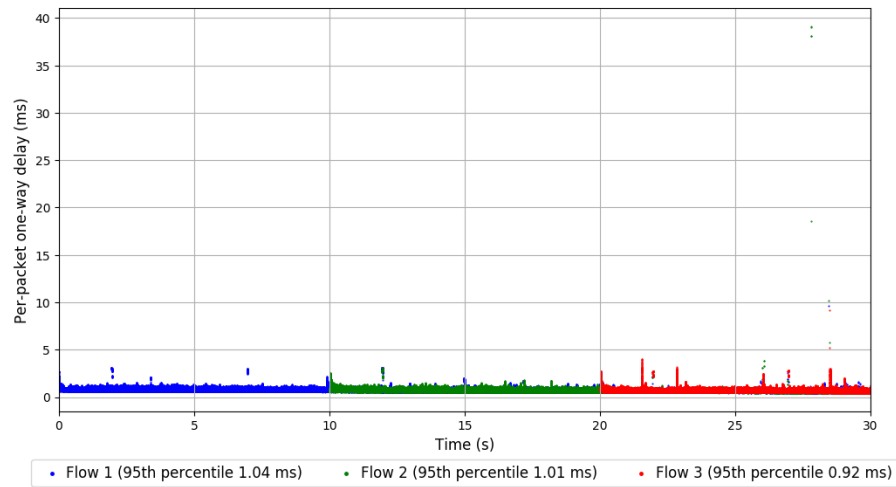
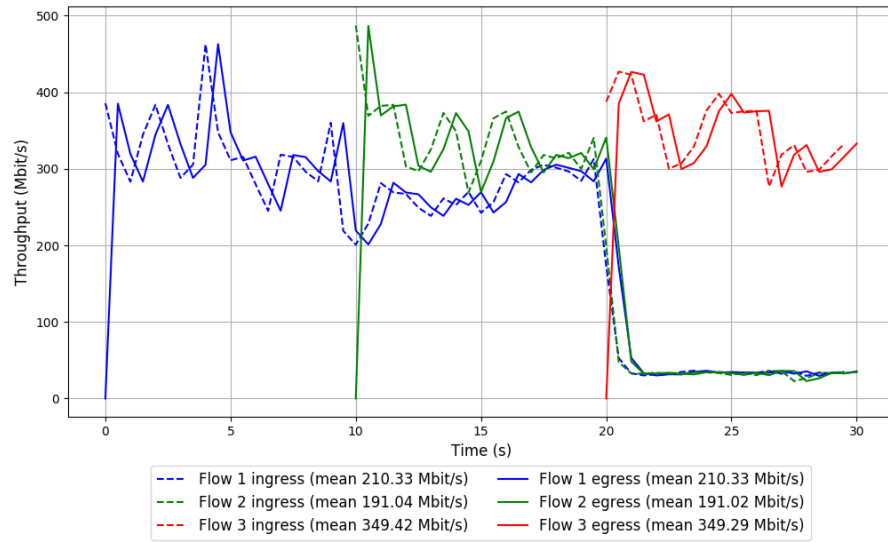
-- Flow 3:

Average throughput: 349.29 Mbit/s

95th percentile per-packet one-way delay: 0.923 ms

Loss rate: 0.03%

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





Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 05:51:49

End at: 2018-11-15 05:52:19

Local clock offset: 5.197 ms

Remote clock offset: 3.888 ms

# Below is generated by plot.py at 2018-11-15 07:50:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 497.62 Mbit/s

95th percentile per-packet one-way delay: 1.760 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 261.64 Mbit/s

95th percentile per-packet one-way delay: 1.719 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 238.55 Mbit/s

95th percentile per-packet one-way delay: 1.761 ms

Loss rate: 0.01%

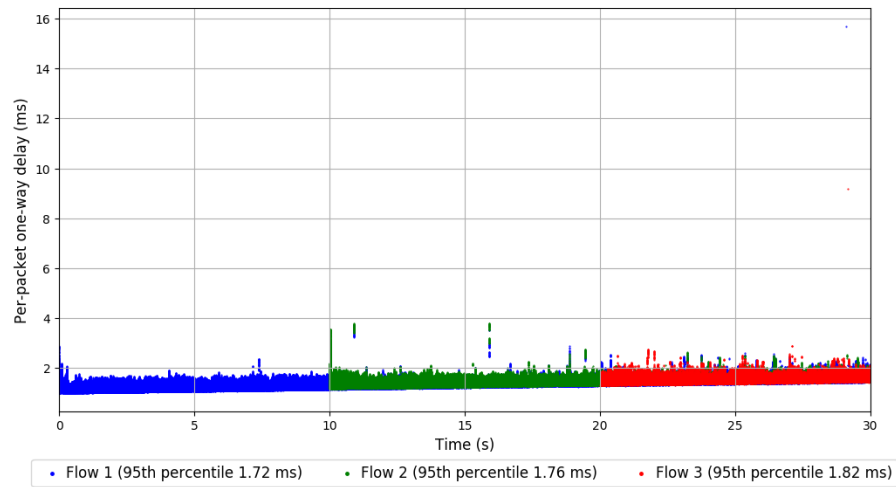
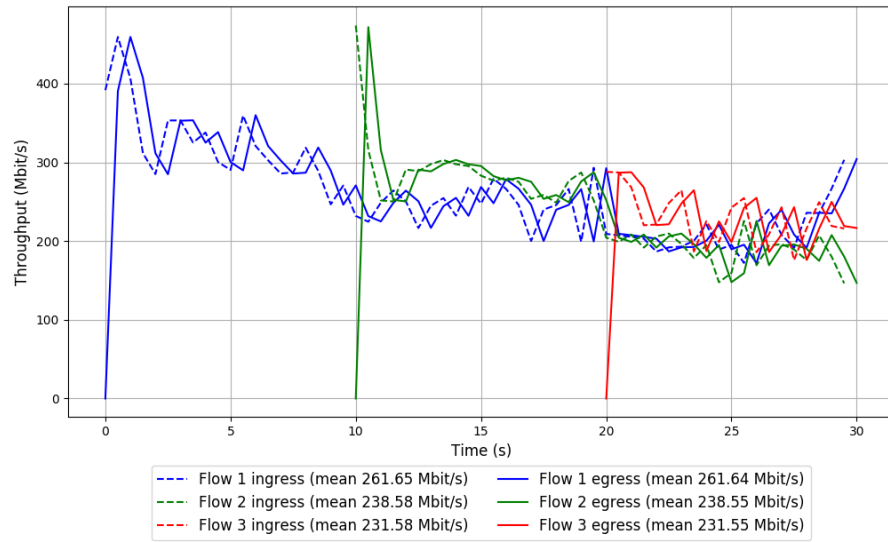
-- Flow 3:

Average throughput: 231.55 Mbit/s

95th percentile per-packet one-way delay: 1.823 ms

Loss rate: 0.00%

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

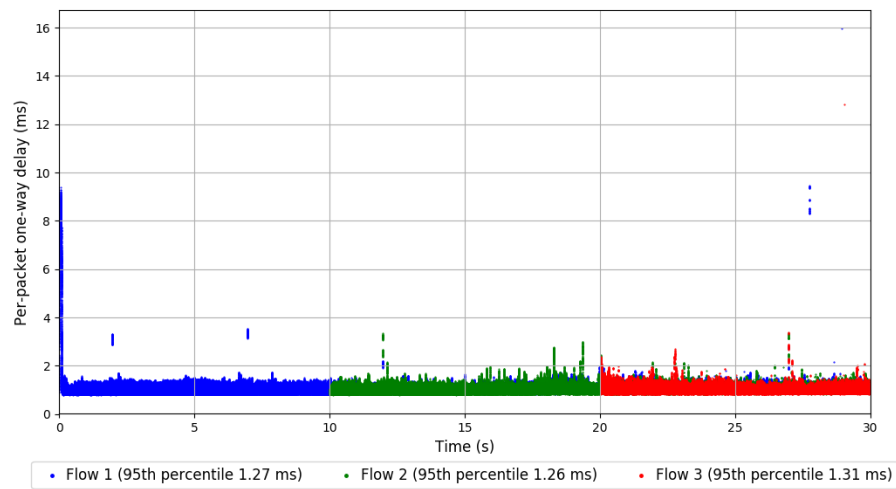
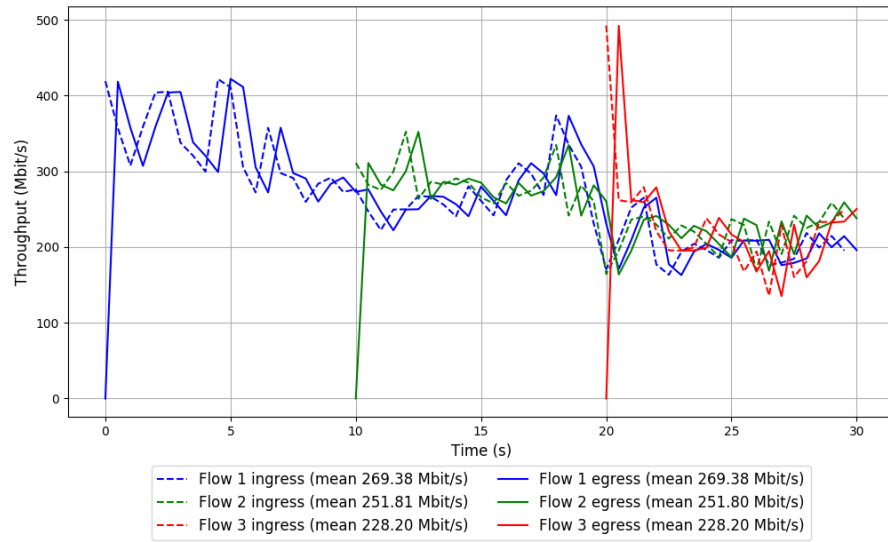


Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 06:19:01  
End at: 2018-11-15 06:19:31  
Local clock offset: 4.542 ms  
Remote clock offset: -5.397 ms

# Below is generated by plot.py at 2018-11-15 07:50:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 513.02 Mbit/s  
95th percentile per-packet one-way delay: 1.274 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 269.38 Mbit/s  
95th percentile per-packet one-way delay: 1.273 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 251.80 Mbit/s  
95th percentile per-packet one-way delay: 1.261 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 228.20 Mbit/s  
95th percentile per-packet one-way delay: 1.308 ms  
Loss rate: 0.00%

# Run 4: Report of TCP Vegas — Data Link

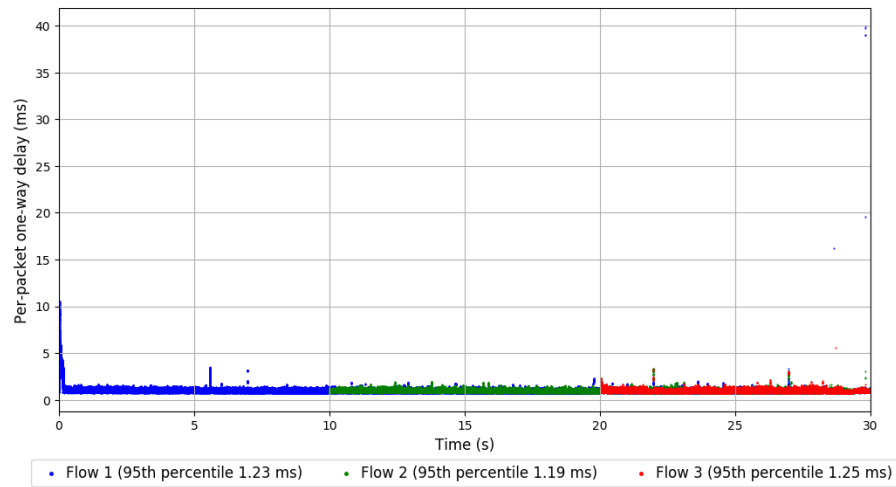
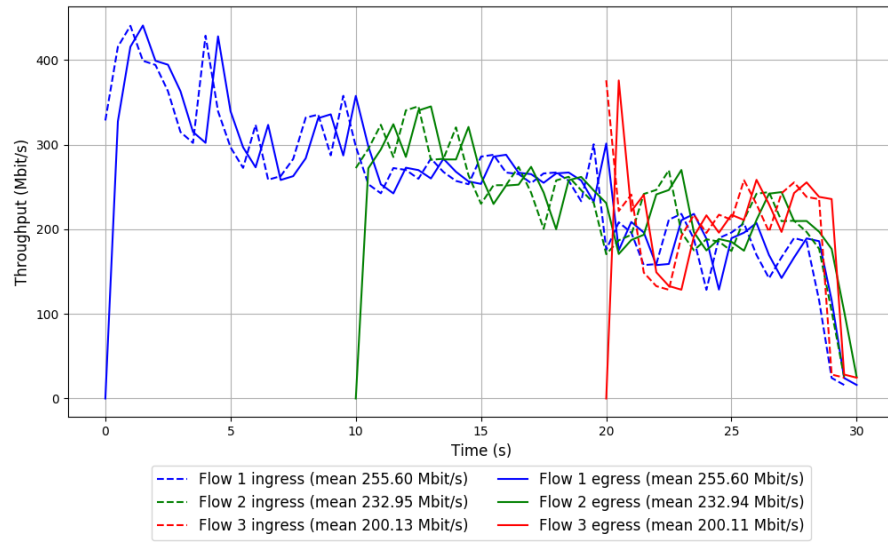


Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 06:46:03  
End at: 2018-11-15 06:46:33  
Local clock offset: 3.668 ms  
Remote clock offset: -0.749 ms

# Below is generated by plot.py at 2018-11-15 07:50:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 477.41 Mbit/s  
95th percentile per-packet one-way delay: 1.220 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 255.60 Mbit/s  
95th percentile per-packet one-way delay: 1.226 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 232.94 Mbit/s  
95th percentile per-packet one-way delay: 1.194 ms  
Loss rate: 0.01%  
-- Flow 3:  
Average throughput: 200.11 Mbit/s  
95th percentile per-packet one-way delay: 1.253 ms  
Loss rate: 0.01%

# Run 5: Report of TCP Vegas — Data Link

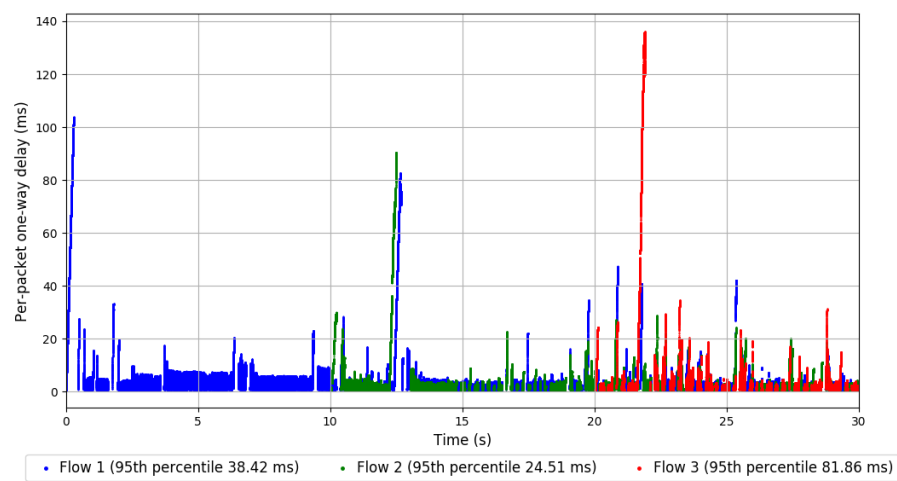
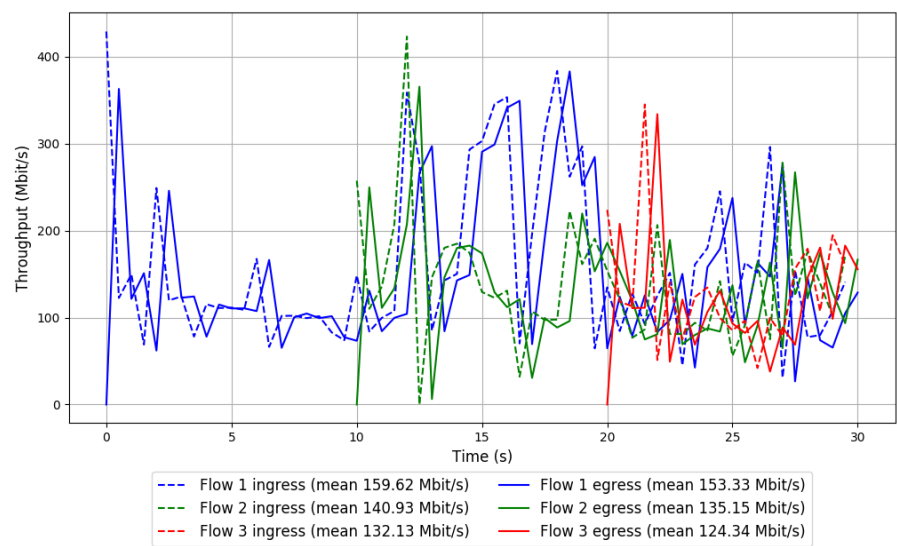


Run 1: Statistics of Verus

Start at: 2018-11-15 05:01:46  
End at: 2018-11-15 05:02:16  
Local clock offset: 4.003 ms  
Remote clock offset: -3.877 ms

# Below is generated by plot.py at 2018-11-15 07:50:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 284.49 Mbit/s  
95th percentile per-packet one-way delay: 32.896 ms  
Loss rate: 4.27%  
-- Flow 1:  
Average throughput: 153.33 Mbit/s  
95th percentile per-packet one-way delay: 38.417 ms  
Loss rate: 3.94%  
-- Flow 2:  
Average throughput: 135.15 Mbit/s  
95th percentile per-packet one-way delay: 24.509 ms  
Loss rate: 4.09%  
-- Flow 3:  
Average throughput: 124.34 Mbit/s  
95th percentile per-packet one-way delay: 81.861 ms  
Loss rate: 5.89%

Run 1: Report of Verus — Data Link





Run 2: Statistics of Verus

Start at: 2018-11-15 05:28:54

End at: 2018-11-15 05:29:24

Local clock offset: 4.393 ms

Remote clock offset: 2.312 ms

# Below is generated by plot.py at 2018-11-15 07:50:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 276.65 Mbit/s

95th percentile per-packet one-way delay: 34.675 ms

Loss rate: 6.39%

-- Flow 1:

Average throughput: 131.91 Mbit/s

95th percentile per-packet one-way delay: 30.982 ms

Loss rate: 5.74%

-- Flow 2:

Average throughput: 141.66 Mbit/s

95th percentile per-packet one-way delay: 47.216 ms

Loss rate: 7.59%

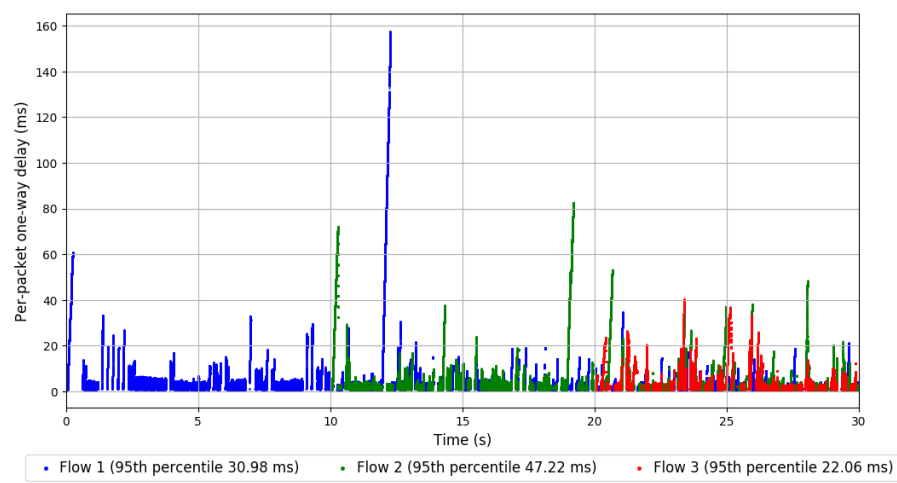
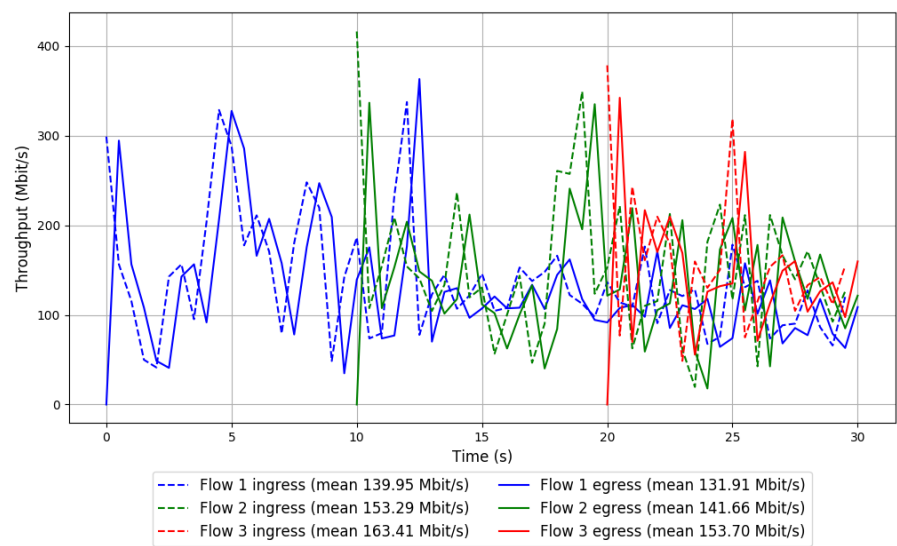
-- Flow 3:

Average throughput: 153.70 Mbit/s

95th percentile per-packet one-way delay: 22.064 ms

Loss rate: 5.83%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-11-15 05:56:05

End at: 2018-11-15 05:56:35

Local clock offset: 5.227 ms

Remote clock offset: 0.625 ms

# Below is generated by plot.py at 2018-11-15 07:50:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 227.11 Mbit/s

95th percentile per-packet one-way delay: 29.514 ms

Loss rate: 6.86%

-- Flow 1:

Average throughput: 118.75 Mbit/s

95th percentile per-packet one-way delay: 15.006 ms

Loss rate: 6.09%

-- Flow 2:

Average throughput: 98.19 Mbit/s

95th percentile per-packet one-way delay: 115.072 ms

Loss rate: 9.74%

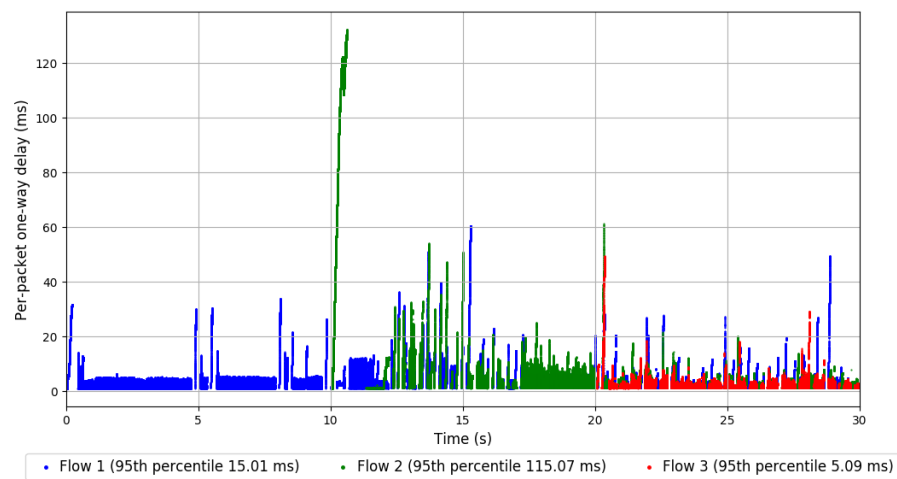
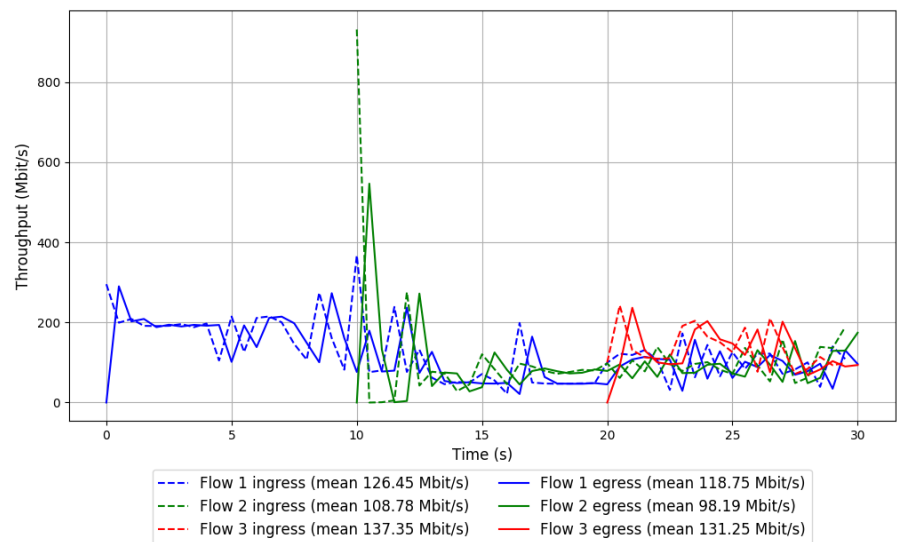
-- Flow 3:

Average throughput: 131.25 Mbit/s

95th percentile per-packet one-way delay: 5.088 ms

Loss rate: 4.43%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-11-15 06:23:17

End at: 2018-11-15 06:23:47

Local clock offset: 4.475 ms

Remote clock offset: -5.97 ms

# Below is generated by plot.py at 2018-11-15 07:50:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 256.93 Mbit/s

95th percentile per-packet one-way delay: 50.647 ms

Loss rate: 5.52%

-- Flow 1:

Average throughput: 140.17 Mbit/s

95th percentile per-packet one-way delay: 23.063 ms

Loss rate: 4.44%

-- Flow 2:

Average throughput: 132.54 Mbit/s

95th percentile per-packet one-way delay: 72.642 ms

Loss rate: 4.88%

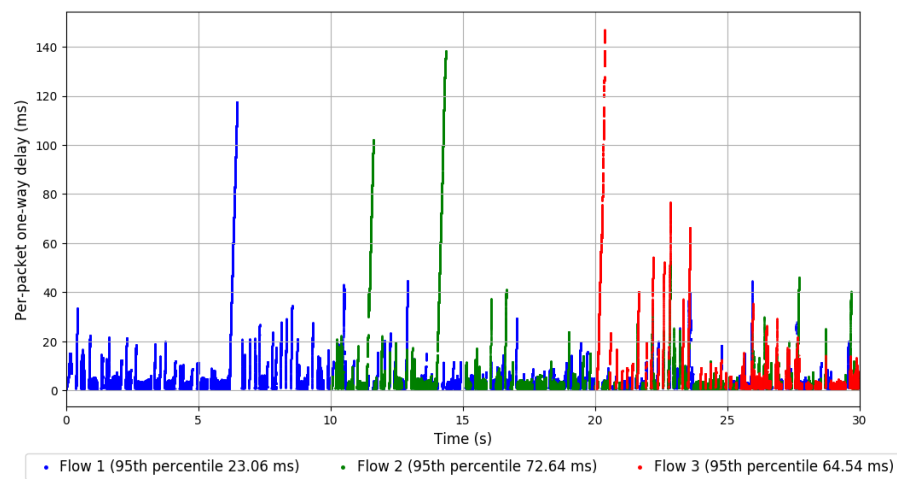
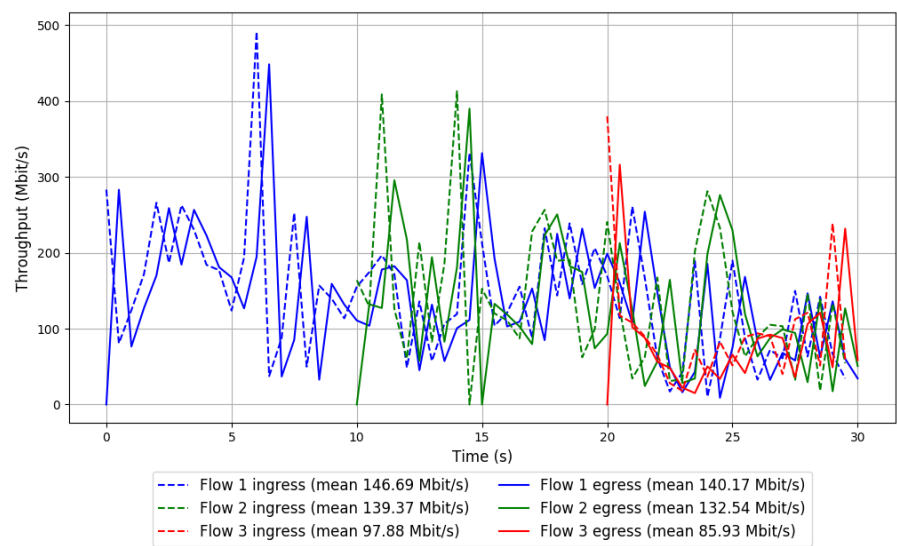
-- Flow 3:

Average throughput: 85.93 Mbit/s

95th percentile per-packet one-way delay: 64.539 ms

Loss rate: 12.18%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-15 06:50:19

End at: 2018-11-15 06:50:49

Local clock offset: 3.583 ms

Remote clock offset: -0.67 ms

# Below is generated by plot.py at 2018-11-15 07:50:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 219.76 Mbit/s

95th percentile per-packet one-way delay: 23.423 ms

Loss rate: 3.79%

-- Flow 1:

Average throughput: 123.03 Mbit/s

95th percentile per-packet one-way delay: 20.400 ms

Loss rate: 2.66%

-- Flow 2:

Average throughput: 91.86 Mbit/s

95th percentile per-packet one-way delay: 22.191 ms

Loss rate: 5.40%

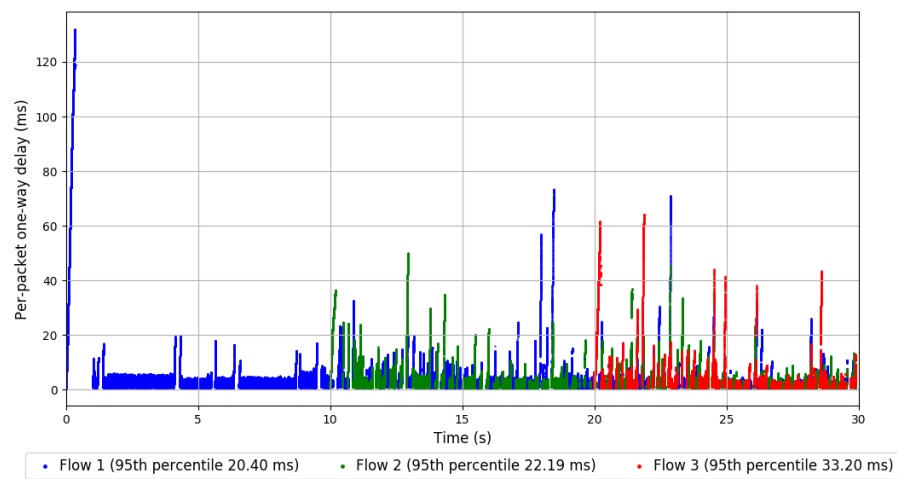
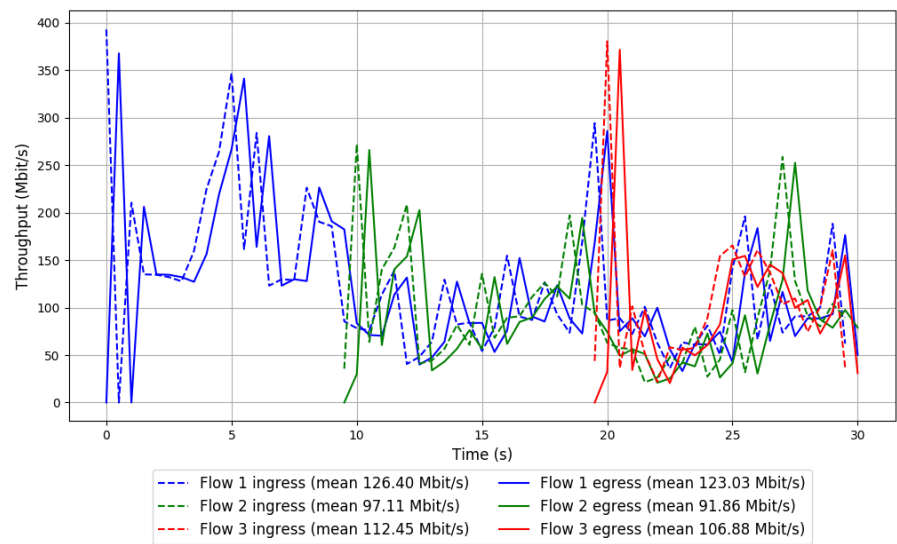
-- Flow 3:

Average throughput: 106.88 Mbit/s

95th percentile per-packet one-way delay: 33.201 ms

Loss rate: 4.85%

Run 5: Report of Verus — Data Link



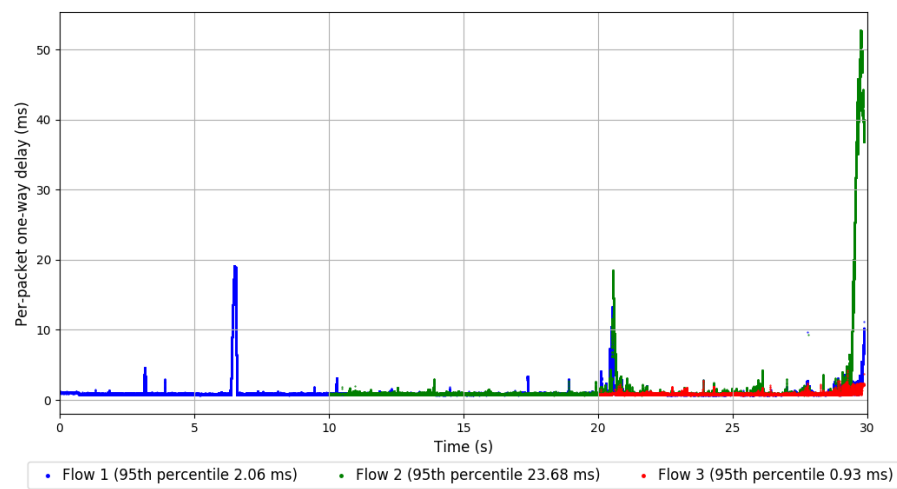
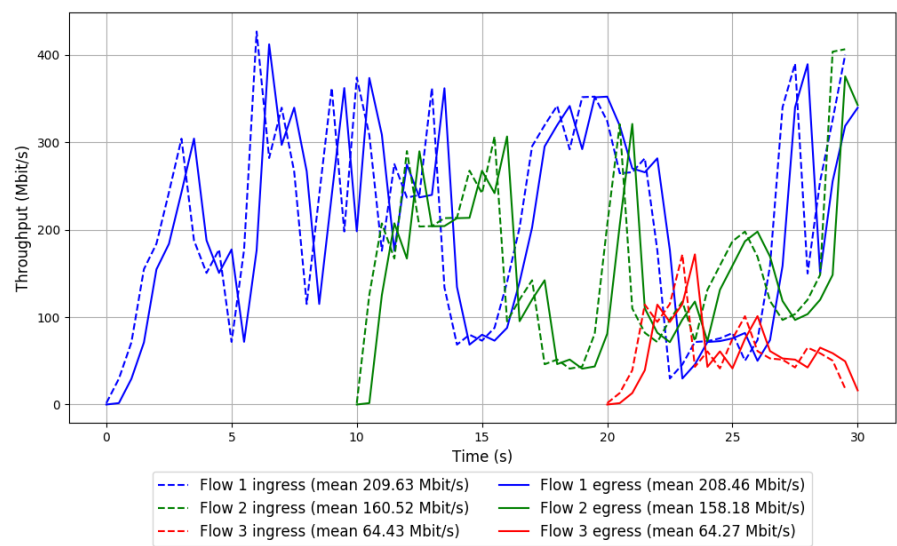


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 04:48:00  
End at: 2018-11-15 04:48:30  
Local clock offset: 3.851 ms  
Remote clock offset: -4.554 ms

# Below is generated by plot.py at 2018-11-15 07:51:53  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 334.92 Mbit/s  
95th percentile per-packet one-way delay: 3.538 ms  
Loss rate: 0.81%  
-- Flow 1:  
Average throughput: 208.46 Mbit/s  
95th percentile per-packet one-way delay: 2.057 ms  
Loss rate: 0.55%  
-- Flow 2:  
Average throughput: 158.18 Mbit/s  
95th percentile per-packet one-way delay: 23.675 ms  
Loss rate: 1.45%  
-- Flow 3:  
Average throughput: 64.27 Mbit/s  
95th percentile per-packet one-way delay: 0.934 ms  
Loss rate: 0.24%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 05:15:05

End at: 2018-11-15 05:15:35

Local clock offset: 4.223 ms

Remote clock offset: -4.07 ms

# Below is generated by plot.py at 2018-11-15 07:52:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 344.61 Mbit/s

95th percentile per-packet one-way delay: 2.407 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 178.01 Mbit/s

95th percentile per-packet one-way delay: 6.866 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 182.17 Mbit/s

95th percentile per-packet one-way delay: 1.400 ms

Loss rate: 0.10%

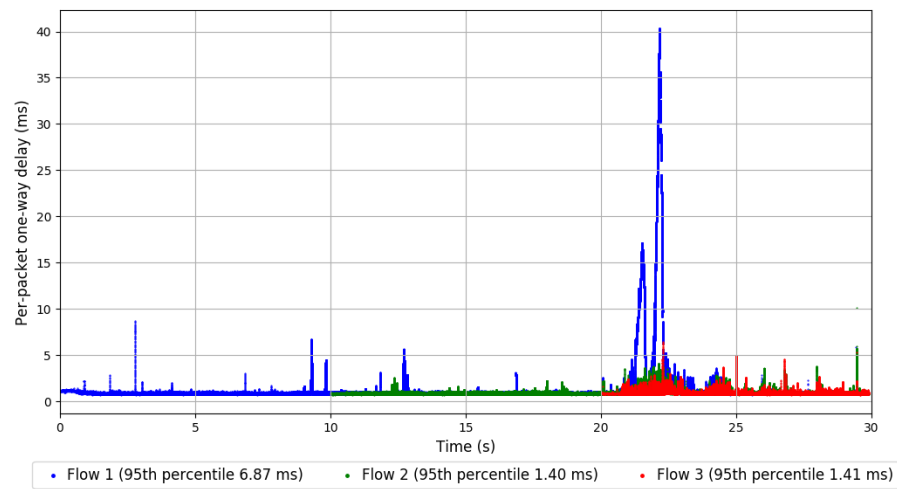
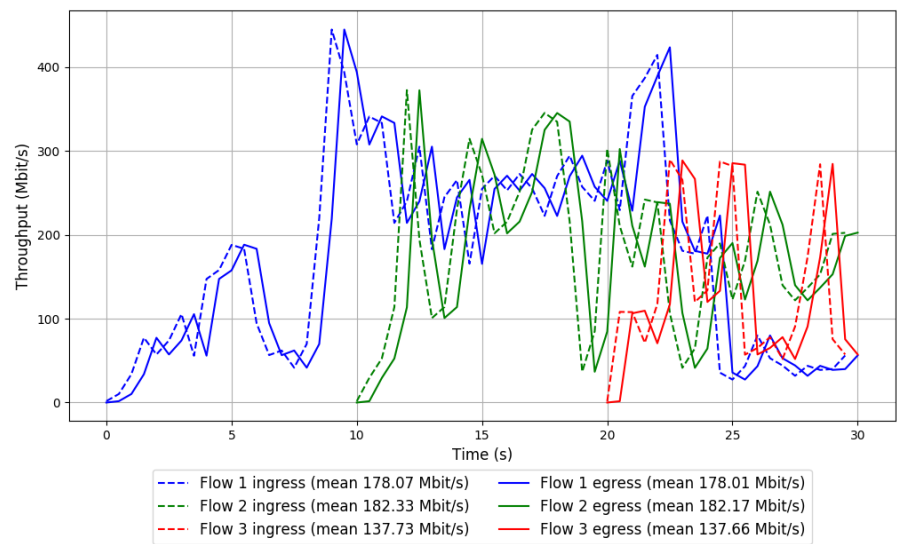
-- Flow 3:

Average throughput: 137.66 Mbit/s

95th percentile per-packet one-way delay: 1.411 ms

Loss rate: 0.05%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 05:42:19

End at: 2018-11-15 05:42:49

Local clock offset: 5.021 ms

Remote clock offset: 4.569 ms

# Below is generated by plot.py at 2018-11-15 07:52:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 253.22 Mbit/s

95th percentile per-packet one-way delay: 25.812 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 119.86 Mbit/s

95th percentile per-packet one-way delay: 4.869 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 110.81 Mbit/s

95th percentile per-packet one-way delay: 55.621 ms

Loss rate: 0.01%

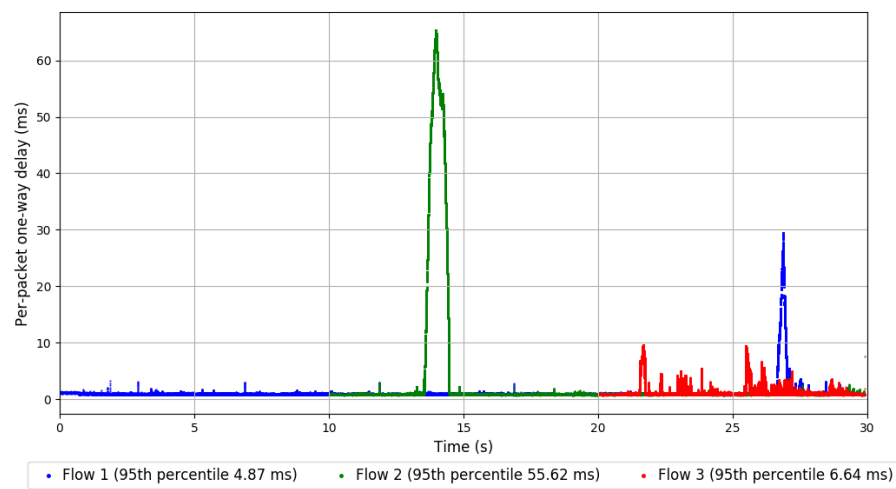
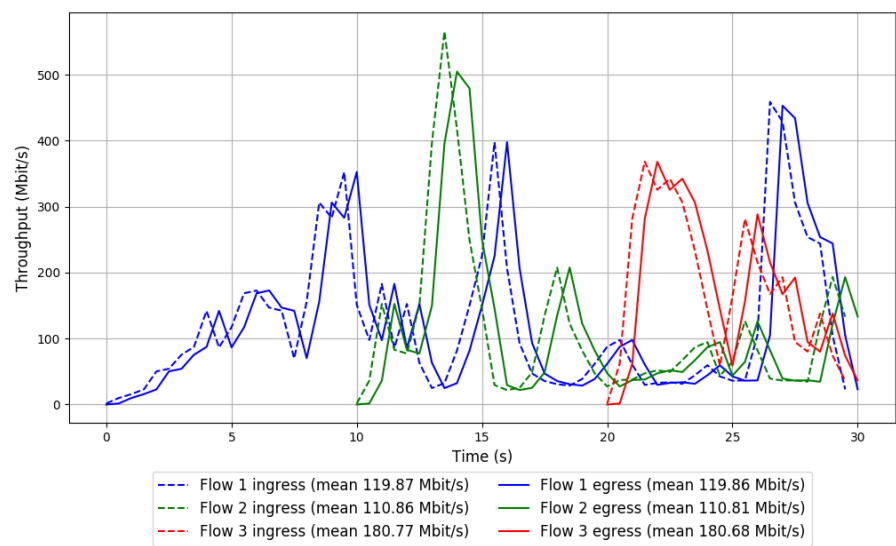
-- Flow 3:

Average throughput: 180.68 Mbit/s

95th percentile per-packet one-way delay: 6.637 ms

Loss rate: 0.04%

Run 3: Report of PCC-Vivace — Data Link

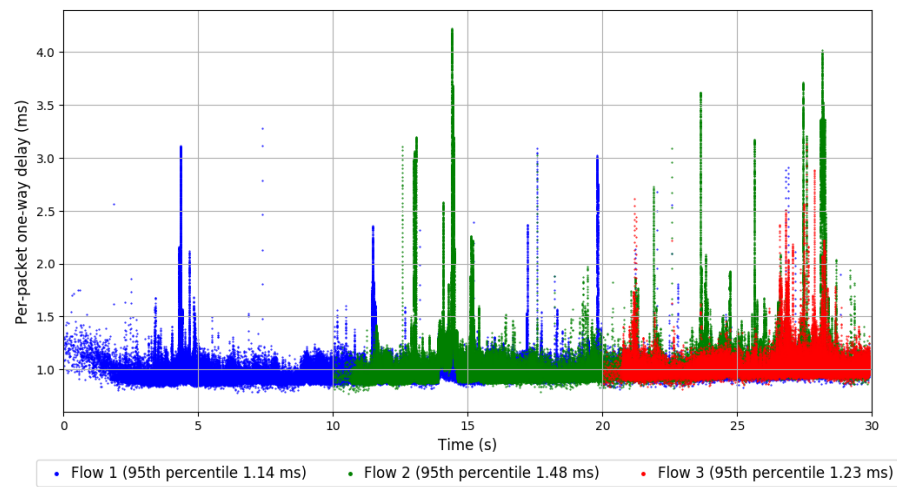
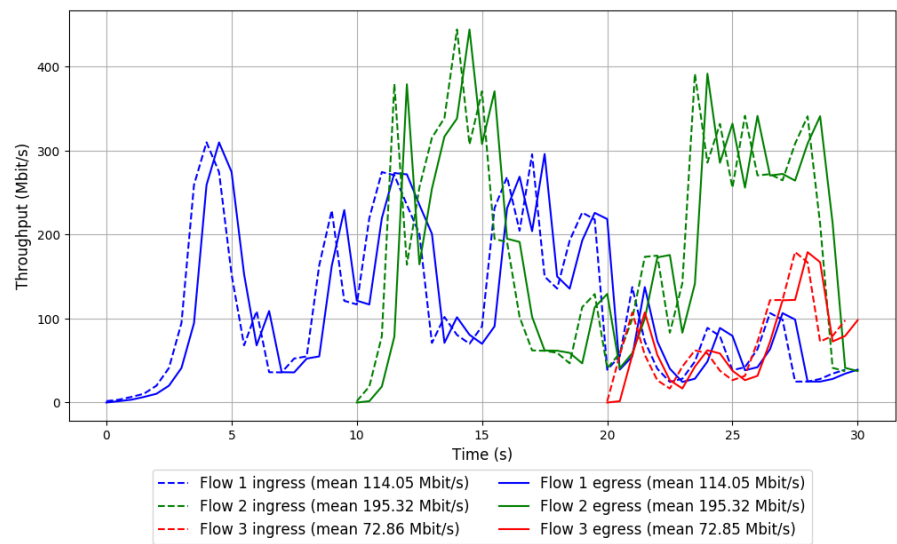


Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 06:09:31  
End at: 2018-11-15 06:10:01  
Local clock offset: 4.616 ms  
Remote clock offset: -3.888 ms

# Below is generated by plot.py at 2018-11-15 07:52:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 268.01 Mbit/s  
95th percentile per-packet one-way delay: 1.282 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 114.05 Mbit/s  
95th percentile per-packet one-way delay: 1.143 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 195.32 Mbit/s  
95th percentile per-packet one-way delay: 1.478 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 72.85 Mbit/s  
95th percentile per-packet one-way delay: 1.229 ms  
Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



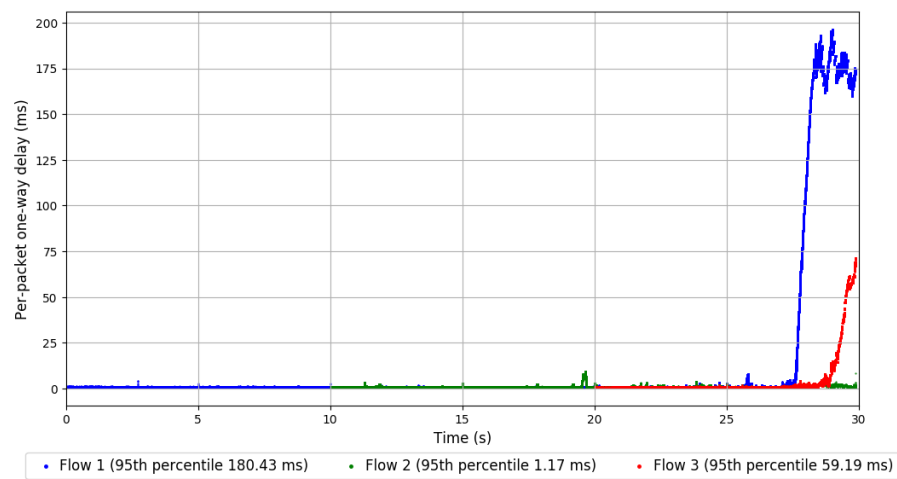
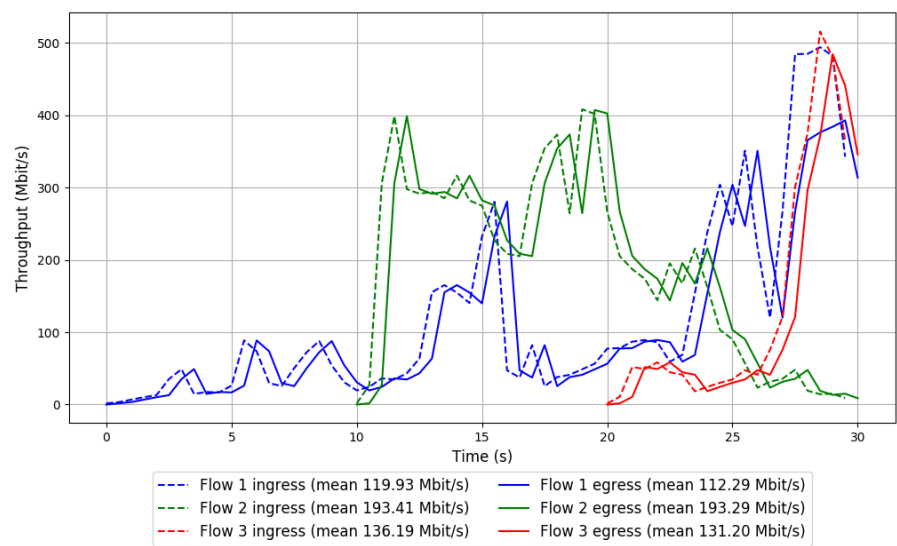


Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 06:36:35  
End at: 2018-11-15 06:37:05  
Local clock offset: 3.914 ms  
Remote clock offset: -1.647 ms

# Below is generated by plot.py at 2018-11-15 07:52:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 284.17 Mbit/s  
95th percentile per-packet one-way delay: 171.787 ms  
Loss rate: 3.17%  
-- Flow 1:  
Average throughput: 112.29 Mbit/s  
95th percentile per-packet one-way delay: 180.430 ms  
Loss rate: 6.37%  
-- Flow 2:  
Average throughput: 193.29 Mbit/s  
95th percentile per-packet one-way delay: 1.170 ms  
Loss rate: 0.02%  
-- Flow 3:  
Average throughput: 131.20 Mbit/s  
95th percentile per-packet one-way delay: 59.192 ms  
Loss rate: 3.66%

Run 5: Report of PCC-Vivace — Data Link

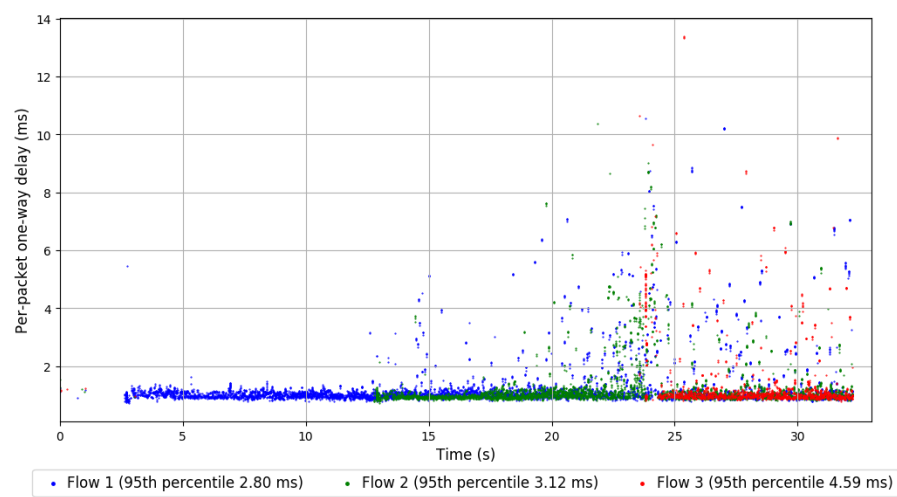
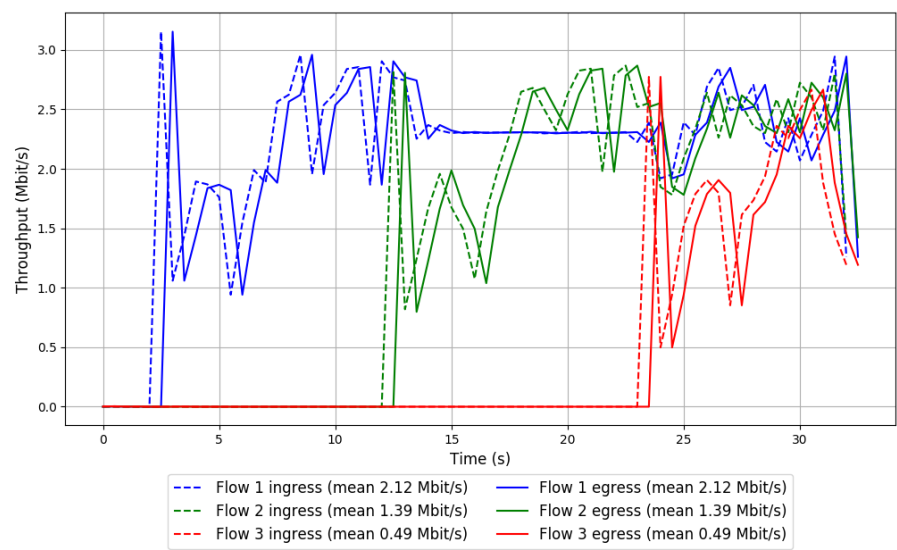


Run 1: Statistics of WebRTC media

Start at: 2018-11-15 05:13:46  
End at: 2018-11-15 05:14:16  
Local clock offset: 4.21 ms  
Remote clock offset: -3.994 ms

# Below is generated by plot.py at 2018-11-15 07:52:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 4.00 Mbit/s  
95th percentile per-packet one-way delay: 3.229 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 2.12 Mbit/s  
95th percentile per-packet one-way delay: 2.802 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.39 Mbit/s  
95th percentile per-packet one-way delay: 3.125 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.49 Mbit/s  
95th percentile per-packet one-way delay: 4.587 ms  
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-11-15 05:41:00

End at: 2018-11-15 05:41:30

Local clock offset: 4.972 ms

Remote clock offset: 4.357 ms

# Below is generated by plot.py at 2018-11-15 07:52:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.86 Mbit/s

95th percentile per-packet one-way delay: 2.219 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 2.441 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.37 Mbit/s

95th percentile per-packet one-way delay: 2.023 ms

Loss rate: 0.00%

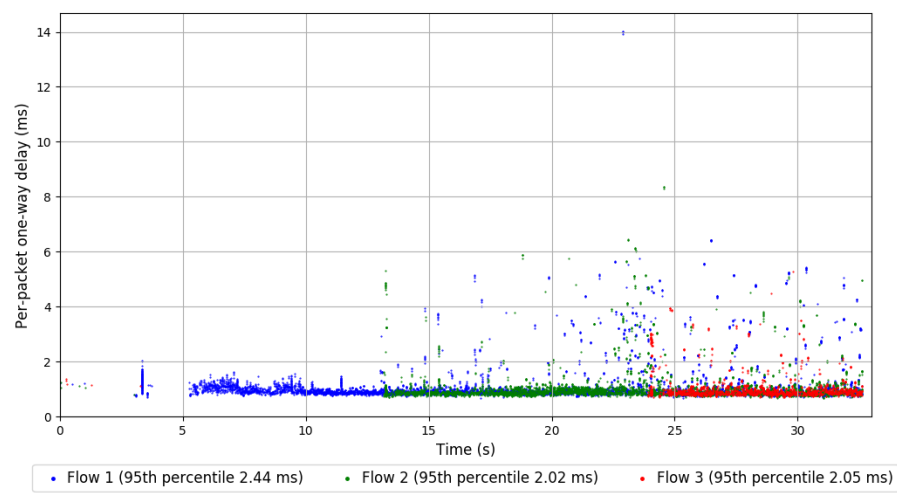
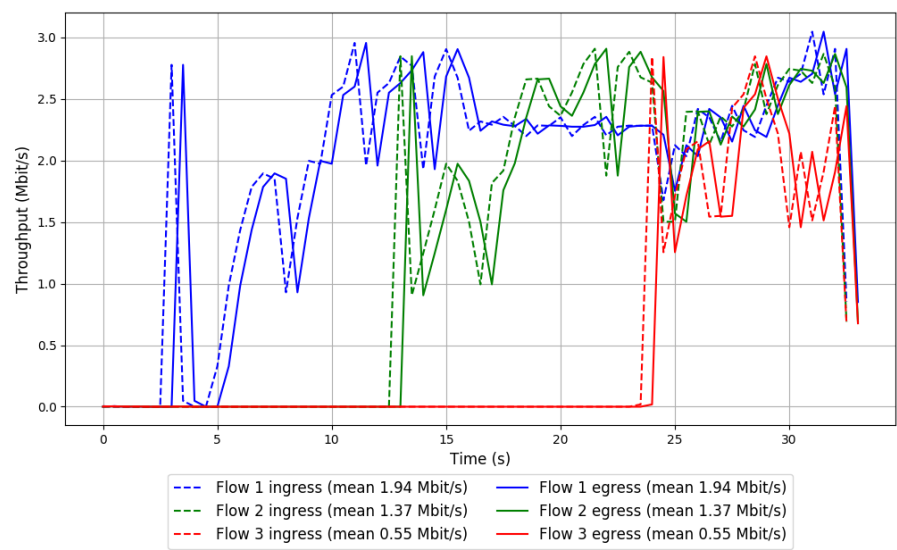
-- Flow 3:

Average throughput: 0.55 Mbit/s

95th percentile per-packet one-way delay: 2.049 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

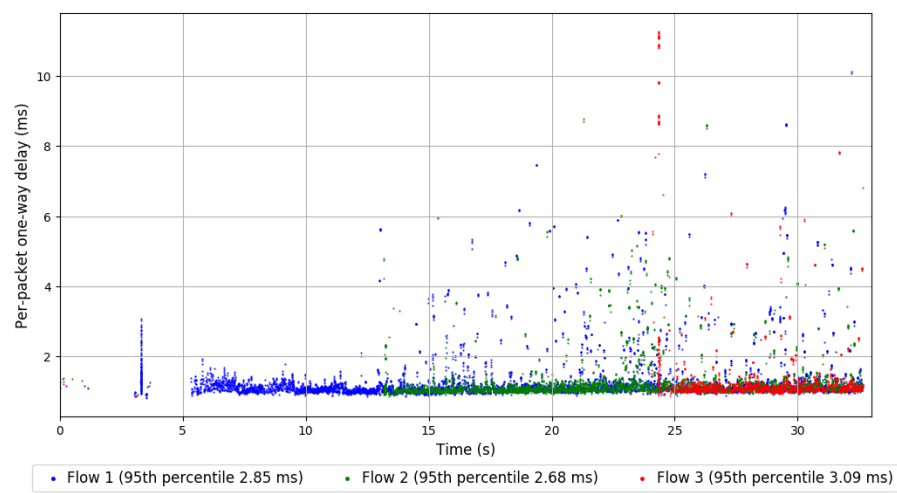
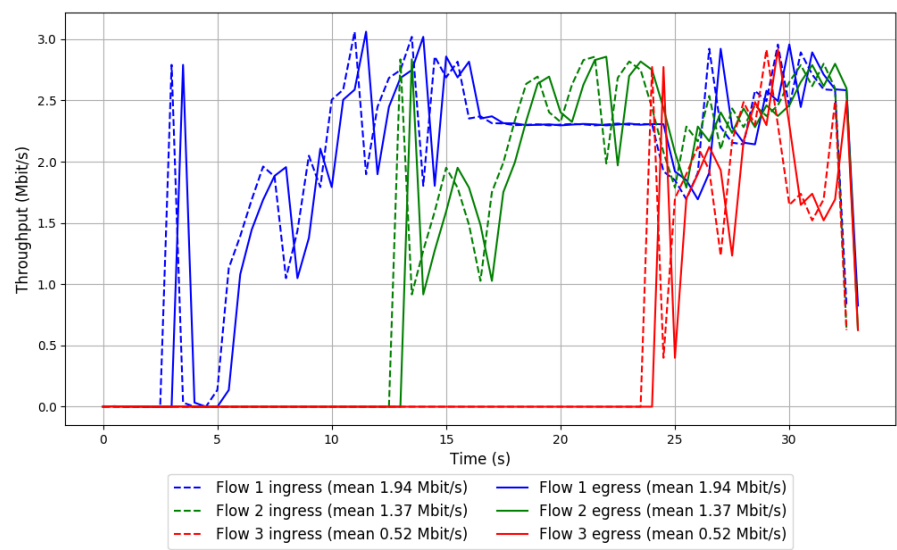


Run 3: Statistics of WebRTC media

Start at: 2018-11-15 06:08:11  
End at: 2018-11-15 06:08:41  
Local clock offset: 4.656 ms  
Remote clock offset: -3.597 ms

# Below is generated by plot.py at 2018-11-15 07:52:30  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.82 Mbit/s  
95th percentile per-packet one-way delay: 2.790 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.94 Mbit/s  
95th percentile per-packet one-way delay: 2.852 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.37 Mbit/s  
95th percentile per-packet one-way delay: 2.683 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.52 Mbit/s  
95th percentile per-packet one-way delay: 3.086 ms  
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



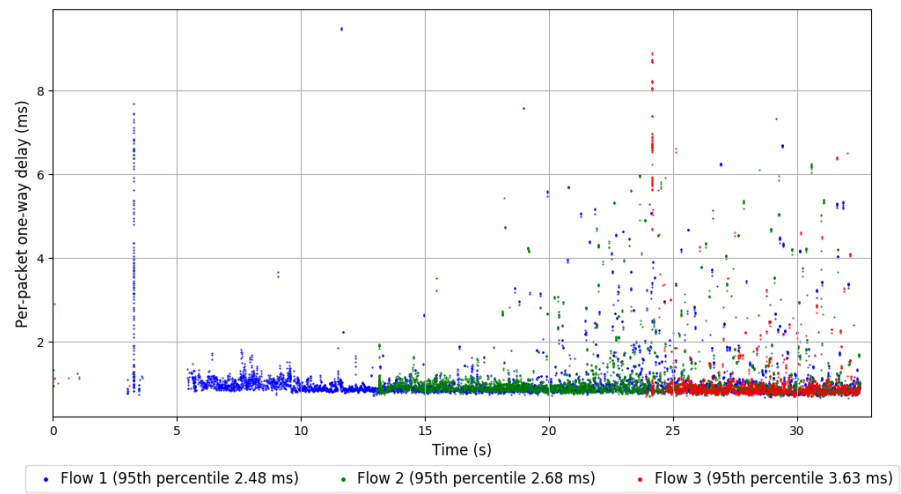
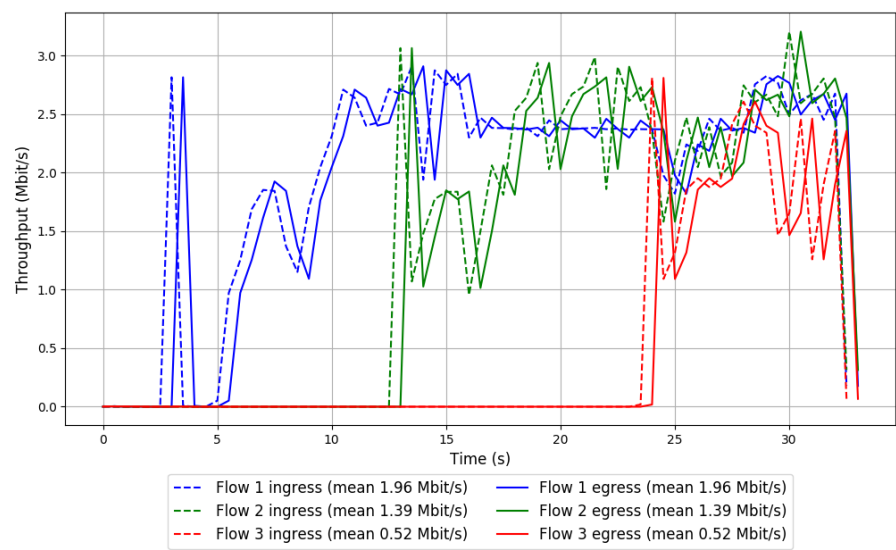


Run 4: Statistics of WebRTC media

Start at: 2018-11-15 06:35:16  
End at: 2018-11-15 06:35:46  
Local clock offset: 3.969 ms  
Remote clock offset: -1.755 ms

```
# Below is generated by plot.py at 2018-11-15 07:52:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 2.670 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 2.480 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 2.678 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 3.630 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-15 07:02:13

End at: 2018-11-15 07:02:43

Local clock offset: 4.01 ms

Remote clock offset: -0.37 ms

# Below is generated by plot.py at 2018-11-15 07:52:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.82 Mbit/s

95th percentile per-packet one-way delay: 2.581 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.96 Mbit/s

95th percentile per-packet one-way delay: 2.536 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.36 Mbit/s

95th percentile per-packet one-way delay: 2.463 ms

Loss rate: 0.02%

-- Flow 3:

Average throughput: 0.51 Mbit/s

95th percentile per-packet one-way delay: 3.098 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

