

## Pantheon Report

Generated at 2018-09-06 12:20:41 (UTC).

Data path: GCE Tokyo on *ens4 (local)* → GCE London on *ens4 (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.google.com` and have been applied to correct the timestamps in logs.

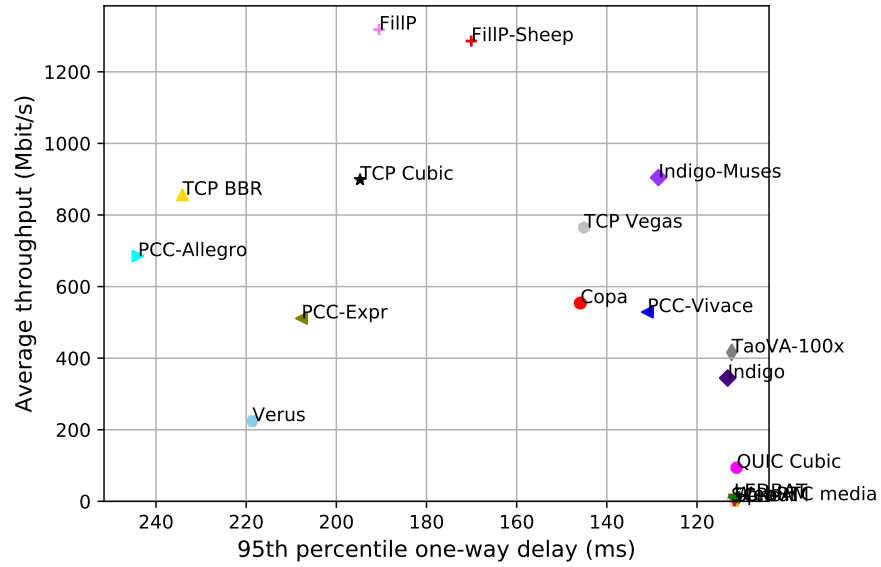
### System info:

```
Linux 4.15.0-1018-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```

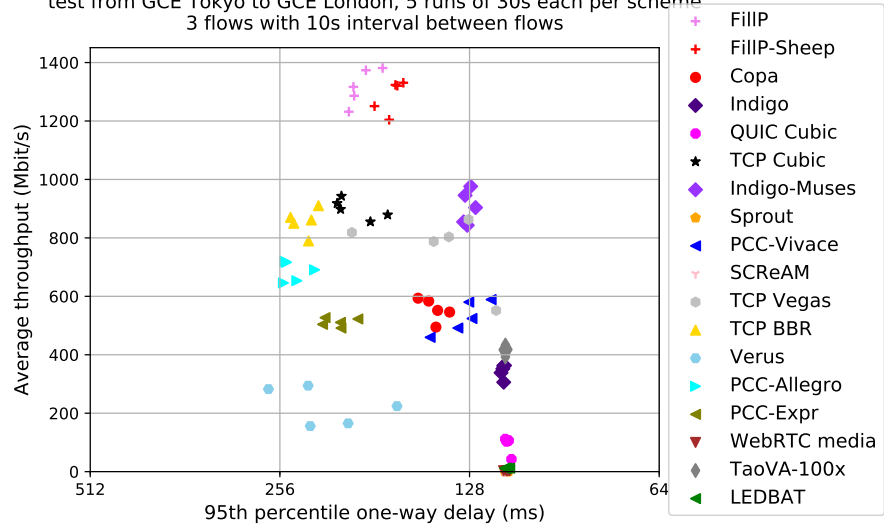
### Git summary:

```
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-quick @ 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 GCE Tokyo to GCE London, 5 runs of 30s each per scheme  
3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE Tokyo to GCE London, 5 runs of 30s each per scheme  
3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	462.58	435.48	311.78	222.91	236.13	194.78	2.06	3.03	2.46
Copa	5	295.29	269.32	237.97	133.63	158.14	153.71	0.03	0.01	0.71
TCP Cubic	5	513.32	420.95	316.02	189.50	192.59	187.39	0.08	0.25	0.60
FillP	5	701.83	659.40	534.62	194.44	185.84	178.12	4.23	3.24	2.90
FillP-Sheep	5	717.72	613.29	482.39	171.09	172.22	142.33	1.49	1.19	0.02
Indigo	5	193.48	163.09	134.06	113.25	112.89	112.40	0.00	0.00	0.01
LEDBAT	5	7.57	5.03	2.46	111.23	111.35	111.41	0.00	0.00	0.00
Indigo-Muses	5	481.21	428.72	428.78	129.74	127.43	123.20	0.00	0.02	0.01
PCC-Allegro	5	397.52	292.61	283.33	241.83	220.01	244.60	5.46	3.97	5.89
PCC-Expr	5	283.54	245.57	194.52	199.04	166.04	162.24	1.49	1.44	1.16
QUIC Cubic	5	45.75	53.76	38.57	111.19	110.45	110.65	0.00	0.00	0.00
SCReAM	5	0.20	0.22	0.20	112.03	112.37	111.81	0.00	0.00	0.00
Sprout	5	0.22	0.21	0.24	111.37	110.59	110.90	0.00	0.00	0.00
TaoVA-100x	5	212.09	210.52	192.93	112.16	112.36	111.67	0.00	0.00	0.00
TCP Vegas	5	426.89	364.43	286.46	147.09	133.81	125.28	0.05	0.18	0.11
Verus	5	137.34	112.50	54.12	190.49	208.90	176.49	0.90	2.51	0.57
PCC-Vivace	5	335.96	210.72	160.32	127.46	135.73	139.51	0.07	0.00	0.00
WebRTC media	5	1.89	1.10	0.37	111.68	111.34	111.28	0.00	0.01	0.00

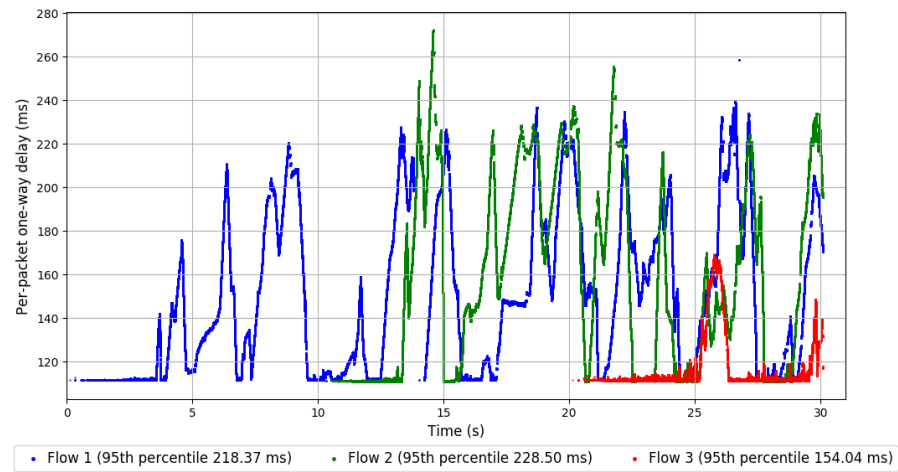
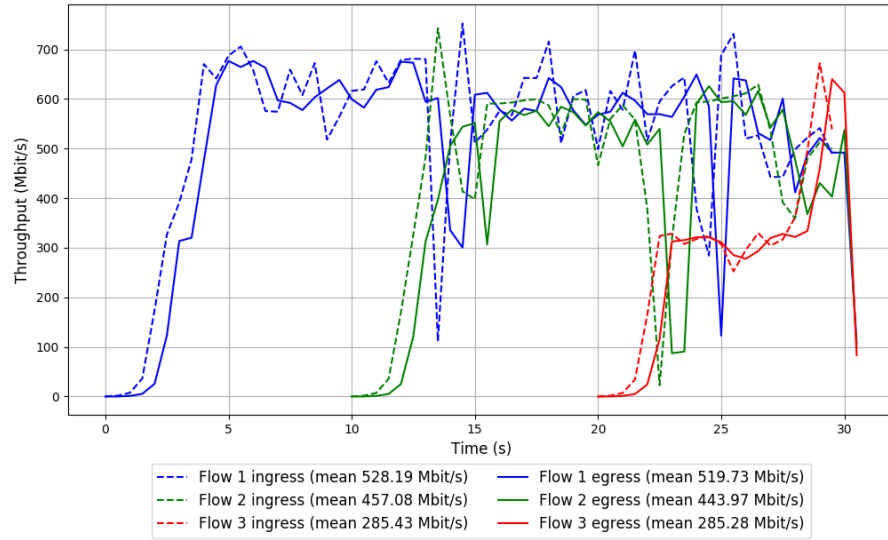
Run 1: Statistics of TCP BBR

Start at: 2018-09-06 07:34:56  
End at: 2018-09-06 07:35:26  
Local clock offset: 0.327 ms  
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2018-09-06 10:25:22  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 910.25 Mbit/s  
95th percentile per-packet one-way delay: 222.333 ms  
Loss rate: 1.85%  
-- Flow 1:  
Average throughput: 519.73 Mbit/s  
95th percentile per-packet one-way delay: 218.372 ms  
Loss rate: 1.60%  
-- Flow 2:  
Average throughput: 443.97 Mbit/s  
95th percentile per-packet one-way delay: 228.500 ms  
Loss rate: 2.87%  
-- Flow 3:  
Average throughput: 285.28 Mbit/s  
95th percentile per-packet one-way delay: 154.038 ms  
Loss rate: 0.00%



# Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-06 08:08:21

End at: 2018-09-06 08:08:51

Local clock offset: -0.229 ms

Remote clock offset: 0.204 ms

# Below is generated by plot.py at 2018-09-06 10:25:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 861.29 Mbit/s

95th percentile per-packet one-way delay: 228.165 ms

Loss rate: 1.68%

-- Flow 1:

Average throughput: 469.74 Mbit/s

95th percentile per-packet one-way delay: 223.418 ms

Loss rate: 1.64%

-- Flow 2:

Average throughput: 430.63 Mbit/s

95th percentile per-packet one-way delay: 237.769 ms

Loss rate: 1.88%

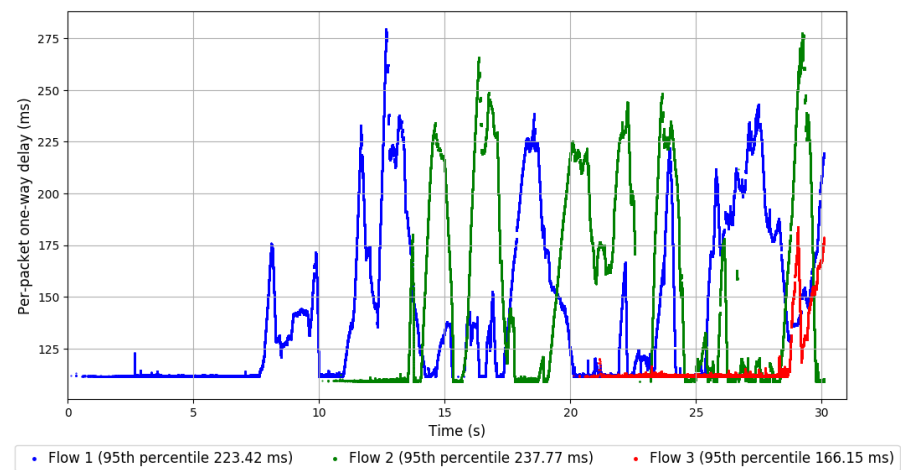
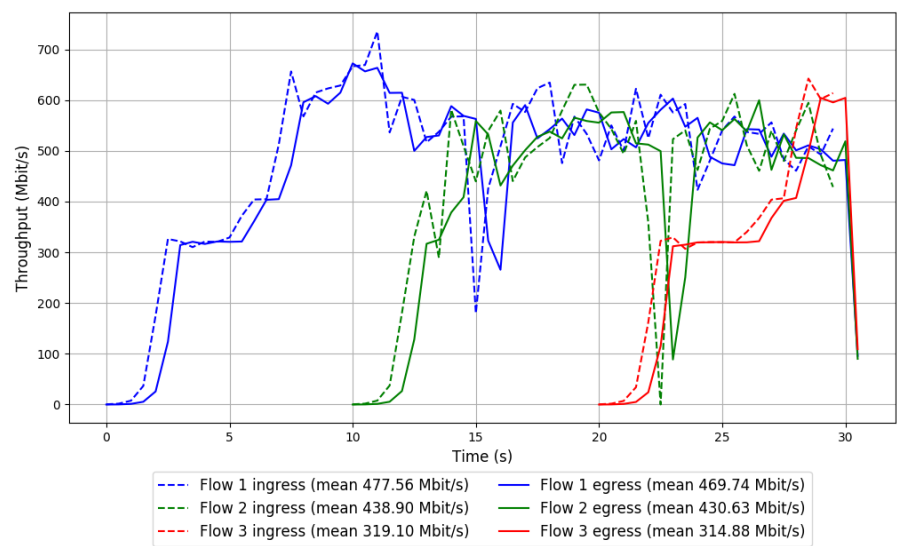
-- Flow 3:

Average throughput: 314.88 Mbit/s

95th percentile per-packet one-way delay: 166.145 ms

Loss rate: 1.31%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-09-06 08:41:40

End at: 2018-09-06 08:42:10

Local clock offset: -0.13 ms

Remote clock offset: 0.064 ms

# Below is generated by plot.py at 2018-09-06 10:25:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 870.27 Mbit/s

95th percentile per-packet one-way delay: 246.208 ms

Loss rate: 2.78%

-- Flow 1:

Average throughput: 479.45 Mbit/s

95th percentile per-packet one-way delay: 231.096 ms

Loss rate: 2.87%

-- Flow 2:

Average throughput: 427.33 Mbit/s

95th percentile per-packet one-way delay: 208.719 ms

Loss rate: 0.54%

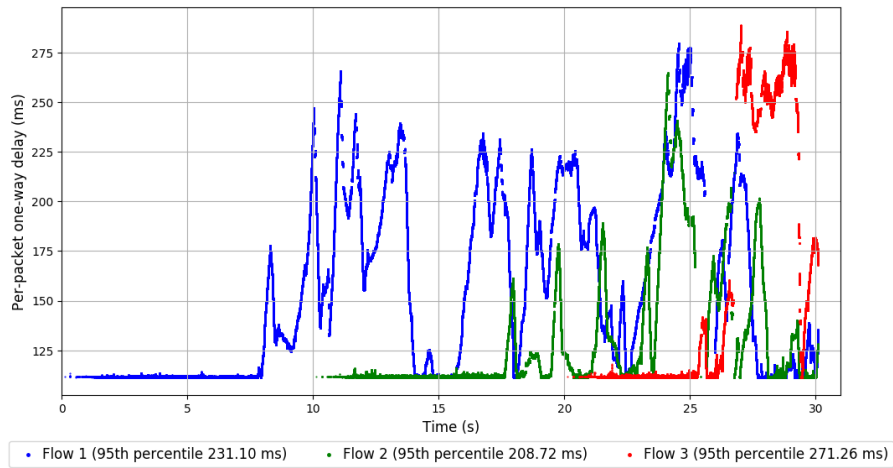
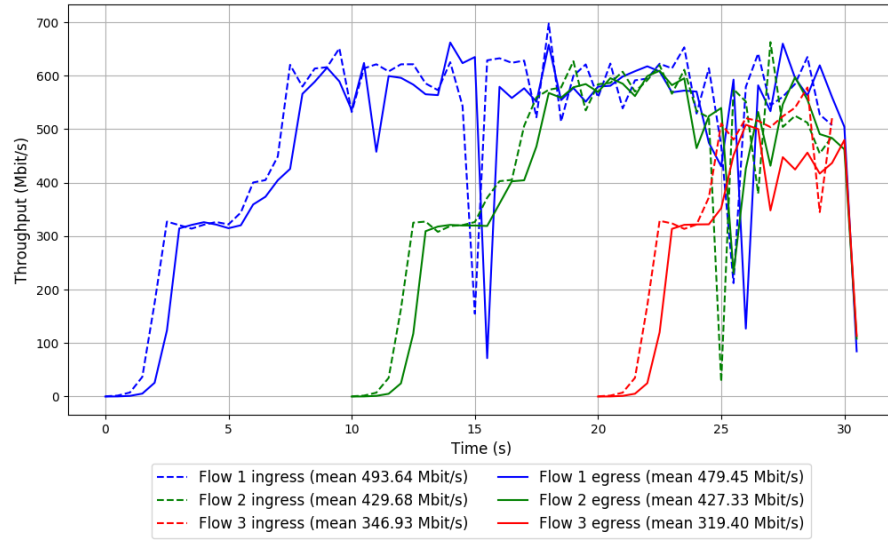
-- Flow 3:

Average throughput: 319.40 Mbit/s

95th percentile per-packet one-way delay: 271.260 ms

Loss rate: 7.93%

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



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 09:14:44

End at: 2018-09-06 09:15:14

Local clock offset: -0.12 ms

Remote clock offset: 0.483 ms

# Below is generated by plot.py at 2018-09-06 10:25:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 789.61 Mbit/s

95th percentile per-packet one-way delay: 230.542 ms

Loss rate: 2.14%

-- Flow 1:

Average throughput: 394.34 Mbit/s

95th percentile per-packet one-way delay: 205.755 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 440.54 Mbit/s

95th percentile per-packet one-way delay: 239.396 ms

Loss rate: 4.20%

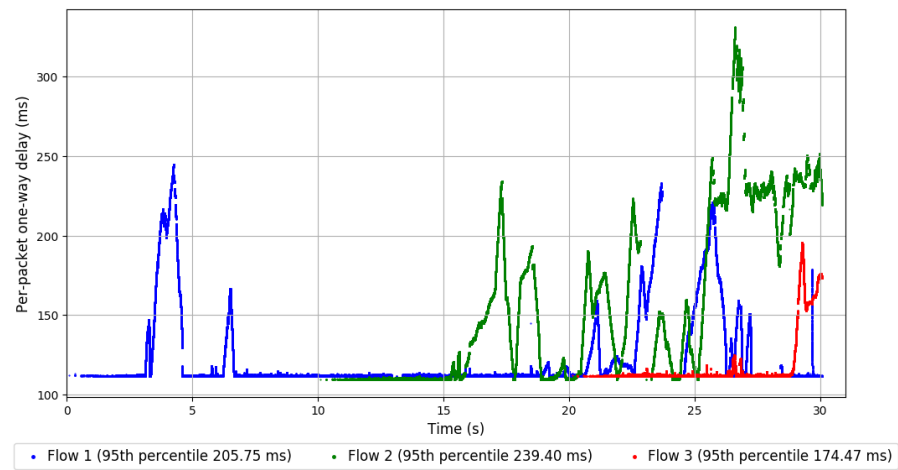
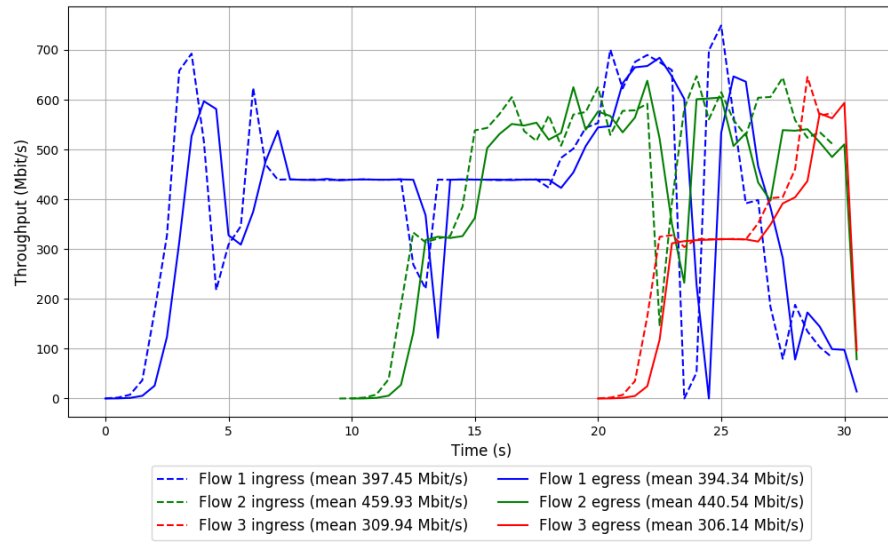
-- Flow 3:

Average throughput: 306.14 Mbit/s

95th percentile per-packet one-way delay: 174.469 ms

Loss rate: 1.23%

# Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 09:47:54

End at: 2018-09-06 09:48:24

Local clock offset: 0.042 ms

Remote clock offset: 0.076 ms

# Below is generated by plot.py at 2018-09-06 10:25:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 850.02 Mbit/s

95th percentile per-packet one-way delay: 243.311 ms

Loss rate: 3.98%

-- Flow 1:

Average throughput: 449.66 Mbit/s

95th percentile per-packet one-way delay: 235.922 ms

Loss rate: 3.39%

-- Flow 2:

Average throughput: 434.94 Mbit/s

95th percentile per-packet one-way delay: 266.242 ms

Loss rate: 5.67%

-- Flow 3:

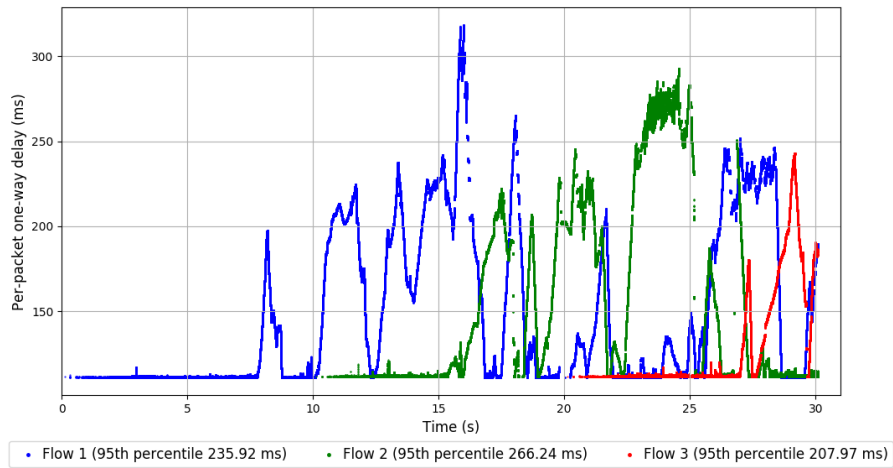
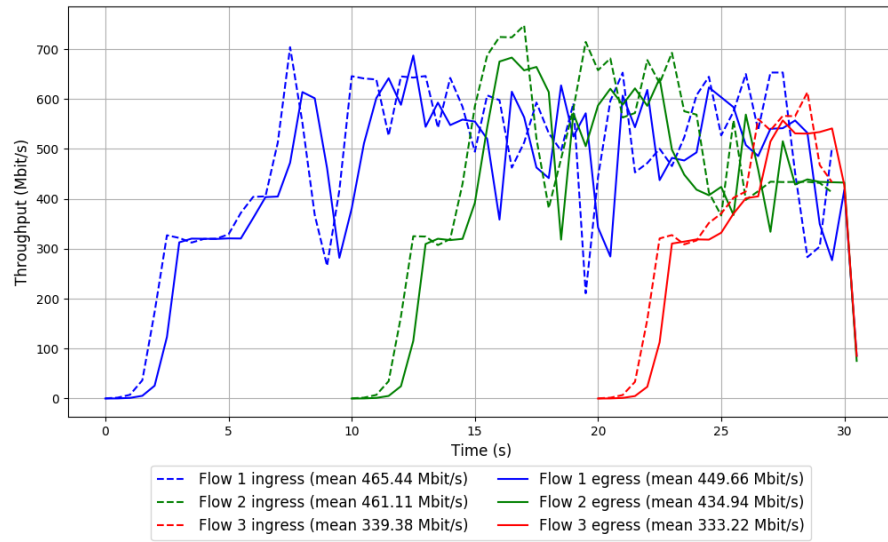
Average throughput: 333.22 Mbit/s

95th percentile per-packet one-way delay: 207.975 ms

Loss rate: 1.81%



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



Run 1: Statistics of Copa

Start at: 2018-09-06 07:13:07

End at: 2018-09-06 07:13:37

Local clock offset: -0.036 ms

Remote clock offset: 0.503 ms

# Below is generated by plot.py at 2018-09-06 10:27:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 583.68 Mbit/s

95th percentile per-packet one-way delay: 148.617 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 316.98 Mbit/s

95th percentile per-packet one-way delay: 151.018 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 280.79 Mbit/s

95th percentile per-packet one-way delay: 142.872 ms

Loss rate: 0.05%

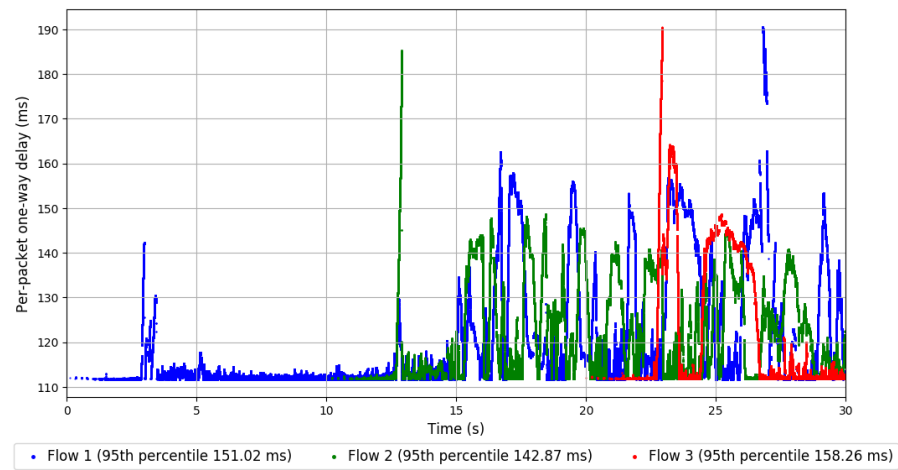
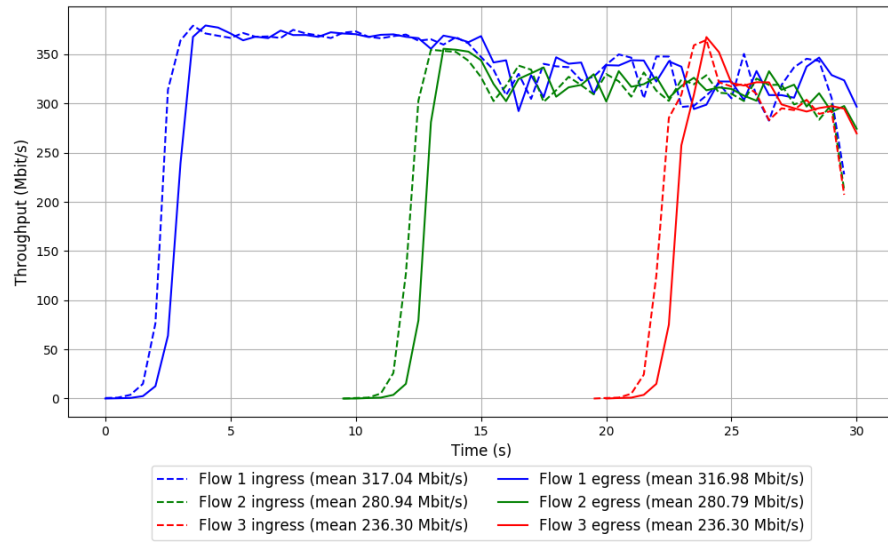
-- Flow 3:

Average throughput: 236.30 Mbit/s

95th percentile per-packet one-way delay: 158.264 ms

Loss rate: 0.00%

# Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-06 07:46:28

End at: 2018-09-06 07:46:58

Local clock offset: 0.41 ms

Remote clock offset: 0.243 ms

# Below is generated by plot.py at 2018-09-06 10:27:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 494.62 Mbit/s

95th percentile per-packet one-way delay: 144.737 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 267.10 Mbit/s

95th percentile per-packet one-way delay: 131.965 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 225.13 Mbit/s

95th percentile per-packet one-way delay: 200.056 ms

Loss rate: 0.00%

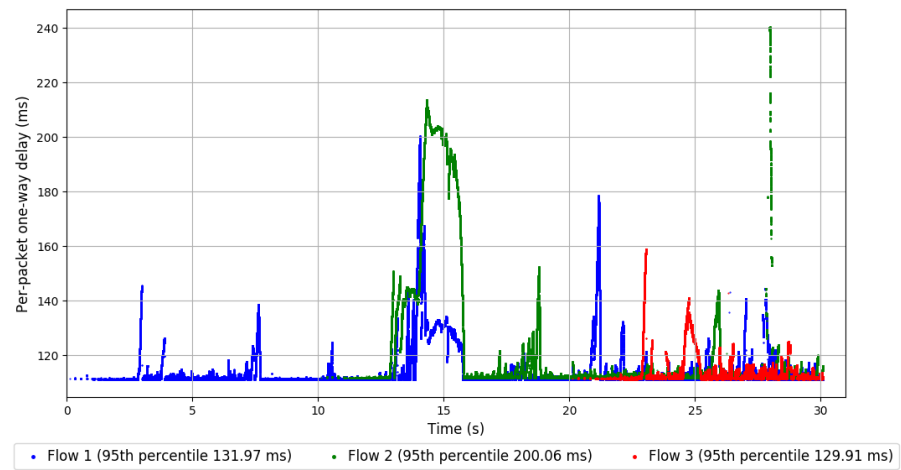
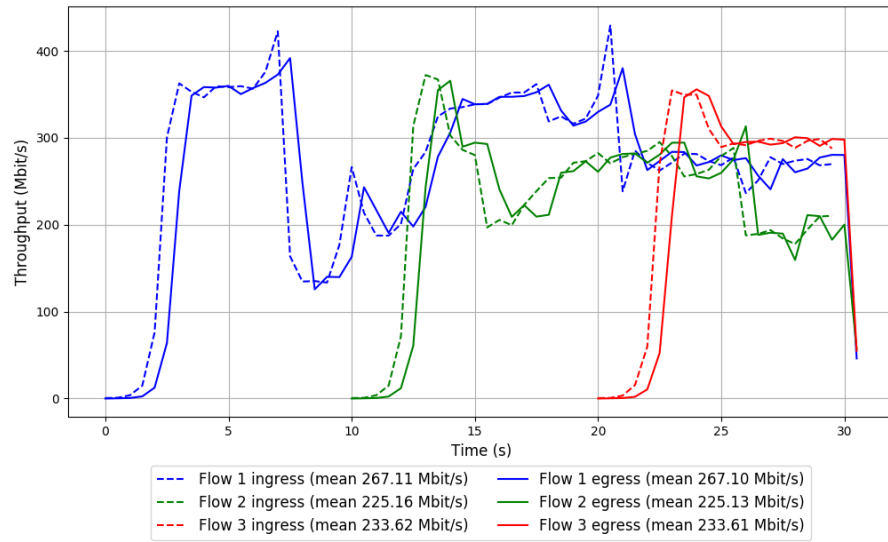
-- Flow 3:

Average throughput: 233.61 Mbit/s

95th percentile per-packet one-way delay: 129.914 ms

Loss rate: 0.00%

## Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-09-06 08:19:43

End at: 2018-09-06 08:20:13

Local clock offset: -0.25 ms

Remote clock offset: 0.259 ms

# Below is generated by plot.py at 2018-09-06 10:27:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 593.55 Mbit/s

95th percentile per-packet one-way delay: 154.483 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 318.43 Mbit/s

95th percentile per-packet one-way delay: 132.505 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 300.60 Mbit/s

95th percentile per-packet one-way delay: 158.602 ms

Loss rate: 0.00%

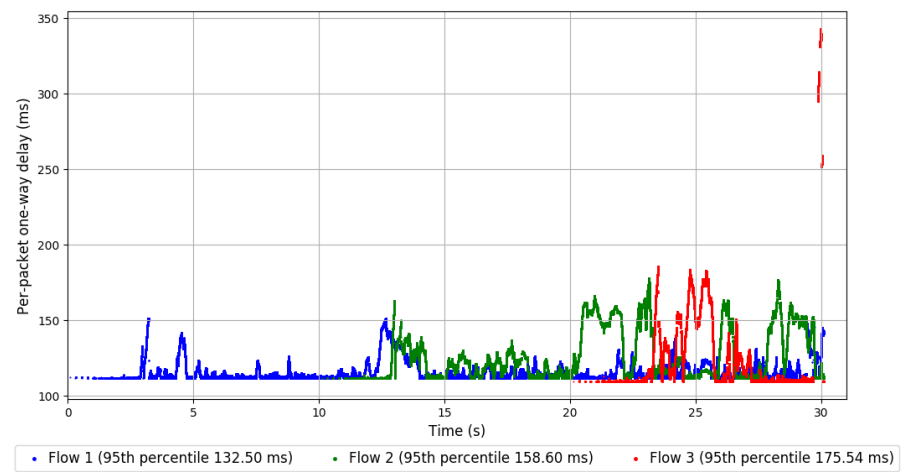
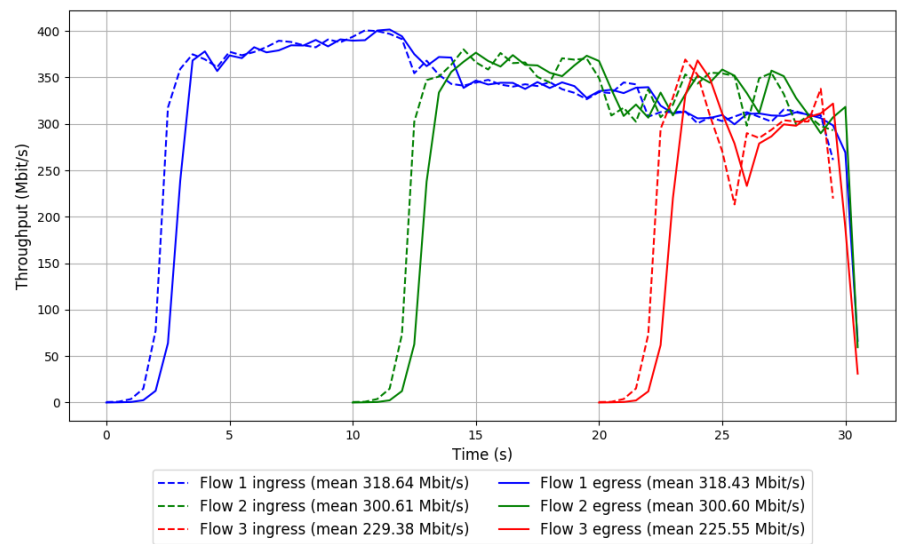
-- Flow 3:

Average throughput: 225.55 Mbit/s

95th percentile per-packet one-way delay: 175.542 ms

Loss rate: 1.67%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 08:53:09

End at: 2018-09-06 08:53:39

Local clock offset: 0.093 ms

Remote clock offset: 0.075 ms

# Below is generated by plot.py at 2018-09-06 10:39:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 546.10 Mbit/s

95th percentile per-packet one-way delay: 137.670 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 281.85 Mbit/s

95th percentile per-packet one-way delay: 130.483 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 272.80 Mbit/s

95th percentile per-packet one-way delay: 139.968 ms

Loss rate: 0.00%

-- Flow 3:

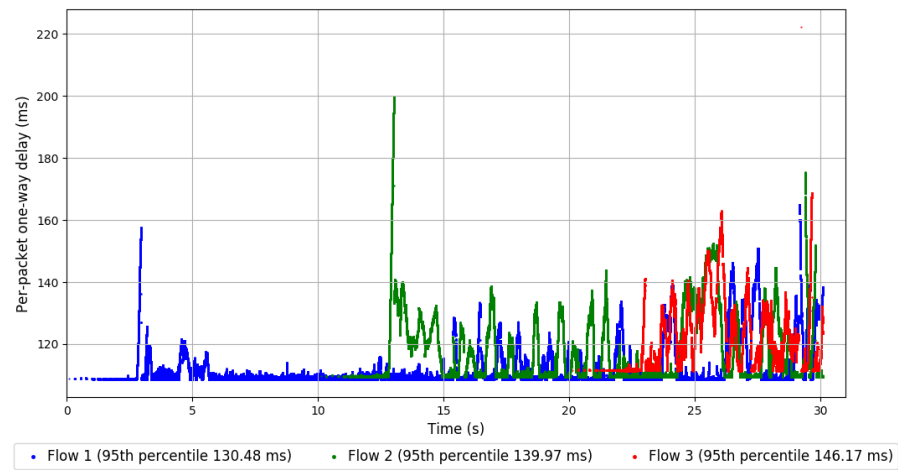
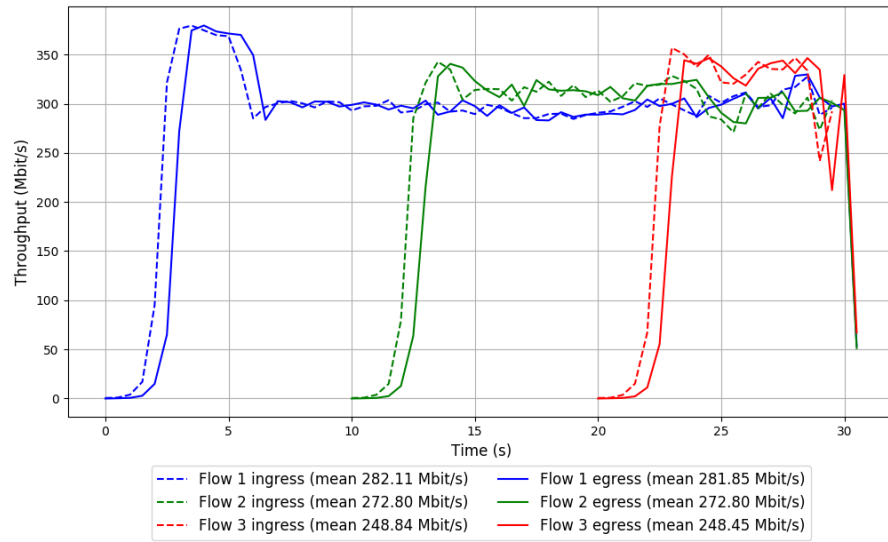
Average throughput: 248.45 Mbit/s

95th percentile per-packet one-way delay: 146.174 ms

Loss rate: 0.15%



#### Run 4: Report of Copa — Data Link

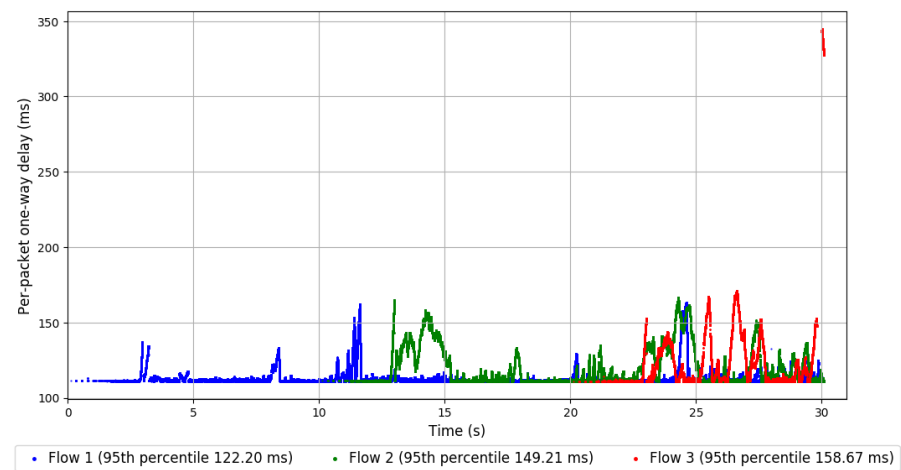
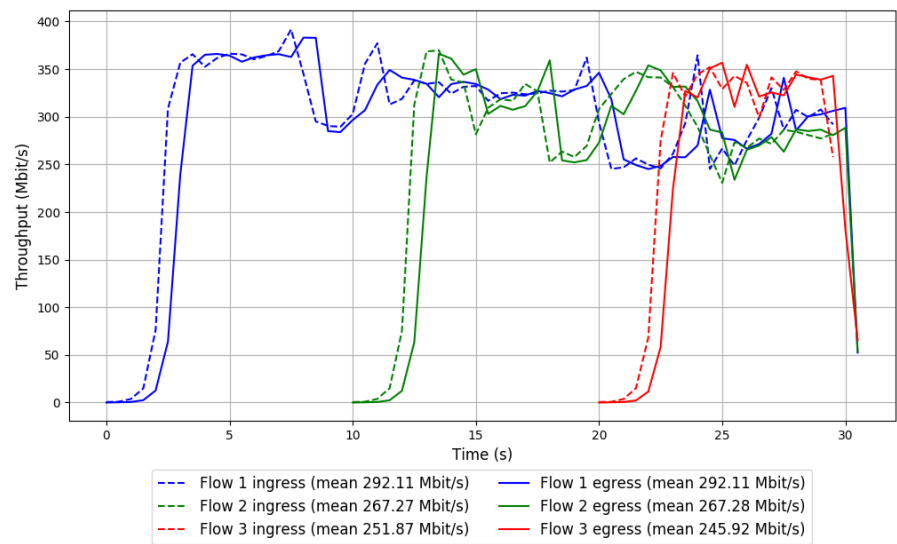


Run 5: Statistics of Copa

Start at: 2018-09-06 09:25:54  
End at: 2018-09-06 09:26:24  
Local clock offset: -0.207 ms  
Remote clock offset: -0.195 ms

# Below is generated by plot.py at 2018-09-06 10:40:38  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 551.87 Mbit/s  
95th percentile per-packet one-way delay: 143.833 ms  
Loss rate: 0.26%  
-- Flow 1:  
Average throughput: 292.11 Mbit/s  
95th percentile per-packet one-way delay: 122.198 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 267.28 Mbit/s  
95th percentile per-packet one-way delay: 149.209 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 245.92 Mbit/s  
95th percentile per-packet one-way delay: 158.667 ms  
Loss rate: 1.73%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 07:19:32

End at: 2018-09-06 07:20:02

Local clock offset: 1.192 ms

Remote clock offset: 0.005 ms

# Below is generated by plot.py at 2018-09-06 10:40:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 878.98 Mbit/s

95th percentile per-packet one-way delay: 172.661 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 501.53 Mbit/s

95th percentile per-packet one-way delay: 171.689 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 437.57 Mbit/s

95th percentile per-packet one-way delay: 167.528 ms

Loss rate: 0.23%

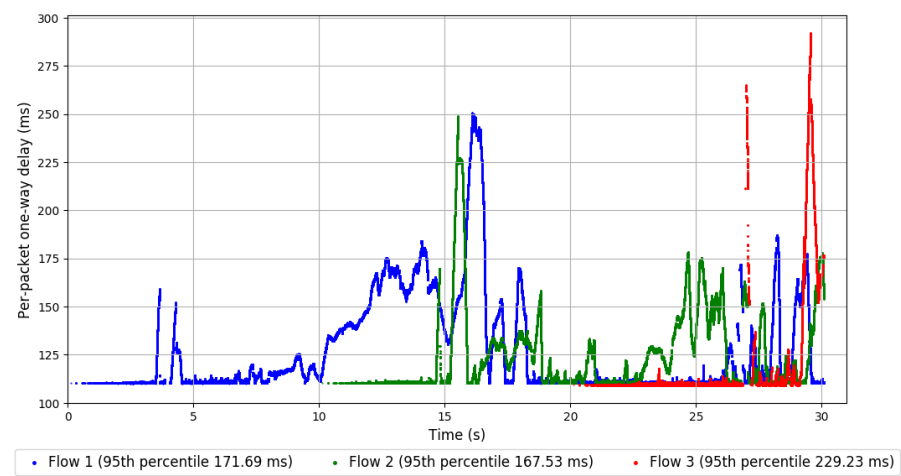
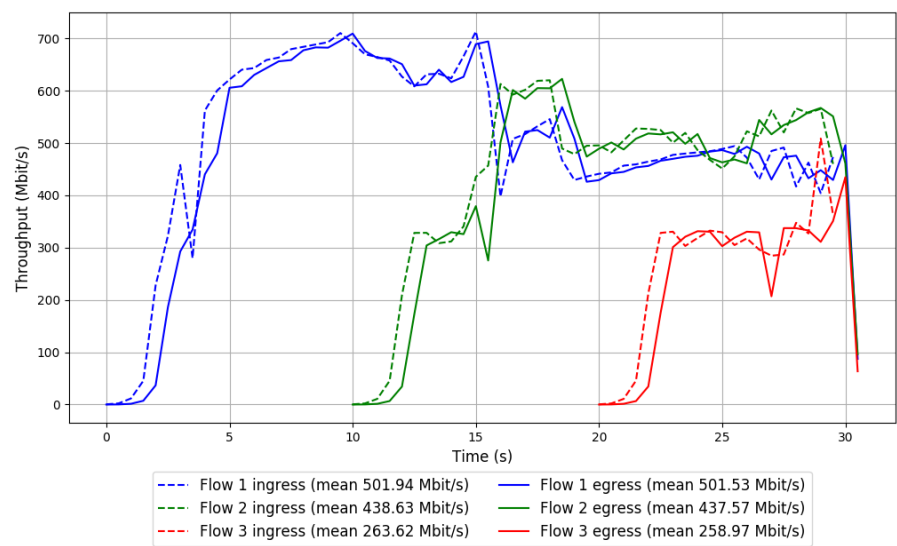
-- Flow 3:

Average throughput: 258.97 Mbit/s

95th percentile per-packet one-way delay: 229.232 ms

Loss rate: 1.74%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 07:52:43

End at: 2018-09-06 07:53:13

Local clock offset: 0.402 ms

Remote clock offset: 0.214 ms

# Below is generated by plot.py at 2018-09-06 10:40:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 918.02 Mbit/s

95th percentile per-packet one-way delay: 207.665 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 532.89 Mbit/s

95th percentile per-packet one-way delay: 179.071 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 405.19 Mbit/s

95th percentile per-packet one-way delay: 182.338 ms

Loss rate: 0.31%

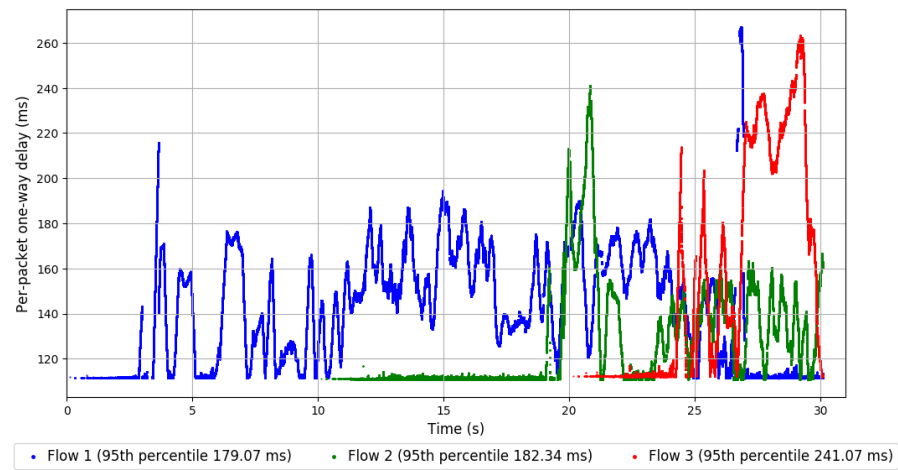
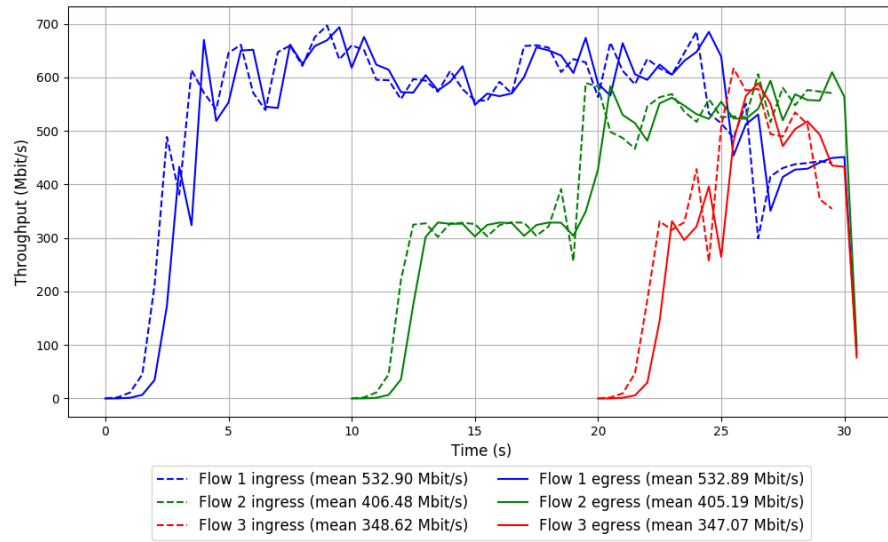
-- Flow 3:

Average throughput: 347.07 Mbit/s

95th percentile per-packet one-way delay: 241.067 ms

Loss rate: 0.44%

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



Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 08:26:07

End at: 2018-09-06 08:26:37

Local clock offset: 0.511 ms

Remote clock offset: 0.52 ms

# Below is generated by plot.py at 2018-09-06 10:40:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 855.18 Mbit/s

95th percentile per-packet one-way delay: 183.879 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 459.30 Mbit/s

95th percentile per-packet one-way delay: 192.460 ms

Loss rate: 0.21%

-- Flow 2:

Average throughput: 443.62 Mbit/s

95th percentile per-packet one-way delay: 180.755 ms

Loss rate: 0.00%

-- Flow 3:

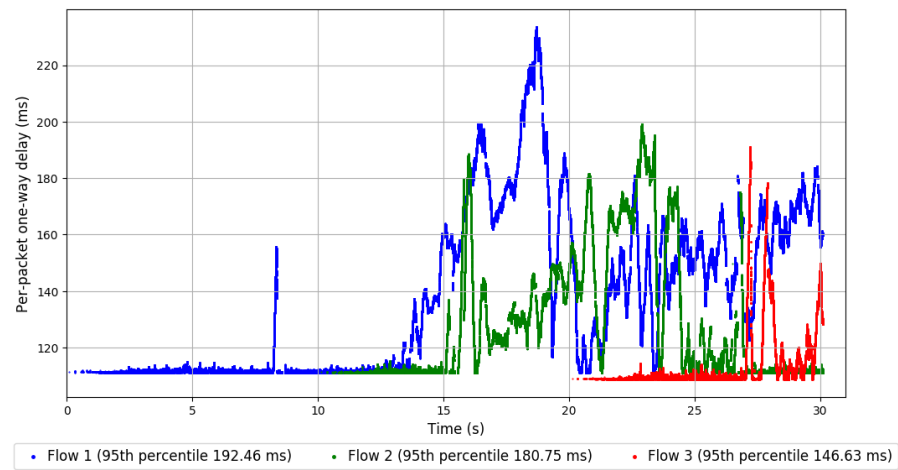
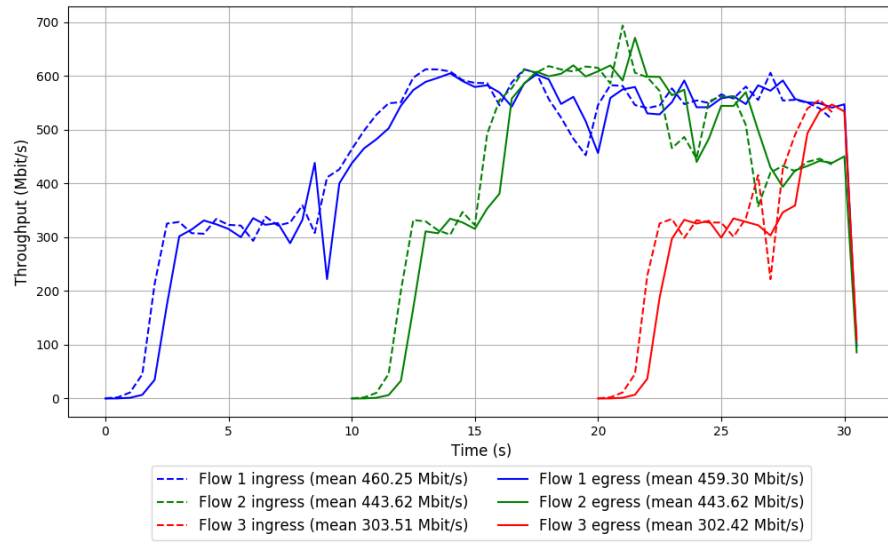
Average throughput: 302.42 Mbit/s

95th percentile per-packet one-way delay: 146.634 ms

Loss rate: 0.33%



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



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 08:59:13

End at: 2018-09-06 08:59:43

Local clock offset: 0.096 ms

Remote clock offset: 0.092 ms

# Below is generated by plot.py at 2018-09-06 10:40:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 897.98 Mbit/s

95th percentile per-packet one-way delay: 205.035 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 530.19 Mbit/s

95th percentile per-packet one-way delay: 202.077 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 397.80 Mbit/s

95th percentile per-packet one-way delay: 221.233 ms

Loss rate: 0.66%

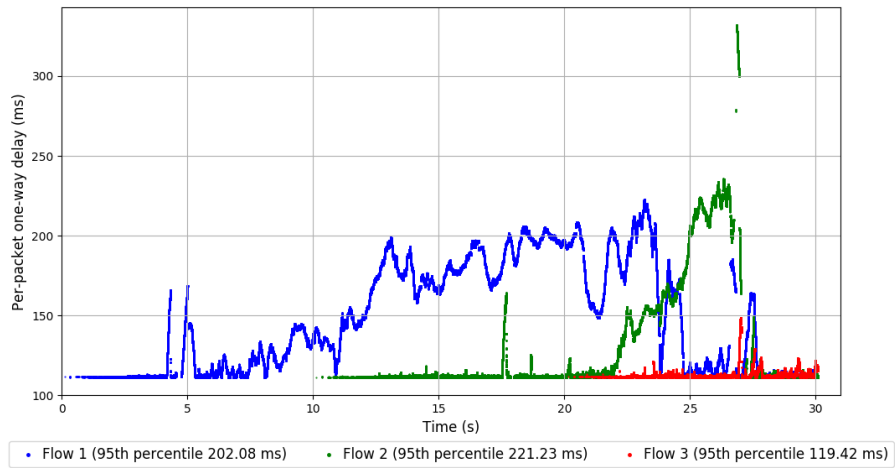
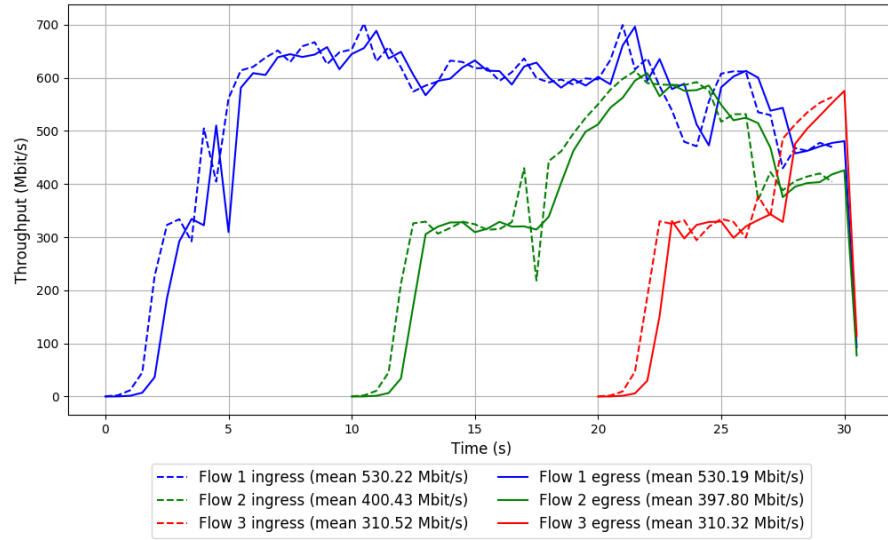
-- Flow 3:

Average throughput: 310.32 Mbit/s

95th percentile per-packet one-way delay: 119.419 ms

Loss rate: 0.06%

# Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 09:32:17

End at: 2018-09-06 09:32:47

Local clock offset: 0.435 ms

Remote clock offset: 0.156 ms

# Below is generated by plot.py at 2018-09-06 10:42:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 942.94 Mbit/s

95th percentile per-packet one-way delay: 204.424 ms

Loss rate: 0.13%

-- Flow 1:

Average throughput: 542.68 Mbit/s

95th percentile per-packet one-way delay: 202.190 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 420.57 Mbit/s

95th percentile per-packet one-way delay: 211.108 ms

Loss rate: 0.05%

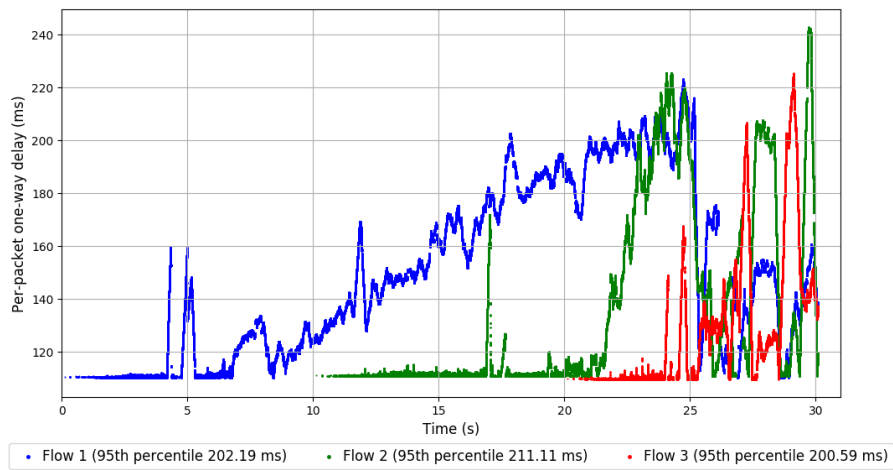
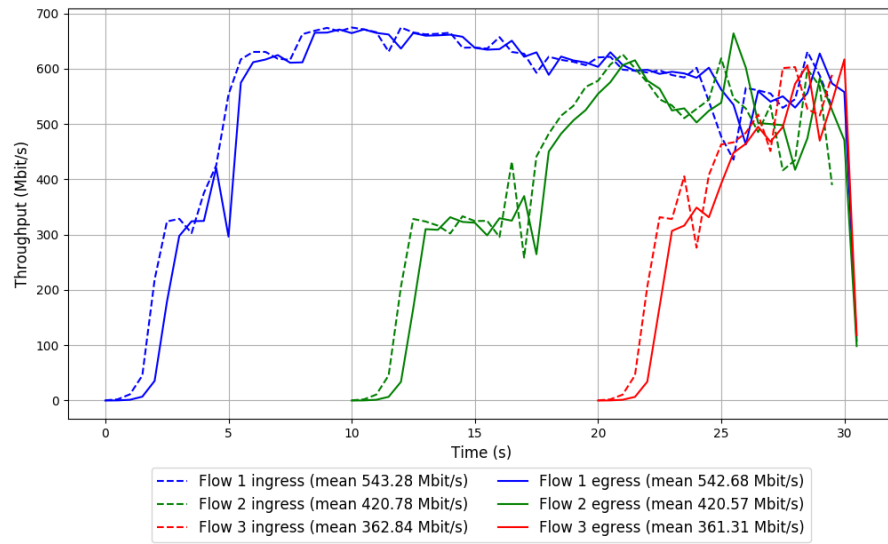
-- Flow 3:

Average throughput: 361.31 Mbit/s

95th percentile per-packet one-way delay: 200.593 ms

Loss rate: 0.42%

# Run 5: Report of TCP Cubic — Data Link

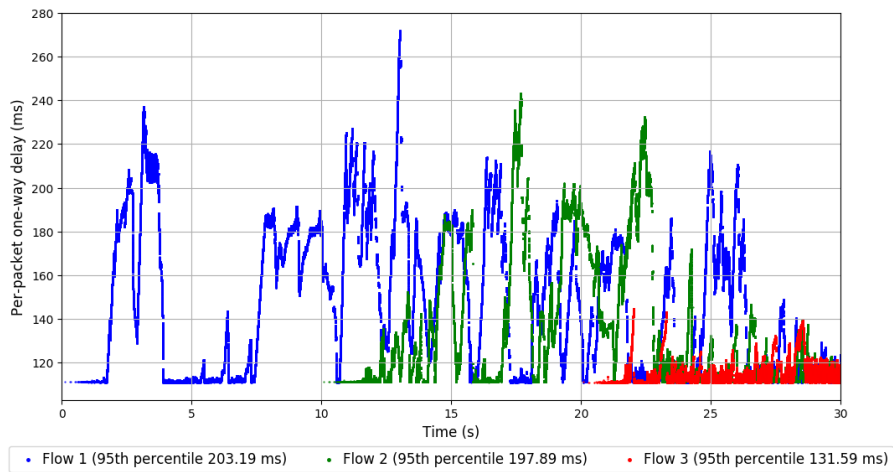
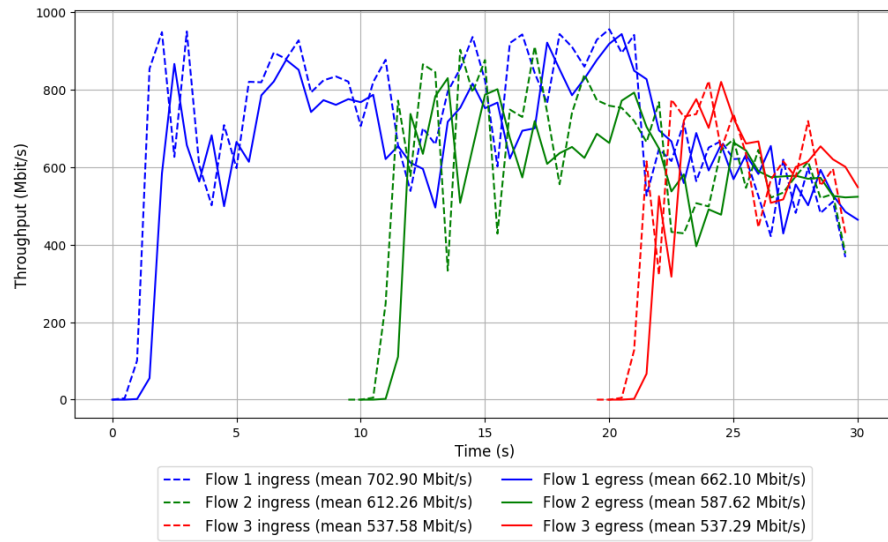


Run 1: Statistics of FillP

Start at: 2018-09-06 07:37:09  
End at: 2018-09-06 07:37:39  
Local clock offset: 0.695 ms  
Remote clock offset: -0.141 ms

# Below is generated by plot.py at 2018-09-06 10:50:12  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1231.80 Mbit/s  
95th percentile per-packet one-way delay: 198.958 ms  
Loss rate: 4.44%  
-- Flow 1:  
Average throughput: 662.10 Mbit/s  
95th percentile per-packet one-way delay: 203.192 ms  
Loss rate: 5.80%  
-- Flow 2:  
Average throughput: 587.62 Mbit/s  
95th percentile per-packet one-way delay: 197.893 ms  
Loss rate: 4.02%  
-- Flow 3:  
Average throughput: 537.29 Mbit/s  
95th percentile per-packet one-way delay: 131.589 ms  
Loss rate: 0.04%

## Run 1: Report of FillP — Data Link



Run 2: Statistics of FillP

Start at: 2018-09-06 08:10:31

End at: 2018-09-06 08:11:01

Local clock offset: 1.079 ms

Remote clock offset: 0.563 ms

# Below is generated by plot.py at 2018-09-06 11:04:11

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1286.29 Mbit/s

95th percentile per-packet one-way delay: 195.113 ms

Loss rate: 4.21%

-- Flow 1:

Average throughput: 670.16 Mbit/s

95th percentile per-packet one-way delay: 209.319 ms

Loss rate: 5.80%

-- Flow 2:

Average throughput: 676.33 Mbit/s

95th percentile per-packet one-way delay: 181.661 ms

Loss rate: 2.59%

-- Flow 3:

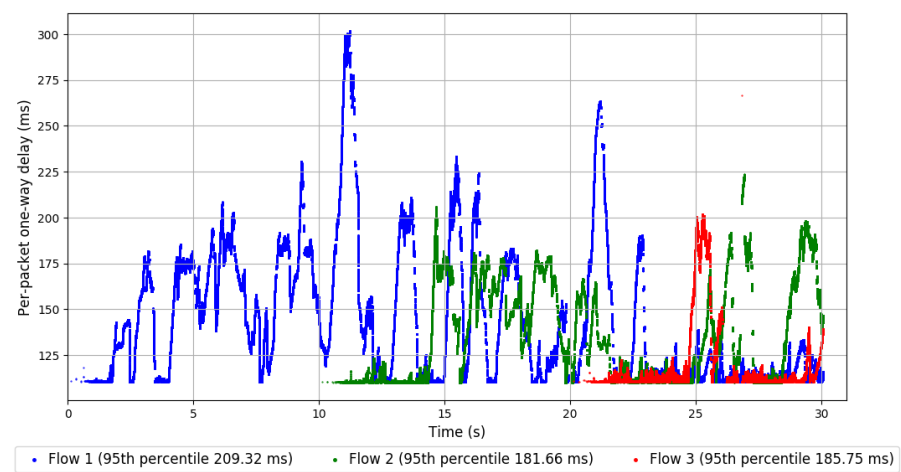
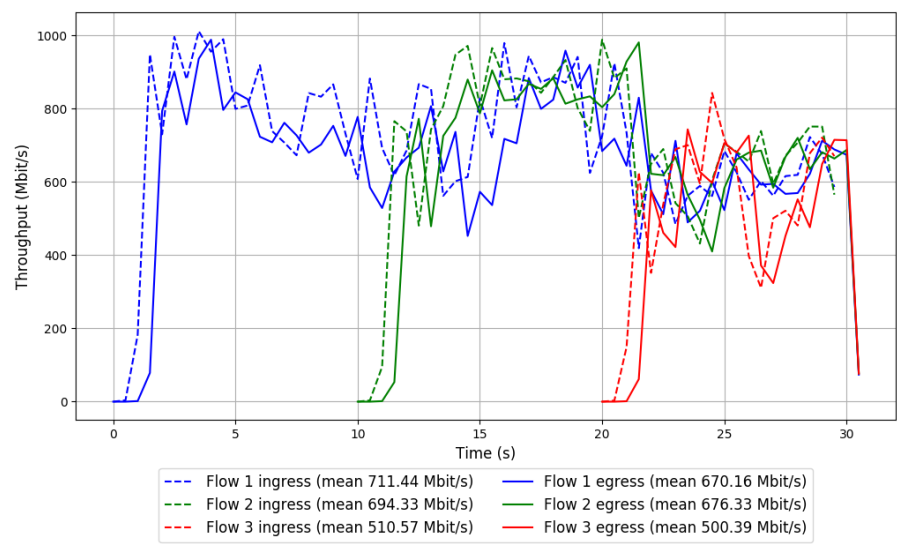
Average throughput: 500.39 Mbit/s

95th percentile per-packet one-way delay: 185.754 ms

Loss rate: 1.99%



Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-06 08:43:51

End at: 2018-09-06 08:44:21

Local clock offset: -0.435 ms

Remote clock offset: 0.061 ms

# Below is generated by plot.py at 2018-09-06 11:04:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1316.76 Mbit/s

95th percentile per-packet one-way delay: 195.666 ms

Loss rate: 4.77%

-- Flow 1:

Average throughput: 685.28 Mbit/s

95th percentile per-packet one-way delay: 199.814 ms

Loss rate: 5.08%

-- Flow 2:

Average throughput: 674.98 Mbit/s

95th percentile per-packet one-way delay: 193.476 ms

Loss rate: 5.12%

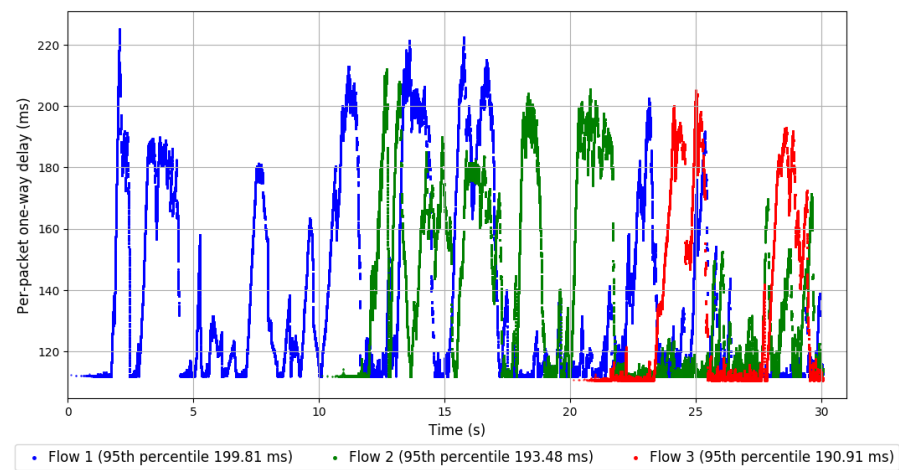
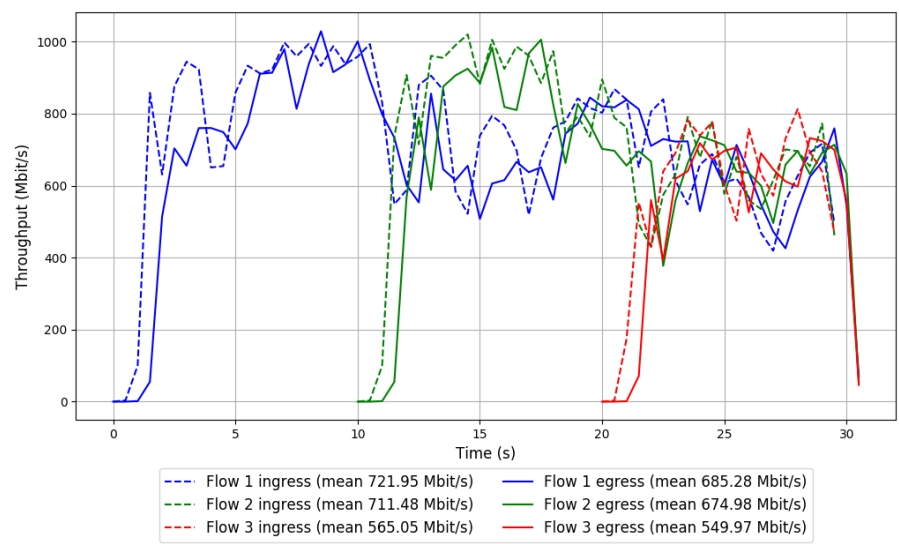
-- Flow 3:

Average throughput: 549.97 Mbit/s

95th percentile per-packet one-way delay: 190.910 ms

Loss rate: 2.66%

Run 3: Report of FillP — Data Link

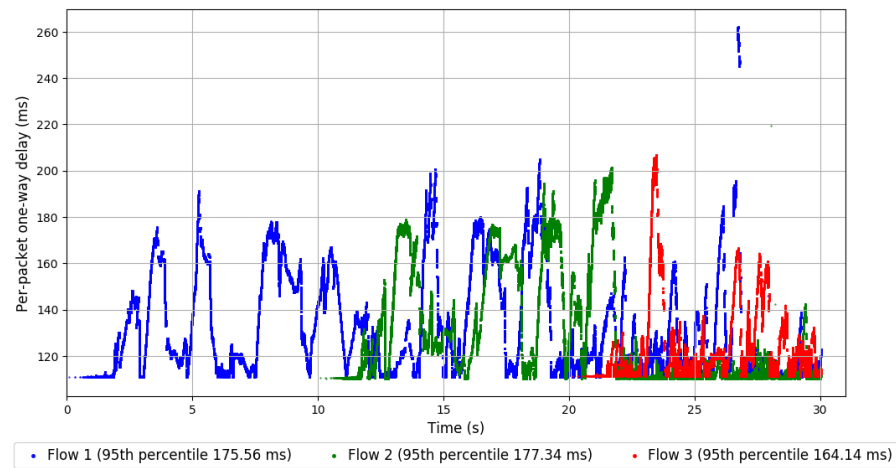
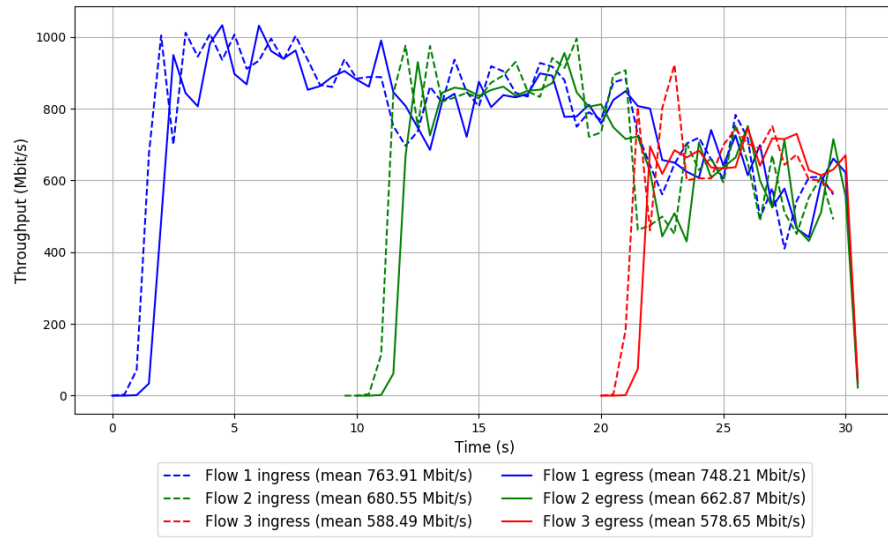


Run 4: Statistics of FillP

Start at: 2018-09-06 09:16:50  
End at: 2018-09-06 09:17:20  
Local clock offset: -0.331 ms  
Remote clock offset: -0.243 ms

# Below is generated by plot.py at 2018-09-06 11:06:55  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1381.26 Mbit/s  
95th percentile per-packet one-way delay: 175.866 ms  
Loss rate: 2.17%  
-- Flow 1:  
Average throughput: 748.21 Mbit/s  
95th percentile per-packet one-way delay: 175.559 ms  
Loss rate: 2.05%  
-- Flow 2:  
Average throughput: 662.87 Mbit/s  
95th percentile per-packet one-way delay: 177.335 ms  
Loss rate: 2.59%  
-- Flow 3:  
Average throughput: 578.65 Mbit/s  
95th percentile per-packet one-way delay: 164.143 ms  
Loss rate: 1.66%

# Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

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

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

Local clock offset: 0.13 ms

Remote clock offset: 0.06 ms

# Below is generated by plot.py at 2018-09-06 11:07:05

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1373.67 Mbit/s

95th percentile per-packet one-way delay: 186.934 ms

Loss rate: 2.99%

-- Flow 1:

Average throughput: 743.40 Mbit/s

95th percentile per-packet one-way delay: 184.341 ms

Loss rate: 2.43%

-- Flow 2:

Average throughput: 695.20 Mbit/s

95th percentile per-packet one-way delay: 178.828 ms

Loss rate: 1.90%

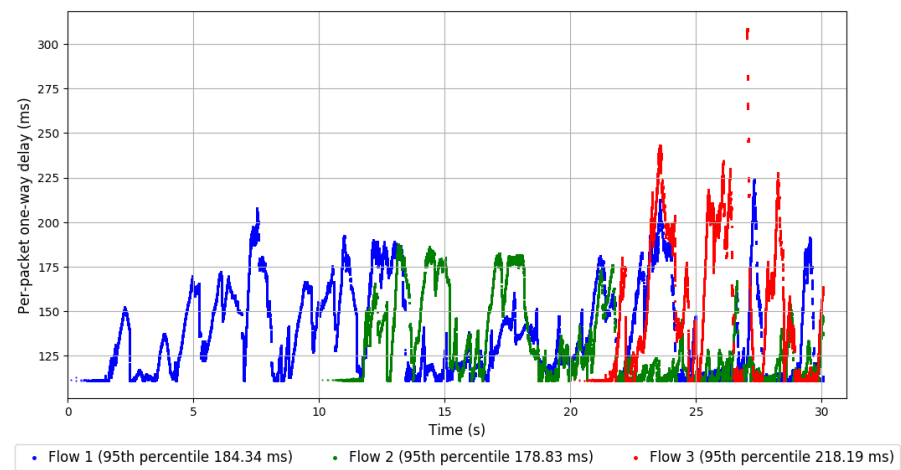
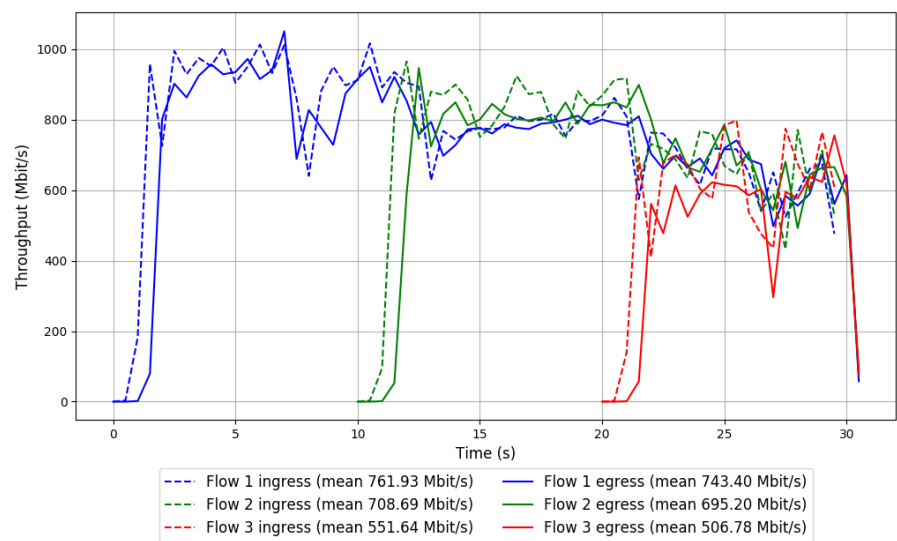
-- Flow 3:

Average throughput: 506.78 Mbit/s

95th percentile per-packet one-way delay: 218.192 ms

Loss rate: 8.13%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 07:32:40

End at: 2018-09-06 07:33:10

Local clock offset: 0.211 ms

Remote clock offset: 0.217 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1330.92 Mbit/s

95th percentile per-packet one-way delay: 163.046 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 753.01 Mbit/s

95th percentile per-packet one-way delay: 164.990 ms

Loss rate: 0.73%

-- Flow 2:

Average throughput: 618.92 Mbit/s

95th percentile per-packet one-way delay: 157.335 ms

Loss rate: 0.65%

-- Flow 3:

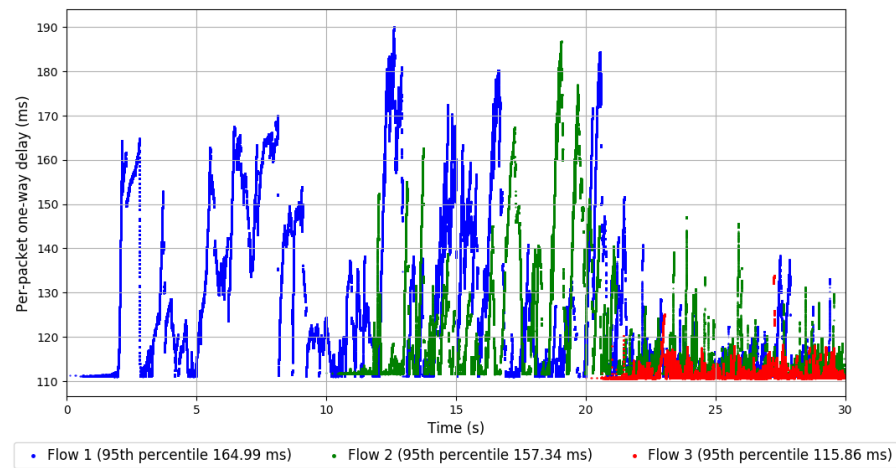
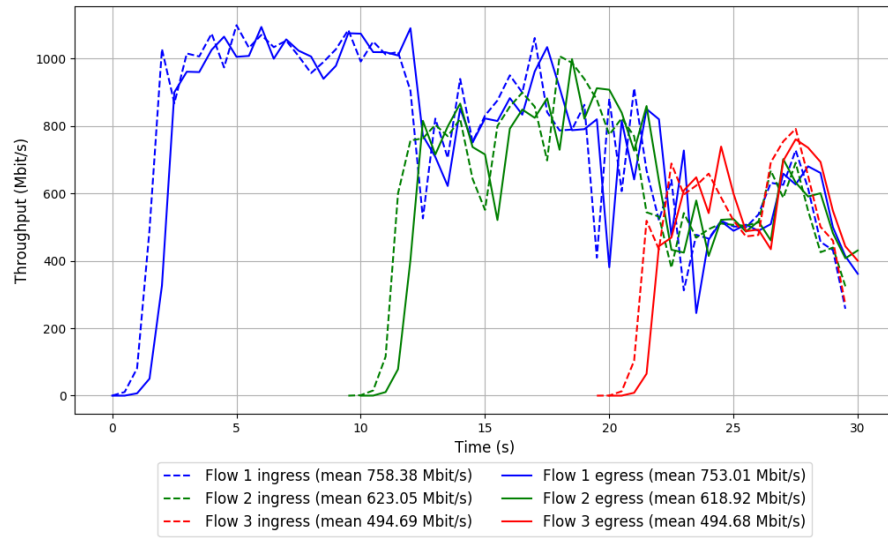
Average throughput: 494.68 Mbit/s

95th percentile per-packet one-way delay: 115.855 ms

Loss rate: 0.00%



# Run 1: Report of FillP-Sheep — Data Link

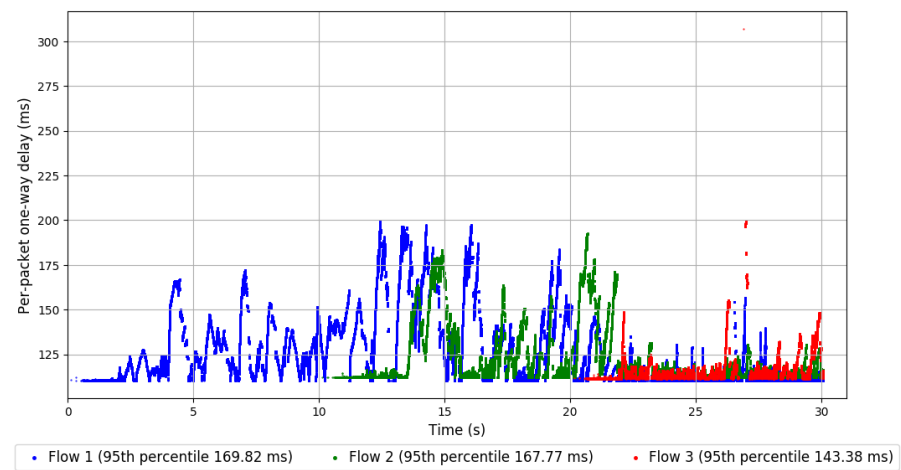
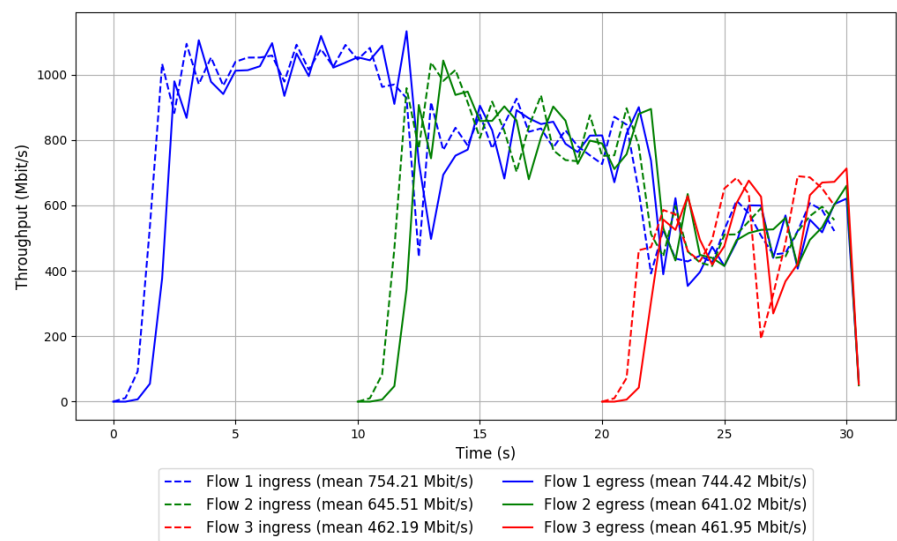


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 08:06:04  
End at: 2018-09-06 08:06:34  
Local clock offset: -1.394 ms  
Remote clock offset: -0.162 ms

# Below is generated by plot.py at 2018-09-06 11:07:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 1323.52 Mbit/s  
95th percentile per-packet one-way delay: 167.836 ms  
Loss rate: 0.95%  
-- Flow 1:  
Average throughput: 744.42 Mbit/s  
95th percentile per-packet one-way delay: 169.820 ms  
Loss rate: 1.30%  
-- Flow 2:  
Average throughput: 641.02 Mbit/s  
95th percentile per-packet one-way delay: 167.771 ms  
Loss rate: 0.68%  
-- Flow 3:  
Average throughput: 461.95 Mbit/s  
95th percentile per-packet one-way delay: 143.375 ms  
Loss rate: 0.02%

Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 08:39:29

End at: 2018-09-06 08:39:59

Local clock offset: 0.629 ms

Remote clock offset: 0.386 ms

# Below is generated by plot.py at 2018-09-06 11:07:38

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1204.13 Mbit/s

95th percentile per-packet one-way delay: 171.708 ms

Loss rate: 1.18%

-- Flow 1:

Average throughput: 656.74 Mbit/s

95th percentile per-packet one-way delay: 175.955 ms

Loss rate: 1.62%

-- Flow 2:

Average throughput: 582.11 Mbit/s

95th percentile per-packet one-way delay: 171.780 ms

Loss rate: 0.89%

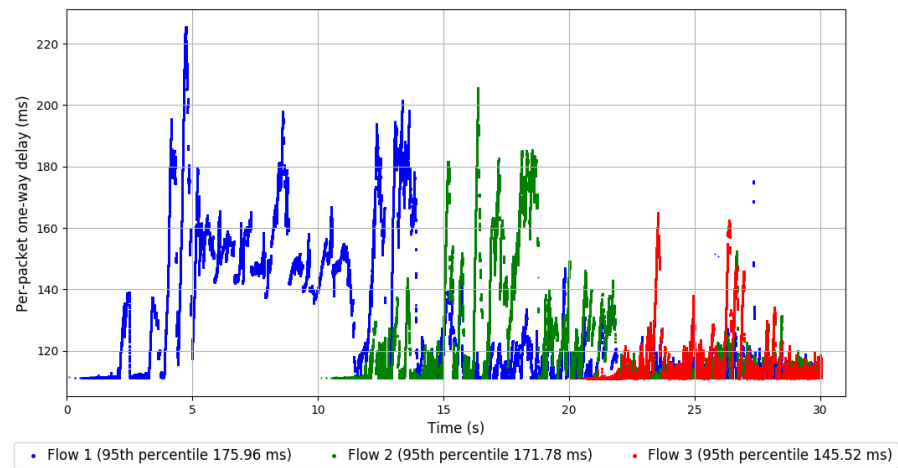
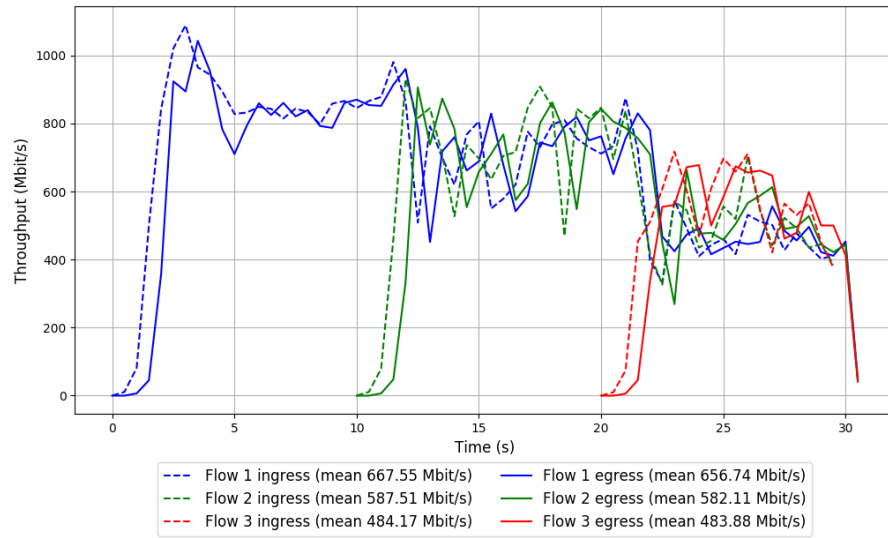
-- Flow 3:

Average throughput: 483.88 Mbit/s

95th percentile per-packet one-way delay: 145.523 ms

Loss rate: 0.05%

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



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 09:12:32

End at: 2018-09-06 09:13:02

Local clock offset: -0.298 ms

Remote clock offset: 0.128 ms

# Below is generated by plot.py at 2018-09-06 11:18:53

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1250.88 Mbit/s

95th percentile per-packet one-way delay: 181.139 ms

Loss rate: 2.28%

-- Flow 1:

Average throughput: 686.75 Mbit/s

95th percentile per-packet one-way delay: 181.298 ms

Loss rate: 3.19%

-- Flow 2:

Average throughput: 606.01 Mbit/s

95th percentile per-packet one-way delay: 185.651 ms

Loss rate: 1.60%

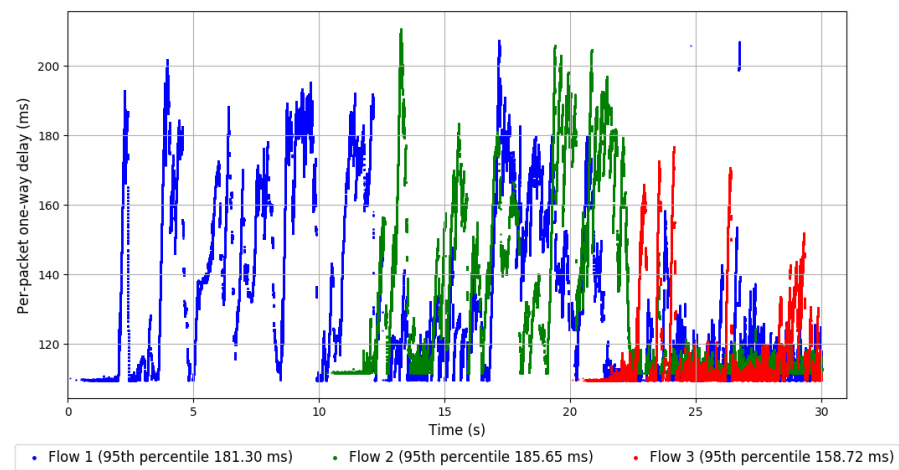
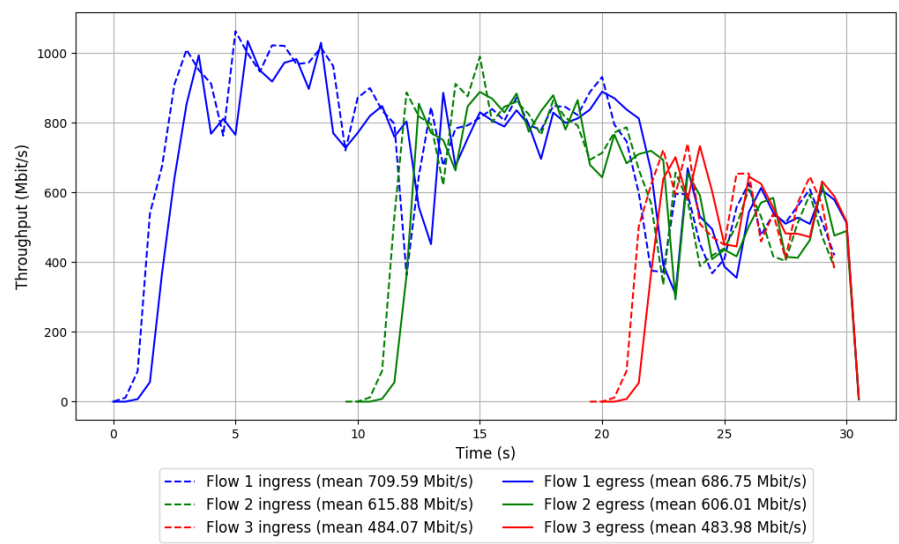
-- Flow 3:

Average throughput: 483.98 Mbit/s

95th percentile per-packet one-way delay: 158.724 ms

Loss rate: 0.00%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

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

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

Local clock offset: 1.247 ms

Remote clock offset: 0.073 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 1320.64 Mbit/s

95th percentile per-packet one-way delay: 166.654 ms

Loss rate: 1.01%

-- Flow 1:

Average throughput: 747.69 Mbit/s

95th percentile per-packet one-way delay: 163.403 ms

Loss rate: 0.59%

-- Flow 2:

Average throughput: 618.41 Mbit/s

95th percentile per-packet one-way delay: 178.582 ms

Loss rate: 2.15%

-- Flow 3:

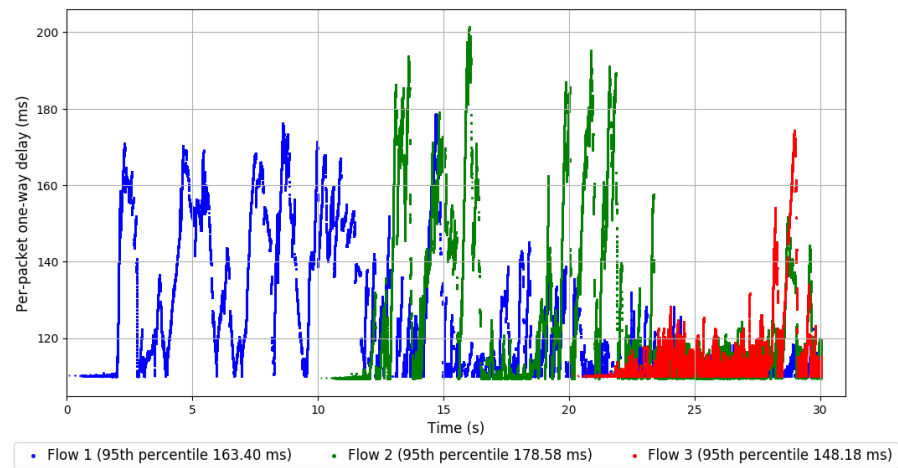
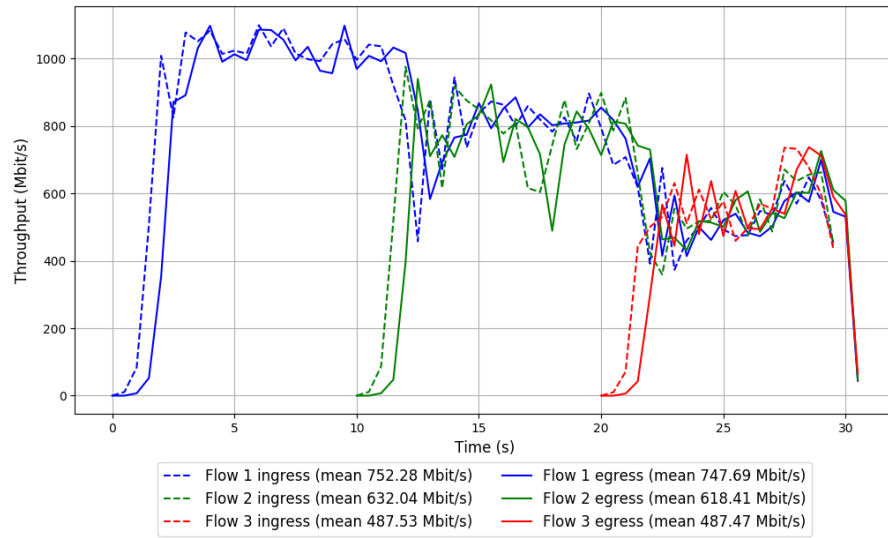
Average throughput: 487.47 Mbit/s

95th percentile per-packet one-way delay: 148.181 ms

Loss rate: 0.01%



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

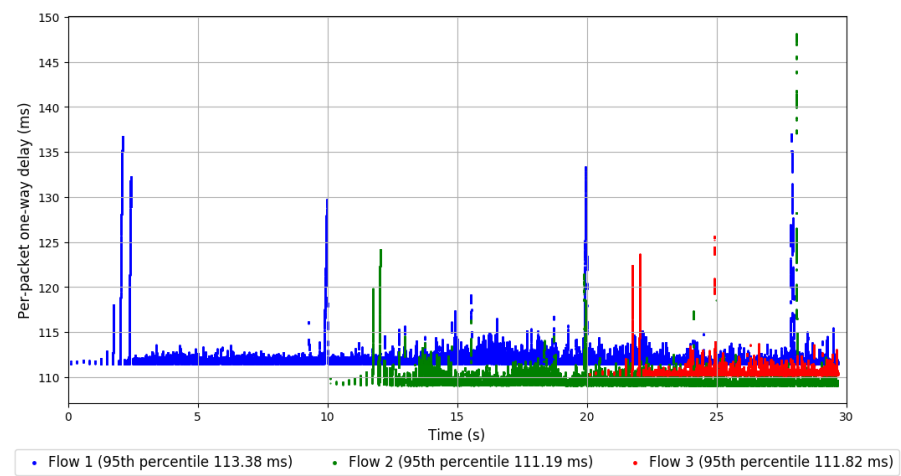
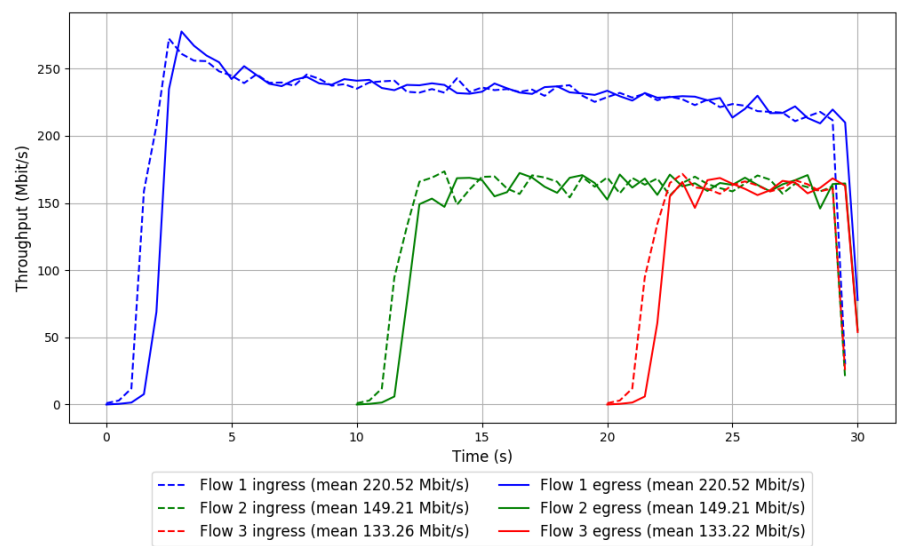


Run 1: Statistics of Indigo

Start at: 2018-09-06 07:40:37  
End at: 2018-09-06 07:41:07  
Local clock offset: 0.259 ms  
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2018-09-06 11:31:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 362.26 Mbit/s  
95th percentile per-packet one-way delay: 112.981 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 220.52 Mbit/s  
95th percentile per-packet one-way delay: 113.381 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 149.21 Mbit/s  
95th percentile per-packet one-way delay: 111.195 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 133.22 Mbit/s  
95th percentile per-packet one-way delay: 111.824 ms  
Loss rate: 0.03%

Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2018-09-06 08:14:02

End at: 2018-09-06 08:14:32

Local clock offset: 0.164 ms

Remote clock offset: 0.244 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 338.46 Mbit/s

95th percentile per-packet one-way delay: 114.073 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 153.70 Mbit/s

95th percentile per-packet one-way delay: 114.180 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 213.24 Mbit/s

95th percentile per-packet one-way delay: 114.018 ms

Loss rate: 0.00%

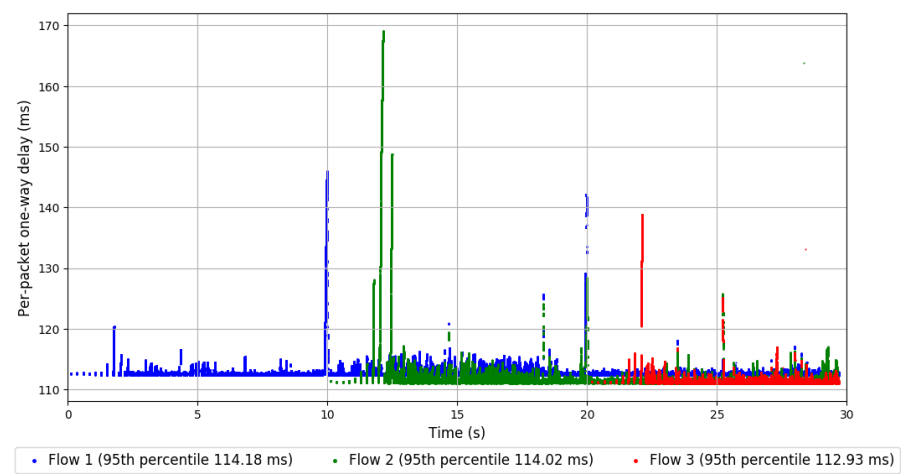
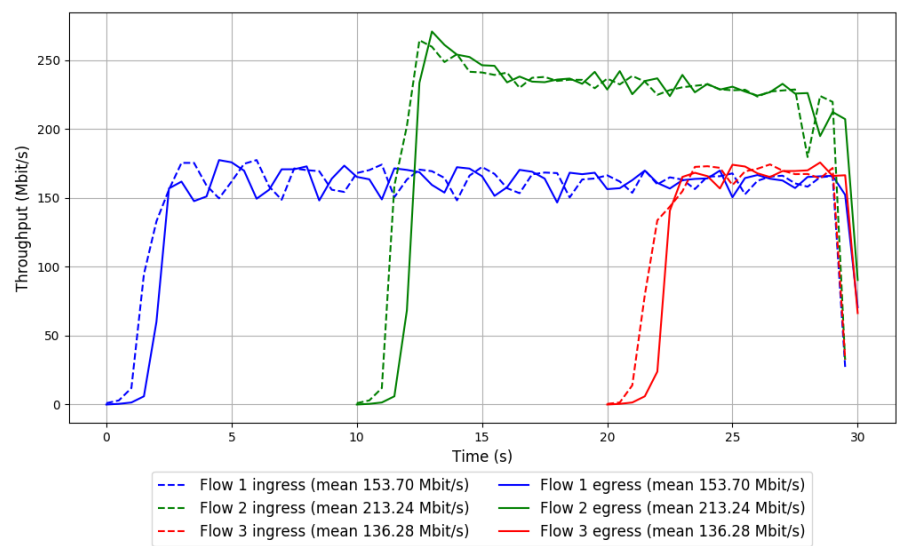
-- Flow 3:

Average throughput: 136.28 Mbit/s

95th percentile per-packet one-way delay: 112.926 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-06 08:47:22

End at: 2018-09-06 08:47:52

Local clock offset: -0.102 ms

Remote clock offset: 0.43 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 352.14 Mbit/s

95th percentile per-packet one-way delay: 113.336 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 212.37 Mbit/s

95th percentile per-packet one-way delay: 113.197 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 149.35 Mbit/s

95th percentile per-packet one-way delay: 113.366 ms

Loss rate: 0.00%

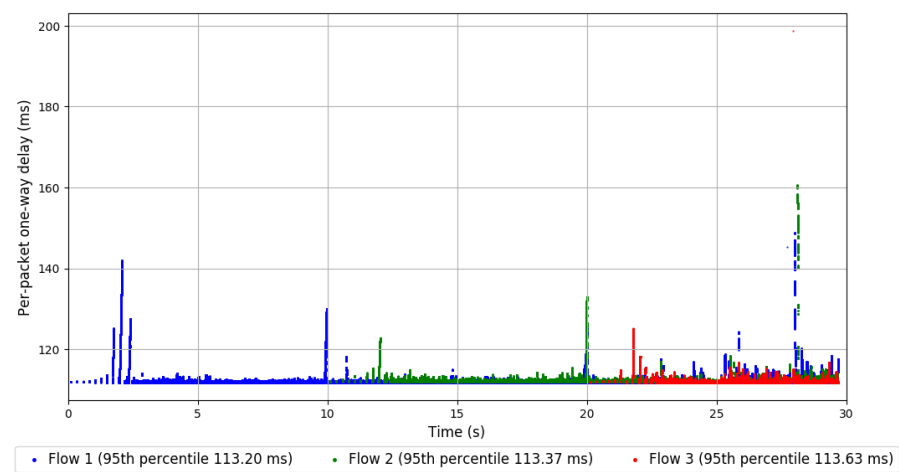
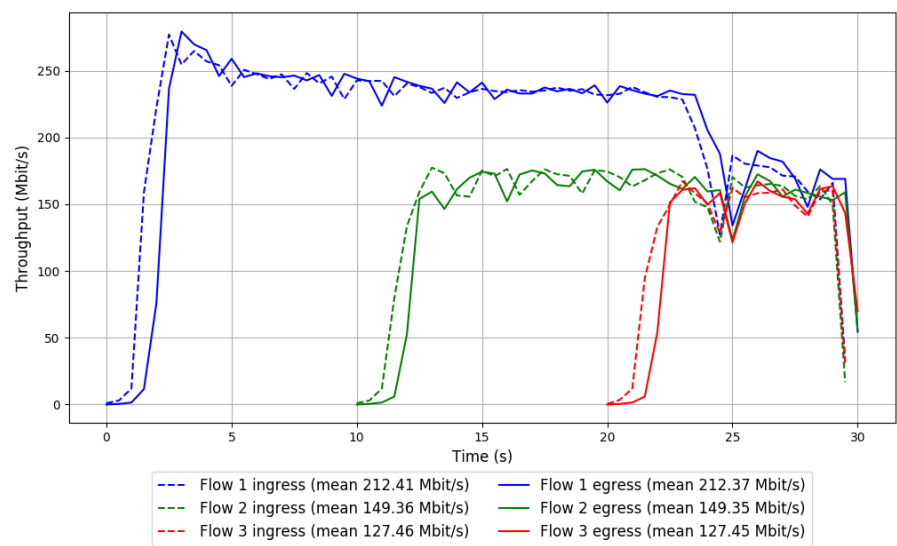
-- Flow 3:

Average throughput: 127.45 Mbit/s

95th percentile per-packet one-way delay: 113.632 ms

Loss rate: 0.00%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 09:20:23

End at: 2018-09-06 09:20:53

Local clock offset: -0.363 ms

Remote clock offset: 0.148 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 306.09 Mbit/s

95th percentile per-packet one-way delay: 112.979 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 159.35 Mbit/s

95th percentile per-packet one-way delay: 112.693 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 153.95 Mbit/s

95th percentile per-packet one-way delay: 113.634 ms

Loss rate: 0.00%

-- Flow 3:

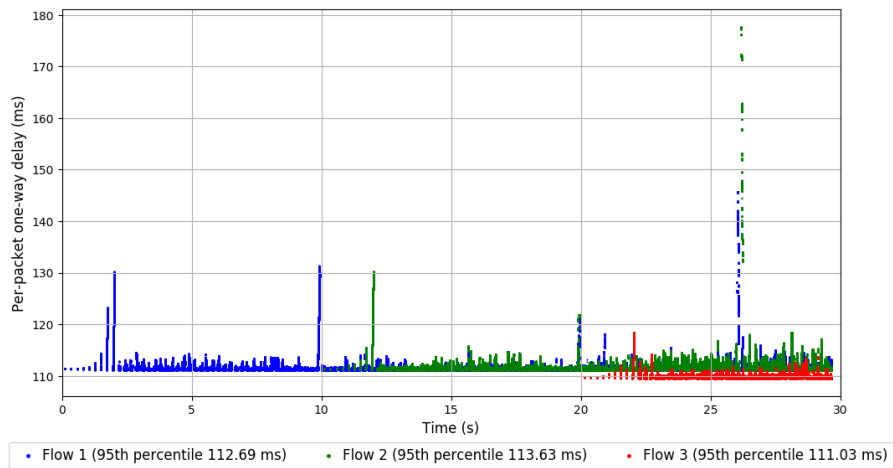
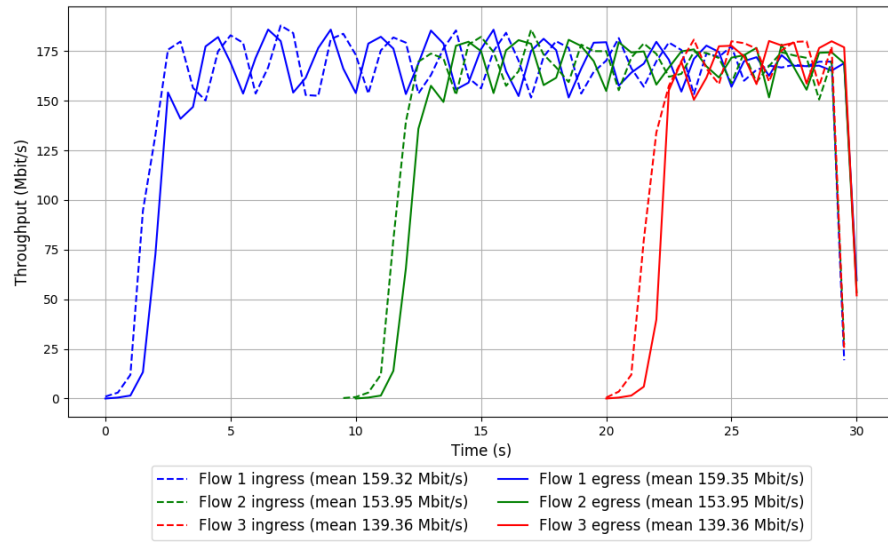
Average throughput: 139.36 Mbit/s

95th percentile per-packet one-way delay: 111.034 ms

Loss rate: 0.00%



# Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 09:53:38

End at: 2018-09-06 09:54:08

Local clock offset: 0.126 ms

Remote clock offset: 0.069 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 363.34 Mbit/s

95th percentile per-packet one-way delay: 112.644 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 221.46 Mbit/s

95th percentile per-packet one-way delay: 112.803 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 149.70 Mbit/s

95th percentile per-packet one-way delay: 112.260 ms

Loss rate: 0.00%

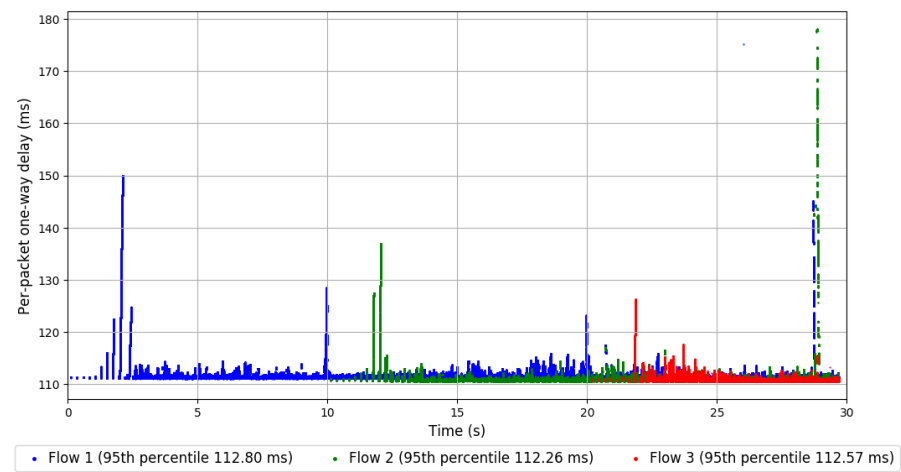
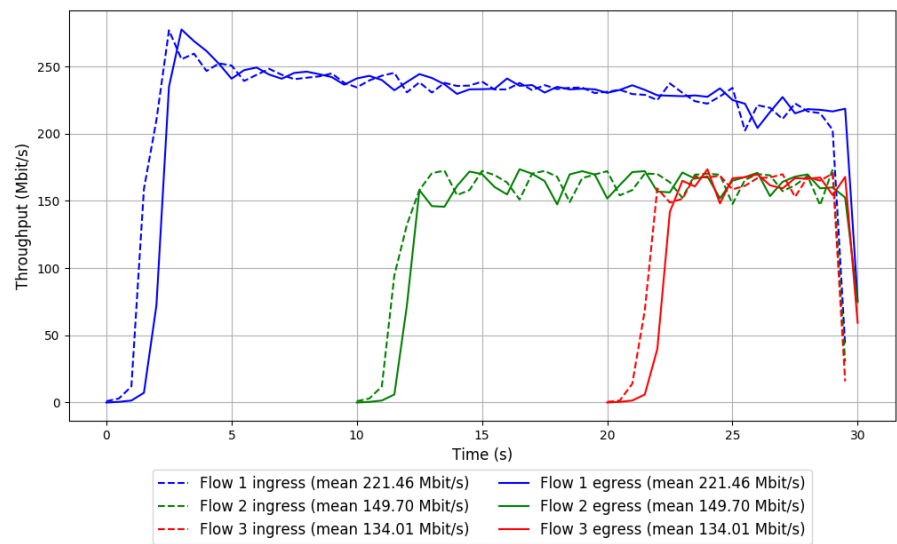
-- Flow 3:

Average throughput: 134.01 Mbit/s

95th percentile per-packet one-way delay: 112.574 ms

Loss rate: 0.00%

Run 5: Report of Indigo — Data Link

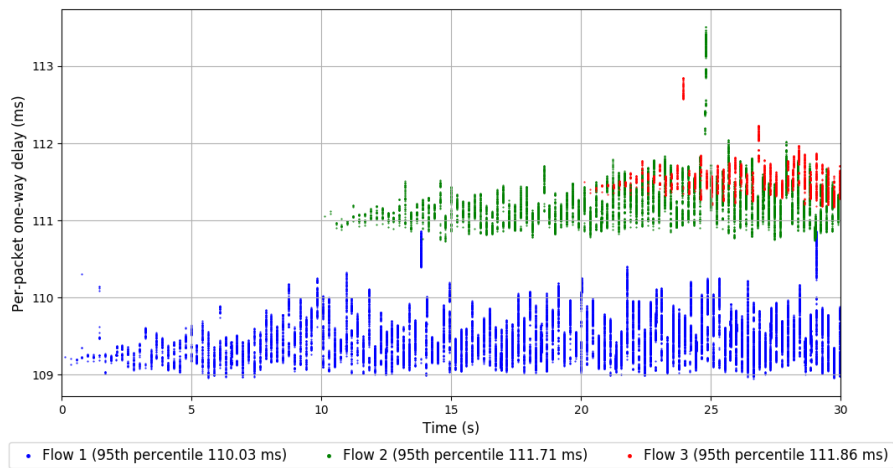
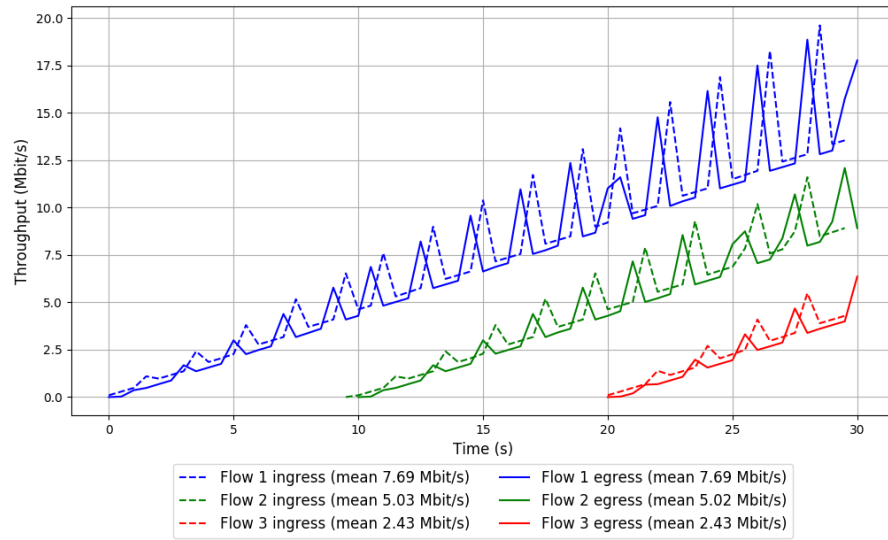


Run 1: Statistics of LEDBAT

Start at: 2018-09-06 07:28:07  
End at: 2018-09-06 07:28:37  
Local clock offset: 0.254 ms  
Remote clock offset: -0.153 ms

# Below is generated by plot.py at 2018-09-06 11:31:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.82 Mbit/s  
95th percentile per-packet one-way delay: 111.597 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 7.69 Mbit/s  
95th percentile per-packet one-way delay: 110.025 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 5.02 Mbit/s  
95th percentile per-packet one-way delay: 111.709 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 2.43 Mbit/s  
95th percentile per-packet one-way delay: 111.864 ms  
Loss rate: 0.00%

## Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 08:01:26

End at: 2018-09-06 08:01:56

Local clock offset: 0.525 ms

Remote clock offset: 0.568 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.74 Mbit/s

95th percentile per-packet one-way delay: 112.566 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 7.61 Mbit/s

95th percentile per-packet one-way delay: 112.368 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 5.01 Mbit/s

95th percentile per-packet one-way delay: 112.167 ms

Loss rate: 0.00%

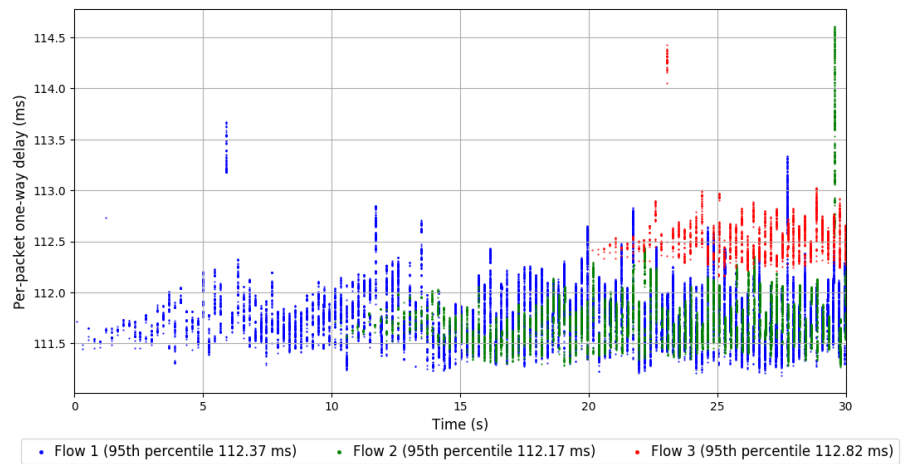
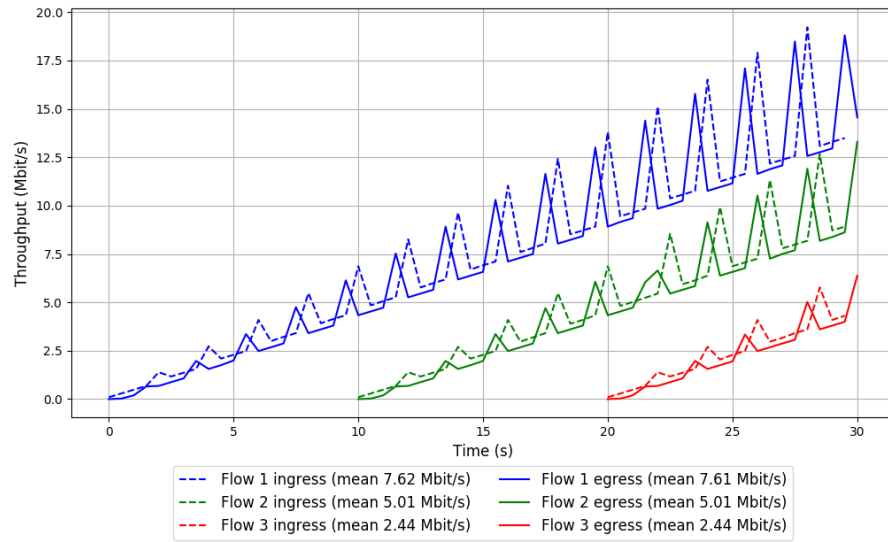
-- Flow 3:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 112.821 ms

Loss rate: 0.00%

## Run 2: Report of LEDBAT — Data Link



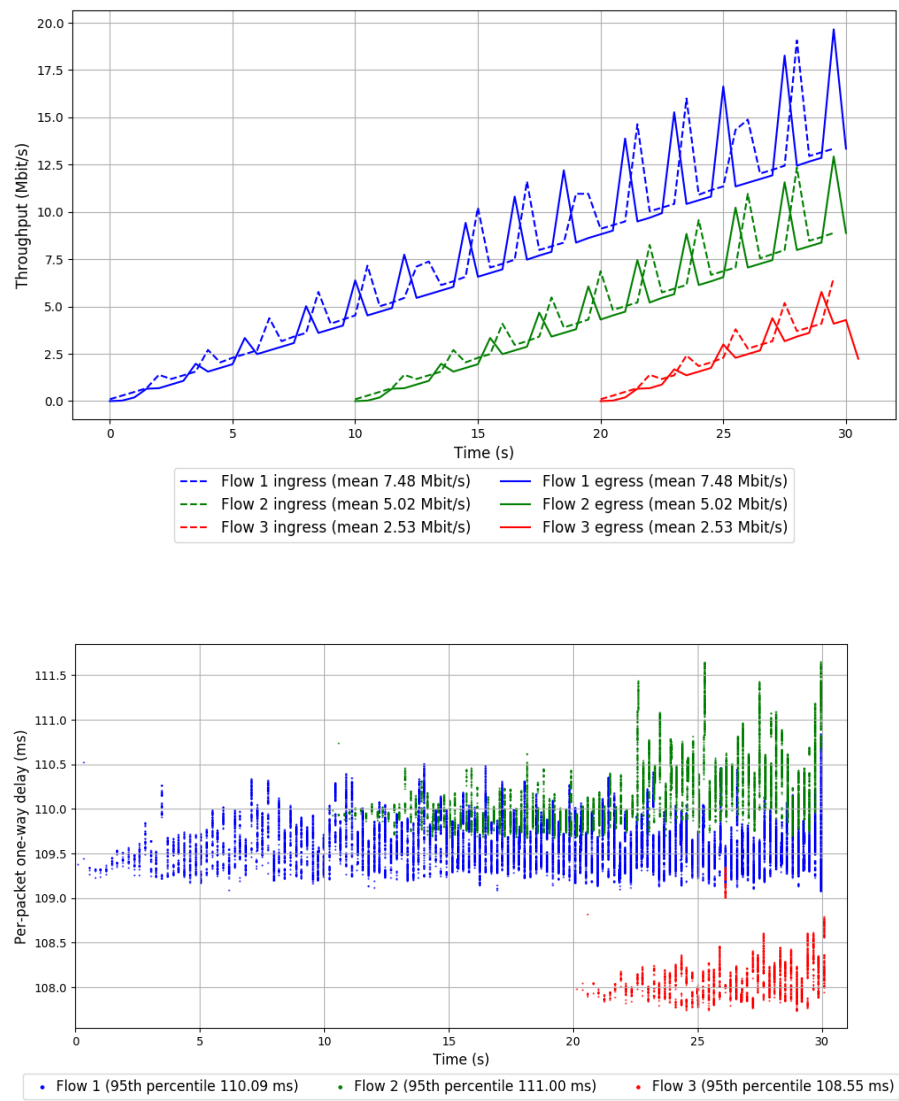
Run 3: Statistics of LEDBAT

Start at: 2018-09-06 08:34:54  
End at: 2018-09-06 08:35:24  
Local clock offset: 1.23 ms  
Remote clock offset: -0.271 ms

# Below is generated by plot.py at 2018-09-06 11:31:23  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 11.60 Mbit/s  
95th percentile per-packet one-way delay: 110.535 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 7.48 Mbit/s  
95th percentile per-packet one-way delay: 110.091 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 5.02 Mbit/s  
95th percentile per-packet one-way delay: 110.995 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 2.53 Mbit/s  
95th percentile per-packet one-way delay: 108.546 ms  
Loss rate: 0.00%



Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 09:07:54

End at: 2018-09-06 09:08:24

Local clock offset: 0.407 ms

Remote clock offset: 0.108 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.66 Mbit/s

95th percentile per-packet one-way delay: 112.339 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 7.49 Mbit/s

95th percentile per-packet one-way delay: 112.421 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 5.10 Mbit/s

95th percentile per-packet one-way delay: 109.789 ms

Loss rate: 0.00%

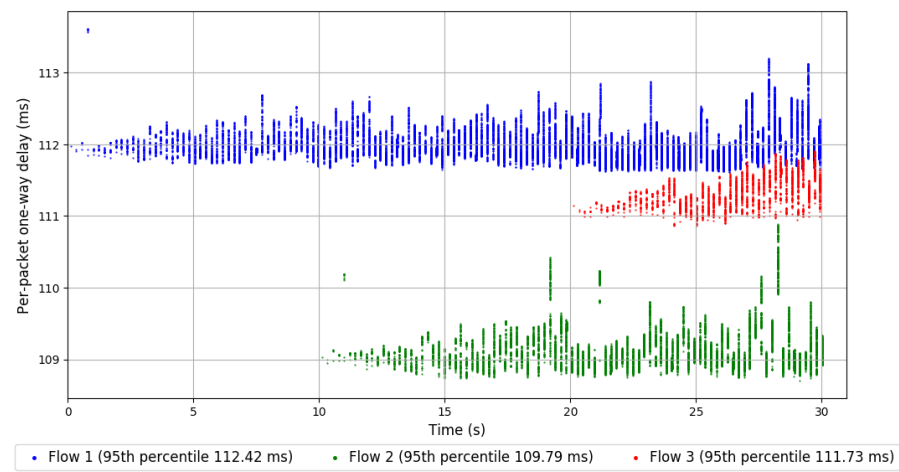
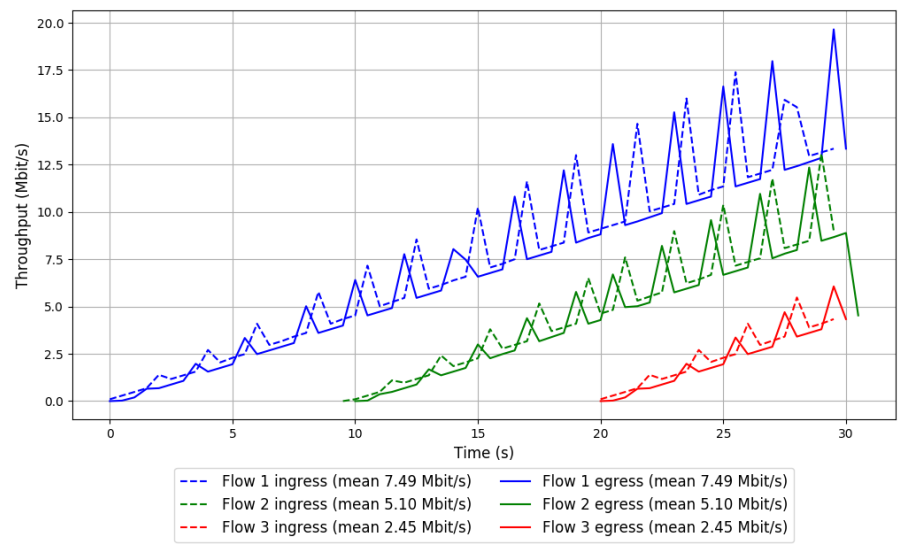
-- Flow 3:

Average throughput: 2.45 Mbit/s

95th percentile per-packet one-way delay: 111.734 ms

Loss rate: 0.00%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 09:41:00

End at: 2018-09-06 09:41:30

Local clock offset: -0.077 ms

Remote clock offset: 0.102 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 11.70 Mbit/s

95th percentile per-packet one-way delay: 111.901 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 7.58 Mbit/s

95th percentile per-packet one-way delay: 111.264 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 5.00 Mbit/s

95th percentile per-packet one-way delay: 112.082 ms

Loss rate: 0.00%

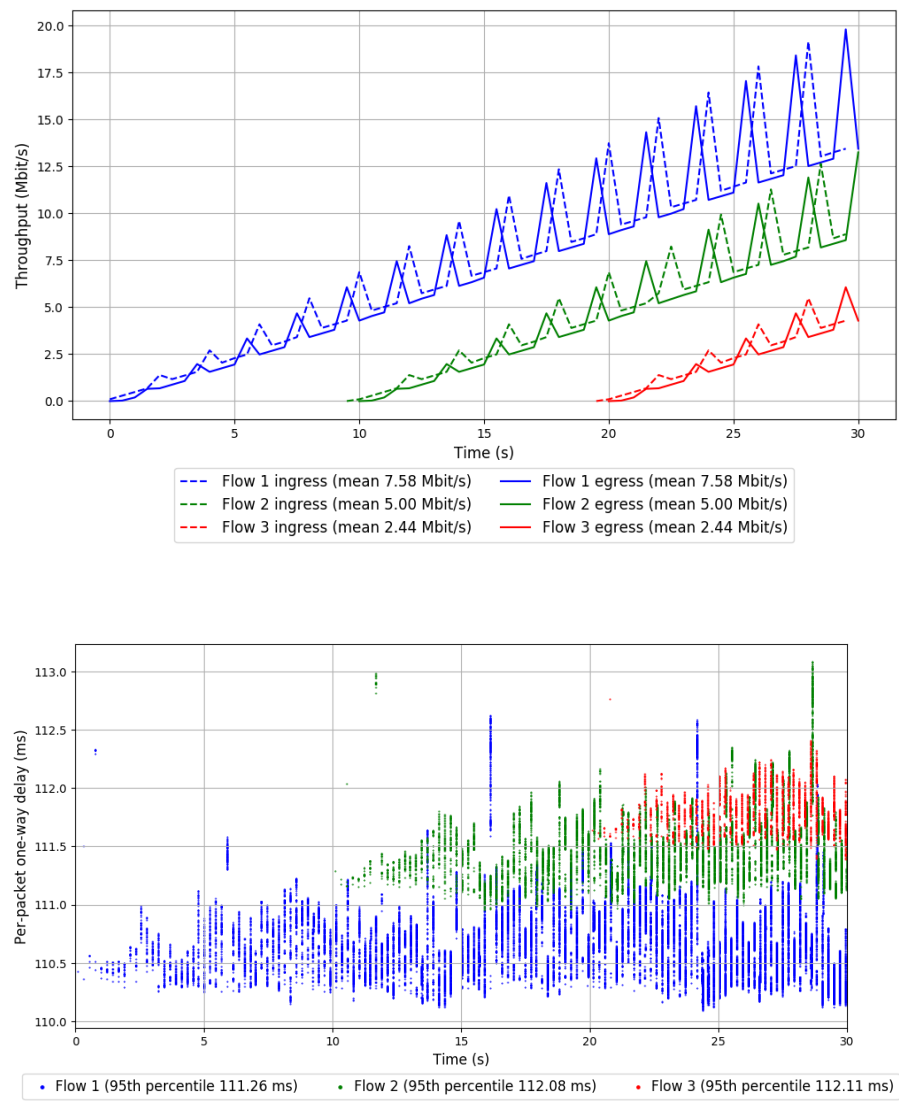
-- Flow 3:

Average throughput: 2.44 Mbit/s

95th percentile per-packet one-way delay: 112.108 ms

Loss rate: 0.00%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 07:21:38

End at: 2018-09-06 07:22:08

Local clock offset: 1.83 ms

Remote clock offset: 0.696 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 854.77 Mbit/s

95th percentile per-packet one-way delay: 130.810 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 415.47 Mbit/s

95th percentile per-packet one-way delay: 134.285 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 451.69 Mbit/s

95th percentile per-packet one-way delay: 126.164 ms

Loss rate: 0.03%

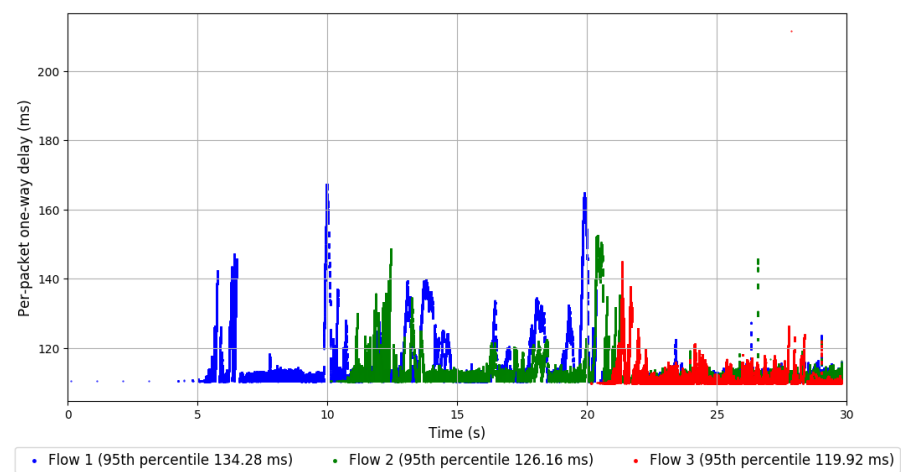
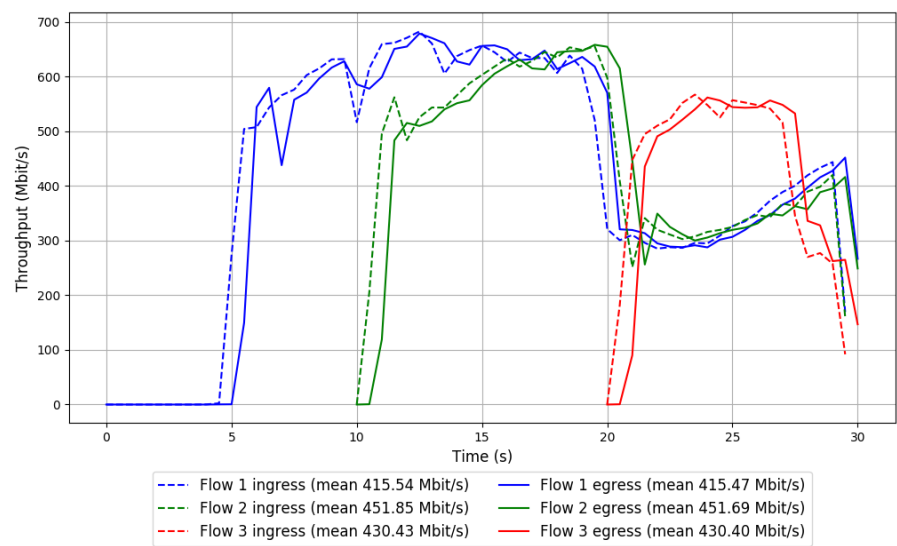
-- Flow 3:

Average throughput: 430.40 Mbit/s

95th percentile per-packet one-way delay: 119.923 ms

Loss rate: 0.00%

Run 1: Report of Indigo-Muses — Data Link



Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 07:54:52

End at: 2018-09-06 07:55:22

Local clock offset: 0.293 ms

Remote clock offset: 0.23 ms

# Below is generated by plot.py at 2018-09-06 11:31:23

# Datalink statistics

-- Total of 3 flows:

Average throughput: 903.73 Mbit/s

95th percentile per-packet one-way delay: 125.216 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 511.22 Mbit/s

95th percentile per-packet one-way delay: 125.115 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 343.12 Mbit/s

95th percentile per-packet one-way delay: 126.530 ms

Loss rate: 0.00%

-- Flow 3:

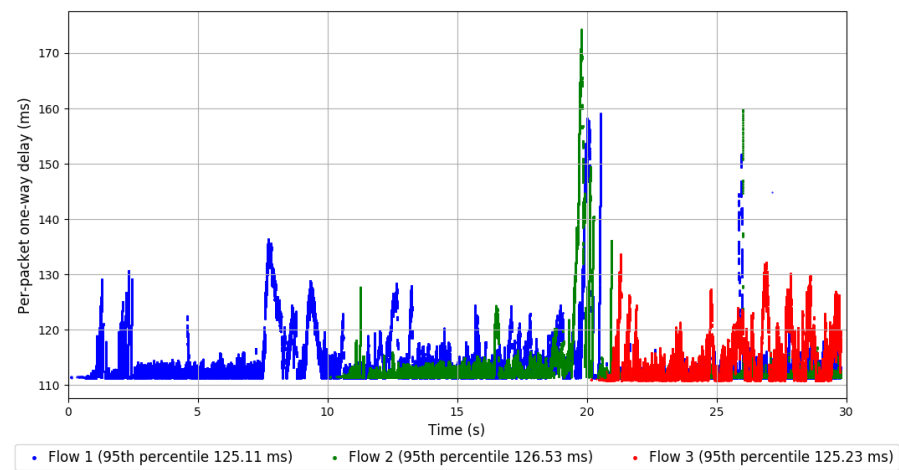
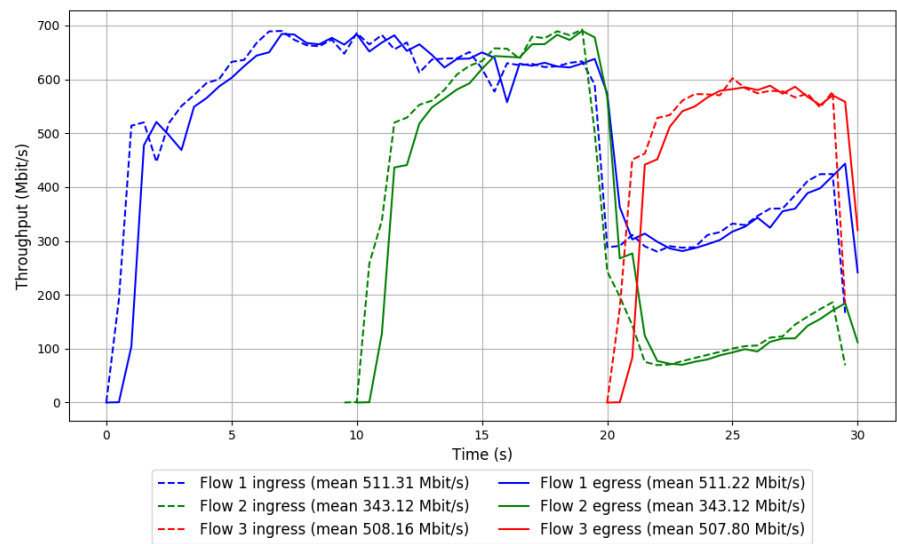
Average throughput: 507.80 Mbit/s

95th percentile per-packet one-way delay: 125.235 ms

Loss rate: 0.04%



Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 08:28:13

End at: 2018-09-06 08:28:43

Local clock offset: -0.077 ms

Remote clock offset: 0.199 ms

# Below is generated by plot.py at 2018-09-06 11:31:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 945.46 Mbit/s

95th percentile per-packet one-way delay: 130.108 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 519.93 Mbit/s

95th percentile per-packet one-way delay: 129.866 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 446.74 Mbit/s

95th percentile per-packet one-way delay: 131.933 ms

Loss rate: 0.01%

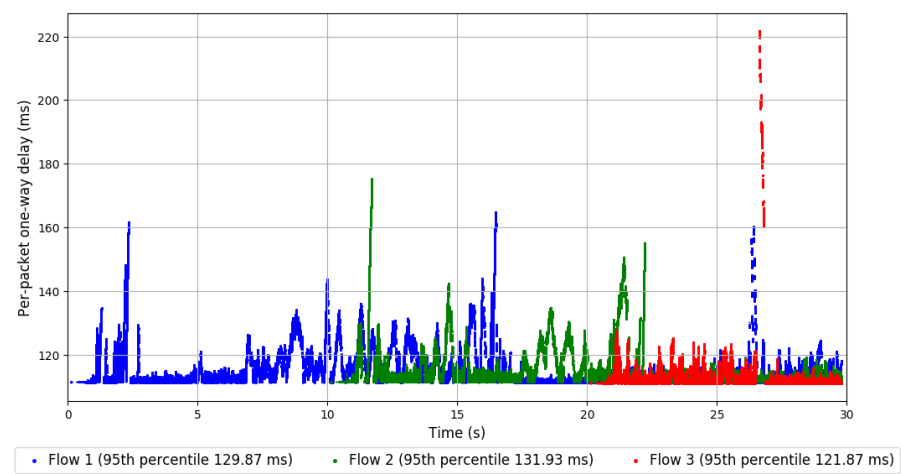
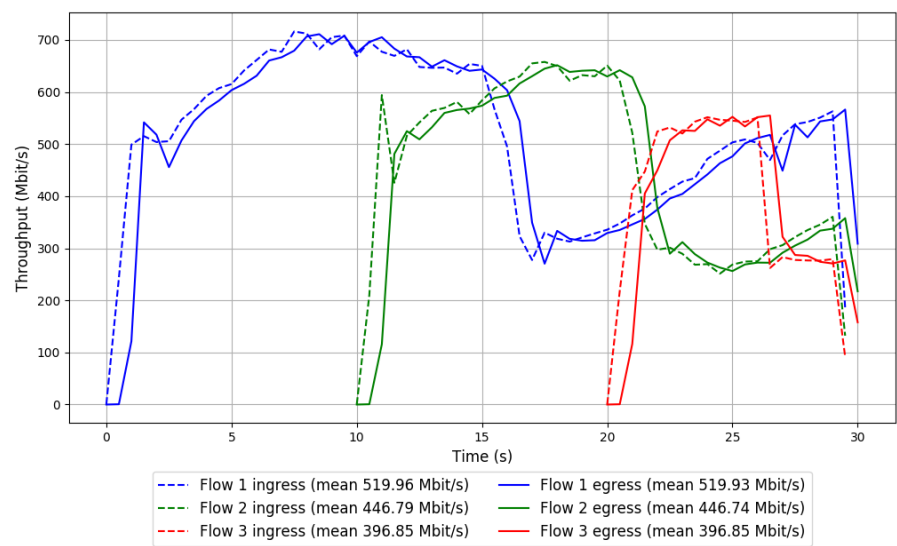
-- Flow 3:

Average throughput: 396.85 Mbit/s

95th percentile per-packet one-way delay: 121.874 ms

Loss rate: 0.00%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 09:01:21

End at: 2018-09-06 09:01:51

Local clock offset: -0.248 ms

Remote clock offset: -0.22 ms

# Below is generated by plot.py at 2018-09-06 11:32:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 976.21 Mbit/s

95th percentile per-packet one-way delay: 127.478 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 521.41 Mbit/s

95th percentile per-packet one-way delay: 129.197 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 440.02 Mbit/s

95th percentile per-packet one-way delay: 125.160 ms

Loss rate: 0.00%

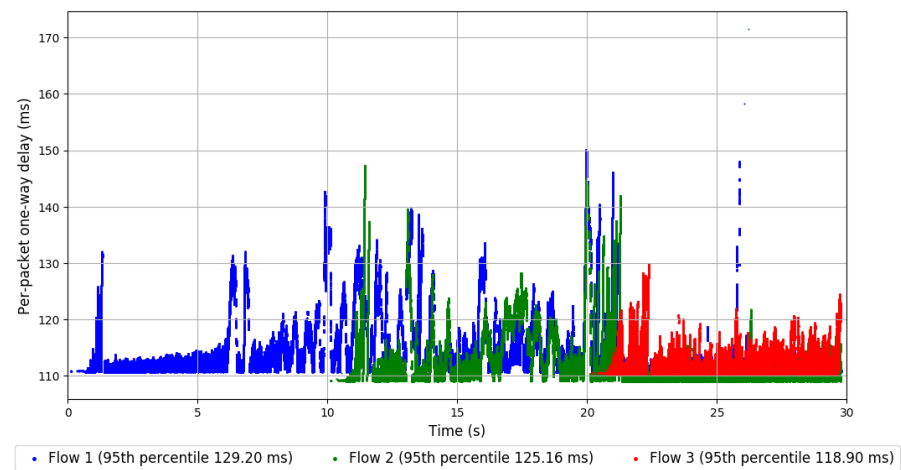
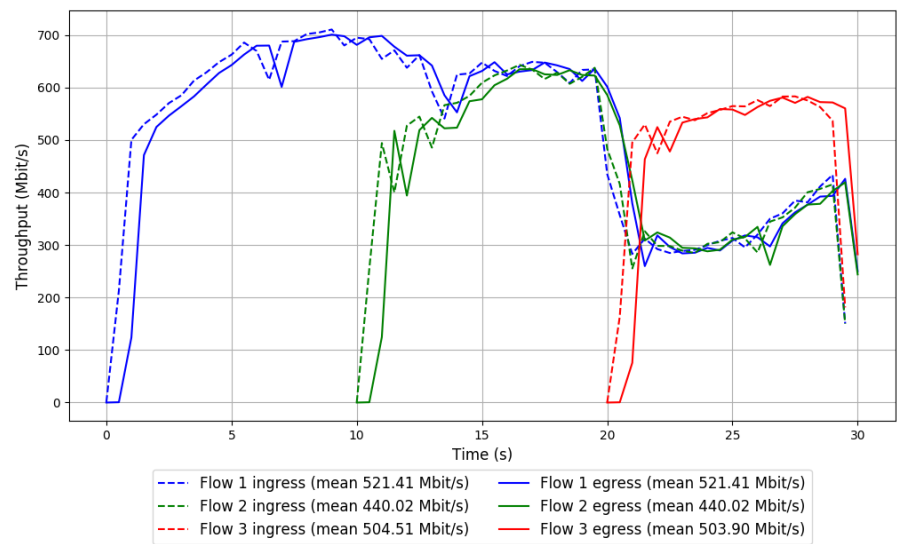
-- Flow 3:

Average throughput: 503.90 Mbit/s

95th percentile per-packet one-way delay: 118.899 ms

Loss rate: 0.00%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 09:34:26

End at: 2018-09-06 09:34:56

Local clock offset: -0.188 ms

Remote clock offset: 0.109 ms

# Below is generated by plot.py at 2018-09-06 11:32:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 843.04 Mbit/s

95th percentile per-packet one-way delay: 129.084 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 438.00 Mbit/s

95th percentile per-packet one-way delay: 130.246 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 462.02 Mbit/s

95th percentile per-packet one-way delay: 127.376 ms

Loss rate: 0.08%

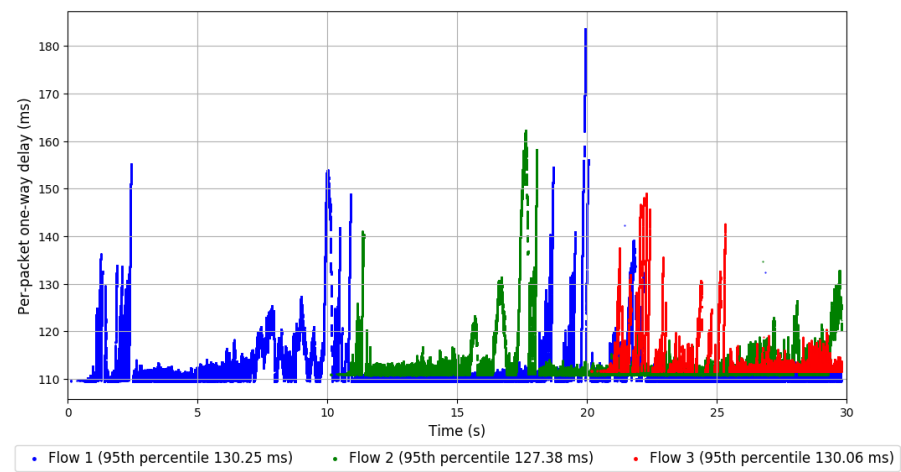
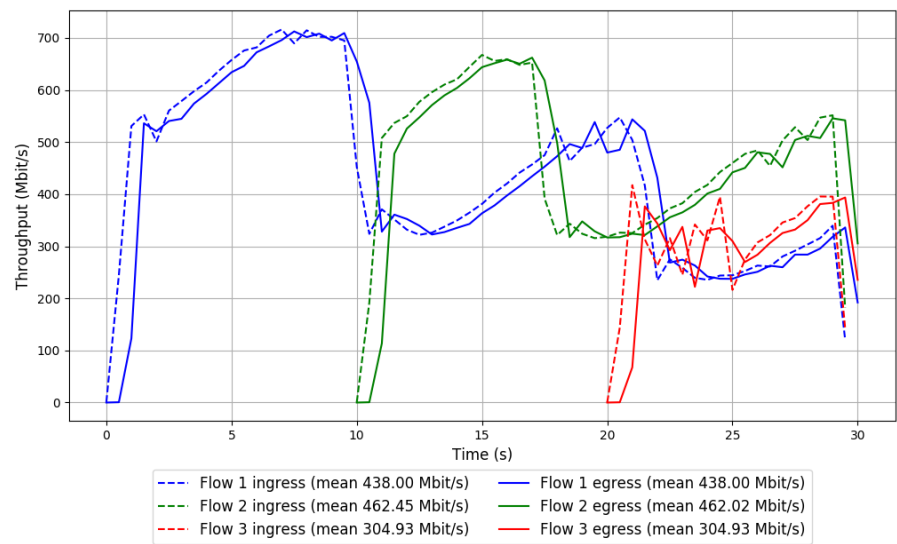
-- Flow 3:

Average throughput: 304.93 Mbit/s

95th percentile per-packet one-way delay: 130.065 ms

Loss rate: 0.00%

Run 5: Report of Indigo-Muses — Data Link



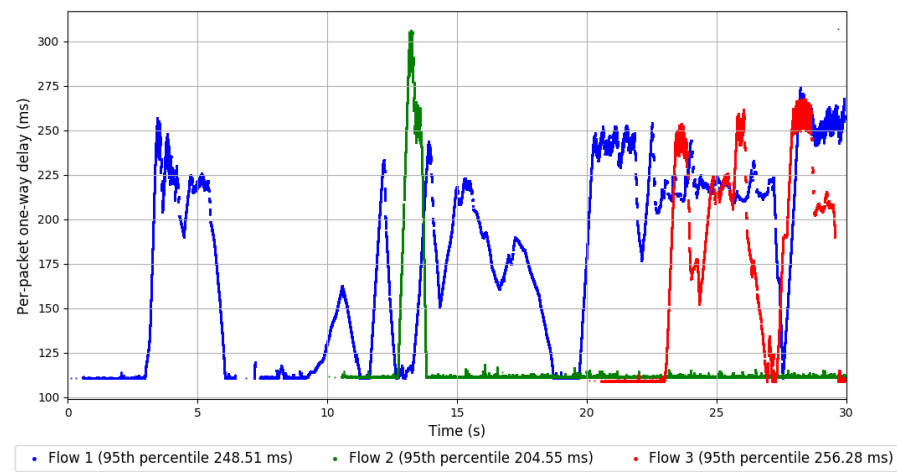
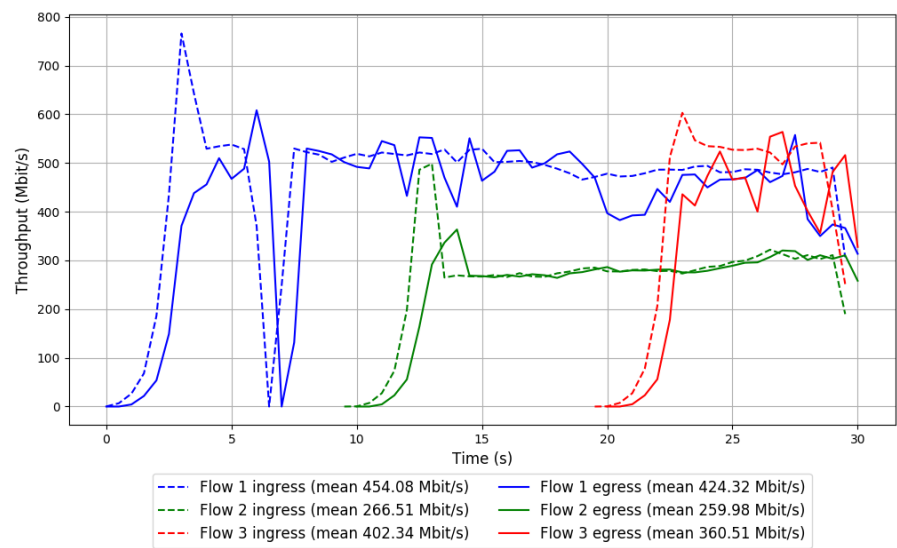
```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 07:15:21
End at: 2018-09-06 07:15:51
Local clock offset: 0.297 ms
Remote clock offset: 0.128 ms

# Below is generated by plot.py at 2018-09-06 11:41:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 716.43 Mbit/s
95th percentile per-packet one-way delay: 249.881 ms
Loss rate: 6.26%
-- Flow 1:
Average throughput: 424.32 Mbit/s
95th percentile per-packet one-way delay: 248.512 ms
Loss rate: 6.55%
-- Flow 2:
Average throughput: 259.98 Mbit/s
95th percentile per-packet one-way delay: 204.547 ms
Loss rate: 2.44%
-- Flow 3:
Average throughput: 360.51 Mbit/s
95th percentile per-packet one-way delay: 256.283 ms
Loss rate: 10.39%
```



Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 07:48:34

End at: 2018-09-06 07:49:04

Local clock offset: 1.369 ms

Remote clock offset: 0.26 ms

# Below is generated by plot.py at 2018-09-06 11:41:01

# Datalink statistics

-- Total of 3 flows:

Average throughput: 690.62 Mbit/s

95th percentile per-packet one-way delay: 225.515 ms

Loss rate: 3.63%

-- Flow 1:

Average throughput: 334.74 Mbit/s

95th percentile per-packet one-way delay: 224.686 ms

Loss rate: 3.36%

-- Flow 2:

Average throughput: 422.72 Mbit/s

95th percentile per-packet one-way delay: 225.845 ms

Loss rate: 3.00%

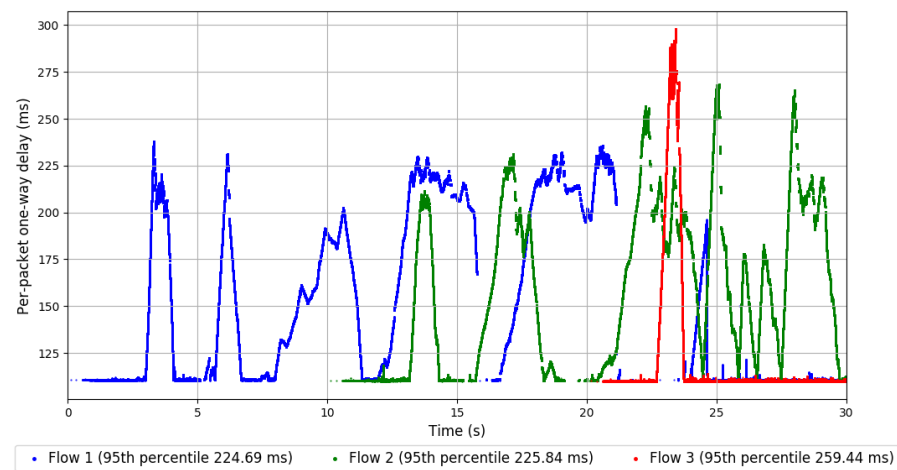
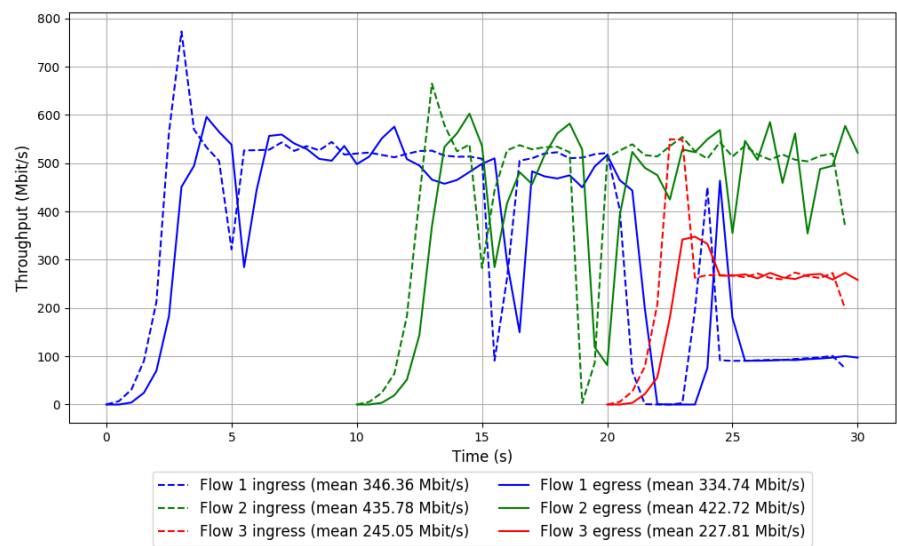
-- Flow 3:

Average throughput: 227.81 Mbit/s

95th percentile per-packet one-way delay: 259.442 ms

Loss rate: 7.04%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 08:21:58

End at: 2018-09-06 08:22:28

Local clock offset: 0.407 ms

Remote clock offset: 0.256 ms

# Below is generated by plot.py at 2018-09-06 11:45:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 645.91 Mbit/s

95th percentile per-packet one-way delay: 252.713 ms

Loss rate: 5.22%

-- Flow 1:

Average throughput: 384.05 Mbit/s

95th percentile per-packet one-way delay: 256.082 ms

Loss rate: 8.01%

-- Flow 2:

Average throughput: 276.20 Mbit/s

95th percentile per-packet one-way delay: 149.694 ms

Loss rate: 0.35%

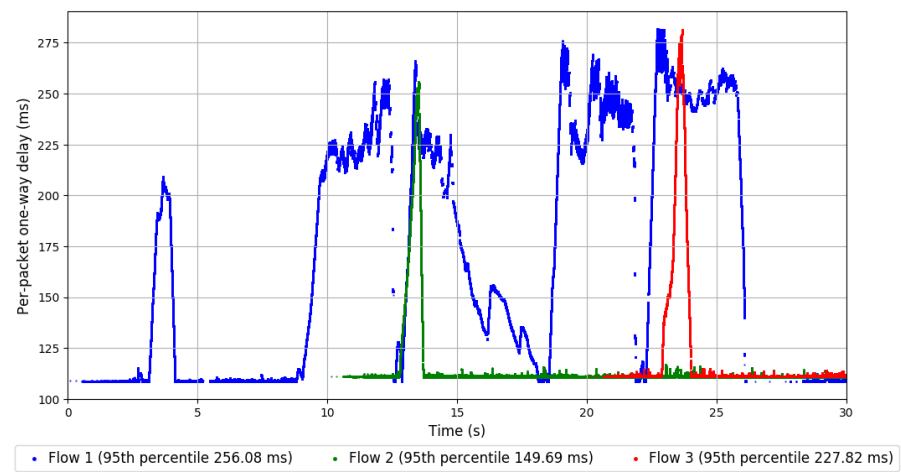
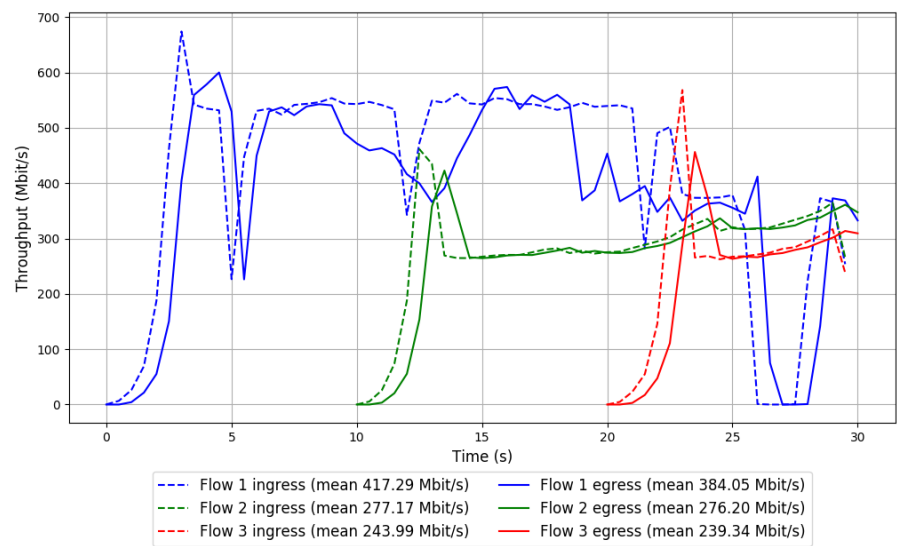
-- Flow 3:

Average throughput: 239.34 Mbit/s

95th percentile per-packet one-way delay: 227.823 ms

Loss rate: 1.91%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 08:55:20

End at: 2018-09-06 08:55:50

Local clock offset: -0.239 ms

Remote clock offset: 0.062 ms

# Below is generated by plot.py at 2018-09-06 11:52:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 653.38 Mbit/s

95th percentile per-packet one-way delay: 240.638 ms

Loss rate: 5.14%

-- Flow 1:

Average throughput: 443.28 Mbit/s

95th percentile per-packet one-way delay: 229.347 ms

Loss rate: 3.58%

-- Flow 2:

Average throughput: 204.70 Mbit/s

95th percentile per-packet one-way delay: 261.422 ms

Loss rate: 10.56%

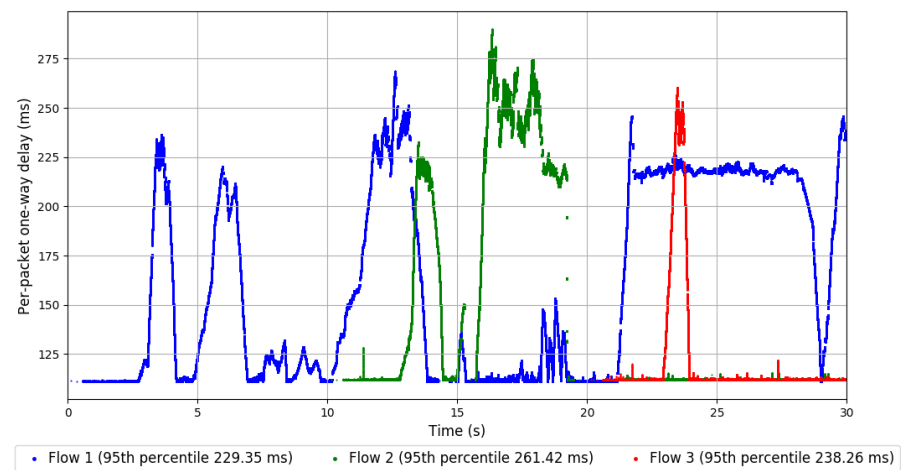
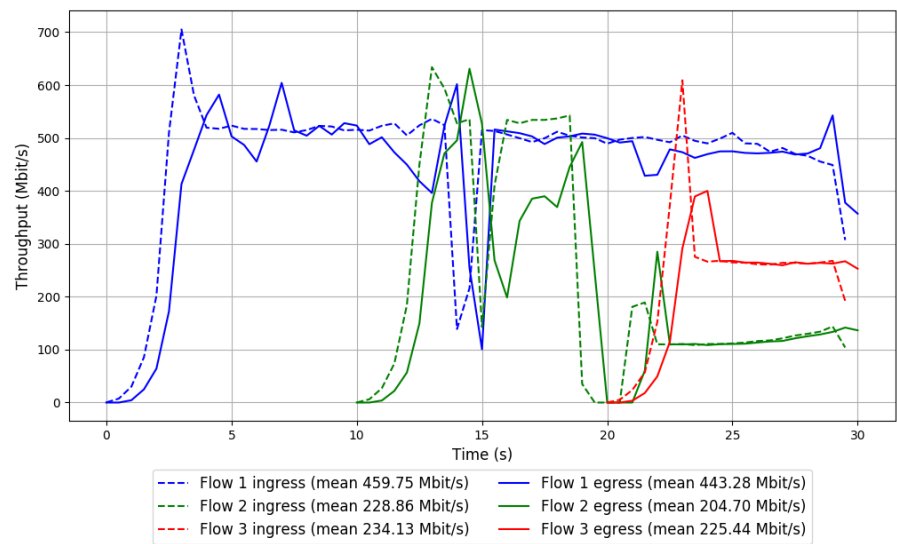
-- Flow 3:

Average throughput: 225.44 Mbit/s

95th percentile per-packet one-way delay: 238.258 ms

Loss rate: 3.71%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 09:28:05

End at: 2018-09-06 09:28:35

Local clock offset: -0.87 ms

Remote clock offset: 0.153 ms

# Below is generated by plot.py at 2018-09-06 11:55:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 719.59 Mbit/s

95th percentile per-packet one-way delay: 251.288 ms

Loss rate: 5.28%

-- Flow 1:

Average throughput: 401.21 Mbit/s

95th percentile per-packet one-way delay: 250.528 ms

Loss rate: 5.82%

-- Flow 2:

Average throughput: 299.44 Mbit/s

95th percentile per-packet one-way delay: 258.544 ms

Loss rate: 3.50%

-- Flow 3:

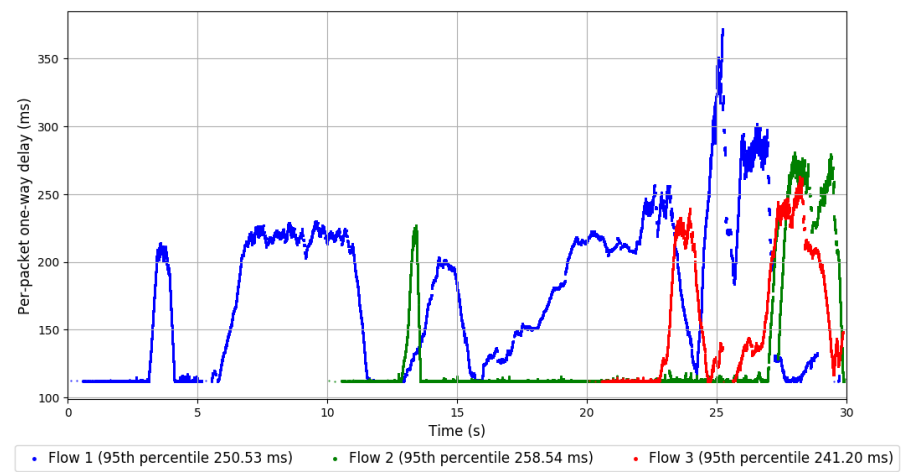
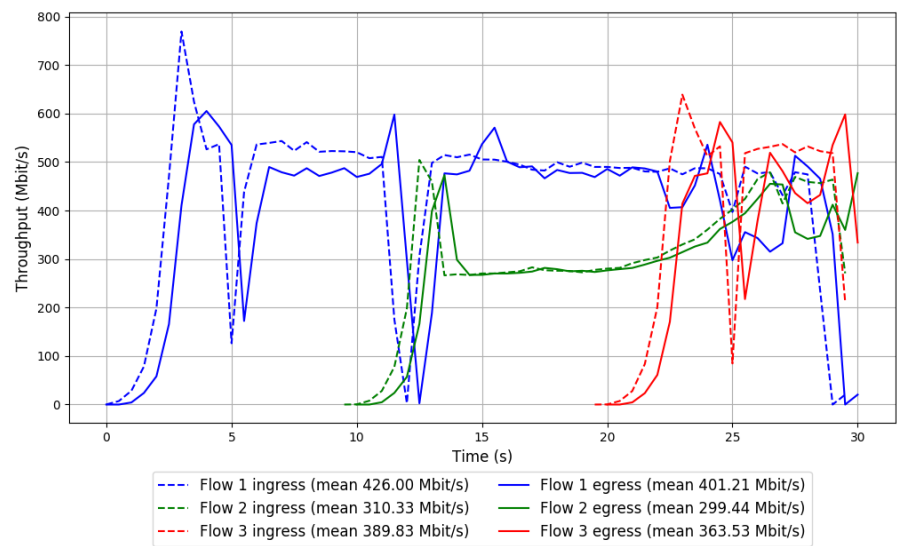
Average throughput: 363.53 Mbit/s

95th percentile per-packet one-way delay: 241.201 ms

Loss rate: 6.40%



Run 5: Report of PCC-Allegro — Data Link

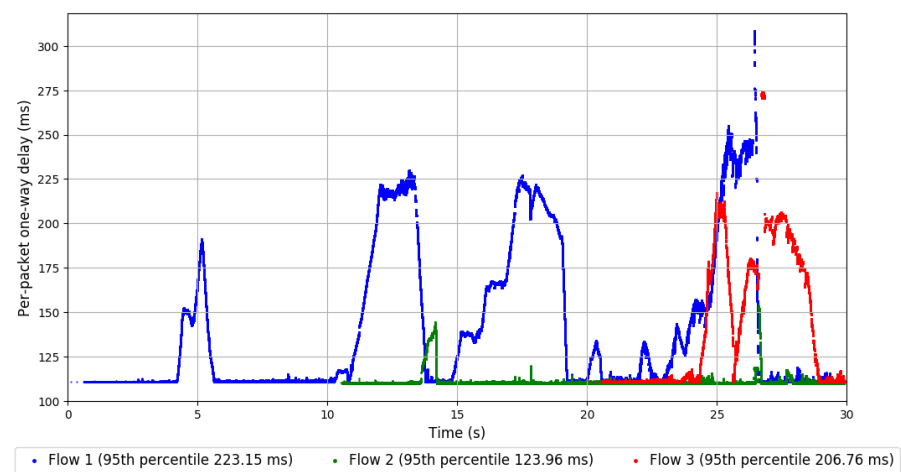
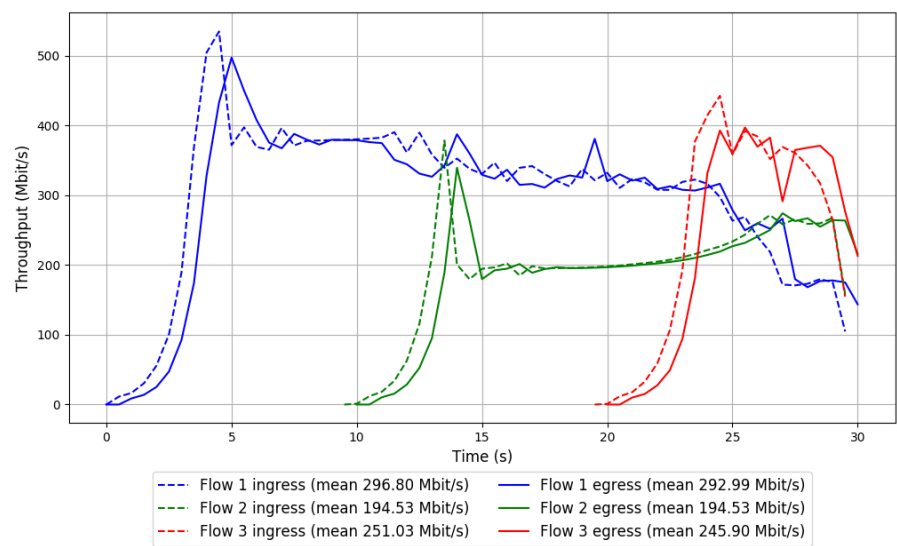


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 07:09:27
End at: 2018-09-06 07:09:57
Local clock offset: 0.611 ms
Remote clock offset: 0.804 ms

# Below is generated by plot.py at 2018-09-06 11:55:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 504.02 Mbit/s
95th percentile per-packet one-way delay: 219.077 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 292.99 Mbit/s
95th percentile per-packet one-way delay: 223.154 ms
Loss rate: 1.28%
-- Flow 2:
Average throughput: 194.53 Mbit/s
95th percentile per-packet one-way delay: 123.960 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 245.90 Mbit/s
95th percentile per-packet one-way delay: 206.760 ms
Loss rate: 2.05%
```

Run 1: Report of PCC-Expr — Data Link



Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 07:42:31

End at: 2018-09-06 07:43:01

Local clock offset: 0.534 ms

Remote clock offset: 0.235 ms

# Below is generated by plot.py at 2018-09-06 11:55:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 527.01 Mbit/s

95th percentile per-packet one-way delay: 217.078 ms

Loss rate: 3.34%

-- Flow 1:

Average throughput: 278.04 Mbit/s

95th percentile per-packet one-way delay: 185.165 ms

Loss rate: 2.44%

-- Flow 2:

Average throughput: 296.50 Mbit/s

95th percentile per-packet one-way delay: 221.004 ms

Loss rate: 5.40%

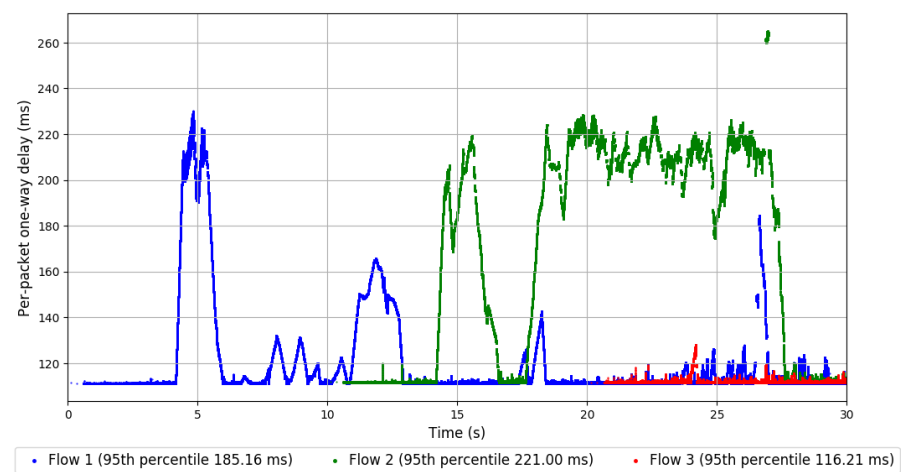
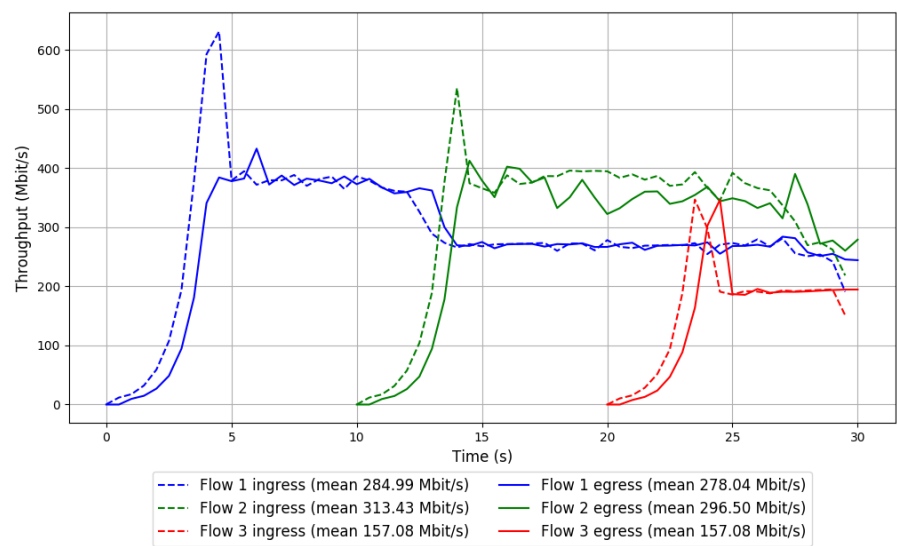
-- Flow 3:

Average throughput: 157.08 Mbit/s

95th percentile per-packet one-way delay: 116.208 ms

Loss rate: 0.00%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 08:15:54

End at: 2018-09-06 08:16:24

Local clock offset: -0.047 ms

Remote clock offset: -0.13 ms

# Below is generated by plot.py at 2018-09-06 11:55:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 522.54 Mbit/s

95th percentile per-packet one-way delay: 192.543 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 298.18 Mbit/s

95th percentile per-packet one-way delay: 201.619 ms

Loss rate: 1.71%

-- Flow 2:

Average throughput: 260.53 Mbit/s

95th percentile per-packet one-way delay: 152.645 ms

Loss rate: 0.00%

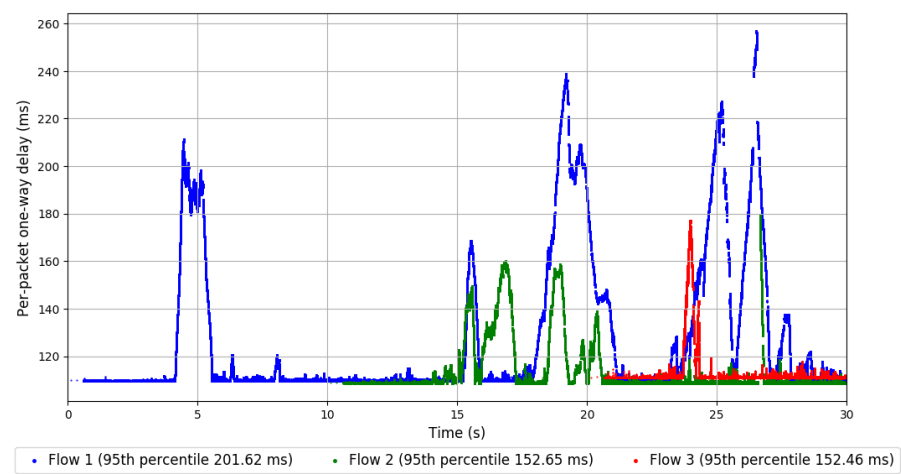
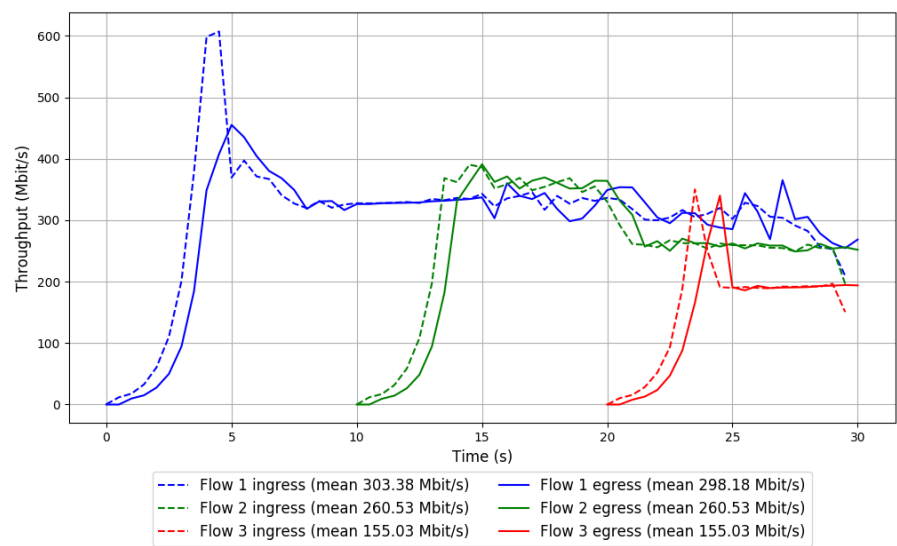
-- Flow 3:

Average throughput: 155.03 Mbit/s

95th percentile per-packet one-way delay: 152.458 ms

Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 08:49:16

End at: 2018-09-06 08:49:46

Local clock offset: 0.587 ms

Remote clock offset: 0.091 ms

# Below is generated by plot.py at 2018-09-06 11:57:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 491.32 Mbit/s

95th percentile per-packet one-way delay: 204.806 ms

Loss rate: 1.29%

-- Flow 1:

Average throughput: 231.87 Mbit/s

95th percentile per-packet one-way delay: 176.028 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 260.99 Mbit/s

95th percentile per-packet one-way delay: 206.007 ms

Loss rate: 1.82%

-- Flow 3:

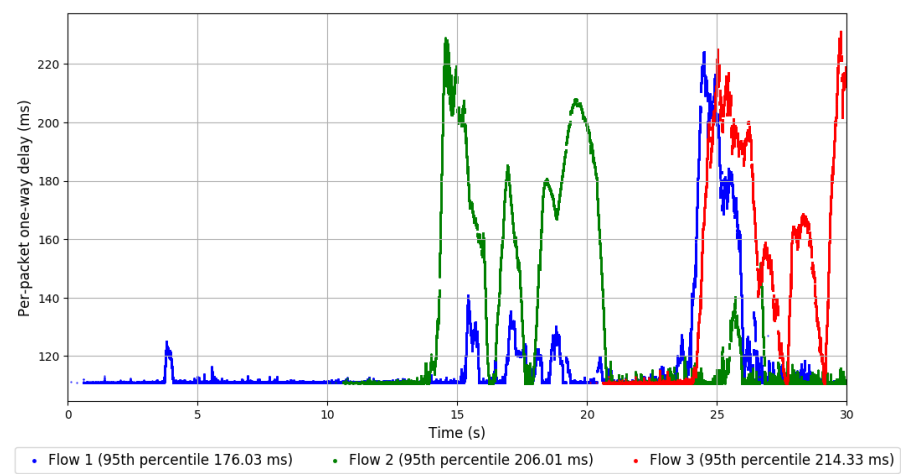
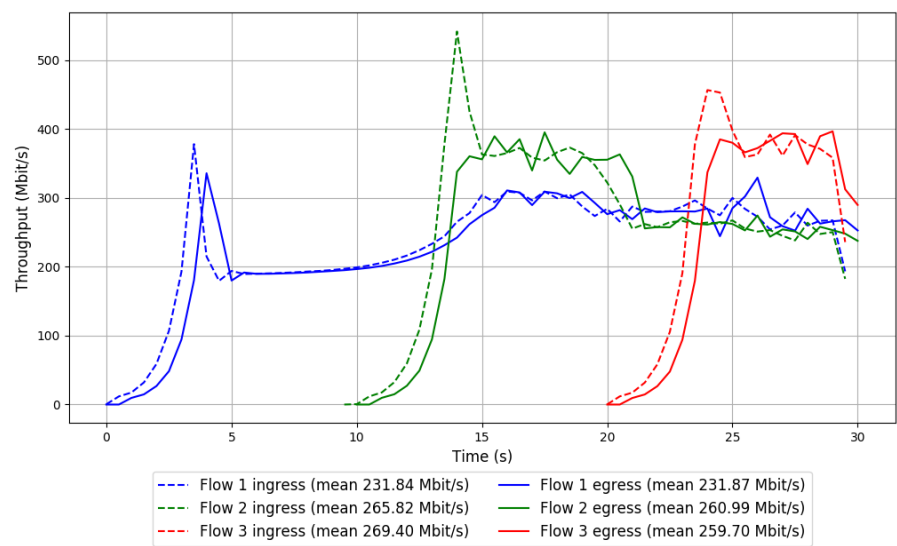
Average throughput: 259.70 Mbit/s

95th percentile per-packet one-way delay: 214.330 ms

Loss rate: 3.59%



Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 09:22:12

End at: 2018-09-06 09:22:42

Local clock offset: 1.16 ms

Remote clock offset: 0.526 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 510.90 Mbit/s

95th percentile per-packet one-way delay: 205.194 ms

Loss rate: 1.28%

-- Flow 1:

Average throughput: 316.61 Mbit/s

95th percentile per-packet one-way delay: 209.238 ms

Loss rate: 2.03%

-- Flow 2:

Average throughput: 215.29 Mbit/s

95th percentile per-packet one-way delay: 126.578 ms

Loss rate: 0.00%

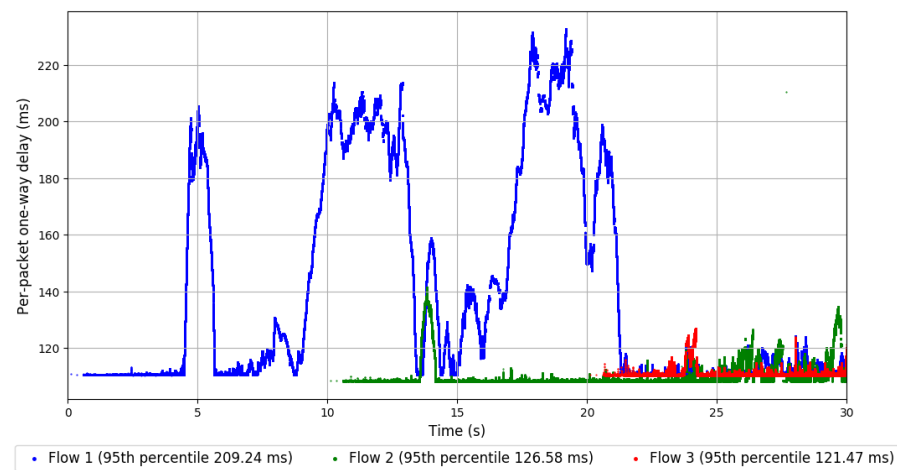
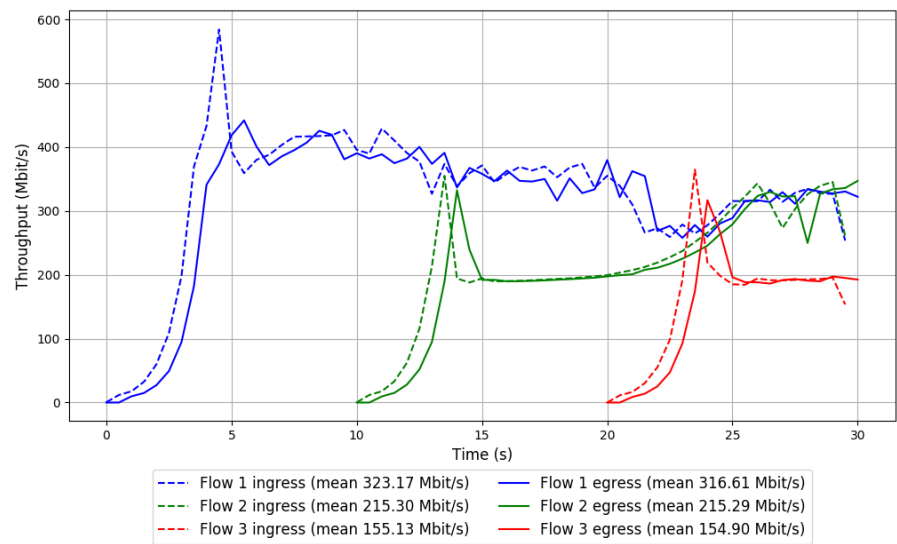
-- Flow 3:

Average throughput: 154.90 Mbit/s

95th percentile per-packet one-way delay: 121.466 ms

Loss rate: 0.14%

Run 5: Report of PCC-Expr — Data Link

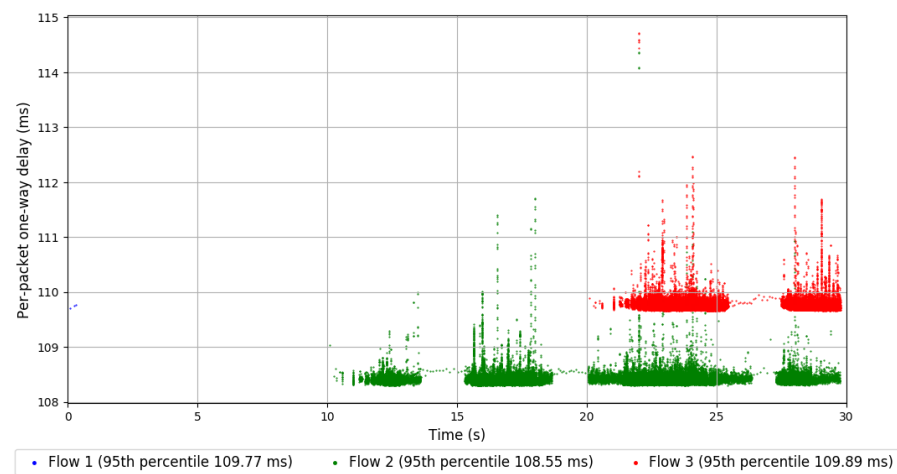
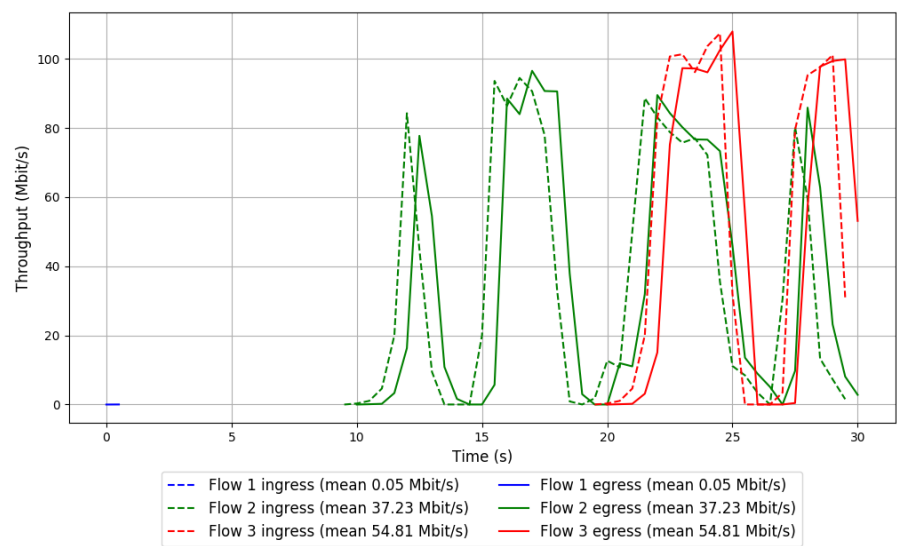


Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 07:29:24  
End at: 2018-09-06 07:29:54  
Local clock offset: 1.862 ms  
Remote clock offset: -0.189 ms

# Below is generated by plot.py at 2018-09-06 11:58:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 42.52 Mbit/s  
95th percentile per-packet one-way delay: 109.826 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.05 Mbit/s  
95th percentile per-packet one-way delay: 109.771 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 37.23 Mbit/s  
95th percentile per-packet one-way delay: 108.546 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 54.81 Mbit/s  
95th percentile per-packet one-way delay: 109.892 ms  
Loss rate: 0.00%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 08:02:43

End at: 2018-09-06 08:03:13

Local clock offset: -0.151 ms

Remote clock offset: 0.211 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 103.04 Mbit/s

95th percentile per-packet one-way delay: 111.821 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 54.25 Mbit/s

95th percentile per-packet one-way delay: 111.852 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 56.88 Mbit/s

95th percentile per-packet one-way delay: 109.447 ms

Loss rate: 0.00%

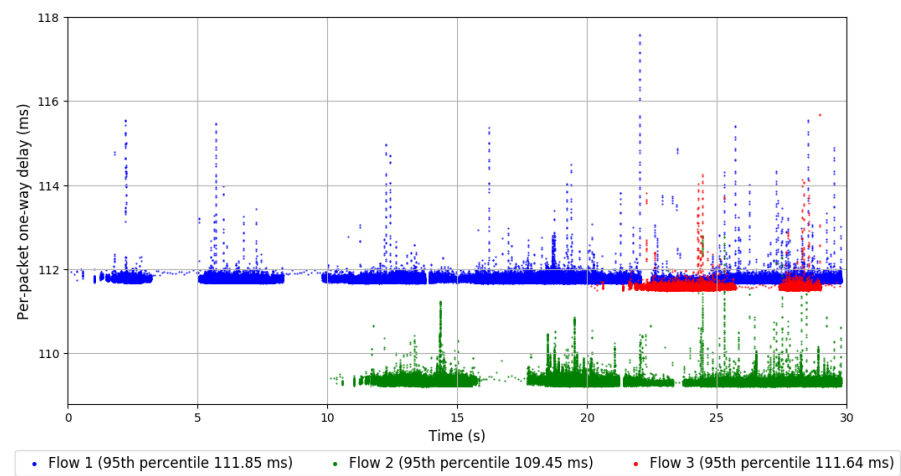
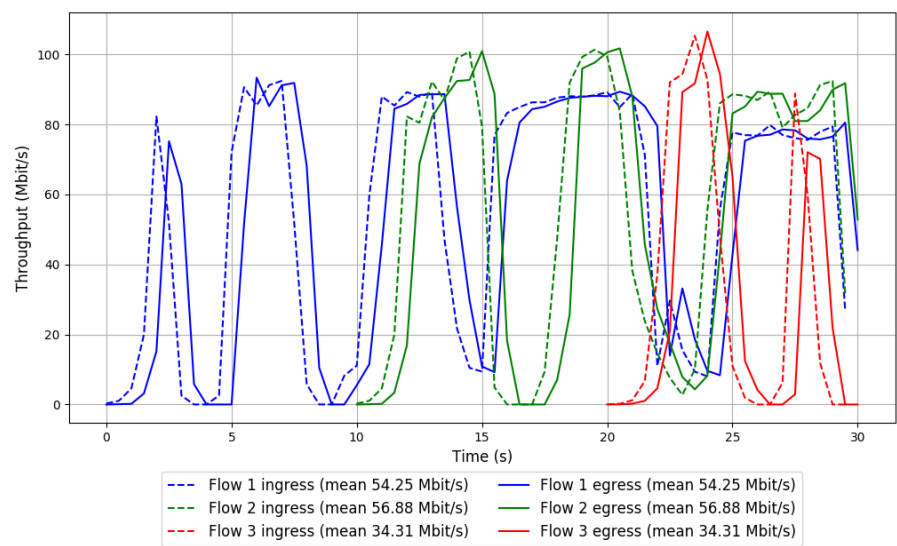
-- Flow 3:

Average throughput: 34.31 Mbit/s

95th percentile per-packet one-way delay: 111.636 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 08:36:11

End at: 2018-09-06 08:36:41

Local clock offset: -0.803 ms

Remote clock offset: 0.129 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 111.67 Mbit/s

95th percentile per-packet one-way delay: 112.323 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 62.62 Mbit/s

95th percentile per-packet one-way delay: 112.313 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 56.81 Mbit/s

95th percentile per-packet one-way delay: 112.349 ms

Loss rate: 0.00%

-- Flow 3:

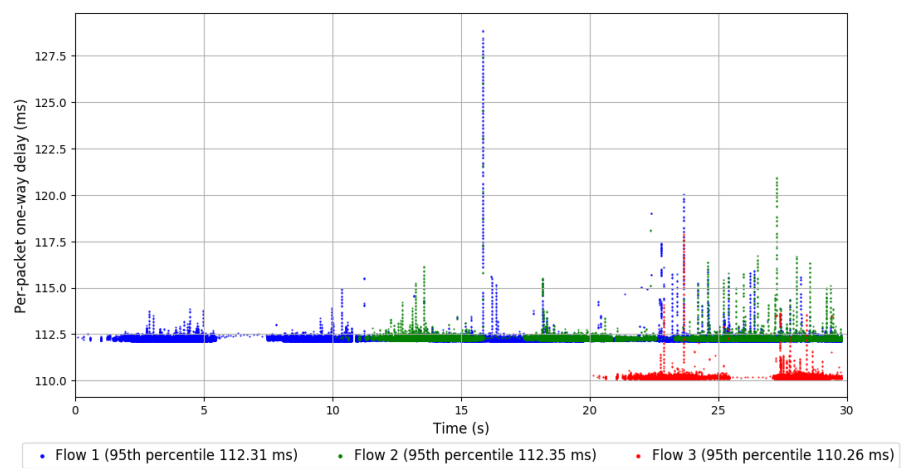
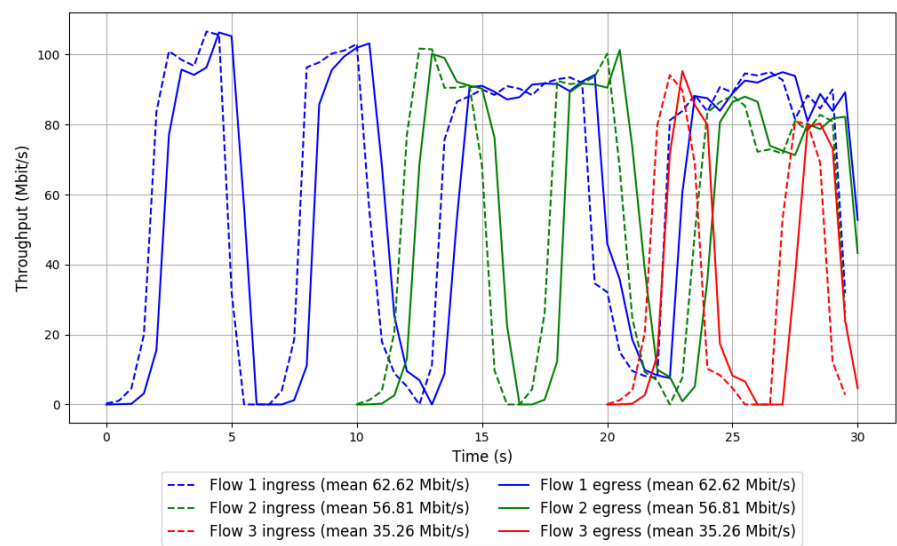
Average throughput: 35.26 Mbit/s

95th percentile per-packet one-way delay: 110.258 ms

Loss rate: 0.00%



Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

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

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

Local clock offset: 0.421 ms

Remote clock offset: 0.141 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 106.93 Mbit/s

95th percentile per-packet one-way delay: 110.967 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 59.38 Mbit/s

95th percentile per-packet one-way delay: 110.914 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 61.70 Mbit/s

95th percentile per-packet one-way delay: 111.004 ms

Loss rate: 0.00%

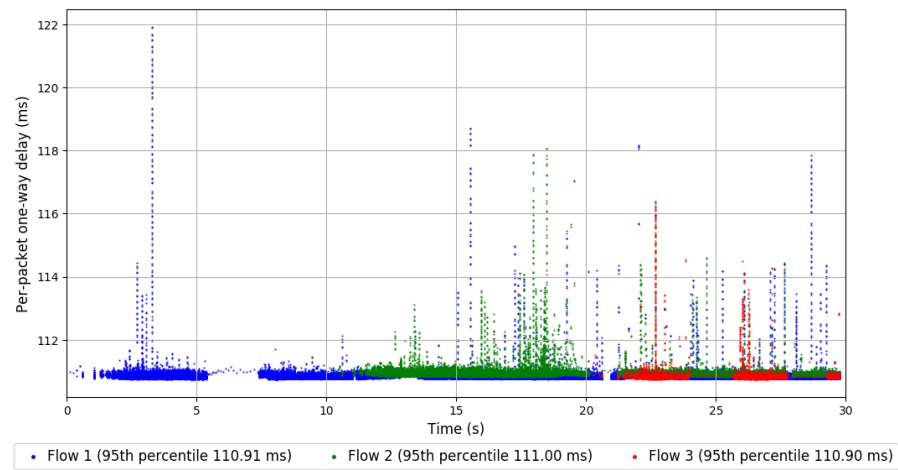
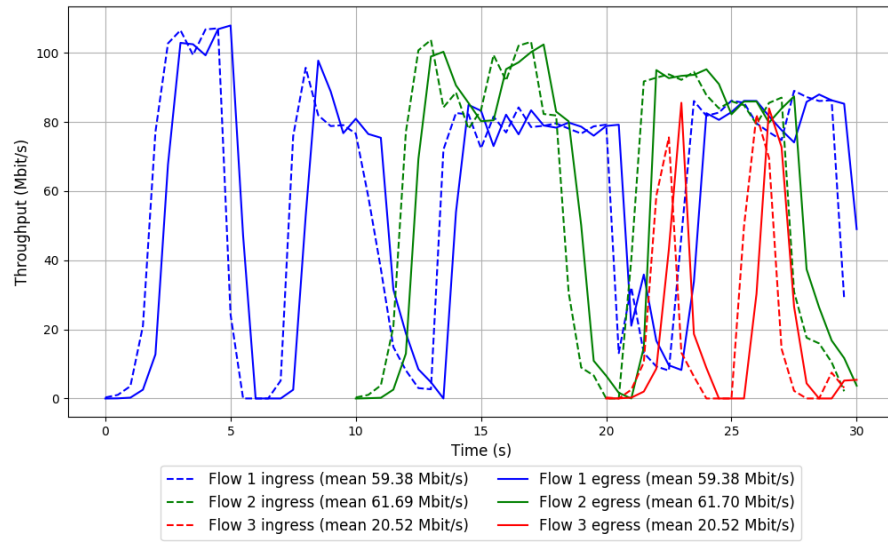
-- Flow 3:

Average throughput: 20.52 Mbit/s

95th percentile per-packet one-way delay: 110.899 ms

Loss rate: 0.00%

# Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 09:42:17

End at: 2018-09-06 09:42:47

Local clock offset: -0.043 ms

Remote clock offset: 0.11 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 105.31 Mbit/s

95th percentile per-packet one-way delay: 111.059 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 52.47 Mbit/s

95th percentile per-packet one-way delay: 111.097 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 56.20 Mbit/s

95th percentile per-packet one-way delay: 110.904 ms

Loss rate: 0.00%

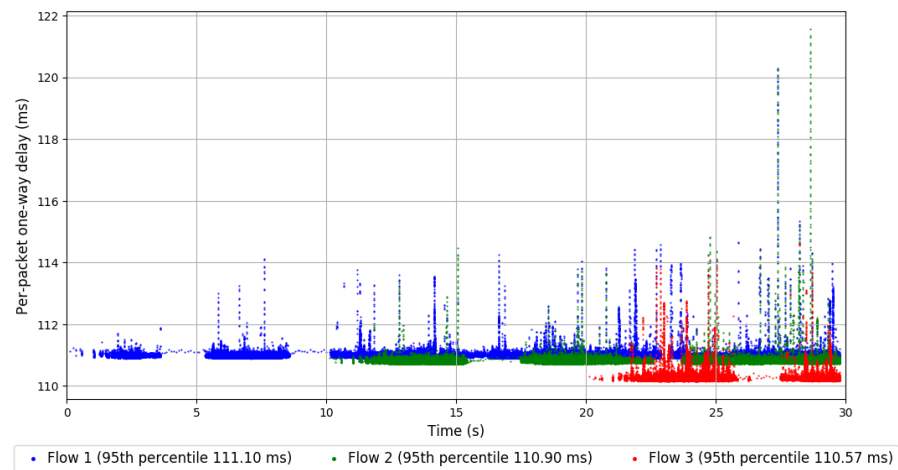
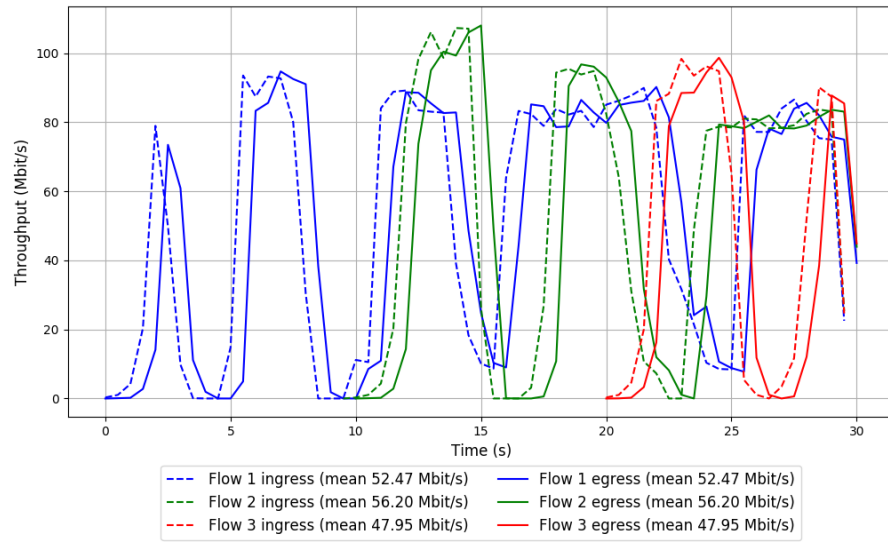
-- Flow 3:

Average throughput: 47.95 Mbit/s

95th percentile per-packet one-way delay: 110.570 ms

Loss rate: 0.00%

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

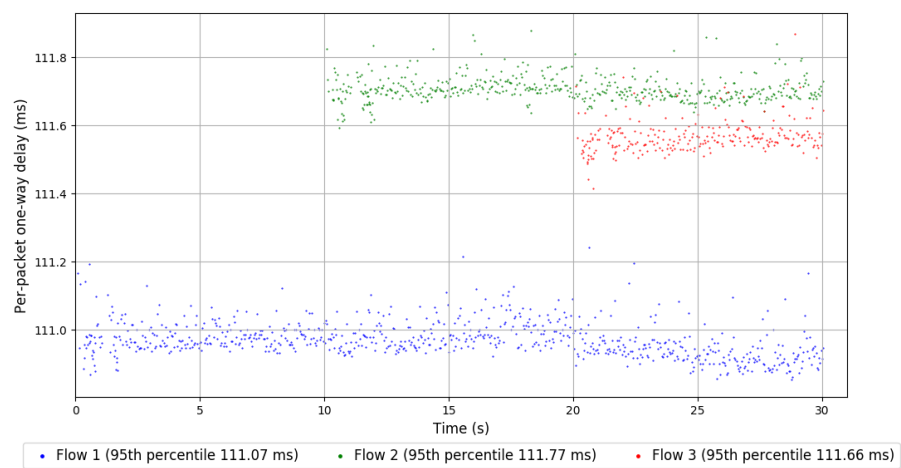
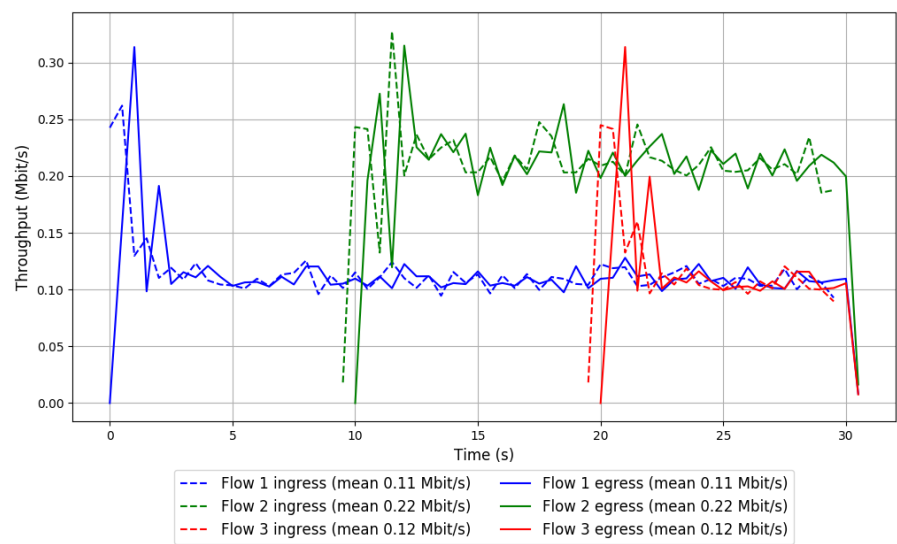


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 07:39:22
End at: 2018-09-06 07:39:52
Local clock offset: 0.619 ms
Remote clock offset: 0.201 ms

# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 111.741 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 111.066 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.774 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 111.659 ms
Loss rate: 0.00%
```

Run 1: Report of SReAM — Data Link



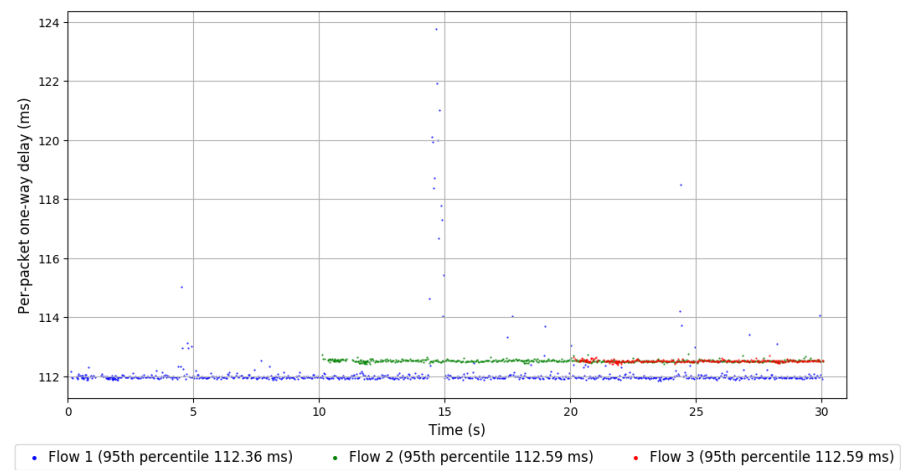
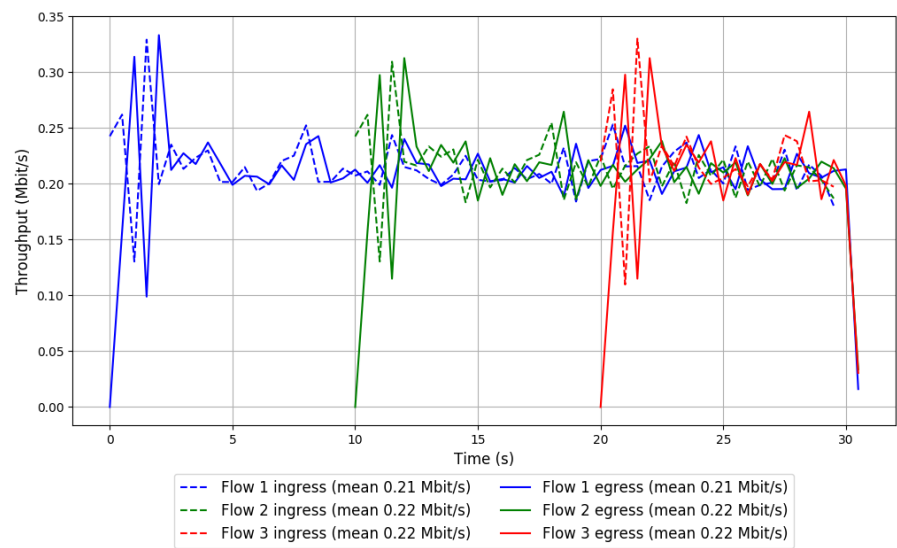
Run 2: Statistics of SReAM

Start at: 2018-09-06 08:12:47  
End at: 2018-09-06 08:13:17  
Local clock offset: -0.195 ms  
Remote clock offset: 0.549 ms

# Below is generated by plot.py at 2018-09-06 11:58:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 112.587 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.21 Mbit/s  
95th percentile per-packet one-way delay: 112.362 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 112.593 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 112.590 ms  
Loss rate: 0.00%



Run 2: Report of SReAM — Data Link

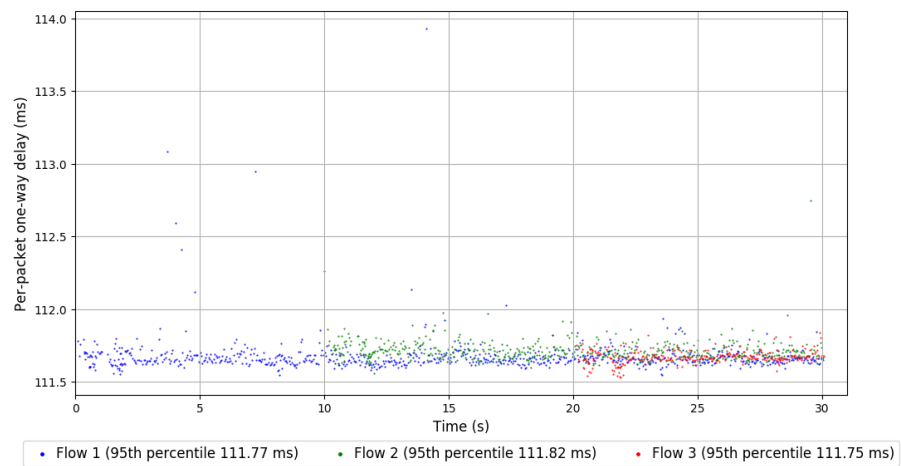
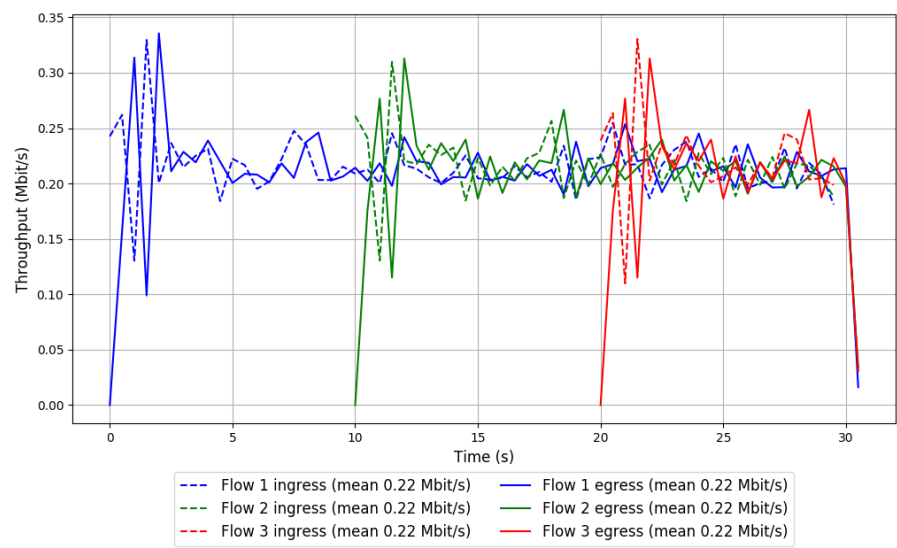


Run 3: Statistics of SReAM

Start at: 2018-09-06 08:46:07  
End at: 2018-09-06 08:46:37  
Local clock offset: -0.154 ms  
Remote clock offset: 0.042 ms

```
# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 111.794 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.772 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.817 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.747 ms
Loss rate: 0.00%
```

Run 3: Report of SReAM — Data Link

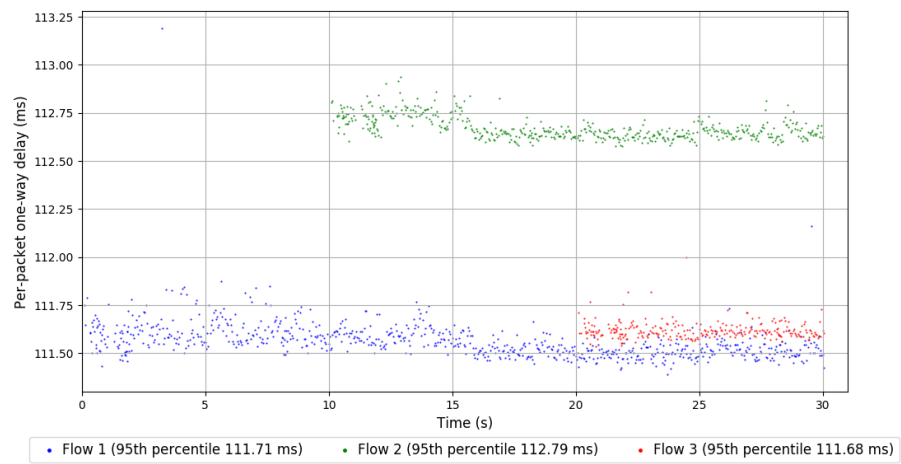
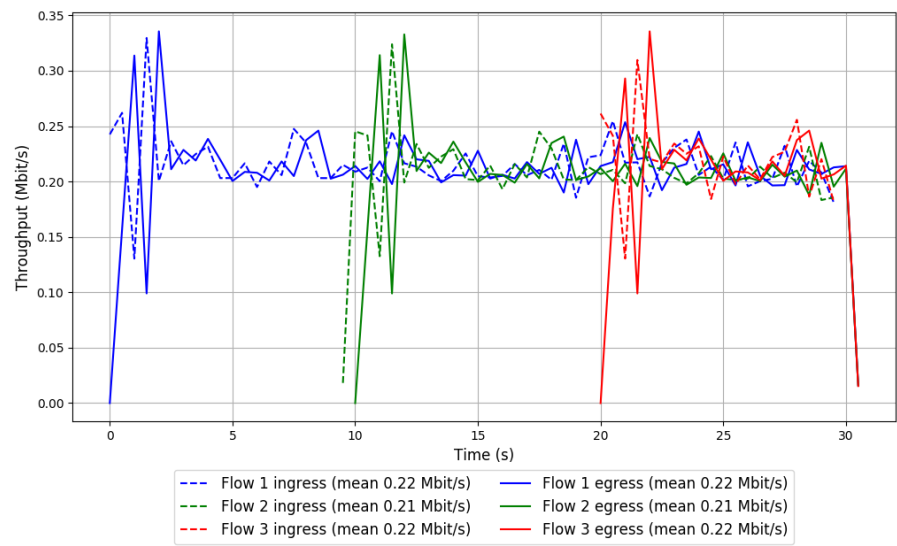


Run 4: Statistics of SReAM

Start at: 2018-09-06 09:19:08  
End at: 2018-09-06 09:19:38  
Local clock offset: -0.464 ms  
Remote clock offset: 0.109 ms

```
# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 112.740 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.711 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.787 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.684 ms
Loss rate: 0.00%
```

Run 4: Report of SReAM — Data Link

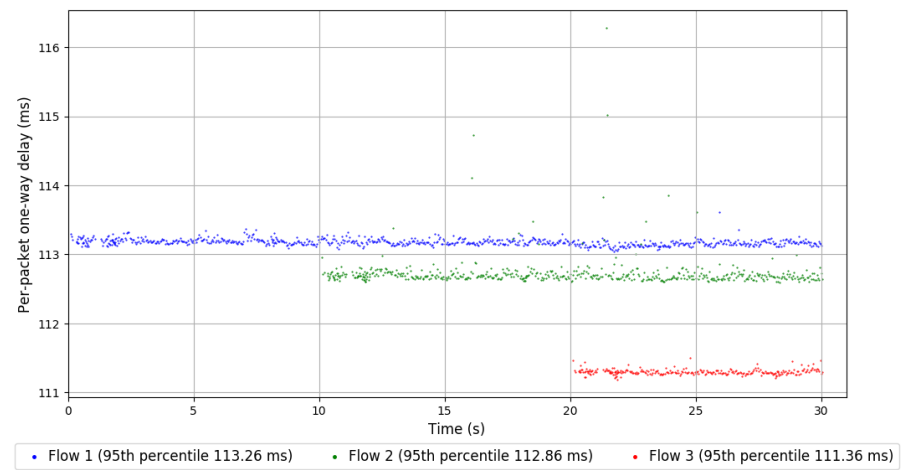
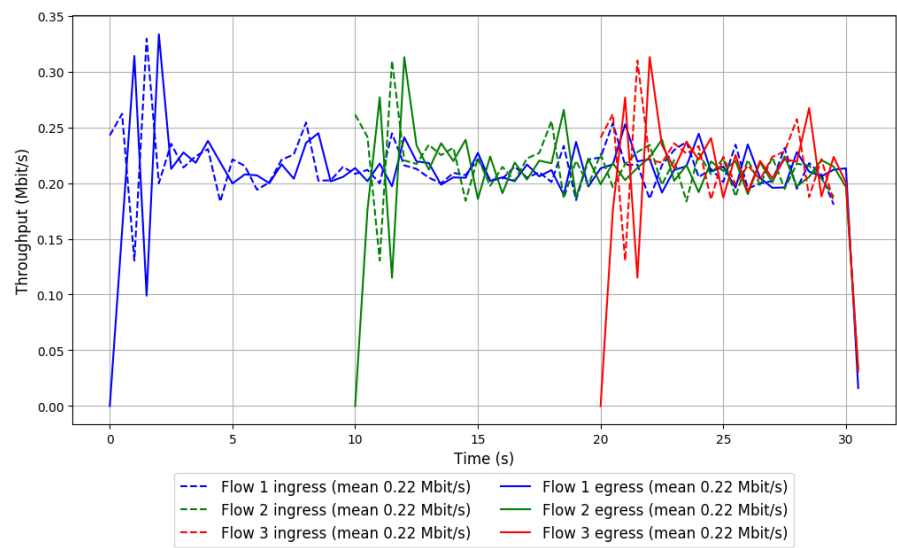


Run 5: Statistics of SReAM

Start at: 2018-09-06 09:52:23  
End at: 2018-09-06 09:52:53  
Local clock offset: -1.595 ms  
Remote clock offset: -0.291 ms

# Below is generated by plot.py at 2018-09-06 11:58:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.43 Mbit/s  
95th percentile per-packet one-way delay: 113.239 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 113.257 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 112.858 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 111.357 ms  
Loss rate: 0.00%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 07:26:52

End at: 2018-09-06 07:27:22

Local clock offset: 0.448 ms

Remote clock offset: 0.245 ms

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

# Datalink statistics

-- Total of 3 flows:

Average throughput: 0.41 Mbit/s

95th percentile per-packet one-way delay: 111.685 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.21 Mbit/s

95th percentile per-packet one-way delay: 111.728 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.18 Mbit/s

95th percentile per-packet one-way delay: 110.602 ms

Loss rate: 0.00%

-- Flow 3:

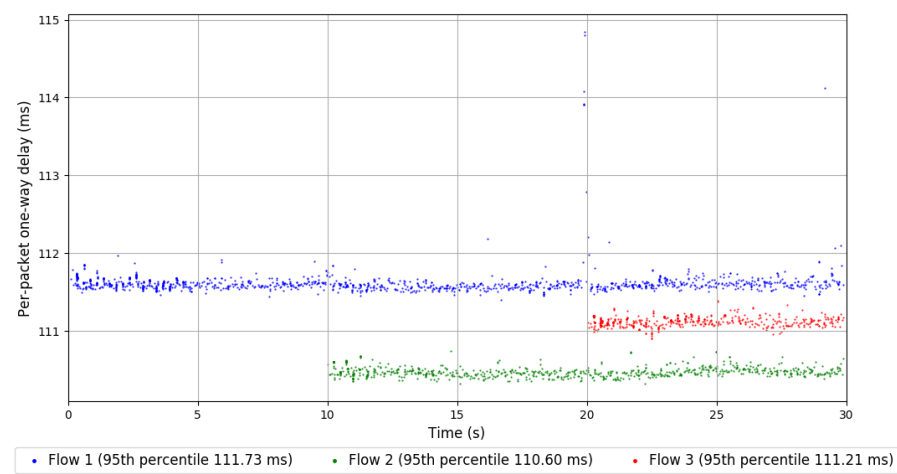
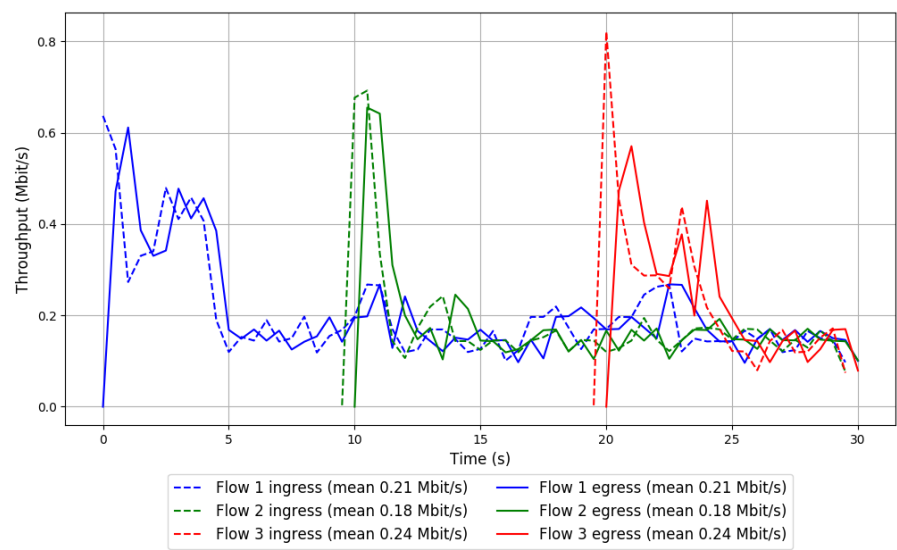
Average throughput: 0.24 Mbit/s

95th percentile per-packet one-way delay: 111.209 ms

Loss rate: 0.00%



Run 1: Report of Sprout — Data Link

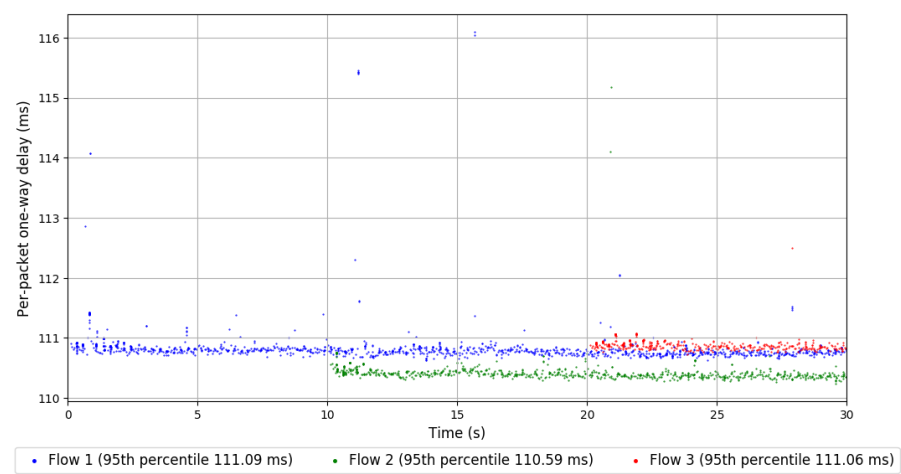
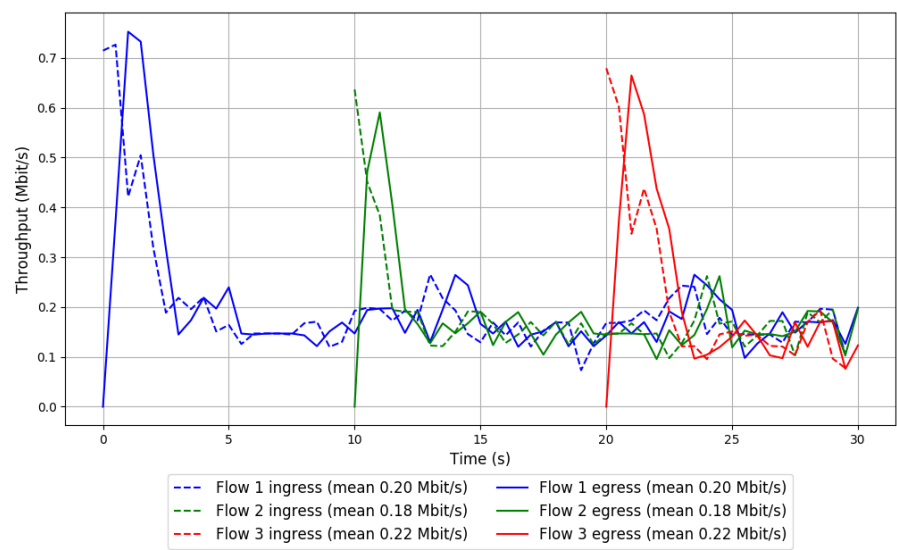


Run 2: Statistics of Sprout

Start at: 2018-09-06 08:00:11  
End at: 2018-09-06 08:00:41  
Local clock offset: 0.759 ms  
Remote clock offset: 0.162 ms

# Below is generated by plot.py at 2018-09-06 11:58:11  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 0.40 Mbit/s  
95th percentile per-packet one-way delay: 110.965 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 0.20 Mbit/s  
95th percentile per-packet one-way delay: 111.092 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 0.18 Mbit/s  
95th percentile per-packet one-way delay: 110.589 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.22 Mbit/s  
95th percentile per-packet one-way delay: 111.057 ms  
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

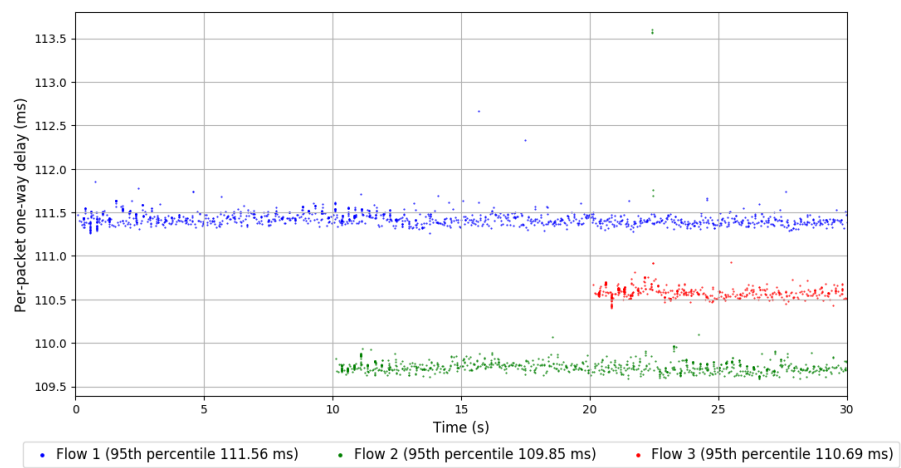
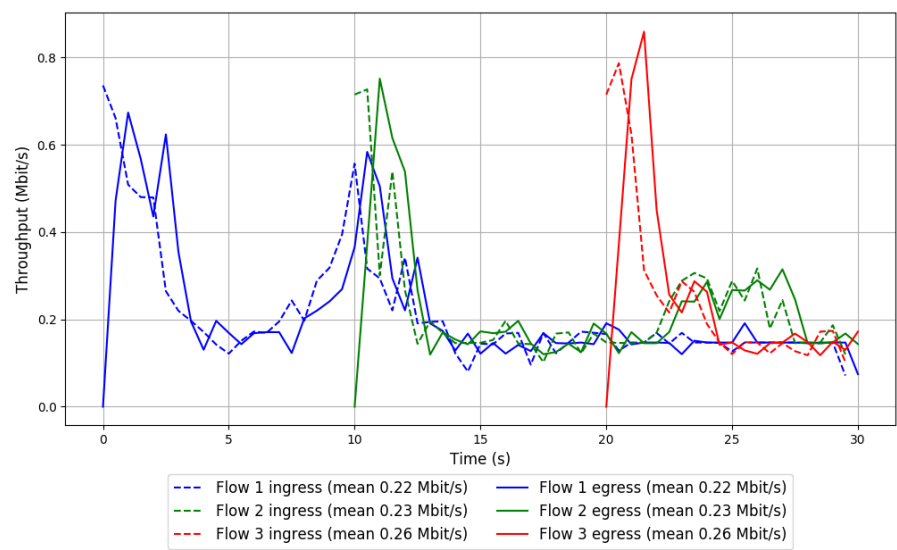


### Run 3: Statistics of Sprout

Start at: 2018-09-06 08:33:39  
End at: 2018-09-06 08:34:09  
Local clock offset: -0.373 ms  
Remote clock offset: 0.073 ms

```
# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 111.525 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 111.561 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 109.851 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 110.692 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

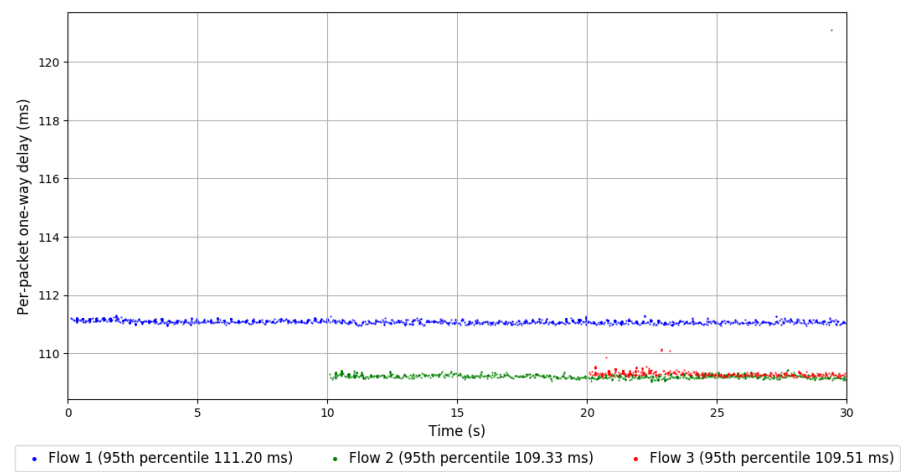
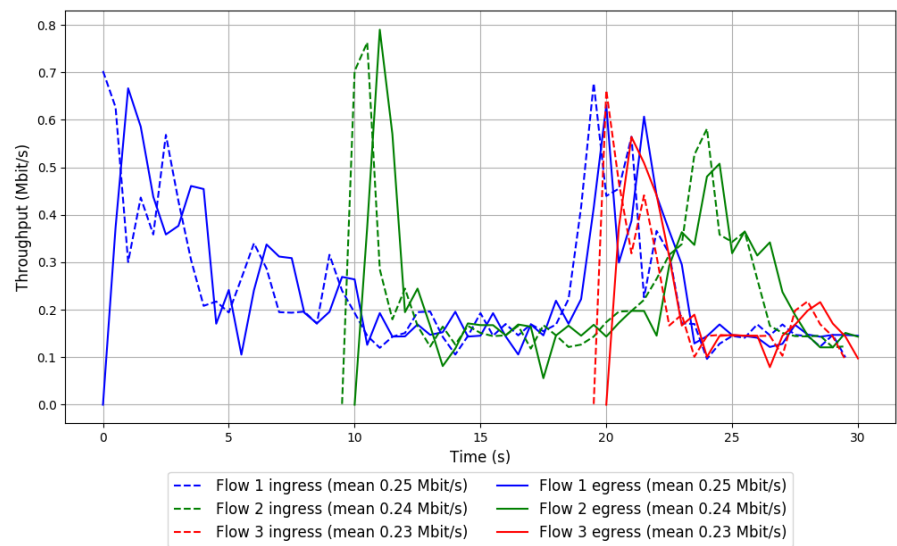


#### Run 4: Statistics of Sprout

Start at: 2018-09-06 09:06:39  
End at: 2018-09-06 09:07:09  
Local clock offset: 1.154 ms  
Remote clock offset: 0.139 ms

```
# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 111.180 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 111.196 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 109.335 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 109.506 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link



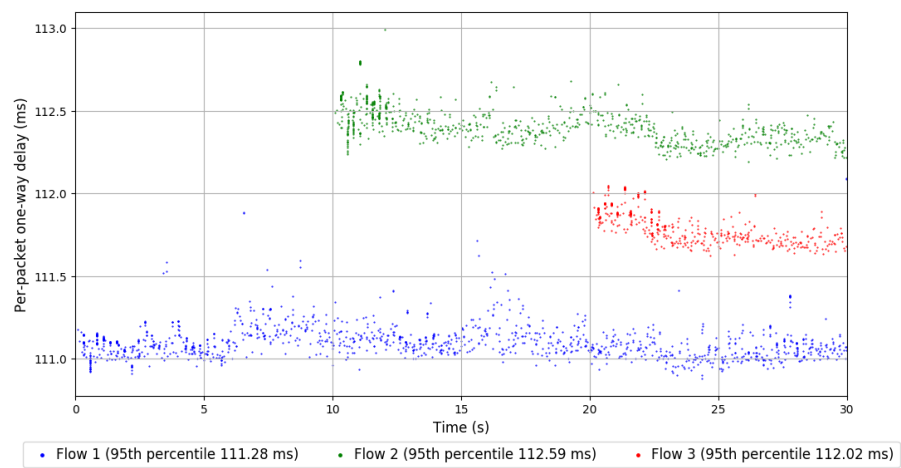
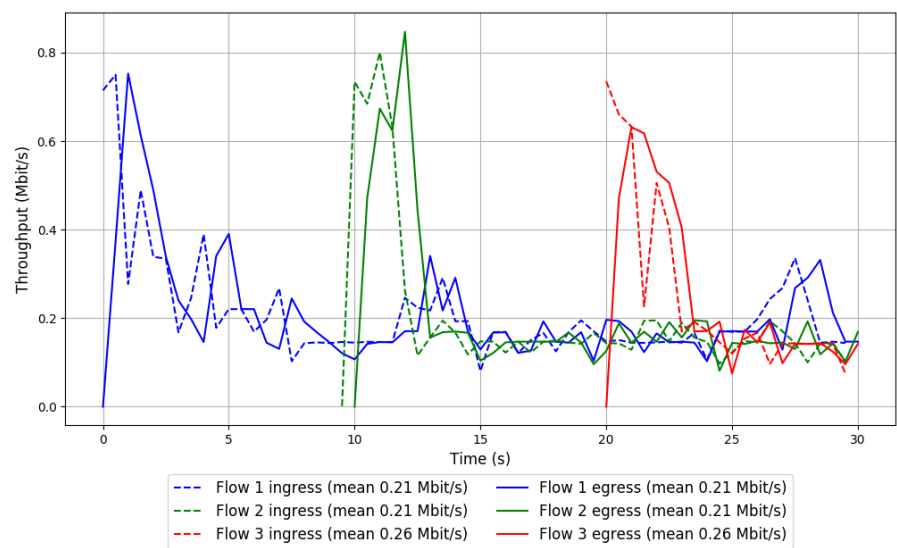
#### Run 5: Statistics of Sprout

Start at: 2018-09-06 09:39:45  
End at: 2018-09-06 09:40:15  
Local clock offset: -0.682 ms  
Remote clock offset: 0.104 ms

```
# Below is generated by plot.py at 2018-09-06 11:58:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 112.529 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 111.275 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 112.591 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 112.022 ms
Loss rate: 0.00%
```



Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 07:30:43

End at: 2018-09-06 07:31:13

Local clock offset: -0.841 ms

Remote clock offset: 0.211 ms

# Below is generated by plot.py at 2018-09-06 12:03:09

# Datalink statistics

-- Total of 3 flows:

Average throughput: 416.96 Mbit/s

95th percentile per-packet one-way delay: 113.192 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 211.20 Mbit/s

95th percentile per-packet one-way delay: 112.942 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 218.37 Mbit/s

95th percentile per-packet one-way delay: 113.373 ms

Loss rate: 0.00%

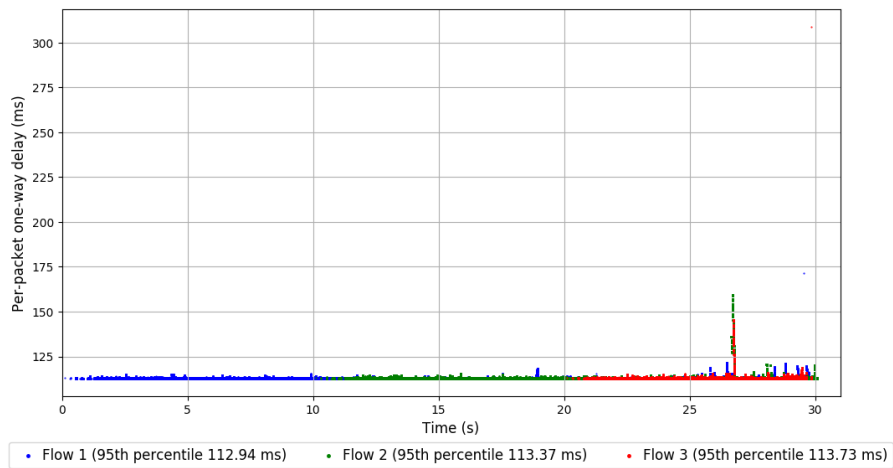
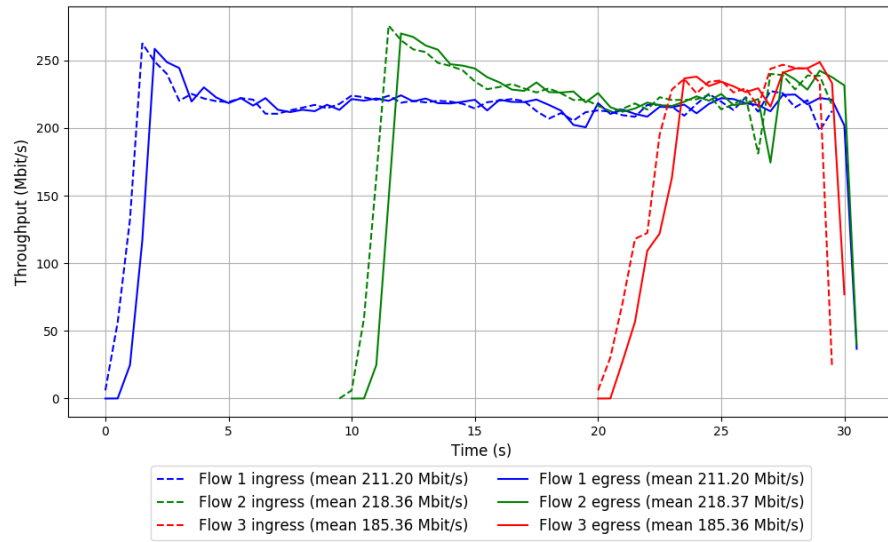
-- Flow 3:

Average throughput: 185.36 Mbit/s

95th percentile per-packet one-way delay: 113.733 ms

Loss rate: 0.00%

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



Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 08:04:05

End at: 2018-09-06 08:04:35

Local clock offset: -0.108 ms

Remote clock offset: 0.603 ms

# Below is generated by plot.py at 2018-09-06 12:03:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 433.25 Mbit/s

95th percentile per-packet one-way delay: 112.265 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 222.09 Mbit/s

95th percentile per-packet one-way delay: 112.200 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 217.10 Mbit/s

95th percentile per-packet one-way delay: 112.278 ms

Loss rate: 0.00%

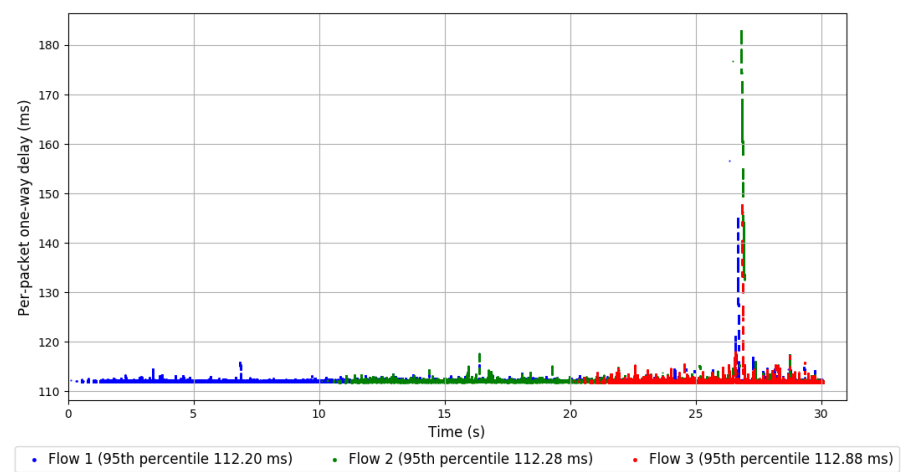
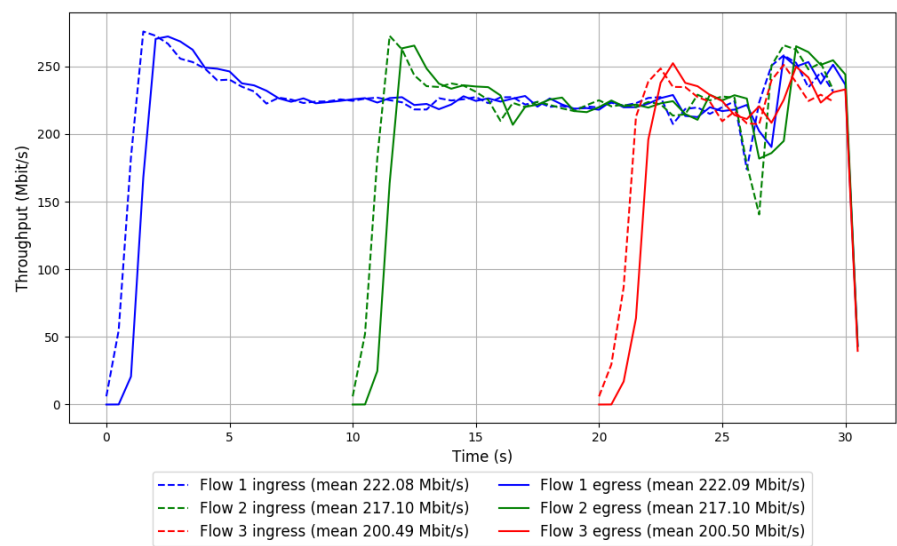
-- Flow 3:

Average throughput: 200.50 Mbit/s

95th percentile per-packet one-way delay: 112.882 ms

Loss rate: 0.00%

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



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 08:37:34

End at: 2018-09-06 08:38:04

Local clock offset: 0.298 ms

Remote clock offset: 0.488 ms

# Below is generated by plot.py at 2018-09-06 12:03:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 392.67 Mbit/s

95th percentile per-packet one-way delay: 112.274 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 204.12 Mbit/s

95th percentile per-packet one-way delay: 112.089 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 194.46 Mbit/s

95th percentile per-packet one-way delay: 112.621 ms

Loss rate: 0.00%

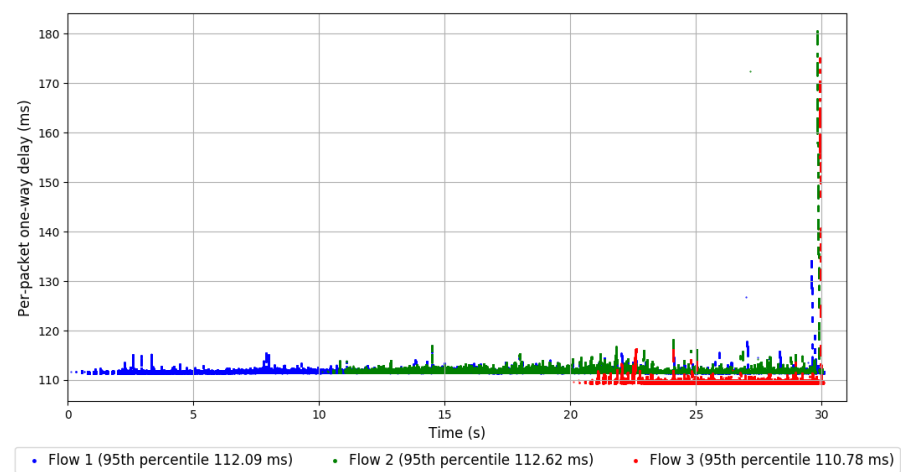
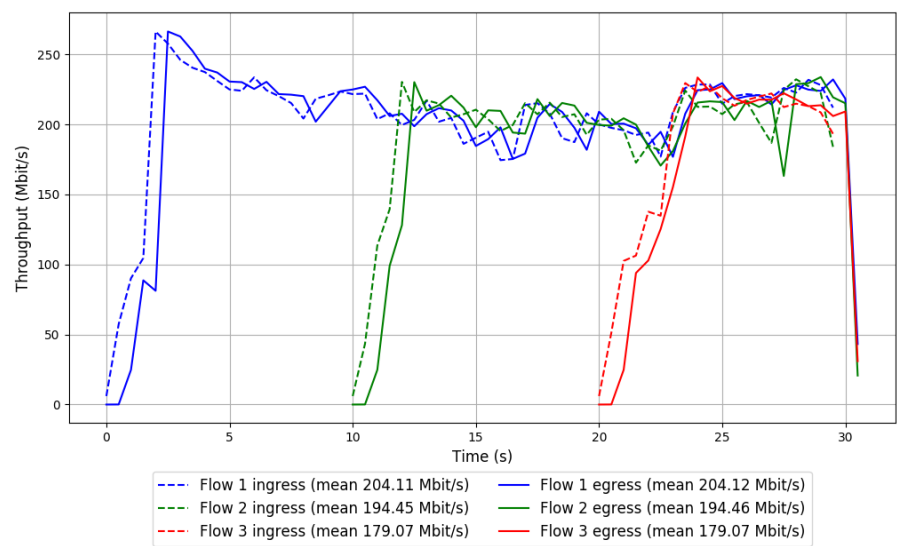
-- Flow 3:

Average throughput: 179.07 Mbit/s

95th percentile per-packet one-way delay: 110.777 ms

Loss rate: 0.00%

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



Run 4: Statistics of TaoVA-100x

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

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

Local clock offset: -0.167 ms

Remote clock offset: 0.128 ms

# Below is generated by plot.py at 2018-09-06 12:03:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 419.48 Mbit/s

95th percentile per-packet one-way delay: 112.513 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 214.89 Mbit/s

95th percentile per-packet one-way delay: 112.596 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 209.15 Mbit/s

95th percentile per-packet one-way delay: 111.901 ms

Loss rate: 0.00%

-- Flow 3:

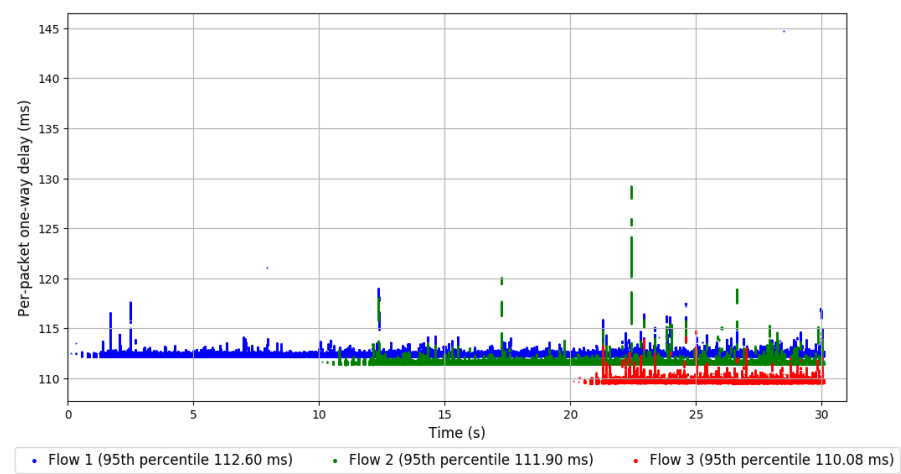
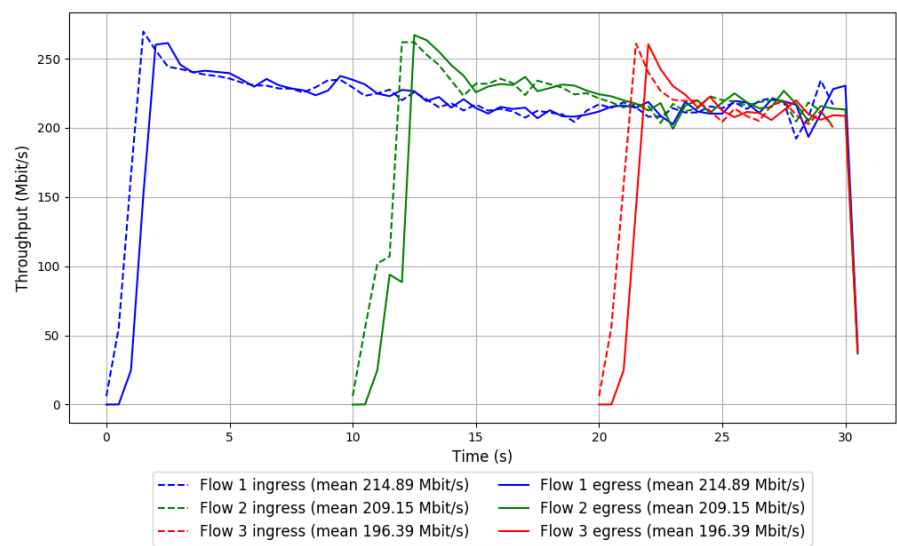
Average throughput: 196.39 Mbit/s

95th percentile per-packet one-way delay: 110.079 ms

Loss rate: 0.00%



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

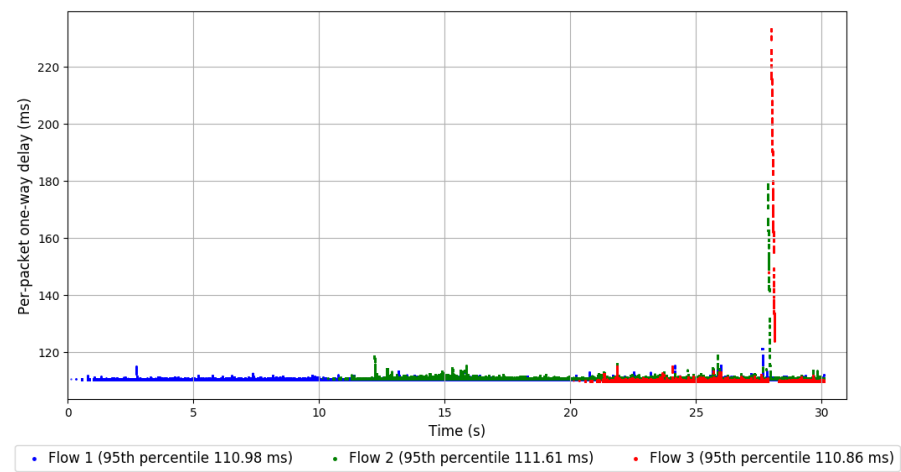
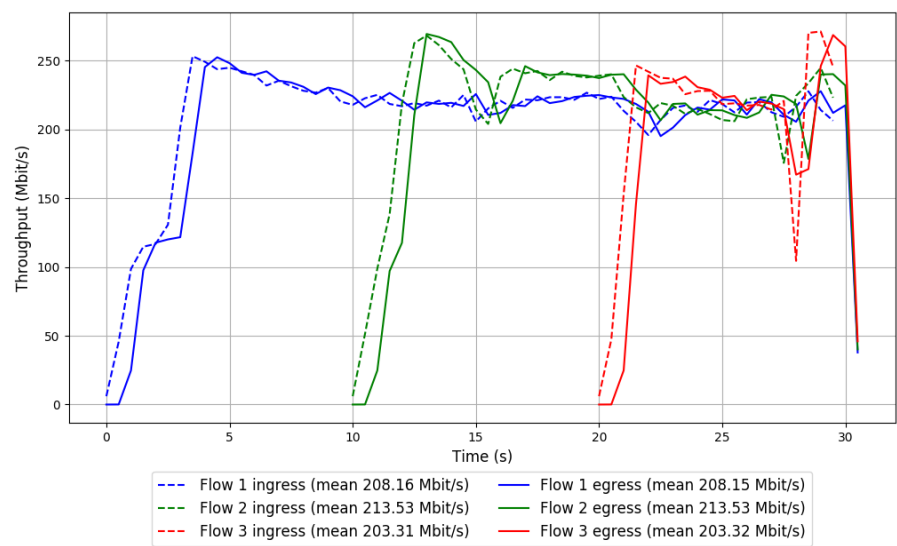


Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 09:43:40  
End at: 2018-09-06 09:44:10  
Local clock offset: 0.399 ms  
Remote clock offset: -0.298 ms

# Below is generated by plot.py at 2018-09-06 12:06:06  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 417.90 Mbit/s  
95th percentile per-packet one-way delay: 111.272 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 208.15 Mbit/s  
95th percentile per-packet one-way delay: 110.983 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 213.53 Mbit/s  
95th percentile per-packet one-way delay: 111.609 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 203.32 Mbit/s  
95th percentile per-packet one-way delay: 110.861 ms  
Loss rate: 0.00%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 07:17:31

End at: 2018-09-06 07:18:01

Local clock offset: 0.265 ms

Remote clock offset: 0.376 ms

# Below is generated by plot.py at 2018-09-06 12:08:57

# Datalink statistics

-- Total of 3 flows:

Average throughput: 787.62 Mbit/s

95th percentile per-packet one-way delay: 145.899 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 404.66 Mbit/s

95th percentile per-packet one-way delay: 150.262 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 415.13 Mbit/s

95th percentile per-packet one-way delay: 140.682 ms

Loss rate: 0.00%

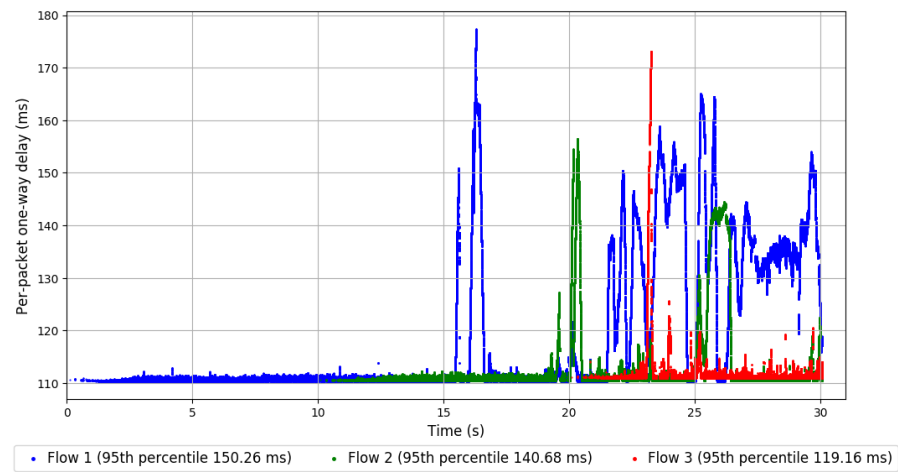
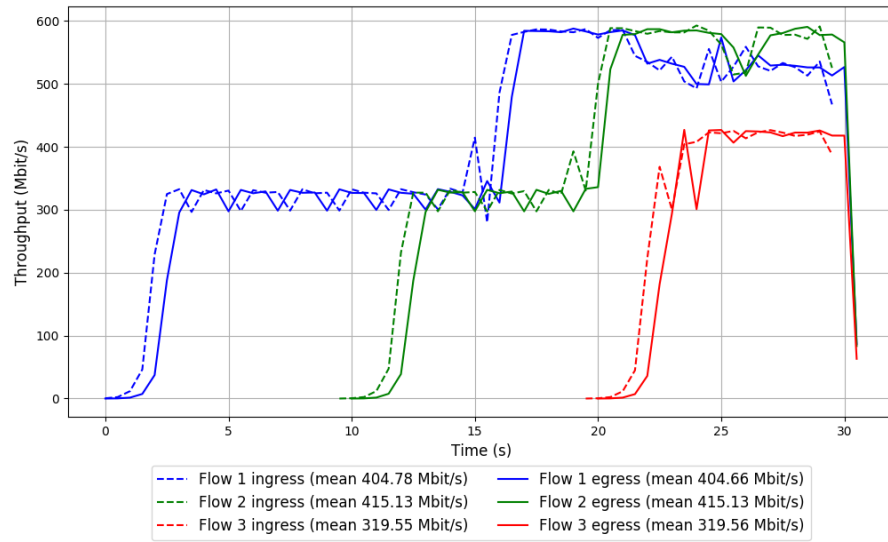
-- Flow 3:

Average throughput: 319.56 Mbit/s

95th percentile per-packet one-way delay: 119.157 ms

Loss rate: 0.00%

# Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 07:50:41

End at: 2018-09-06 07:51:11

Local clock offset: 0.521 ms

Remote clock offset: 0.228 ms

# Below is generated by plot.py at 2018-09-06 12:12:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 818.44 Mbit/s

95th percentile per-packet one-way delay: 196.763 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 495.34 Mbit/s

95th percentile per-packet one-way delay: 207.743 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 357.19 Mbit/s

95th percentile per-packet one-way delay: 114.037 ms

Loss rate: 0.00%

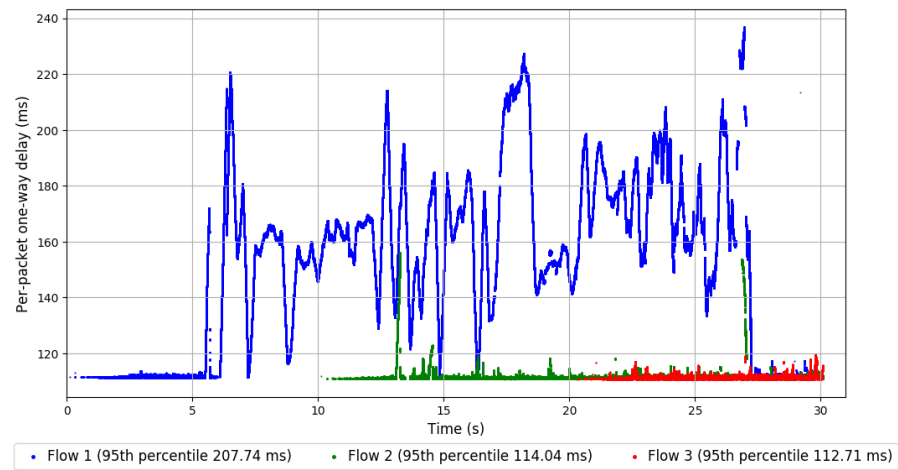
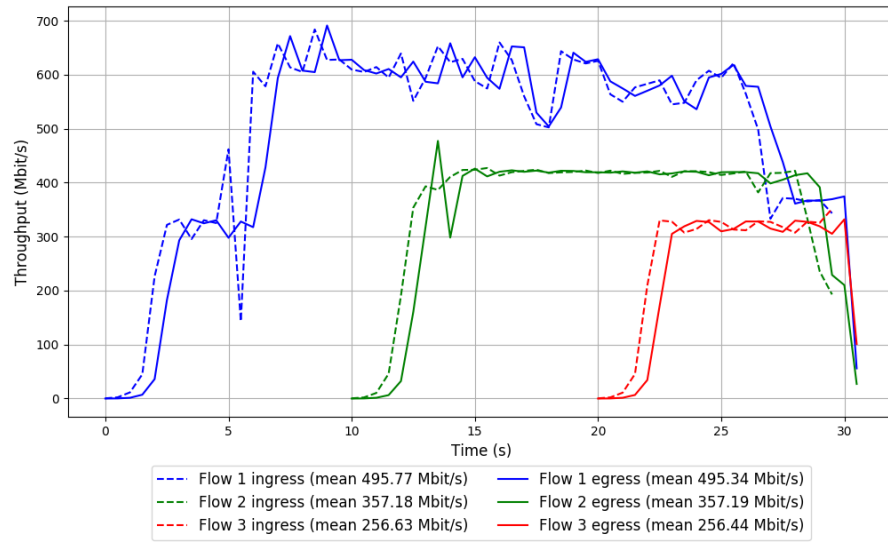
-- Flow 3:

Average throughput: 256.44 Mbit/s

95th percentile per-packet one-way delay: 112.712 ms

Loss rate: 0.06%

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



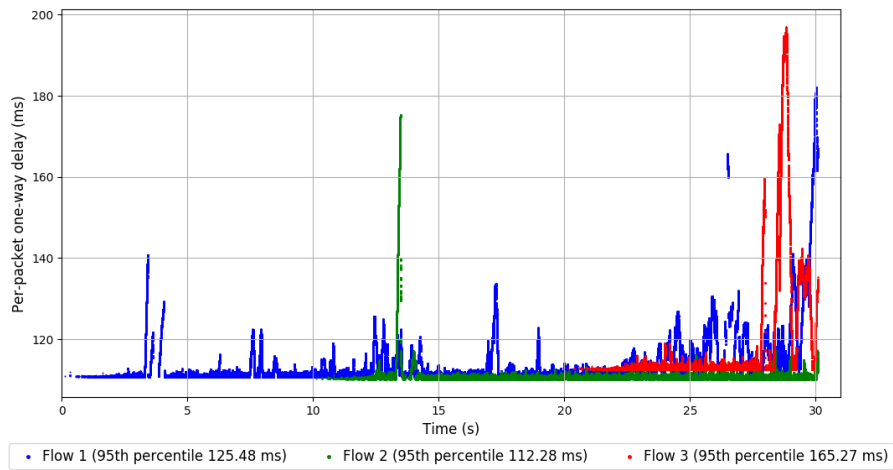
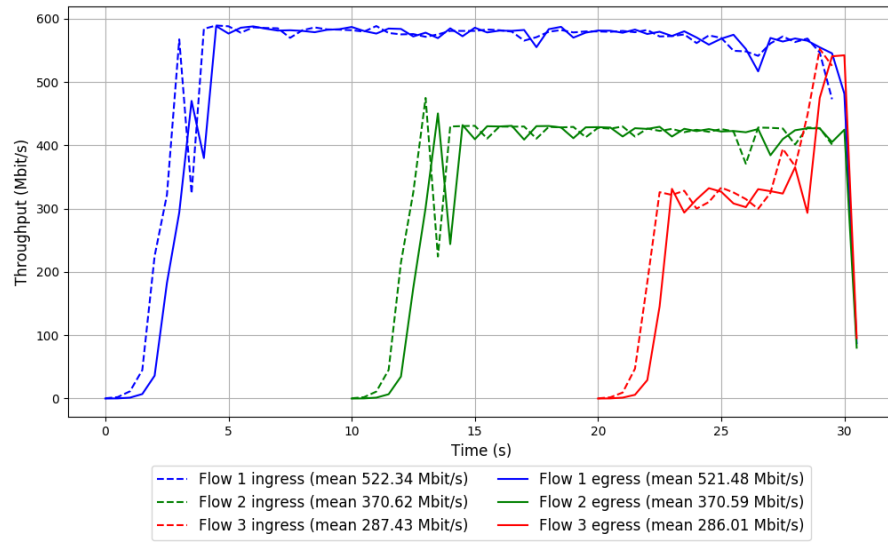
Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 08:24:02  
End at: 2018-09-06 08:24:32  
Local clock offset: -0.467 ms  
Remote clock offset: -0.181 ms

# Below is generated by plot.py at 2018-09-06 12:14:27  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 863.12 Mbit/s  
95th percentile per-packet one-way delay: 128.466 ms  
Loss rate: 0.15%  
-- Flow 1:  
Average throughput: 521.48 Mbit/s  
95th percentile per-packet one-way delay: 125.478 ms  
Loss rate: 0.16%  
-- Flow 2:  
Average throughput: 370.59 Mbit/s  
95th percentile per-packet one-way delay: 112.279 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 286.01 Mbit/s  
95th percentile per-packet one-way delay: 165.271 ms  
Loss rate: 0.50%



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



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 08:57:25

End at: 2018-09-06 08:57:55

Local clock offset: -1.528 ms

Remote clock offset: 0.089 ms

# Below is generated by plot.py at 2018-09-06 12:14:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 551.65 Mbit/s

95th percentile per-packet one-way delay: 116.154 ms

Loss rate: 0.30%

-- Flow 1:

Average throughput: 248.45 Mbit/s

95th percentile per-packet one-way delay: 113.522 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 328.97 Mbit/s

95th percentile per-packet one-way delay: 151.749 ms

Loss rate: 0.74%

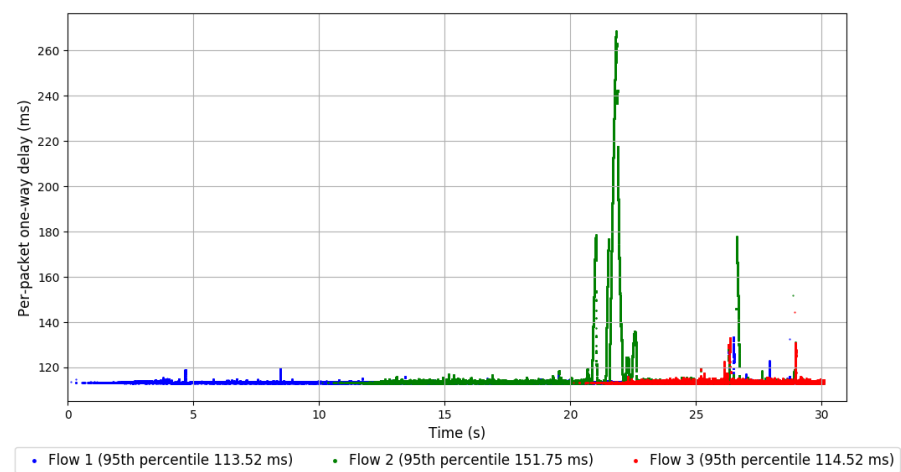
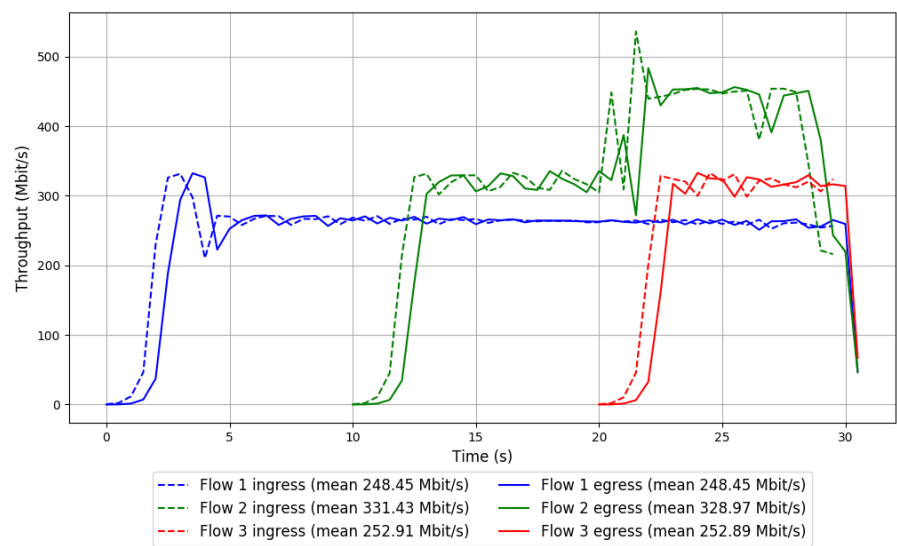
-- Flow 3:

Average throughput: 252.89 Mbit/s

95th percentile per-packet one-way delay: 114.517 ms

Loss rate: 0.00%

Run 4: Report of TCP Vegas — Data Link

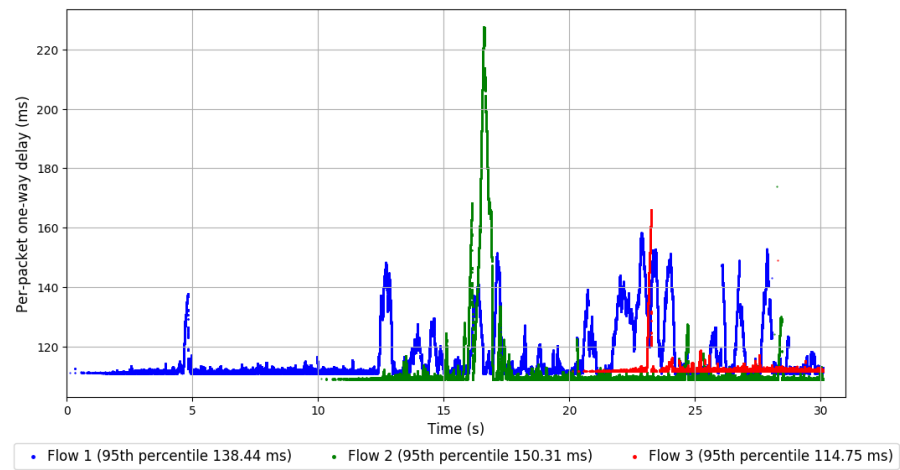
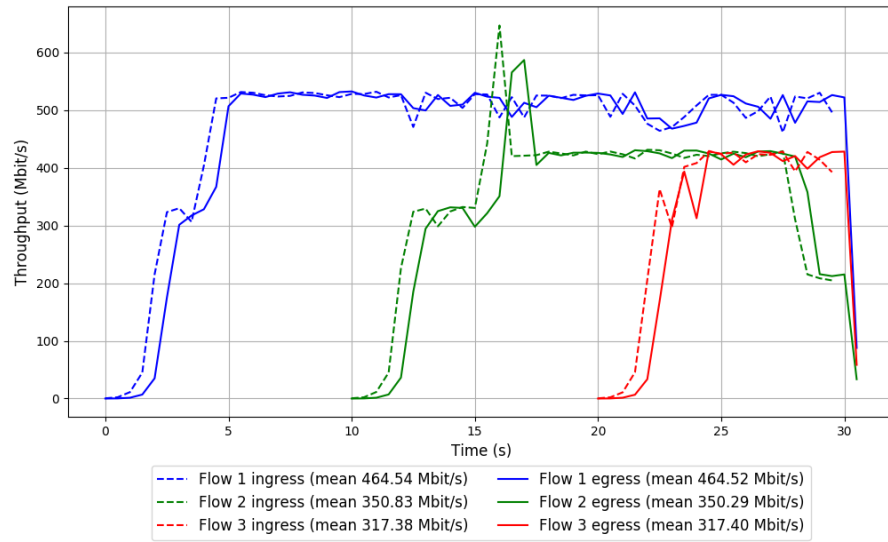


Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 09:30:15  
End at: 2018-09-06 09:30:45  
Local clock offset: 0.017 ms  
Remote clock offset: -0.232 ms

# Below is generated by plot.py at 2018-09-06 12:16:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 803.34 Mbit/s  
95th percentile per-packet one-way delay: 138.059 ms  
Loss rate: 0.05%  
-- Flow 1:  
Average throughput: 464.52 Mbit/s  
95th percentile per-packet one-way delay: 138.442 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 350.29 Mbit/s  
95th percentile per-packet one-way delay: 150.306 ms  
Loss rate: 0.16%  
-- Flow 3:  
Average throughput: 317.40 Mbit/s  
95th percentile per-packet one-way delay: 114.745 ms  
Loss rate: 0.00%

# Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-06 07:11:34

End at: 2018-09-06 07:12:04

Local clock offset: 0.396 ms

Remote clock offset: 0.509 ms

# Below is generated by plot.py at 2018-09-06 12:16:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 155.89 Mbit/s

95th percentile per-packet one-way delay: 229.106 ms

Loss rate: 2.55%

-- Flow 1:

Average throughput: 125.11 Mbit/s

95th percentile per-packet one-way delay: 237.707 ms

Loss rate: 3.16%

-- Flow 2:

Average throughput: 30.49 Mbit/s

95th percentile per-packet one-way delay: 130.382 ms

Loss rate: 0.00%

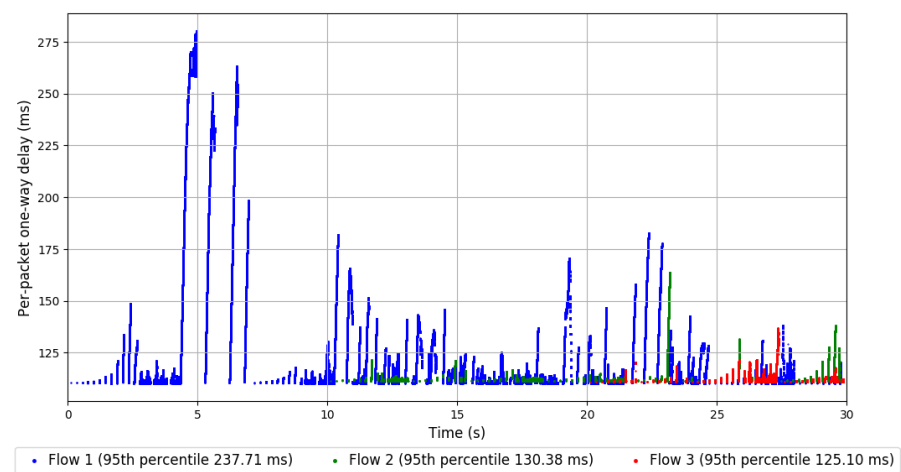
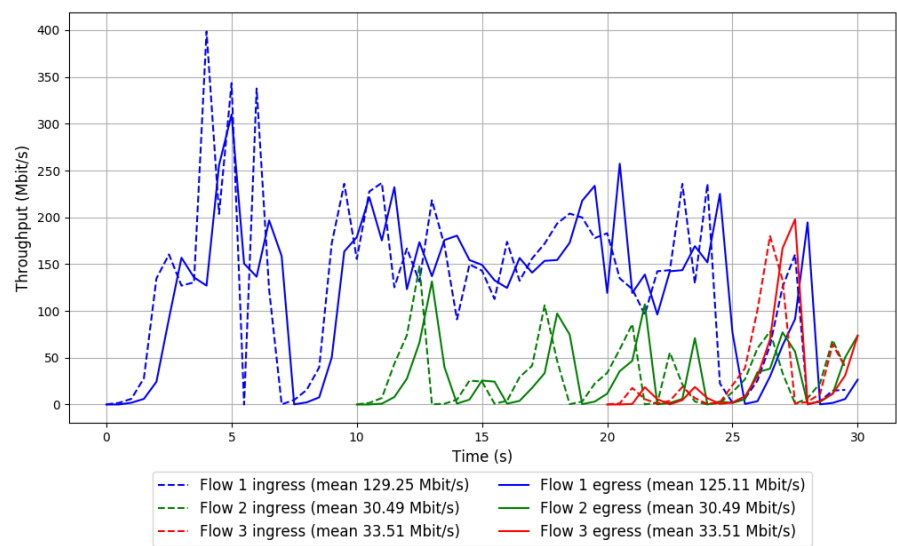
-- Flow 3:

Average throughput: 33.51 Mbit/s

95th percentile per-packet one-way delay: 125.100 ms

Loss rate: 0.00%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-06 07:44:42

End at: 2018-09-06 07:45:12

Local clock offset: 0.812 ms

Remote clock offset: -0.13 ms

# Below is generated by plot.py at 2018-09-06 12:16:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 282.53 Mbit/s

95th percentile per-packet one-way delay: 266.894 ms

Loss rate: 4.71%

-- Flow 1:

Average throughput: 178.66 Mbit/s

95th percentile per-packet one-way delay: 223.767 ms

Loss rate: 1.05%

-- Flow 2:

Average throughput: 132.83 Mbit/s

95th percentile per-packet one-way delay: 294.055 ms

Loss rate: 11.68%

-- Flow 3:

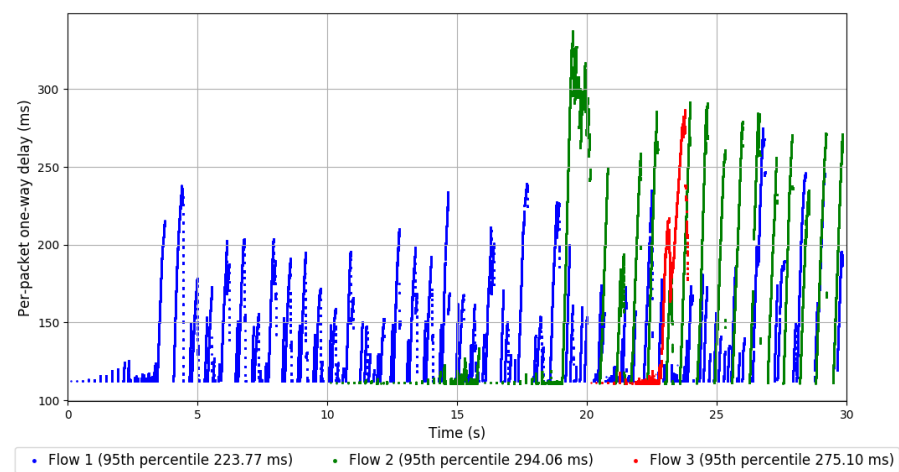
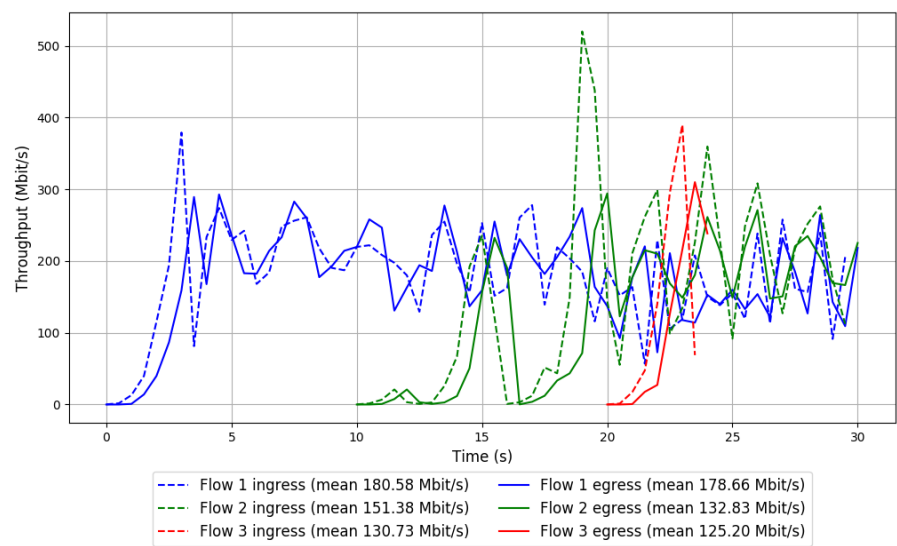
Average throughput: 125.20 Mbit/s

95th percentile per-packet one-way delay: 275.096 ms

Loss rate: 2.49%



Run 2: Report of Verus — Data Link

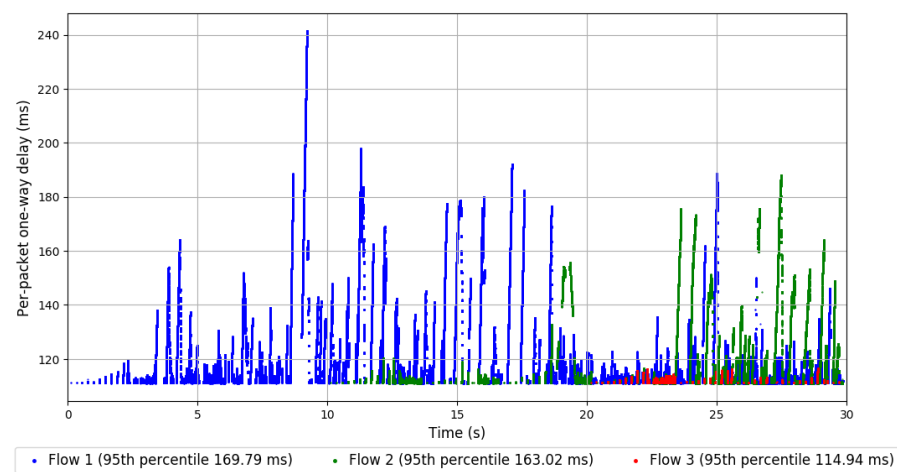
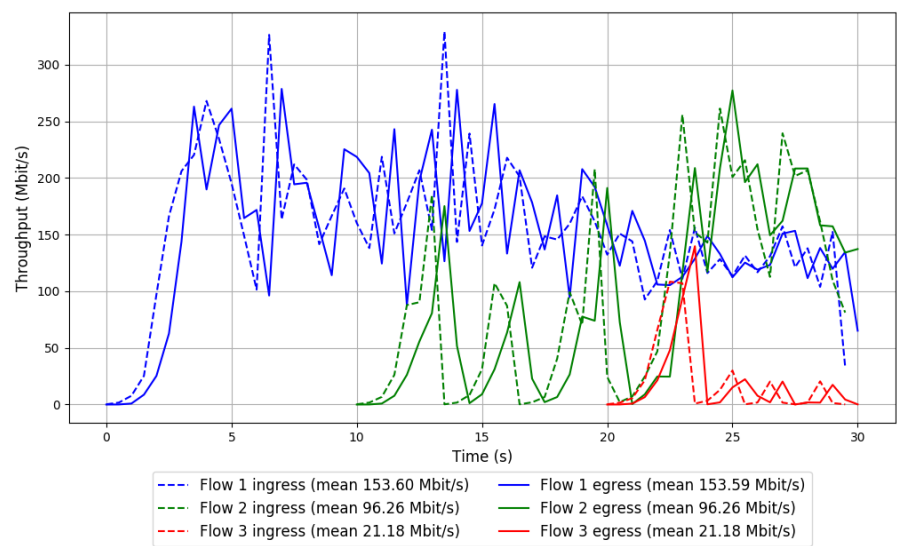


Run 3: Statistics of Verus

Start at: 2018-09-06 08:18:03  
End at: 2018-09-06 08:18:33  
Local clock offset: -0.22 ms  
Remote clock offset: -0.135 ms

# Below is generated by plot.py at 2018-09-06 12:16:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 224.21 Mbit/s  
95th percentile per-packet one-way delay: 166.840 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 153.59 Mbit/s  
95th percentile per-packet one-way delay: 169.790 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 96.26 Mbit/s  
95th percentile per-packet one-way delay: 163.022 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 21.18 Mbit/s  
95th percentile per-packet one-way delay: 114.935 ms  
Loss rate: 0.00%

Run 3: Report of Verus — Data Link

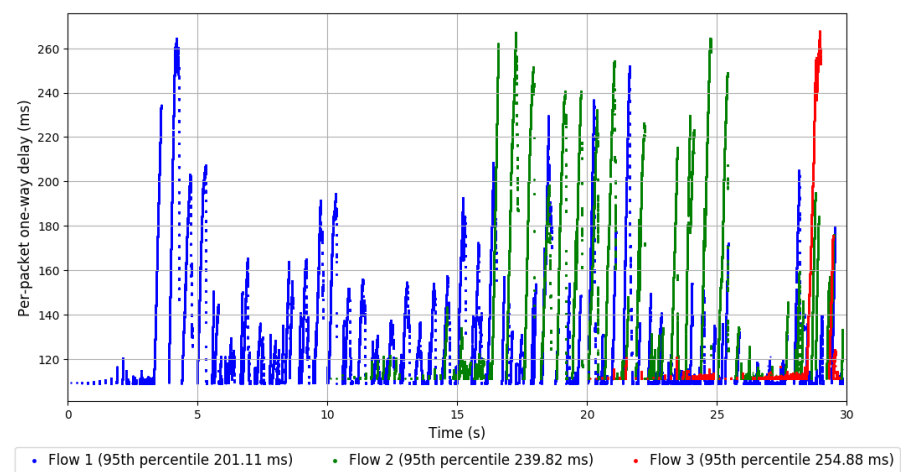
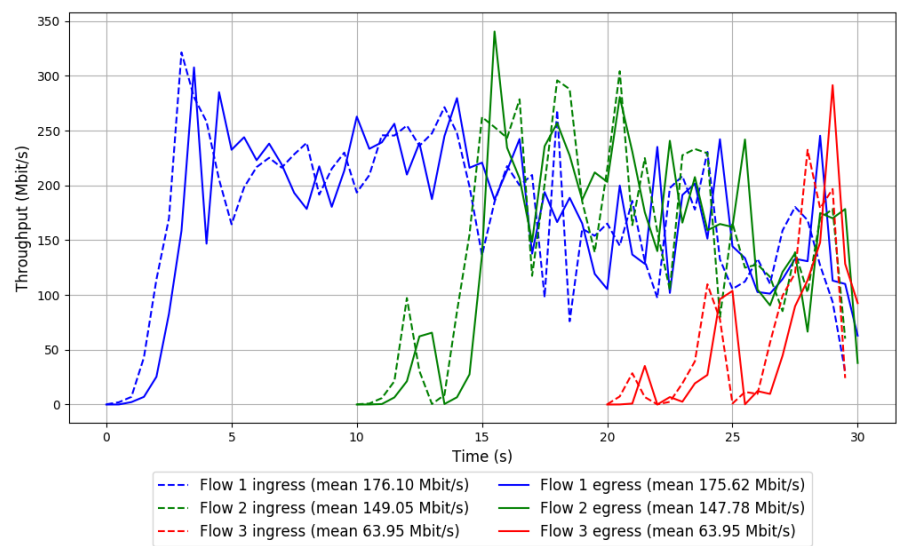


Run 4: Statistics of Verus

Start at: 2018-09-06 08:51:22  
End at: 2018-09-06 08:51:52  
Local clock offset: -0.145 ms  
Remote clock offset: -0.282 ms

# Below is generated by plot.py at 2018-09-06 12:17:51  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 294.19 Mbit/s  
95th percentile per-packet one-way delay: 230.902 ms  
Loss rate: 0.44%  
-- Flow 1:  
Average throughput: 175.62 Mbit/s  
95th percentile per-packet one-way delay: 201.108 ms  
Loss rate: 0.27%  
-- Flow 2:  
Average throughput: 147.78 Mbit/s  
95th percentile per-packet one-way delay: 239.817 ms  
Loss rate: 0.85%  
-- Flow 3:  
Average throughput: 63.95 Mbit/s  
95th percentile per-packet one-way delay: 254.879 ms  
Loss rate: 0.00%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 09:24:20

End at: 2018-09-06 09:24:50

Local clock offset: 1.333 ms

Remote clock offset: 0.109 ms

# Below is generated by plot.py at 2018-09-06 12:17:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 165.30 Mbit/s

95th percentile per-packet one-way delay: 199.470 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 53.70 Mbit/s

95th percentile per-packet one-way delay: 120.071 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 155.14 Mbit/s

95th percentile per-packet one-way delay: 217.231 ms

Loss rate: 0.02%

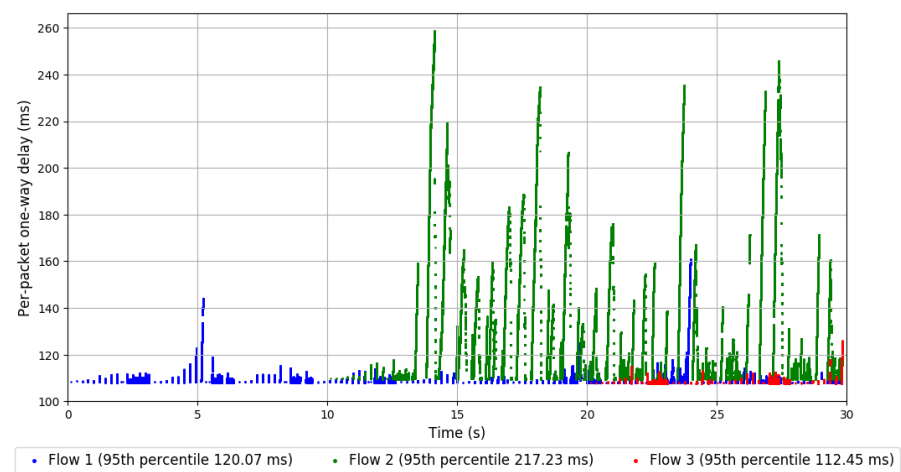
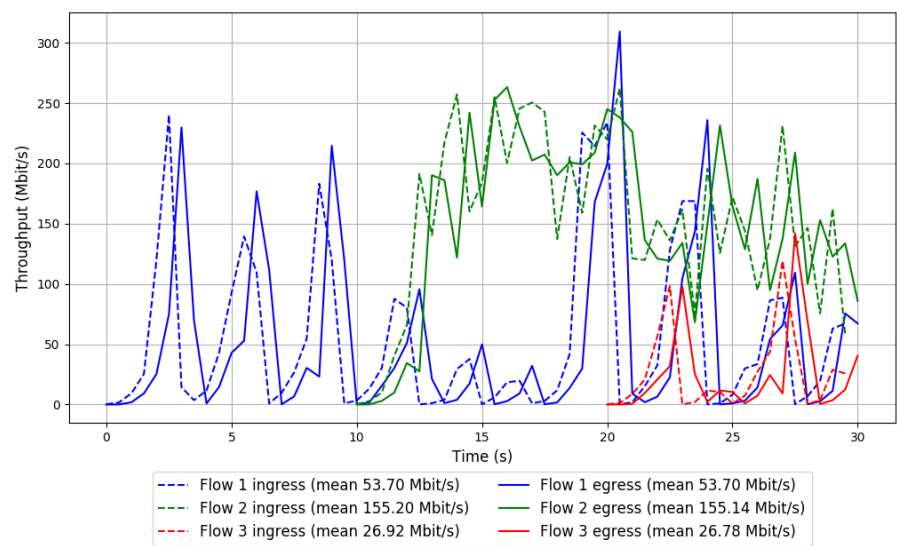
-- Flow 3:

Average throughput: 26.78 Mbit/s

95th percentile per-packet one-way delay: 112.450 ms

Loss rate: 0.34%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 07:24:58

End at: 2018-09-06 07:25:28

Local clock offset: 0.338 ms

Remote clock offset: 0.24 ms

# Below is generated by plot.py at 2018-09-06 12:19:43

# Datalink statistics

-- Total of 3 flows:

Average throughput: 491.55 Mbit/s

95th percentile per-packet one-way delay: 133.593 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 328.09 Mbit/s

95th percentile per-packet one-way delay: 124.781 ms

Loss rate: 0.33%

-- Flow 2:

Average throughput: 206.81 Mbit/s

95th percentile per-packet one-way delay: 169.574 ms

Loss rate: 0.01%

-- Flow 3:

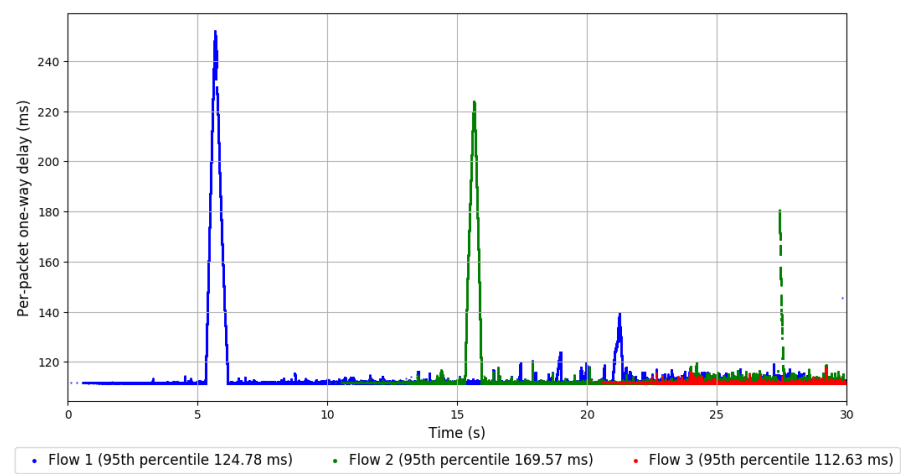
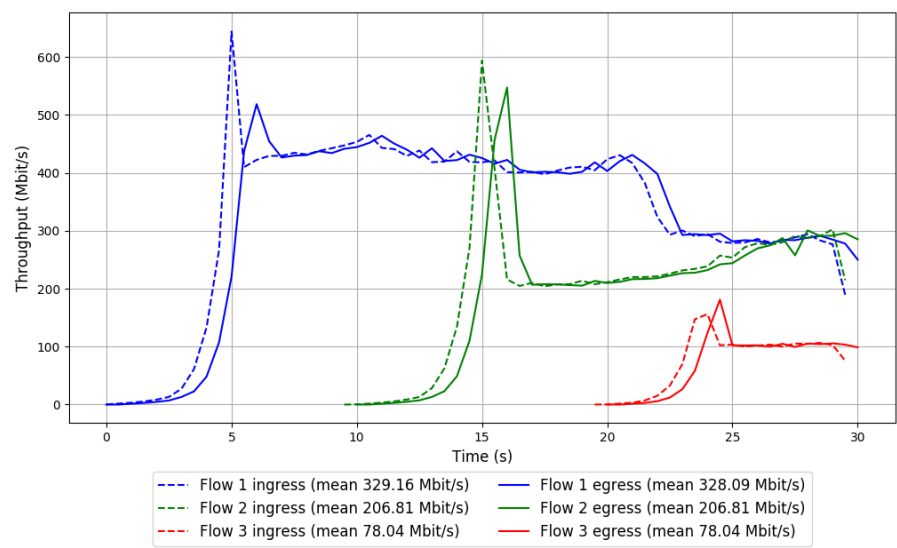
Average throughput: 78.04 Mbit/s

95th percentile per-packet one-way delay: 112.634 ms

Loss rate: 0.00%



Run 1: Report of PCC-Vivace — Data Link

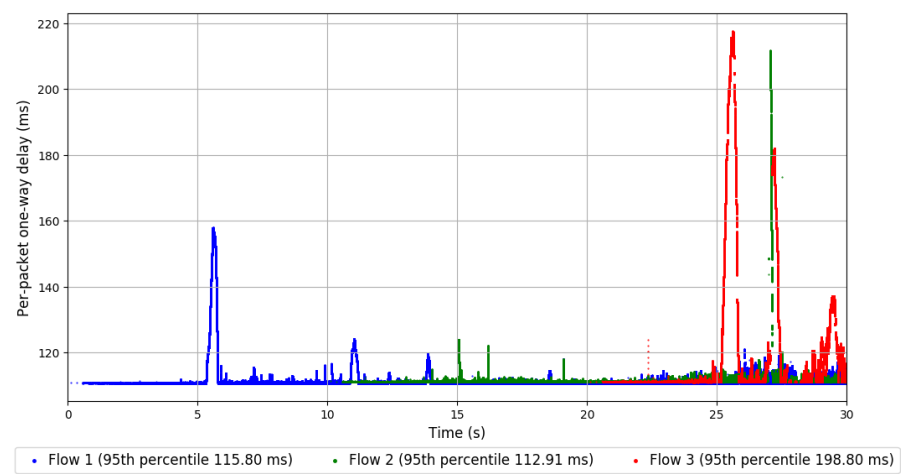
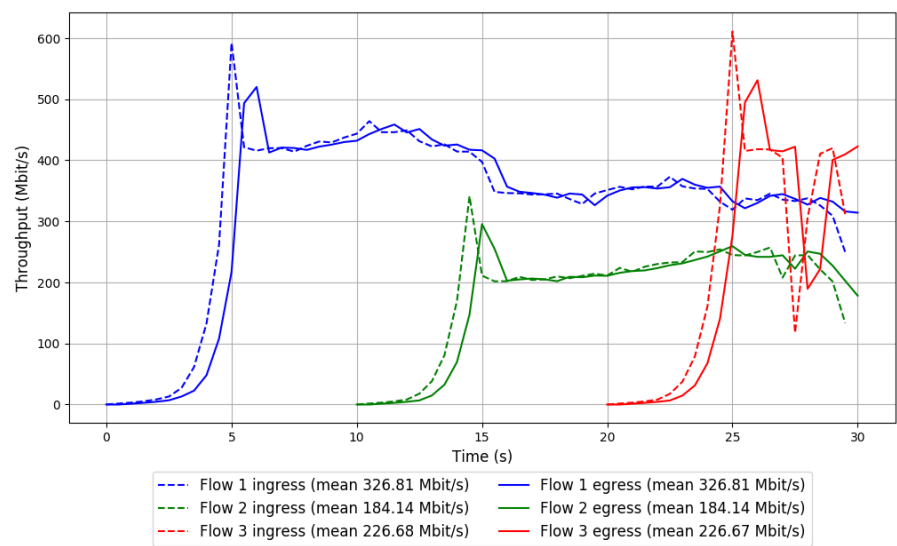


Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 07:58:14  
End at: 2018-09-06 07:58:44  
Local clock offset: 0.07 ms  
Remote clock offset: -0.136 ms

# Below is generated by plot.py at 2018-09-06 12:20:07  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 524.04 Mbit/s  
95th percentile per-packet one-way delay: 126.883 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 326.81 Mbit/s  
95th percentile per-packet one-way delay: 115.800 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 184.14 Mbit/s  
95th percentile per-packet one-way delay: 112.911 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 226.67 Mbit/s  
95th percentile per-packet one-way delay: 198.804 ms  
Loss rate: 0.00%

Run 2: Report of PCC-Vivace — Data Link

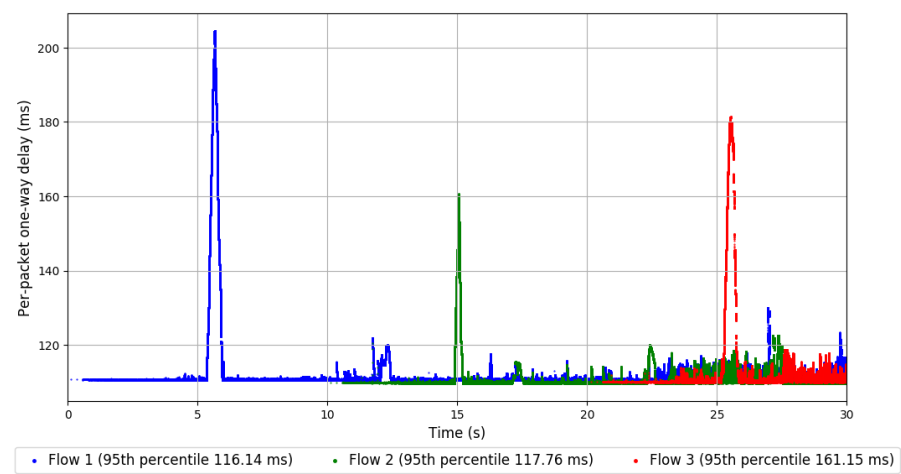
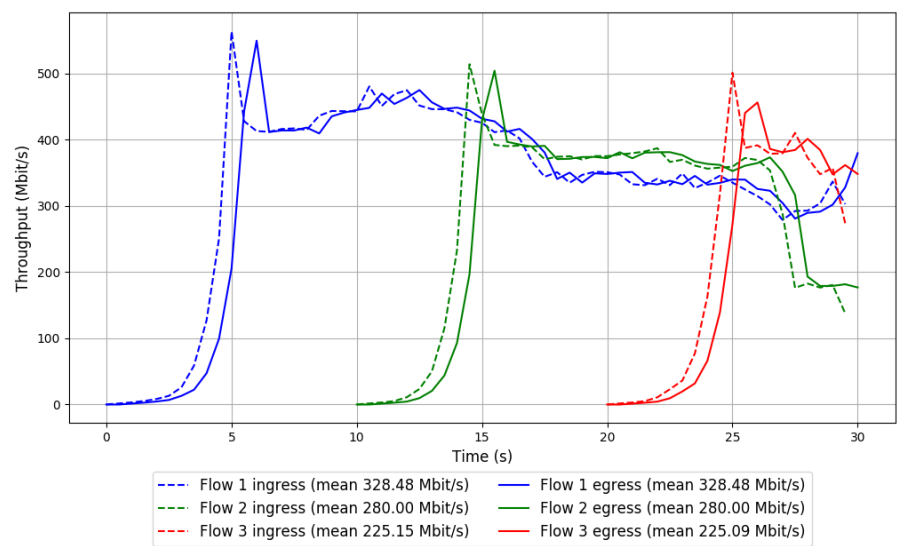


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 08:31:38  
End at: 2018-09-06 08:32:08  
Local clock offset: 0.906 ms  
Remote clock offset: -0.242 ms

# Below is generated by plot.py at 2018-09-06 12:20:33  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 588.93 Mbit/s  
95th percentile per-packet one-way delay: 118.312 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 328.48 Mbit/s  
95th percentile per-packet one-way delay: 116.138 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 280.00 Mbit/s  
95th percentile per-packet one-way delay: 117.759 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 225.09 Mbit/s  
95th percentile per-packet one-way delay: 161.151 ms  
Loss rate: 0.02%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 09:04:47

End at: 2018-09-06 09:05:17

Local clock offset: -0.089 ms

Remote clock offset: 0.122 ms

# Below is generated by plot.py at 2018-09-06 12:20:33

# Datalink statistics

-- Total of 3 flows:

Average throughput: 459.61 Mbit/s

95th percentile per-packet one-way delay: 147.850 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 345.85 Mbit/s

95th percentile per-packet one-way delay: 156.043 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 99.86 Mbit/s

95th percentile per-packet one-way delay: 117.503 ms

Loss rate: 0.00%

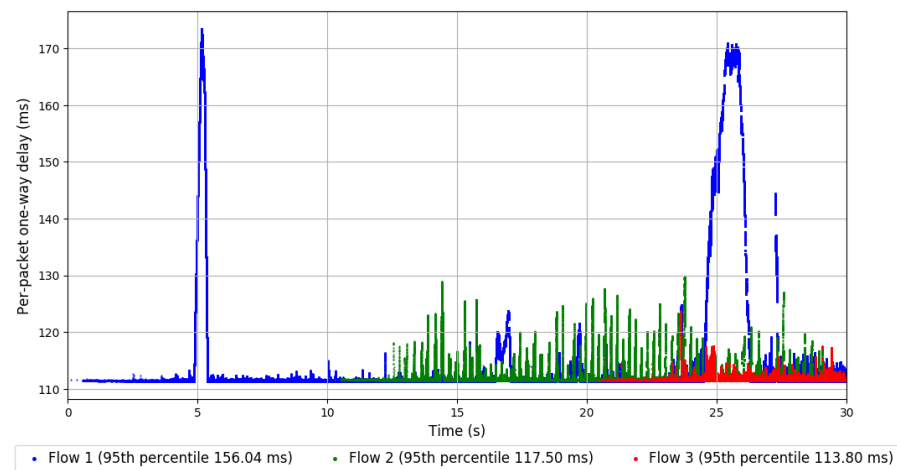
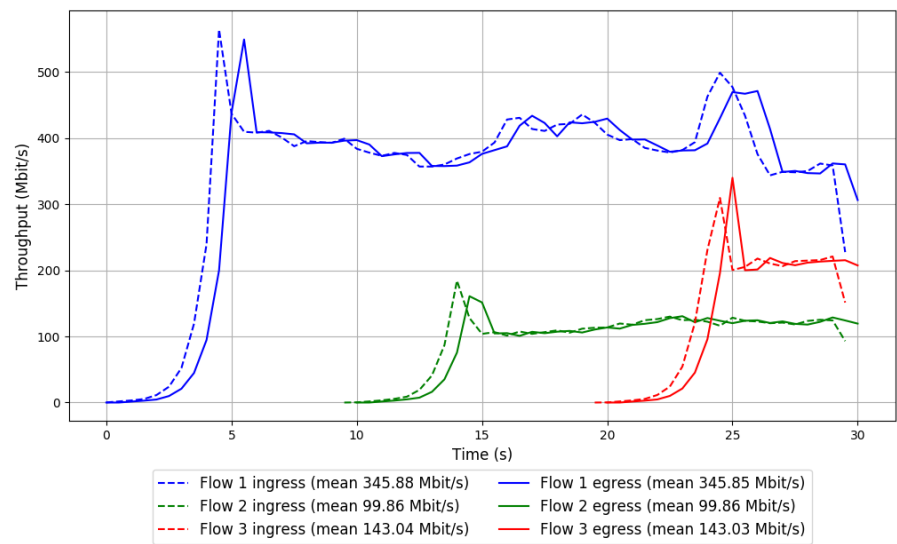
-- Flow 3:

Average throughput: 143.03 Mbit/s

95th percentile per-packet one-way delay: 113.804 ms

Loss rate: 0.00%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 09:37:45

End at: 2018-09-06 09:38:15

Local clock offset: -0.197 ms

Remote clock offset: 0.115 ms

# Below is generated by plot.py at 2018-09-06 12:20:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 580.17 Mbit/s

95th percentile per-packet one-way delay: 128.371 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 350.59 Mbit/s

95th percentile per-packet one-way delay: 124.540 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 282.78 Mbit/s

95th percentile per-packet one-way delay: 160.899 ms

Loss rate: 0.00%

-- Flow 3:

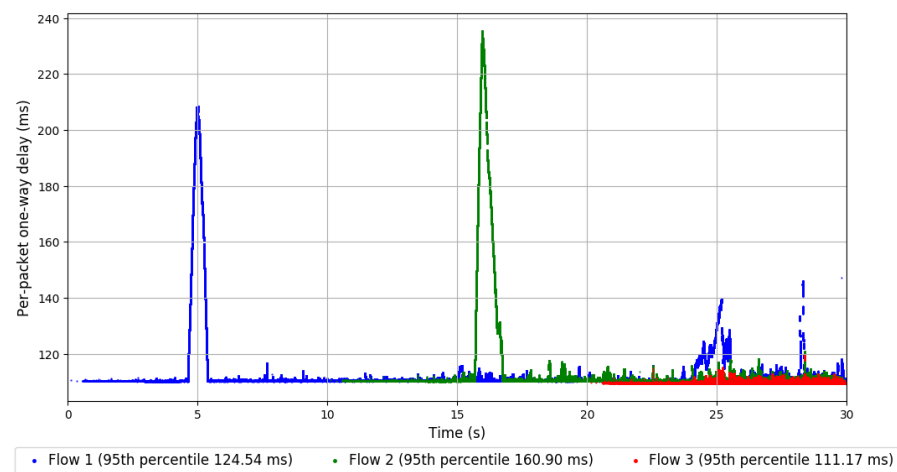
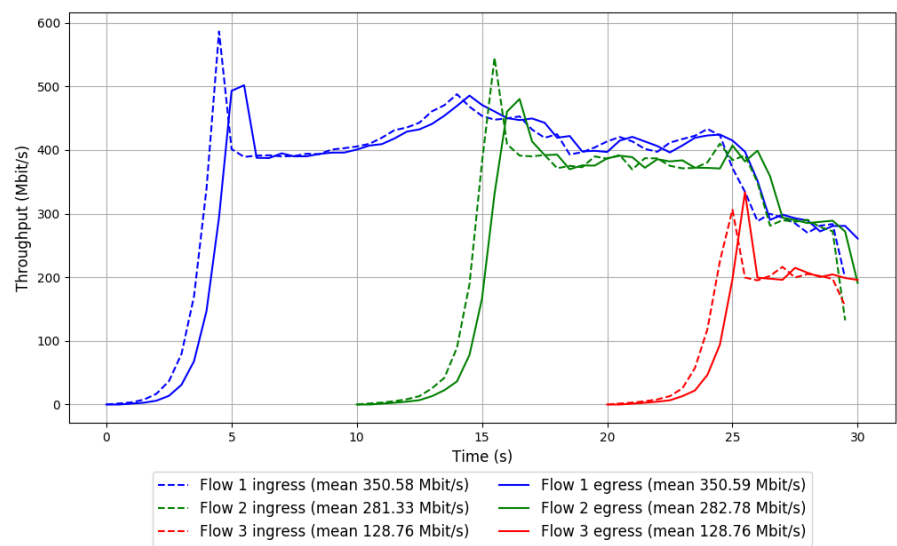
Average throughput: 128.76 Mbit/s

95th percentile per-packet one-way delay: 111.165 ms

Loss rate: 0.00%



Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

Start at: 2018-09-06 07:23:42

End at: 2018-09-06 07:24:12

Local clock offset: 0.35 ms

Remote clock offset: 0.255 ms

# Below is generated by plot.py at 2018-09-06 12:20:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.61 Mbit/s

95th percentile per-packet one-way delay: 111.236 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 2.01 Mbit/s

95th percentile per-packet one-way delay: 111.245 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.21 Mbit/s

95th percentile per-packet one-way delay: 111.188 ms

Loss rate: 0.03%

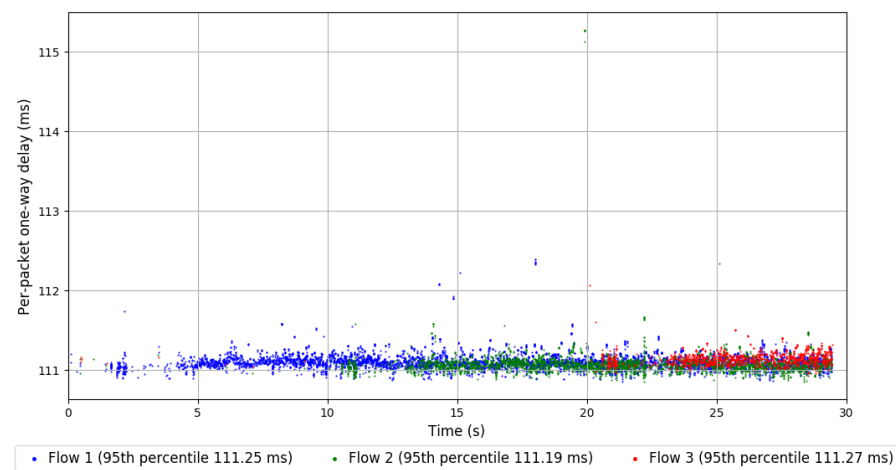
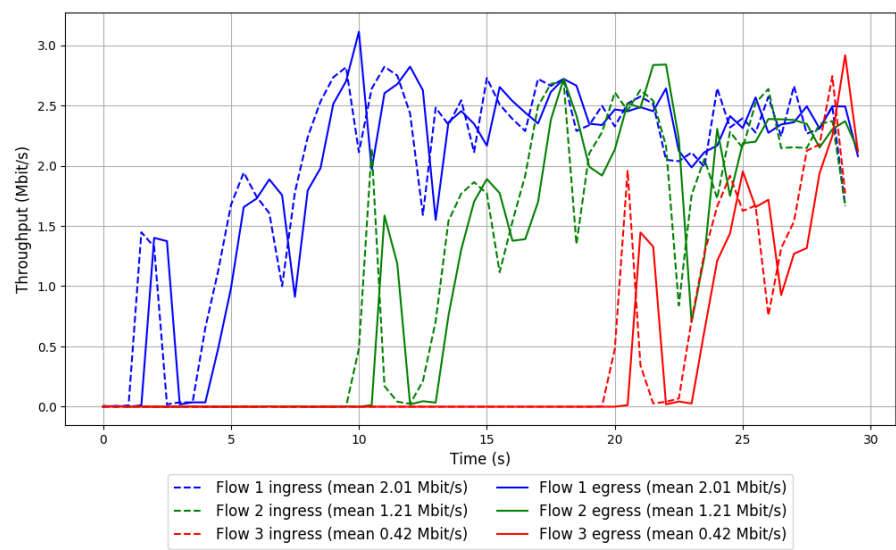
-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 111.268 ms

Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

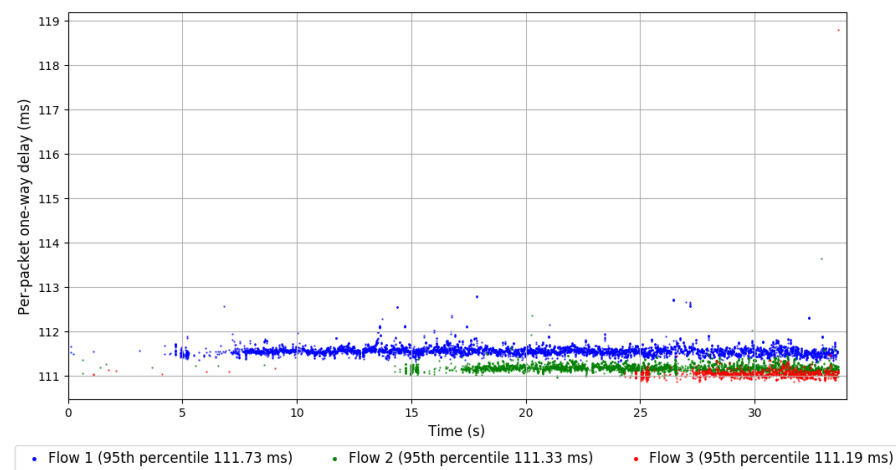
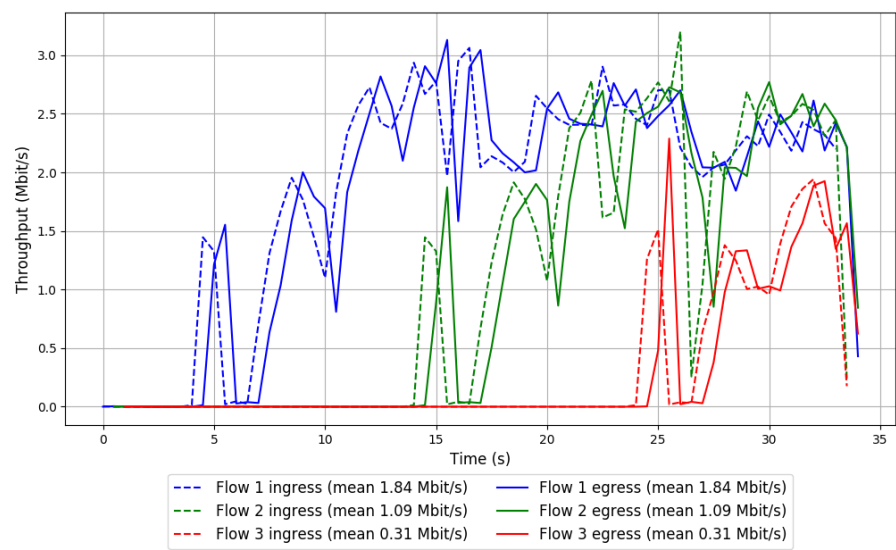


Run 2: Statistics of WebRTC media

Start at: 2018-09-06 07:56:58  
End at: 2018-09-06 07:57:28  
Local clock offset: -0.063 ms  
Remote clock offset: -0.122 ms

# Below is generated by plot.py at 2018-09-06 12:20:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.21 Mbit/s  
95th percentile per-packet one-way delay: 111.677 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.84 Mbit/s  
95th percentile per-packet one-way delay: 111.732 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.09 Mbit/s  
95th percentile per-packet one-way delay: 111.332 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.31 Mbit/s  
95th percentile per-packet one-way delay: 111.185 ms  
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-06 08:30:22

End at: 2018-09-06 08:30:52

Local clock offset: 0.245 ms

Remote clock offset: 0.499 ms

# Below is generated by plot.py at 2018-09-06 12:20:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.23 Mbit/s

95th percentile per-packet one-way delay: 113.008 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 1.82 Mbit/s

95th percentile per-packet one-way delay: 113.039 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 111.794 ms

Loss rate: 0.00%

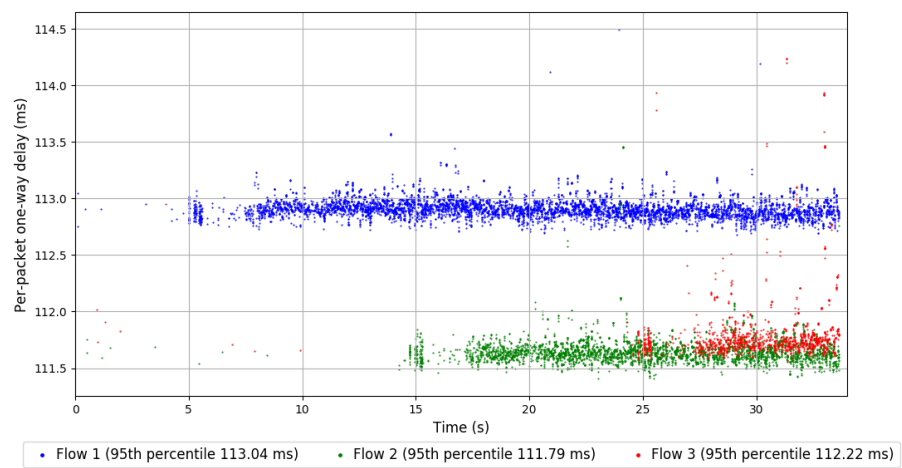
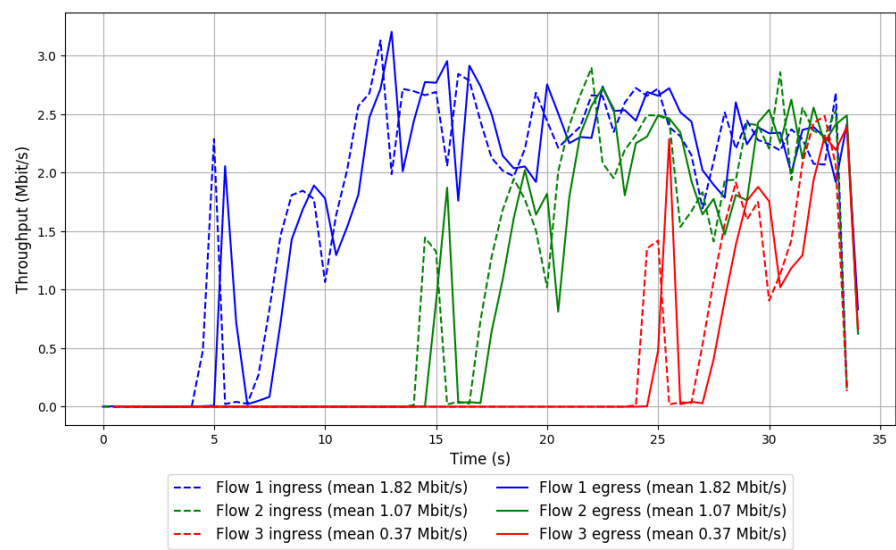
-- Flow 3:

Average throughput: 0.37 Mbit/s

95th percentile per-packet one-way delay: 112.215 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-06 09:03:31

End at: 2018-09-06 09:04:01

Local clock offset: -0.11 ms

Remote clock offset: 0.064 ms

# Below is generated by plot.py at 2018-09-06 12:20:37

# Datalink statistics

-- Total of 3 flows:

Average throughput: 3.27 Mbit/s

95th percentile per-packet one-way delay: 111.860 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.85 Mbit/s

95th percentile per-packet one-way delay: 111.855 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.07 Mbit/s

95th percentile per-packet one-way delay: 111.895 ms

Loss rate: 0.00%

-- Flow 3:

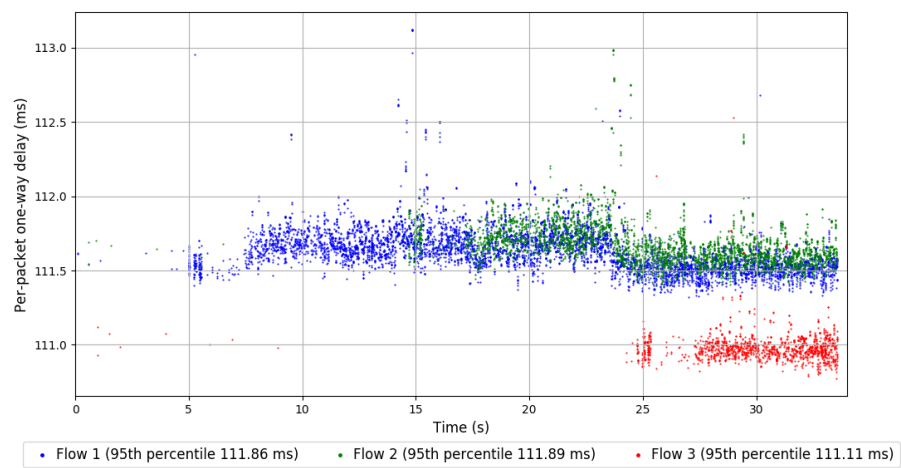
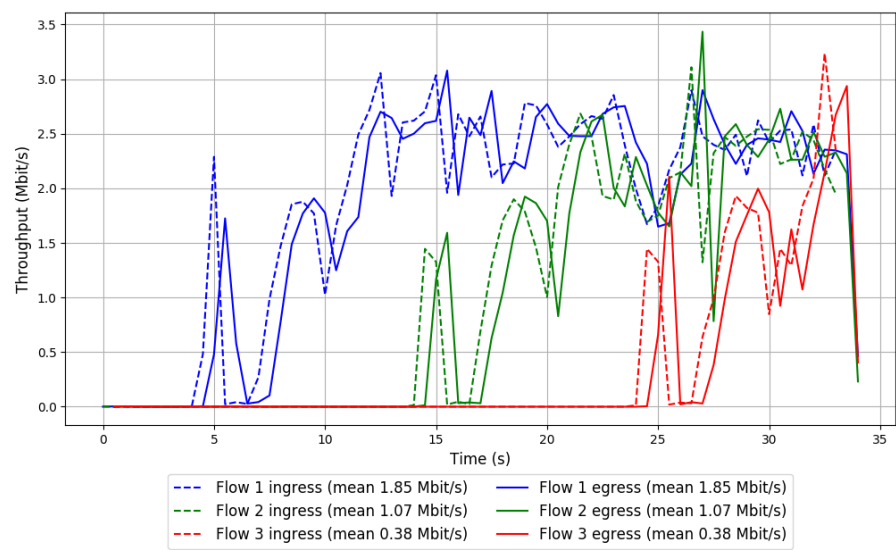
Average throughput: 0.38 Mbit/s

95th percentile per-packet one-way delay: 111.108 ms

Loss rate: 0.01%



Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 09:36:29  
End at: 2018-09-06 09:36:59  
Local clock offset: 0.421 ms  
Remote clock offset: -0.227 ms

# Below is generated by plot.py at 2018-09-06 12:20:37  
# Datalink statistics  
-- Total of 3 flows:  
Average throughput: 3.38 Mbit/s  
95th percentile per-packet one-way delay: 110.564 ms  
Loss rate: 0.00%  
-- Flow 1:  
Average throughput: 1.92 Mbit/s  
95th percentile per-packet one-way delay: 110.523 ms  
Loss rate: 0.00%  
-- Flow 2:  
Average throughput: 1.08 Mbit/s  
95th percentile per-packet one-way delay: 110.508 ms  
Loss rate: 0.00%  
-- Flow 3:  
Average throughput: 0.38 Mbit/s  
95th percentile per-packet one-way delay: 110.635 ms  
Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

