

## Pantheon Report

Generated at 2018-09-06 11:20:30 (UTC).

Data path: AWS California 2 on `ens5` (*local*) → Mexico on `em1` (*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.

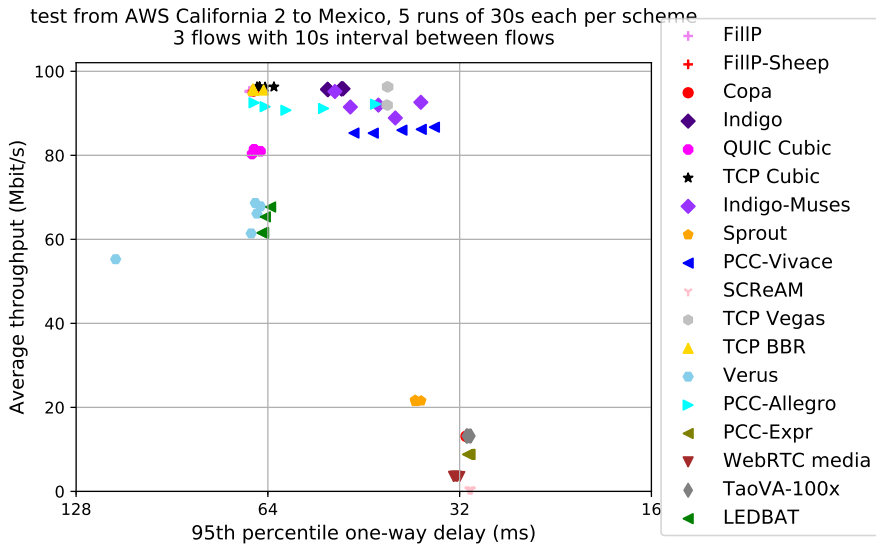
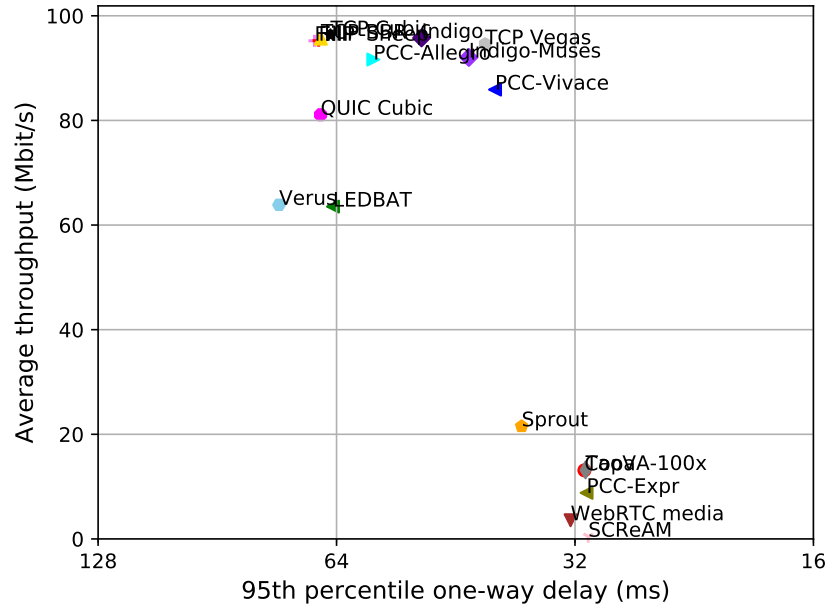
### System info:

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

### Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS California 2 to Mexico, 5 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



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	60.14	37.79	31.02	65.77	68.02	68.42	6.38	10.73	12.58
Copa	5	9.73	4.57	1.20	31.20	31.00	31.04	69.86	76.28	92.11
TCP Cubic	5	76.97	16.77	24.49	64.52	65.99	66.17	0.97	0.56	0.68
FillP	5	62.77	34.99	27.81	67.90	68.71	68.88	23.01	31.07	38.24
FillP-Sheep	5	56.62	41.61	32.97	65.79	68.52	68.57	13.61	24.80	30.36
Indigo	5	64.82	31.90	29.95	46.64	52.33	56.81	0.07	0.05	0.51
LEDBAT	5	39.86	25.94	20.12	64.80	65.56	54.65	0.19	0.23	0.05
Indigo-Muses	5	55.63	40.11	29.54	41.80	45.86	46.32	0.90	0.97	1.35
PCC-Allegro	5	82.15	10.80	6.97	57.06	60.29	59.52	2.49	2.76	1.39
PCC-Expr	5	0.03	9.95	6.62	30.82	30.94	30.96	85.71	45.33	38.11
QUIC Cubic	5	62.59	22.37	11.09	66.92	67.27	67.35	2.76	0.94	0.81
SCReAM	5	0.21	0.21	0.22	30.78	30.76	30.75	0.00	0.00	0.00
Sprout	5	10.88	10.82	10.47	37.46	37.15	37.35	0.00	0.00	0.00
TaoVA-100x	5	7.52	6.47	4.96	31.93	31.66	30.85	84.74	60.29	77.57
TCP Vegas	5	75.71	19.35	17.93	41.93	39.44	38.54	0.34	0.01	0.02
Verus	5	39.06	31.26	17.11	75.76	67.17	70.65	38.61	43.38	37.99
PCC-Vivace	5	66.39	22.56	13.60	39.86	42.80	43.75	0.00	0.00	0.00
WebRTC media	5	1.93	1.23	0.42	31.95	32.92	33.00	0.02	0.00	0.00

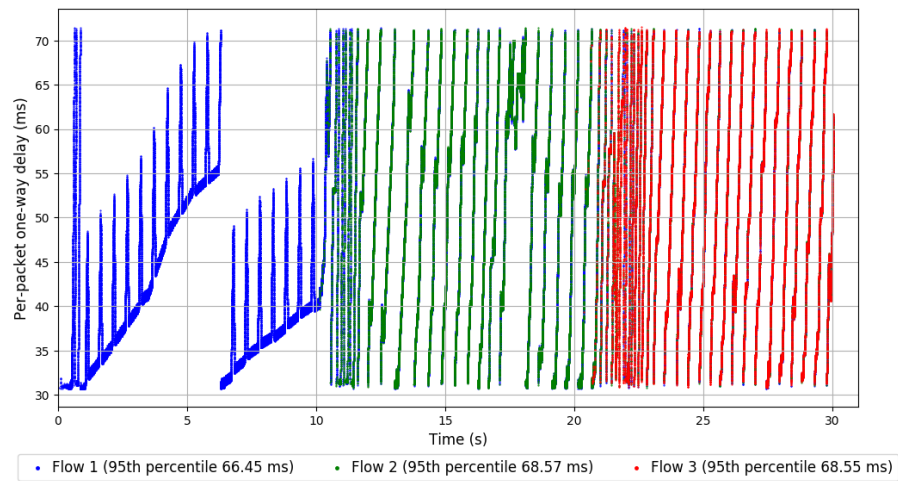
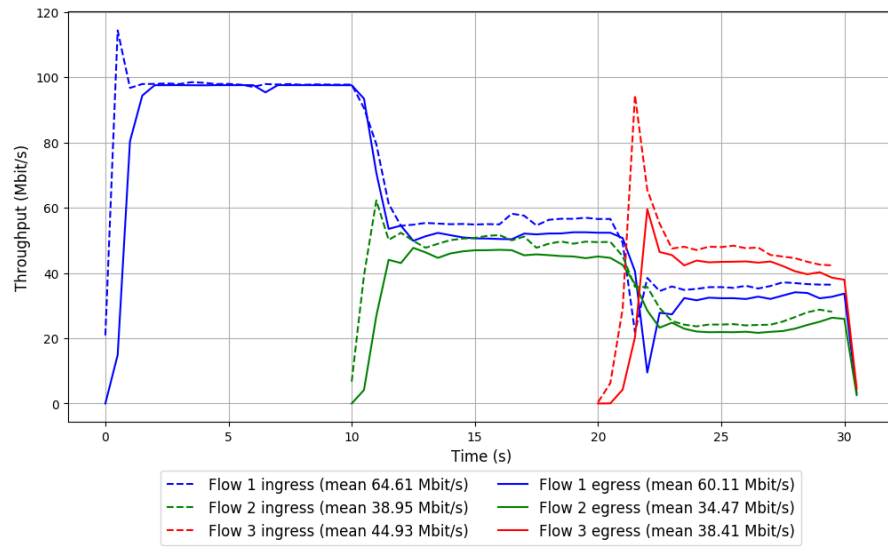
Run 1: Statistics of TCP BBR

Start at: 2018-09-06 09:16:05  
End at: 2018-09-06 09:16:35  
Local clock offset: 0.043 ms  
Remote clock offset: -0.763 ms

# Below is generated by plot.py at 2018-09-06 11:11:56  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.83 Mbit/s  
95th percentile per-packet one-way delay: 67.542 ms  
Loss rate: 9.07%  
-- Flow 1:  
Average throughput: 60.11 Mbit/s  
95th percentile per-packet one-way delay: 66.453 ms  
Loss rate: 6.87%  
-- Flow 2:  
Average throughput: 34.47 Mbit/s  
95th percentile per-packet one-way delay: 68.570 ms  
Loss rate: 11.41%  
-- Flow 3:  
Average throughput: 38.41 Mbit/s  
95th percentile per-packet one-way delay: 68.553 ms  
Loss rate: 14.53%



# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 09:40:33

End at: 2018-09-06 09:41:03

Local clock offset: 0.401 ms

Remote clock offset: 0.75 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.65 Mbit/s

95th percentile per-packet one-way delay: 67.478 ms

Loss rate: 7.26%

-- Flow 1:

Average throughput: 65.27 Mbit/s

95th percentile per-packet one-way delay: 66.736 ms

Loss rate: 6.23%

-- Flow 2:

Average throughput: 33.42 Mbit/s

95th percentile per-packet one-way delay: 68.205 ms

Loss rate: 9.31%

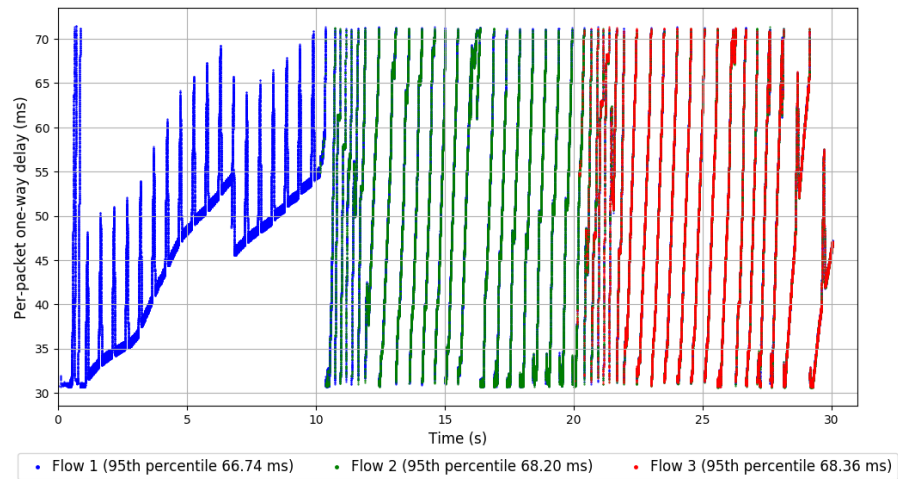
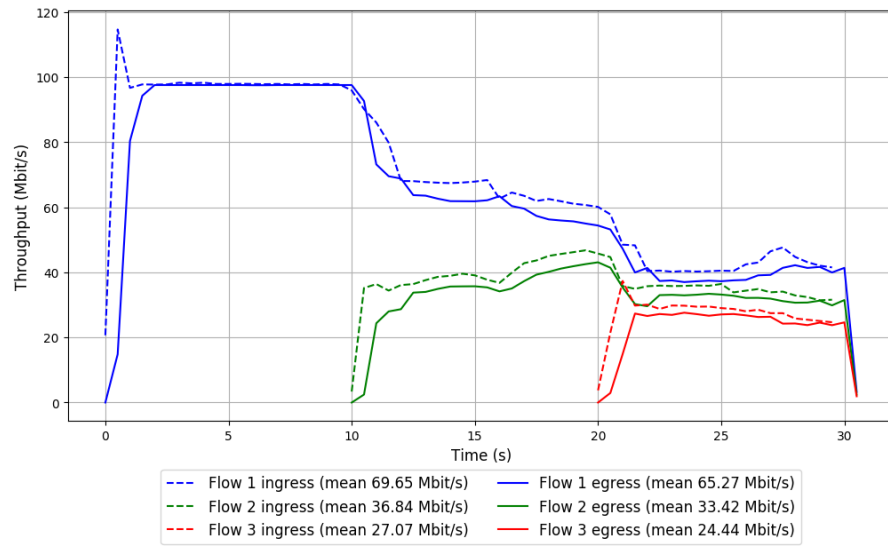
-- Flow 3:

Average throughput: 24.44 Mbit/s

95th percentile per-packet one-way delay: 68.355 ms

Loss rate: 9.58%

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



Run 3: Statistics of TCP BBR

Start at: 2018-09-06 10:04:55

End at: 2018-09-06 10:05:25

Local clock offset: 0.414 ms

Remote clock offset: 2.012 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.45 Mbit/s

95th percentile per-packet one-way delay: 67.387 ms

Loss rate: 8.31%

-- Flow 1:

Average throughput: 62.14 Mbit/s

95th percentile per-packet one-way delay: 66.432 ms

Loss rate: 6.61%

-- Flow 2:

Average throughput: 37.29 Mbit/s

95th percentile per-packet one-way delay: 68.507 ms

Loss rate: 11.41%

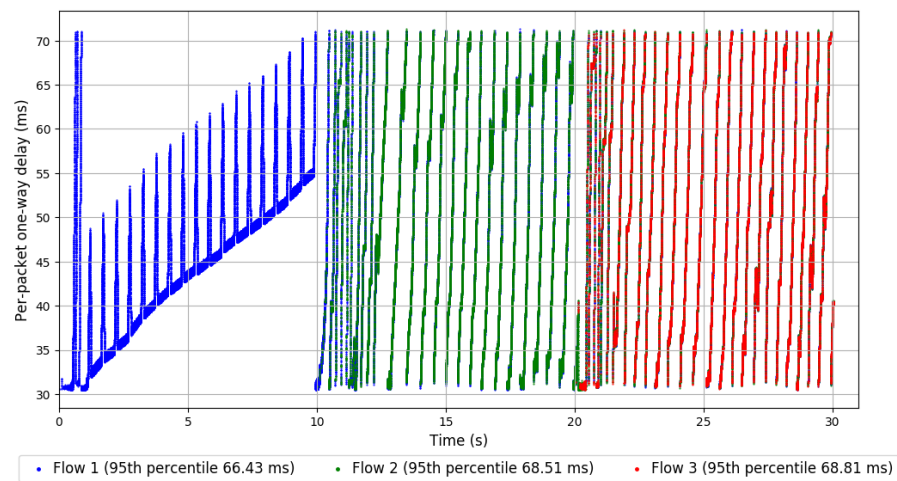
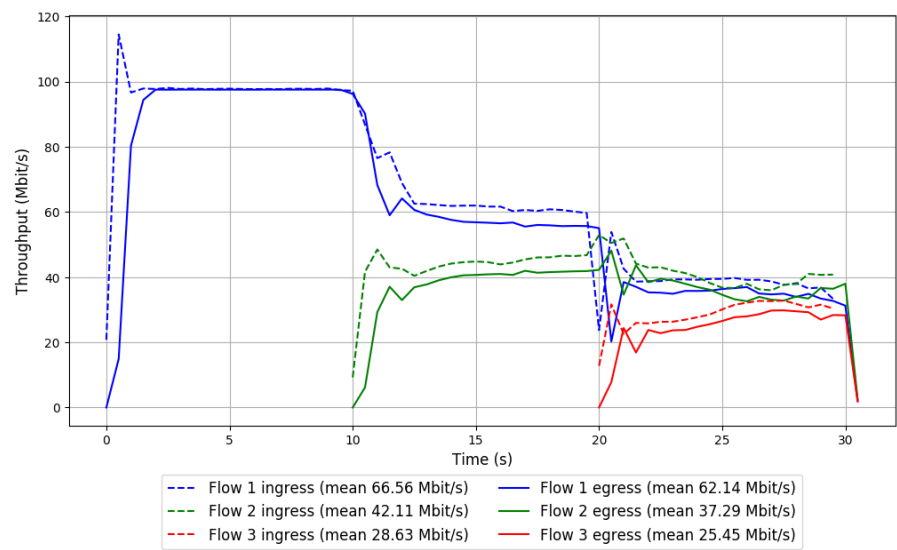
-- Flow 3:

Average throughput: 25.45 Mbit/s

95th percentile per-packet one-way delay: 68.812 ms

Loss rate: 11.01%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 10:29:21

End at: 2018-09-06 10:29:51

Local clock offset: 0.343 ms

Remote clock offset: 3.095 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.69 Mbit/s

95th percentile per-packet one-way delay: 67.445 ms

Loss rate: 10.24%

-- Flow 1:

Average throughput: 53.21 Mbit/s

95th percentile per-packet one-way delay: 66.032 ms

Loss rate: 7.03%

-- Flow 2:

Average throughput: 44.92 Mbit/s

95th percentile per-packet one-way delay: 68.516 ms

Loss rate: 13.44%

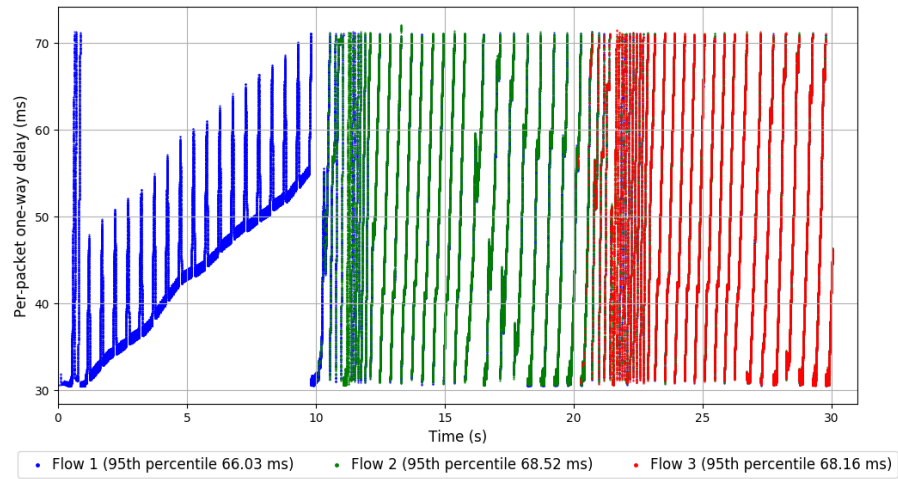
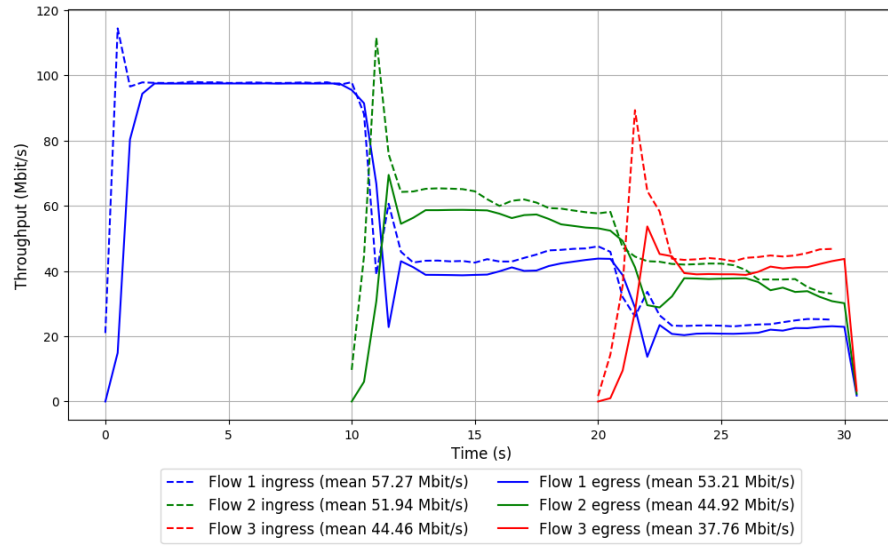
-- Flow 3:

Average throughput: 37.76 Mbit/s

95th percentile per-packet one-way delay: 68.155 ms

Loss rate: 15.14%

# Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 10:53:50

End at: 2018-09-06 10:54:20

Local clock offset: 2.77 ms

Remote clock offset: 2.897 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.55 Mbit/s

95th percentile per-packet one-way delay: 64.996 ms

Loss rate: 6.78%

-- Flow 1:

Average throughput: 59.95 Mbit/s

95th percentile per-packet one-way delay: 63.173 ms

Loss rate: 5.17%

-- Flow 2:

Average throughput: 38.86 Mbit/s

95th percentile per-packet one-way delay: 66.310 ms

Loss rate: 8.09%

-- Flow 3:

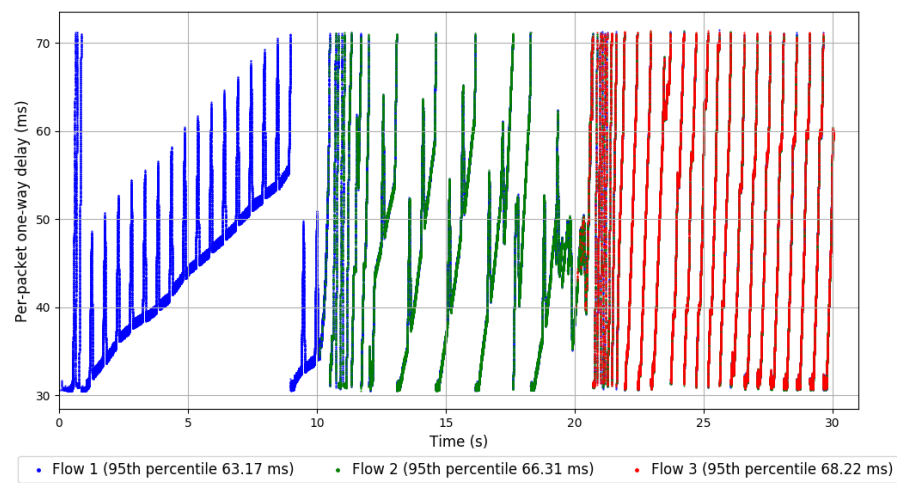
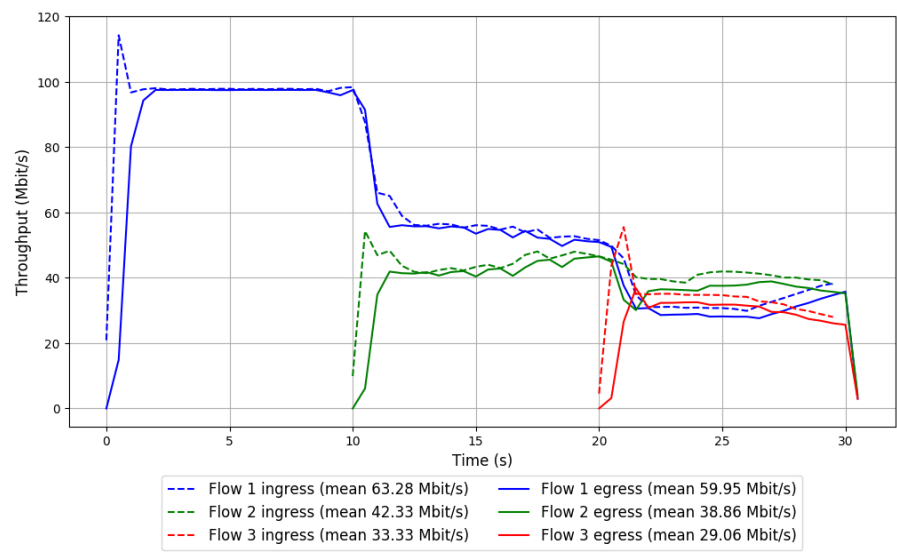
Average throughput: 29.06 Mbit/s

95th percentile per-packet one-way delay: 68.216 ms

Loss rate: 12.64%



Run 5: Report of TCP BBR — Data Link

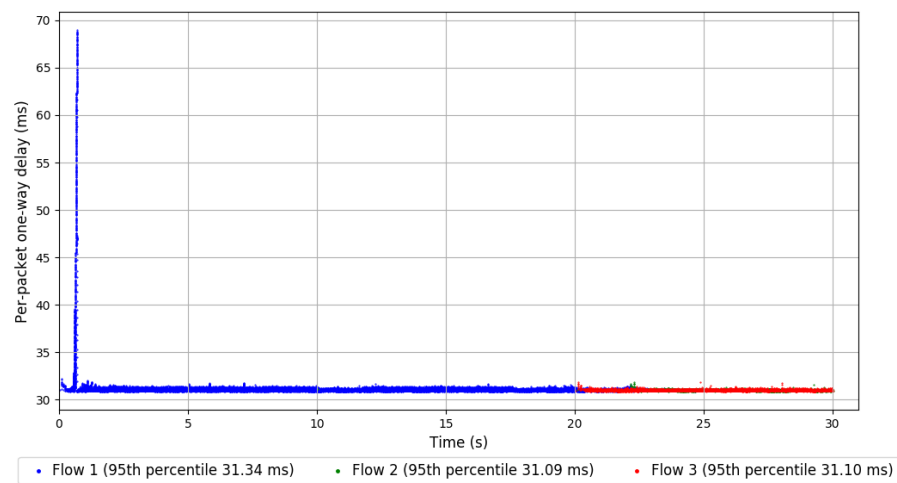
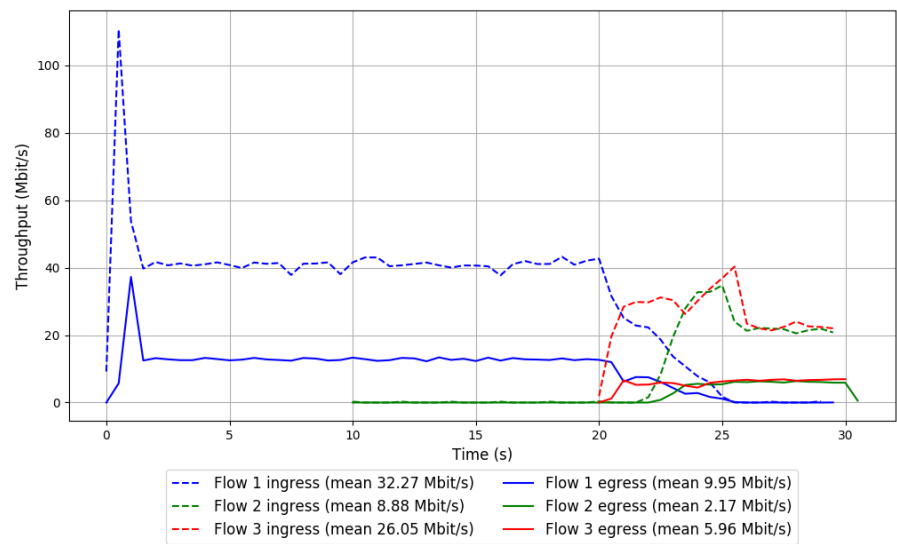


Run 1: Statistics of Copa

Start at: 2018-09-06 09:27:04  
End at: 2018-09-06 09:27:34  
Local clock offset: 0.236 ms  
Remote clock offset: -0.119 ms

# Below is generated by plot.py at 2018-09-06 11:11:56  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 13.12 Mbit/s  
95th percentile per-packet one-way delay: 31.284 ms  
Loss rate: 71.54%  
-- Flow 1:  
Average throughput: 9.95 Mbit/s  
95th percentile per-packet one-way delay: 31.336 ms  
Loss rate: 69.24%  
-- Flow 2:  
Average throughput: 2.17 Mbit/s  
95th percentile per-packet one-way delay: 31.086 ms  
Loss rate: 75.61%  
-- Flow 3:  
Average throughput: 5.96 Mbit/s  
95th percentile per-packet one-way delay: 31.104 ms  
Loss rate: 77.13%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-06 09:51:27

End at: 2018-09-06 09:51:57

Local clock offset: 0.424 ms

Remote clock offset: 1.715 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.11 Mbit/s

95th percentile per-packet one-way delay: 31.007 ms

Loss rate: 72.74%

-- Flow 1:

Average throughput: 10.67 Mbit/s

95th percentile per-packet one-way delay: 31.043 ms

Loss rate: 69.07%

-- Flow 2:

Average throughput: 3.68 Mbit/s

95th percentile per-packet one-way delay: 30.881 ms

Loss rate: 81.98%

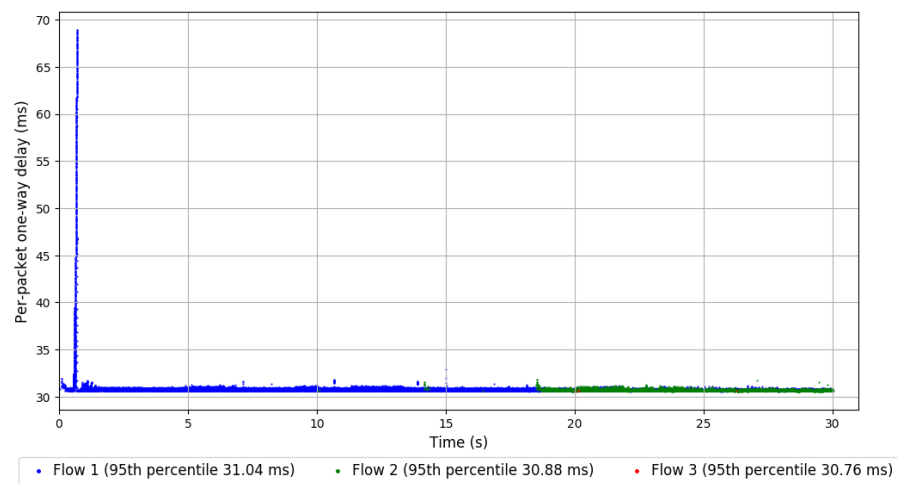
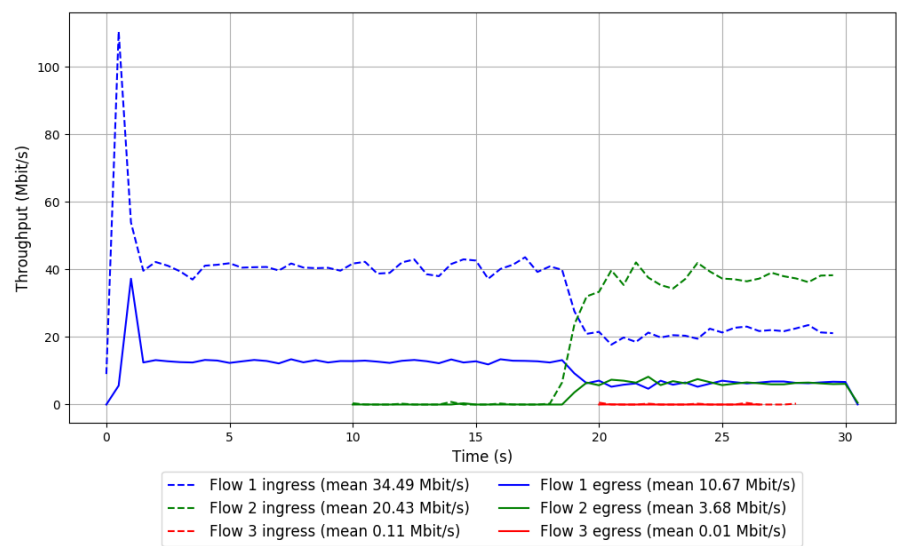
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 30.756 ms

Loss rate: 95.66%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-06 10:15:51

End at: 2018-09-06 10:16:21

Local clock offset: 0.333 ms

Remote clock offset: 2.68 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.12 Mbit/s

95th percentile per-packet one-way delay: 31.108 ms

Loss rate: 71.81%

-- Flow 1:

Average throughput: 9.06 Mbit/s

95th percentile per-packet one-way delay: 31.200 ms

Loss rate: 70.84%

-- Flow 2:

Average throughput: 6.10 Mbit/s

95th percentile per-packet one-way delay: 31.039 ms

Loss rate: 73.73%

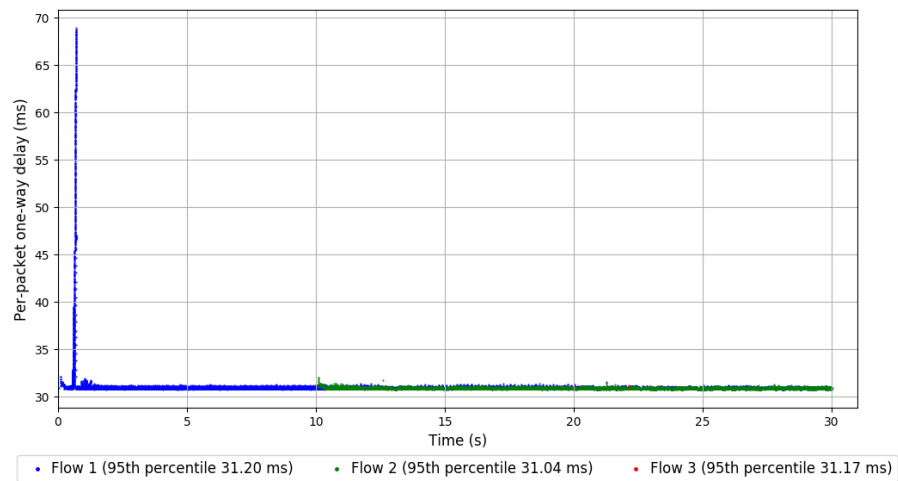
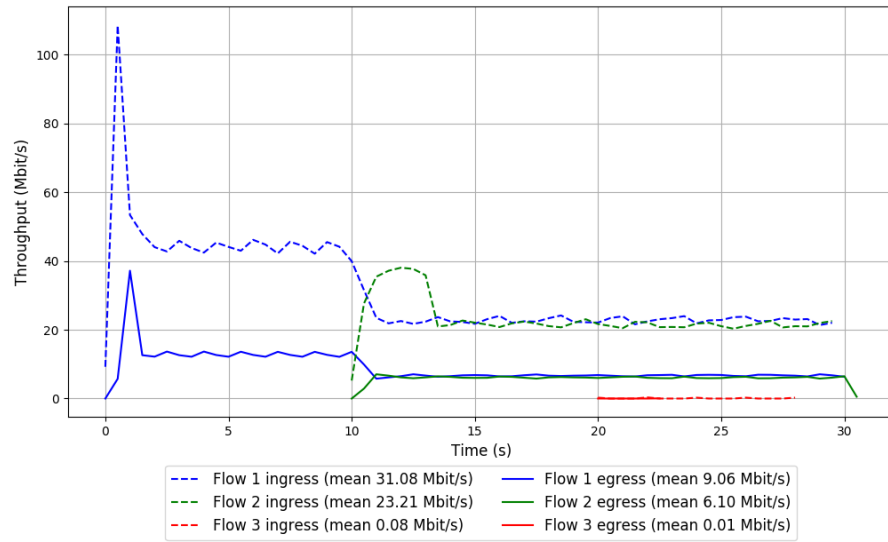
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 31.172 ms

Loss rate: 96.08%

### Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 10:40:20

End at: 2018-09-06 10:40:50

Local clock offset: 0.299 ms

Remote clock offset: 3.115 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.11 Mbit/s

95th percentile per-packet one-way delay: 31.056 ms

Loss rate: 70.06%

-- Flow 1:

Average throughput: 9.92 Mbit/s

95th percentile per-packet one-way delay: 31.102 ms

Loss rate: 69.34%

-- Flow 2:

Average throughput: 4.81 Mbit/s

95th percentile per-packet one-way delay: 30.909 ms

Loss rate: 72.04%

-- Flow 3:

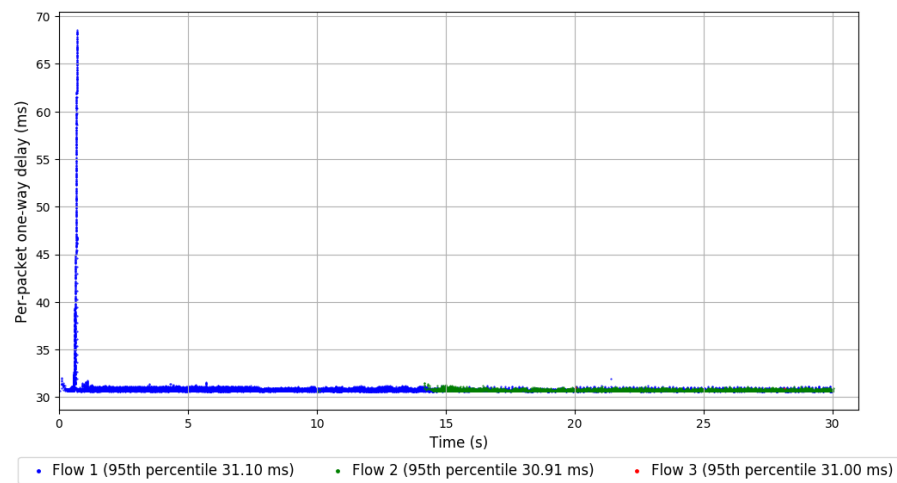
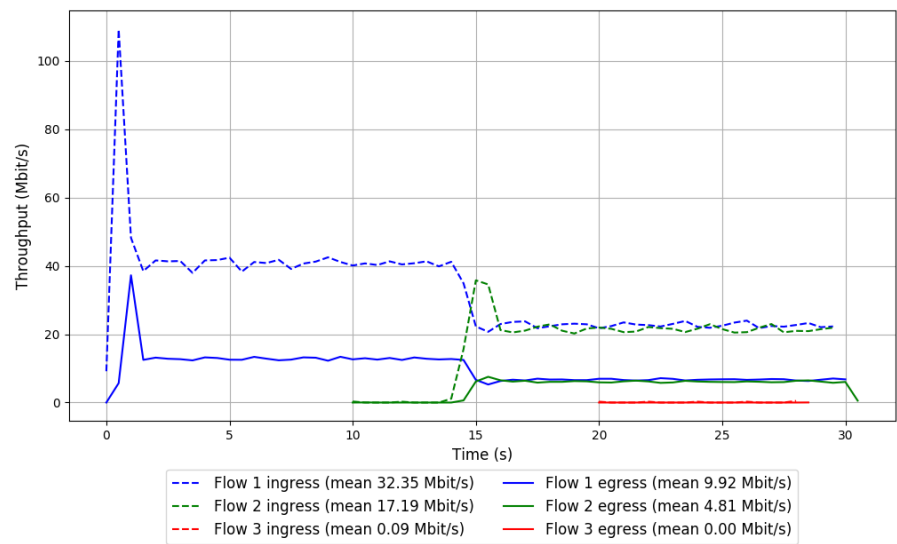
Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 31.004 ms

Loss rate: 98.17%



Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 11:04:48

End at: 2018-09-06 11:05:18

Local clock offset: 4.241 ms

Remote clock offset: 3.383 ms

# Below is generated by plot.py at 2018-09-06 11:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.11 Mbit/s

95th percentile per-packet one-way delay: 31.224 ms

Loss rate: 73.52%

-- Flow 1:

Average throughput: 9.05 Mbit/s

95th percentile per-packet one-way delay: 31.328 ms

Loss rate: 70.82%

-- Flow 2:

Average throughput: 6.10 Mbit/s

95th percentile per-packet one-way delay: 31.098 ms

Loss rate: 78.03%

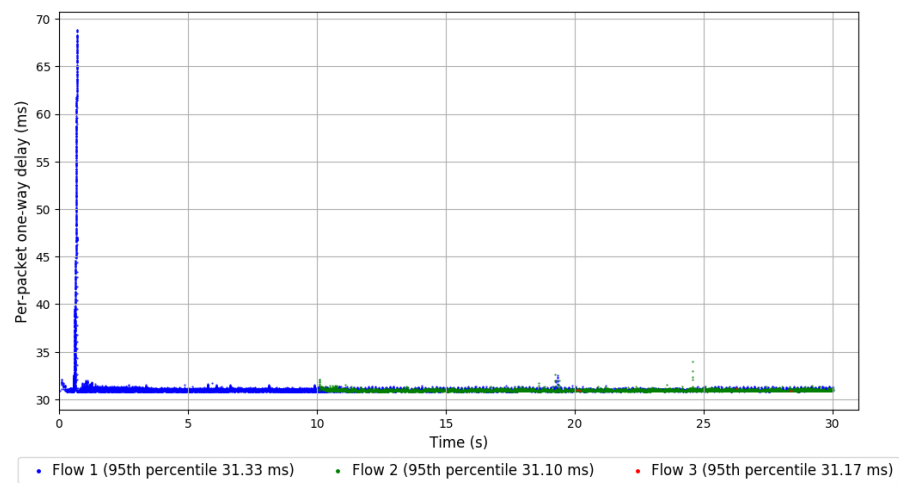
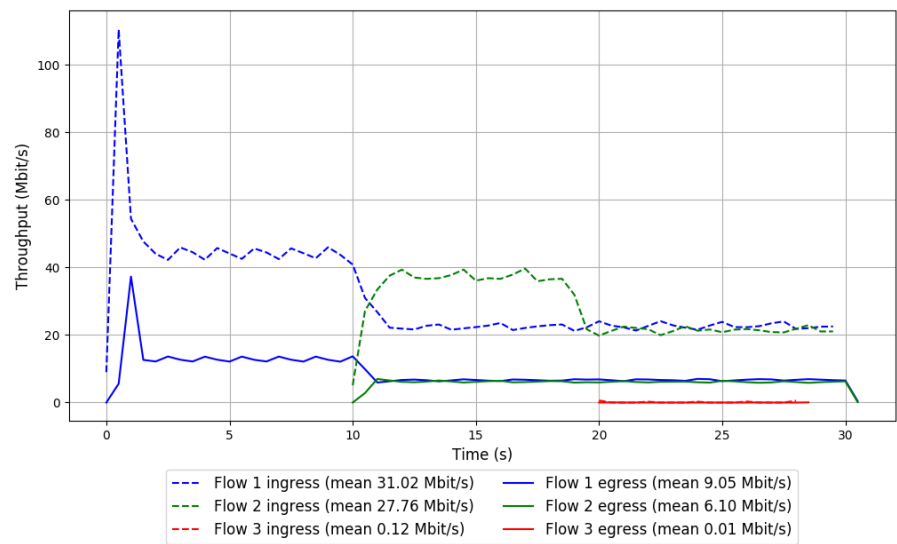
-- Flow 3:

Average throughput: 0.01 Mbit/s

95th percentile per-packet one-way delay: 31.170 ms

Loss rate: 93.49%

Run 5: Report of Copa — Data Link

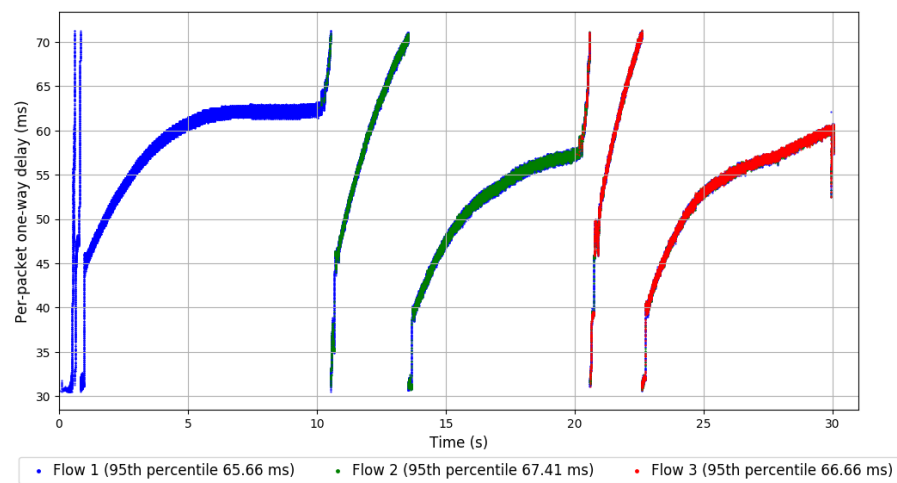
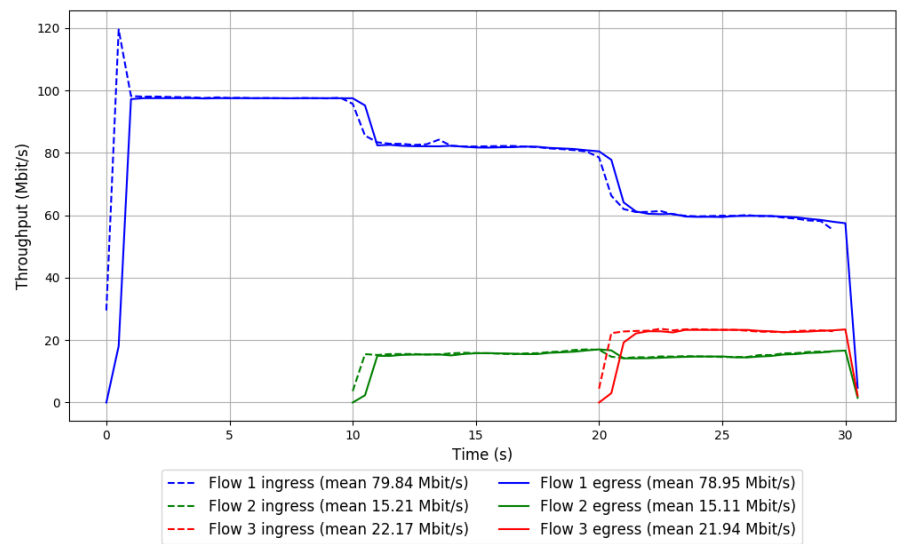


Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 09:24:19  
End at: 2018-09-06 09:24:49  
Local clock offset: 0.291 ms  
Remote clock offset: -0.484 ms

# Below is generated by plot.py at 2018-09-06 11:12:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.29 Mbit/s  
95th percentile per-packet one-way delay: 65.963 ms  
Loss rate: 0.99%  
-- Flow 1:  
Average throughput: 78.95 Mbit/s  
95th percentile per-packet one-way delay: 65.664 ms  
Loss rate: 1.03%  
-- Flow 2:  
Average throughput: 15.11 Mbit/s  
95th percentile per-packet one-way delay: 67.409 ms  
Loss rate: 0.68%  
-- Flow 3:  
Average throughput: 21.94 Mbit/s  
95th percentile per-packet one-way delay: 66.655 ms  
Loss rate: 0.98%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 09:48:43

End at: 2018-09-06 09:49:13

Local clock offset: 0.46 ms

Remote clock offset: 1.504 ms

# Below is generated by plot.py at 2018-09-06 11:12:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 62.608 ms

Loss rate: 0.86%

-- Flow 1:

Average throughput: 76.00 Mbit/s

95th percentile per-packet one-way delay: 62.600 ms

Loss rate: 0.95%

-- Flow 2:

Average throughput: 16.03 Mbit/s

95th percentile per-packet one-way delay: 60.795 ms

Loss rate: 0.57%

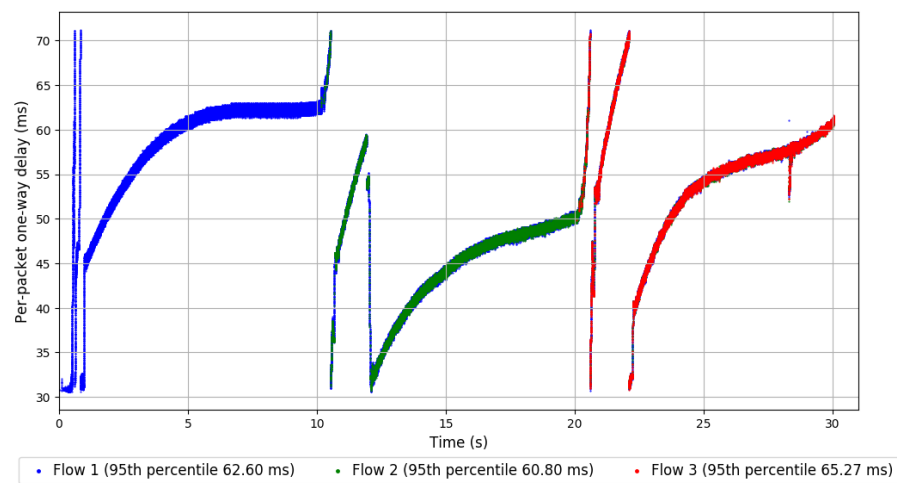
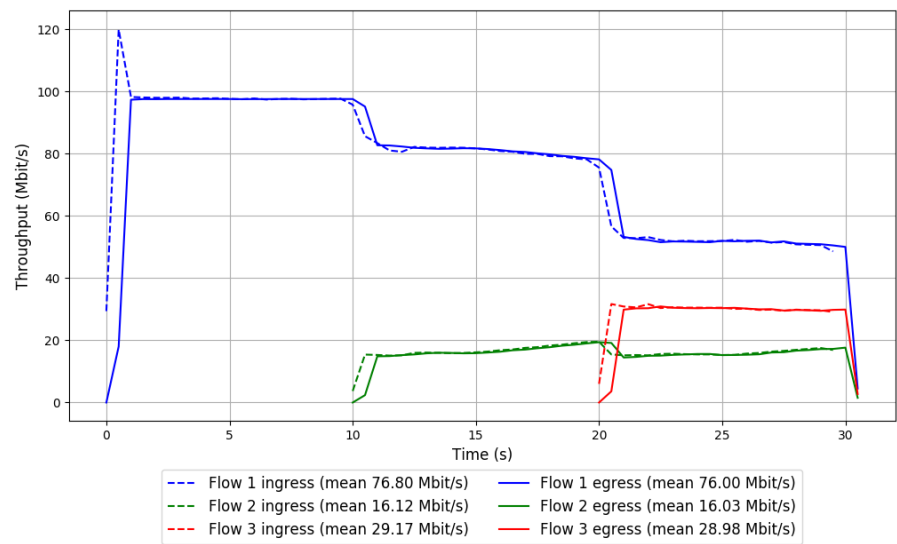
-- Flow 3:

Average throughput: 28.98 Mbit/s

95th percentile per-packet one-way delay: 65.267 ms

Loss rate: 0.53%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 10:13:06

End at: 2018-09-06 10:13:36

Local clock offset: 0.419 ms

Remote clock offset: 2.63 ms

# Below is generated by plot.py at 2018-09-06 11:12:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.28 Mbit/s

95th percentile per-packet one-way delay: 66.563 ms

Loss rate: 0.88%

-- Flow 1:

Average throughput: 74.85 Mbit/s

95th percentile per-packet one-way delay: 64.139 ms

Loss rate: 0.95%

-- Flow 2:

Average throughput: 21.36 Mbit/s

95th percentile per-packet one-way delay: 68.039 ms

Loss rate: 0.53%

-- Flow 3:

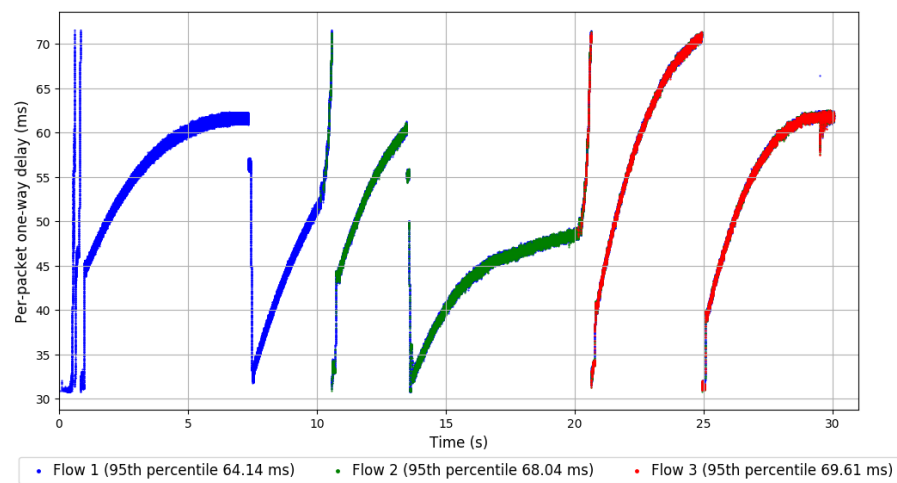
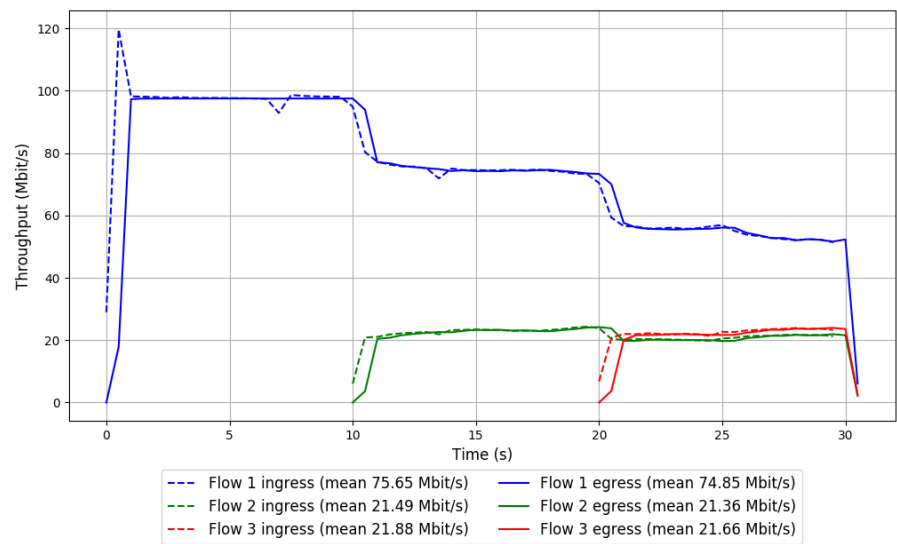
Average throughput: 21.66 Mbit/s

95th percentile per-packet one-way delay: 69.612 ms

Loss rate: 0.87%



Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 10:37:35

End at: 2018-09-06 10:38:05

Local clock offset: 0.297 ms

Remote clock offset: 3.138 ms

# Below is generated by plot.py at 2018-09-06 11:12:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.23 Mbit/s

95th percentile per-packet one-way delay: 64.640 ms

Loss rate: 0.76%

-- Flow 1:

Average throughput: 76.38 Mbit/s

95th percentile per-packet one-way delay: 64.601 ms

Loss rate: 0.89%

-- Flow 2:

Average throughput: 15.67 Mbit/s

95th percentile per-packet one-way delay: 66.283 ms

Loss rate: 0.33%

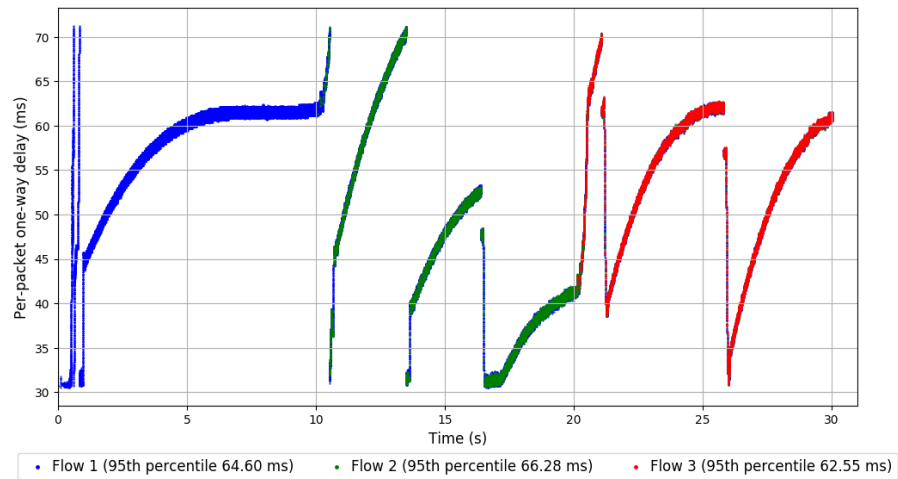
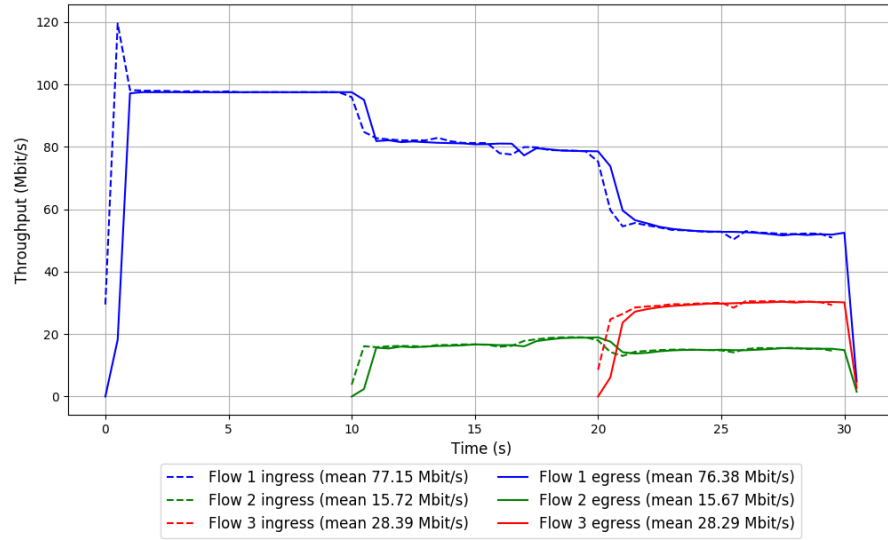
-- Flow 3:

Average throughput: 28.29 Mbit/s

95th percentile per-packet one-way delay: 62.547 ms

Loss rate: 0.13%

# Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 11:02:03

End at: 2018-09-06 11:02:33

Local clock offset: 3.953 ms

Remote clock offset: 3.163 ms

# Below is generated by plot.py at 2018-09-06 11:13:02

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.30 Mbit/s

95th percentile per-packet one-way delay: 65.937 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 78.69 Mbit/s

95th percentile per-packet one-way delay: 65.602 ms

Loss rate: 1.02%

-- Flow 2:

Average throughput: 15.70 Mbit/s

95th percentile per-packet one-way delay: 67.429 ms

Loss rate: 0.68%

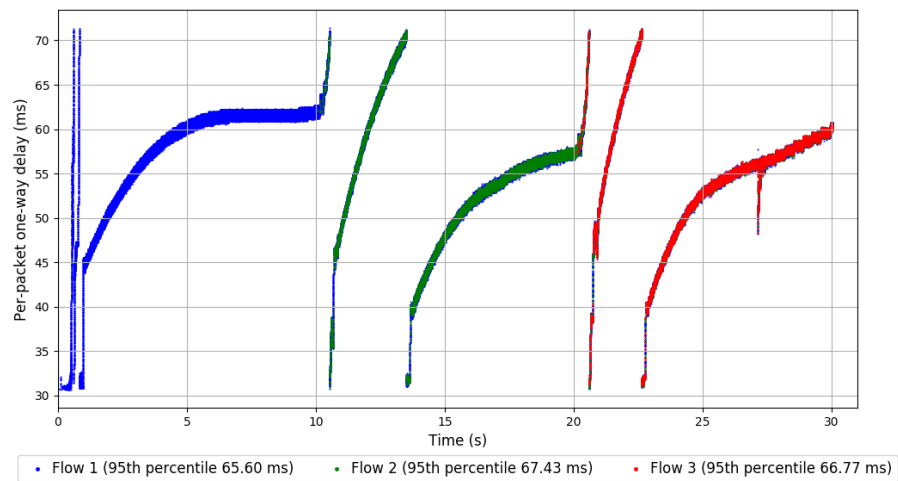
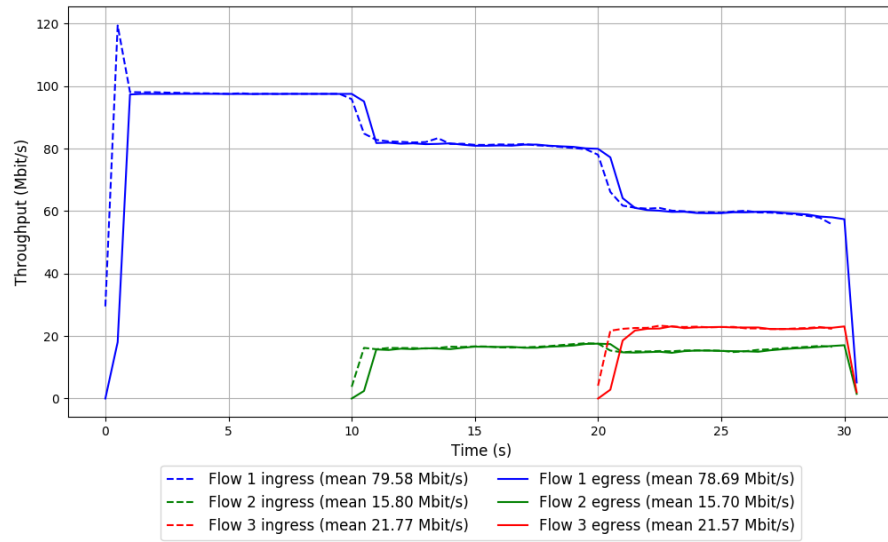
-- Flow 3:

Average throughput: 21.57 Mbit/s

95th percentile per-packet one-way delay: 66.770 ms

Loss rate: 0.90%

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

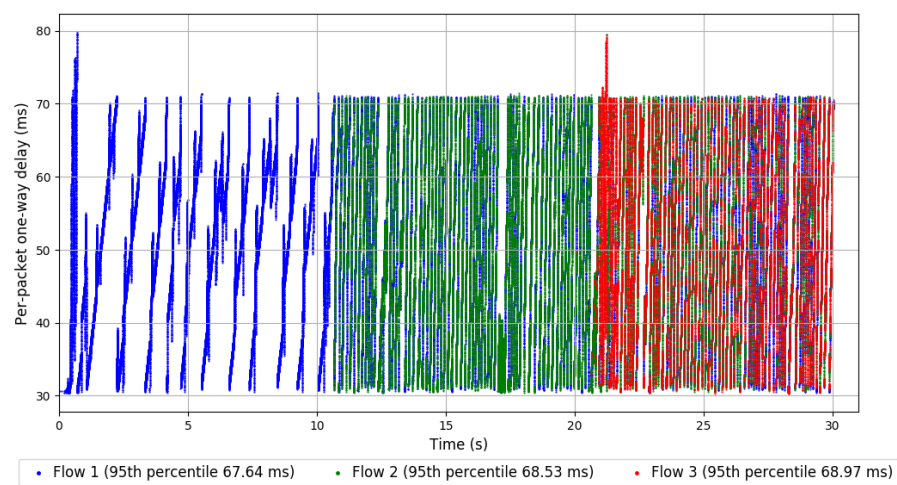
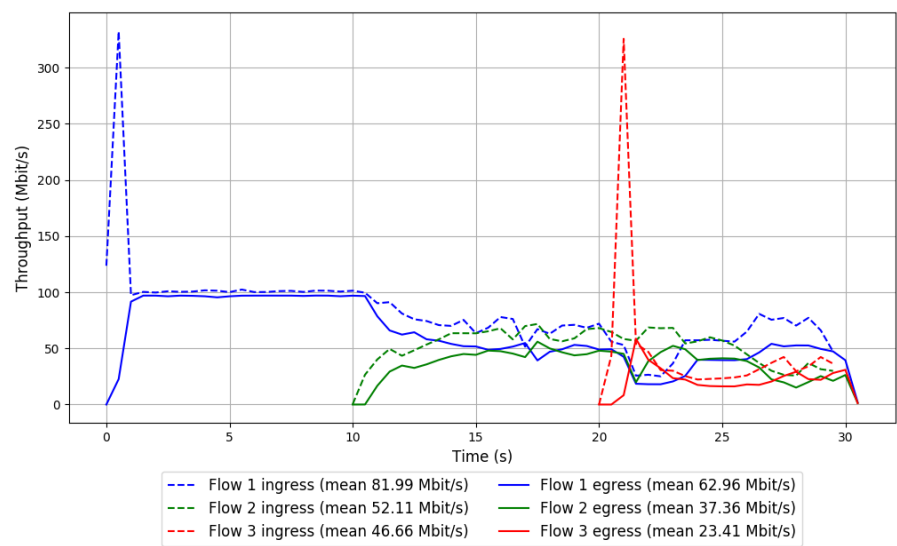


Run 1: Statistics of FillP

Start at: 2018-09-06 09:09:15  
End at: 2018-09-06 09:09:45  
Local clock offset: 0.018 ms  
Remote clock offset: -1.154 ms

# Below is generated by plot.py at 2018-09-06 11:13:24  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.37 Mbit/s  
95th percentile per-packet one-way delay: 68.038 ms  
Loss rate: 27.75%  
-- Flow 1:  
Average throughput: 62.96 Mbit/s  
95th percentile per-packet one-way delay: 67.636 ms  
Loss rate: 23.11%  
-- Flow 2:  
Average throughput: 37.36 Mbit/s  
95th percentile per-packet one-way delay: 68.528 ms  
Loss rate: 28.91%  
-- Flow 3:  
Average throughput: 23.41 Mbit/s  
95th percentile per-packet one-way delay: 68.967 ms  
Loss rate: 49.73%

Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-06 09:33:44

End at: 2018-09-06 09:34:14

Local clock offset: 0.382 ms

Remote clock offset: 0.374 ms

# Below is generated by plot.py at 2018-09-06 11:13:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.21 Mbit/s

95th percentile per-packet one-way delay: 68.482 ms

Loss rate: 25.15%

-- Flow 1:

Average throughput: 64.78 Mbit/s

95th percentile per-packet one-way delay: 68.254 ms

Loss rate: 22.31%

-- Flow 2:

Average throughput: 31.17 Mbit/s

95th percentile per-packet one-way delay: 68.799 ms

Loss rate: 28.40%

-- Flow 3:

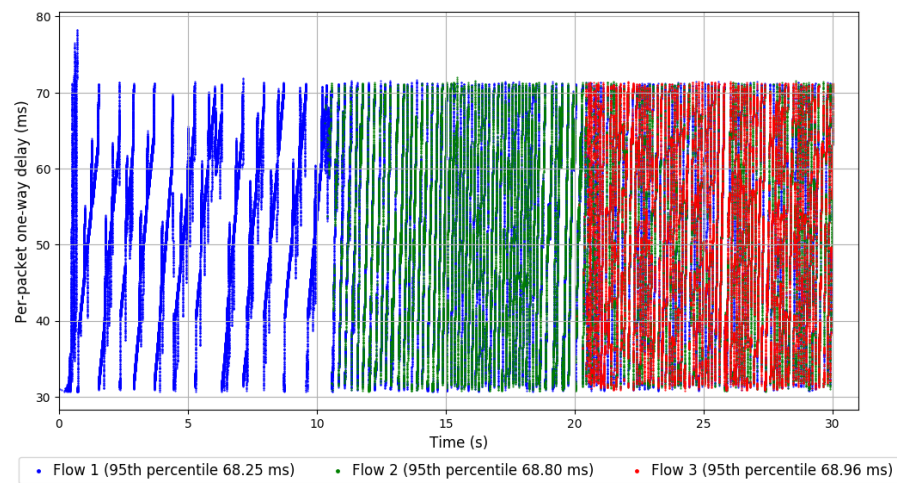
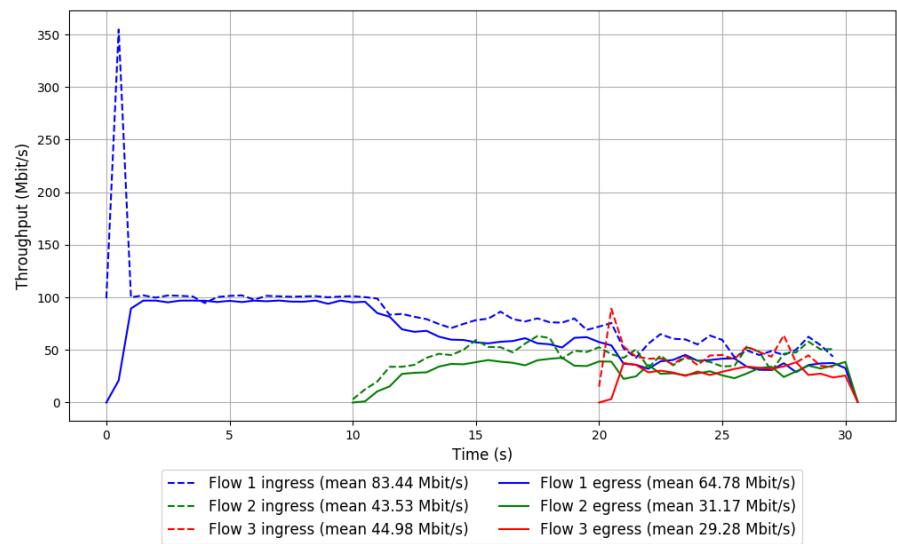
Average throughput: 29.28 Mbit/s

95th percentile per-packet one-way delay: 68.956 ms

Loss rate: 34.80%



Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-06 09:58:06

End at: 2018-09-06 09:58:36

Local clock offset: 0.314 ms

Remote clock offset: 1.99 ms

# Below is generated by plot.py at 2018-09-06 11:13:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.08 Mbit/s

95th percentile per-packet one-way delay: 68.229 ms

Loss rate: 27.72%

-- Flow 1:

Average throughput: 63.90 Mbit/s

95th percentile per-packet one-way delay: 67.776 ms

Loss rate: 22.93%

-- Flow 2:

Average throughput: 32.74 Mbit/s

95th percentile per-packet one-way delay: 68.735 ms

Loss rate: 28.14%

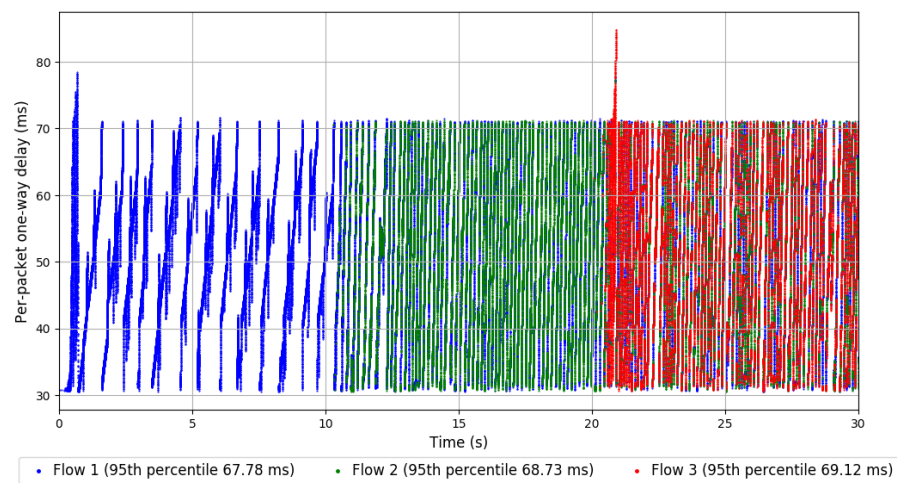
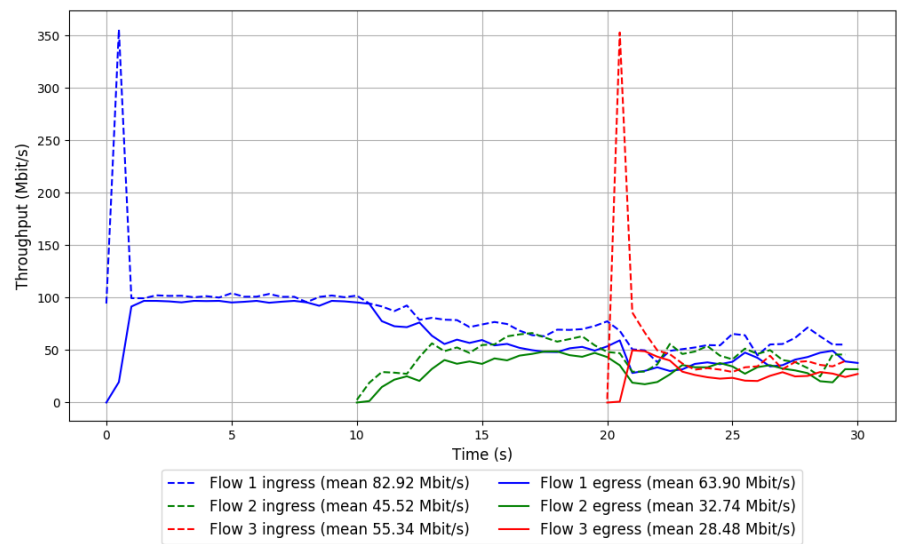
-- Flow 3:

Average throughput: 28.48 Mbit/s

95th percentile per-packet one-way delay: 69.121 ms

Loss rate: 48.69%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-06 10:22:32

End at: 2018-09-06 10:23:02

Local clock offset: 0.375 ms

Remote clock offset: 2.721 ms

# Below is generated by plot.py at 2018-09-06 11:13:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.12 Mbit/s

95th percentile per-packet one-way delay: 68.137 ms

Loss rate: 27.30%

-- Flow 1:

Average throughput: 60.17 Mbit/s

95th percentile per-packet one-way delay: 67.836 ms

Loss rate: 23.50%

-- Flow 2:

Average throughput: 35.36 Mbit/s

95th percentile per-packet one-way delay: 68.566 ms

Loss rate: 35.06%

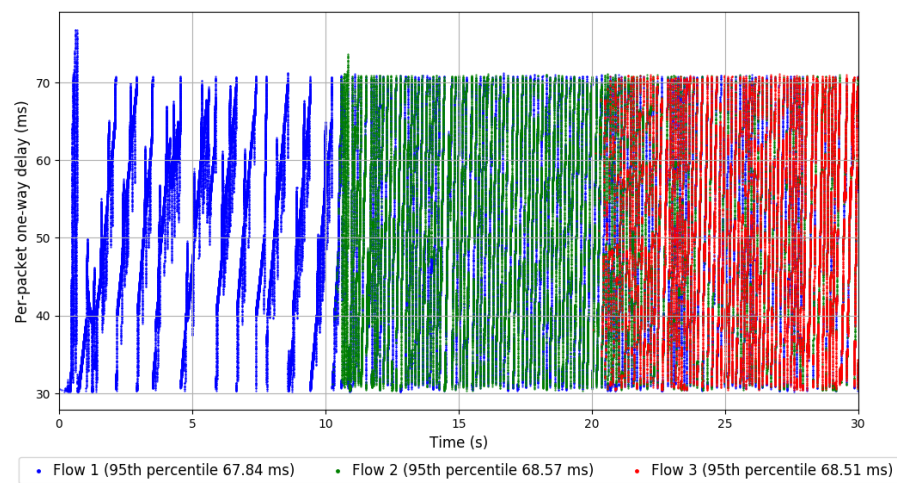
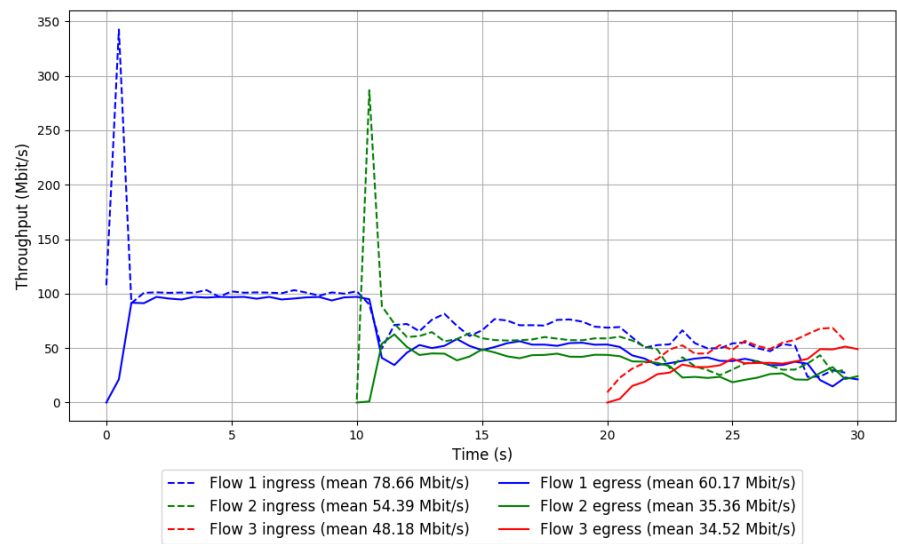
-- Flow 3:

Average throughput: 34.52 Mbit/s

95th percentile per-packet one-way delay: 68.506 ms

Loss rate: 28.38%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 10:47:01

End at: 2018-09-06 10:47:31

Local clock offset: 0.88 ms

Remote clock offset: 3.13 ms

# Below is generated by plot.py at 2018-09-06 11:13:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.31 Mbit/s

95th percentile per-packet one-way delay: 68.334 ms

Loss rate: 27.22%

-- Flow 1:

Average throughput: 62.05 Mbit/s

95th percentile per-packet one-way delay: 67.979 ms

Loss rate: 23.21%

-- Flow 2:

Average throughput: 38.31 Mbit/s

95th percentile per-packet one-way delay: 68.900 ms

Loss rate: 34.83%

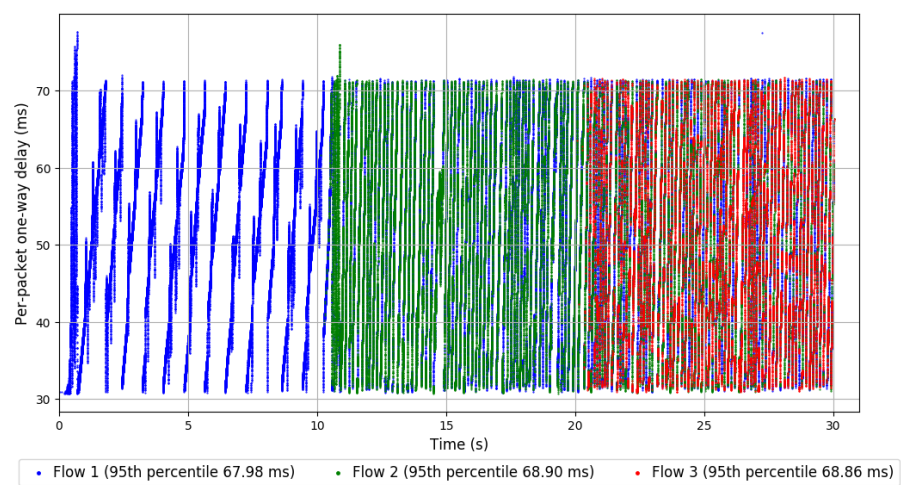
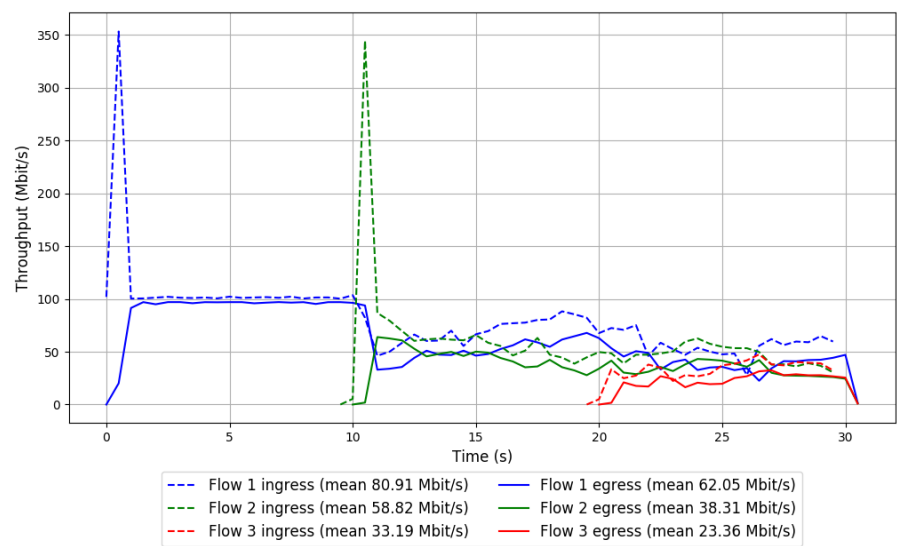
-- Flow 3:

Average throughput: 23.36 Mbit/s

95th percentile per-packet one-way delay: 68.865 ms

Loss rate: 29.59%

Run 5: Report of FillP — Data Link



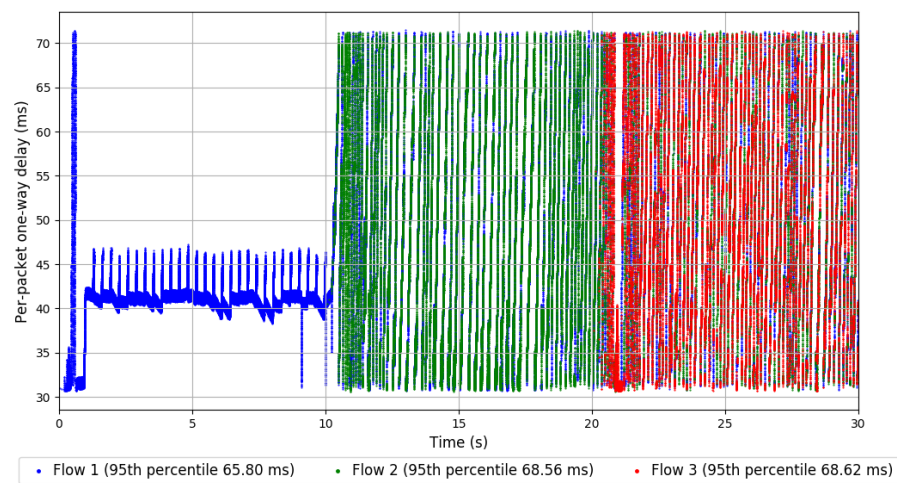
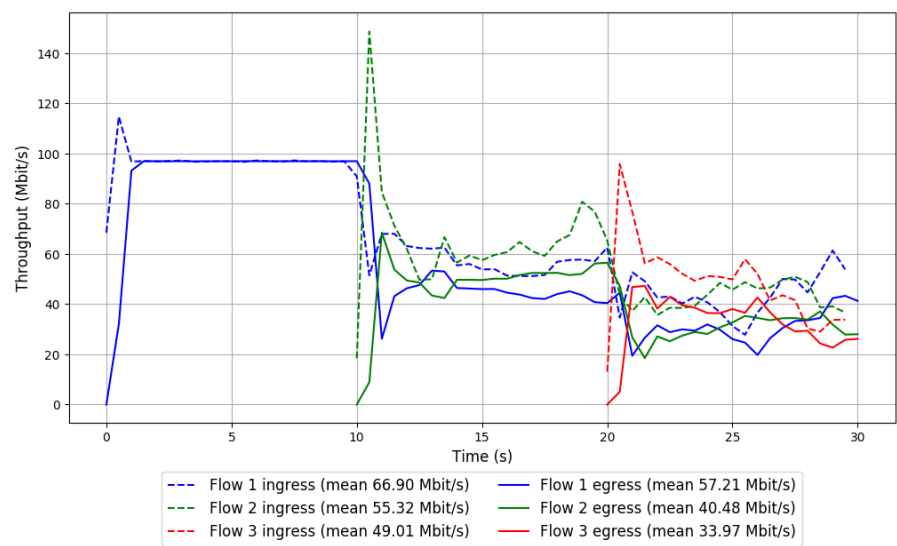
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 09:12:02  
End at: 2018-09-06 09:12:32  
Local clock offset: -0.082 ms  
Remote clock offset: -0.909 ms

# Below is generated by plot.py at 2018-09-06 11:13:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.41 Mbit/s  
95th percentile per-packet one-way delay: 67.403 ms  
Loss rate: 20.46%  
-- Flow 1:  
Average throughput: 57.21 Mbit/s  
95th percentile per-packet one-way delay: 65.802 ms  
Loss rate: 14.46%  
-- Flow 2:  
Average throughput: 40.48 Mbit/s  
95th percentile per-packet one-way delay: 68.560 ms  
Loss rate: 26.84%  
-- Flow 3:  
Average throughput: 33.97 Mbit/s  
95th percentile per-packet one-way delay: 68.623 ms  
Loss rate: 30.68%



Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 09:36:31

End at: 2018-09-06 09:37:01

Local clock offset: 0.384 ms

Remote clock offset: 0.45 ms

# Below is generated by plot.py at 2018-09-06 11:14:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.25 Mbit/s

95th percentile per-packet one-way delay: 67.353 ms

Loss rate: 19.31%

-- Flow 1:

Average throughput: 54.02 Mbit/s

95th percentile per-packet one-way delay: 65.332 ms

Loss rate: 12.44%

-- Flow 2:

Average throughput: 41.77 Mbit/s

95th percentile per-packet one-way delay: 68.438 ms

Loss rate: 23.43%

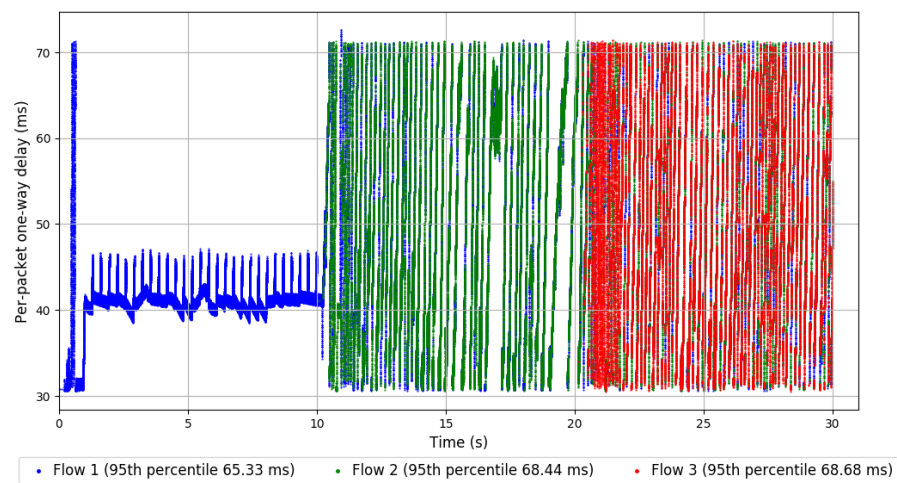
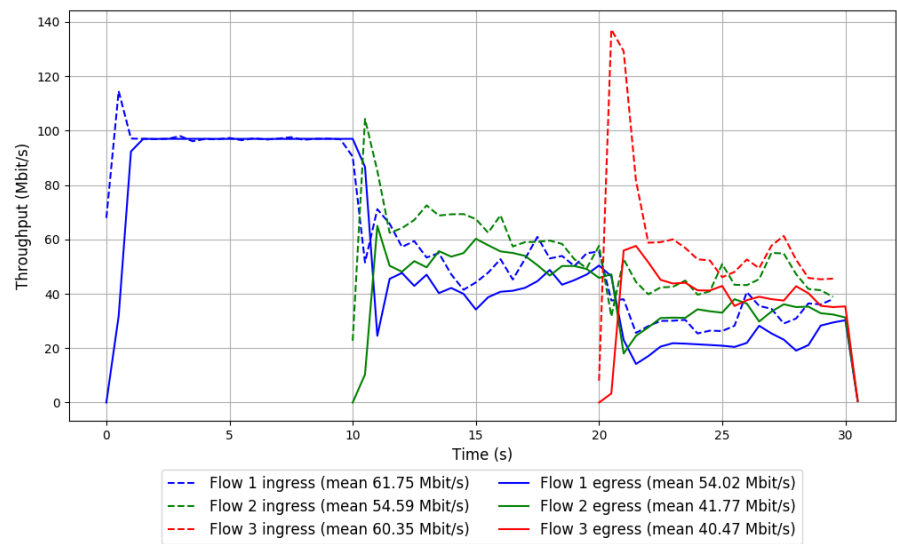
-- Flow 3:

Average throughput: 40.47 Mbit/s

95th percentile per-packet one-way delay: 68.677 ms

Loss rate: 33.01%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 10:00:52

End at: 2018-09-06 10:01:22

Local clock offset: 0.286 ms

Remote clock offset: 2.086 ms

# Below is generated by plot.py at 2018-09-06 11:14:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.30 Mbit/s

95th percentile per-packet one-way delay: 67.461 ms

Loss rate: 19.25%

-- Flow 1:

Average throughput: 57.83 Mbit/s

95th percentile per-packet one-way delay: 65.830 ms

Loss rate: 13.97%

-- Flow 2:

Average throughput: 41.35 Mbit/s

95th percentile per-packet one-way delay: 68.595 ms

Loss rate: 24.13%

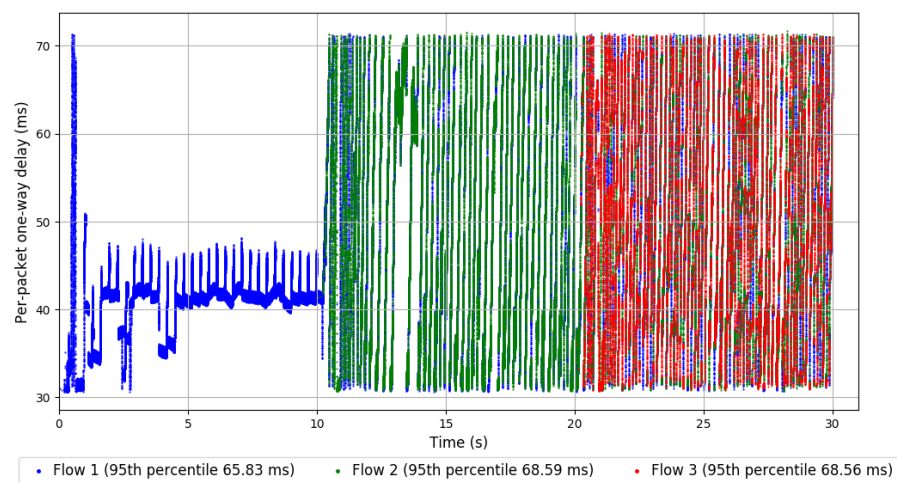
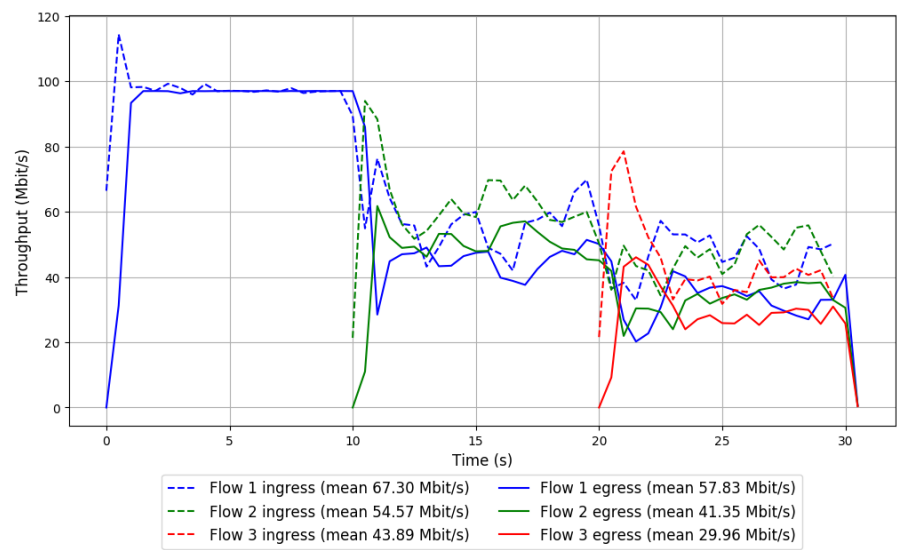
-- Flow 3:

Average throughput: 29.96 Mbit/s

95th percentile per-packet one-way delay: 68.562 ms

Loss rate: 31.51%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 10:25:19

End at: 2018-09-06 10:25:49

Local clock offset: 0.366 ms

Remote clock offset: 3.158 ms

# Below is generated by plot.py at 2018-09-06 11:14:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.12 Mbit/s

95th percentile per-packet one-way delay: 67.240 ms

Loss rate: 18.20%

-- Flow 1:

Average throughput: 55.94 Mbit/s

95th percentile per-packet one-way delay: 65.762 ms

Loss rate: 13.17%

-- Flow 2:

Average throughput: 42.40 Mbit/s

95th percentile per-packet one-way delay: 68.319 ms

Loss rate: 23.33%

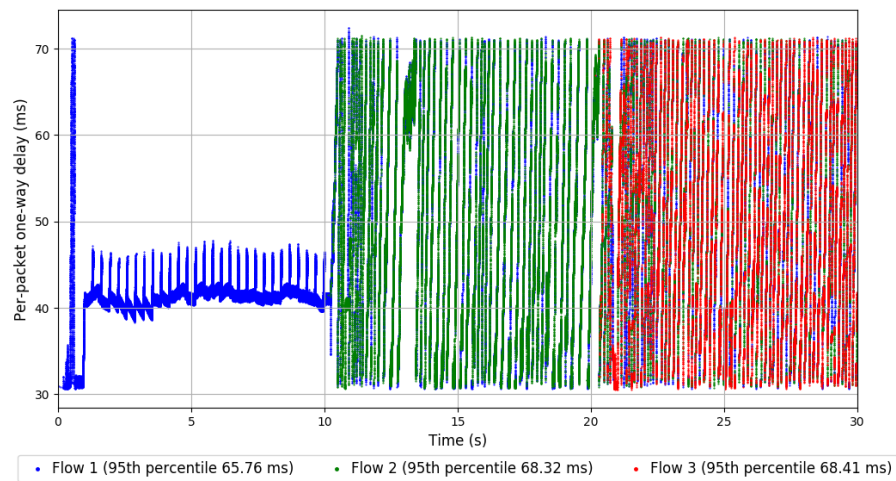
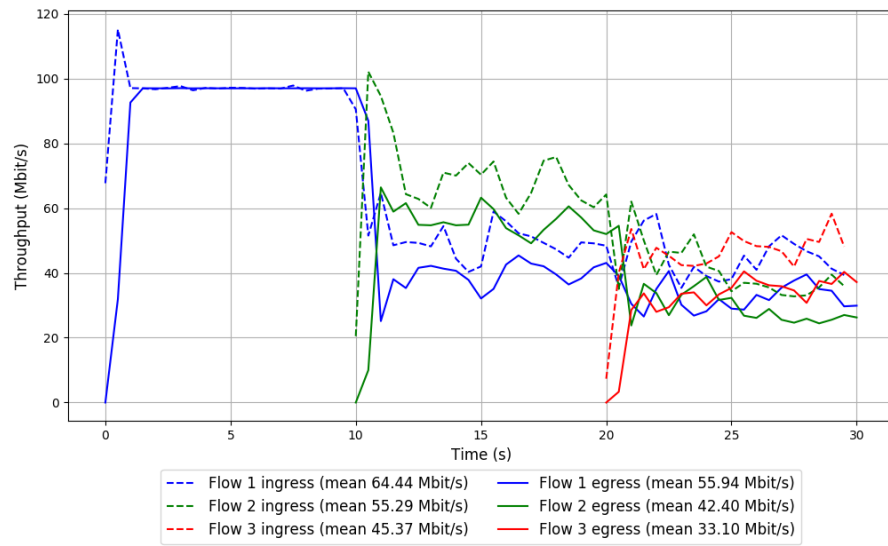
-- Flow 3:

Average throughput: 33.10 Mbit/s

95th percentile per-packet one-way delay: 68.414 ms

Loss rate: 27.19%

# Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 10:49:48

End at: 2018-09-06 10:50:18

Local clock offset: 1.823 ms

Remote clock offset: 3.161 ms

# Below is generated by plot.py at 2018-09-06 11:14:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.15 Mbit/s

95th percentile per-packet one-way delay: 67.655 ms

Loss rate: 19.62%

-- Flow 1:

Average throughput: 58.11 Mbit/s

95th percentile per-packet one-way delay: 66.211 ms

Loss rate: 14.02%

-- Flow 2:

Average throughput: 42.04 Mbit/s

95th percentile per-packet one-way delay: 68.700 ms

Loss rate: 26.27%

-- Flow 3:

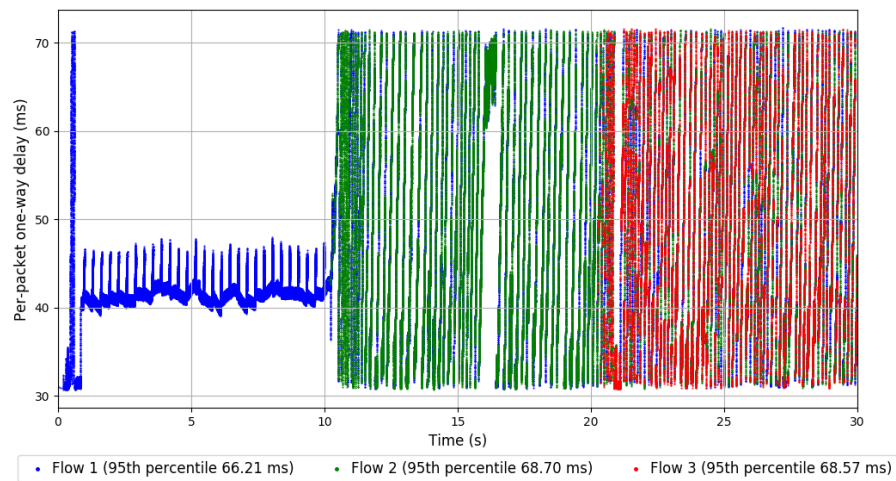
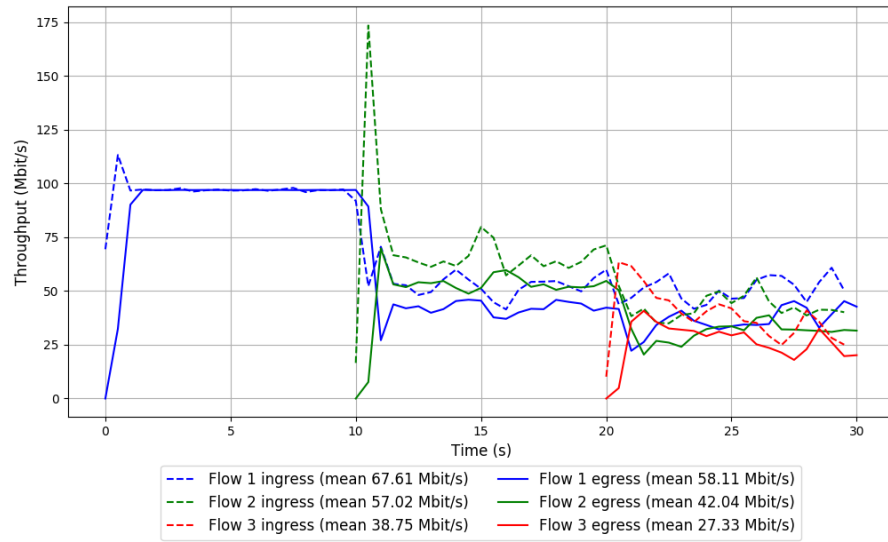
Average throughput: 27.33 Mbit/s

95th percentile per-packet one-way delay: 68.573 ms

Loss rate: 29.42%



## Run 5: Report of FillP-Sheep — Data Link

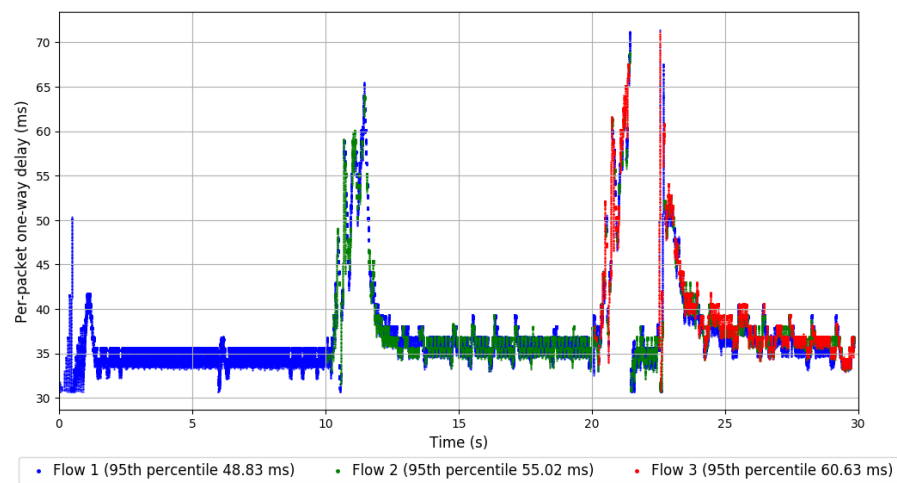
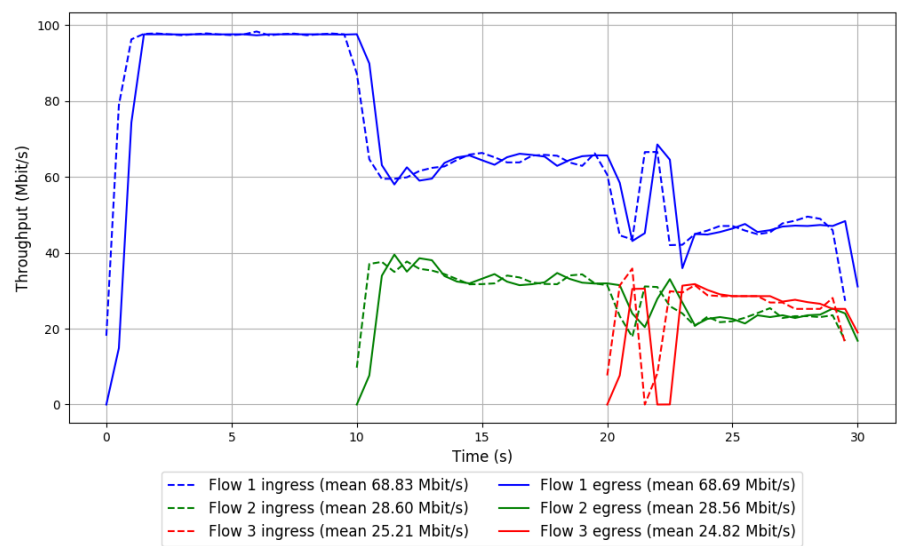


Run 1: Statistics of Indigo

Start at: 2018-09-06 09:10:38  
End at: 2018-09-06 09:11:08  
Local clock offset: 0.006 ms  
Remote clock offset: -0.944 ms

# Below is generated by plot.py at 2018-09-06 11:14:58  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 95.74 Mbit/s  
95th percentile per-packet one-way delay: 51.579 ms  
Loss rate: 0.29%  
-- Flow 1:  
Average throughput: 68.69 Mbit/s  
95th percentile per-packet one-way delay: 48.829 ms  
Loss rate: 0.18%  
-- Flow 2:  
Average throughput: 28.56 Mbit/s  
95th percentile per-packet one-way delay: 55.015 ms  
Loss rate: 0.11%  
-- Flow 3:  
Average throughput: 24.82 Mbit/s  
95th percentile per-packet one-way delay: 60.628 ms  
Loss rate: 1.56%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-06 09:35:07

End at: 2018-09-06 09:35:37

Local clock offset: 0.385 ms

Remote clock offset: 0.31 ms

# Below is generated by plot.py at 2018-09-06 11:14:58

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.84 Mbit/s

95th percentile per-packet one-way delay: 48.776 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 66.48 Mbit/s

95th percentile per-packet one-way delay: 45.145 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 27.88 Mbit/s

95th percentile per-packet one-way delay: 50.310 ms

Loss rate: 0.00%

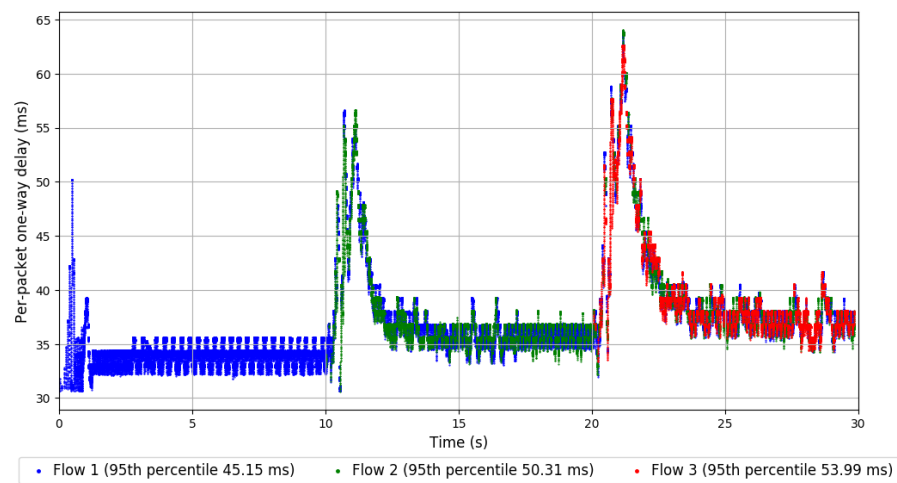
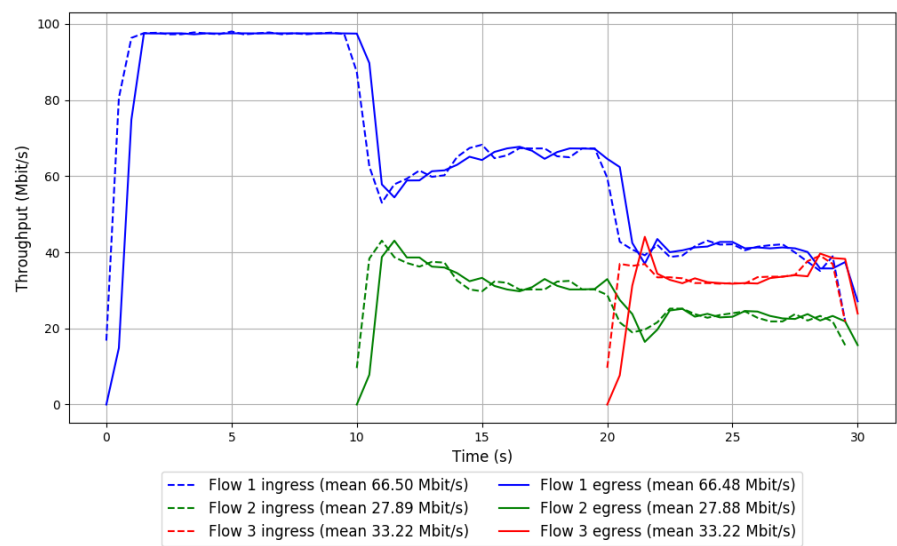
-- Flow 3:

Average throughput: 33.22 Mbit/s

95th percentile per-packet one-way delay: 53.993 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 09:59:28

End at: 2018-09-06 09:59:58

Local clock offset: 0.396 ms

Remote clock offset: 1.969 ms

# Below is generated by plot.py at 2018-09-06 11:15:09

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.88 Mbit/s

95th percentile per-packet one-way delay: 49.002 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.53 Mbit/s

95th percentile per-packet one-way delay: 46.454 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 36.69 Mbit/s

95th percentile per-packet one-way delay: 51.404 ms

Loss rate: 0.00%

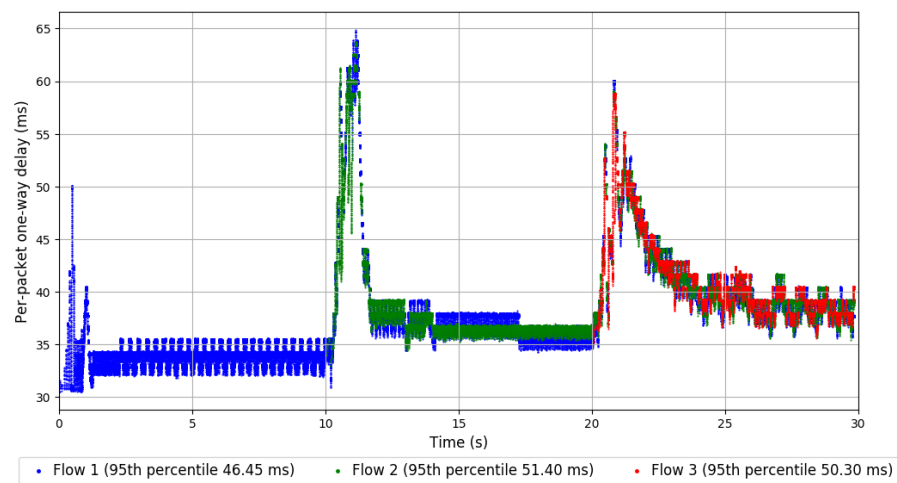
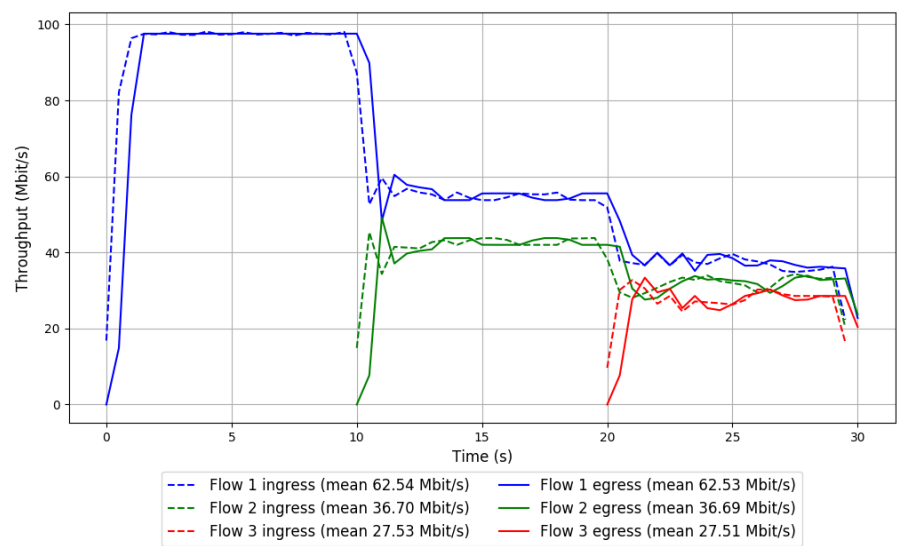
-- Flow 3:

Average throughput: 27.51 Mbit/s

95th percentile per-packet one-way delay: 50.305 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 10:23:55

End at: 2018-09-06 10:24:25

Local clock offset: 0.283 ms

Remote clock offset: 3.089 ms

# Below is generated by plot.py at 2018-09-06 11:15:09

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.60 Mbit/s

95th percentile per-packet one-way delay: 51.522 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 59.49 Mbit/s

95th percentile per-packet one-way delay: 47.797 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 40.01 Mbit/s

95th percentile per-packet one-way delay: 53.878 ms

Loss rate: 0.00%

-- Flow 3:

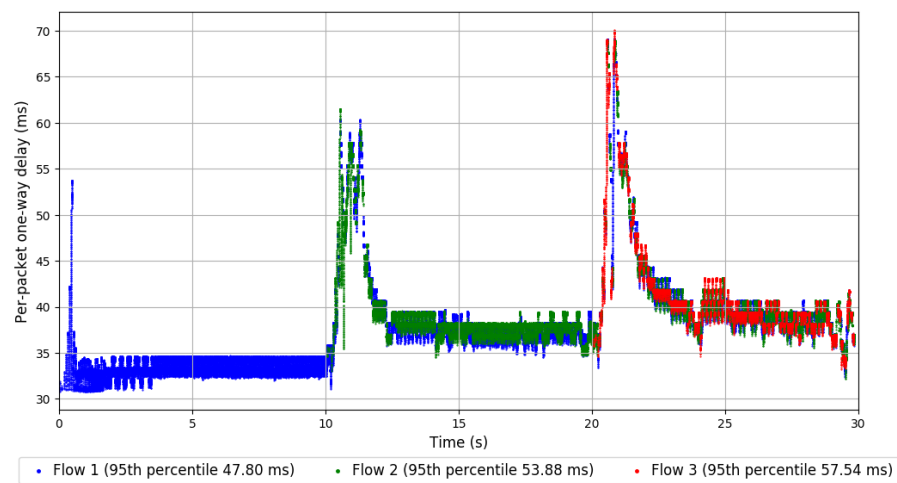
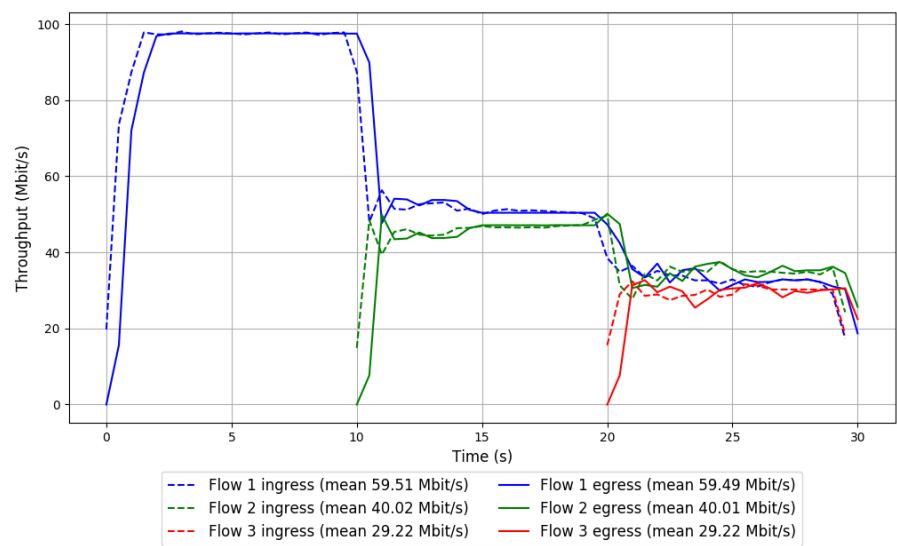
Average throughput: 29.22 Mbit/s

95th percentile per-packet one-way delay: 57.542 ms

Loss rate: 0.00%



Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 10:48:24

End at: 2018-09-06 10:48:54

Local clock offset: 1.345 ms

Remote clock offset: 3.131 ms

# Below is generated by plot.py at 2018-09-06 11:15:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.78 Mbit/s

95th percentile per-packet one-way delay: 49.051 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 66.91 Mbit/s

95th percentile per-packet one-way delay: 44.996 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 26.36 Mbit/s

95th percentile per-packet one-way delay: 51.037 ms

Loss rate: 0.15%

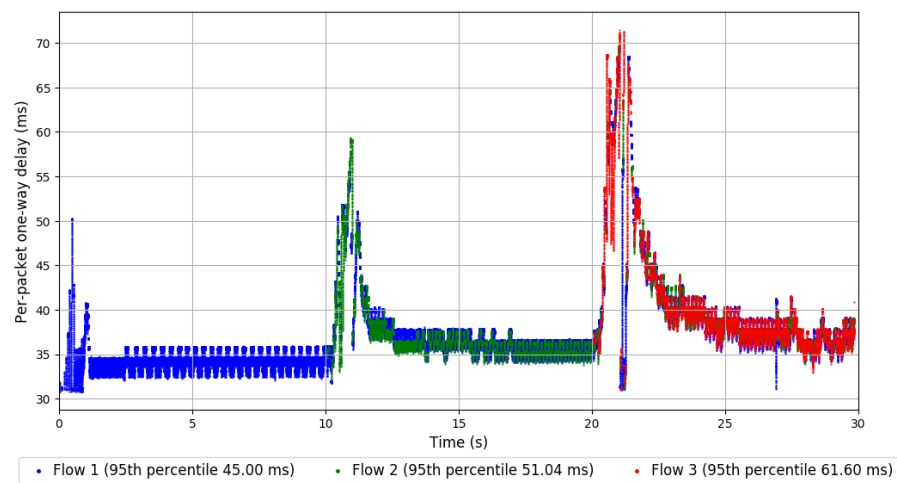
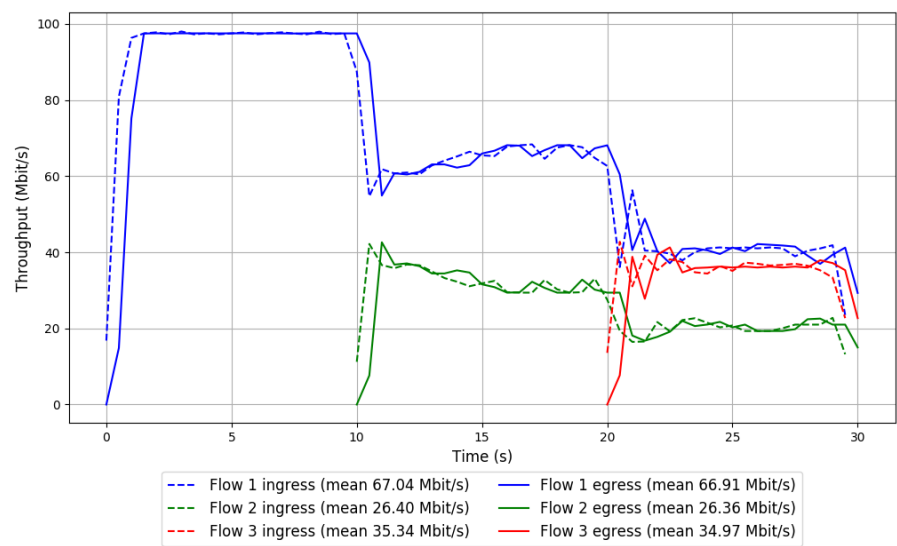
-- Flow 3:

Average throughput: 34.97 Mbit/s

95th percentile per-packet one-way delay: 61.600 ms

Loss rate: 0.99%

Run 5: Report of Indigo — Data Link

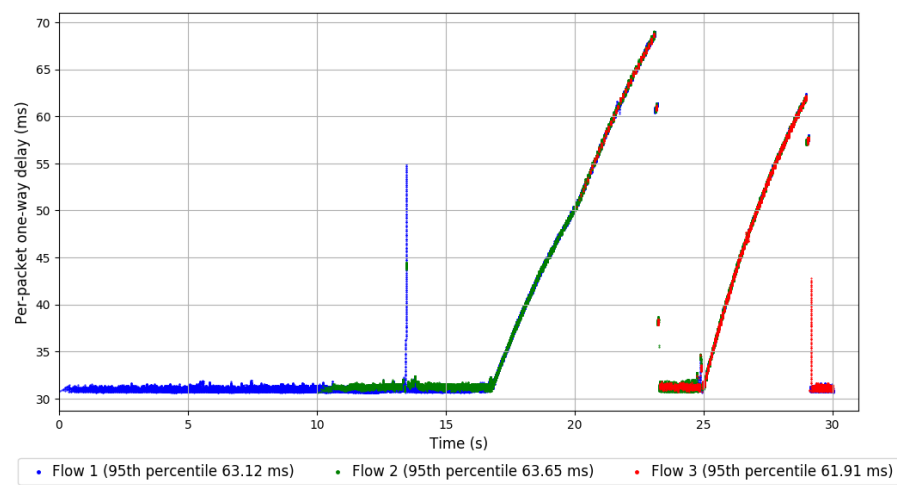
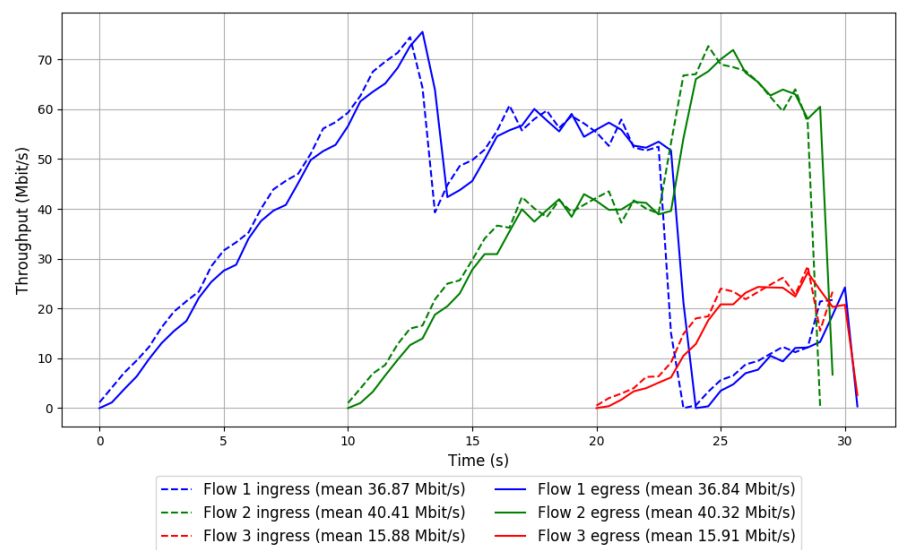


Run 1: Statistics of LEDBAT

Start at: 2018-09-06 09:17:28  
End at: 2018-09-06 09:17:58  
Local clock offset: 0.101 ms  
Remote clock offset: -0.674 ms

# Below is generated by plot.py at 2018-09-06 11:15:44  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 67.70 Mbit/s  
95th percentile per-packet one-way delay: 63.372 ms  
Loss rate: 0.07%  
-- Flow 1:  
Average throughput: 36.84 Mbit/s  
95th percentile per-packet one-way delay: 63.117 ms  
Loss rate: 0.08%  
-- Flow 2:  
Average throughput: 40.32 Mbit/s  
95th percentile per-packet one-way delay: 63.651 ms  
Loss rate: 0.06%  
-- Flow 3:  
Average throughput: 15.91 Mbit/s  
95th percentile per-packet one-way delay: 61.910 ms  
Loss rate: 0.01%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 09:41:56

End at: 2018-09-06 09:42:26

Local clock offset: 0.494 ms

Remote clock offset: 0.75 ms

# Below is generated by plot.py at 2018-09-06 11:15:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 61.40 Mbit/s

95th percentile per-packet one-way delay: 65.042 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 40.63 Mbit/s

95th percentile per-packet one-way delay: 65.089 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 20.22 Mbit/s

95th percentile per-packet one-way delay: 66.367 ms

Loss rate: 0.09%

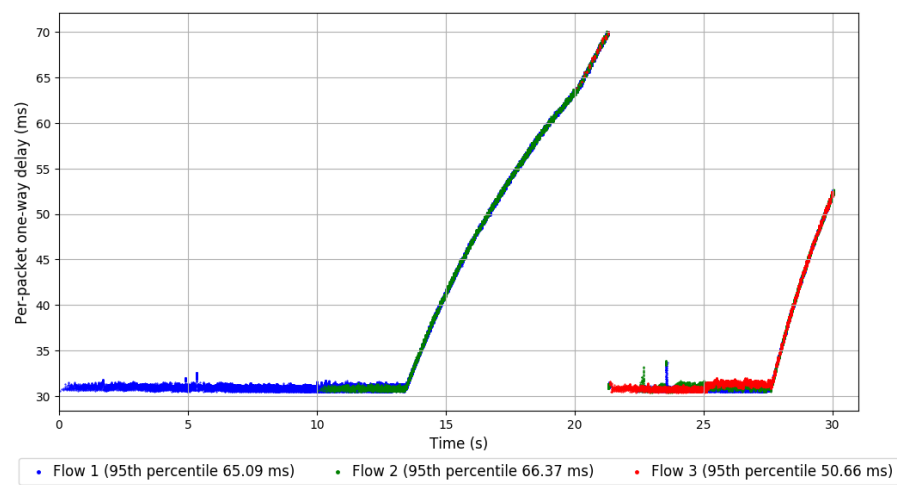
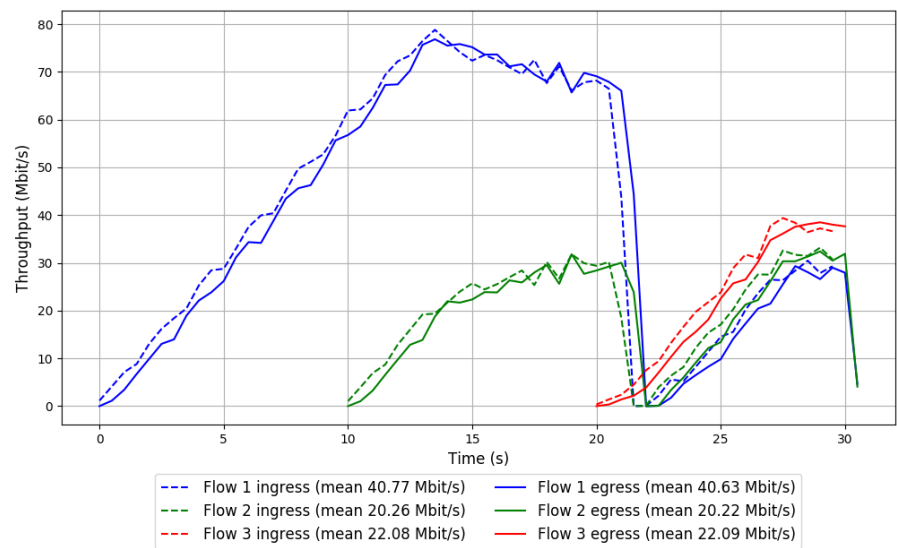
-- Flow 3:

Average throughput: 22.09 Mbit/s

95th percentile per-packet one-way delay: 50.664 ms

Loss rate: 0.05%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-06 10:06:18

End at: 2018-09-06 10:06:48

Local clock offset: 0.402 ms

Remote clock offset: 2.003 ms

# Below is generated by plot.py at 2018-09-06 11:15:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 65.35 Mbit/s

95th percentile per-packet one-way delay: 64.599 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 40.03 Mbit/s

95th percentile per-packet one-way delay: 65.110 ms

Loss rate: 0.29%

-- Flow 2:

Average throughput: 30.72 Mbit/s

95th percentile per-packet one-way delay: 64.567 ms

Loss rate: 0.00%

-- Flow 3:

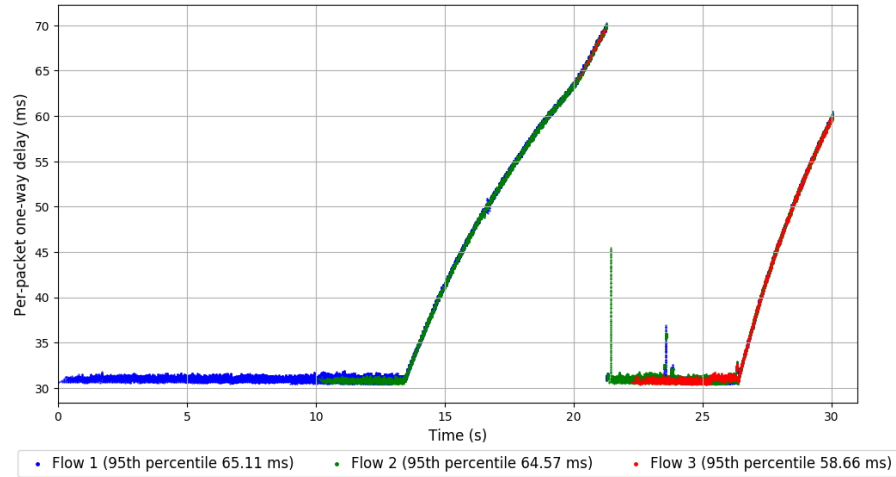
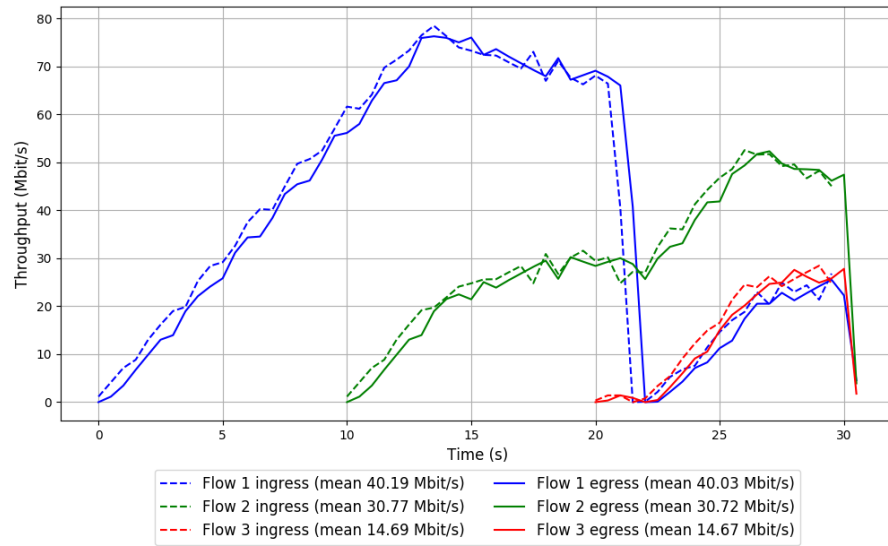
Average throughput: 14.67 Mbit/s

95th percentile per-packet one-way delay: 58.665 ms

Loss rate: 0.18%



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



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 10:30:45

End at: 2018-09-06 10:31:15

Local clock offset: 0.344 ms

Remote clock offset: 3.14 ms

# Below is generated by plot.py at 2018-09-06 11:15:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 61.64 Mbit/s

95th percentile per-packet one-way delay: 64.993 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 41.05 Mbit/s

95th percentile per-packet one-way delay: 65.219 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 19.09 Mbit/s

95th percentile per-packet one-way delay: 66.447 ms

Loss rate: 0.57%

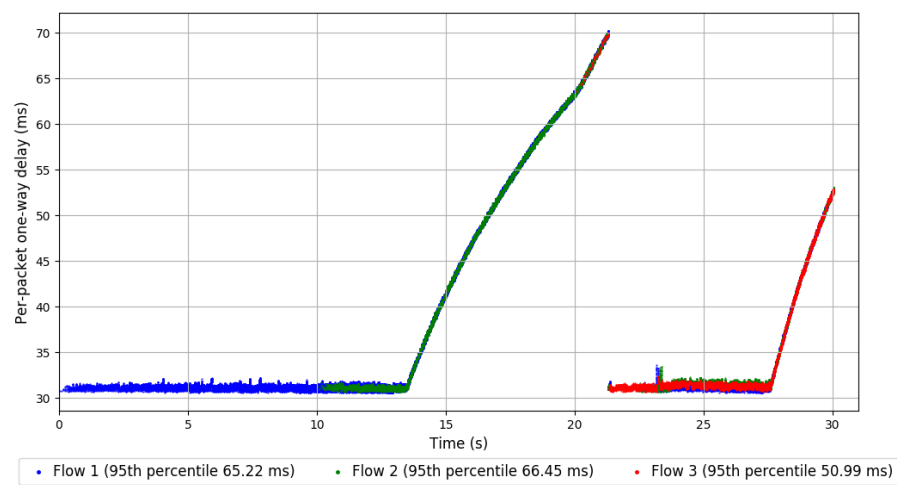
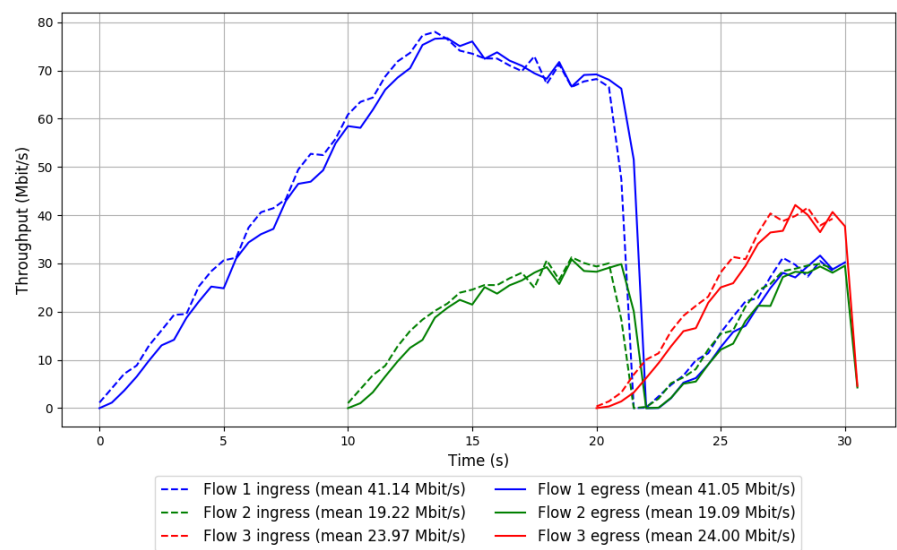
-- Flow 3:

Average throughput: 24.00 Mbit/s

95th percentile per-packet one-way delay: 50.992 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 10:55:13

End at: 2018-09-06 10:55:43

Local clock offset: 3.007 ms

Remote clock offset: 3.179 ms

# Below is generated by plot.py at 2018-09-06 11:15:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 61.56 Mbit/s

95th percentile per-packet one-way delay: 65.364 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 40.77 Mbit/s

95th percentile per-packet one-way delay: 65.453 ms

Loss rate: 0.17%

-- Flow 2:

Average throughput: 19.33 Mbit/s

95th percentile per-packet one-way delay: 66.744 ms

Loss rate: 0.44%

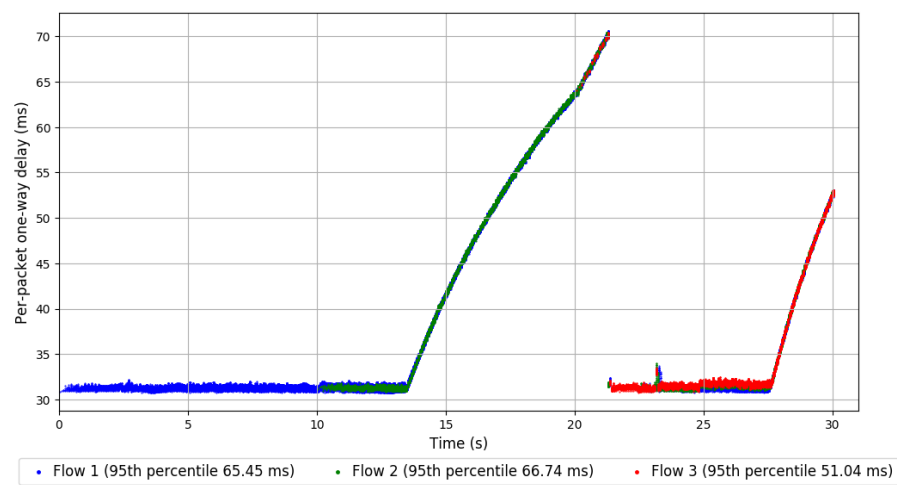
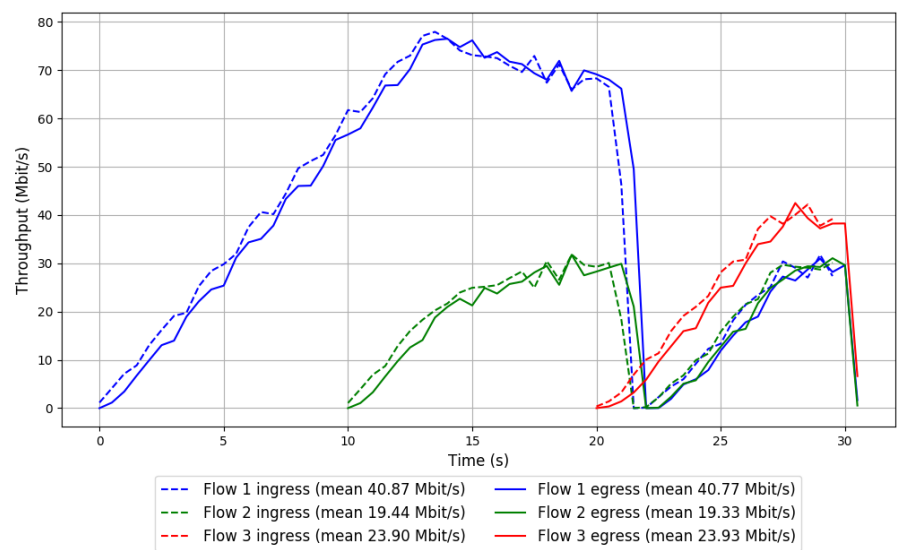
-- Flow 3:

Average throughput: 23.93 Mbit/s

95th percentile per-packet one-way delay: 51.039 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 09:18:50

End at: 2018-09-06 09:19:20

Local clock offset: 0.131 ms

Remote clock offset: -0.81 ms

# Below is generated by plot.py at 2018-09-06 11:16:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 88.89 Mbit/s

95th percentile per-packet one-way delay: 40.374 ms

Loss rate: 0.39%

-- Flow 1:

Average throughput: 49.83 Mbit/s

95th percentile per-packet one-way delay: 38.175 ms

Loss rate: 0.55%

-- Flow 2:

Average throughput: 43.77 Mbit/s

95th percentile per-packet one-way delay: 42.118 ms

Loss rate: 0.18%

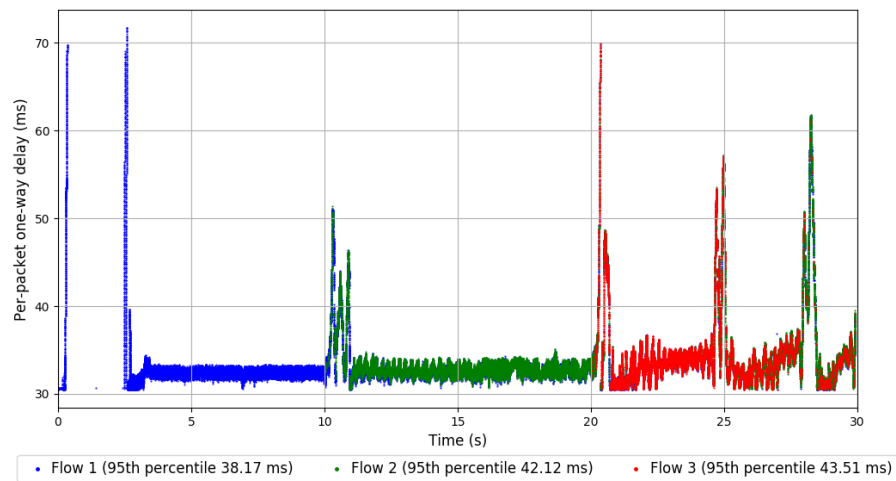
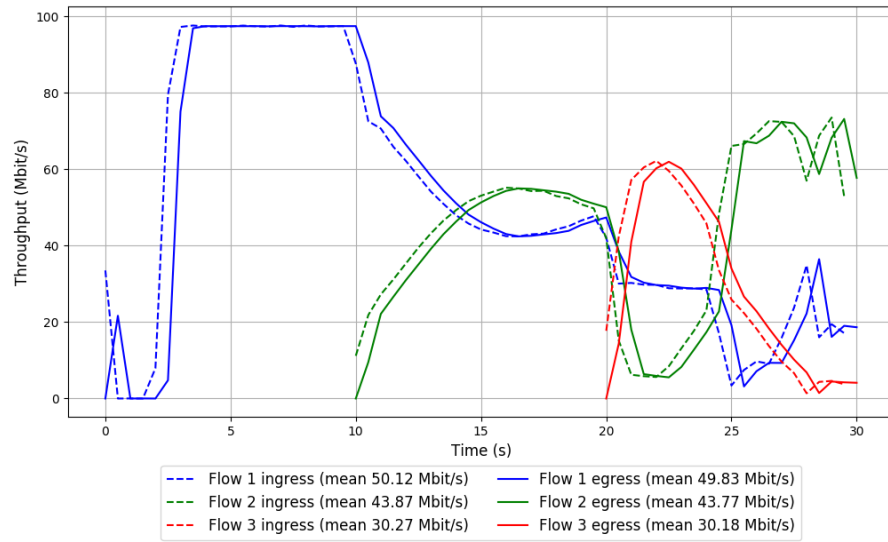
-- Flow 3:

Average throughput: 30.18 Mbit/s

95th percentile per-packet one-way delay: 43.512 ms

Loss rate: 0.24%

# Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 09:43:17

End at: 2018-09-06 09:43:47

Local clock offset: 0.492 ms

Remote clock offset: 0.903 ms

# Below is generated by plot.py at 2018-09-06 11:16:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 92.62 Mbit/s

95th percentile per-packet one-way delay: 36.819 ms

Loss rate: 0.66%

-- Flow 1:

Average throughput: 56.42 Mbit/s

95th percentile per-packet one-way delay: 36.601 ms

Loss rate: 0.79%

-- Flow 2:

Average throughput: 41.41 Mbit/s

95th percentile per-packet one-way delay: 39.020 ms

Loss rate: 0.60%

-- Flow 3:

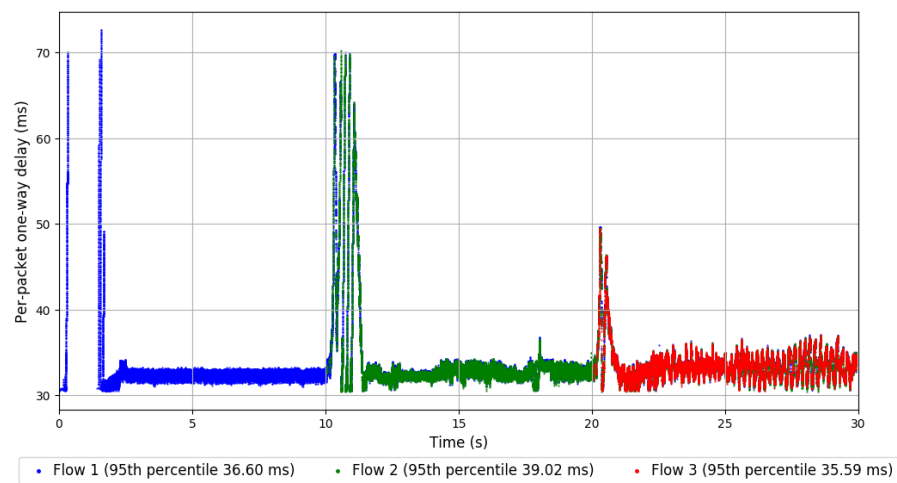
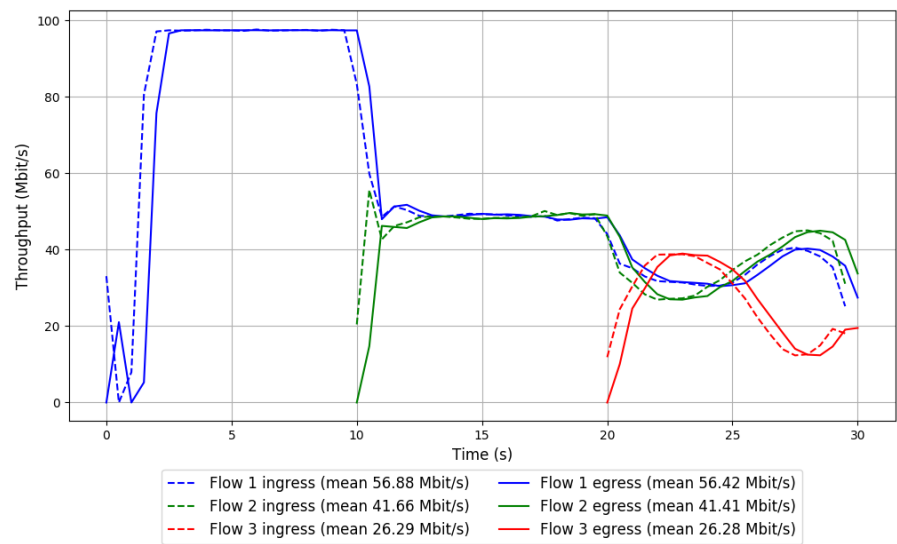
Average throughput: 26.28 Mbit/s

95th percentile per-packet one-way delay: 35.588 ms

Loss rate: 0.00%



Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 10:07:39

End at: 2018-09-06 10:08:09

Local clock offset: 0.317 ms

Remote clock offset: 2.236 ms

# Below is generated by plot.py at 2018-09-06 11:16:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.95 Mbit/s

95th percentile per-packet one-way delay: 42.924 ms

Loss rate: 1.71%

-- Flow 1:

Average throughput: 58.41 Mbit/s

95th percentile per-packet one-way delay: 40.764 ms

Loss rate: 1.88%

-- Flow 2:

Average throughput: 41.01 Mbit/s

95th percentile per-packet one-way delay: 45.182 ms

Loss rate: 0.92%

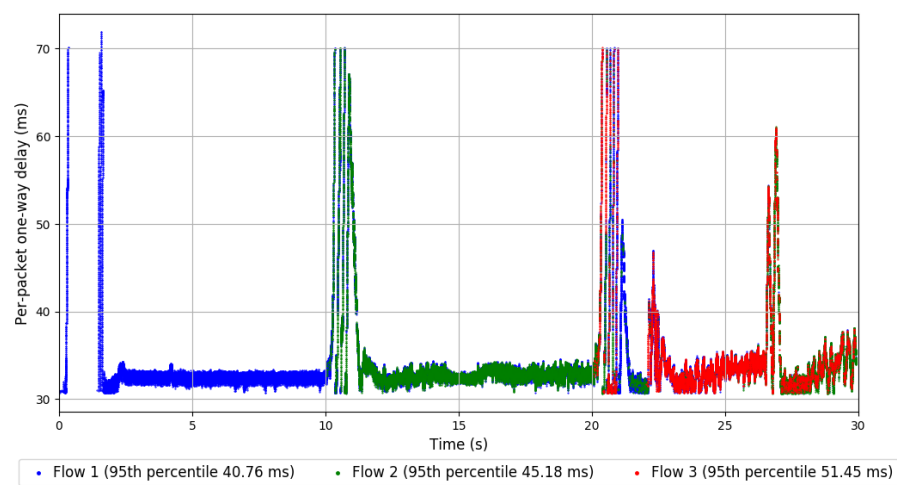
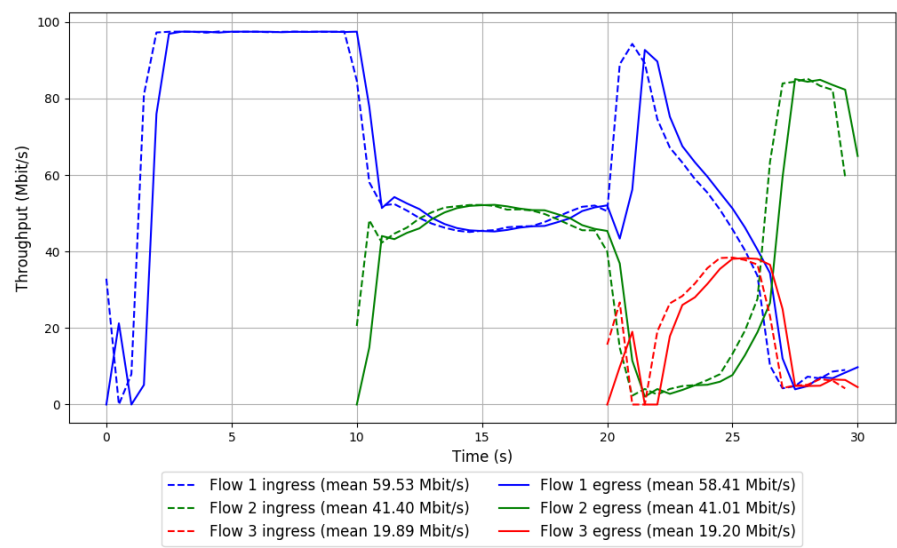
-- Flow 3:

Average throughput: 19.20 Mbit/s

95th percentile per-packet one-way delay: 51.447 ms

Loss rate: 3.46%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 10:32:06

End at: 2018-09-06 10:32:36

Local clock offset: 0.217 ms

Remote clock offset: 3.09 ms

# Below is generated by plot.py at 2018-09-06 11:16:40

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.50 Mbit/s

95th percentile per-packet one-way delay: 47.501 ms

Loss rate: 0.80%

-- Flow 1:

Average throughput: 59.33 Mbit/s

95th percentile per-packet one-way delay: 45.741 ms

Loss rate: 0.68%

-- Flow 2:

Average throughput: 27.67 Mbit/s

95th percentile per-packet one-way delay: 48.710 ms

Loss rate: 1.11%

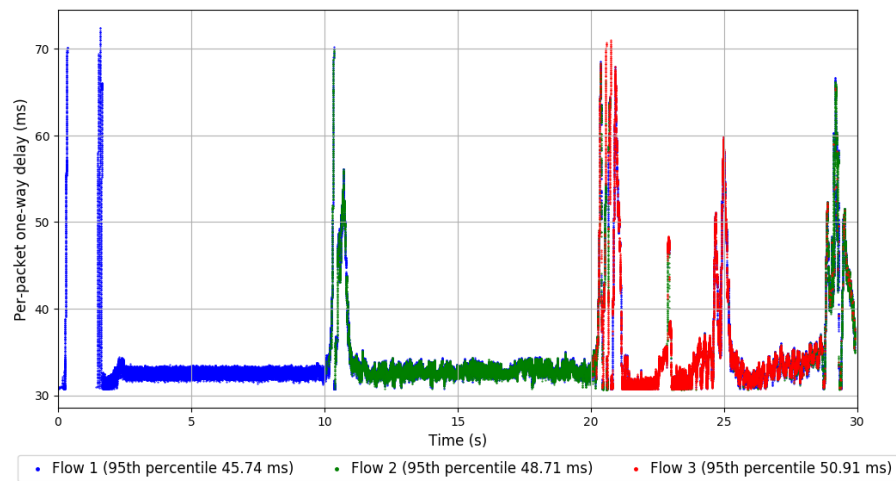
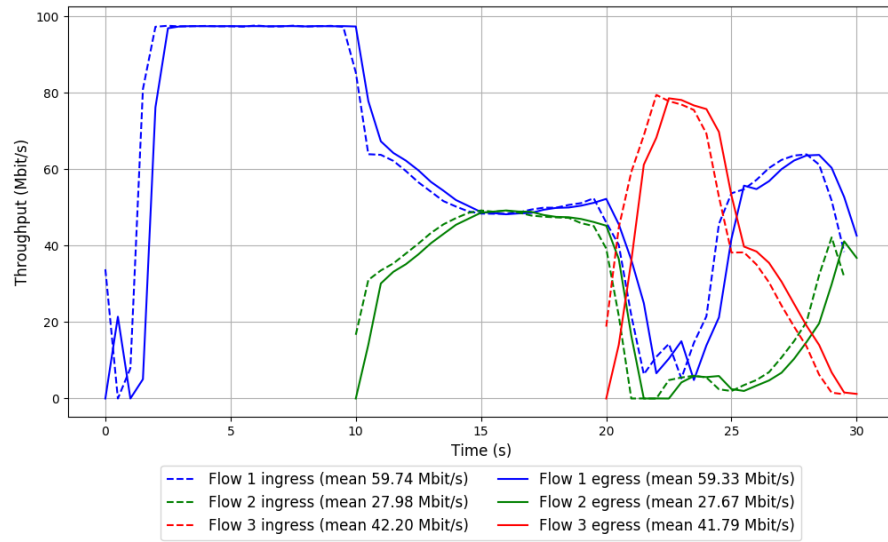
-- Flow 3:

Average throughput: 41.79 Mbit/s

95th percentile per-packet one-way delay: 50.913 ms

Loss rate: 0.93%

# Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 10:56:34

End at: 2018-09-06 10:57:04

Local clock offset: 3.156 ms

Remote clock offset: 3.193 ms

# Below is generated by plot.py at 2018-09-06 11:16:57

# Datalink statistics

-- Total of 3 flows:

Average throughput: 95.19 Mbit/s

95th percentile per-packet one-way delay: 50.230 ms

Loss rate: 1.23%

-- Flow 1:

Average throughput: 54.18 Mbit/s

95th percentile per-packet one-way delay: 47.715 ms

Loss rate: 0.60%

-- Flow 2:

Average throughput: 46.67 Mbit/s

95th percentile per-packet one-way delay: 54.270 ms

Loss rate: 2.02%

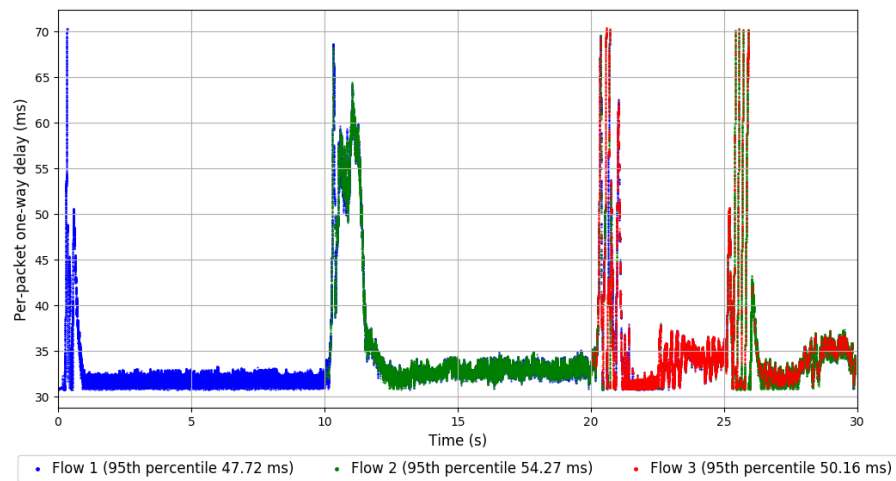
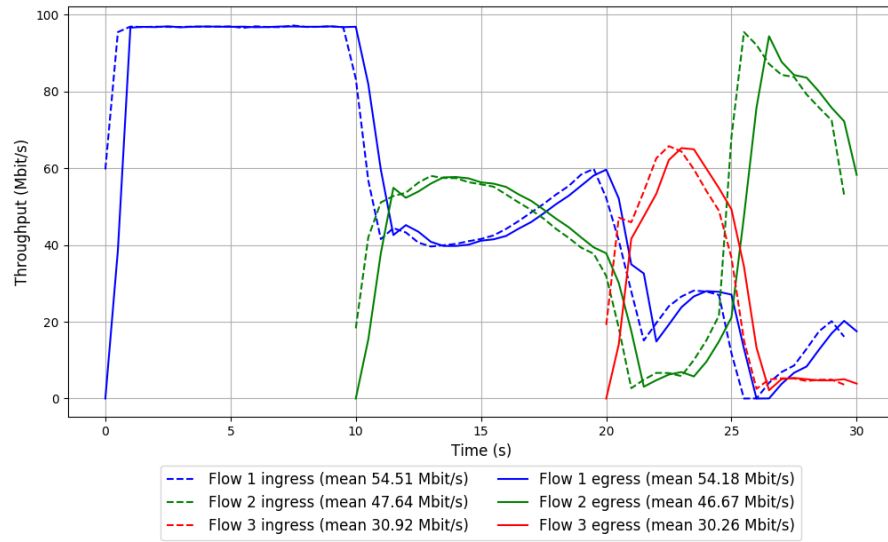
-- Flow 3:

Average throughput: 30.26 Mbit/s

95th percentile per-packet one-way delay: 50.155 ms

Loss rate: 2.13%

## Run 5: Report of Indigo-Muses — Data Link



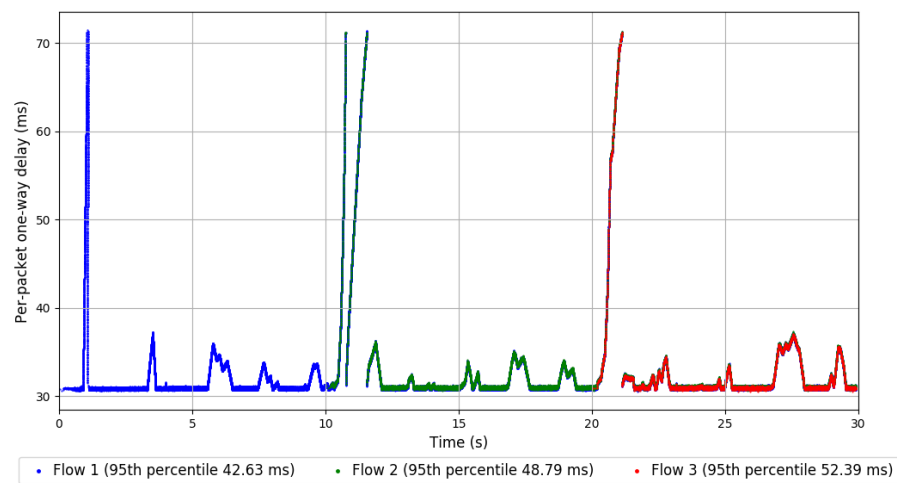
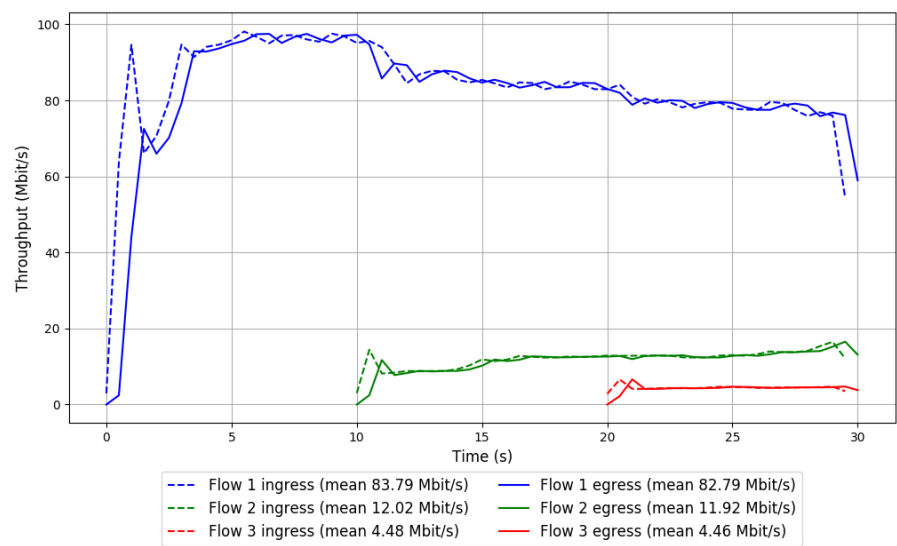
```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 09:13:25
End at: 2018-09-06 09:13:55
Local clock offset: -0.09 ms
Remote clock offset: -0.972 ms

# Below is generated by plot.py at 2018-09-06 11:16:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.18 Mbit/s
95th percentile per-packet one-way delay: 43.367 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 82.79 Mbit/s
95th percentile per-packet one-way delay: 42.628 ms
Loss rate: 1.20%
-- Flow 2:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 48.790 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 52.390 ms
Loss rate: 0.36%
```



Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 09:37:54

End at: 2018-09-06 09:38:24

Local clock offset: 0.483 ms

Remote clock offset: 0.386 ms

# Below is generated by plot.py at 2018-09-06 11:16:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 92.51 Mbit/s

95th percentile per-packet one-way delay: 67.273 ms

Loss rate: 4.83%

-- Flow 1:

Average throughput: 80.58 Mbit/s

95th percentile per-packet one-way delay: 67.126 ms

Loss rate: 4.73%

-- Flow 2:

Average throughput: 13.92 Mbit/s

95th percentile per-packet one-way delay: 68.354 ms

Loss rate: 6.57%

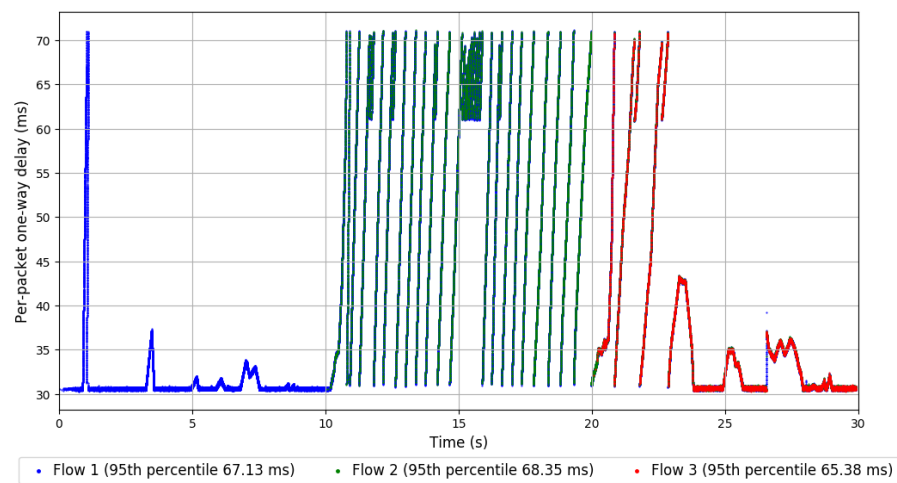
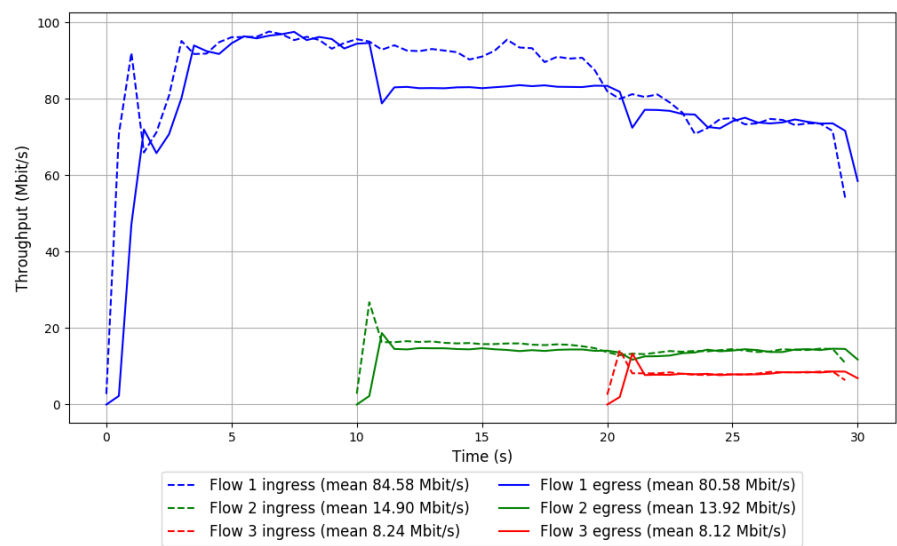
-- Flow 3:

Average throughput: 8.12 Mbit/s

95th percentile per-packet one-way delay: 65.378 ms

Loss rate: 1.54%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 10:02:15

End at: 2018-09-06 10:02:45

Local clock offset: 0.398 ms

Remote clock offset: 2.104 ms

# Below is generated by plot.py at 2018-09-06 11:16:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.16 Mbit/s

95th percentile per-packet one-way delay: 52.330 ms

Loss rate: 1.52%

-- Flow 1:

Average throughput: 82.00 Mbit/s

95th percentile per-packet one-way delay: 51.504 ms

Loss rate: 1.50%

-- Flow 2:

Average throughput: 9.20 Mbit/s

95th percentile per-packet one-way delay: 56.259 ms

Loss rate: 1.48%

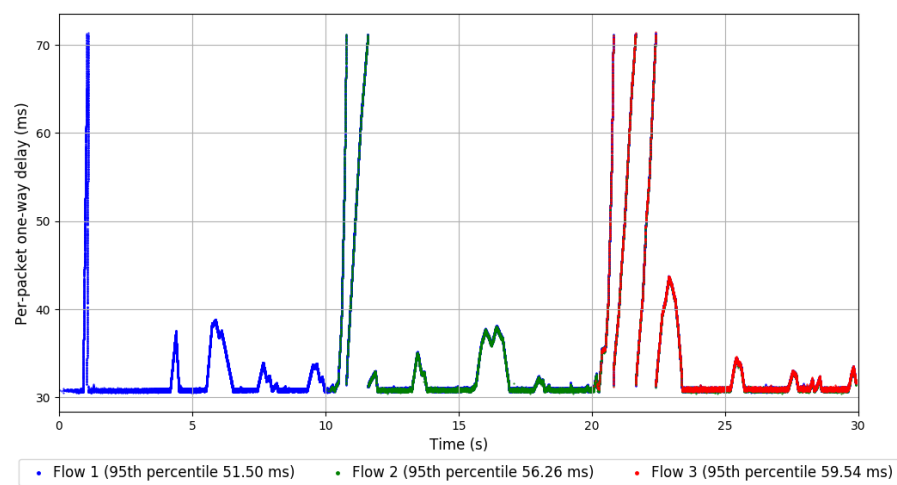
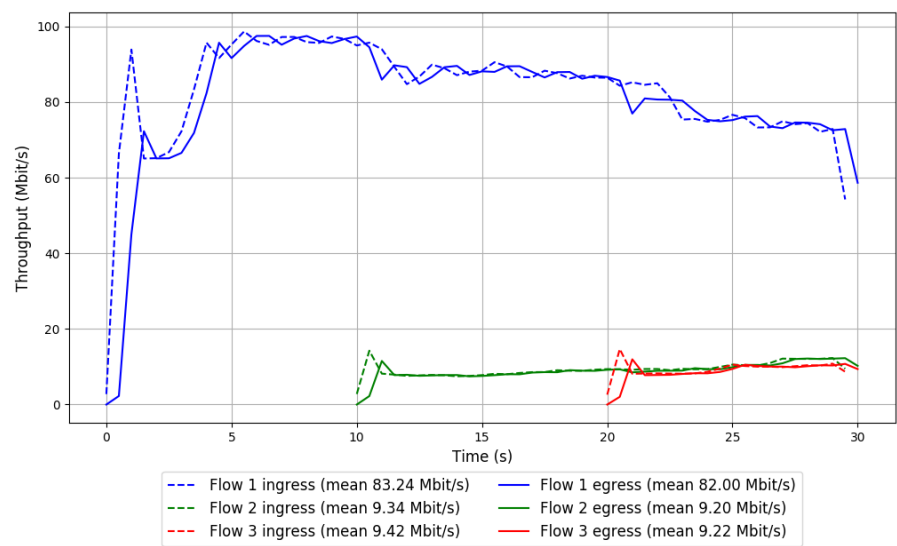
-- Flow 3:

Average throughput: 9.22 Mbit/s

95th percentile per-packet one-way delay: 59.537 ms

Loss rate: 2.08%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 10:26:41

End at: 2018-09-06 10:27:11

Local clock offset: 0.331 ms

Remote clock offset: 3.051 ms

# Below is generated by plot.py at 2018-09-06 11:17:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.57 Mbit/s

95th percentile per-packet one-way delay: 64.633 ms

Loss rate: 2.97%

-- Flow 1:

Average throughput: 83.51 Mbit/s

95th percentile per-packet one-way delay: 64.669 ms

Loss rate: 3.05%

-- Flow 2:

Average throughput: 9.91 Mbit/s

95th percentile per-packet one-way delay: 65.099 ms

Loss rate: 2.73%

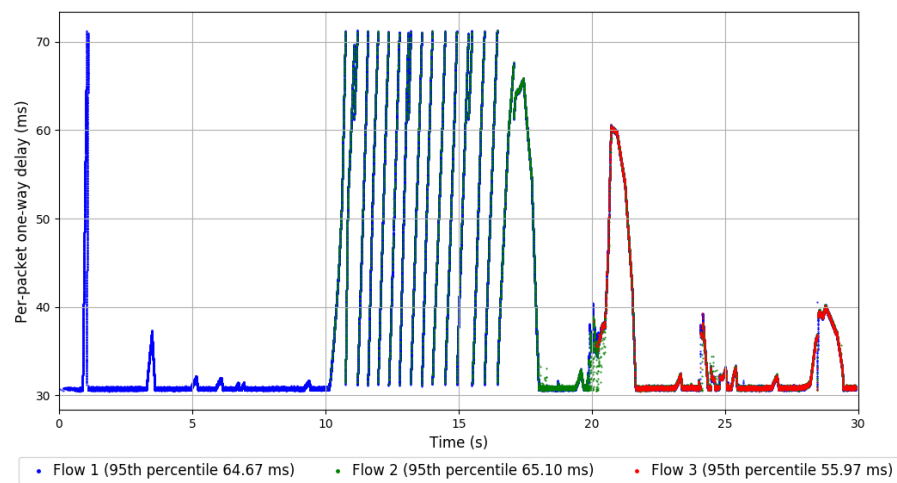
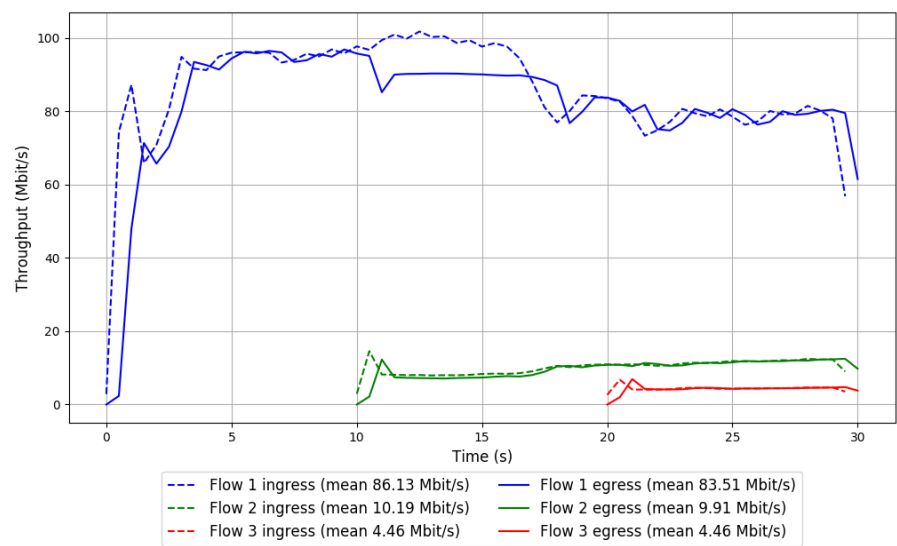
-- Flow 3:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 55.968 ms

Loss rate: 0.00%

Run 4: Report of PCC-Allegro — Data Link



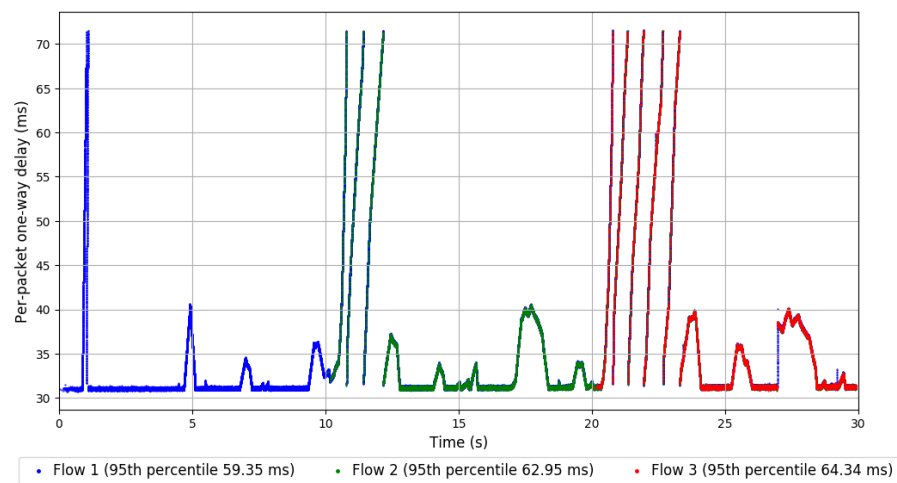
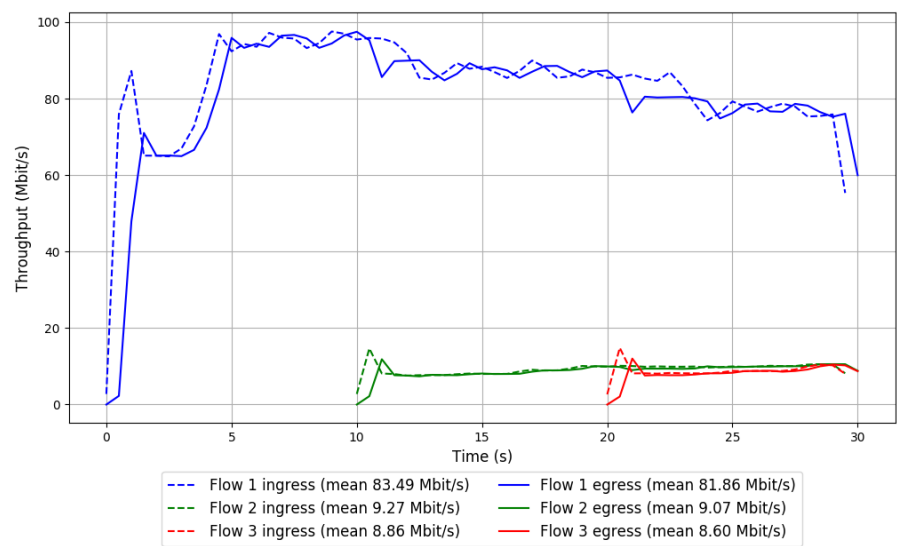
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 10:51:10  
End at: 2018-09-06 10:51:40  
Local clock offset: 2.137 ms  
Remote clock offset: 3.14 ms

# Below is generated by plot.py at 2018-09-06 11:17:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 90.73 Mbit/s  
95th percentile per-packet one-way delay: 59.954 ms  
Loss rate: 2.00%  
-- Flow 1:  
Average throughput: 81.86 Mbit/s  
95th percentile per-packet one-way delay: 59.349 ms  
Loss rate: 1.96%  
-- Flow 2:  
Average throughput: 9.07 Mbit/s  
95th percentile per-packet one-way delay: 62.950 ms  
Loss rate: 2.13%  
-- Flow 3:  
Average throughput: 8.60 Mbit/s  
95th percentile per-packet one-way delay: 64.336 ms  
Loss rate: 2.97%



Run 5: Report of PCC-Allegro — Data Link

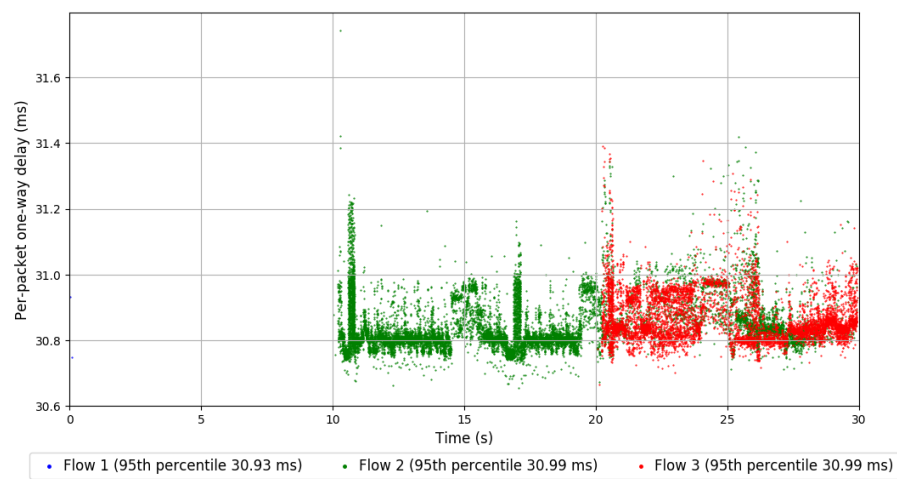
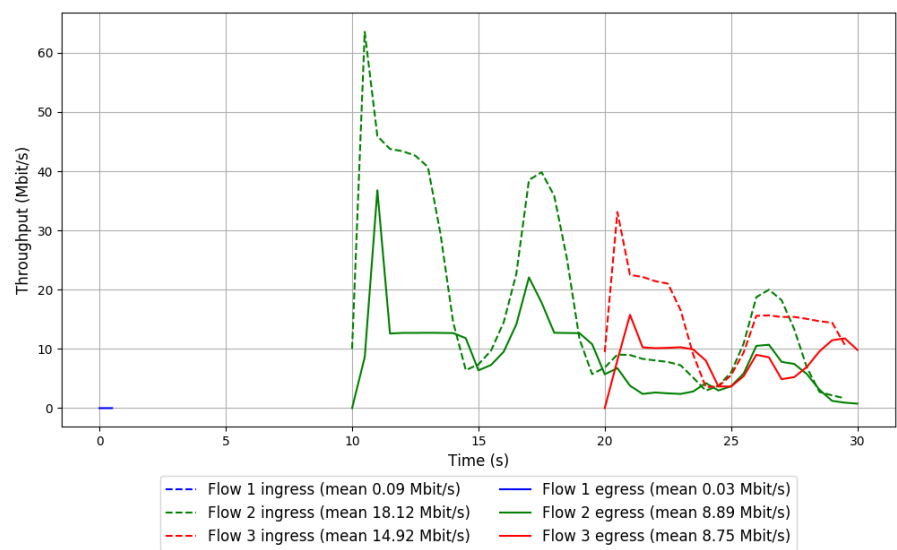


Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 09:21:35  
End at: 2018-09-06 09:22:05  
Local clock offset: 0.209 ms  
Remote clock offset: -0.439 ms

# Below is generated by plot.py at 2018-09-06 11:17:34  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 8.80 Mbit/s  
95th percentile per-packet one-way delay: 30.988 ms  
Loss rate: 48.15%  
-- Flow 1:  
Average throughput: 0.03 Mbit/s  
95th percentile per-packet one-way delay: 30.933 ms  
Loss rate: 85.71%  
-- Flow 2:  
Average throughput: 8.89 Mbit/s  
95th percentile per-packet one-way delay: 30.988 ms  
Loss rate: 50.92%  
-- Flow 3:  
Average throughput: 8.75 Mbit/s  
95th percentile per-packet one-way delay: 30.989 ms  
Loss rate: 41.34%

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 09:46:01

End at: 2018-09-06 09:46:31

Local clock offset: 0.413 ms

Remote clock offset: 1.231 ms

# Below is generated by plot.py at 2018-09-06 11:17:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.79 Mbit/s

95th percentile per-packet one-way delay: 30.896 ms

Loss rate: 42.82%

-- Flow 1:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 30.787 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 10.32 Mbit/s

95th percentile per-packet one-way delay: 30.895 ms

Loss rate: 42.06%

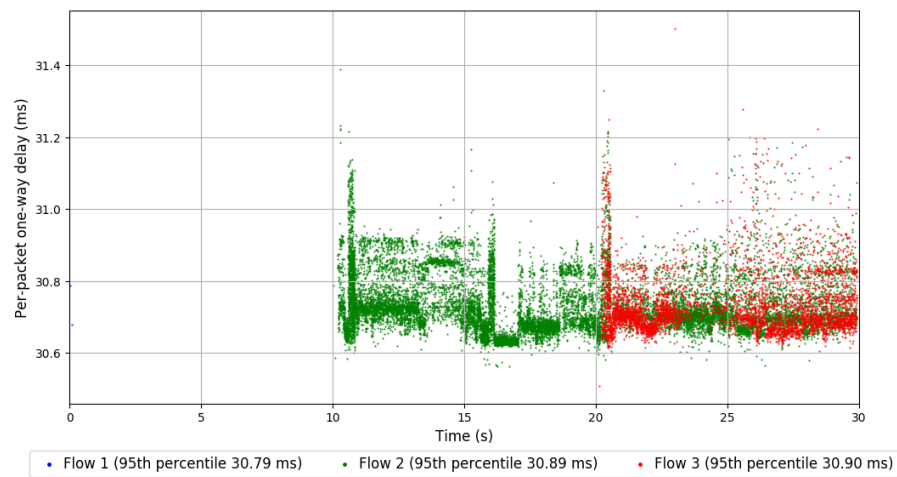
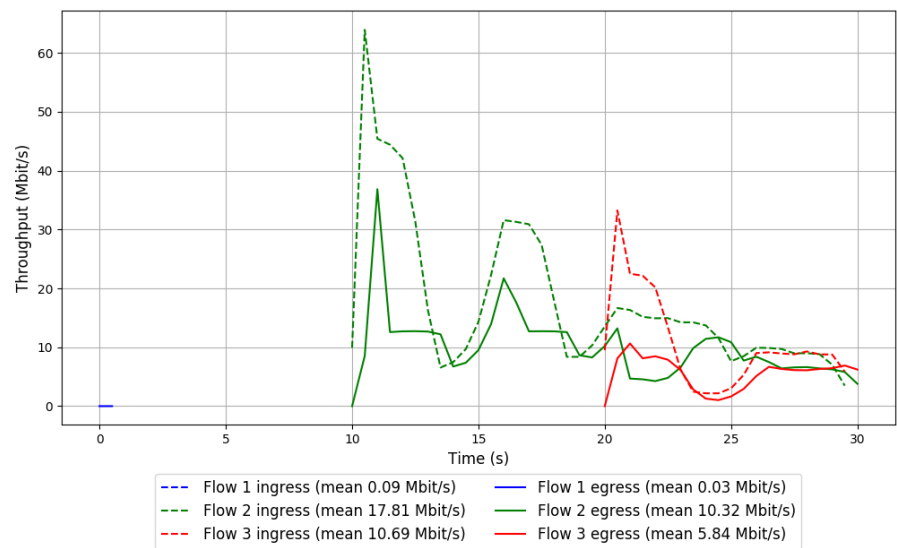
-- Flow 3:

Average throughput: 5.84 Mbit/s

95th percentile per-packet one-way delay: 30.904 ms

Loss rate: 45.35%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 10:10:24

End at: 2018-09-06 10:10:54

Local clock offset: 0.408 ms

Remote clock offset: 2.314 ms

# Below is generated by plot.py at 2018-09-06 11:17:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.80 Mbit/s

95th percentile per-packet one-way delay: 30.825 ms

Loss rate: 37.32%

-- Flow 1:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 30.588 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 9.56 Mbit/s

95th percentile per-packet one-way delay: 30.826 ms

Loss rate: 40.82%

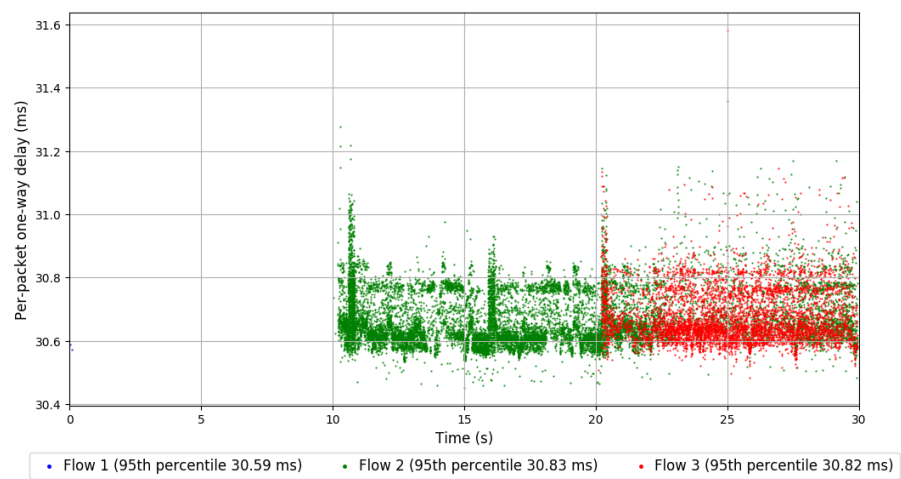
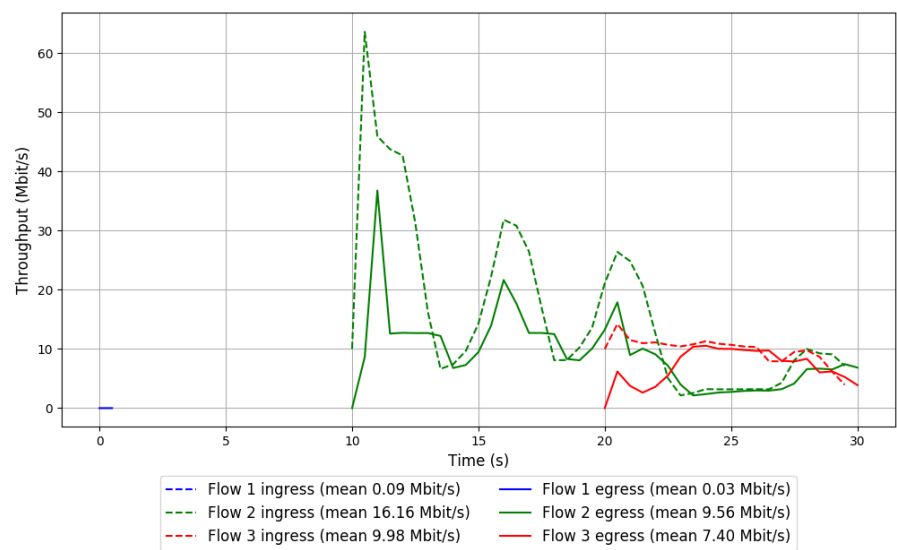
-- Flow 3:

Average throughput: 7.40 Mbit/s

95th percentile per-packet one-way delay: 30.824 ms

Loss rate: 25.90%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 10:34:52

End at: 2018-09-06 10:35:22

Local clock offset: 0.337 ms

Remote clock offset: 3.183 ms

# Below is generated by plot.py at 2018-09-06 11:17:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.80 Mbit/s

95th percentile per-packet one-way delay: 30.910 ms

Loss rate: 39.24%

-- Flow 1:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 30.806 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 9.79 Mbit/s

95th percentile per-packet one-way delay: 30.898 ms

Loss rate: 41.69%

-- Flow 3:

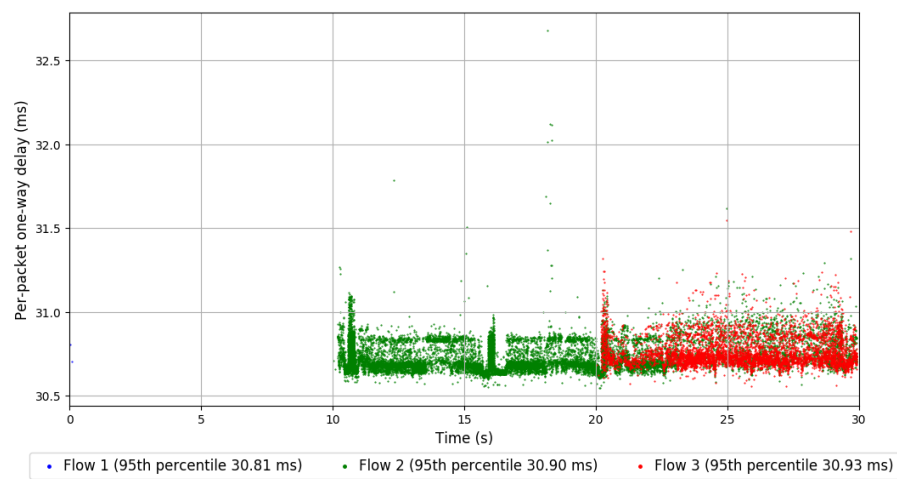
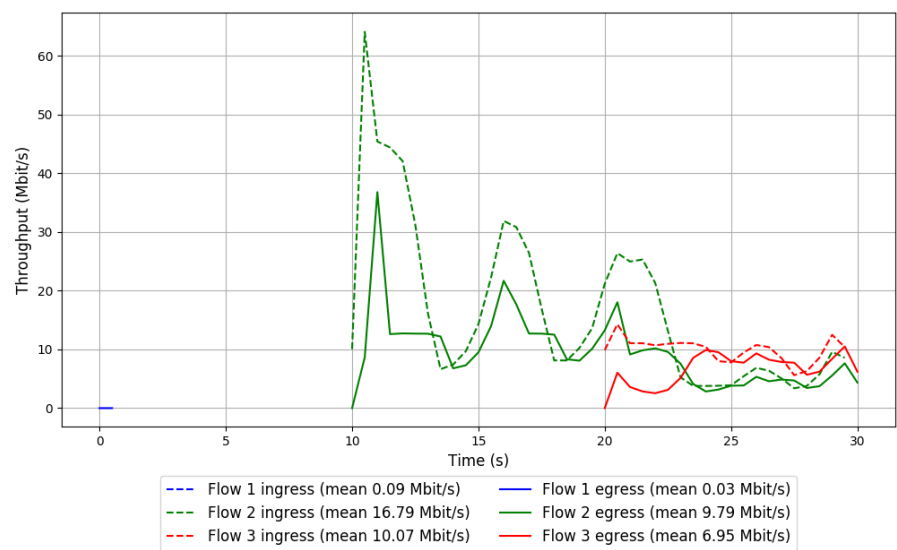
Average throughput: 6.95 Mbit/s

95th percentile per-packet one-way delay: 30.925 ms

Loss rate: 31.00%



Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 10:59:20

End at: 2018-09-06 10:59:50

Local clock offset: 3.546 ms

Remote clock offset: 3.21 ms

# Below is generated by plot.py at 2018-09-06 11:17:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 8.80 Mbit/s

95th percentile per-packet one-way delay: 31.098 ms

Loss rate: 50.53%

-- Flow 1:

Average throughput: 0.03 Mbit/s

95th percentile per-packet one-way delay: 30.981 ms

Loss rate: 85.71%

-- Flow 2:

Average throughput: 11.17 Mbit/s

95th percentile per-packet one-way delay: 31.077 ms

Loss rate: 51.14%

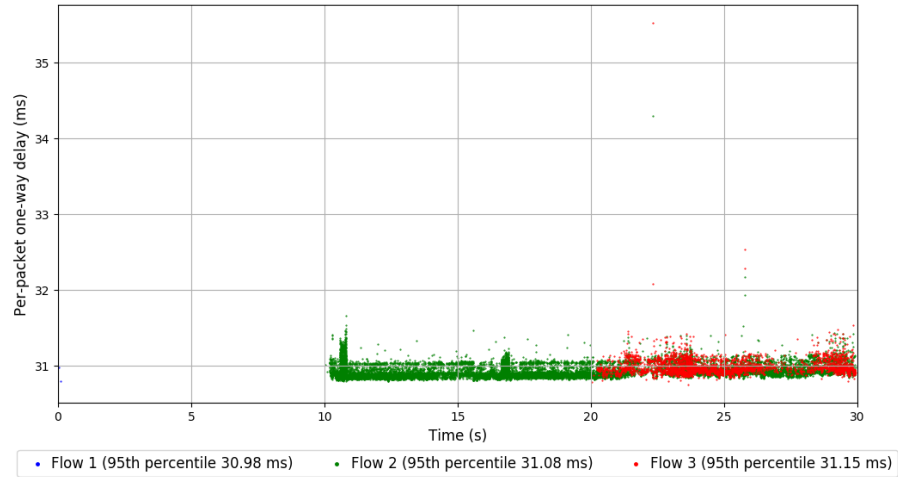
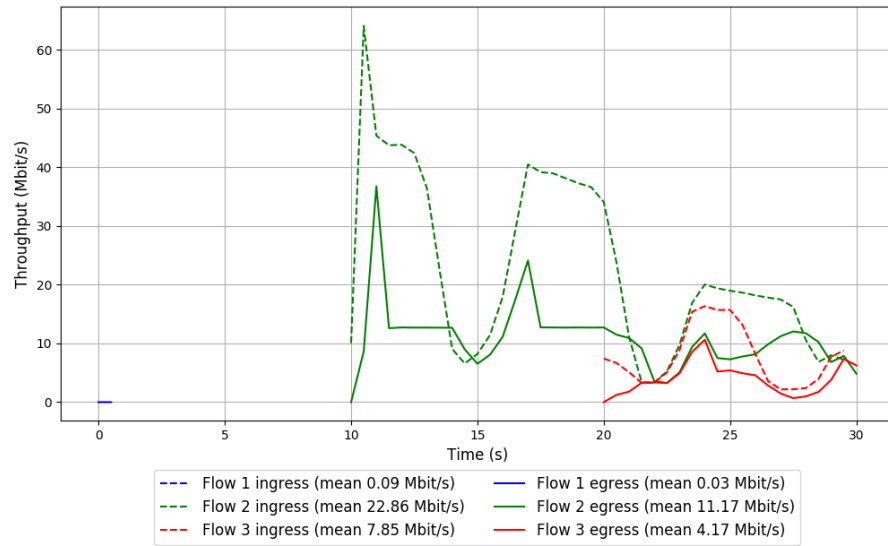
-- Flow 3:

Average throughput: 4.17 Mbit/s

95th percentile per-packet one-way delay: 31.148 ms

Loss rate: 46.94%

# Run 5: Report of PCC-Expr — Data Link

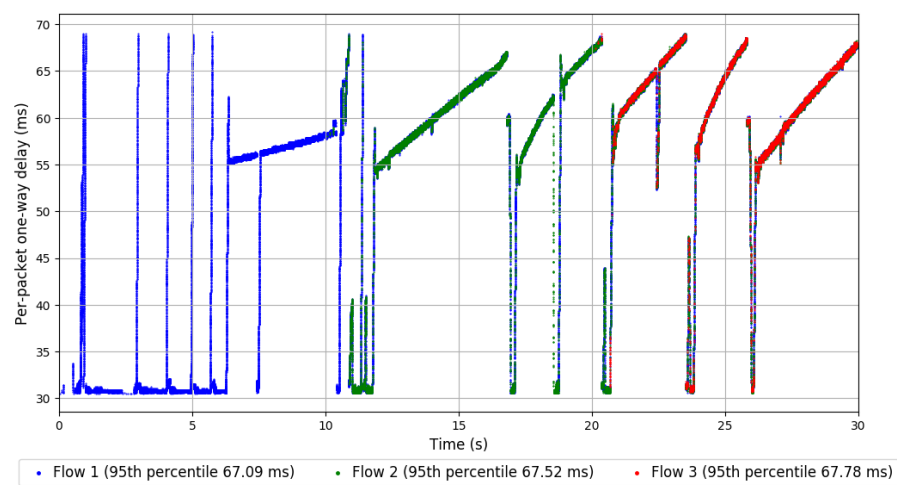
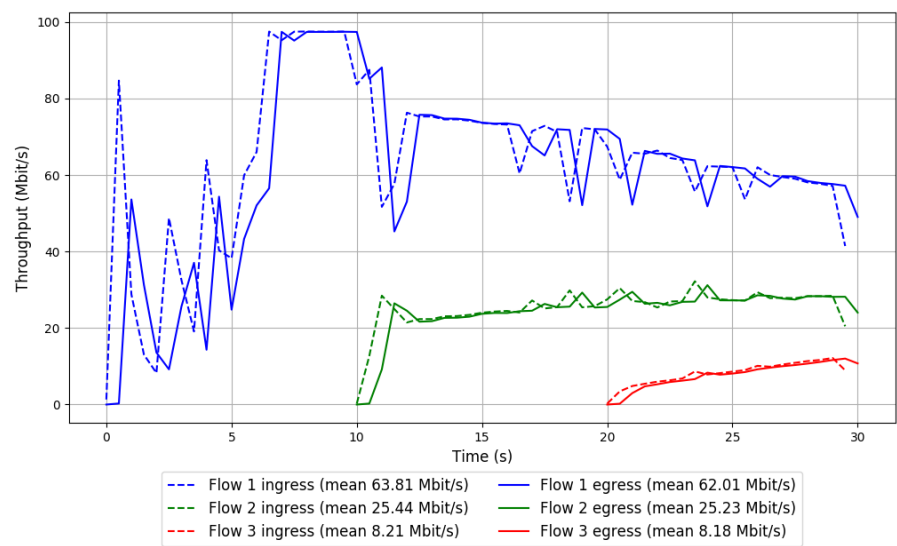


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 09:25:42  
End at: 2018-09-06 09:26:12  
Local clock offset: 0.319 ms  
Remote clock offset: -0.277 ms

# Below is generated by plot.py at 2018-09-06 11:18:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 81.43 Mbit/s  
95th percentile per-packet one-way delay: 67.280 ms  
Loss rate: 2.24%  
-- Flow 1:  
Average throughput: 62.01 Mbit/s  
95th percentile per-packet one-way delay: 67.091 ms  
Loss rate: 2.70%  
-- Flow 2:  
Average throughput: 25.23 Mbit/s  
95th percentile per-packet one-way delay: 67.516 ms  
Loss rate: 0.77%  
-- Flow 3:  
Average throughput: 8.18 Mbit/s  
95th percentile per-packet one-way delay: 67.779 ms  
Loss rate: 0.45%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 09:50:05

End at: 2018-09-06 09:50:35

Local clock offset: 0.33 ms

Remote clock offset: 1.564 ms

# Below is generated by plot.py at 2018-09-06 11:18:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 80.30 Mbit/s

95th percentile per-packet one-way delay: 67.767 ms

Loss rate: 2.64%

-- Flow 1:

Average throughput: 63.80 Mbit/s

95th percentile per-packet one-way delay: 67.743 ms

Loss rate: 2.96%

-- Flow 2:

Average throughput: 15.52 Mbit/s

95th percentile per-packet one-way delay: 67.896 ms

Loss rate: 1.36%

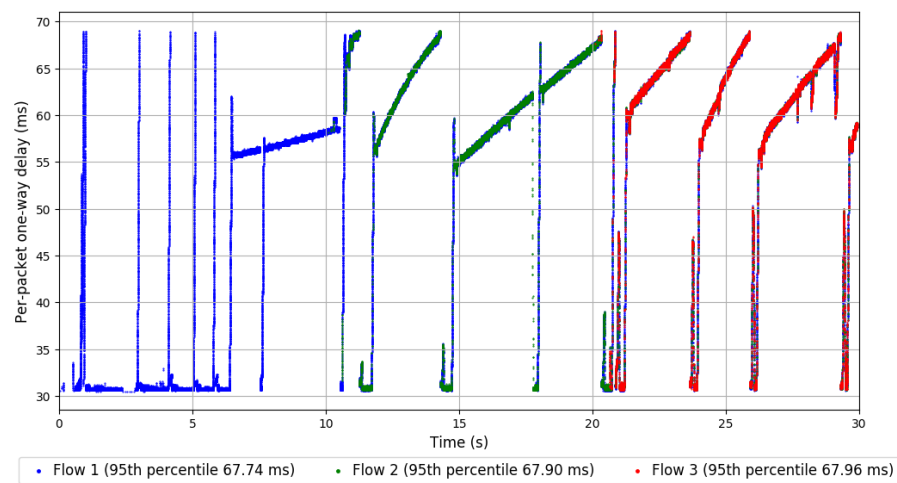
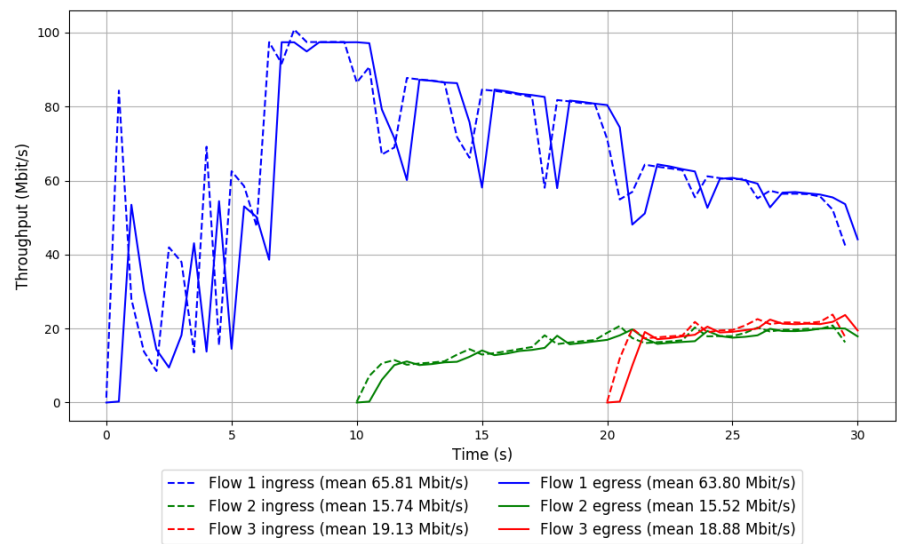
-- Flow 3:

Average throughput: 18.88 Mbit/s

95th percentile per-packet one-way delay: 67.964 ms

Loss rate: 1.40%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 10:14:29

End at: 2018-09-06 10:14:59

Local clock offset: 0.413 ms

Remote clock offset: 2.373 ms

# Below is generated by plot.py at 2018-09-06 11:18:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 81.34 Mbit/s

95th percentile per-packet one-way delay: 67.248 ms

Loss rate: 2.49%

-- Flow 1:

Average throughput: 61.14 Mbit/s

95th percentile per-packet one-way delay: 67.152 ms

Loss rate: 2.97%

-- Flow 2:

Average throughput: 25.30 Mbit/s

95th percentile per-packet one-way delay: 67.471 ms

Loss rate: 1.07%

-- Flow 3:

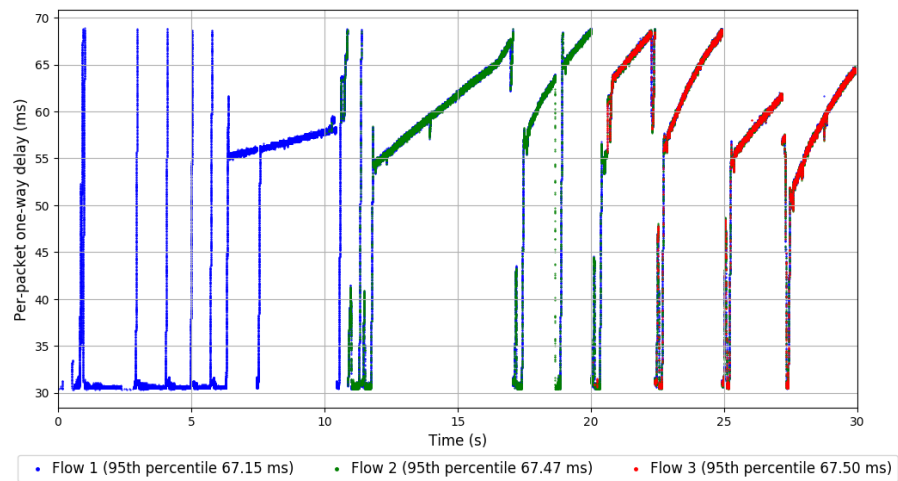
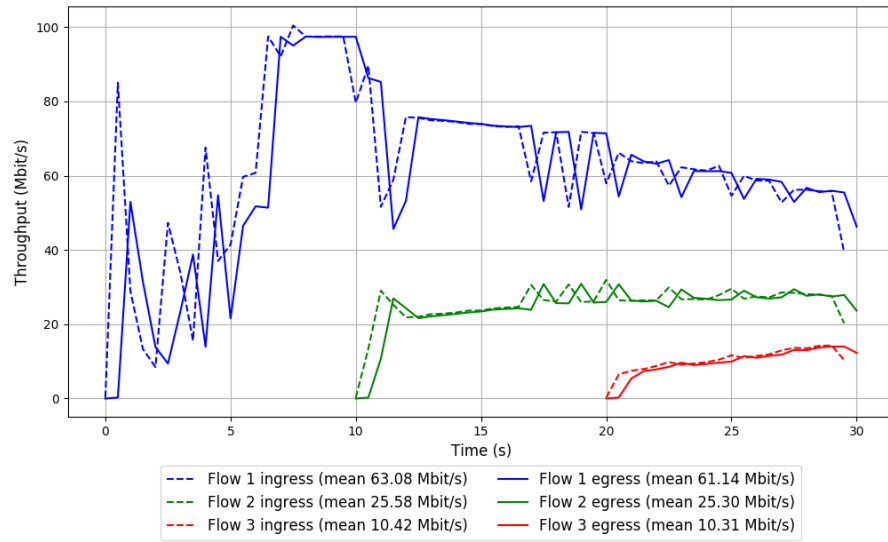
Average throughput: 10.31 Mbit/s

95th percentile per-packet one-way delay: 67.503 ms

Loss rate: 0.77%



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



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 10:38:57

End at: 2018-09-06 10:39:27

Local clock offset: 0.207 ms

Remote clock offset: 3.194 ms

# Below is generated by plot.py at 2018-09-06 11:18:09

# Datalink statistics

-- Total of 3 flows:

Average throughput: 80.97 Mbit/s

95th percentile per-packet one-way delay: 65.722 ms

Loss rate: 2.02%

-- Flow 1:

Average throughput: 63.99 Mbit/s

95th percentile per-packet one-way delay: 65.638 ms

Loss rate: 2.40%

-- Flow 2:

Average throughput: 20.59 Mbit/s

95th percentile per-packet one-way delay: 65.982 ms

Loss rate: 0.56%

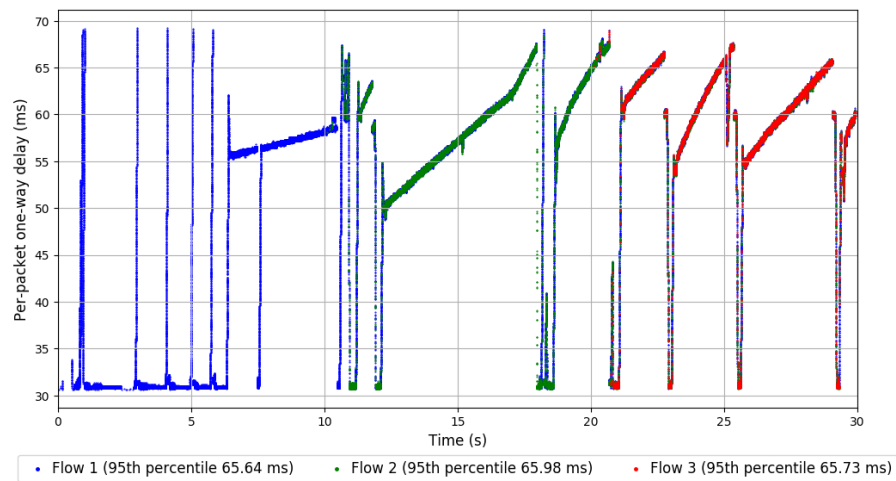
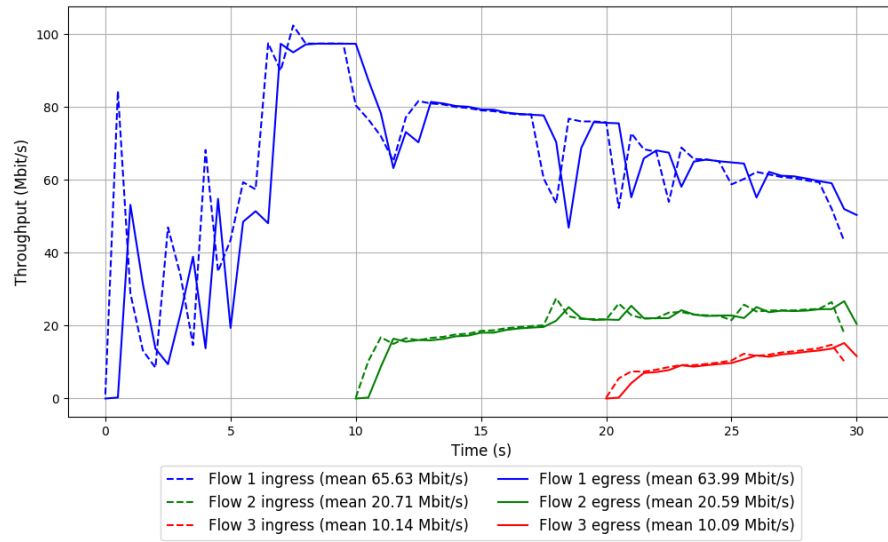
-- Flow 3:

Average throughput: 10.09 Mbit/s

95th percentile per-packet one-way delay: 65.730 ms

Loss rate: 0.60%

# Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 11:03:25

End at: 2018-09-06 11:03:55

Local clock offset: 4.053 ms

Remote clock offset: 3.01 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 81.38 Mbit/s

95th percentile per-packet one-way delay: 67.202 ms

Loss rate: 2.36%

-- Flow 1:

Average throughput: 62.03 Mbit/s

95th percentile per-packet one-way delay: 66.993 ms

Loss rate: 2.79%

-- Flow 2:

Average throughput: 25.20 Mbit/s

95th percentile per-packet one-way delay: 67.498 ms

Loss rate: 0.96%

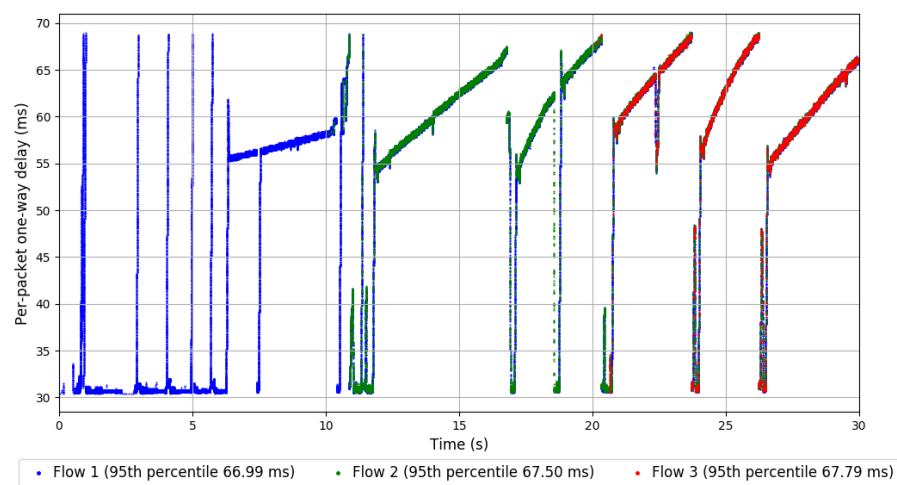
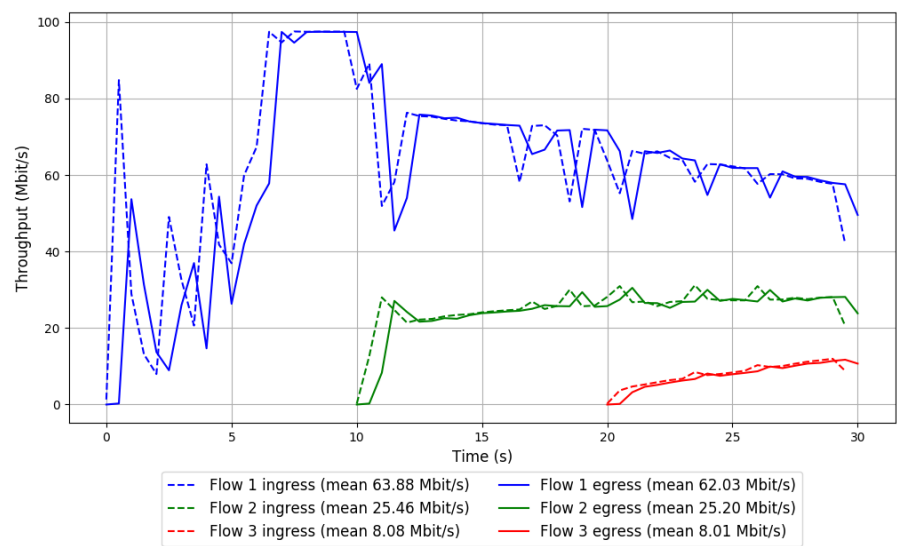
-- Flow 3:

Average throughput: 8.01 Mbit/s

95th percentile per-packet one-way delay: 67.794 ms

Loss rate: 0.81%

Run 5: Report of QUIC Cubic — Data Link

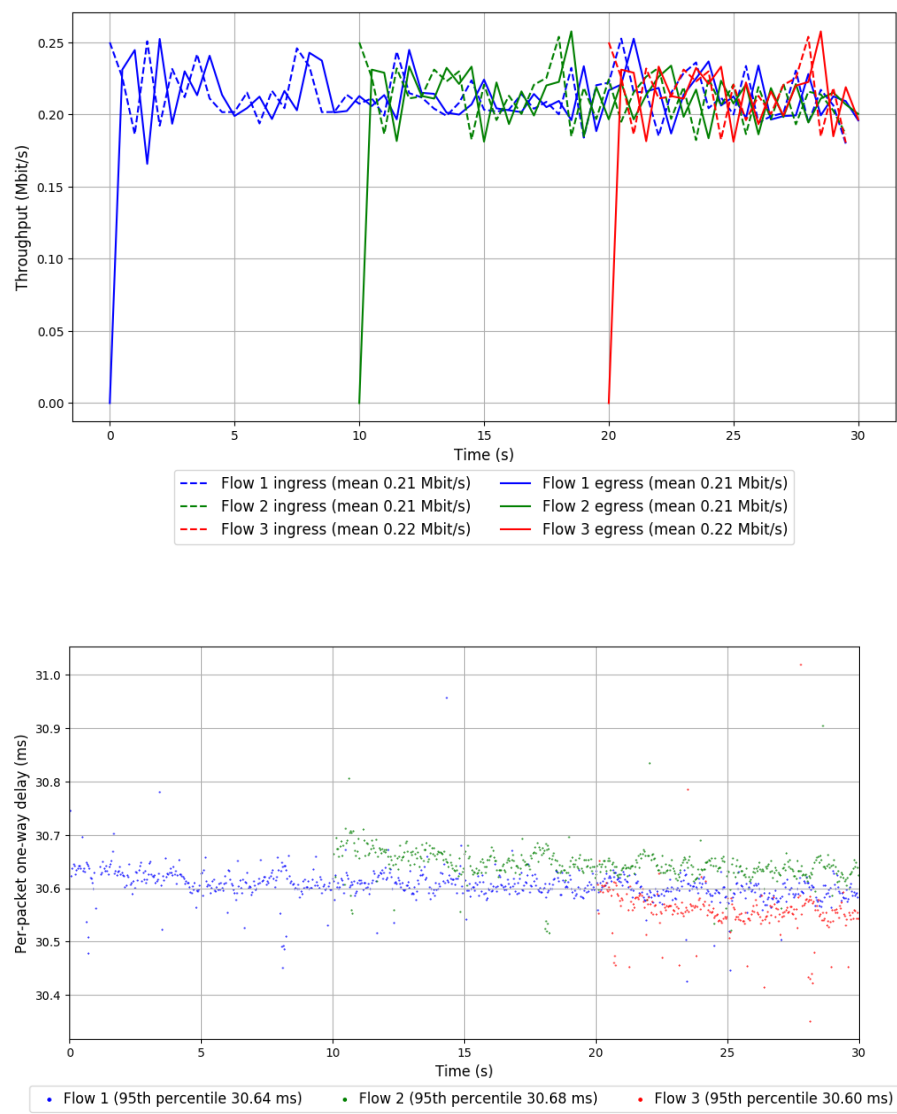


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 09:28:24
End at: 2018-09-06 09:28:54
Local clock offset: 0.388 ms
Remote clock offset: -0.264 ms

# Below is generated by plot.py at 2018-09-06 11:18:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.669 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.642 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.685 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.604 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



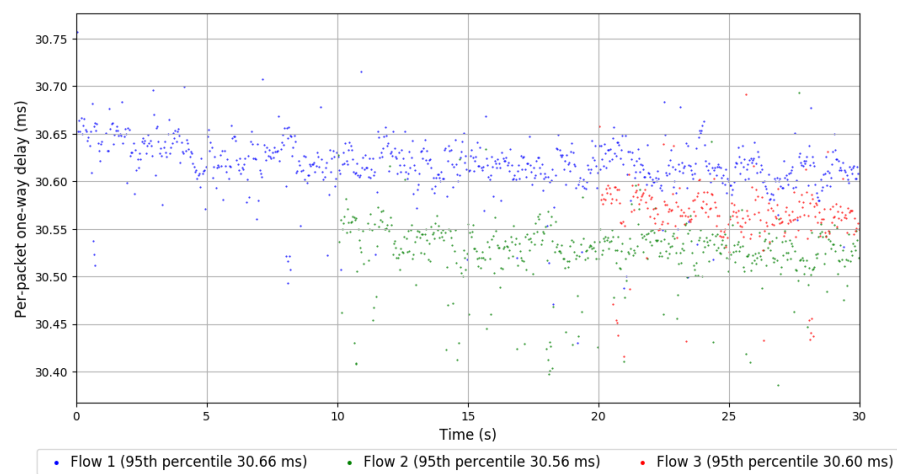
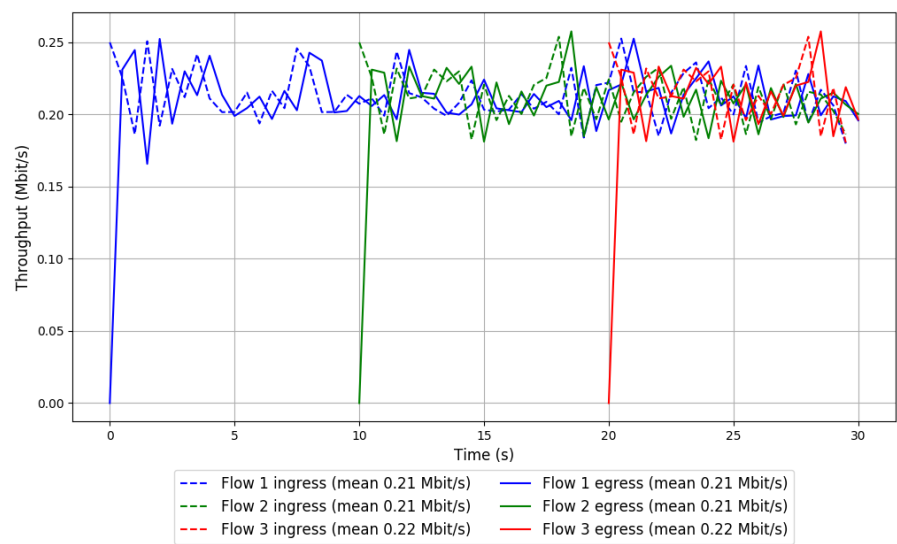
```
Run 2: Statistics of SReAM

Start at: 2018-09-06 09:52:46
End at: 2018-09-06 09:53:16
Local clock offset: 0.395 ms
Remote clock offset: 1.634 ms

# Below is generated by plot.py at 2018-09-06 11:18:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.648 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.655 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.563 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.596 ms
Loss rate: 0.00%
```



Run 2: Report of SReAM — Data Link

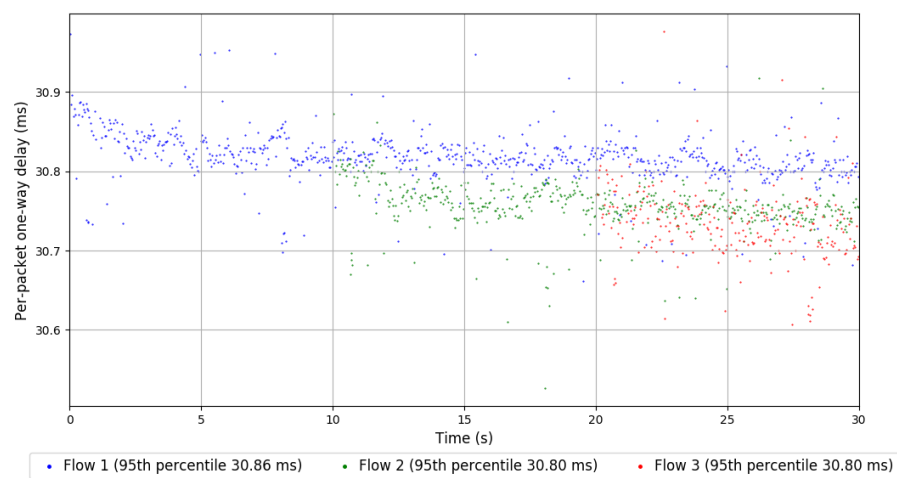
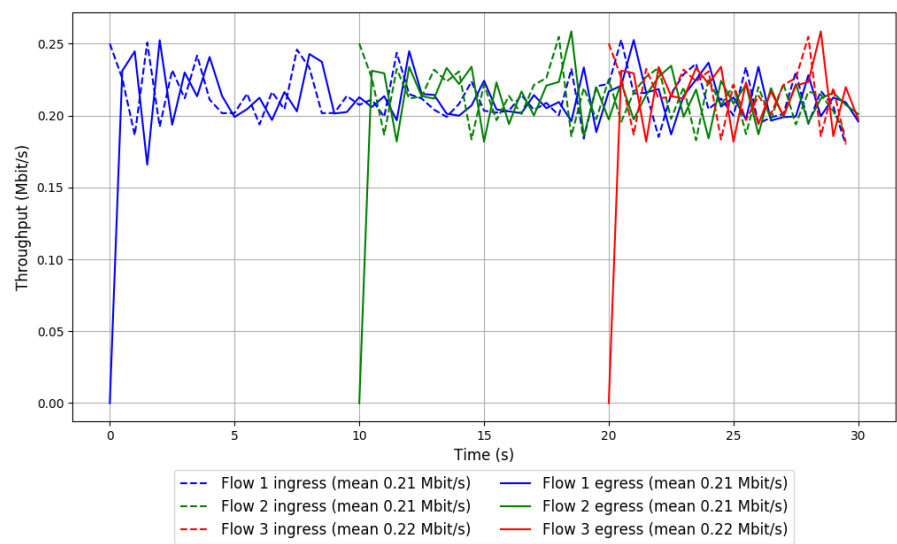


Run 3: Statistics of SReAM

Start at: 2018-09-06 10:17:10  
End at: 2018-09-06 10:17:40  
Local clock offset: 0.394 ms  
Remote clock offset: 2.661 ms

# Below is generated by plot.py at 2018-09-06 11:18:10  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 30.852 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 30.865 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 30.803 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 30.800 ms  
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-09-06 10:41:39

End at: 2018-09-06 10:42:09

Local clock offset: 0.211 ms

Remote clock offset: 2.935 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 30.788 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.799 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.773 ms

Loss rate: 0.00%

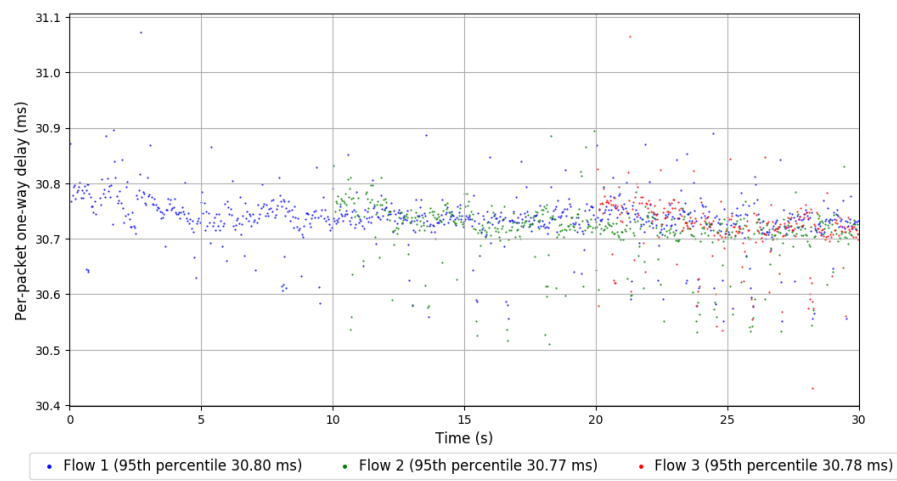
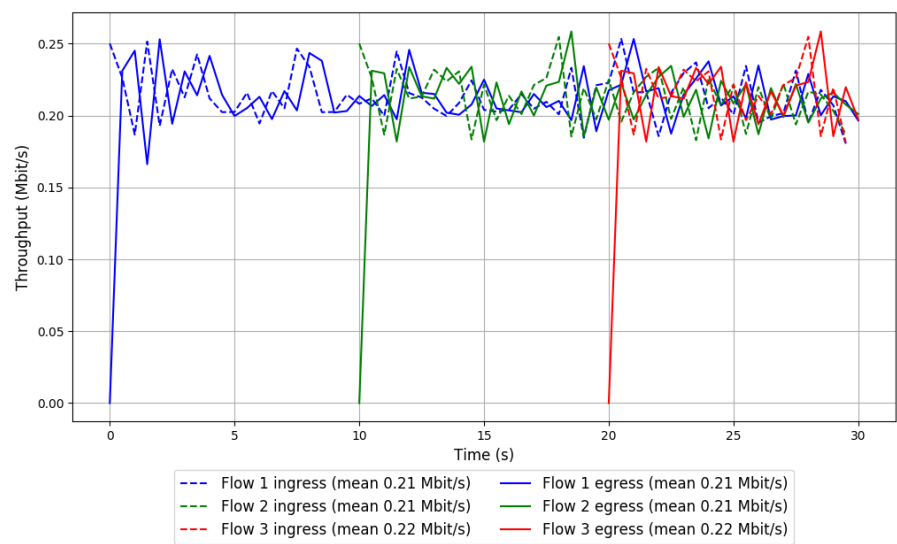
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 30.776 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-06 11:06:07

End at: 2018-09-06 11:06:37

Local clock offset: 4.303 ms

Remote clock offset: 3.271 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 30.985 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.919 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 30.993 ms

Loss rate: 0.00%

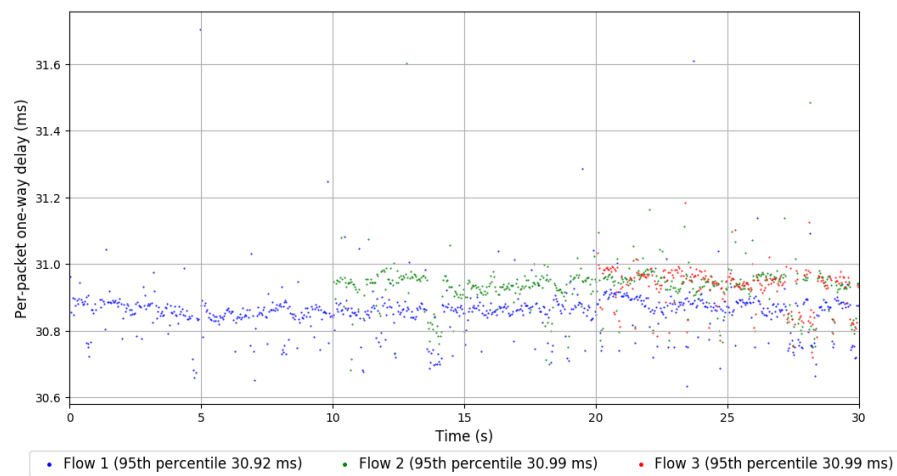
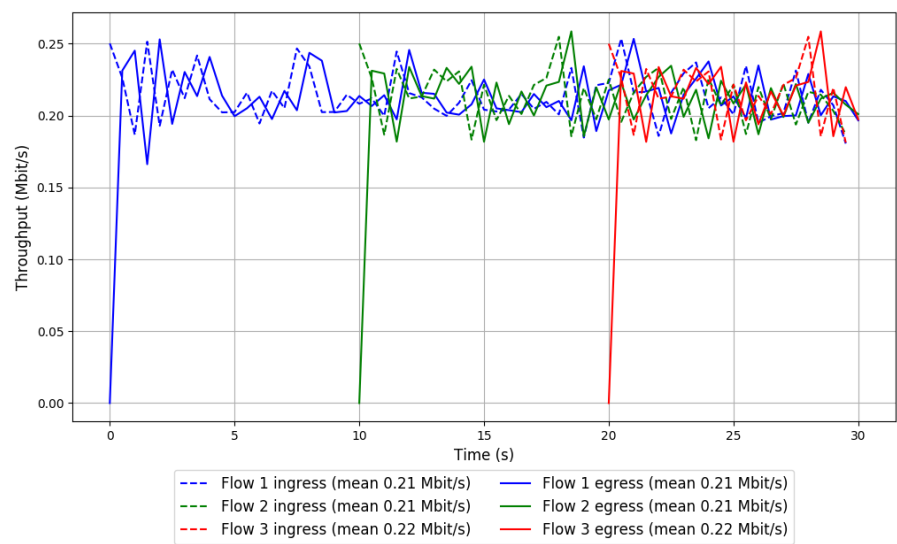
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 30.991 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 09:31:02

End at: 2018-09-06 09:31:32

Local clock offset: 0.439 ms

Remote clock offset: 0.115 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 21.57 Mbit/s

95th percentile per-packet one-way delay: 36.791 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 10.89 Mbit/s

95th percentile per-packet one-way delay: 36.544 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 10.87 Mbit/s

95th percentile per-packet one-way delay: 36.735 ms

Loss rate: 0.00%

-- Flow 3:

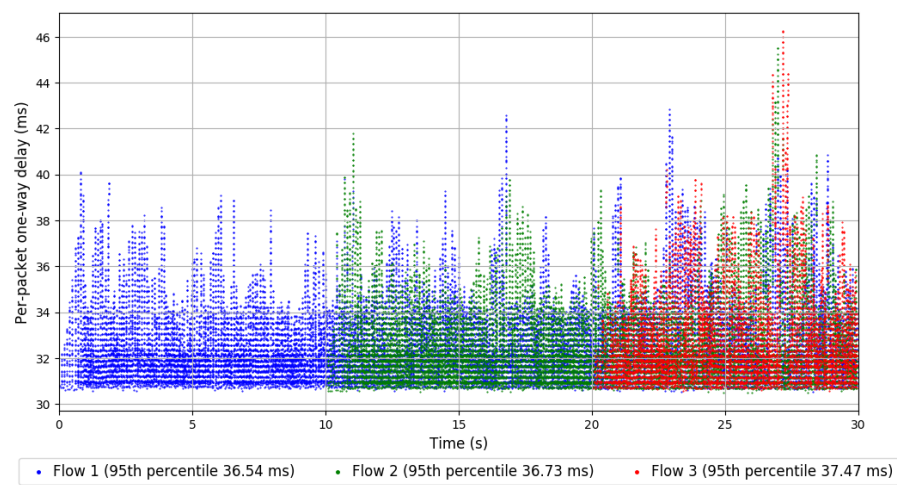
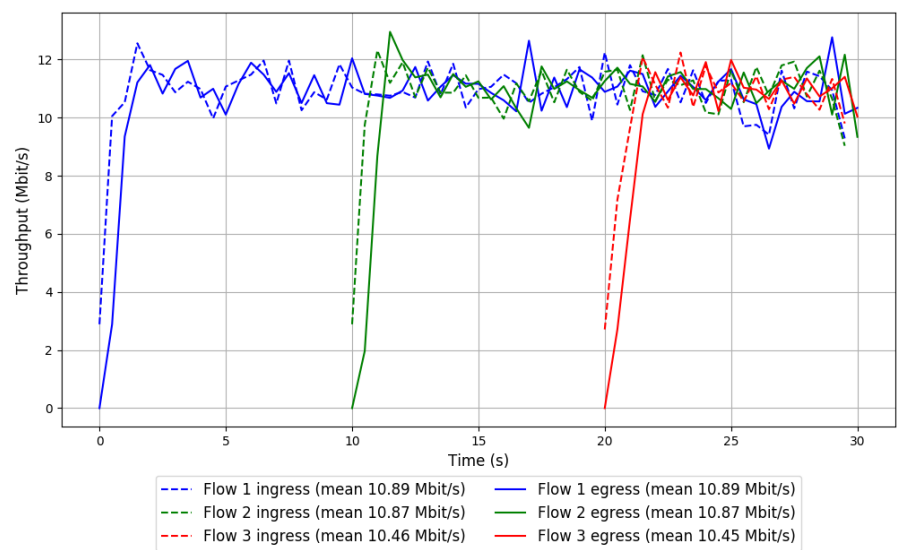
Average throughput: 10.45 Mbit/s

95th percentile per-packet one-way delay: 37.466 ms

Loss rate: 0.00%



Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-06 09:55:23

End at: 2018-09-06 09:55:54

Local clock offset: 0.313 ms

Remote clock offset: 2.014 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 21.72 Mbit/s

95th percentile per-packet one-way delay: 37.590 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 10.95 Mbit/s

95th percentile per-packet one-way delay: 37.595 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 10.89 Mbit/s

95th percentile per-packet one-way delay: 37.572 ms

Loss rate: 0.00%

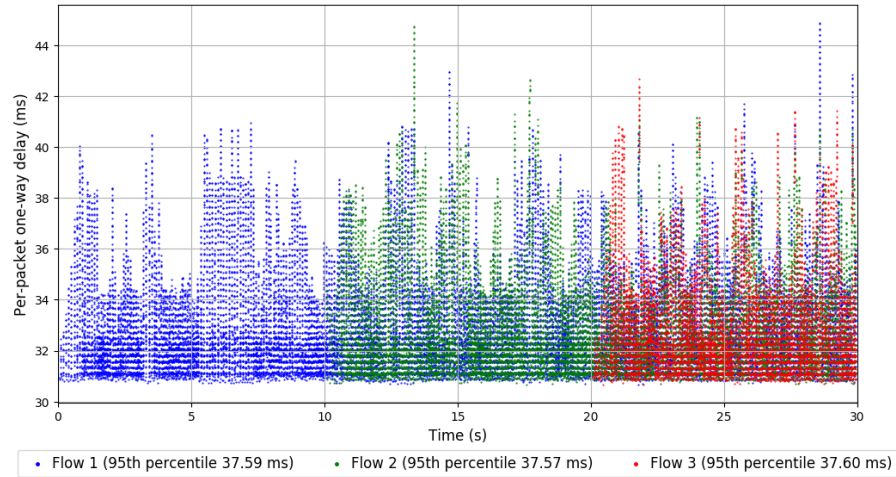
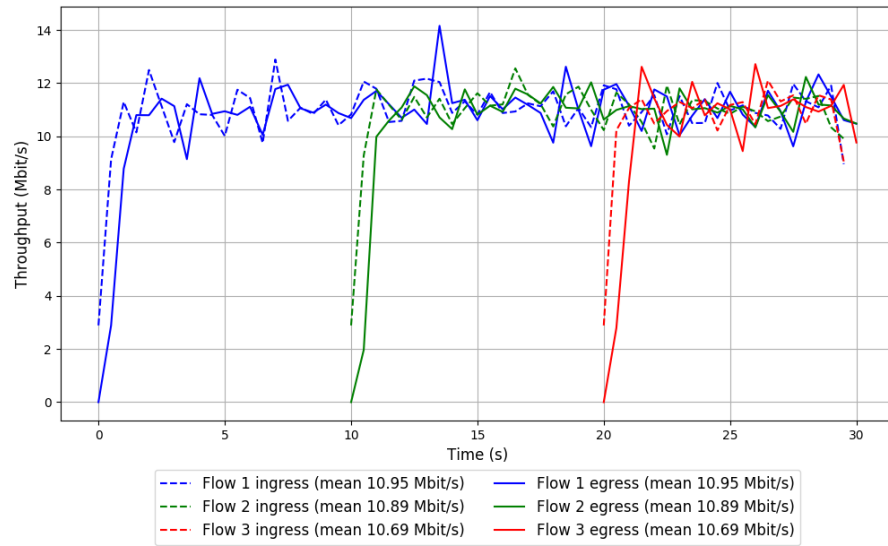
-- Flow 3:

Average throughput: 10.69 Mbit/s

95th percentile per-packet one-way delay: 37.605 ms

Loss rate: 0.00%

## Run 2: Report of Sprout — Data Link



### Run 3: Statistics of Sprout

Start at: 2018-09-06 10:19:49

End at: 2018-09-06 10:20:19

Local clock offset: 0.3 ms

Remote clock offset: 2.738 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 21.41 Mbit/s

95th percentile per-packet one-way delay: 37.554 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 10.87 Mbit/s

95th percentile per-packet one-way delay: 37.928 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 10.73 Mbit/s

95th percentile per-packet one-way delay: 37.018 ms

Loss rate: 0.00%

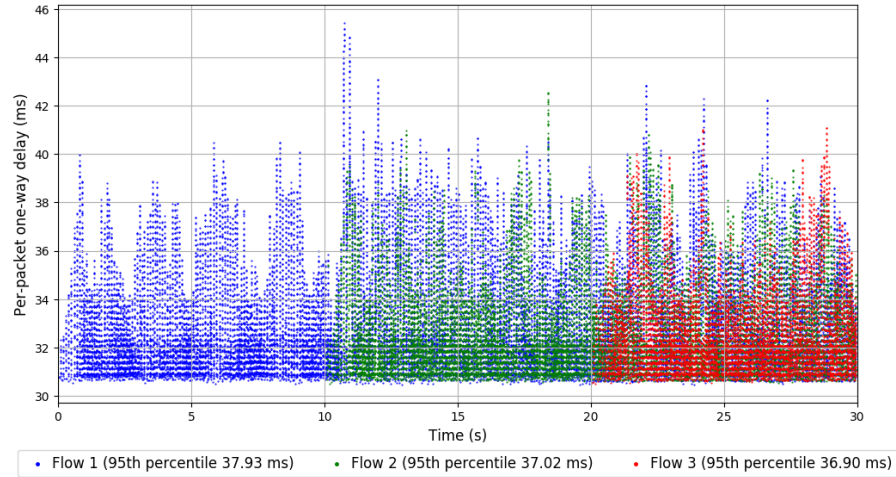
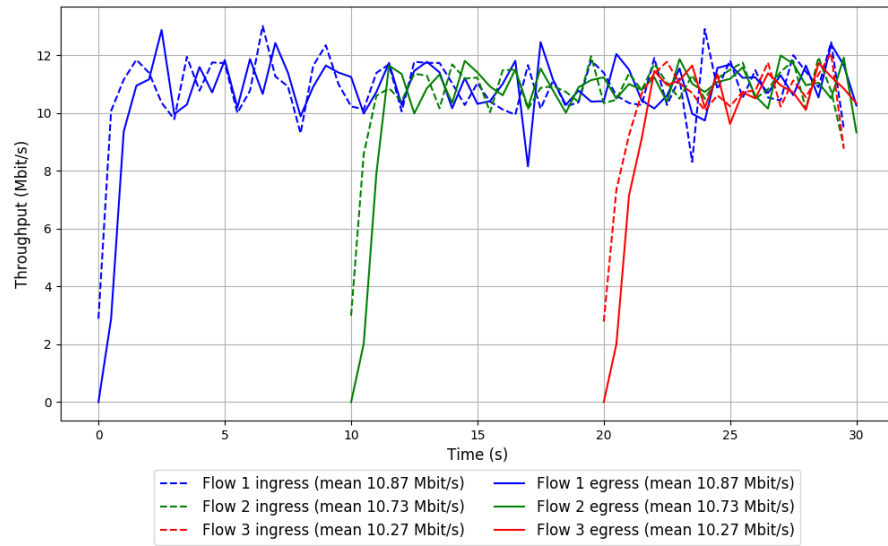
-- Flow 3:

Average throughput: 10.27 Mbit/s

95th percentile per-packet one-way delay: 36.896 ms

Loss rate: 0.00%

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

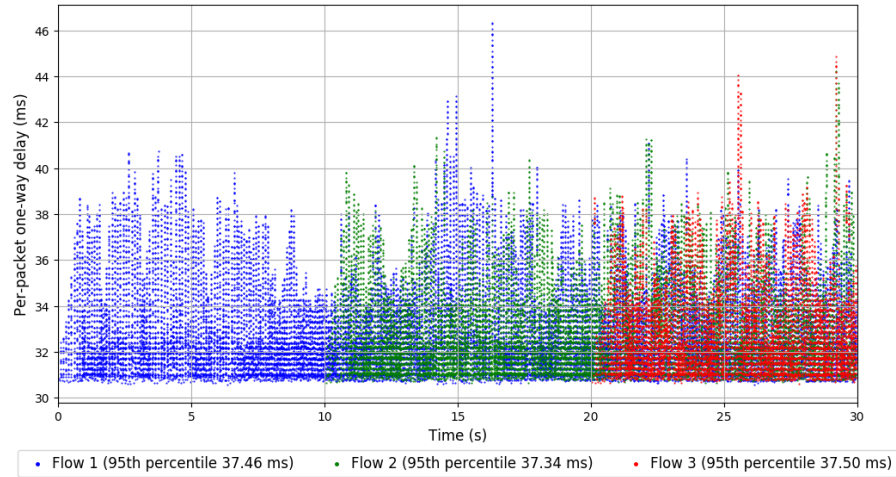
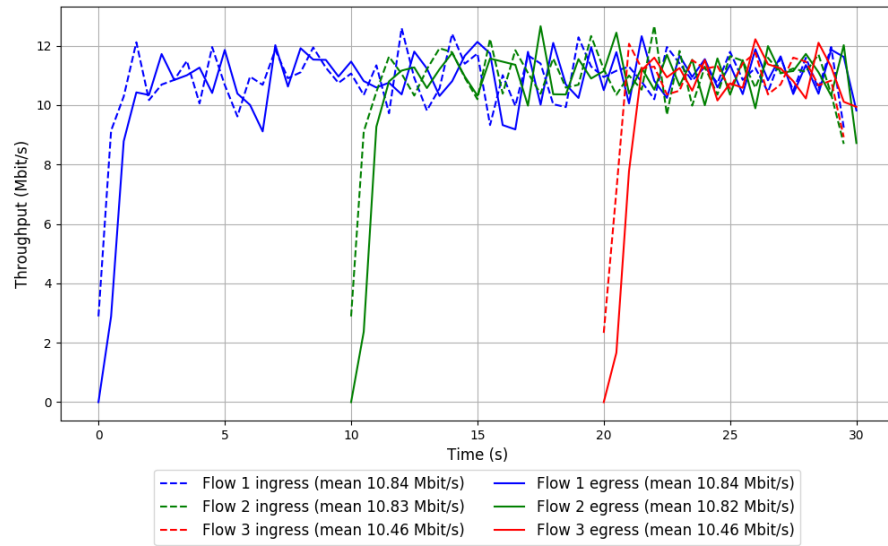


#### Run 4: Statistics of Sprout

Start at: 2018-09-06 10:44:18  
End at: 2018-09-06 10:44:48  
Local clock offset: 0.227 ms  
Remote clock offset: 3.205 ms

```
# Below is generated by plot.py at 2018-09-06 11:18:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.50 Mbit/s
95th percentile per-packet one-way delay: 37.428 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 10.84 Mbit/s
95th percentile per-packet one-way delay: 37.460 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 10.82 Mbit/s
95th percentile per-packet one-way delay: 37.343 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.46 Mbit/s
95th percentile per-packet one-way delay: 37.500 ms
Loss rate: 0.00%
```

# Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-06 11:08:46

End at: 2018-09-06 11:09:16

Local clock offset: 4.639 ms

Remote clock offset: 3.38 ms

# Below is generated by plot.py at 2018-09-06 11:18:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 21.48 Mbit/s

95th percentile per-packet one-way delay: 37.483 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 10.85 Mbit/s

95th percentile per-packet one-way delay: 37.758 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 10.80 Mbit/s

95th percentile per-packet one-way delay: 37.075 ms

Loss rate: 0.00%

-- Flow 3:

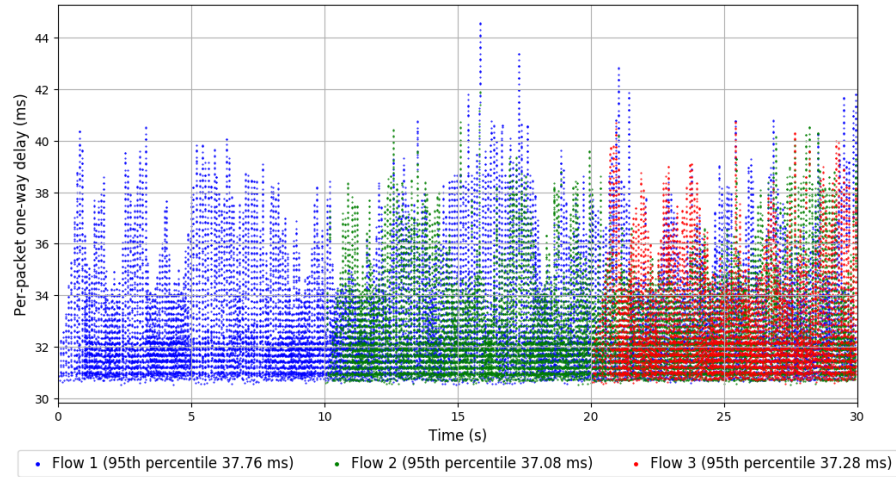
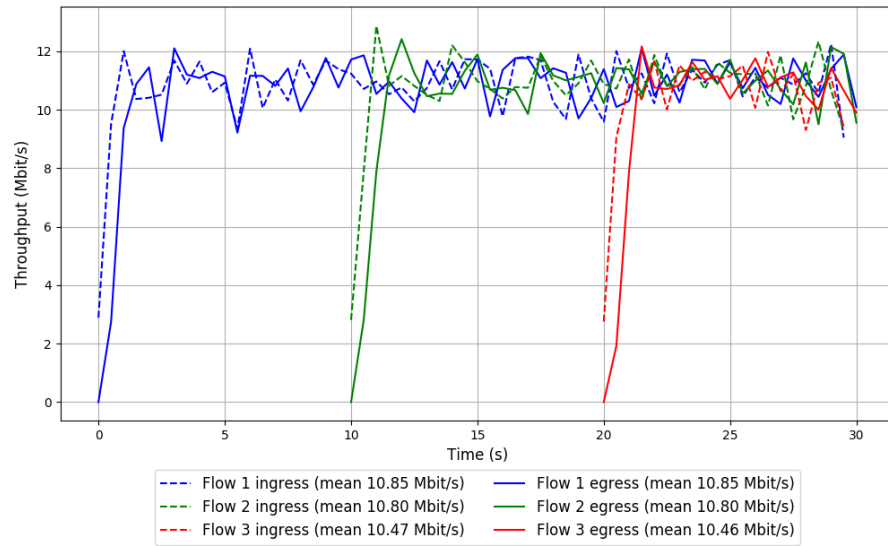
Average throughput: 10.46 Mbit/s

95th percentile per-packet one-way delay: 37.285 ms

Loss rate: 0.00%



## Run 5: Report of Sprout — Data Link

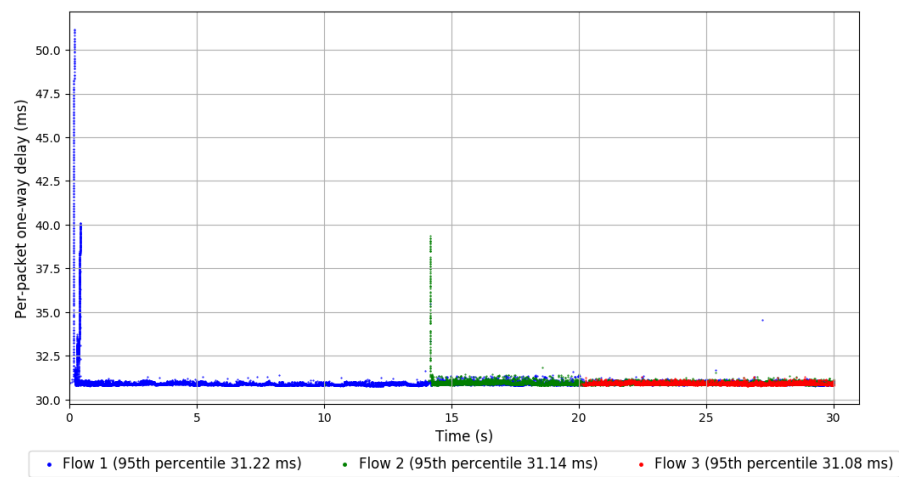
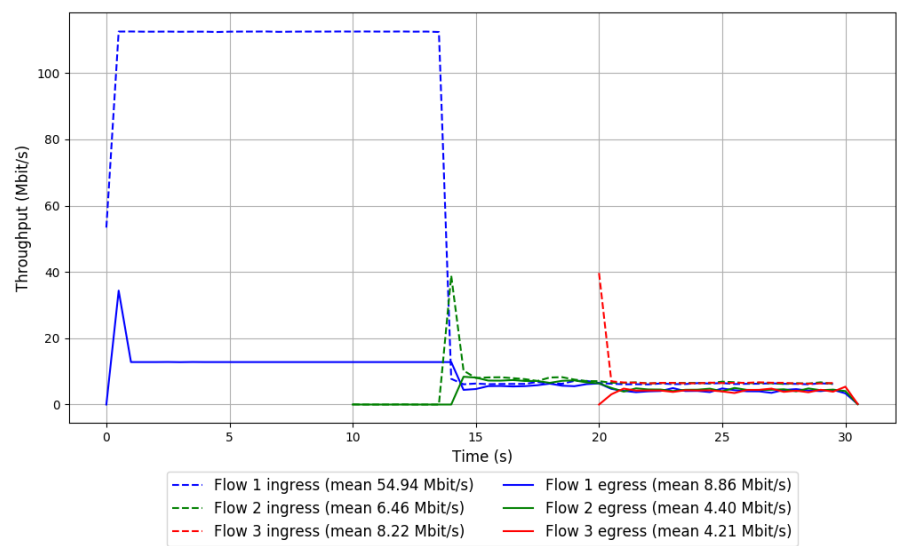


```
Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 09:29:42
End at: 2018-09-06 09:30:12
Local clock offset: 0.317 ms
Remote clock offset: 0.058 ms

# Below is generated by plot.py at 2018-09-06 11:18:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 31.137 ms
Loss rate: 78.72%
-- Flow 1:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 31.217 ms
Loss rate: 83.88%
-- Flow 2:
Average throughput: 4.40 Mbit/s
95th percentile per-packet one-way delay: 31.141 ms
Loss rate: 31.81%
-- Flow 3:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 31.081 ms
Loss rate: 48.84%
```

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 09:54:04

End at: 2018-09-06 09:54:34

Local clock offset: 0.4 ms

Remote clock offset: 1.703 ms

# Below is generated by plot.py at 2018-09-06 11:18:19

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.19 Mbit/s

95th percentile per-packet one-way delay: 30.736 ms

Loss rate: 78.39%

-- Flow 1:

Average throughput: 5.19 Mbit/s

95th percentile per-packet one-way delay: 32.901 ms

Loss rate: 83.41%

-- Flow 2:

Average throughput: 12.00 Mbit/s

95th percentile per-packet one-way delay: 30.719 ms

Loss rate: 73.11%

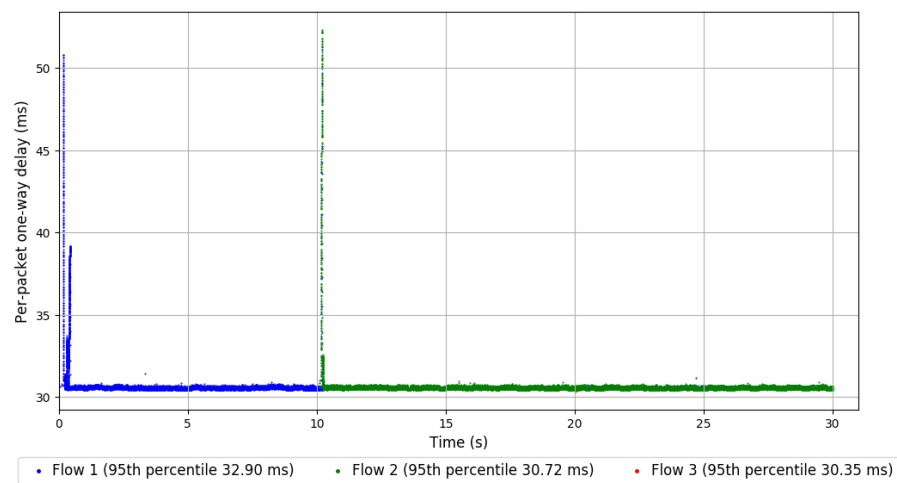
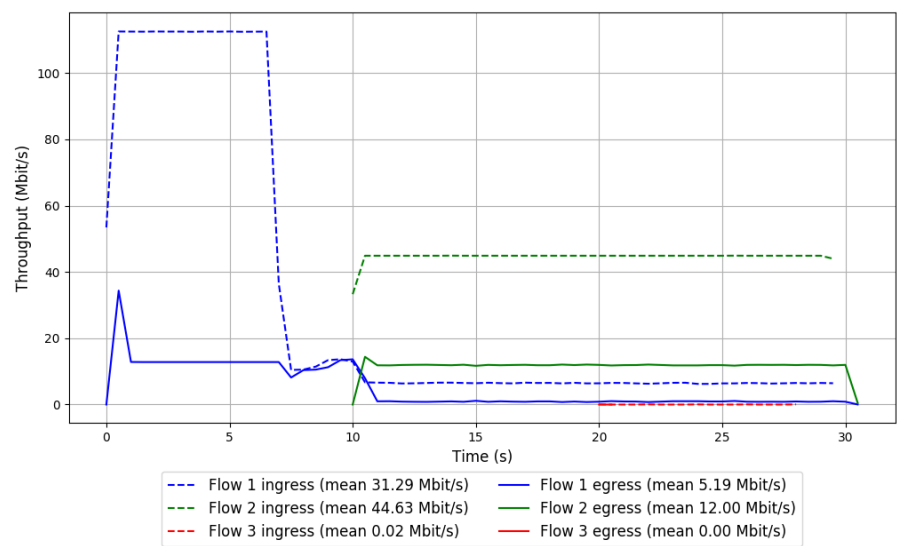
-- Flow 3:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 30.348 ms

Loss rate: 99.19%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 10:18:28

End at: 2018-09-06 10:18:58

Local clock offset: 0.311 ms

Remote clock offset: 2.739 ms

# Below is generated by plot.py at 2018-09-06 11:18:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.19 Mbit/s

95th percentile per-packet one-way delay: 31.229 ms

Loss rate: 90.87%

-- Flow 1:

Average throughput: 8.64 Mbit/s

95th percentile per-packet one-way delay: 31.203 ms

Loss rate: 89.36%

-- Flow 2:

Average throughput: 2.98 Mbit/s

95th percentile per-packet one-way delay: 34.429 ms

Loss rate: 86.40%

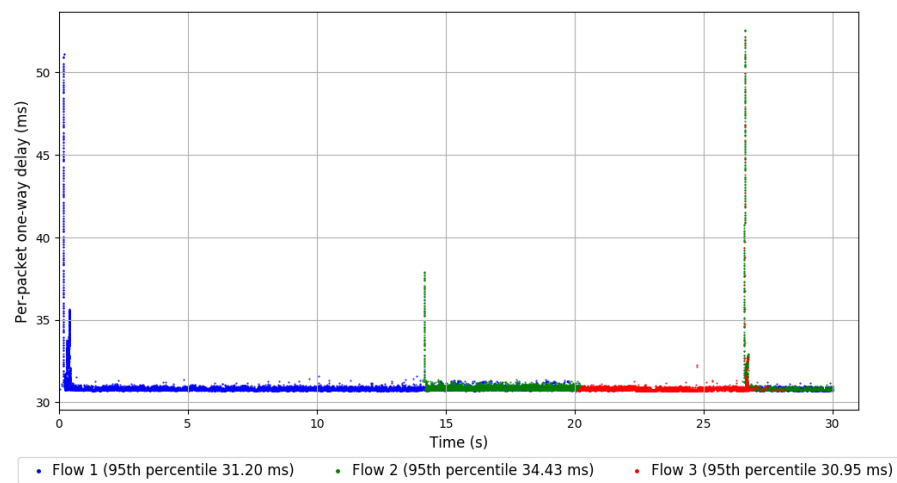
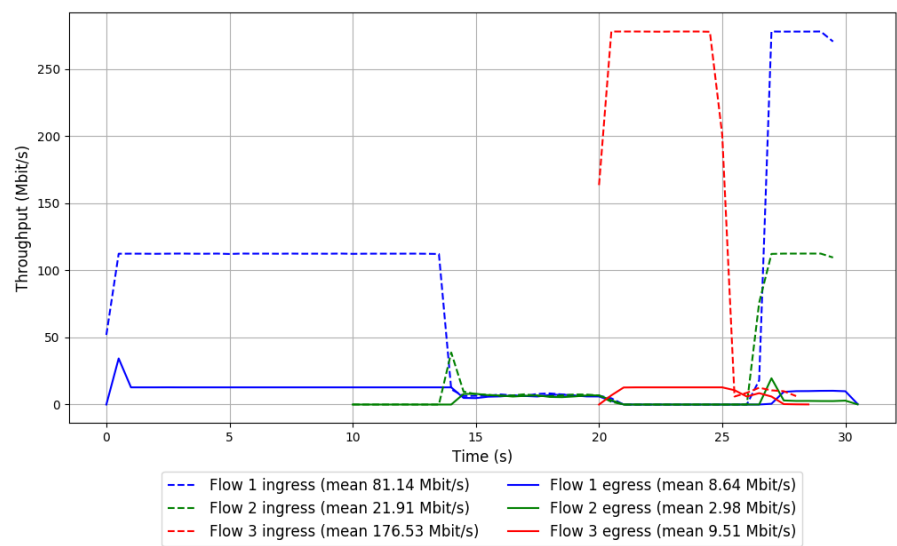
-- Flow 3:

Average throughput: 9.51 Mbit/s

95th percentile per-packet one-way delay: 30.951 ms

Loss rate: 94.74%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 10:42:58

End at: 2018-09-06 10:43:28

Local clock offset: 0.315 ms

Remote clock offset: 3.152 ms

# Below is generated by plot.py at 2018-09-06 11:18:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.19 Mbit/s

95th percentile per-packet one-way delay: 30.907 ms

Loss rate: 88.40%

-- Flow 1:

Average throughput: 5.87 Mbit/s

95th percentile per-packet one-way delay: 33.124 ms

Loss rate: 83.41%

-- Flow 2:

Average throughput: 8.83 Mbit/s

95th percentile per-packet one-way delay: 30.866 ms

Loss rate: 80.21%

-- Flow 3:

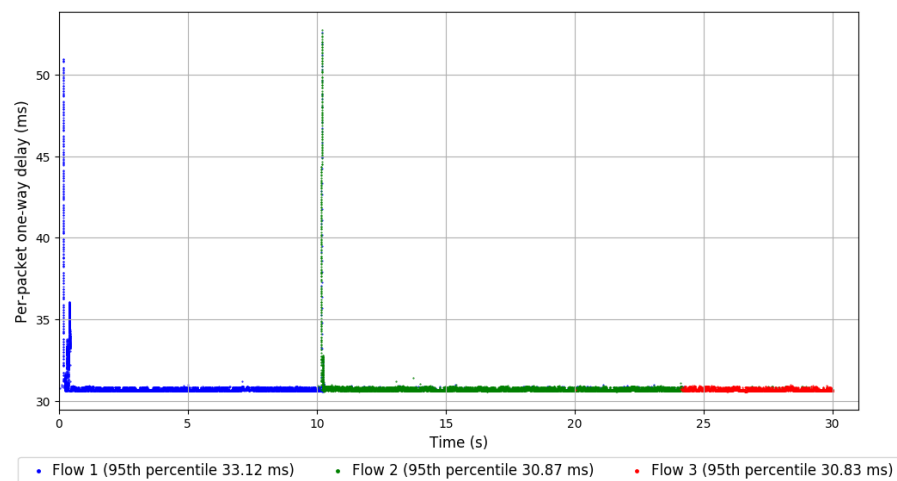
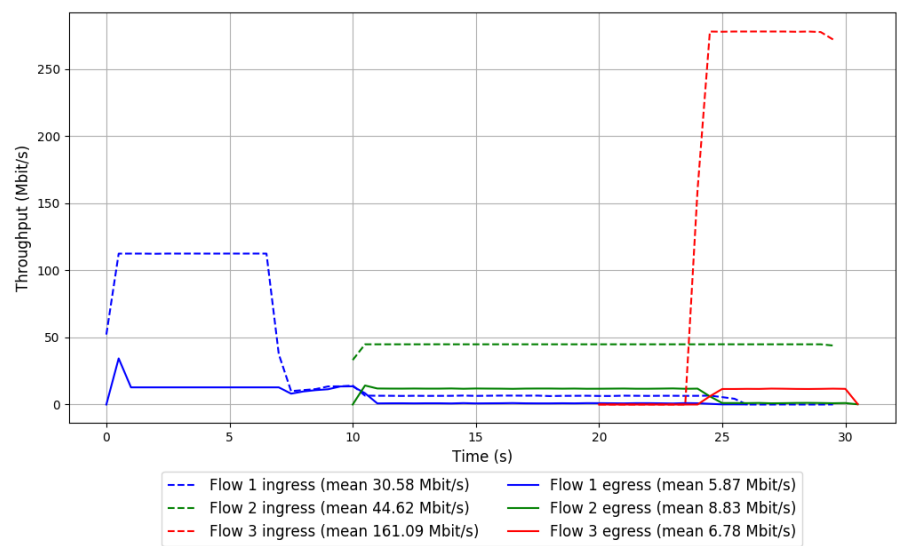
Average throughput: 6.78 Mbit/s

95th percentile per-packet one-way delay: 30.832 ms

Loss rate: 95.79%



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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 11:07:26

End at: 2018-09-06 11:07:56

Local clock offset: 4.522 ms

Remote clock offset: 3.368 ms

# Below is generated by plot.py at 2018-09-06 11:18:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.19 Mbit/s

95th percentile per-packet one-way delay: 31.152 ms

Loss rate: 78.67%

-- Flow 1:

Average throughput: 9.02 Mbit/s

95th percentile per-packet one-way delay: 31.219 ms

Loss rate: 83.63%

-- Flow 2:

Average throughput: 4.12 Mbit/s

95th percentile per-packet one-way delay: 31.132 ms

Loss rate: 29.93%

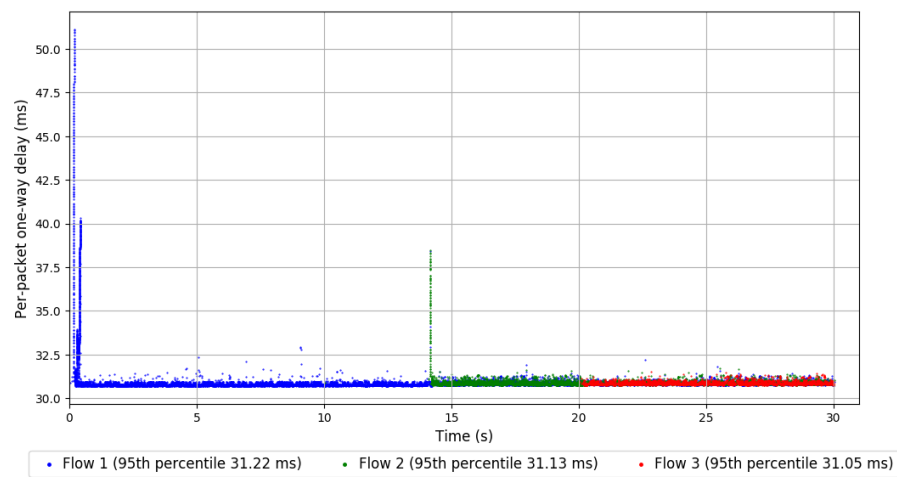
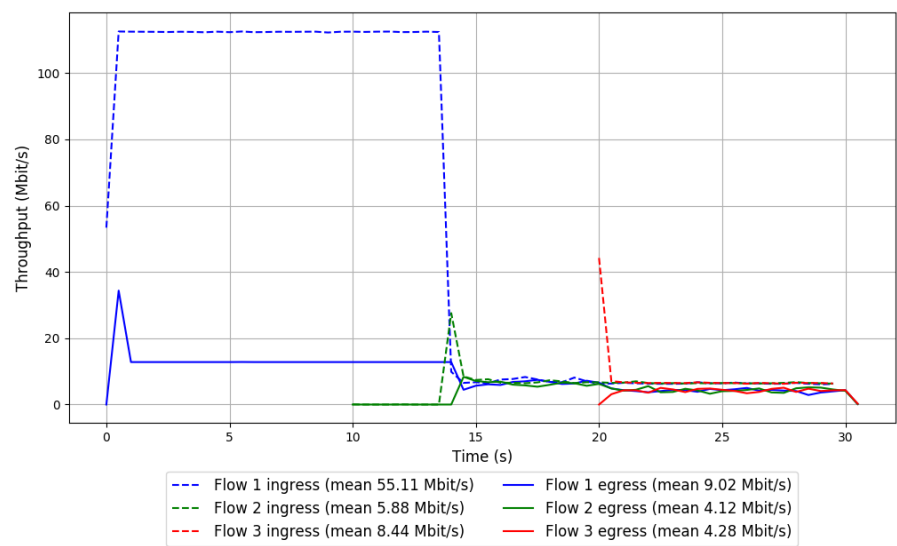
-- Flow 3:

Average throughput: 4.28 Mbit/s

95th percentile per-packet one-way delay: 31.047 ms

Loss rate: 49.29%

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

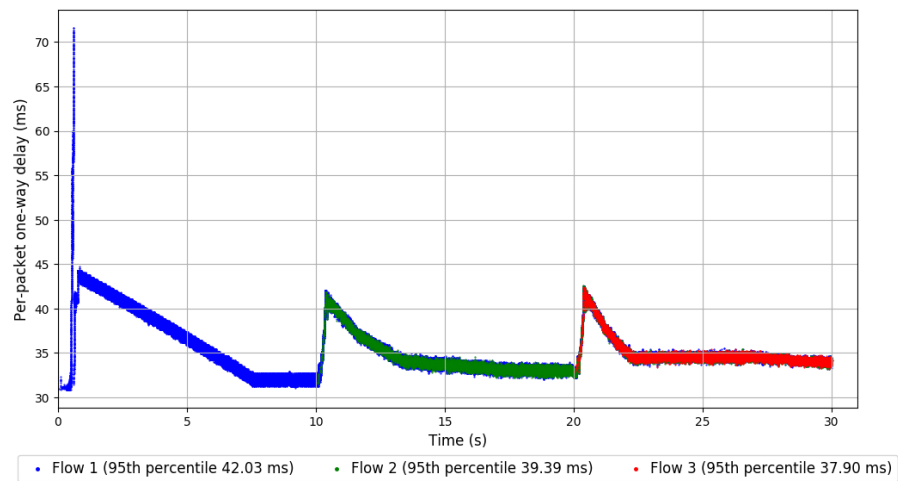
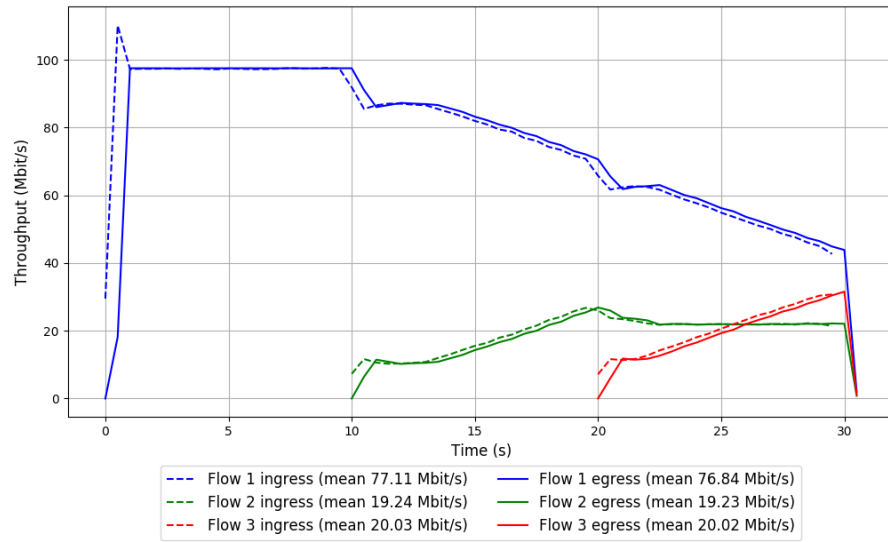


Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 09:20:13  
End at: 2018-09-06 09:20:43  
Local clock offset: 0.074 ms  
Remote clock offset: -0.485 ms

# Below is generated by plot.py at 2018-09-06 11:19:13  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 96.30 Mbit/s  
95th percentile per-packet one-way delay: 41.577 ms  
Loss rate: 0.27%  
-- Flow 1:  
Average throughput: 76.84 Mbit/s  
95th percentile per-packet one-way delay: 42.027 ms  
Loss rate: 0.34%  
-- Flow 2:  
Average throughput: 19.23 Mbit/s  
95th percentile per-packet one-way delay: 39.390 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 20.02 Mbit/s  
95th percentile per-packet one-way delay: 37.898 ms  
Loss rate: 0.01%

# Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 09:44:39

End at: 2018-09-06 09:45:09

Local clock offset: 0.5 ms

Remote clock offset: 1.106 ms

# Below is generated by plot.py at 2018-09-06 11:19:13

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.92 Mbit/s

95th percentile per-packet one-way delay: 41.477 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 73.90 Mbit/s

95th percentile per-packet one-way delay: 41.922 ms

Loss rate: 0.36%

-- Flow 2:

Average throughput: 19.53 Mbit/s

95th percentile per-packet one-way delay: 39.338 ms

Loss rate: 0.02%

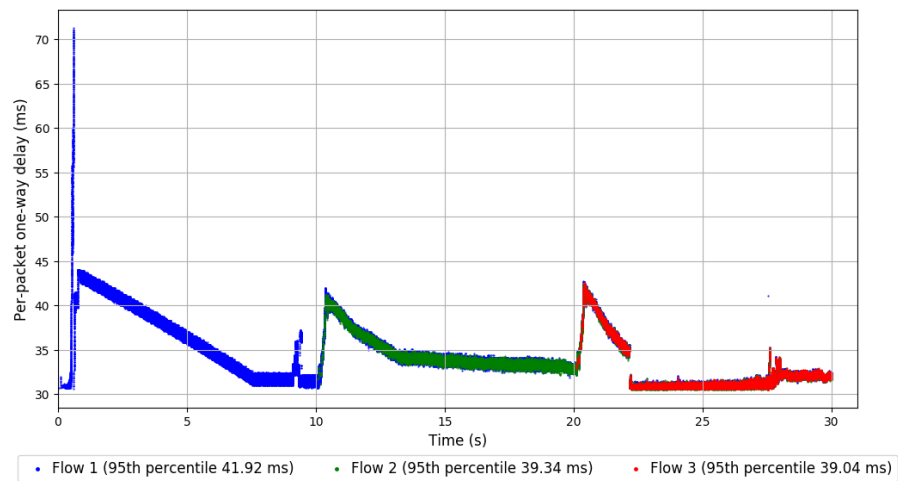
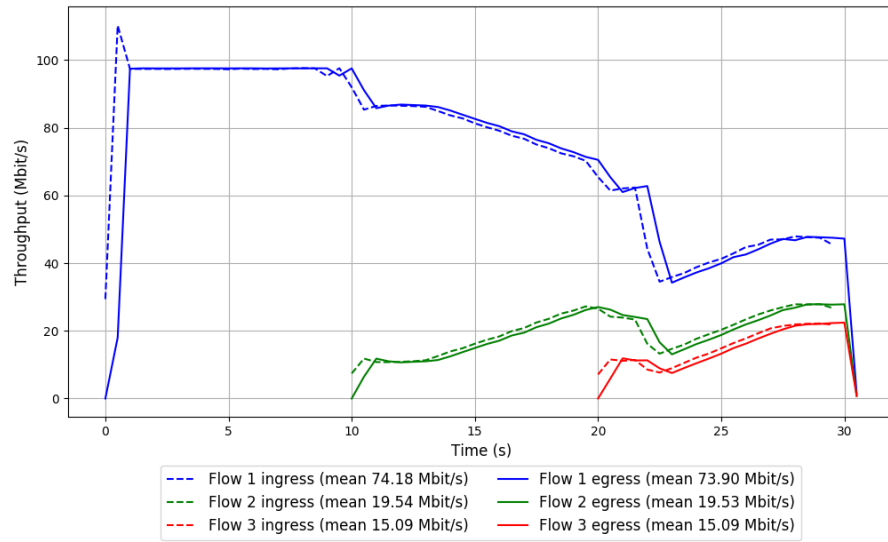
-- Flow 3:

Average throughput: 15.09 Mbit/s

95th percentile per-packet one-way delay: 39.041 ms

Loss rate: 0.03%

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



Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 10:09:02

End at: 2018-09-06 10:09:32

Local clock offset: 0.324 ms

Remote clock offset: 2.303 ms

# Below is generated by plot.py at 2018-09-06 11:19:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 41.630 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 76.67 Mbit/s

95th percentile per-packet one-way delay: 42.082 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 19.83 Mbit/s

95th percentile per-packet one-way delay: 39.463 ms

Loss rate: 0.00%

-- Flow 3:

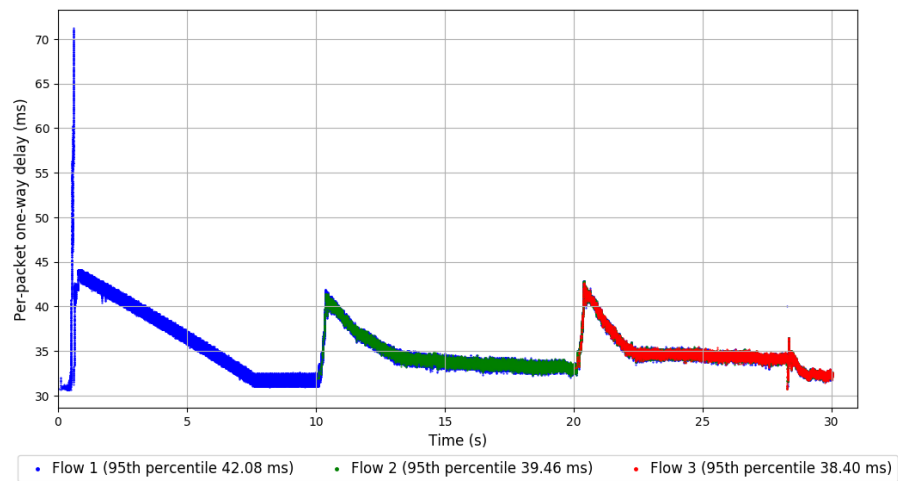
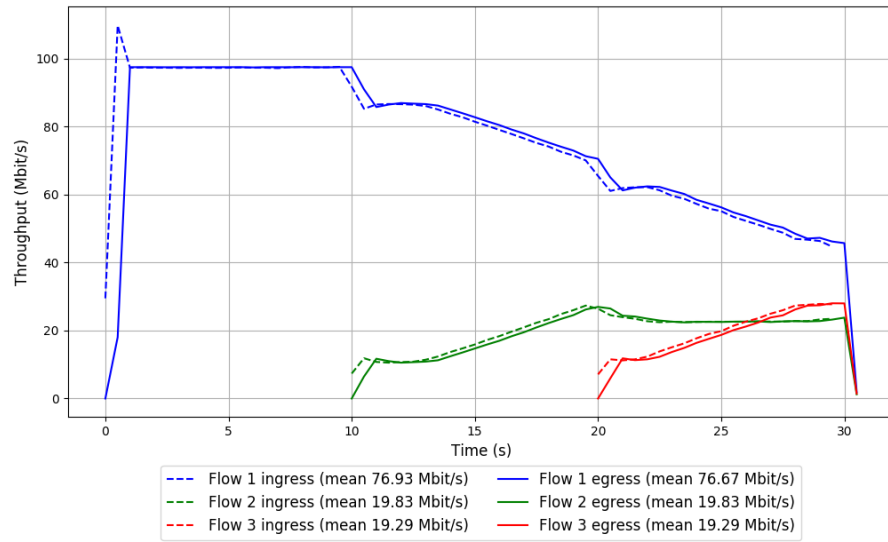
Average throughput: 19.29 Mbit/s

95th percentile per-packet one-way delay: 38.402 ms

Loss rate: 0.00%



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



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 10:33:29

End at: 2018-09-06 10:33:59

Local clock offset: 0.31 ms

Remote clock offset: 3.045 ms

# Below is generated by plot.py at 2018-09-06 11:19:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 96.29 Mbit/s

95th percentile per-packet one-way delay: 41.391 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 76.67 Mbit/s

95th percentile per-packet one-way delay: 41.661 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 19.53 Mbit/s

95th percentile per-packet one-way delay: 39.276 ms

Loss rate: 0.00%

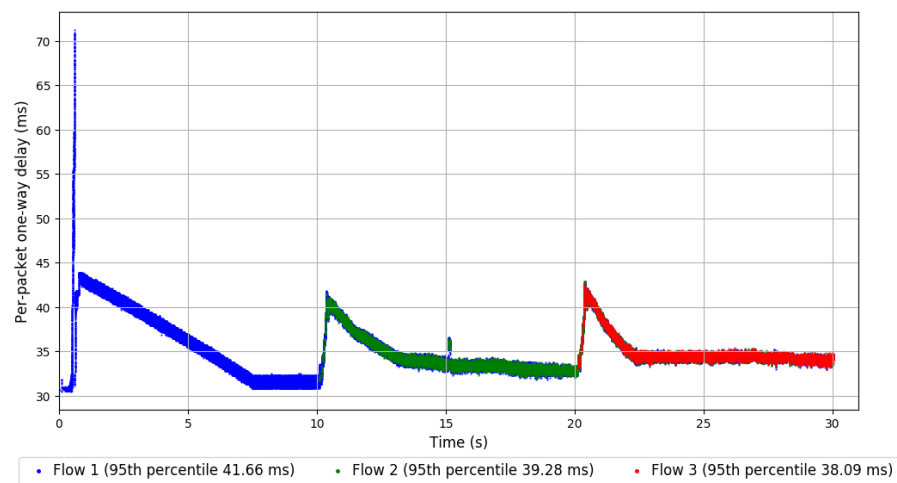
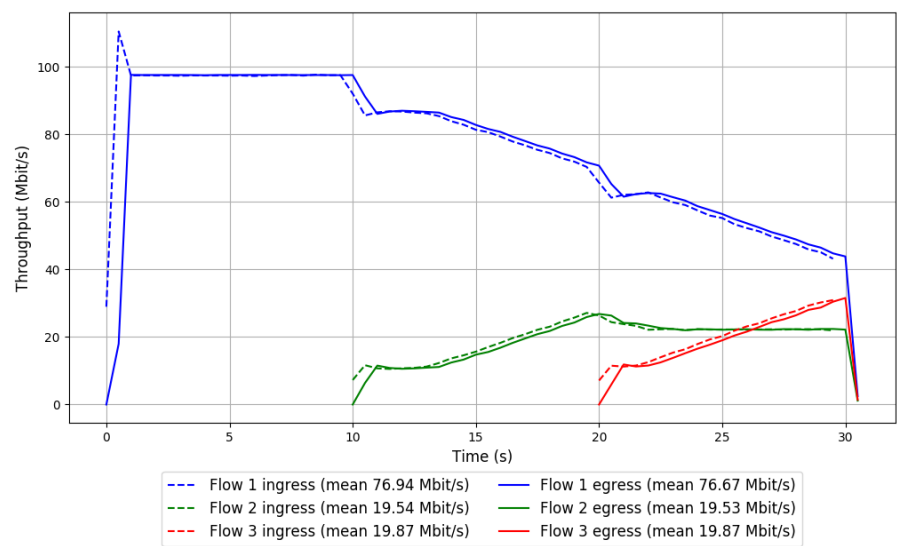
-- Flow 3:

Average throughput: 19.87 Mbit/s

95th percentile per-packet one-way delay: 38.090 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 10:57:57

End at: 2018-09-06 10:58:27

Local clock offset: 3.423 ms

Remote clock offset: 2.995 ms

# Below is generated by plot.py at 2018-09-06 11:19:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.99 Mbit/s

95th percentile per-packet one-way delay: 41.690 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 74.46 Mbit/s

95th percentile per-packet one-way delay: 41.965 ms

Loss rate: 0.36%

-- Flow 2:

Average throughput: 18.63 Mbit/s

95th percentile per-packet one-way delay: 39.742 ms

Loss rate: 0.01%

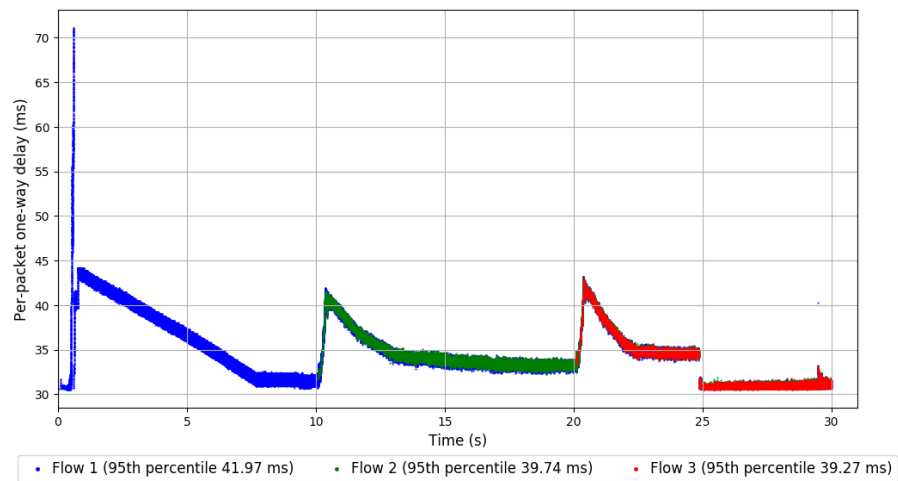
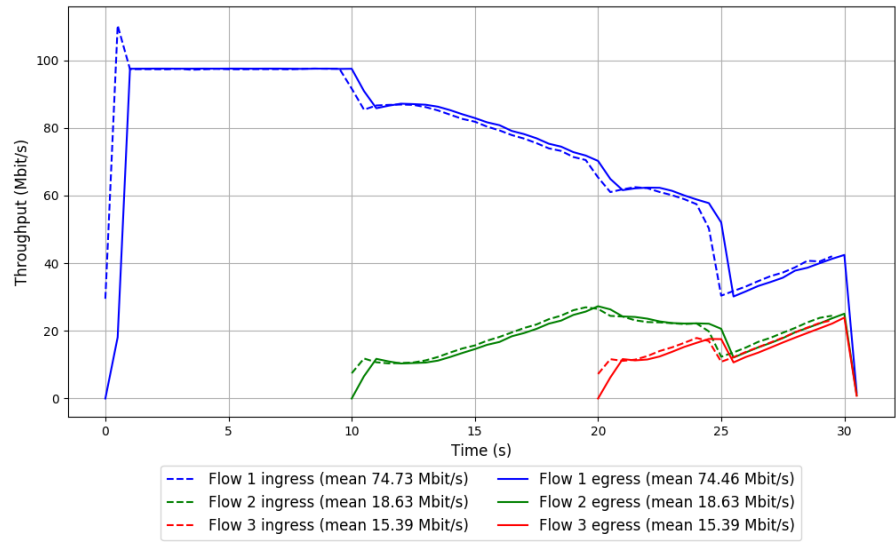
-- Flow 3:

Average throughput: 15.39 Mbit/s

95th percentile per-packet one-way delay: 39.274 ms

Loss rate: 0.04%

# Run 5: Report of TCP Vegas — Data Link

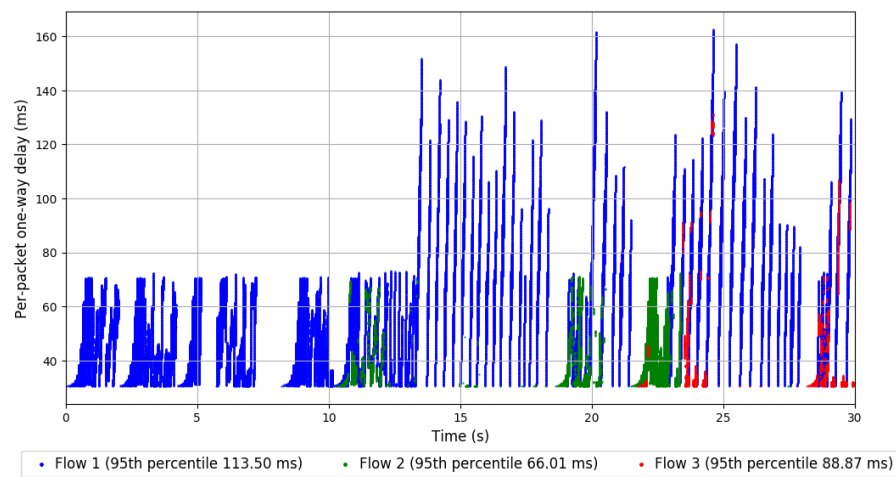
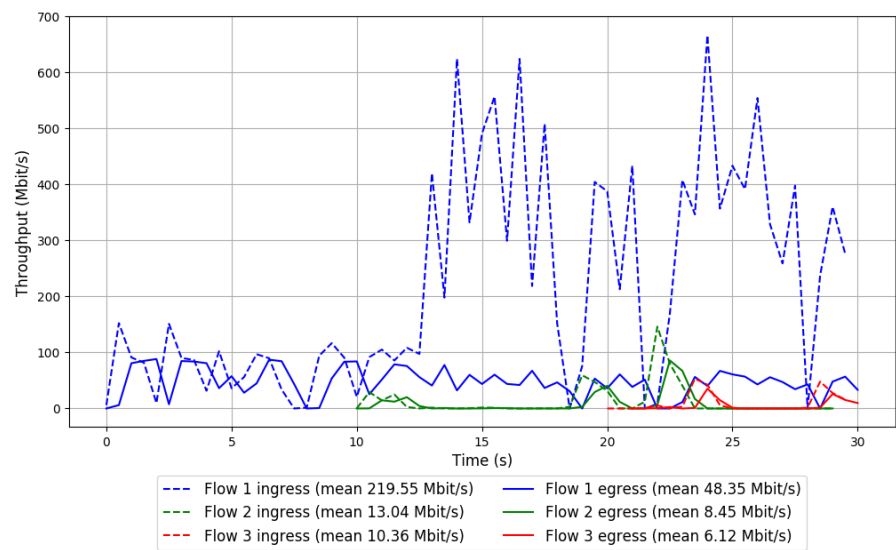


Run 1: Statistics of Verus

Start at: 2018-09-06 09:07:51  
End at: 2018-09-06 09:08:21  
Local clock offset: -0.058 ms  
Remote clock offset: -1.142 ms

# Below is generated by plot.py at 2018-09-06 11:19:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 55.27 Mbit/s  
95th percentile per-packet one-way delay: 110.940 ms  
Loss rate: 75.97%  
-- Flow 1:  
Average throughput: 48.35 Mbit/s  
95th percentile per-packet one-way delay: 113.497 ms  
Loss rate: 77.91%  
-- Flow 2:  
Average throughput: 8.45 Mbit/s  
95th percentile per-packet one-way delay: 66.006 ms  
Loss rate: 36.82%  
-- Flow 3:  
Average throughput: 6.12 Mbit/s  
95th percentile per-packet one-way delay: 88.874 ms  
Loss rate: 47.22%

Run 1: Report of Verus — Data Link



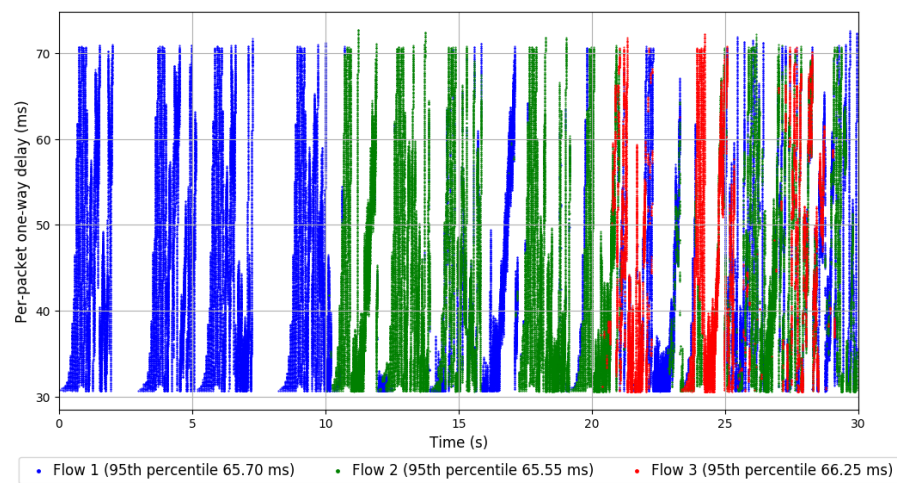
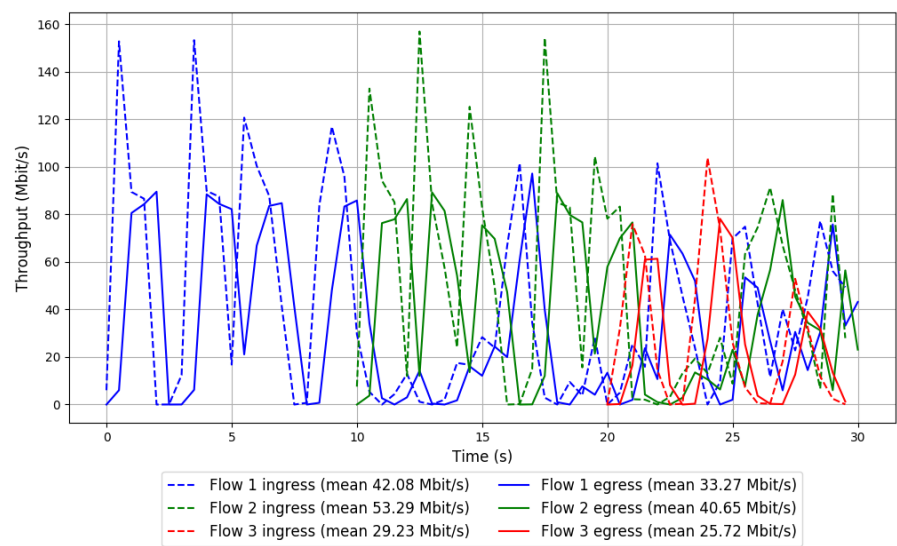
Run 2: Statistics of Verus

Start at: 2018-09-06 09:32:21  
End at: 2018-09-06 09:32:51  
Local clock offset: 0.451 ms  
Remote clock offset: 0.167 ms

# Below is generated by plot.py at 2018-09-06 11:19:41  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 67.85 Mbit/s  
95th percentile per-packet one-way delay: 65.729 ms  
Loss rate: 21.90%  
-- Flow 1:  
Average throughput: 33.27 Mbit/s  
95th percentile per-packet one-way delay: 65.700 ms  
Loss rate: 20.93%  
-- Flow 2:  
Average throughput: 40.65 Mbit/s  
95th percentile per-packet one-way delay: 65.551 ms  
Loss rate: 23.69%  
-- Flow 3:  
Average throughput: 25.72 Mbit/s  
95th percentile per-packet one-way delay: 66.246 ms  
Loss rate: 19.45%



Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-06 09:56:43

End at: 2018-09-06 09:57:13

Local clock offset: 0.386 ms

Remote clock offset: 1.896 ms

# Below is generated by plot.py at 2018-09-06 11:19:44

# Datalink statistics

-- Total of 3 flows:

Average throughput: 61.41 Mbit/s

95th percentile per-packet one-way delay: 67.981 ms

Loss rate: 61.95%

-- Flow 1:

Average throughput: 37.30 Mbit/s

95th percentile per-packet one-way delay: 65.867 ms

Loss rate: 29.85%

-- Flow 2:

Average throughput: 31.99 Mbit/s

95th percentile per-packet one-way delay: 70.409 ms

Loss rate: 78.84%

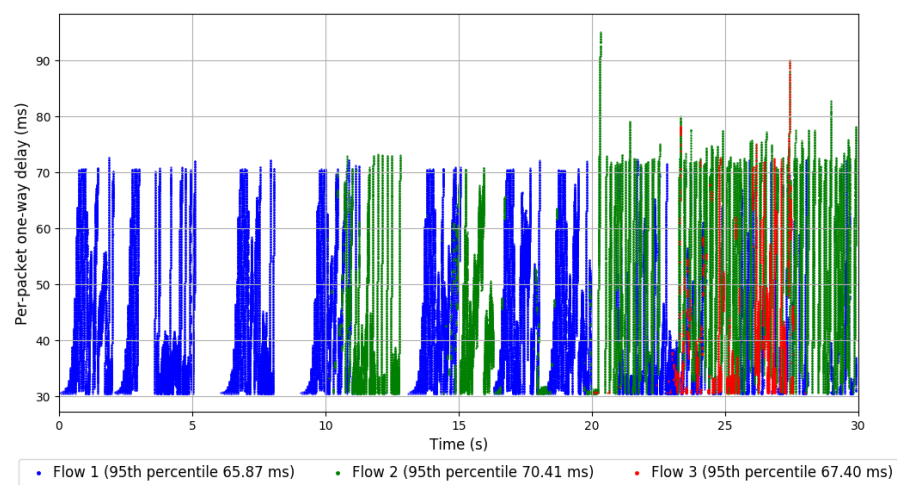
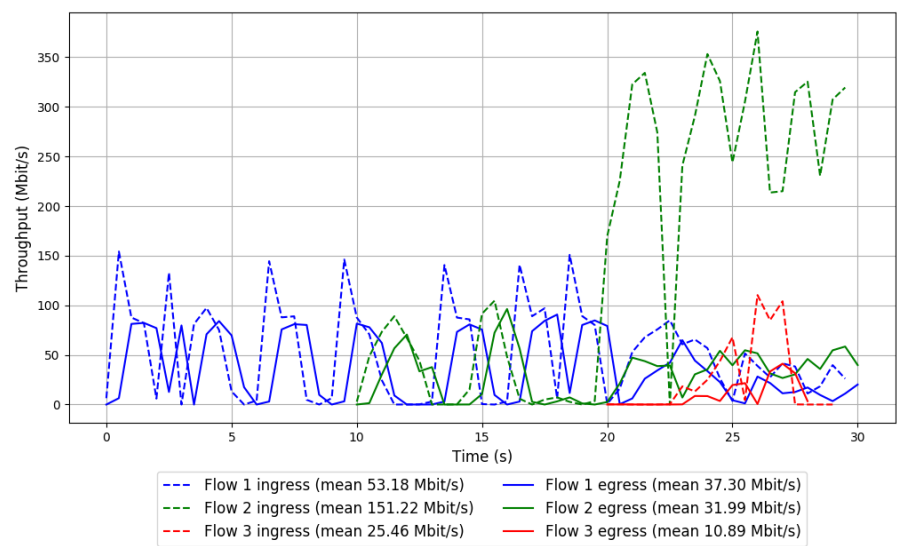
-- Flow 3:

Average throughput: 10.89 Mbit/s

95th percentile per-packet one-way delay: 67.402 ms

Loss rate: 63.60%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-09-06 10:21:09

End at: 2018-09-06 10:21:39

Local clock offset: 0.371 ms

Remote clock offset: 2.702 ms

# Below is generated by plot.py at 2018-09-06 11:20:08

# Datalink statistics

-- Total of 3 flows:

Average throughput: 66.14 Mbit/s

95th percentile per-packet one-way delay: 66.587 ms

Loss rate: 38.01%

-- Flow 1:

Average throughput: 33.48 Mbit/s

95th percentile per-packet one-way delay: 66.821 ms

Loss rate: 36.78%

-- Flow 2:

Average throughput: 41.15 Mbit/s

95th percentile per-packet one-way delay: 66.563 ms

Loss rate: 40.44%

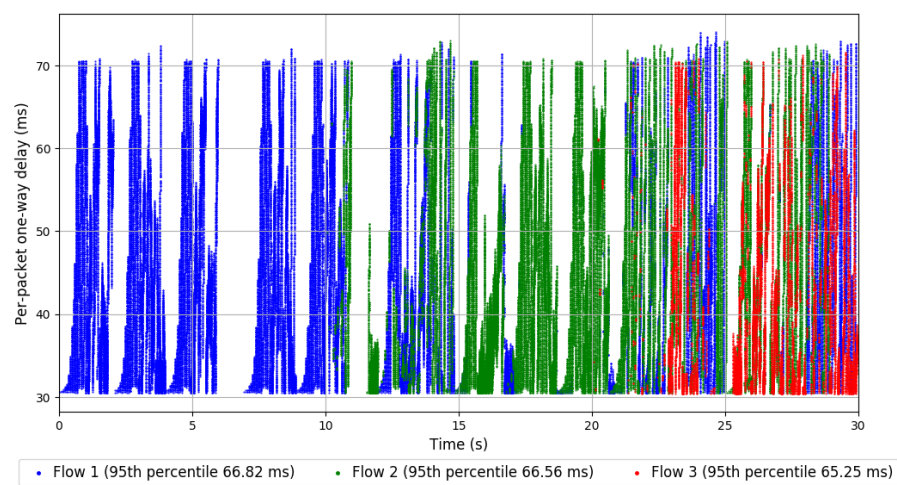
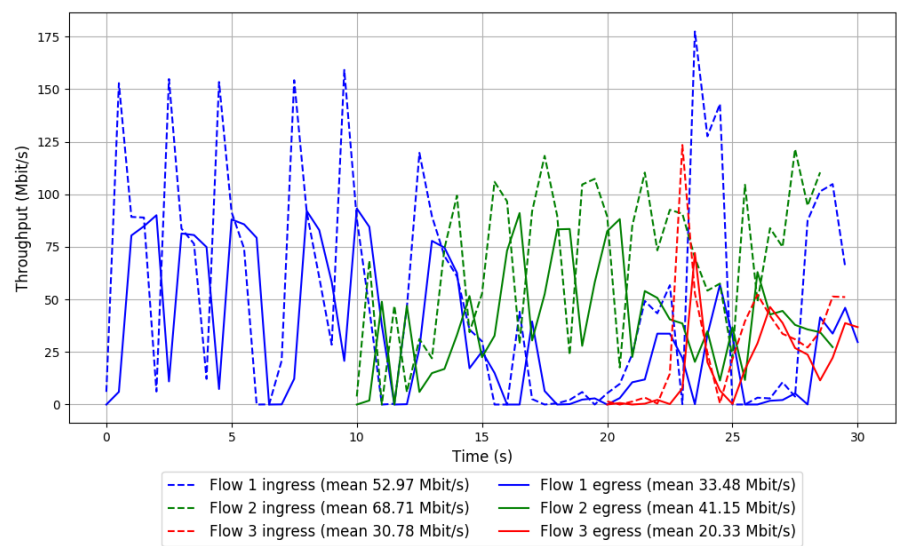
-- Flow 3:

Average throughput: 20.33 Mbit/s

95th percentile per-packet one-way delay: 65.255 ms

Loss rate: 33.94%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 10:45:38

End at: 2018-09-06 10:46:08

Local clock offset: 0.217 ms

Remote clock offset: 3.184 ms

# Below is generated by plot.py at 2018-09-06 11:20:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 68.65 Mbit/s

95th percentile per-packet one-way delay: 66.978 ms

Loss rate: 30.94%

-- Flow 1:

Average throughput: 42.90 Mbit/s

95th percentile per-packet one-way delay: 66.898 ms

Loss rate: 27.58%

-- Flow 2:

Average throughput: 34.08 Mbit/s

95th percentile per-packet one-way delay: 67.302 ms

Loss rate: 37.09%

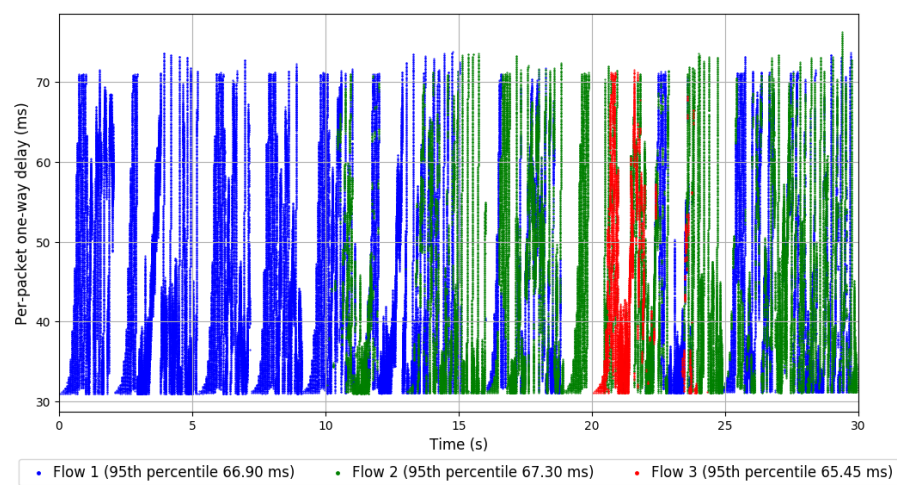
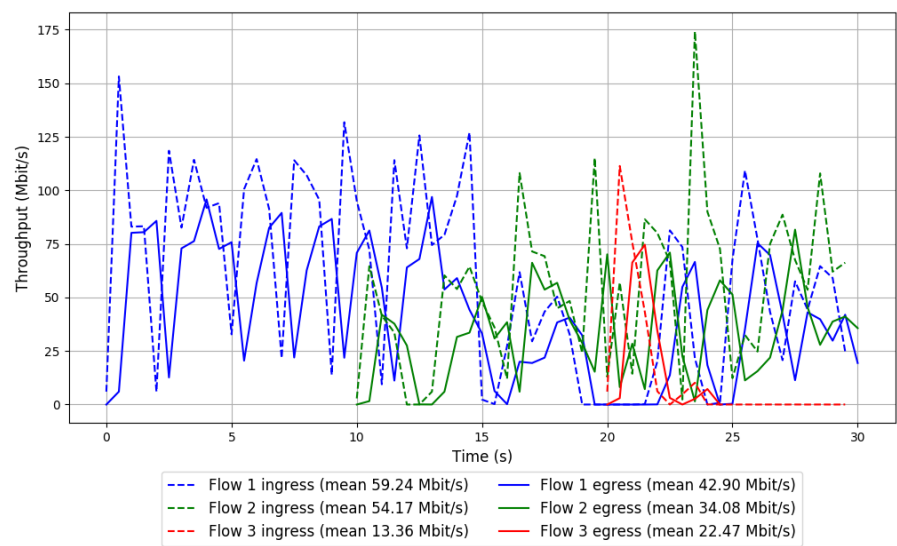
-- Flow 3:

Average throughput: 22.47 Mbit/s

95th percentile per-packet one-way delay: 65.455 ms

Loss rate: 25.72%

Run 5: Report of Verus — Data Link



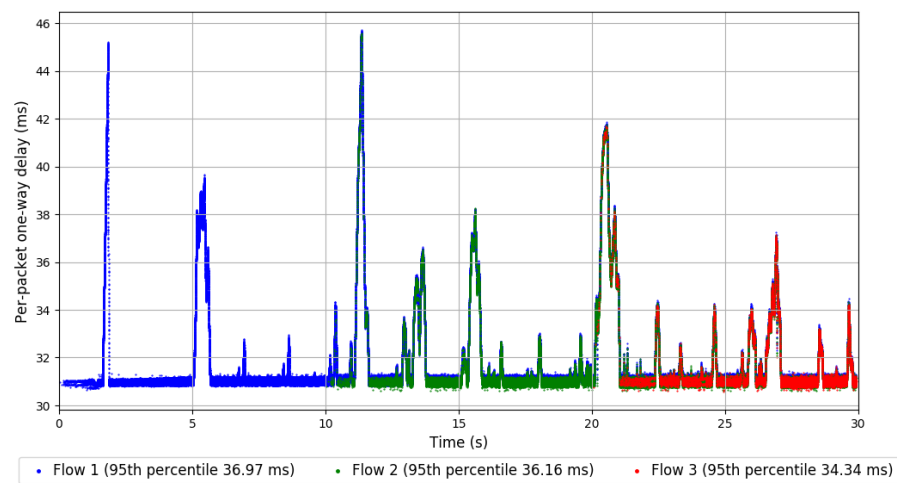
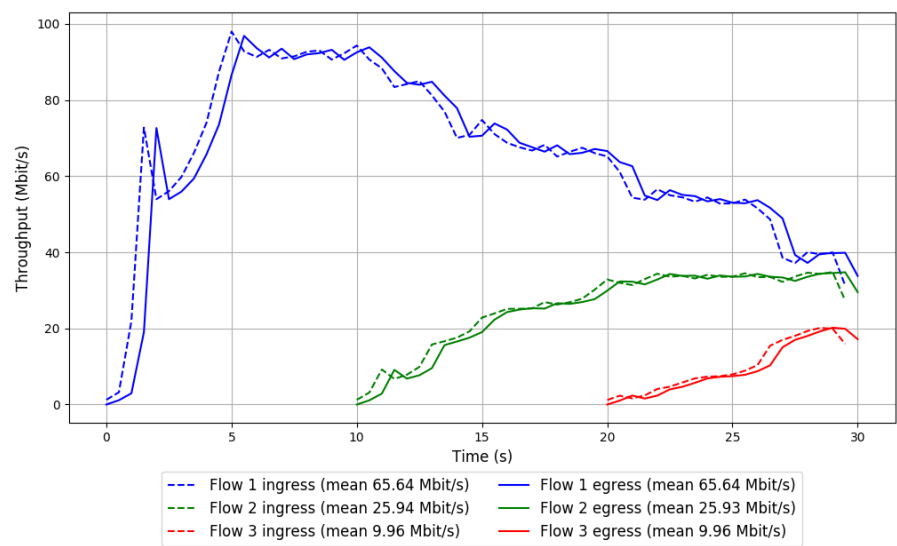
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 09:22:55  
End at: 2018-09-06 09:23:25  
Local clock offset: 0.248 ms  
Remote clock offset: -0.344 ms

# Below is generated by plot.py at 2018-09-06 11:20:22  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 86.18 Mbit/s  
95th percentile per-packet one-way delay: 36.768 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 65.64 Mbit/s  
95th percentile per-packet one-way delay: 36.972 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 25.93 Mbit/s  
95th percentile per-packet one-way delay: 36.165 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 9.96 Mbit/s  
95th percentile per-packet one-way delay: 34.341 ms  
Loss rate: 0.00%



Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 09:47:19

End at: 2018-09-06 09:47:49

Local clock offset: 0.478 ms

Remote clock offset: 1.464 ms

# Below is generated by plot.py at 2018-09-06 11:20:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 86.70 Mbit/s

95th percentile per-packet one-way delay: 35.056 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 69.20 Mbit/s

95th percentile per-packet one-way delay: 35.101 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 20.74 Mbit/s

95th percentile per-packet one-way delay: 34.915 ms

Loss rate: 0.00%

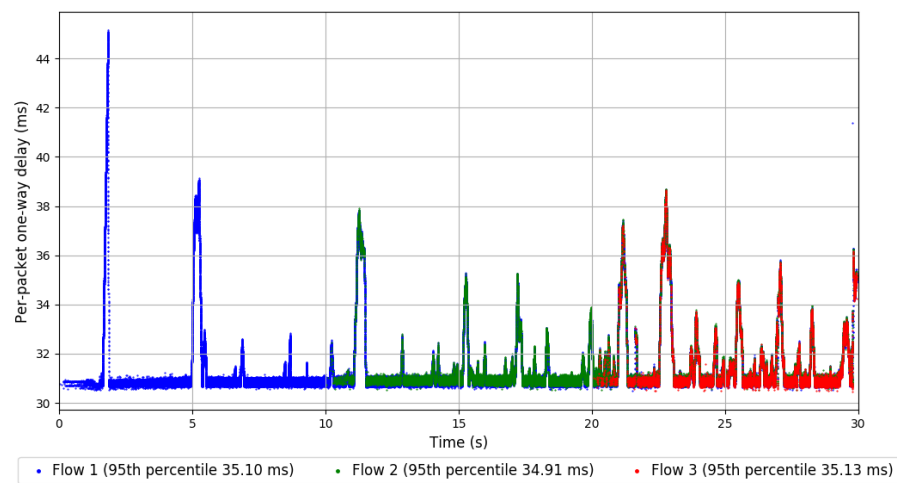
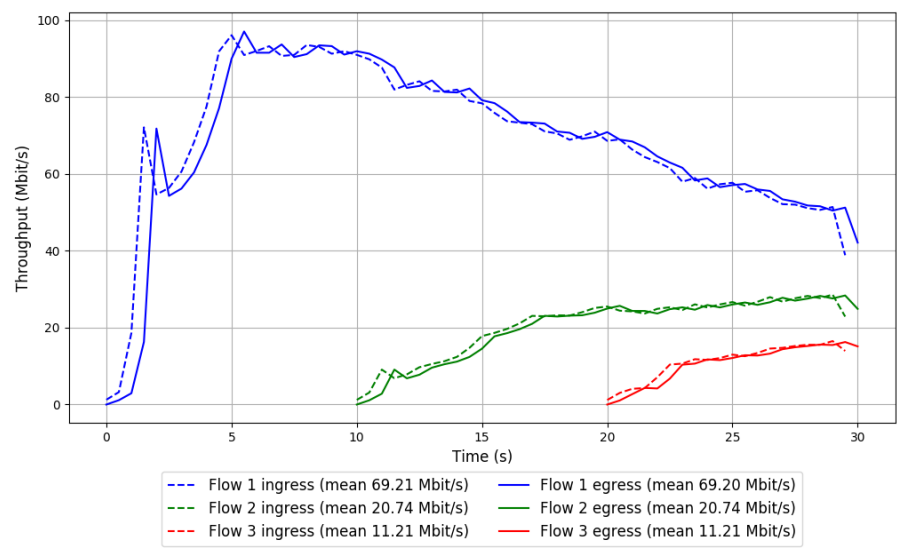
-- Flow 3:

Average throughput: 11.21 Mbit/s

95th percentile per-packet one-way delay: 35.131 ms

Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 10:11:43

End at: 2018-09-06 10:12:13

Local clock offset: 0.426 ms

Remote clock offset: 2.401 ms

# Below is generated by plot.py at 2018-09-06 11:20:25

# Datalink statistics

-- Total of 3 flows:

Average throughput: 85.27 Mbit/s

95th percentile per-packet one-way delay: 43.731 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 66.37 Mbit/s

95th percentile per-packet one-way delay: 43.974 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 19.25 Mbit/s

95th percentile per-packet one-way delay: 42.669 ms

Loss rate: 0.00%

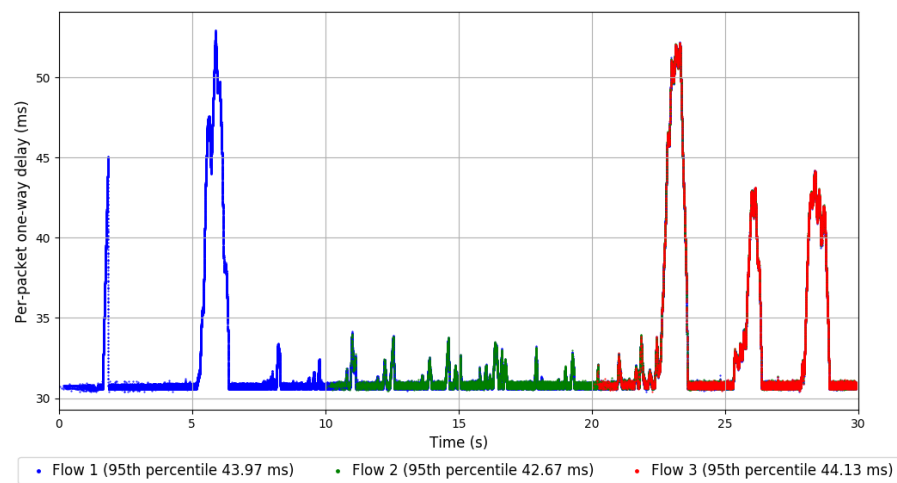
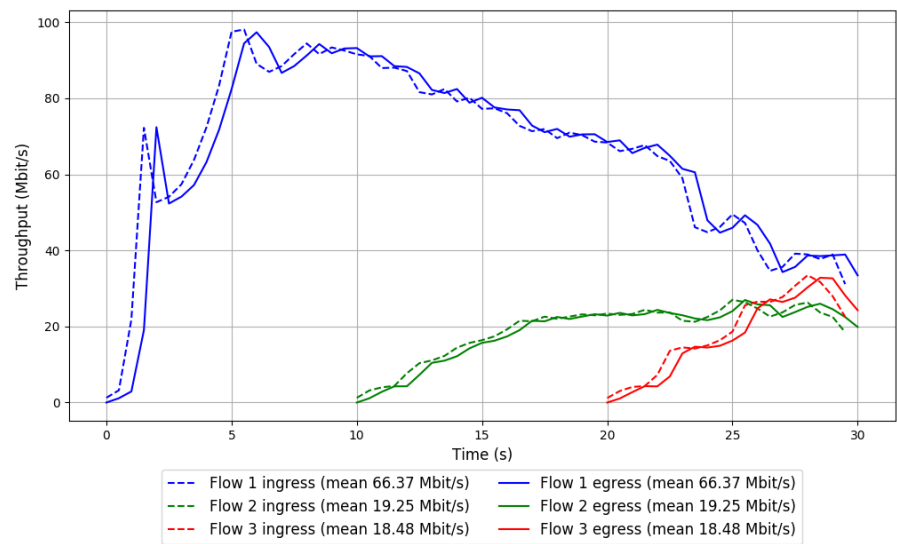
-- Flow 3:

Average throughput: 18.48 Mbit/s

95th percentile per-packet one-way delay: 44.134 ms

Loss rate: 0.01%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 10:36:11

End at: 2018-09-06 10:36:41

Local clock offset: 0.3 ms

Remote clock offset: 3.105 ms

# Below is generated by plot.py at 2018-09-06 11:20:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 85.30 Mbit/s

95th percentile per-packet one-way delay: 46.892 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 67.99 Mbit/s

95th percentile per-packet one-way delay: 44.324 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 17.73 Mbit/s

95th percentile per-packet one-way delay: 58.725 ms

Loss rate: 0.00%

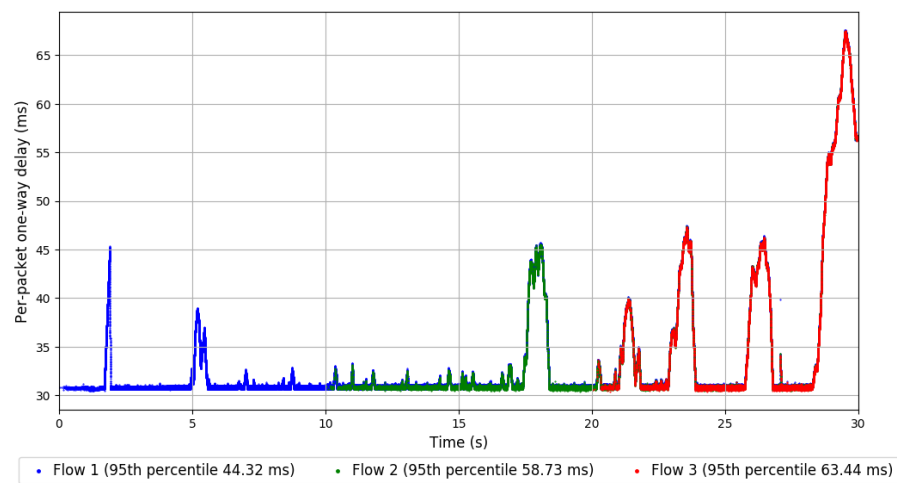
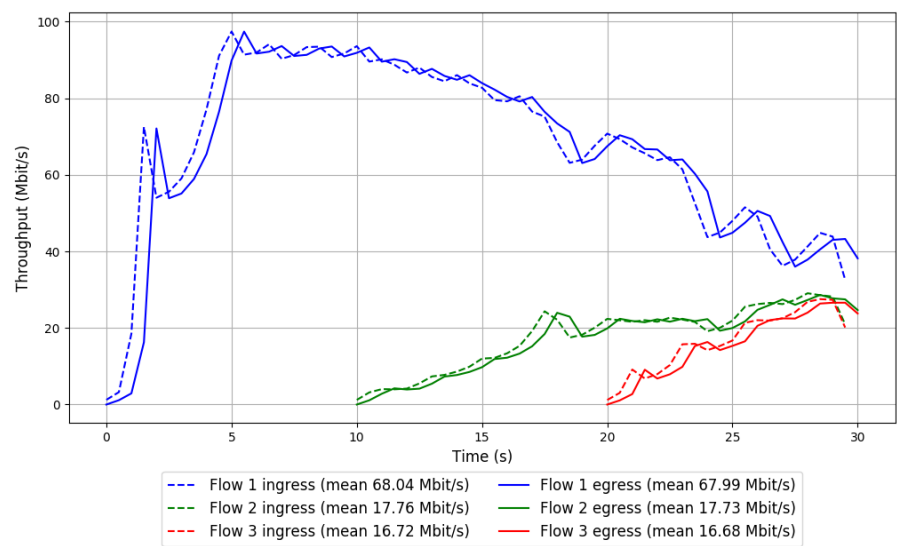
-- Flow 3:

Average throughput: 16.68 Mbit/s

95th percentile per-packet one-way delay: 63.442 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 11:00:39

End at: 2018-09-06 11:01:09

Local clock offset: 3.807 ms

Remote clock offset: 3.051 ms

# Below is generated by plot.py at 2018-09-06 11:20:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 85.99 Mbit/s

95th percentile per-packet one-way delay: 39.425 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.74 Mbit/s

95th percentile per-packet one-way delay: 38.925 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 29.17 Mbit/s

95th percentile per-packet one-way delay: 41.530 ms

Loss rate: 0.00%

-- Flow 3:

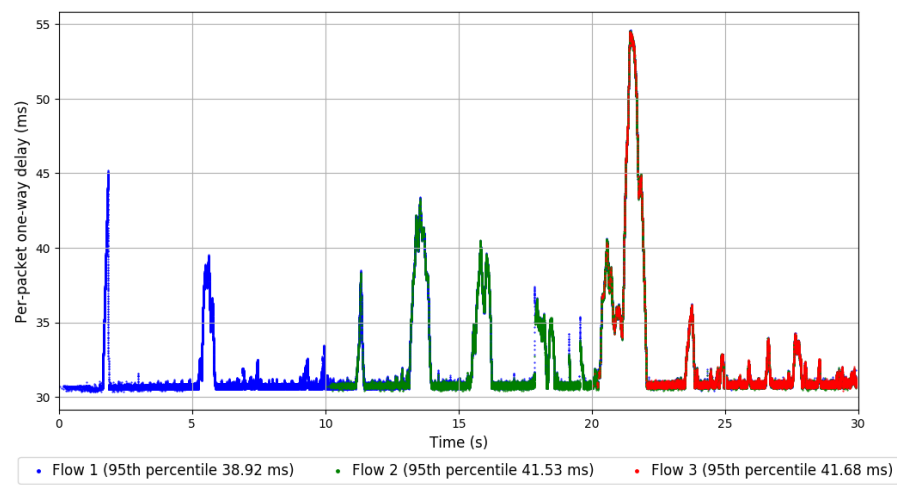
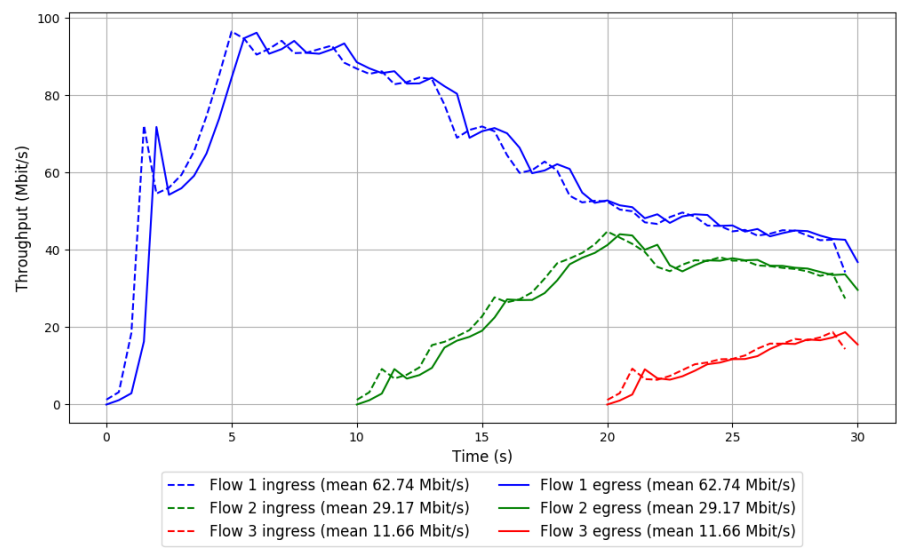
Average throughput: 11.66 Mbit/s

95th percentile per-packet one-way delay: 41.682 ms

Loss rate: 0.01%



Run 5: Report of PCC-Vivace — Data Link

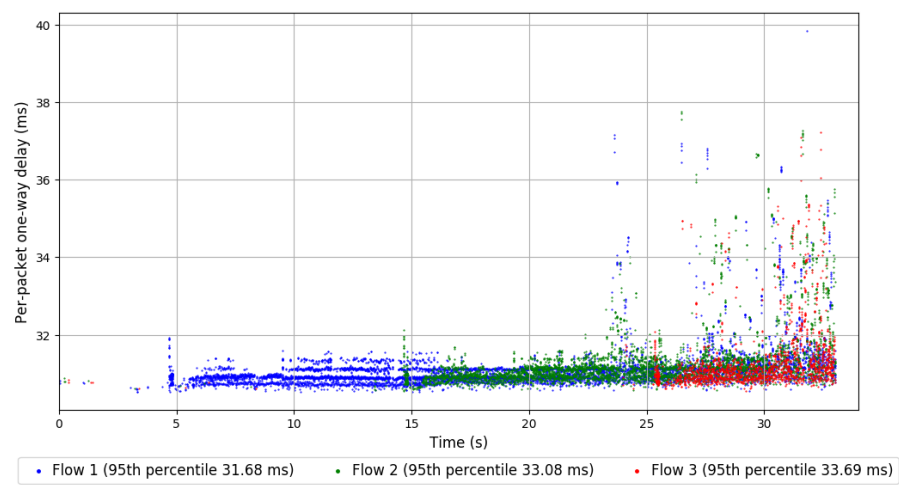
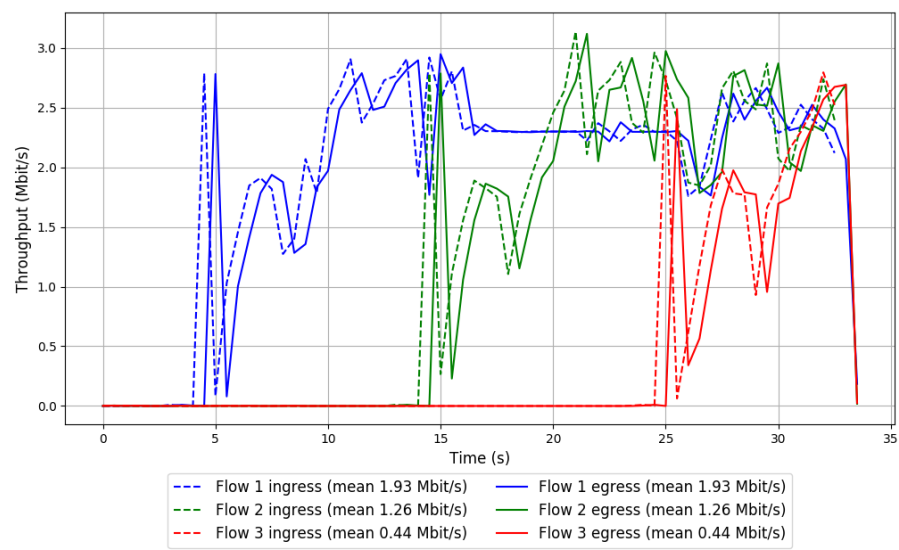


Run 1: Statistics of WebRTC media

Start at: 2018-09-06 09:14:46  
End at: 2018-09-06 09:15:16  
Local clock offset: 0.031 ms  
Remote clock offset: -0.787 ms

# Below is generated by plot.py at 2018-09-06 11:20:29  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.61 Mbit/s  
95th percentile per-packet one-way delay: 32.435 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.93 Mbit/s  
95th percentile per-packet one-way delay: 31.681 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.26 Mbit/s  
95th percentile per-packet one-way delay: 33.078 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.44 Mbit/s  
95th percentile per-packet one-way delay: 33.687 ms  
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-06 09:39:15

End at: 2018-09-06 09:39:45

Local clock offset: 0.491 ms

Remote clock offset: 0.711 ms

# Below is generated by plot.py at 2018-09-06 11:20:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.59 Mbit/s

95th percentile per-packet one-way delay: 32.658 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.95 Mbit/s

95th percentile per-packet one-way delay: 32.633 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 32.996 ms

Loss rate: 0.00%

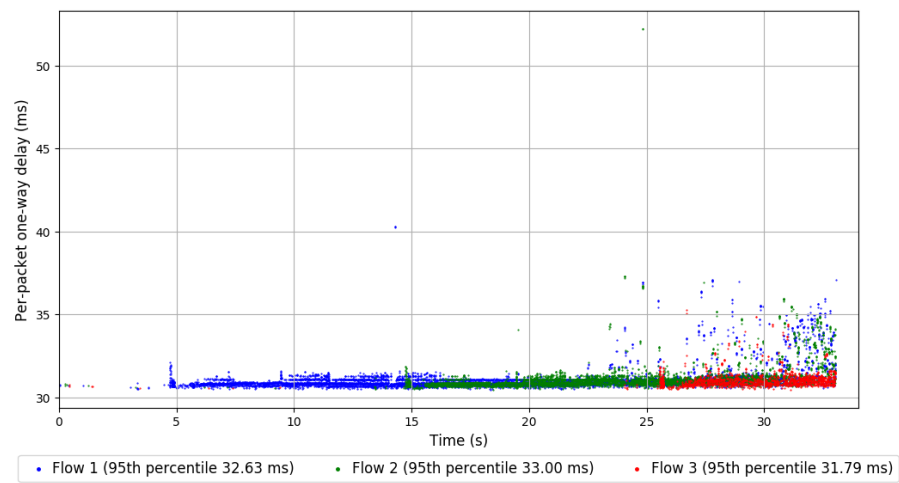
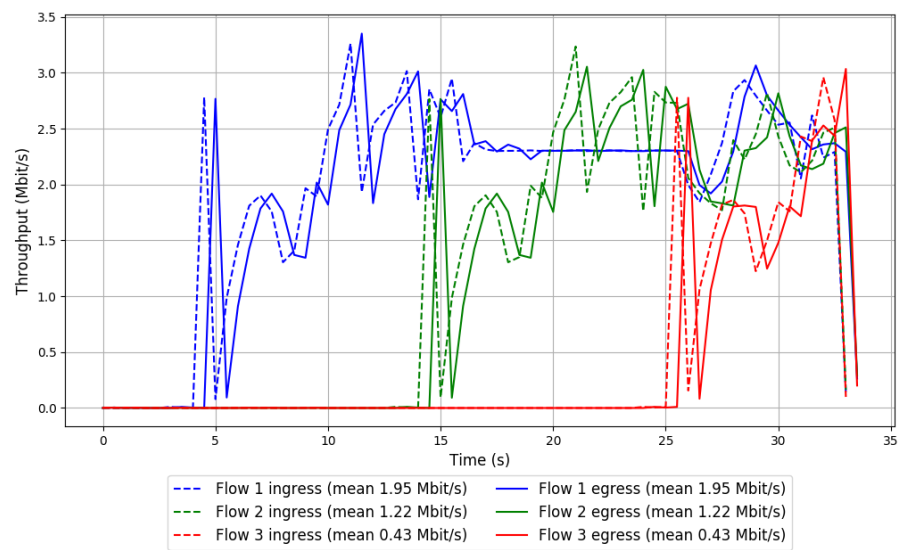
-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 31.793 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 10:03:36

End at: 2018-09-06 10:04:06

Local clock offset: 0.31 ms

Remote clock offset: 1.922 ms

# Below is generated by plot.py at 2018-09-06 11:20:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.56 Mbit/s

95th percentile per-packet one-way delay: 32.288 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.94 Mbit/s

95th percentile per-packet one-way delay: 31.751 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.24 Mbit/s

95th percentile per-packet one-way delay: 32.784 ms

Loss rate: 0.00%

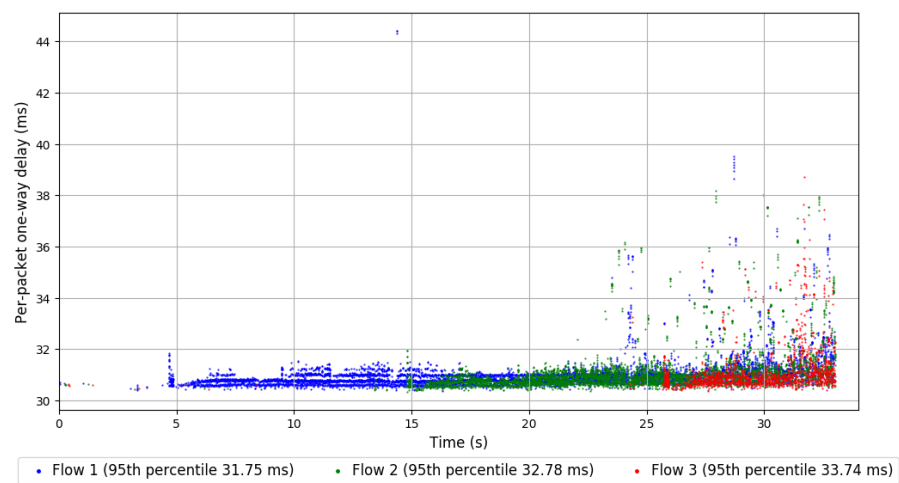
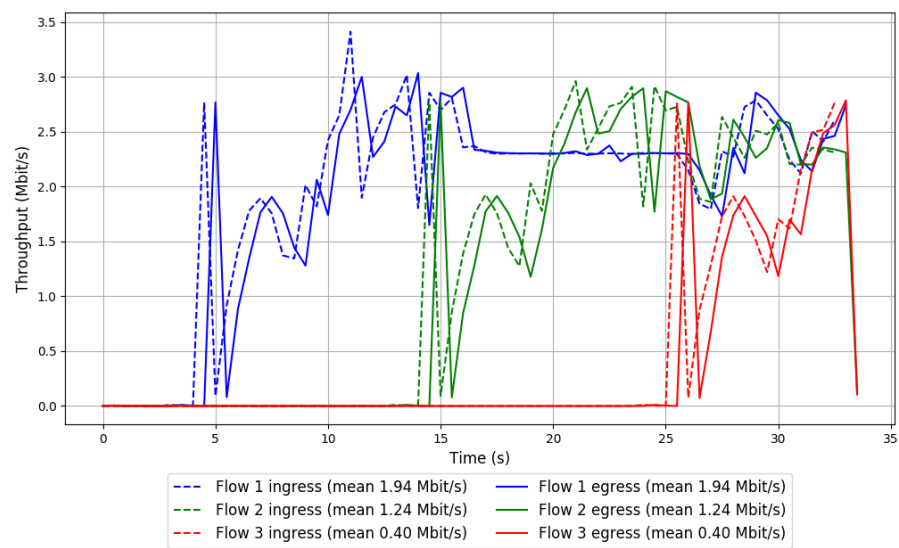
-- Flow 3:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 33.740 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 10:28:03

End at: 2018-09-06 10:28:33

Local clock offset: 0.348 ms

Remote clock offset: 2.971 ms

# Below is generated by plot.py at 2018-09-06 11:20:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.54 Mbit/s

95th percentile per-packet one-way delay: 31.989 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 31.466 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 32.958 ms

Loss rate: 0.00%

-- Flow 3:

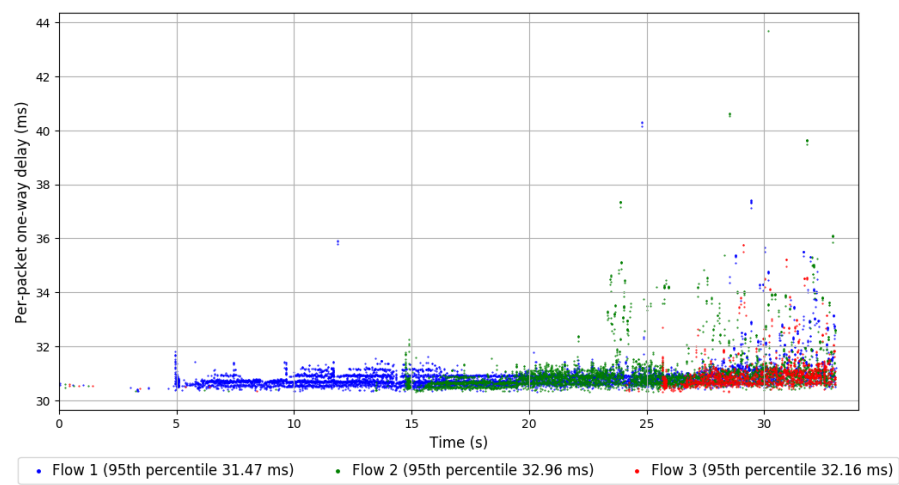
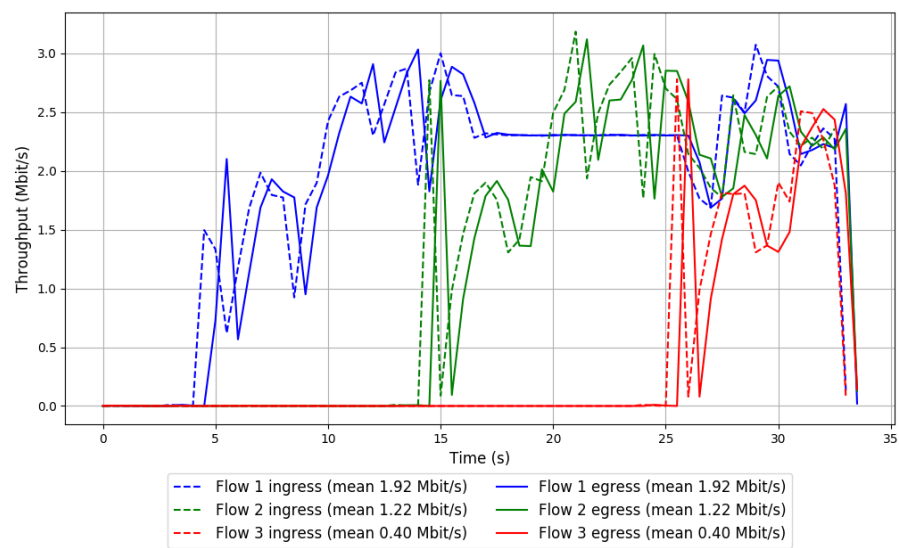
Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 32.156 ms

Loss rate: 0.00%



Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 10:52:31

End at: 2018-09-06 10:53:01

Local clock offset: 2.379 ms

Remote clock offset: 3.226 ms

# Below is generated by plot.py at 2018-09-06 11:20:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.56 Mbit/s

95th percentile per-packet one-way delay: 32.704 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.92 Mbit/s

95th percentile per-packet one-way delay: 32.213 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.22 Mbit/s

95th percentile per-packet one-way delay: 32.805 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 33.602 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

