

Pantheon Report

Generated at 2018-09-06 22:54:05 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

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

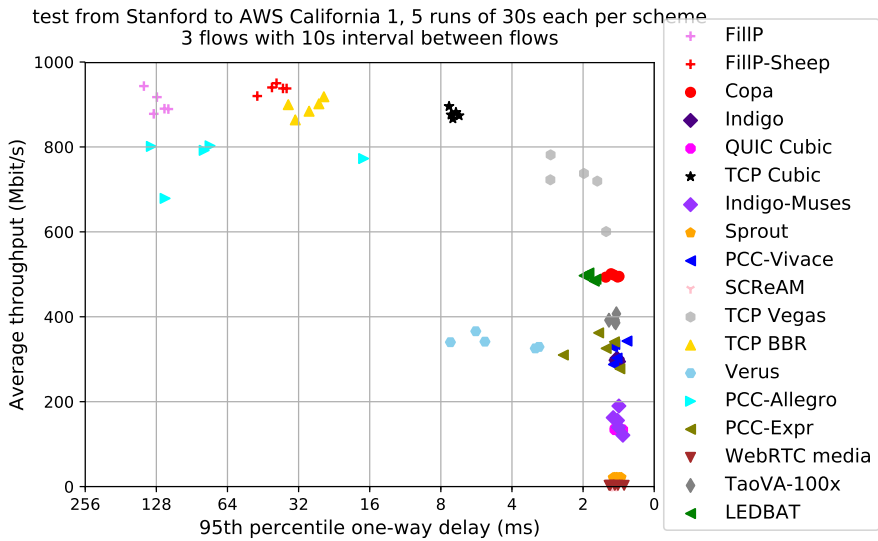
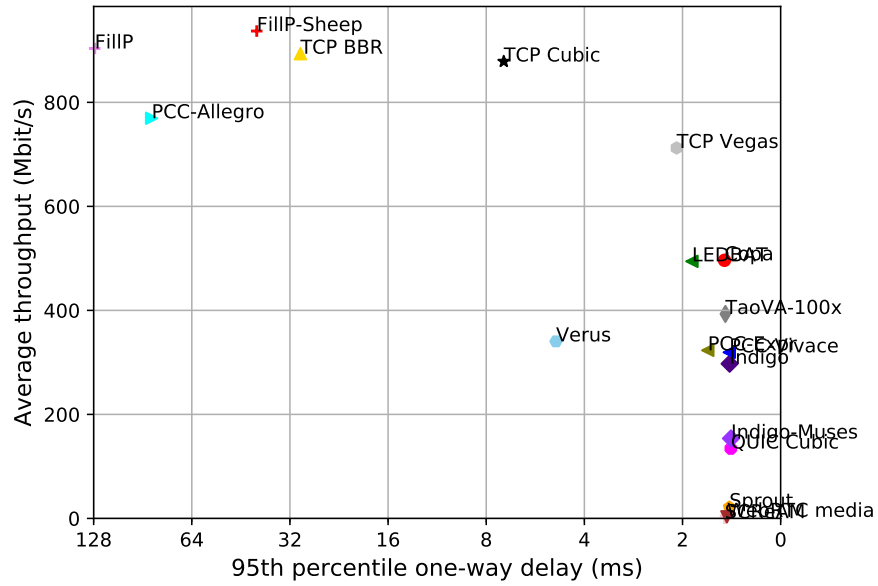
System info:

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

Git summary:

```
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-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 Stanford to AWS California 1, 5 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	519.02	400.15	324.91	23.69	39.81	49.33	0.38	0.80	1.13
Copa	5	308.59	218.02	128.66	1.13	1.14	1.26	0.03	0.07	0.19
TCP Cubic	5	528.07	378.95	295.60	7.19	6.91	6.96	0.05	0.11	0.26
FillP	5	540.97	392.93	305.92	106.59	112.69	151.36	2.60	6.24	4.57
FillP-Sheep	5	565.27	399.53	320.63	32.27	49.69	42.88	1.08	1.20	1.28
Indigo	5	166.70	149.51	95.55	1.03	1.04	1.08	0.05	0.10	0.19
LEDBAT	5	288.42	232.38	158.33	1.70	1.96	1.88	0.04	0.05	0.23
Indigo-Muses	5	84.30	82.23	44.54	1.00	1.02	1.00	0.01	0.09	0.13
PCC-Allegro	5	600.38	186.08	138.76	93.91	24.46	14.37	0.82	0.11	0.20
PCC-Expr	5	227.91	112.82	61.51	1.91	1.07	1.03	0.02	0.07	0.20
QUIC Cubic	5	73.70	63.97	54.66	1.01	1.01	1.01	0.05	0.09	0.21
SCReAM	5	0.22	0.22	0.22	1.14	1.14	1.13	0.00	0.19	0.35
Sprout	5	19.00	21.04	21.30	1.07	1.04	1.03	1.92	0.05	0.29
TaoVA-100x	5	222.49	200.64	111.85	1.09	1.11	1.42	0.04	0.05	0.17
TCP Vegas	5	332.01	421.79	299.60	1.63	2.78	1.65	0.05	0.07	0.20
Verus	5	212.46	133.42	118.26	5.90	2.92	2.62	0.05	0.06	0.15
PCC-Vivace	5	237.14	89.28	69.45	1.04	1.06	1.06	0.03	0.08	0.19
WebRTC media	5	1.45	1.10	0.46	1.10	1.09	1.10	0.00	0.06	0.21

Run 1: Statistics of TCP BBR

Start at: 2018-09-06 19:29:34

End at: 2018-09-06 19:30:04

Local clock offset: 2.665 ms

Remote clock offset: 3.196 ms

Below is generated by plot.py at 2018-09-06 21:56:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 918.23 Mbit/s

95th percentile per-packet one-way delay: 25.011 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 543.83 Mbit/s

95th percentile per-packet one-way delay: 22.875 ms

Loss rate: 0.39%

-- Flow 2:

Average throughput: 399.85 Mbit/s

95th percentile per-packet one-way delay: 38.043 ms

Loss rate: 0.85%

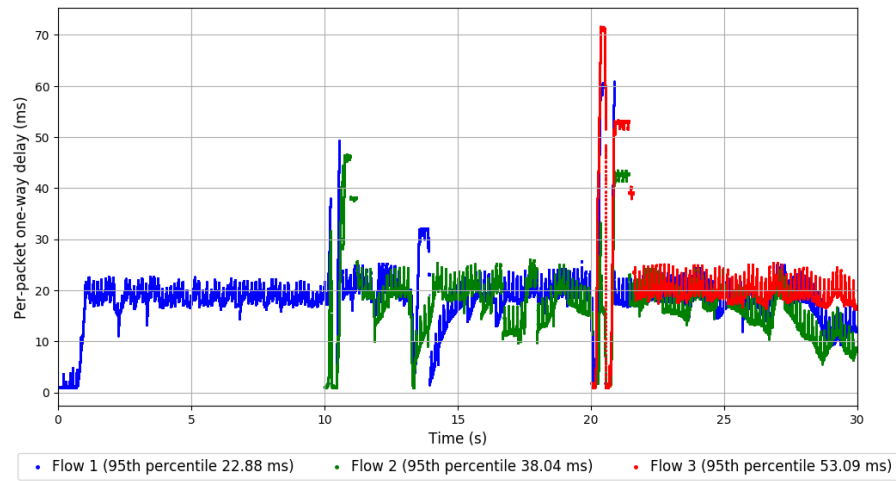
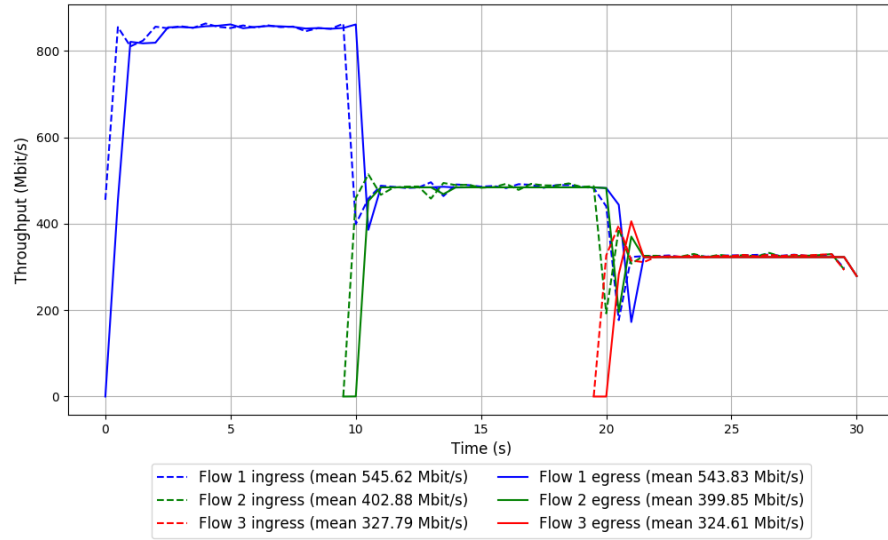
-- Flow 3:

Average throughput: 324.61 Mbit/s

95th percentile per-packet one-way delay: 53.089 ms

Loss rate: 1.17%

Run 1: Report of TCP BBR — Data Link

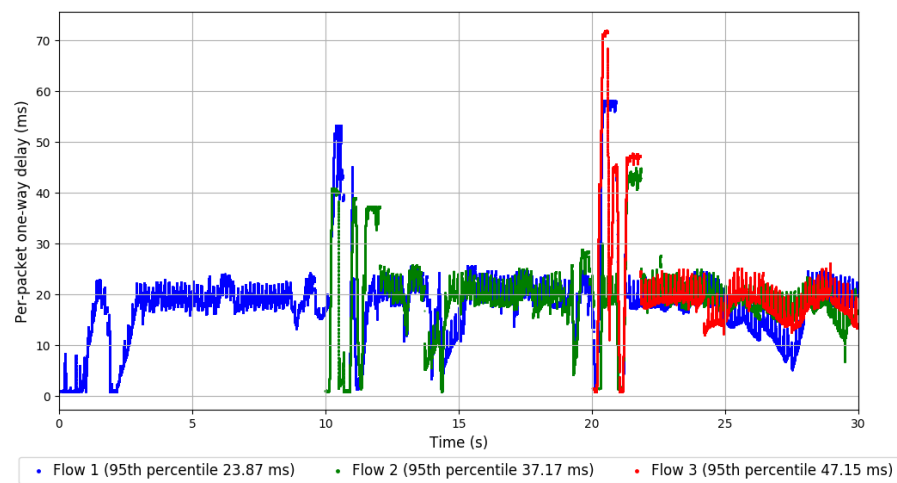
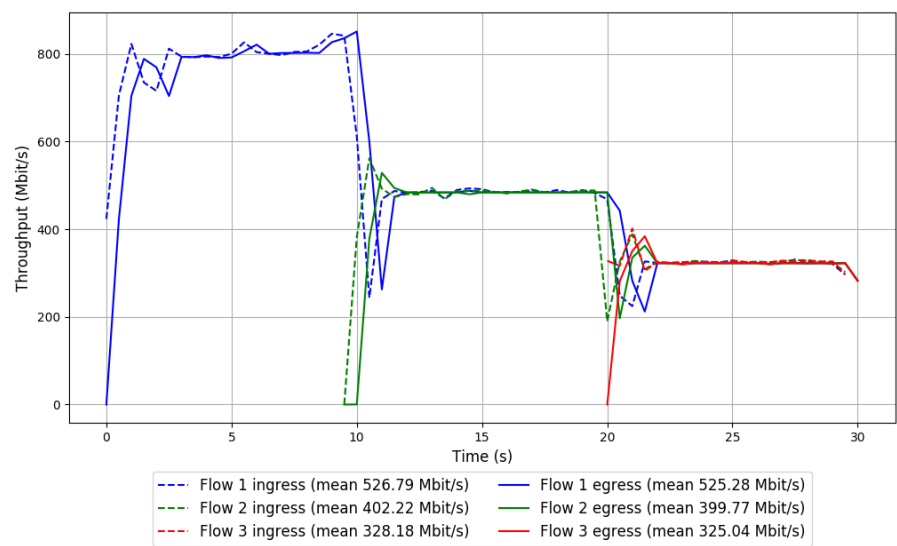


Run 2: Statistics of TCP BBR

Start at: 2018-09-06 19:58:36
End at: 2018-09-06 19:59:06
Local clock offset: 3.513 ms
Remote clock offset: -0.239 ms

Below is generated by plot.py at 2018-09-06 21:56:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 899.62 Mbit/s
95th percentile per-packet one-way delay: 35.379 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 525.28 Mbit/s
95th percentile per-packet one-way delay: 23.868 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 399.77 Mbit/s
95th percentile per-packet one-way delay: 37.168 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 325.04 Mbit/s
95th percentile per-packet one-way delay: 47.153 ms
Loss rate: 1.16%

Run 2: Report of TCP BBR — Data Link

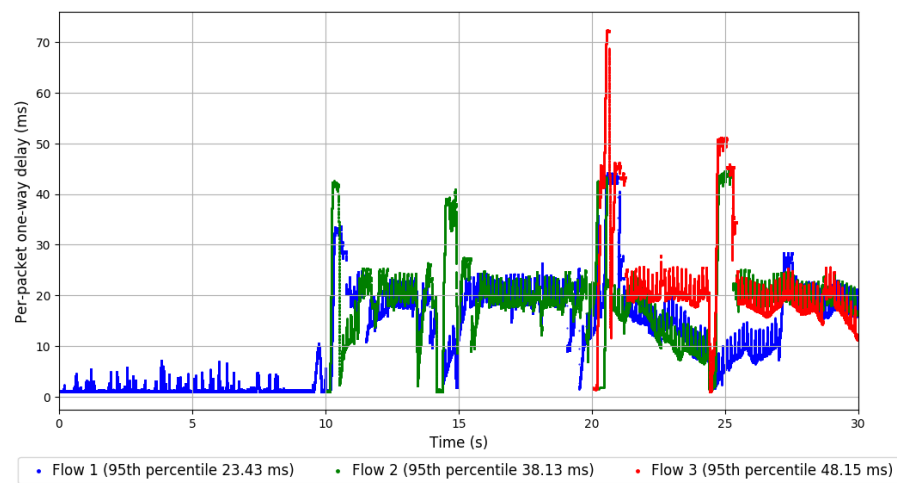
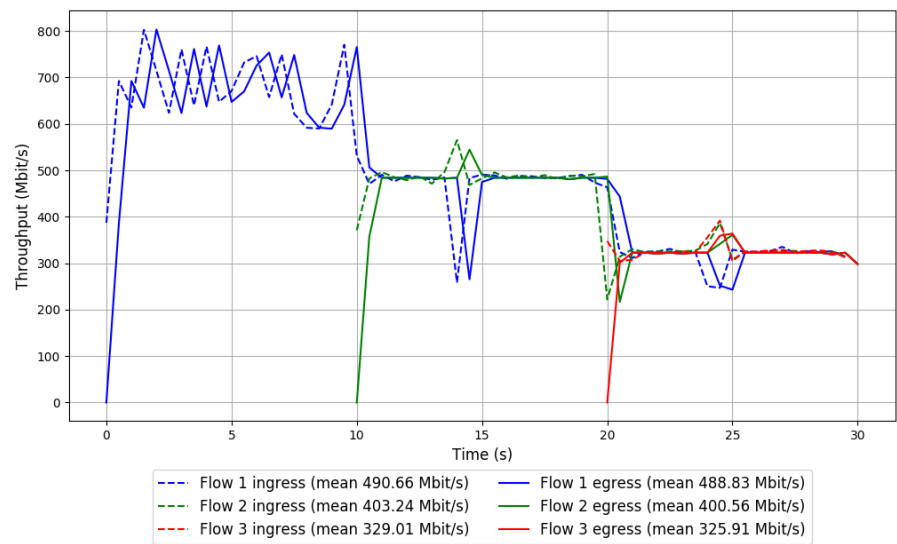


Run 3: Statistics of TCP BBR

Start at: 2018-09-06 20:27:38
End at: 2018-09-06 20:28:08
Local clock offset: 3.377 ms
Remote clock offset: -0.344 ms

Below is generated by plot.py at 2018-09-06 21:56:58
Datalink statistics
-- Total of 3 flows:
Average throughput: 863.75 Mbit/s
95th percentile per-packet one-way delay: 33.048 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 488.83 Mbit/s
95th percentile per-packet one-way delay: 23.433 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 400.56 Mbit/s
95th percentile per-packet one-way delay: 38.127 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 325.91 Mbit/s
95th percentile per-packet one-way delay: 48.154 ms
Loss rate: 1.14%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-06 20:56:50

End at: 2018-09-06 20:57:20

Local clock offset: 3.097 ms

Remote clock offset: 2.202 ms

Below is generated by plot.py at 2018-09-06 21:56:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 901.66 Mbit/s

95th percentile per-packet one-way delay: 26.258 ms

Loss rate: 0.62%

-- Flow 1:

Average throughput: 526.45 Mbit/s

95th percentile per-packet one-way delay: 25.170 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 401.23 Mbit/s

95th percentile per-packet one-way delay: 45.310 ms

Loss rate: 0.92%

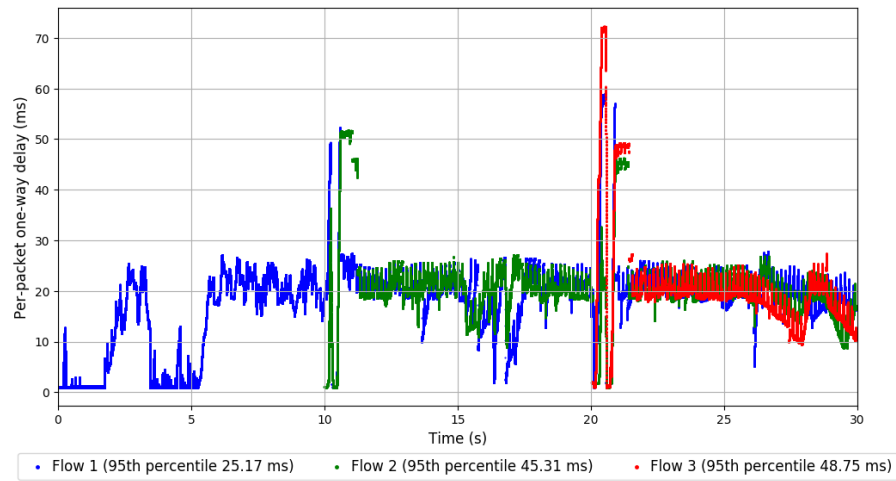
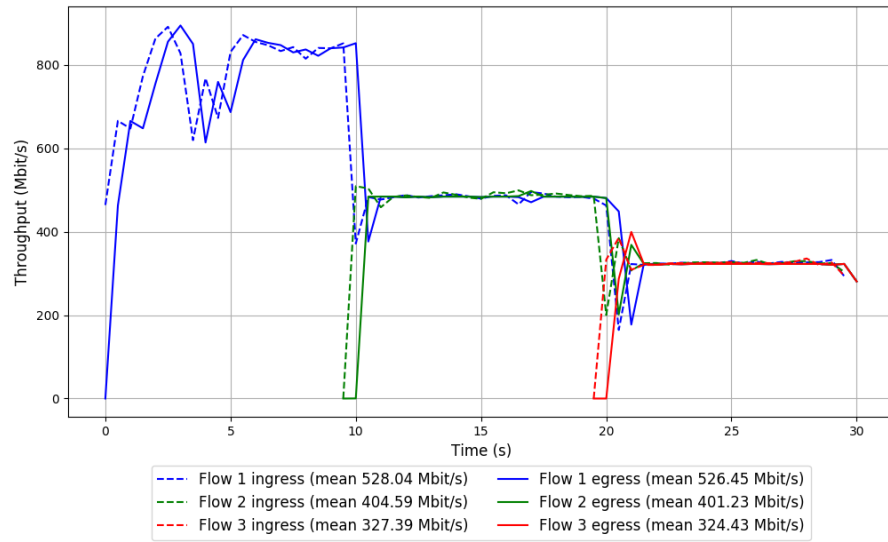
-- Flow 3:

Average throughput: 324.43 Mbit/s

95th percentile per-packet one-way delay: 48.750 ms

Loss rate: 1.11%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-06 21:26:05

End at: 2018-09-06 21:26:35

Local clock offset: 3.132 ms

Remote clock offset: 2.229 ms

Below is generated by plot.py at 2018-09-06 21:56:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 884.19 Mbit/s

95th percentile per-packet one-way delay: 28.885 ms

Loss rate: 0.58%

-- Flow 1:

Average throughput: 510.70 Mbit/s

95th percentile per-packet one-way delay: 23.116 ms

Loss rate: 0.36%

-- Flow 2:

Average throughput: 399.32 Mbit/s

95th percentile per-packet one-way delay: 40.406 ms

Loss rate: 0.78%

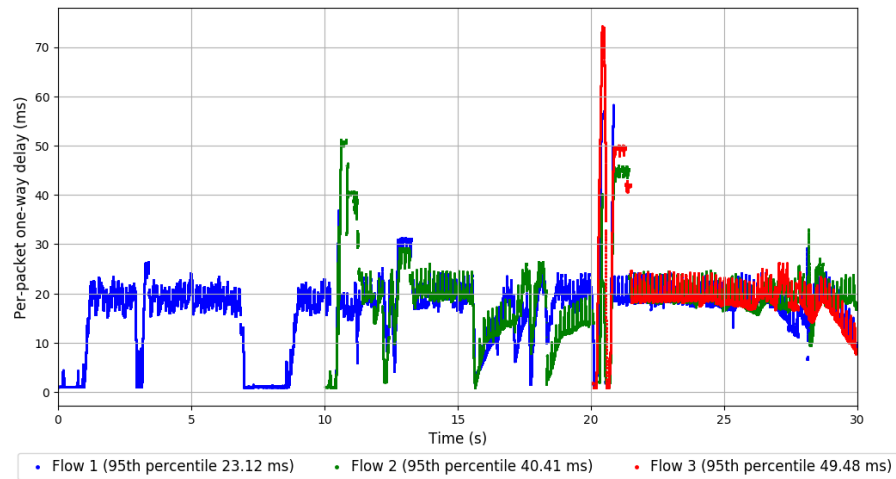
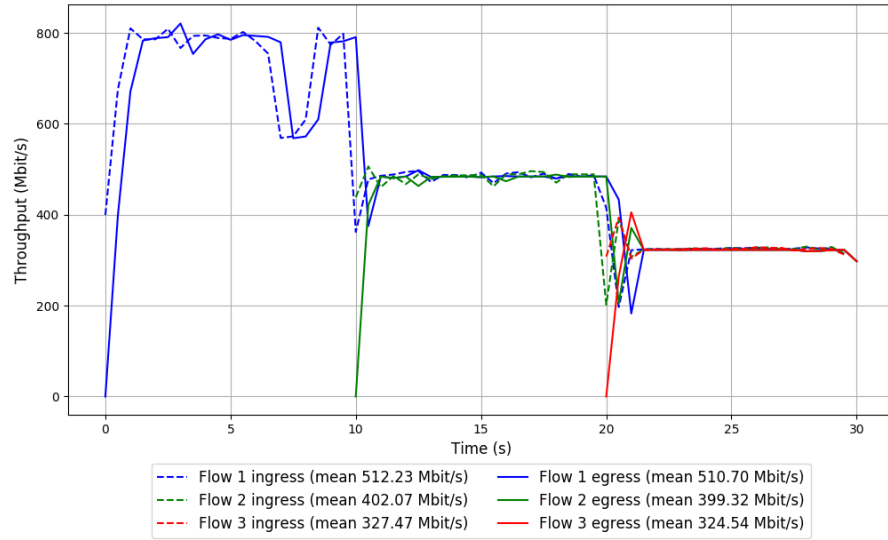
-- Flow 3:

Average throughput: 324.54 Mbit/s

95th percentile per-packet one-way delay: 49.480 ms

Loss rate: 1.09%

Run 5: Report of TCP BBR — Data Link



Run 1: Statistics of Copa

Start at: 2018-09-06 19:22:01

End at: 2018-09-06 19:22:31

Local clock offset: 1.444 ms

Remote clock offset: 2.656 ms

Below is generated by plot.py at 2018-09-06 21:56:58

Datalink statistics

-- Total of 3 flows:

Average throughput: 495.11 Mbit/s

95th percentile per-packet one-way delay: 0.989 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 301.44 Mbit/s

95th percentile per-packet one-way delay: 0.971 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 220.22 Mbit/s

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

Loss rate: 0.04%

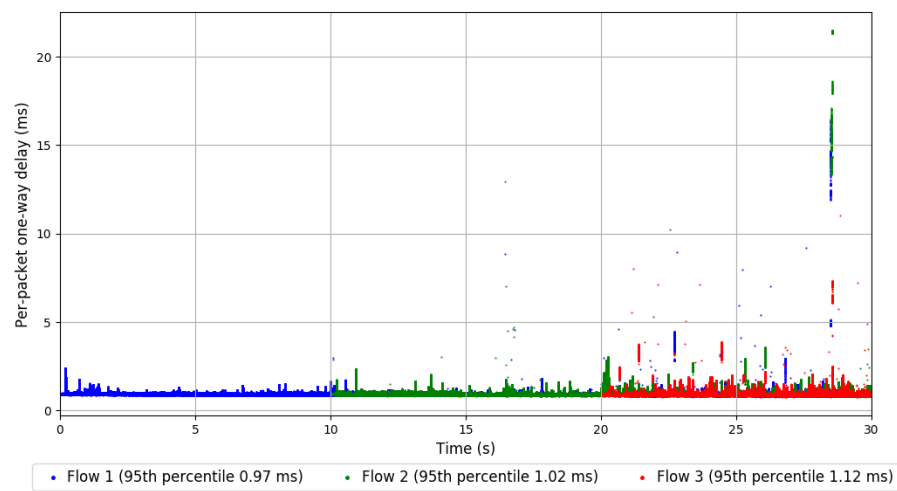
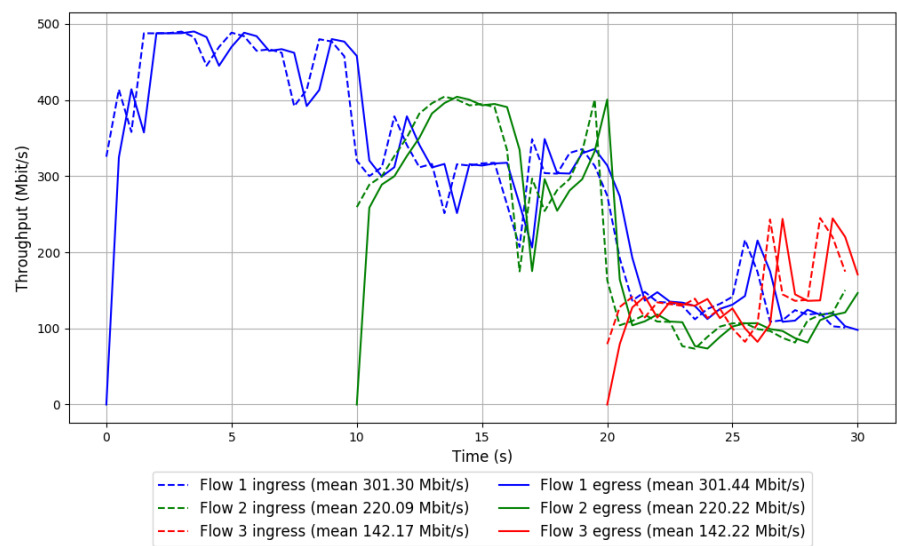
-- Flow 3:

Average throughput: 142.22 Mbit/s

95th percentile per-packet one-way delay: 1.125 ms

Loss rate: 0.16%

Run 1: Report of Copa — Data Link



Run 2: Statistics of Copa

Start at: 2018-09-06 19:51:01

End at: 2018-09-06 19:51:31

Local clock offset: 3.595 ms

Remote clock offset: 0.562 ms

Below is generated by plot.py at 2018-09-06 21:57:02

Datalink statistics

-- Total of 3 flows:

Average throughput: 493.53 Mbit/s

95th percentile per-packet one-way delay: 1.027 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 318.51 Mbit/s

95th percentile per-packet one-way delay: 1.034 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 203.28 Mbit/s

95th percentile per-packet one-way delay: 0.977 ms

Loss rate: 0.10%

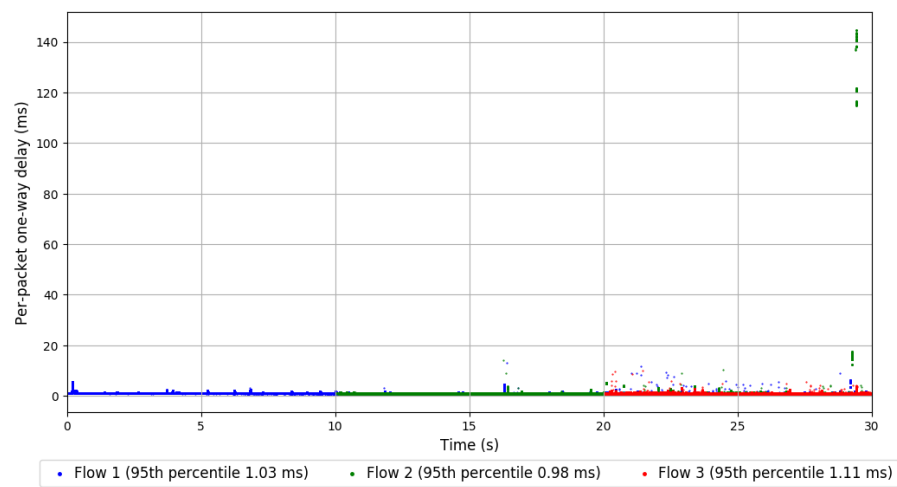
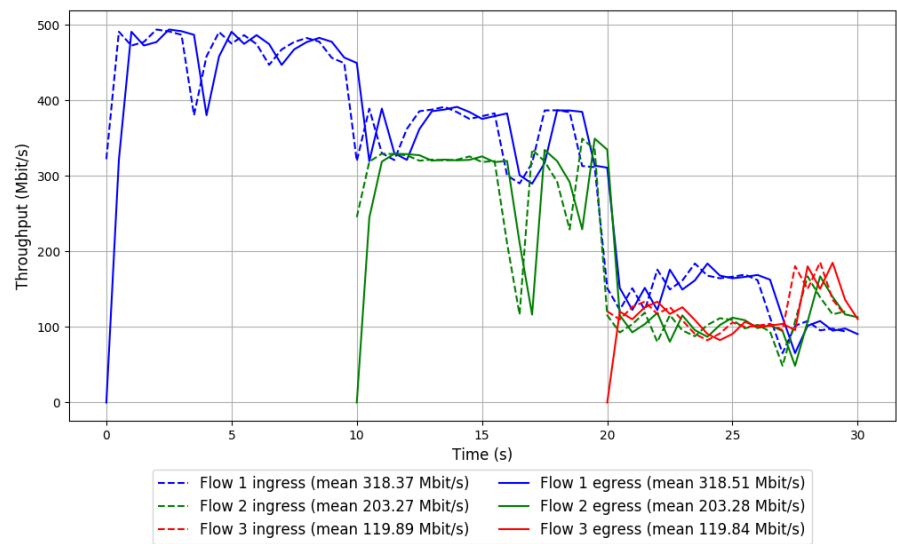
-- Flow 3:

Average throughput: 119.84 Mbit/s

95th percentile per-packet one-way delay: 1.109 ms

Loss rate: 0.26%

Run 2: Report of Copa — Data Link

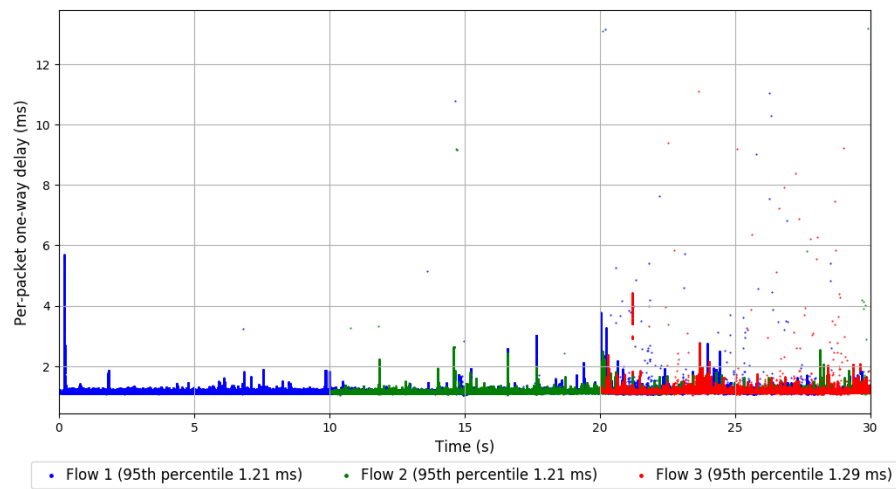
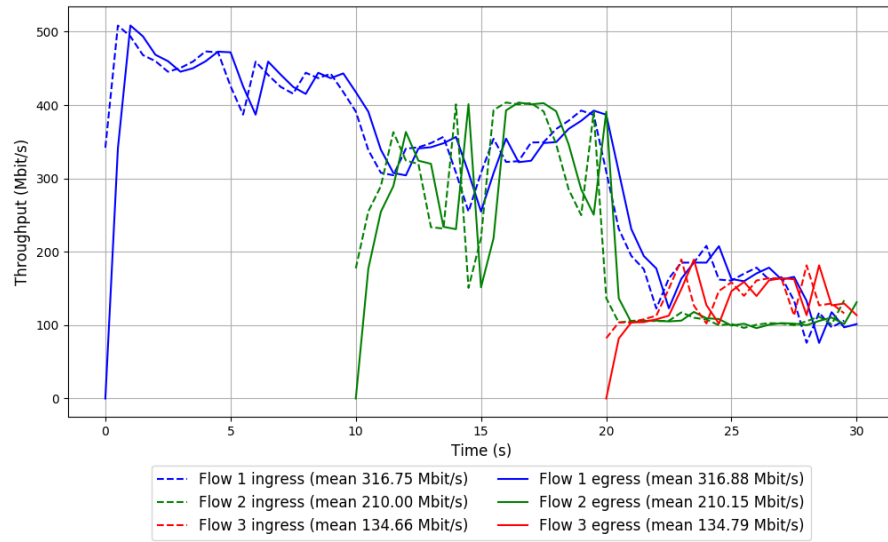


Run 3: Statistics of Copa

Start at: 2018-09-06 20:20:02
End at: 2018-09-06 20:20:32
Local clock offset: 3.611 ms
Remote clock offset: -0.457 ms

Below is generated by plot.py at 2018-09-06 21:57:09
Datalink statistics
-- Total of 3 flows:
Average throughput: 501.38 Mbit/s
95th percentile per-packet one-way delay: 1.213 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 316.88 Mbit/s
95th percentile per-packet one-way delay: 1.205 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 210.15 Mbit/s
95th percentile per-packet one-way delay: 1.211 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 134.79 Mbit/s
95th percentile per-packet one-way delay: 1.286 ms
Loss rate: 0.10%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-06 20:49:12

End at: 2018-09-06 20:49:42

Local clock offset: 3.275 ms

Remote clock offset: 0.347 ms

Below is generated by plot.py at 2018-09-06 22:06:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 493.28 Mbit/s

95th percentile per-packet one-way delay: 1.362 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 300.89 Mbit/s

95th percentile per-packet one-way delay: 1.355 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 237.45 Mbit/s

95th percentile per-packet one-way delay: 1.352 ms

Loss rate: 0.05%

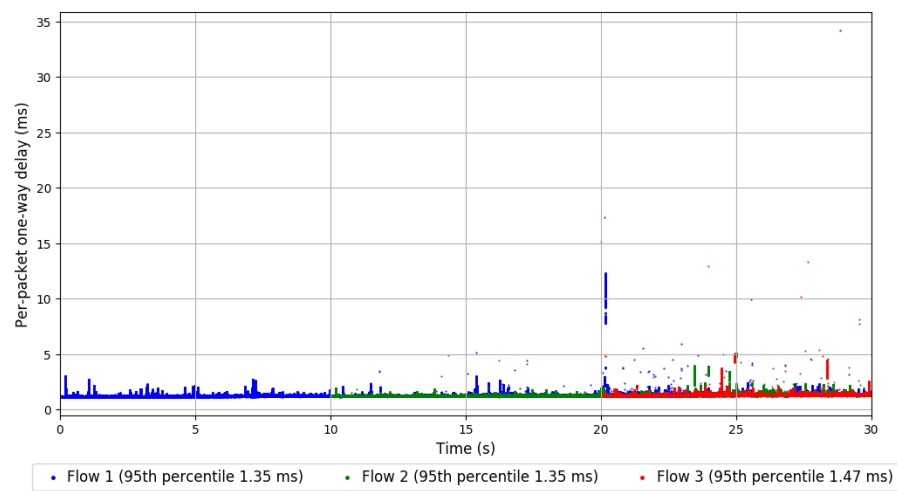
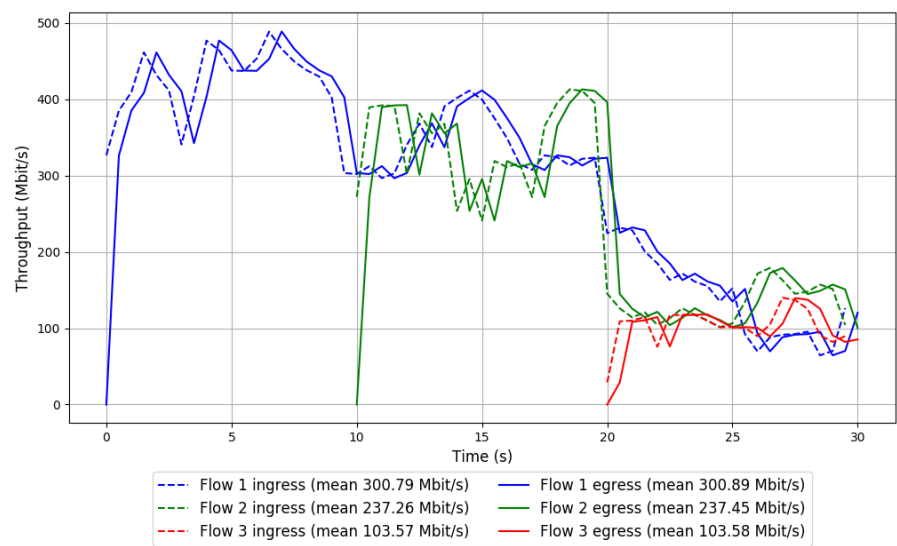
-- Flow 3:

Average throughput: 103.58 Mbit/s

95th percentile per-packet one-way delay: 1.472 ms

Loss rate: 0.21%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-06 21:18:26

End at: 2018-09-06 21:18:56

Local clock offset: 3.217 ms

Remote clock offset: 4.191 ms

Below is generated by plot.py at 2018-09-06 22:06:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 498.22 Mbit/s

95th percentile per-packet one-way delay: 1.132 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 305.25 Mbit/s

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

Loss rate: 0.03%

-- Flow 2:

Average throughput: 218.98 Mbit/s

95th percentile per-packet one-way delay: 1.155 ms

Loss rate: 0.10%

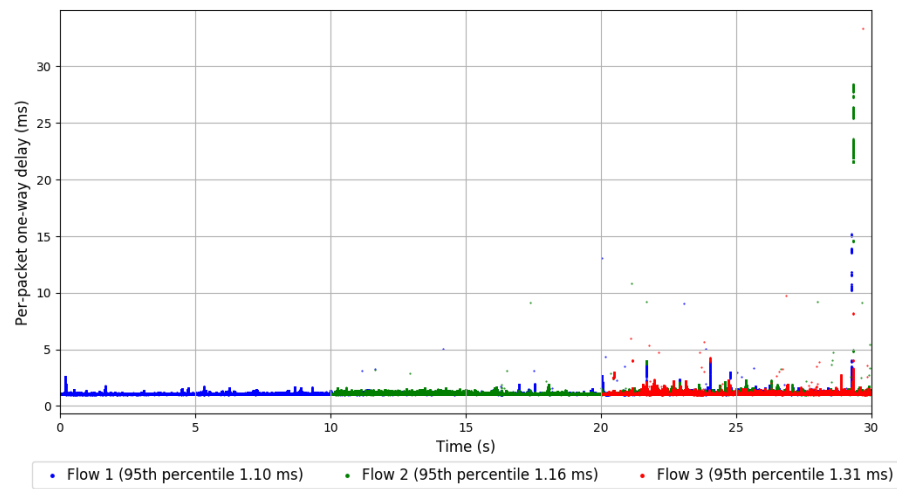
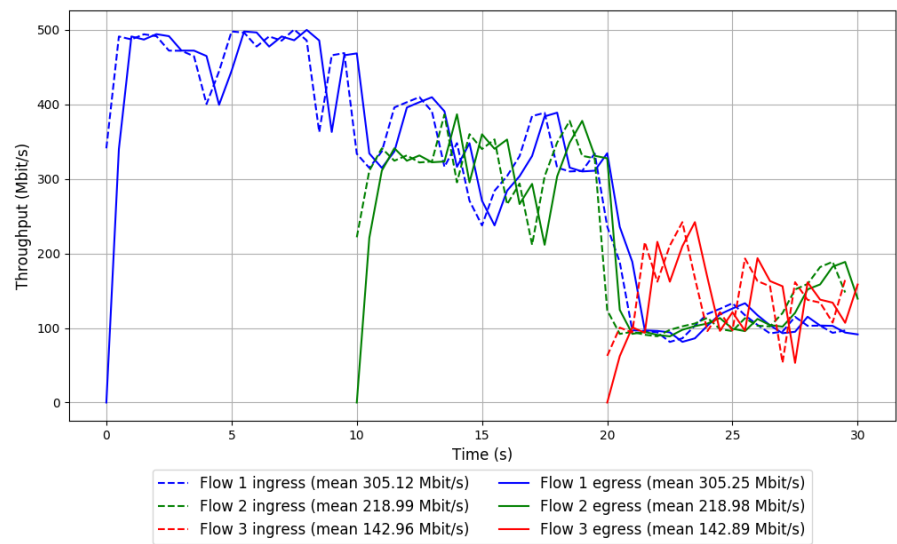
-- Flow 3:

Average throughput: 142.89 Mbit/s

95th percentile per-packet one-way delay: 1.311 ms

Loss rate: 0.24%

Run 5: Report of Copa — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 19:34:42

End at: 2018-09-06 19:35:12

Local clock offset: 3.168 ms

Remote clock offset: 3.479 ms

Below is generated by plot.py at 2018-09-06 22:06:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 895.50 Mbit/s

95th percentile per-packet one-way delay: 7.383 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 554.33 Mbit/s

95th percentile per-packet one-way delay: 7.742 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 365.62 Mbit/s

95th percentile per-packet one-way delay: 7.134 ms

Loss rate: 0.12%

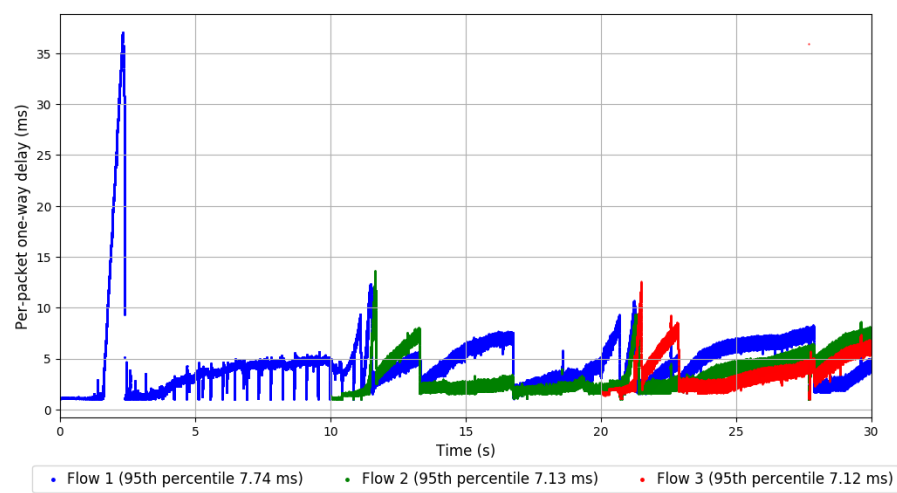
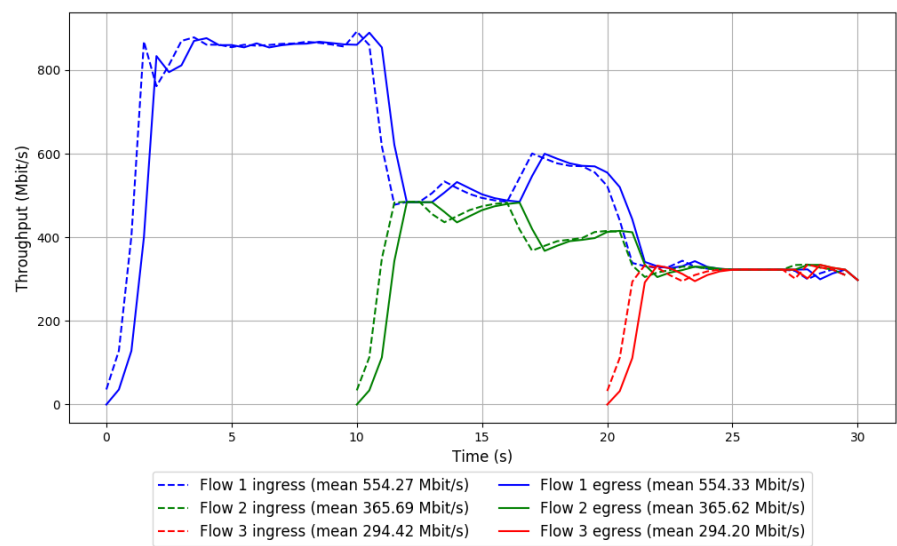
-- Flow 3:

Average throughput: 294.20 Mbit/s

95th percentile per-packet one-way delay: 7.118 ms

Loss rate: 0.27%

Run 1: Report of TCP Cubic — Data Link

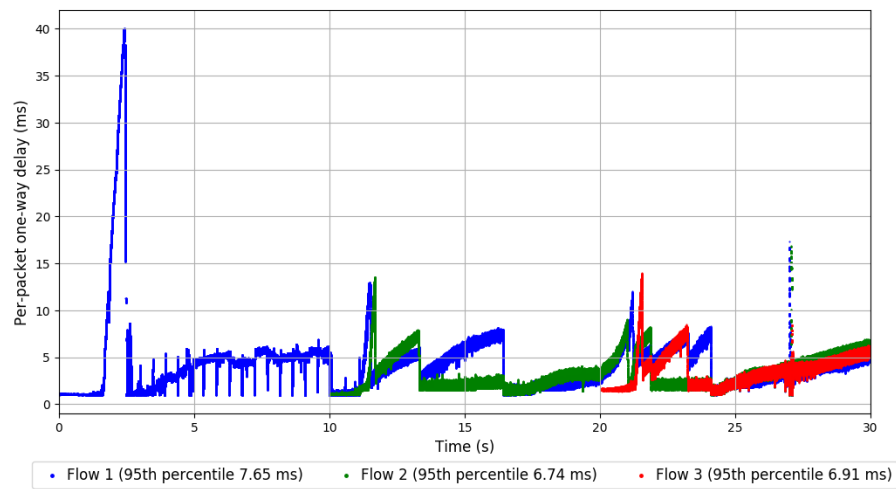
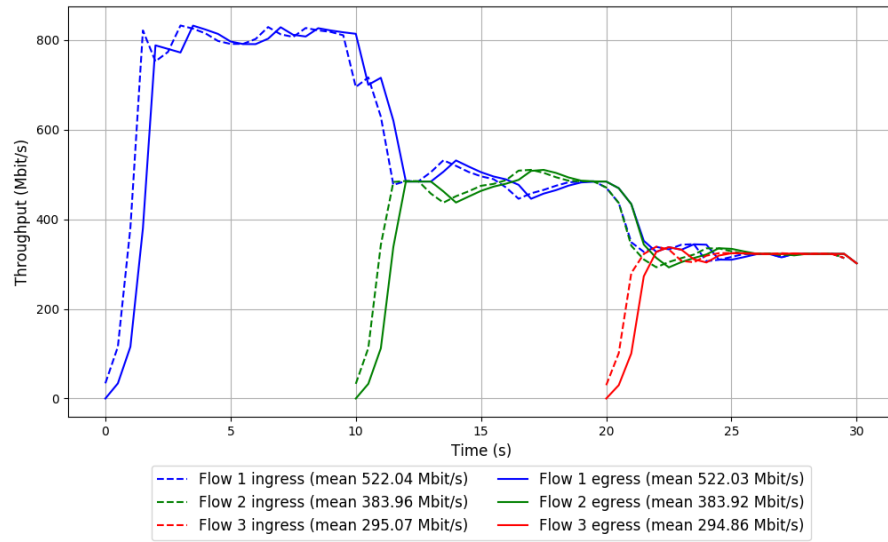


Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 20:03:44
End at: 2018-09-06 20:04:14
Local clock offset: 3.676 ms
Remote clock offset: -0.488 ms

Below is generated by plot.py at 2018-09-06 22:06:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 875.57 Mbit/s
95th percentile per-packet one-way delay: 7.239 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 522.03 Mbit/s
95th percentile per-packet one-way delay: 7.646 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 383.92 Mbit/s
95th percentile per-packet one-way delay: 6.736 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 294.86 Mbit/s
95th percentile per-packet one-way delay: 6.909 ms
Loss rate: 0.26%

Run 2: Report of TCP Cubic — Data Link

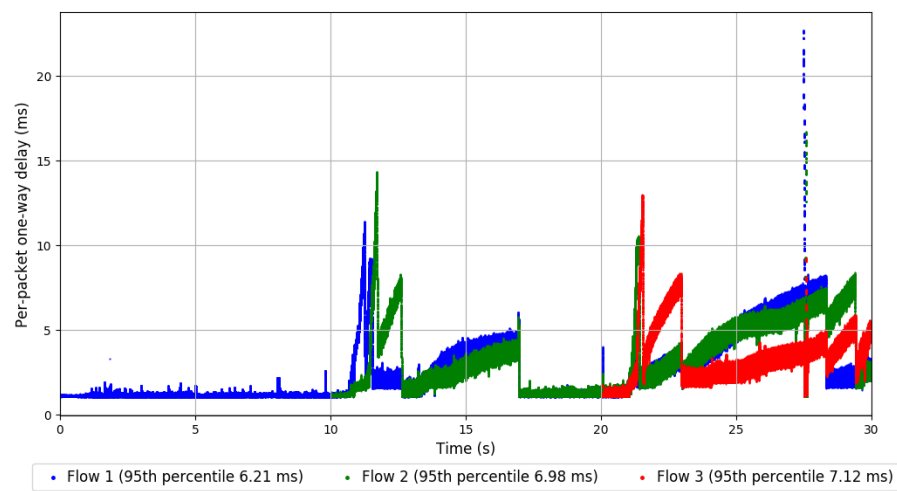
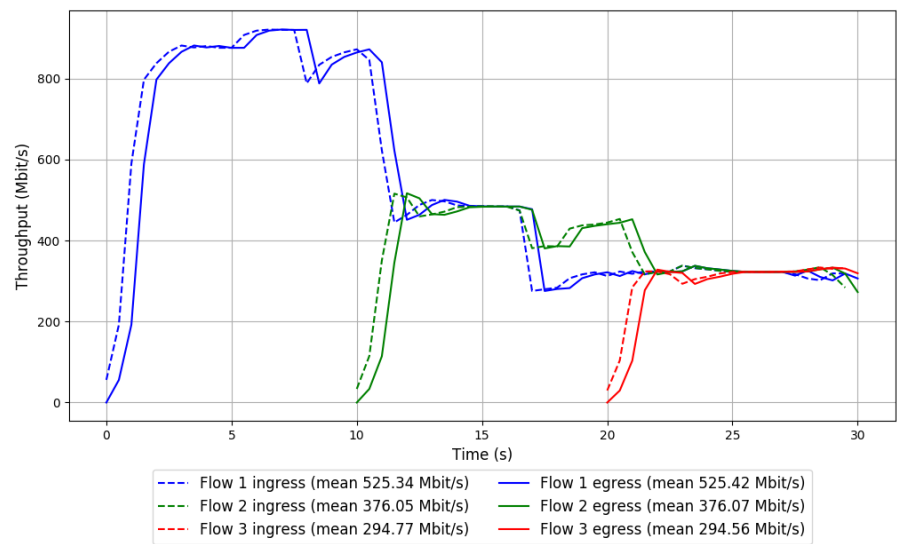


Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 20:32:47
End at: 2018-09-06 20:33:17
Local clock offset: 3.345 ms
Remote clock offset: -0.346 ms

Below is generated by plot.py at 2018-09-06 22:06:49
Datalink statistics
-- Total of 3 flows:
Average throughput: 873.64 Mbit/s
95th percentile per-packet one-way delay: 6.695 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 525.42 Mbit/s
95th percentile per-packet one-way delay: 6.214 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 376.07 Mbit/s
95th percentile per-packet one-way delay: 6.984 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 294.56 Mbit/s
95th percentile per-packet one-way delay: 7.116 ms
Loss rate: 0.26%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 21:02:03

End at: 2018-09-06 21:02:33

Local clock offset: 3.168 ms

Remote clock offset: 2.883 ms

Below is generated by plot.py at 2018-09-06 22:06:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 881.36 Mbit/s

95th percentile per-packet one-way delay: 6.905 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 526.41 Mbit/s

95th percentile per-packet one-way delay: 6.911 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 385.28 Mbit/s

95th percentile per-packet one-way delay: 6.933 ms

Loss rate: 0.11%

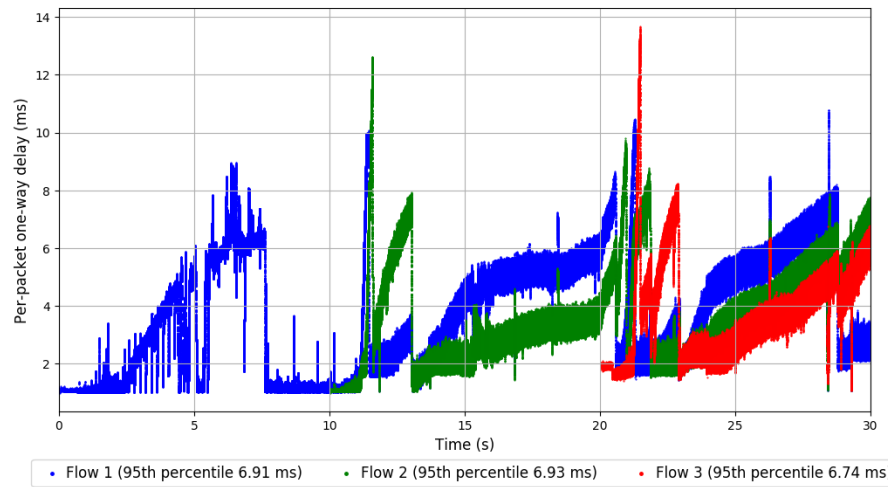
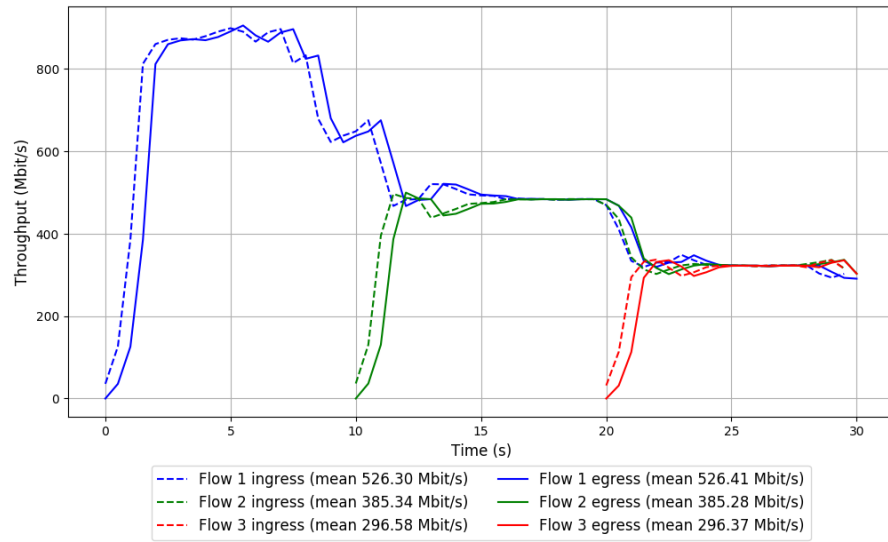
-- Flow 3:

Average throughput: 296.37 Mbit/s

95th percentile per-packet one-way delay: 6.743 ms

Loss rate: 0.27%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 21:31:11

End at: 2018-09-06 21:31:41

Local clock offset: 3.119 ms

Remote clock offset: 1.155 ms

Below is generated by plot.py at 2018-09-06 22:06:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 866.64 Mbit/s

95th percentile per-packet one-way delay: 7.115 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 512.17 Mbit/s

95th percentile per-packet one-way delay: 7.456 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 383.87 Mbit/s

95th percentile per-packet one-way delay: 6.783 ms

Loss rate: 0.11%

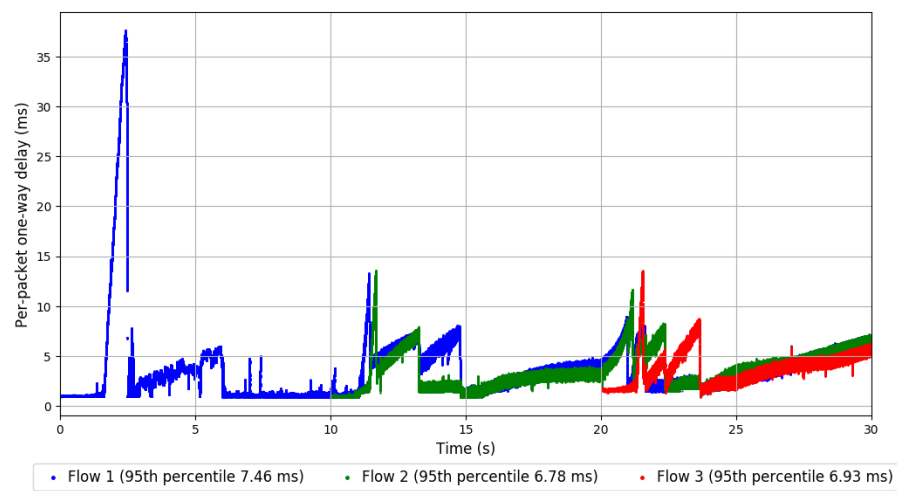
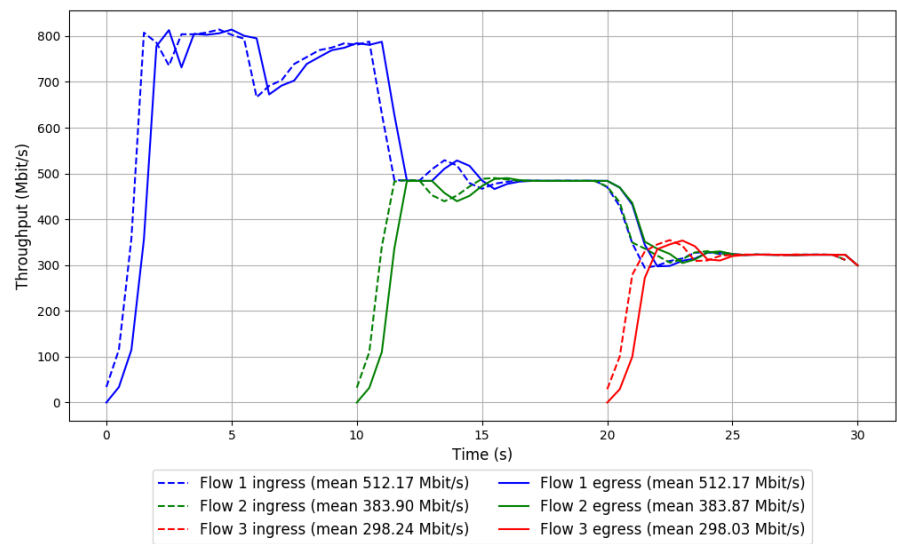
-- Flow 3:

Average throughput: 298.03 Mbit/s

95th percentile per-packet one-way delay: 6.933 ms

Loss rate: 0.26%

Run 5: Report of TCP Cubic — Data Link



Run 1: Statistics of FillP

Start at: 2018-09-06 19:38:11

End at: 2018-09-06 19:38:41

Local clock offset: 3.359 ms

Remote clock offset: 3.689 ms

Below is generated by plot.py at 2018-09-06 22:09:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 889.22 Mbit/s

95th percentile per-packet one-way delay: 113.858 ms

Loss rate: 8.20%

-- Flow 1:

Average throughput: 531.70 Mbit/s

95th percentile per-packet one-way delay: 103.659 ms

Loss rate: 2.12%

-- Flow 2:

Average throughput: 383.95 Mbit/s

95th percentile per-packet one-way delay: 128.296 ms

Loss rate: 19.19%

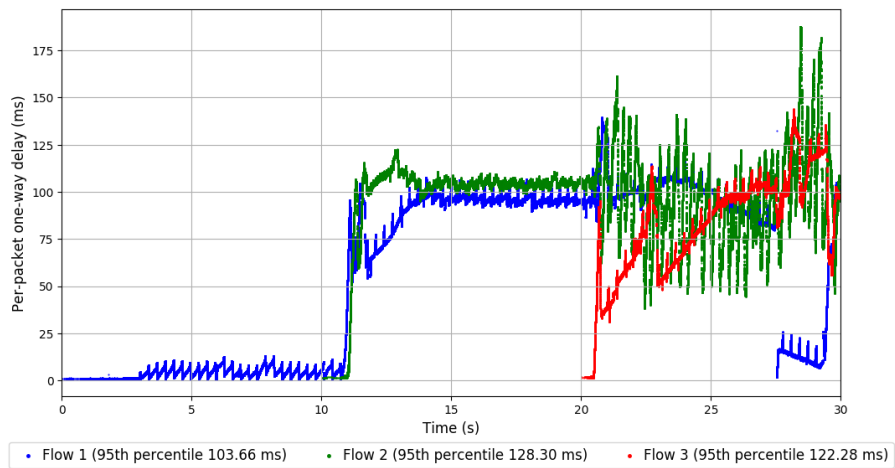
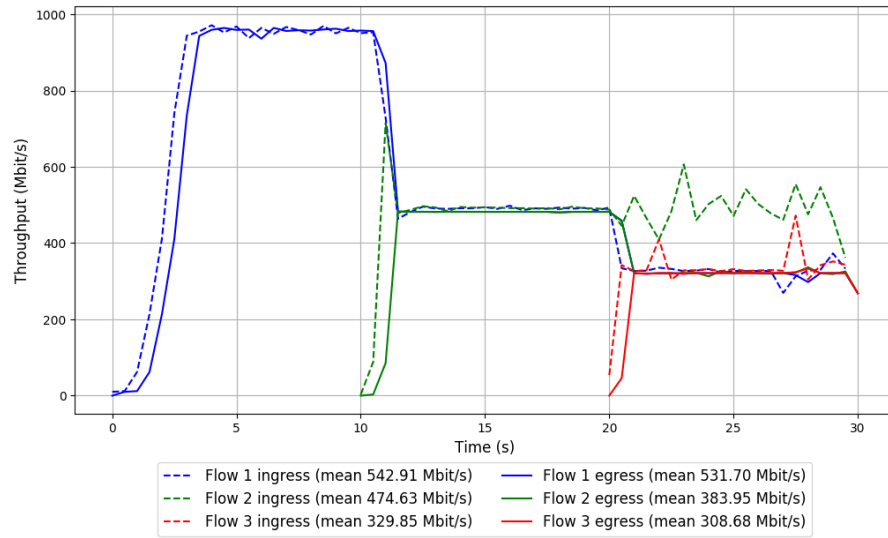
-- Flow 3:

Average throughput: 308.68 Mbit/s

95th percentile per-packet one-way delay: 122.281 ms

Loss rate: 6.59%

Run 1: Report of FillP — Data Link

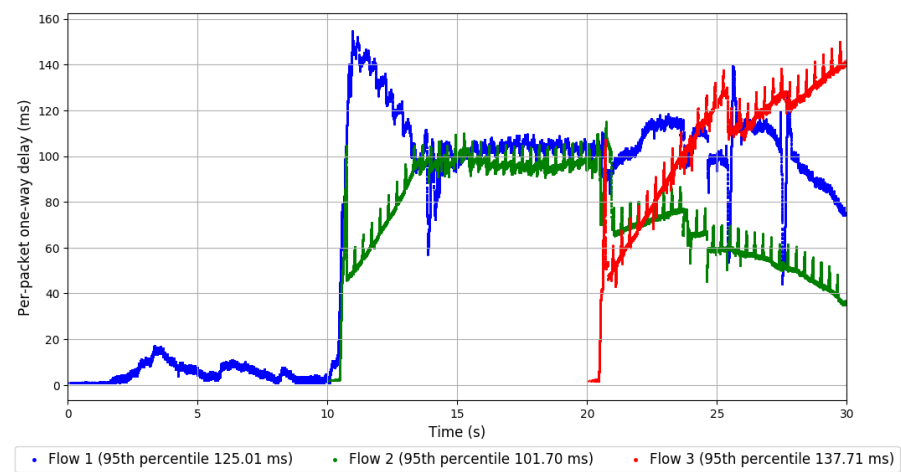
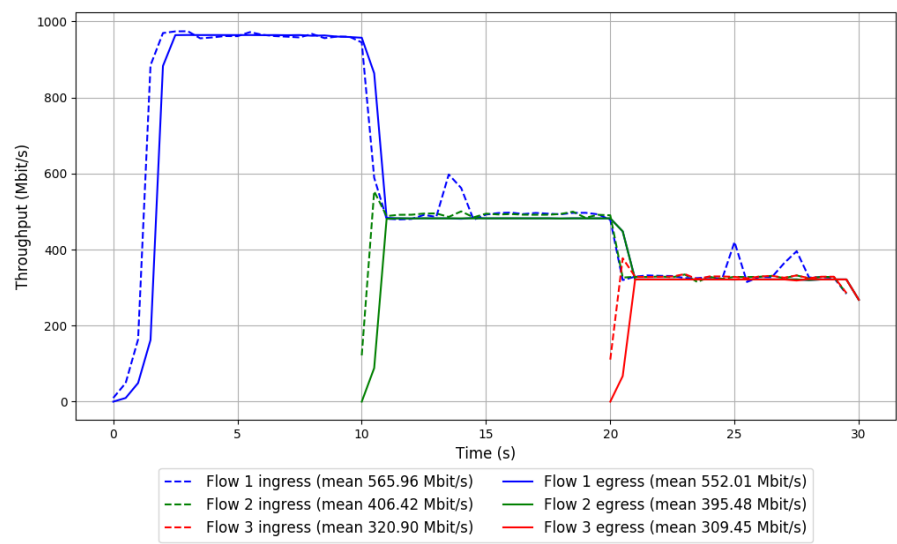


Run 2: Statistics of FillP

Start at: 2018-09-06 20:07:09
End at: 2018-09-06 20:07:39
Local clock offset: 3.72 ms
Remote clock offset: -0.659 ms

Below is generated by plot.py at 2018-09-06 22:18:22
Datalink statistics
-- Total of 3 flows:
Average throughput: 917.32 Mbit/s
95th percentile per-packet one-way delay: 127.266 ms
Loss rate: 2.74%
-- Flow 1:
Average throughput: 552.01 Mbit/s
95th percentile per-packet one-way delay: 125.010 ms
Loss rate: 2.53%
-- Flow 2:
Average throughput: 395.48 Mbit/s
95th percentile per-packet one-way delay: 101.701 ms
Loss rate: 2.79%
-- Flow 3:
Average throughput: 309.45 Mbit/s
95th percentile per-packet one-way delay: 137.708 ms
Loss rate: 3.74%

Run 2: Report of FillP — Data Link

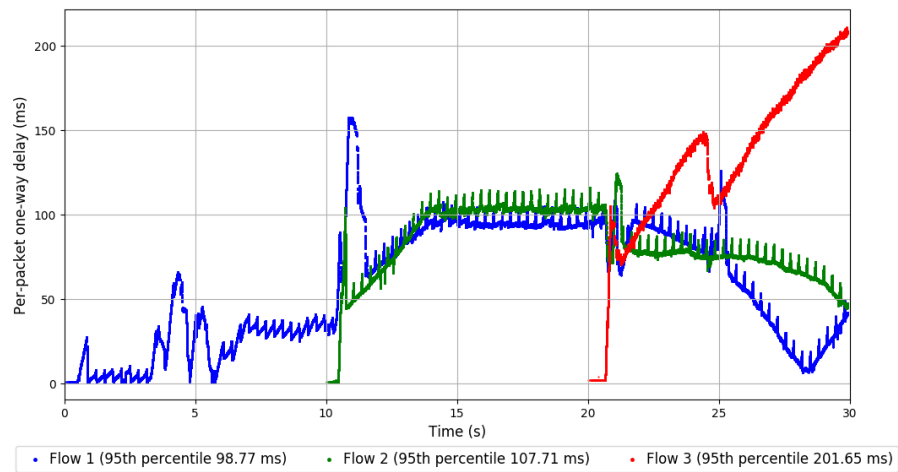
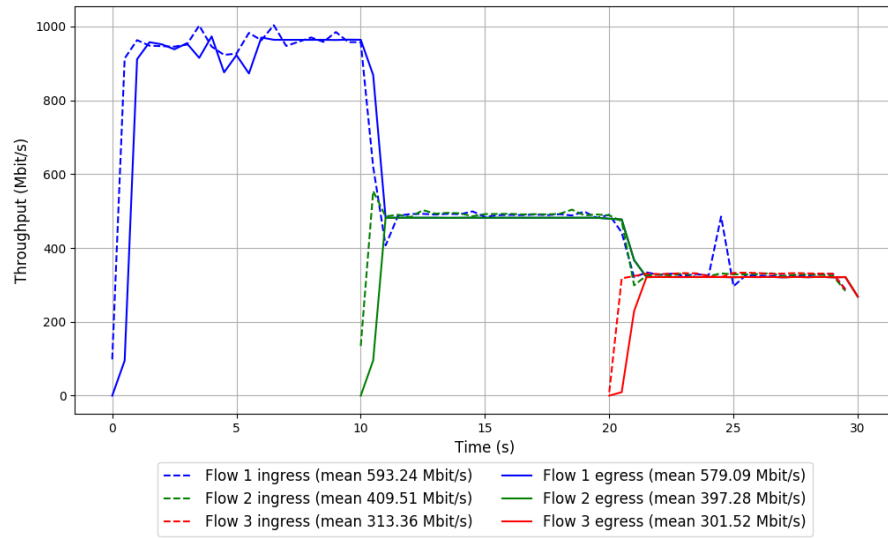


Run 3: Statistics of FillP

Start at: 2018-09-06 20:36:14
End at: 2018-09-06 20:36:44
Local clock offset: 3.34 ms
Remote clock offset: -0.368 ms

Below is generated by plot.py at 2018-09-06 22:18:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 943.30 Mbit/s
95th percentile per-packet one-way delay: 144.508 ms
Loss rate: 2.79%
-- Flow 1:
Average throughput: 579.09 Mbit/s
95th percentile per-packet one-way delay: 98.773 ms
Loss rate: 2.45%
-- Flow 2:
Average throughput: 397.28 Mbit/s
95th percentile per-packet one-way delay: 107.712 ms
Loss rate: 3.07%
-- Flow 3:
Average throughput: 301.52 Mbit/s
95th percentile per-packet one-way delay: 201.651 ms
Loss rate: 4.04%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-09-06 21:05:32

End at: 2018-09-06 21:06:02

Local clock offset: 3.192 ms

Remote clock offset: 3.181 ms

Below is generated by plot.py at 2018-09-06 22:18:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 877.96 Mbit/s

95th percentile per-packet one-way delay: 131.290 ms

Loss rate: 2.90%

-- Flow 1:

Average throughput: 517.52 Mbit/s

95th percentile per-packet one-way delay: 98.923 ms

Loss rate: 2.45%

-- Flow 2:

Average throughput: 392.22 Mbit/s

95th percentile per-packet one-way delay: 107.091 ms

Loss rate: 3.01%

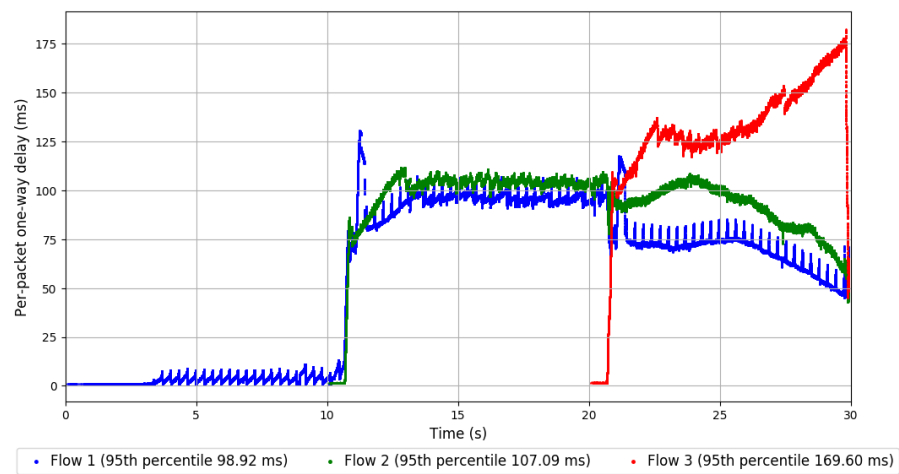
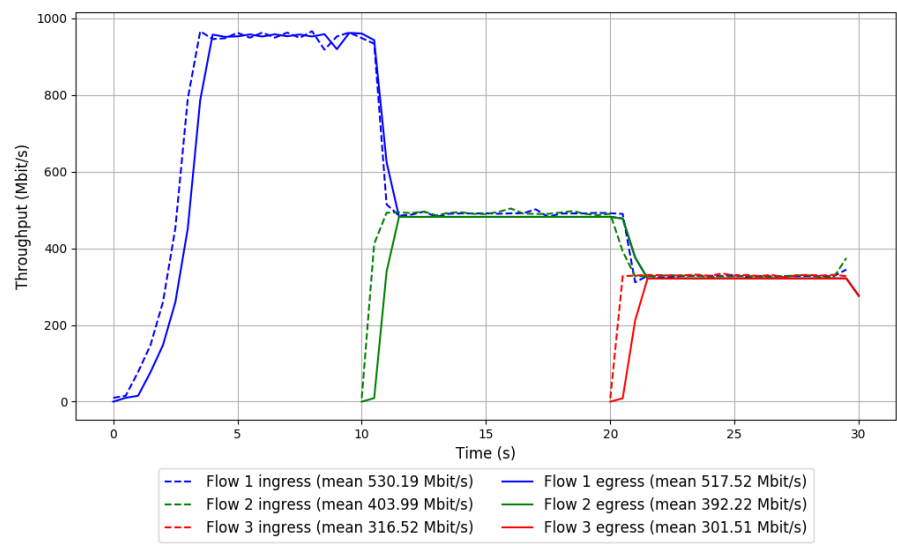
-- Flow 3:

Average throughput: 301.51 Mbit/s

95th percentile per-packet one-way delay: 169.599 ms

Loss rate: 4.93%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-06 21:34:39

End at: 2018-09-06 21:35:09

Local clock offset: 3.136 ms

Remote clock offset: 0.666 ms

Below is generated by plot.py at 2018-09-06 22:18:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 890.08 Mbit/s

95th percentile per-packet one-way delay: 118.278 ms

Loss rate: 3.36%

-- Flow 1:

Average throughput: 524.54 Mbit/s

95th percentile per-packet one-way delay: 106.585 ms

Loss rate: 3.43%

-- Flow 2:

Average throughput: 395.74 Mbit/s

95th percentile per-packet one-way delay: 118.671 ms

Loss rate: 3.13%

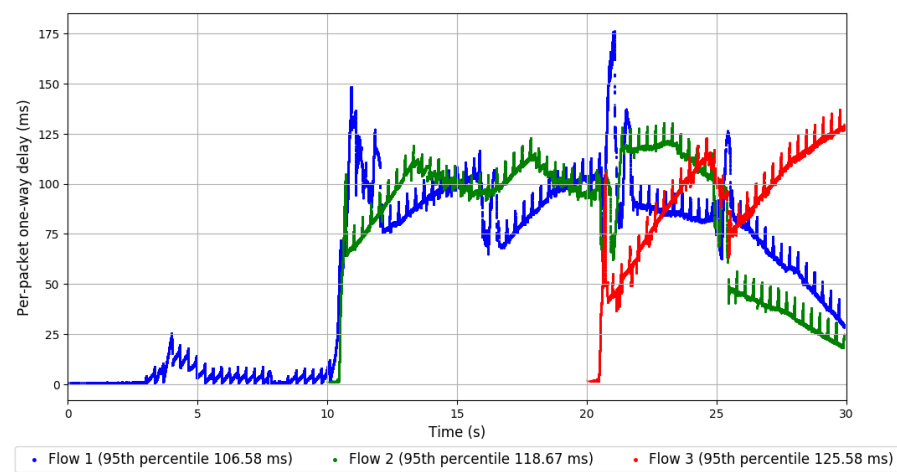
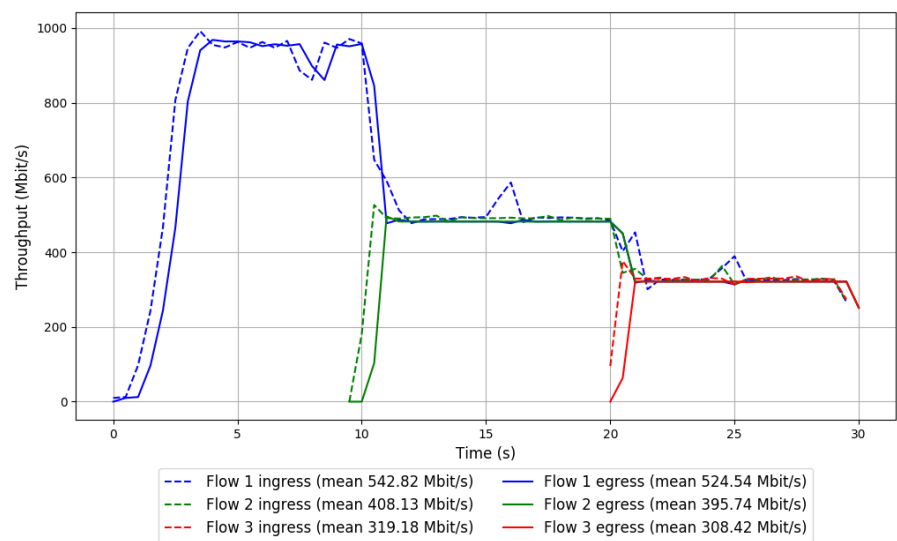
-- Flow 3:

Average throughput: 308.42 Mbit/s

95th percentile per-packet one-way delay: 125.583 ms

Loss rate: 3.56%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 19:15:45

End at: 2018-09-06 19:16:15

Local clock offset: -0.657 ms

Remote clock offset: 1.85 ms

Below is generated by plot.py at 2018-09-06 22:18:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 919.86 Mbit/s

95th percentile per-packet one-way delay: 47.858 ms

Loss rate: 1.44%

-- Flow 1:

Average throughput: 549.59 Mbit/s

95th percentile per-packet one-way delay: 49.416 ms

Loss rate: 1.76%

-- Flow 2:

Average throughput: 396.57 Mbit/s

95th percentile per-packet one-way delay: 42.036 ms

Loss rate: 0.95%

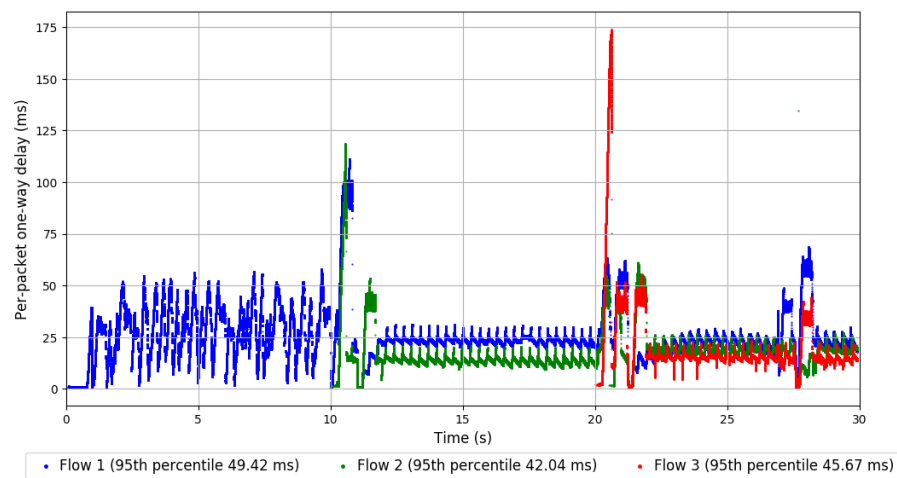
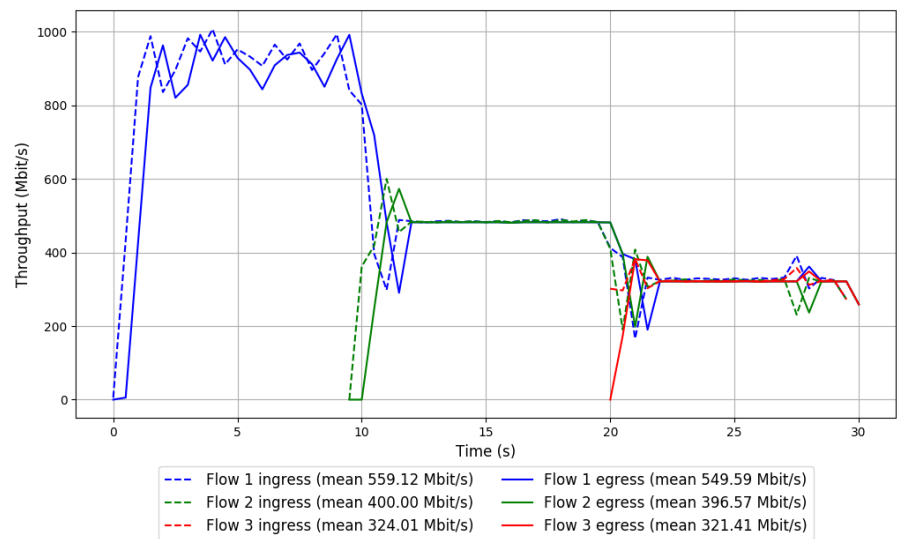
-- Flow 3:

Average throughput: 321.41 Mbit/s

95th percentile per-packet one-way delay: 45.667 ms

Loss rate: 0.98%

Run 1: Report of FillP-Sheep — Data Link



Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 19:44:45

End at: 2018-09-06 19:45:15

Local clock offset: 3.715 ms

Remote clock offset: 1.554 ms

Below is generated by plot.py at 2018-09-06 22:19:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 950.09 Mbit/s

95th percentile per-packet one-way delay: 39.682 ms

Loss rate: 1.10%

-- Flow 1:

Average throughput: 577.65 Mbit/s

95th percentile per-packet one-way delay: 26.343 ms

Loss rate: 0.91%

-- Flow 2:

Average throughput: 399.47 Mbit/s

95th percentile per-packet one-way delay: 53.649 ms

Loss rate: 1.47%

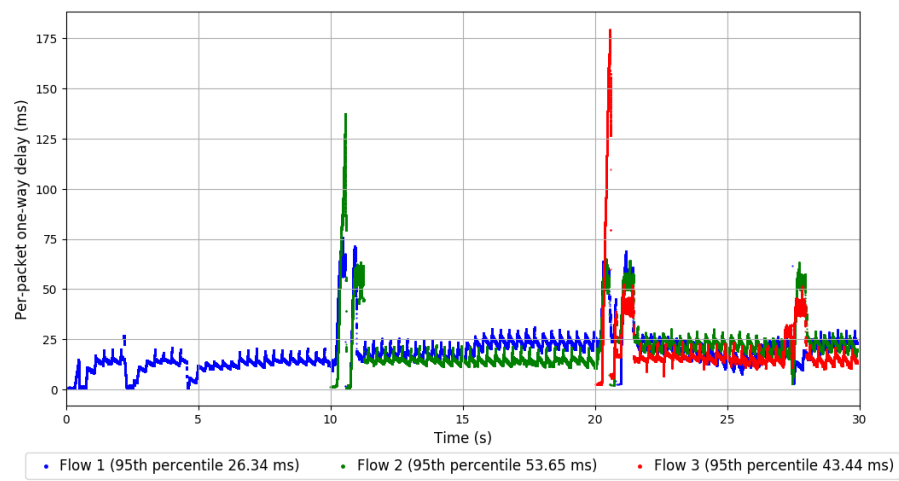
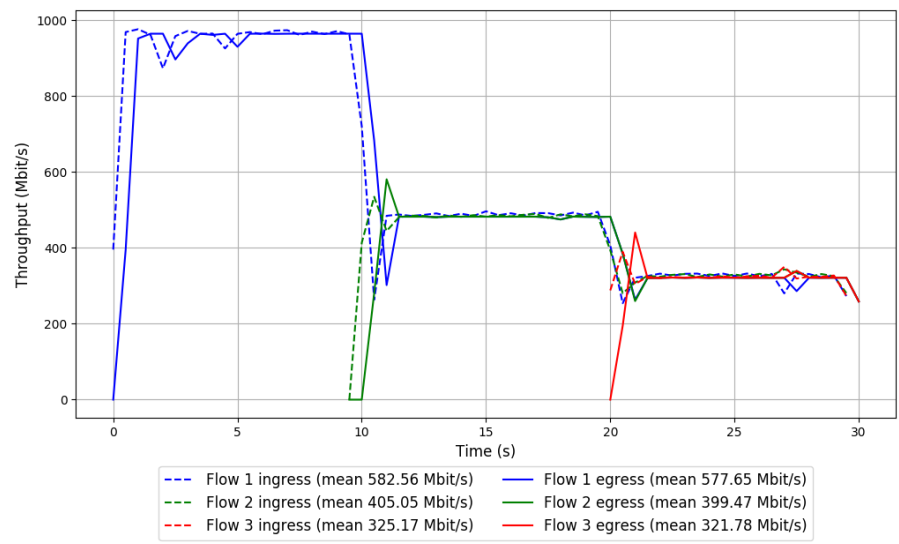
-- Flow 3:

Average throughput: 321.78 Mbit/s

95th percentile per-packet one-way delay: 43.437 ms

Loss rate: 1.24%

Run 2: Report of FillP-Sheep — Data Link

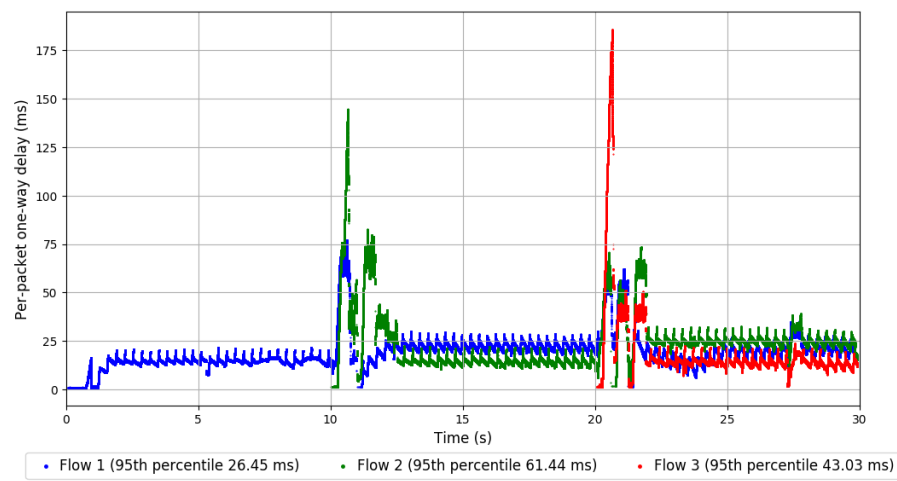
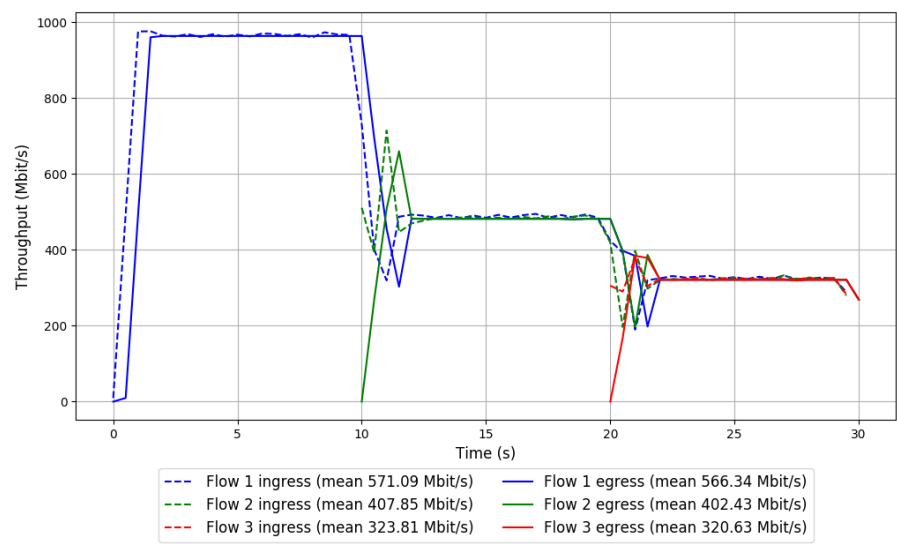


Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 20:13:47
End at: 2018-09-06 20:14:17
Local clock offset: 3.886 ms
Remote clock offset: -0.686 ms

Below is generated by plot.py at 2018-09-06 22:19:14
Datalink statistics
-- Total of 3 flows:
Average throughput: 940.07 Mbit/s
95th percentile per-packet one-way delay: 41.484 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 566.34 Mbit/s
95th percentile per-packet one-way delay: 26.453 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 402.43 Mbit/s
95th percentile per-packet one-way delay: 61.440 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 320.63 Mbit/s
95th percentile per-packet one-way delay: 43.026 ms
Loss rate: 1.21%

Run 3: Report of FillP-Sheep — Data Link

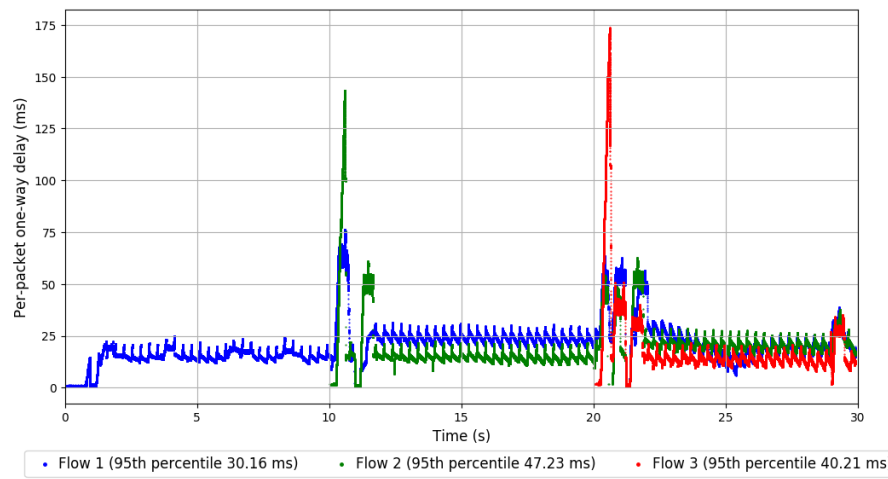
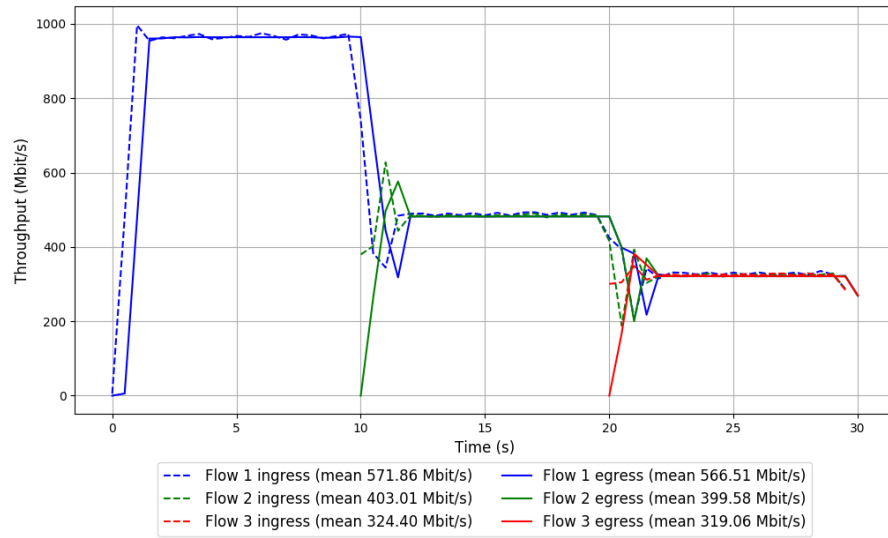


Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 20:42:55
End at: 2018-09-06 20:43:25
Local clock offset: 3.386 ms
Remote clock offset: -0.428 ms

Below is generated by plot.py at 2018-09-06 22:23:29
Datalink statistics
-- Total of 3 flows:
Average throughput: 937.82 Mbit/s
95th percentile per-packet one-way delay: 37.263 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 566.51 Mbit/s
95th percentile per-packet one-way delay: 30.163 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 399.58 Mbit/s
95th percentile per-packet one-way delay: 47.235 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 319.06 Mbit/s
95th percentile per-packet one-way delay: 40.214 ms
Loss rate: 1.84%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 21:12:12

End at: 2018-09-06 21:12:42

Local clock offset: 3.275 ms

Remote clock offset: 3.762 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 937.71 Mbit/s

95th percentile per-packet one-way delay: 35.963 ms

Loss rate: 0.95%

-- Flow 1:

Average throughput: 566.27 Mbit/s

95th percentile per-packet one-way delay: 28.977 ms

Loss rate: 0.80%

-- Flow 2:

Average throughput: 399.62 Mbit/s

95th percentile per-packet one-way delay: 44.084 ms

Loss rate: 1.19%

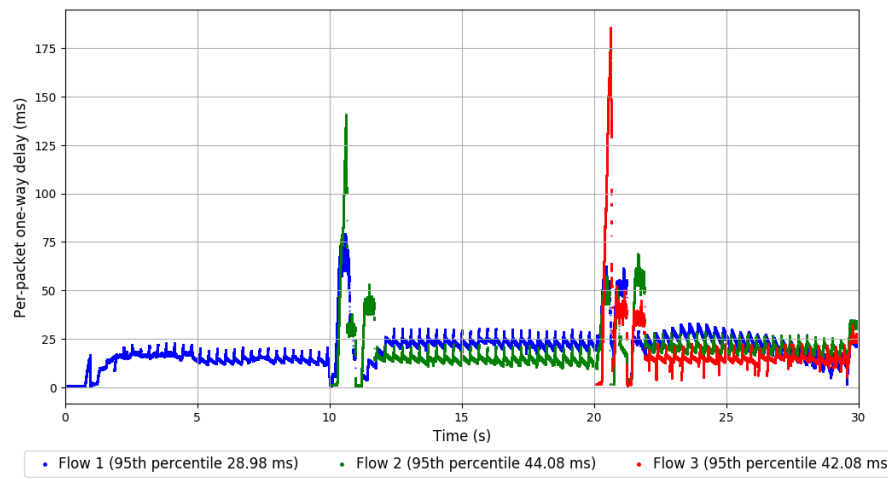
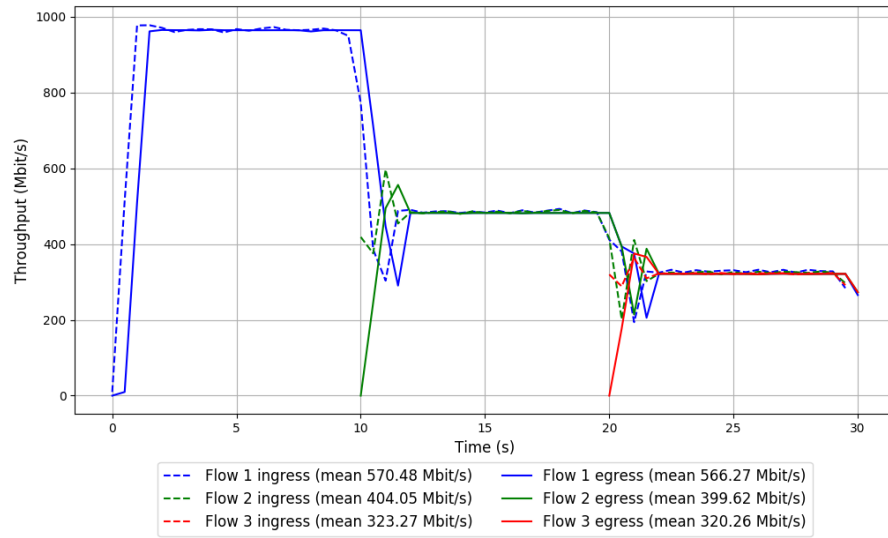
-- Flow 3:

Average throughput: 320.26 Mbit/s

95th percentile per-packet one-way delay: 42.078 ms

Loss rate: 1.14%

Run 5: Report of FillP-Sheep — Data Link



Run 1: Statistics of Indigo

Start at: 2018-09-06 19:33:09

End at: 2018-09-06 19:33:39

Local clock offset: 2.948 ms

Remote clock offset: 3.416 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 299.76 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 171.38 Mbit/s

95th percentile per-packet one-way delay: 1.029 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 155.05 Mbit/s

95th percentile per-packet one-way delay: 1.035 ms

Loss rate: 0.11%

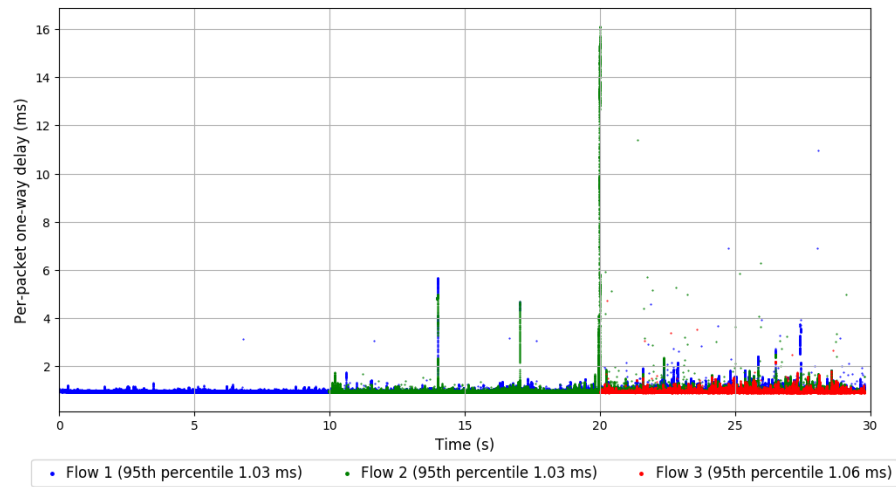
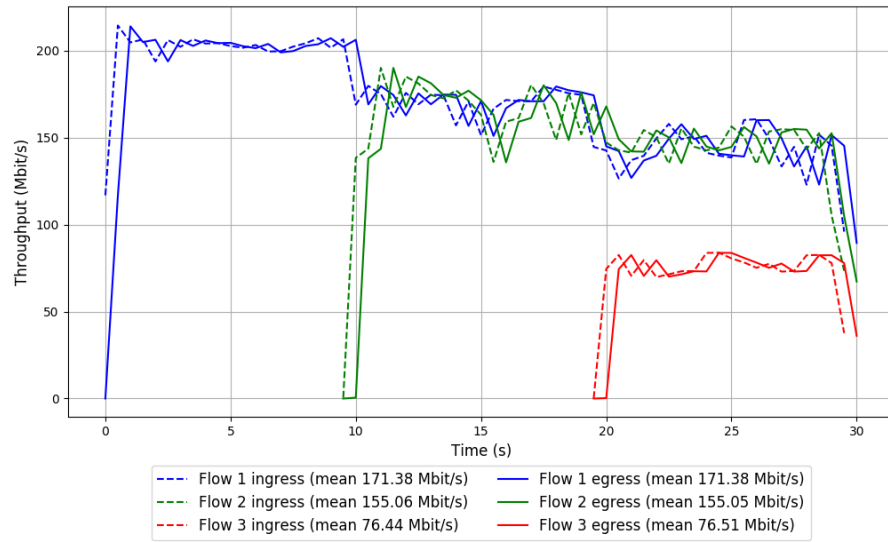
-- Flow 3:

Average throughput: 76.51 Mbit/s

95th percentile per-packet one-way delay: 1.064 ms

Loss rate: 0.12%

Run 1: Report of Indigo — Data Link

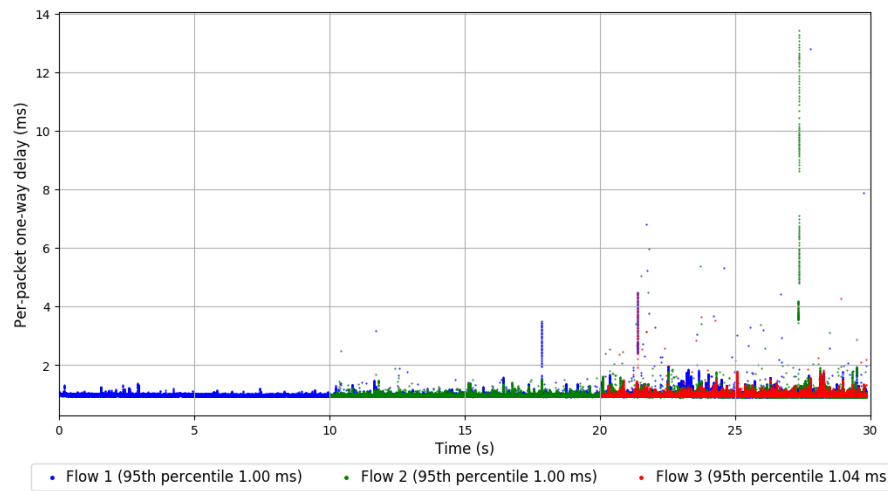
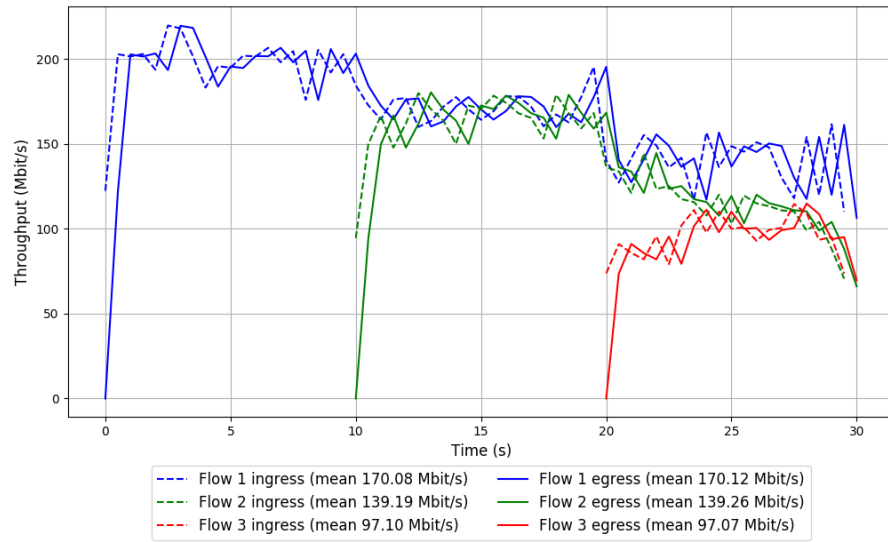


Run 2: Statistics of Indigo

Start at: 2018-09-06 20:02:11
End at: 2018-09-06 20:02:41
Local clock offset: 3.643 ms
Remote clock offset: -0.373 ms

Below is generated by plot.py at 2018-09-06 22:30:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 294.43 Mbit/s
95th percentile per-packet one-way delay: 1.002 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 170.12 Mbit/s
95th percentile per-packet one-way delay: 0.998 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 139.26 Mbit/s
95th percentile per-packet one-way delay: 1.001 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 97.07 Mbit/s
95th percentile per-packet one-way delay: 1.039 ms
Loss rate: 0.22%

Run 2: Report of Indigo — Data Link

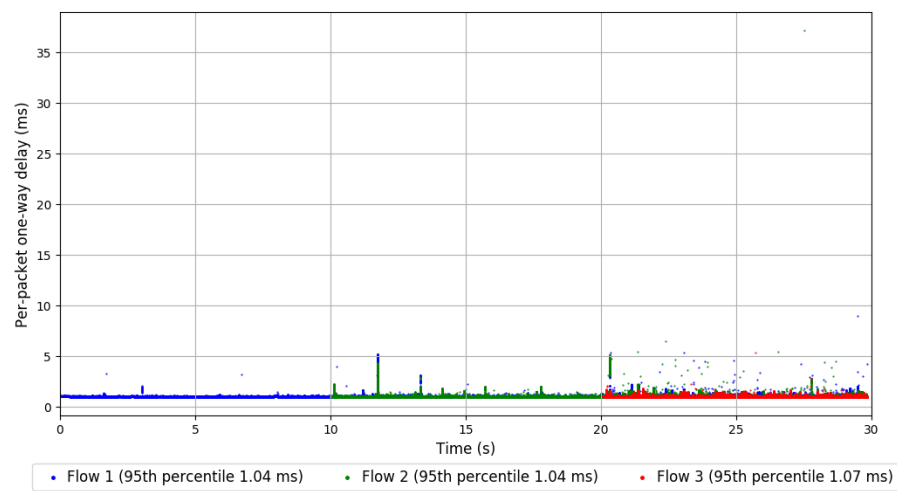
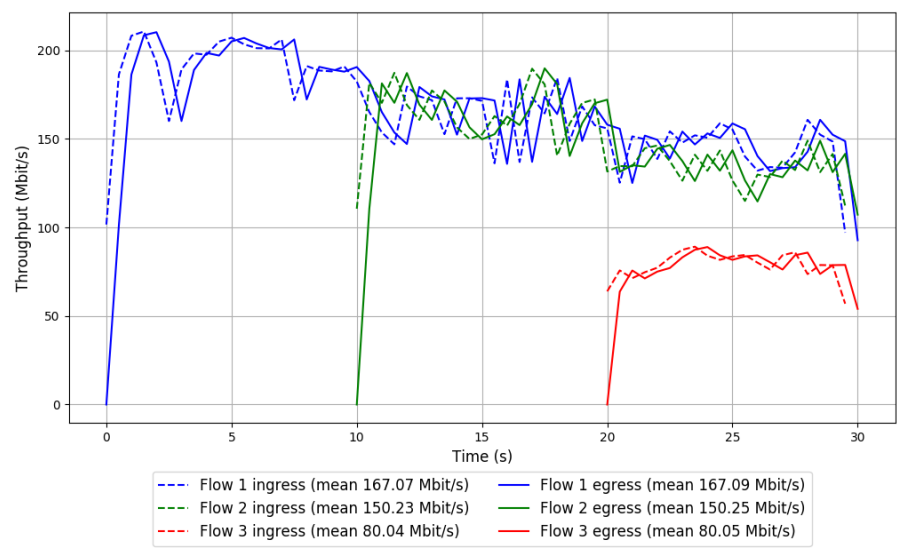


Run 3: Statistics of Indigo

Start at: 2018-09-06 20:31:15
End at: 2018-09-06 20:31:45
Local clock offset: 3.266 ms
Remote clock offset: -0.344 ms

Below is generated by plot.py at 2018-09-06 22:30:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 293.21 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 167.09 Mbit/s
95th percentile per-packet one-way delay: 1.042 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 150.25 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 80.05 Mbit/s
95th percentile per-packet one-way delay: 1.075 ms
Loss rate: 0.18%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-06 21:00:30

End at: 2018-09-06 21:01:00

Local clock offset: 3.087 ms

Remote clock offset: 2.704 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 297.63 Mbit/s

95th percentile per-packet one-way delay: 1.073 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 167.10 Mbit/s

95th percentile per-packet one-way delay: 1.056 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 152.77 Mbit/s

95th percentile per-packet one-way delay: 1.077 ms

Loss rate: 0.09%

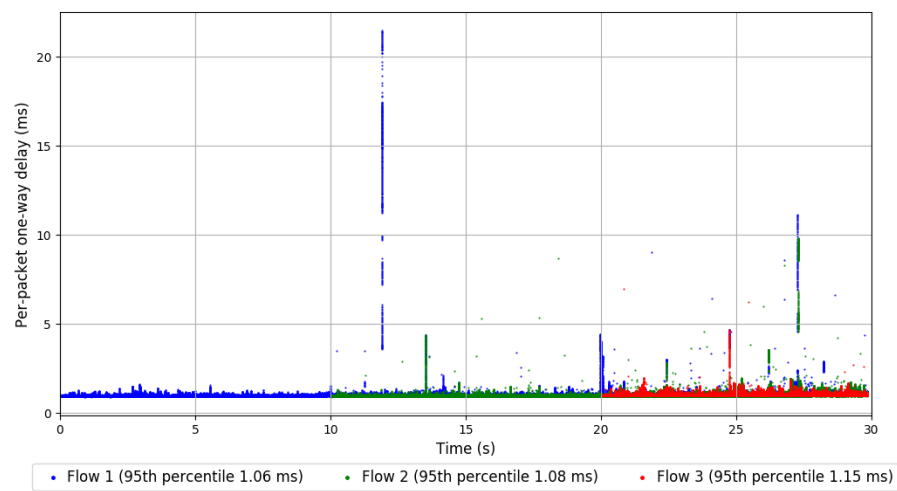
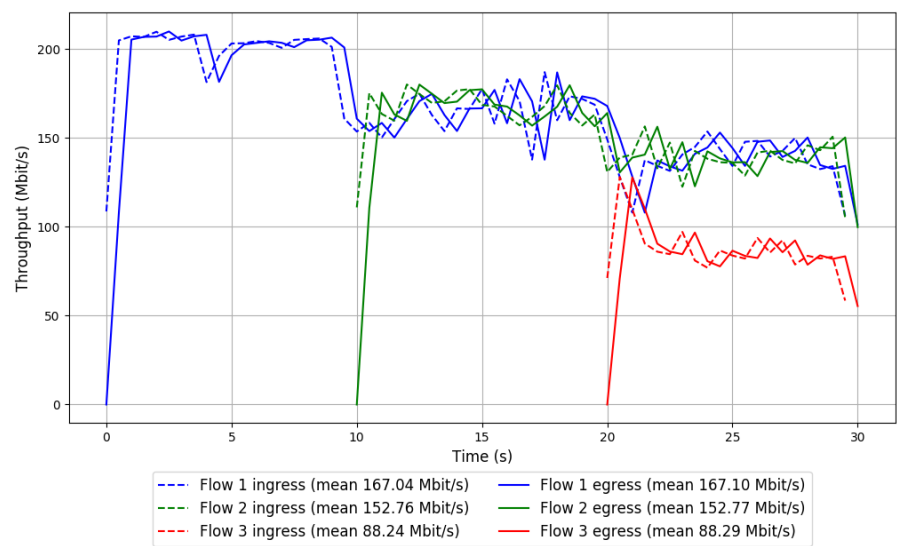
-- Flow 3:

Average throughput: 88.29 Mbit/s

95th percentile per-packet one-way delay: 1.152 ms

Loss rate: 0.18%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-06 21:29:37

End at: 2018-09-06 21:30:07

Local clock offset: 3.123 ms

Remote clock offset: 1.369 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 302.28 Mbit/s

95th percentile per-packet one-way delay: 1.046 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 157.81 Mbit/s

95th percentile per-packet one-way delay: 1.043 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 150.23 Mbit/s

95th percentile per-packet one-way delay: 1.056 ms

Loss rate: 0.11%

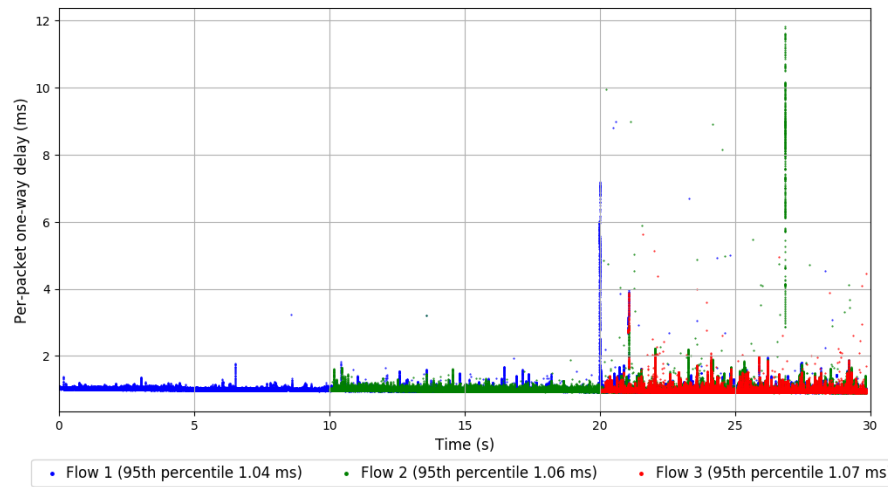
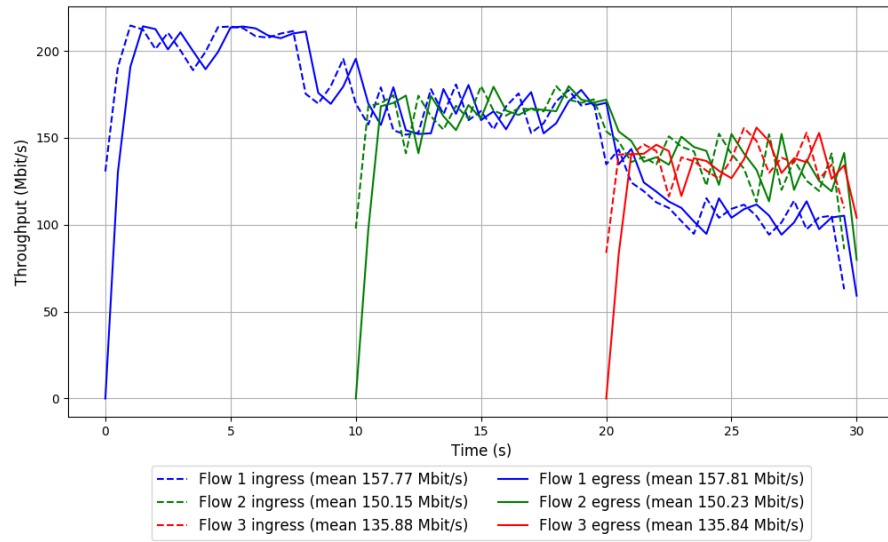
-- Flow 3:

Average throughput: 135.84 Mbit/s

95th percentile per-packet one-way delay: 1.072 ms

Loss rate: 0.23%

Run 5: Report of Indigo — Data Link



Run 1: Statistics of LEDBAT

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

End at: 2018-09-06 19:25:39

Local clock offset: 2.031 ms

Remote clock offset: 2.893 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 483.87 Mbit/s

95th percentile per-packet one-way delay: 1.686 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 283.82 Mbit/s

95th percentile per-packet one-way delay: 1.596 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 229.12 Mbit/s

95th percentile per-packet one-way delay: 1.779 ms

Loss rate: 0.07%

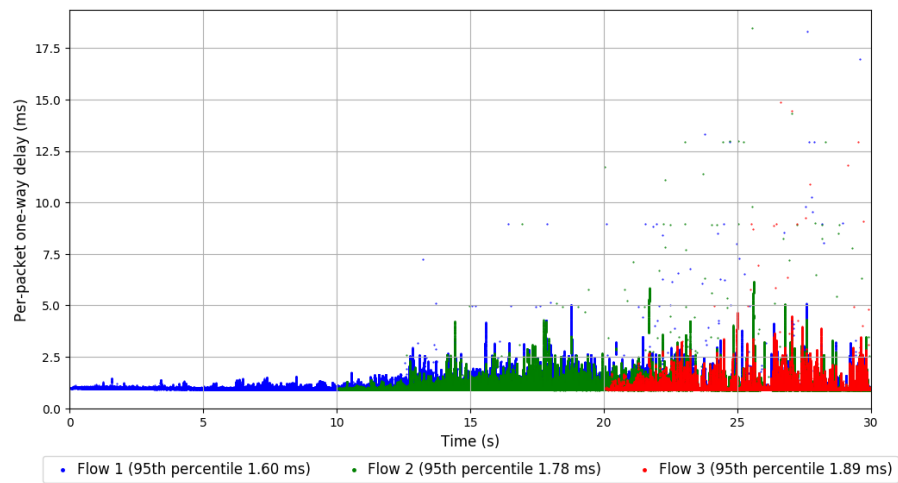
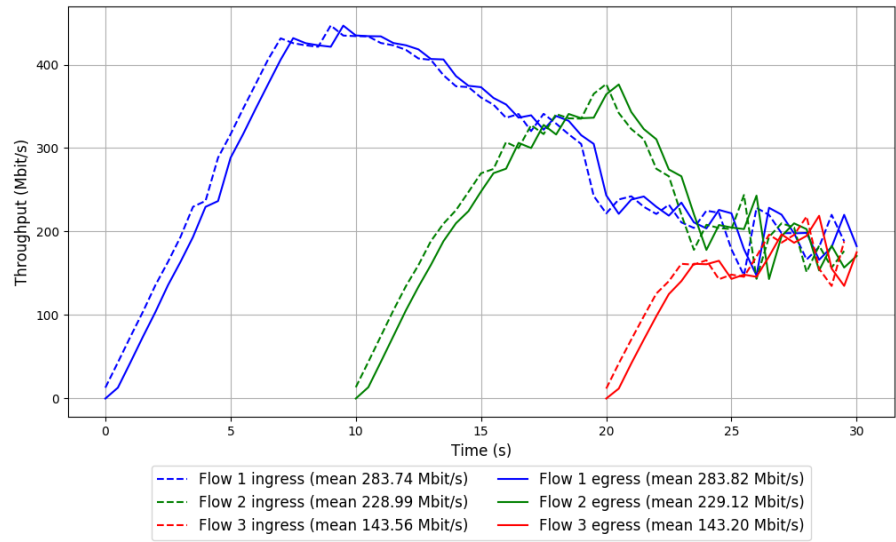
-- Flow 3:

Average throughput: 143.20 Mbit/s

95th percentile per-packet one-way delay: 1.887 ms

Loss rate: 0.46%

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2018-09-06 19:54:10

End at: 2018-09-06 19:54:40

Local clock offset: 3.497 ms

Remote clock offset: 0.11 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 488.44 Mbit/s

95th percentile per-packet one-way delay: 1.639 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 292.59 Mbit/s

95th percentile per-packet one-way delay: 1.517 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 223.04 Mbit/s

95th percentile per-packet one-way delay: 1.839 ms

Loss rate: 0.00%

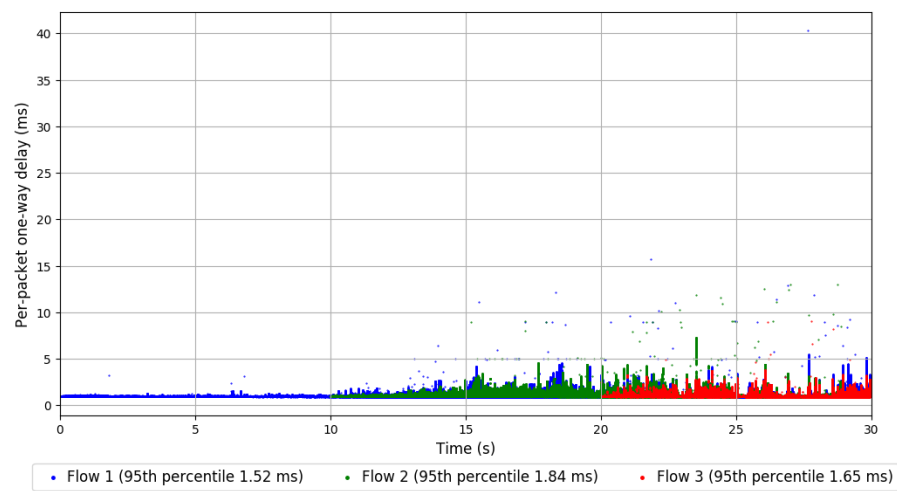
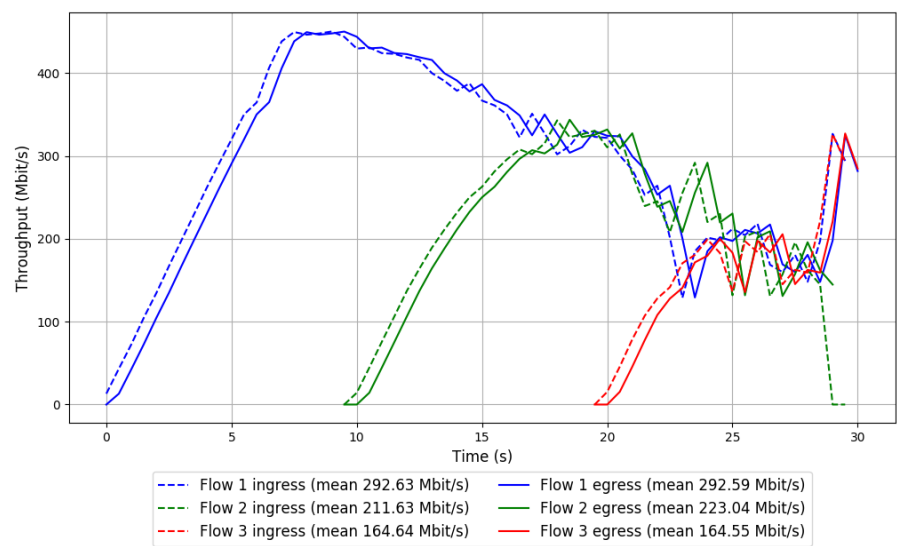
-- Flow 3:

Average throughput: 164.55 Mbit/s

95th percentile per-packet one-way delay: 1.653 ms

Loss rate: 0.25%

Run 2: Report of LEDBAT — Data Link

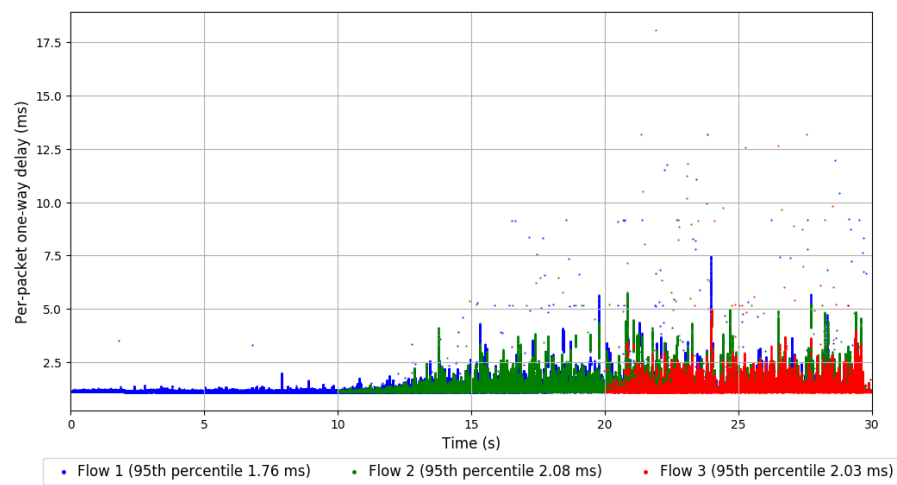
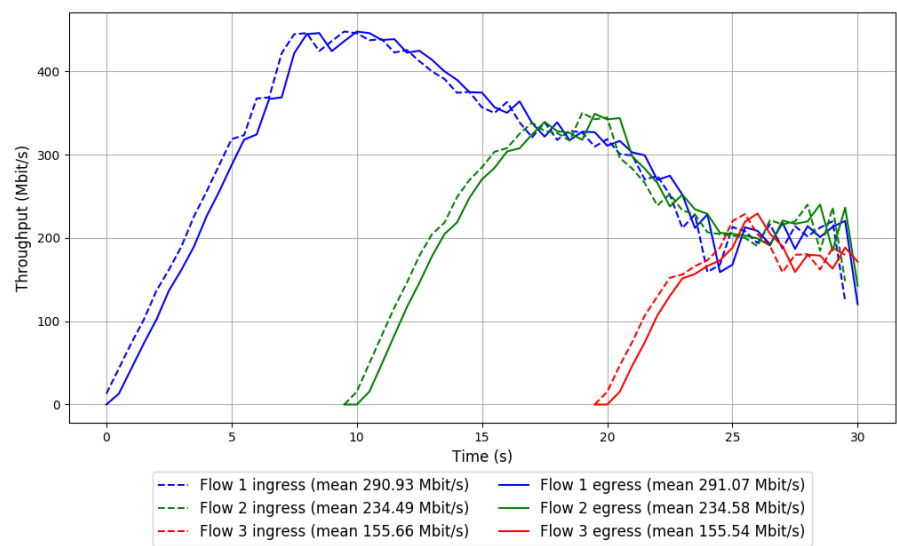


Run 3: Statistics of LEDBAT

Start at: 2018-09-06 20:23:12
End at: 2018-09-06 20:23:42
Local clock offset: 3.477 ms
Remote clock offset: -0.395 ms

Below is generated by plot.py at 2018-09-06 22:30:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 499.05 Mbit/s
95th percentile per-packet one-way delay: 1.906 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 291.07 Mbit/s
95th percentile per-packet one-way delay: 1.759 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 234.58 Mbit/s
95th percentile per-packet one-way delay: 2.084 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 155.54 Mbit/s
95th percentile per-packet one-way delay: 2.031 ms
Loss rate: 0.28%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-06 20:52:22

End at: 2018-09-06 20:52:52

Local clock offset: 3.242 ms

Remote clock offset: 1.323 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 496.85 Mbit/s

95th percentile per-packet one-way delay: 1.972 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 272.54 Mbit/s

95th percentile per-packet one-way delay: 1.880 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 249.42 Mbit/s

95th percentile per-packet one-way delay: 2.051 ms

Loss rate: 0.06%

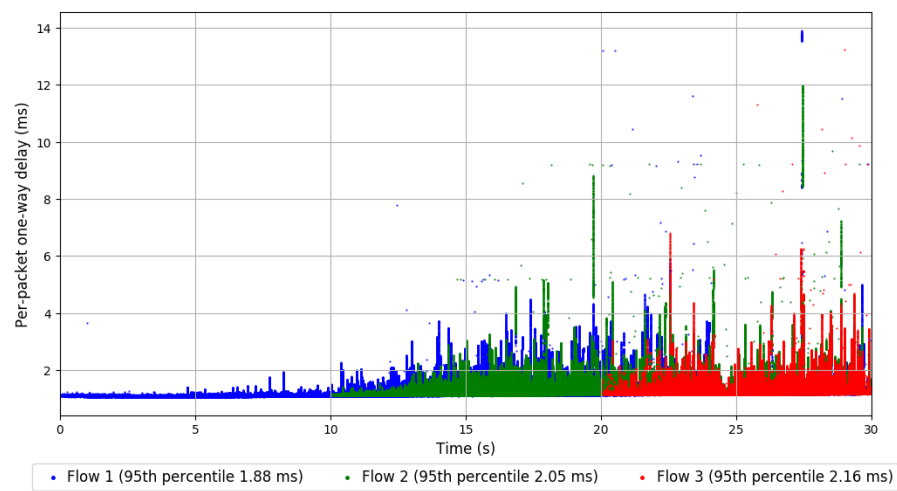
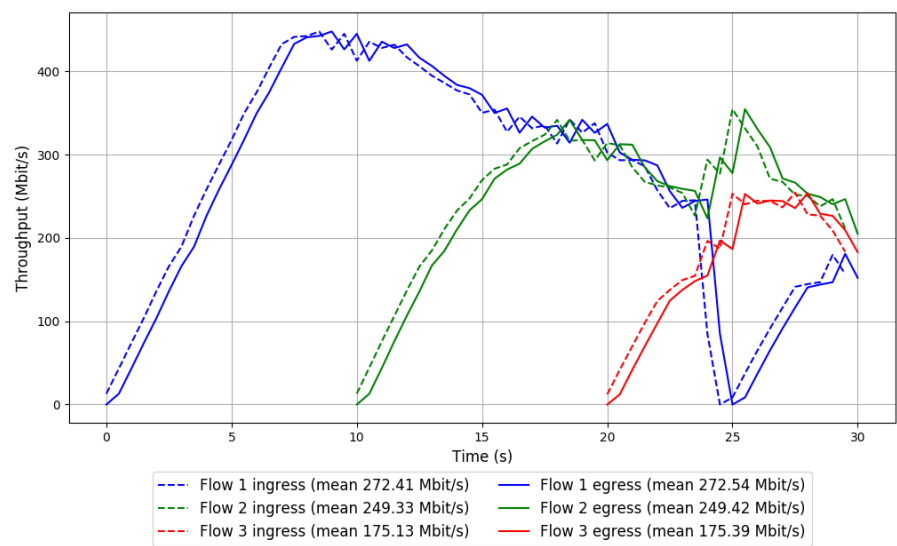
-- Flow 3:

Average throughput: 175.39 Mbit/s

95th percentile per-packet one-way delay: 2.157 ms

Loss rate: 0.04%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-09-06 21:21:36

End at: 2018-09-06 21:22:06

Local clock offset: 3.152 ms

Remote clock offset: 3.977 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 503.12 Mbit/s

95th percentile per-packet one-way delay: 1.836 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 302.08 Mbit/s

95th percentile per-packet one-way delay: 1.747 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 225.73 Mbit/s

95th percentile per-packet one-way delay: 2.047 ms

Loss rate: 0.08%

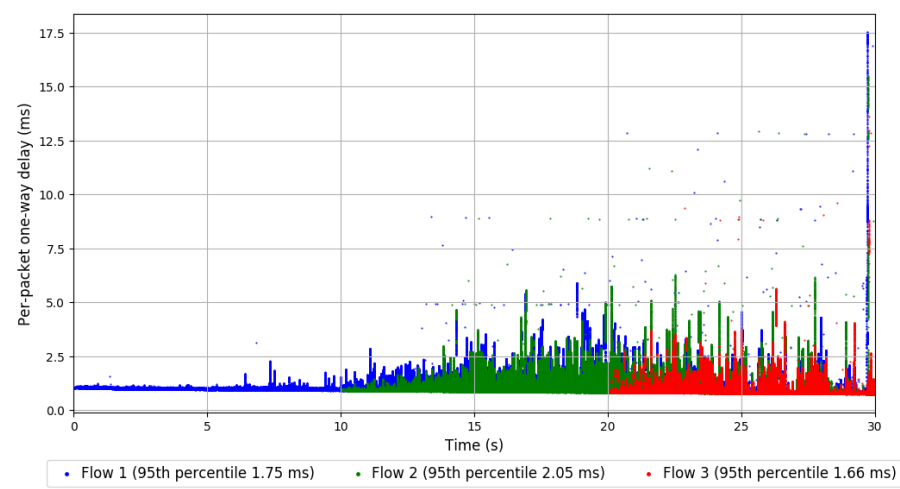
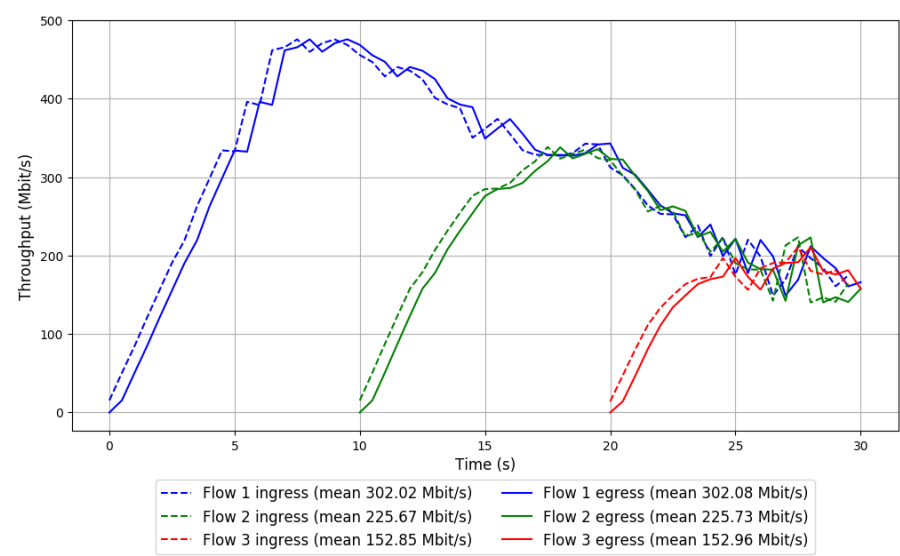
-- Flow 3:

Average throughput: 152.96 Mbit/s

95th percentile per-packet one-way delay: 1.664 ms

Loss rate: 0.14%

Run 5: Report of LEDBAT — Data Link



Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 19:28:10

End at: 2018-09-06 19:28:40

Local clock offset: 2.439 ms

Remote clock offset: 3.196 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 121.00 Mbit/s

95th percentile per-packet one-way delay: 0.881 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 55.61 Mbit/s

95th percentile per-packet one-way delay: 0.866 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 82.23 Mbit/s

95th percentile per-packet one-way delay: 0.902 ms

Loss rate: 0.16%

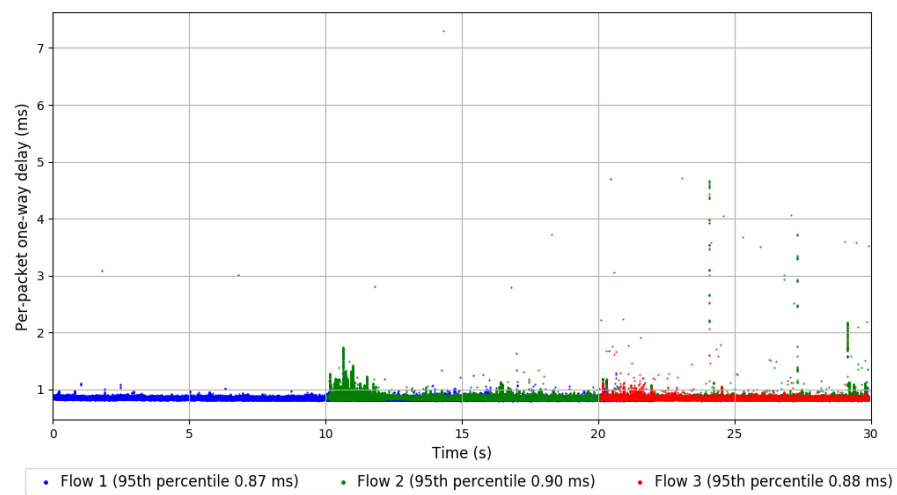
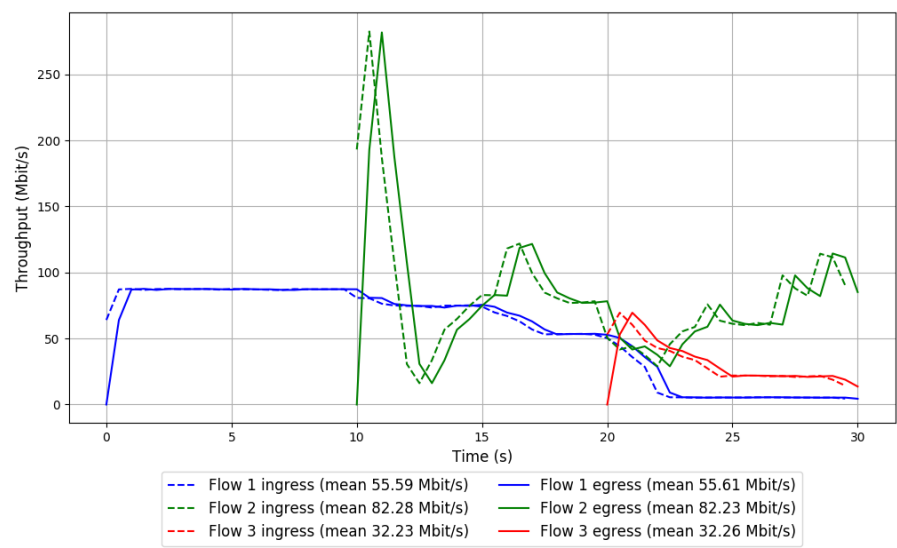
-- Flow 3:

Average throughput: 32.26 Mbit/s

95th percentile per-packet one-way delay: 0.877 ms

Loss rate: 0.11%

Run 1: Report of Indigo-Muses — Data Link

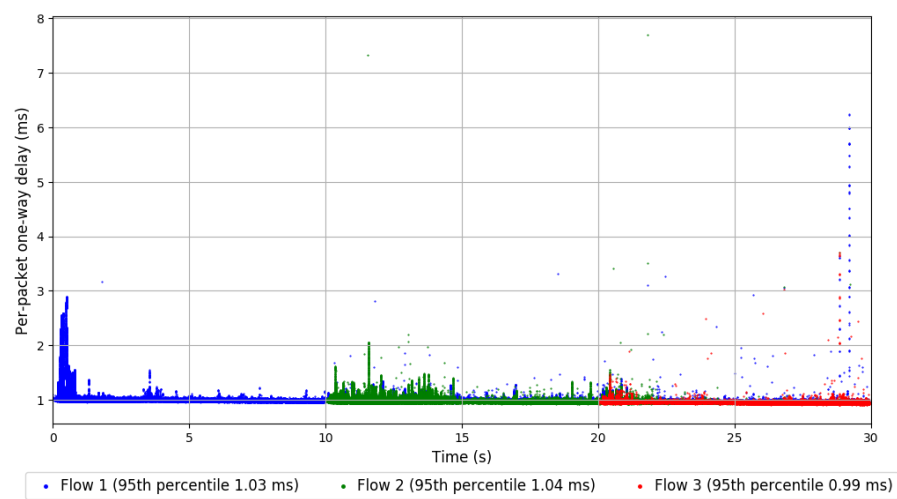
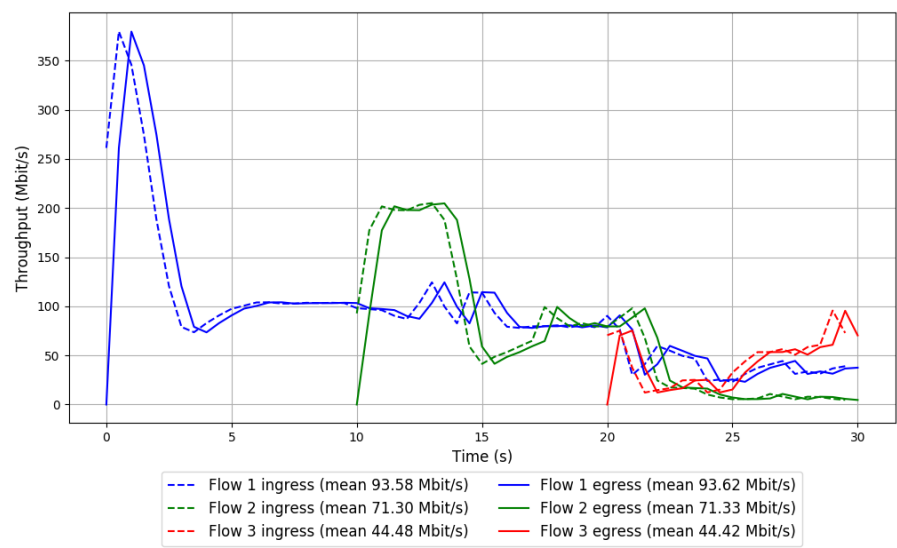


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 19:57:11
End at: 2018-09-06 19:57:41
Local clock offset: 3.594 ms
Remote clock offset: -0.083 ms

Below is generated by plot.py at 2018-09-06 22:30:52
Datalink statistics
-- Total of 3 flows:
Average throughput: 155.77 Mbit/s
95th percentile per-packet one-way delay: 1.033 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 93.62 Mbit/s
95th percentile per-packet one-way delay: 1.034 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 71.33 Mbit/s
95th percentile per-packet one-way delay: 1.040 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 44.42 Mbit/s
95th percentile per-packet one-way delay: 0.988 ms
Loss rate: 0.31%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 20:26:13

End at: 2018-09-06 20:26:43

Local clock offset: 3.299 ms

Remote clock offset: -0.33 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 139.66 Mbit/s

95th percentile per-packet one-way delay: 1.003 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 73.34 Mbit/s

95th percentile per-packet one-way delay: 0.991 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 87.59 Mbit/s

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

Loss rate: 0.07%

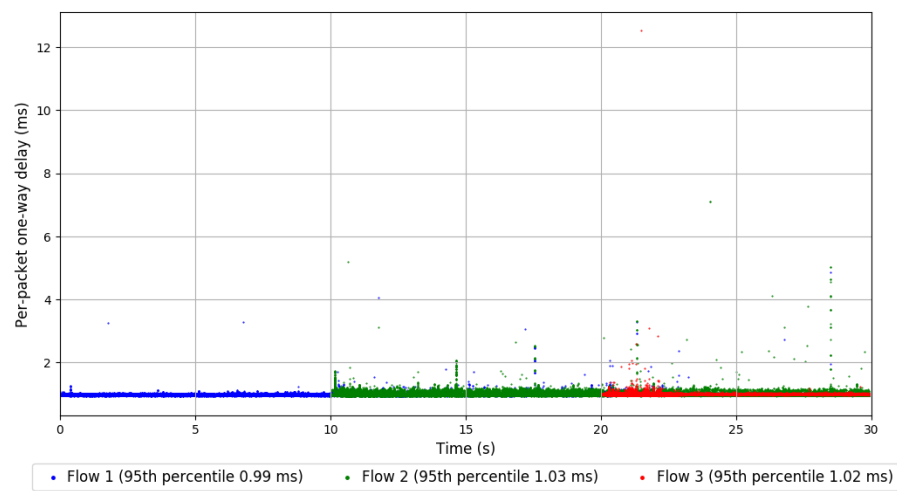
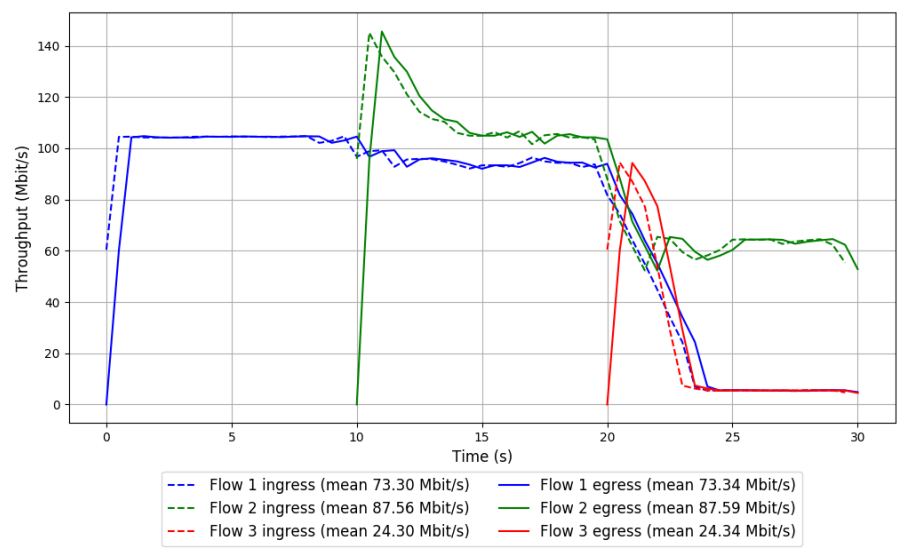
-- Flow 3:

Average throughput: 24.34 Mbit/s

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

Loss rate: 0.05%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 20:55:25

End at: 2018-09-06 20:55:55

Local clock offset: 3.196 ms

Remote clock offset: 1.941 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 162.41 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 96.59 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 83.11 Mbit/s

95th percentile per-packet one-way delay: 1.168 ms

Loss rate: 0.11%

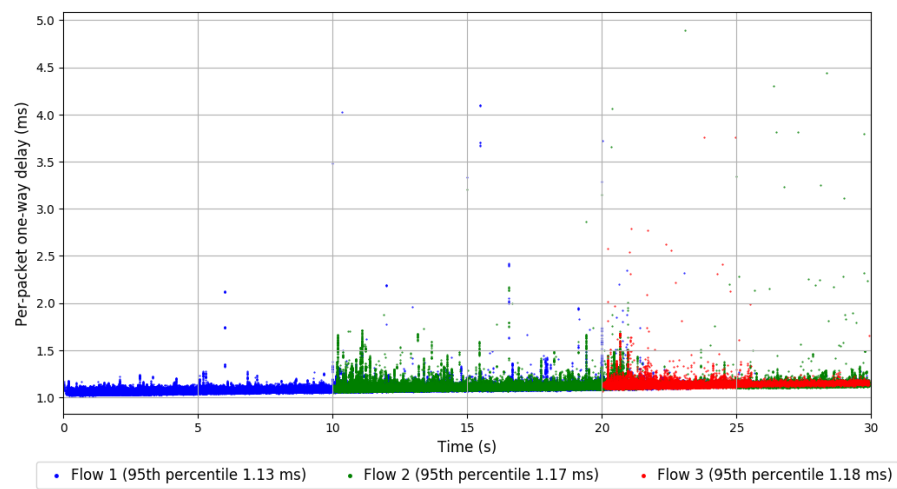
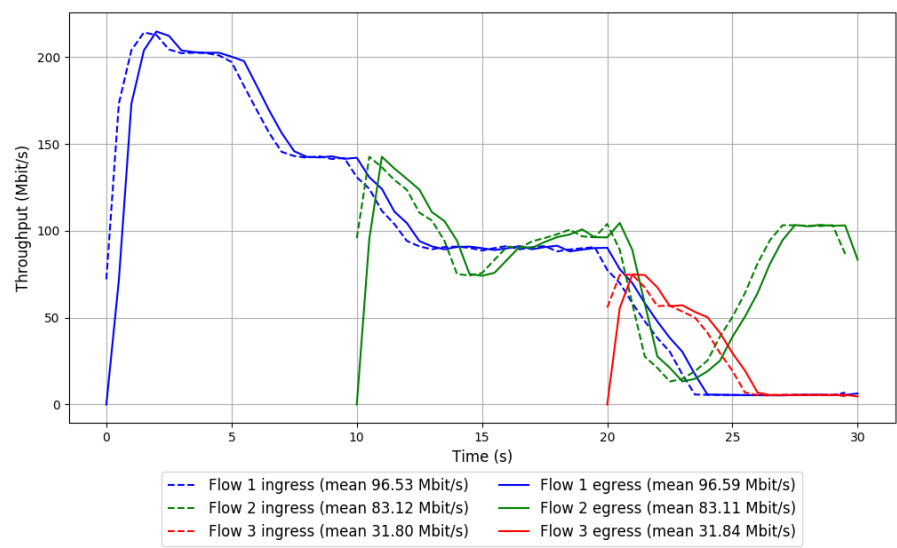
-- Flow 3:

Average throughput: 31.84 Mbit/s

95th percentile per-packet one-way delay: 1.177 ms

Loss rate: 0.03%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 21:24:38

End at: 2018-09-06 21:25:08

Local clock offset: 3.119 ms

Remote clock offset: 2.712 ms

Below is generated by plot.py at 2018-09-06 22:30:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 189.86 Mbit/s

95th percentile per-packet one-way delay: 0.993 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 102.33 Mbit/s

95th percentile per-packet one-way delay: 0.999 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 86.89 Mbit/s

95th percentile per-packet one-way delay: 0.961 ms

Loss rate: 0.13%

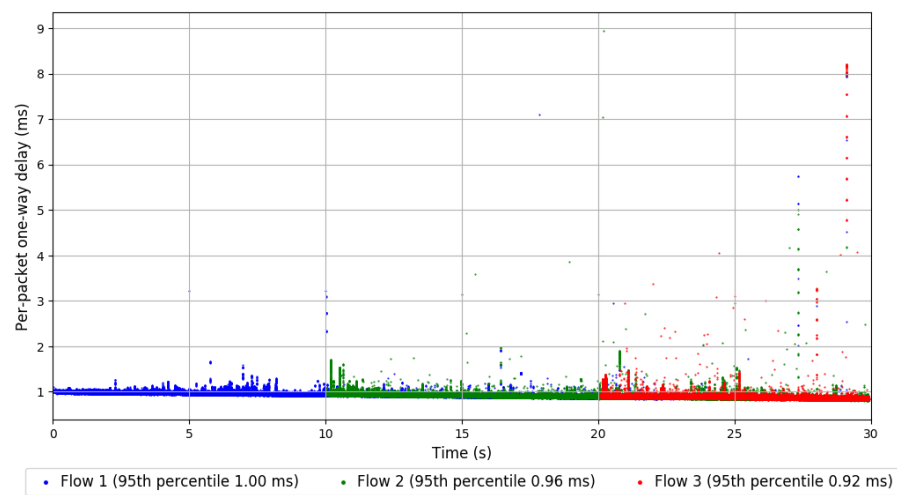
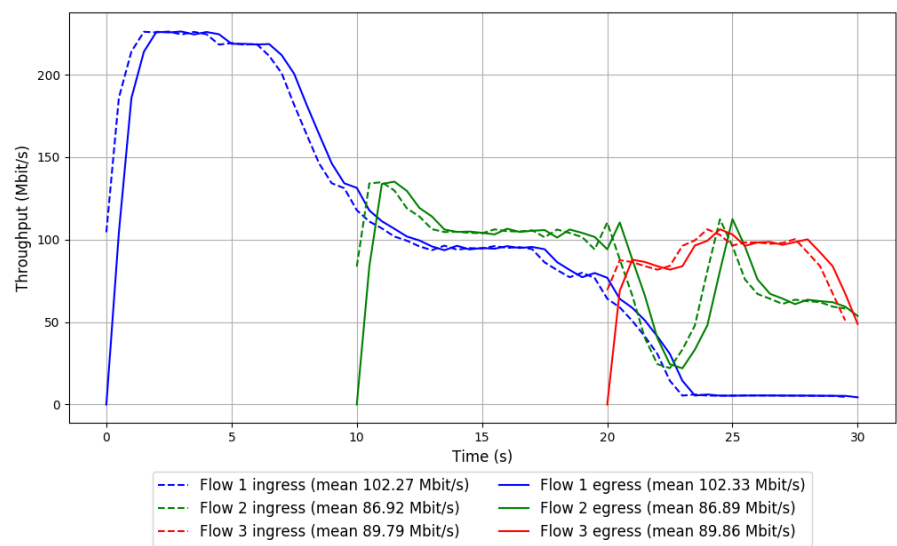
-- Flow 3:

Average throughput: 89.86 Mbit/s

95th percentile per-packet one-way delay: 0.921 ms

Loss rate: 0.13%

Run 5: Report of Indigo-Muses — Data Link

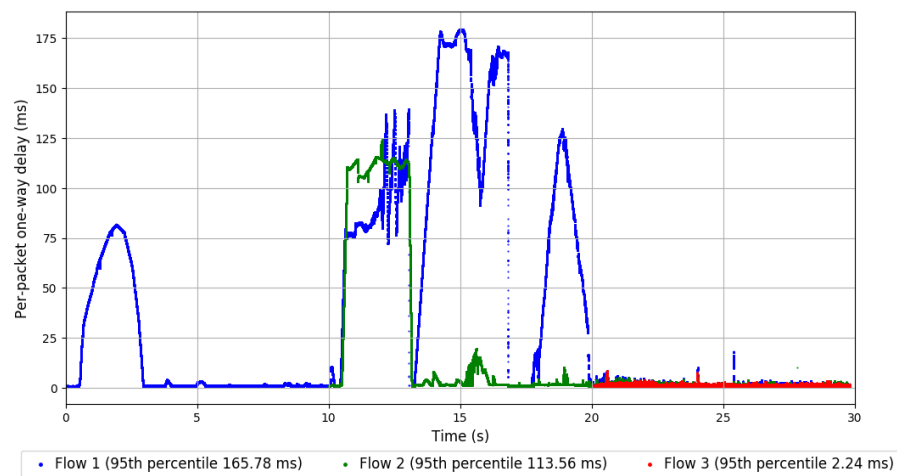
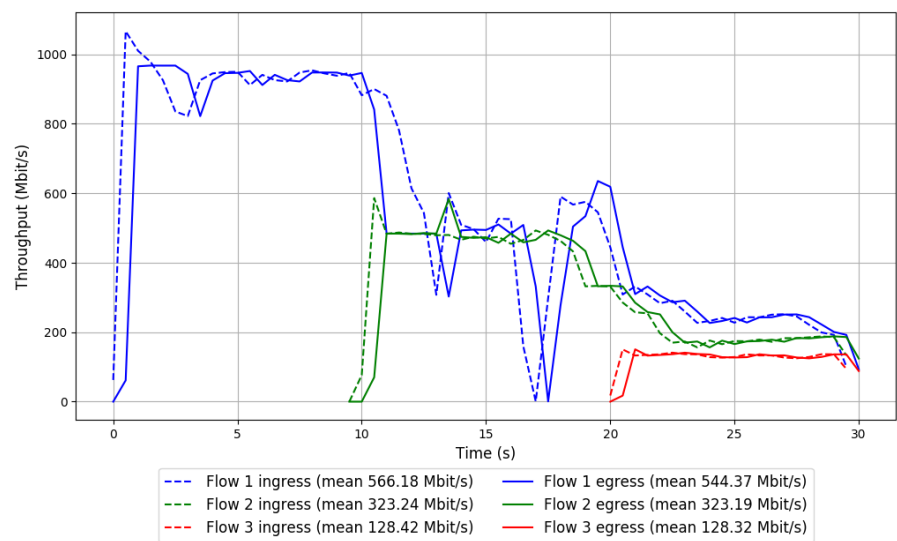


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 19:36:31
End at: 2018-09-06 19:37:01
Local clock offset: 3.282 ms
Remote clock offset: 3.599 ms

# Below is generated by plot.py at 2018-09-06 22:34:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 801.21 Mbit/s
95th percentile per-packet one-way delay: 134.386 ms
Loss rate: 2.75%
-- Flow 1:
Average throughput: 544.37 Mbit/s
95th percentile per-packet one-way delay: 165.775 ms
Loss rate: 3.94%
-- Flow 2:
Average throughput: 323.19 Mbit/s
95th percentile per-packet one-way delay: 113.555 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 128.32 Mbit/s
95th percentile per-packet one-way delay: 2.244 ms
Loss rate: 0.26%
```


Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 20:05:33

End at: 2018-09-06 20:06:03

Local clock offset: 3.616 ms

Remote clock offset: -0.6 ms

Below is generated by plot.py at 2018-09-06 22:34:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 678.80 Mbit/s

95th percentile per-packet one-way delay: 117.514 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 502.86 Mbit/s

95th percentile per-packet one-way delay: 118.196 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 224.00 Mbit/s

95th percentile per-packet one-way delay: 2.733 ms

Loss rate: 0.07%

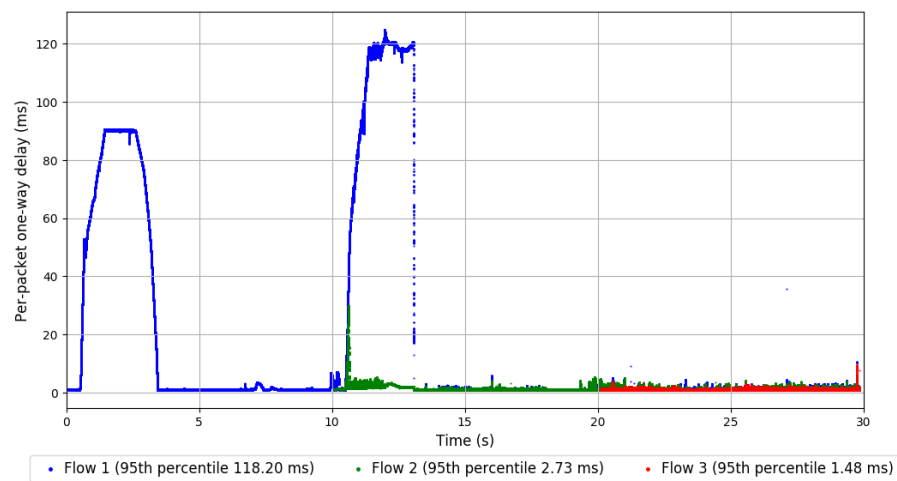
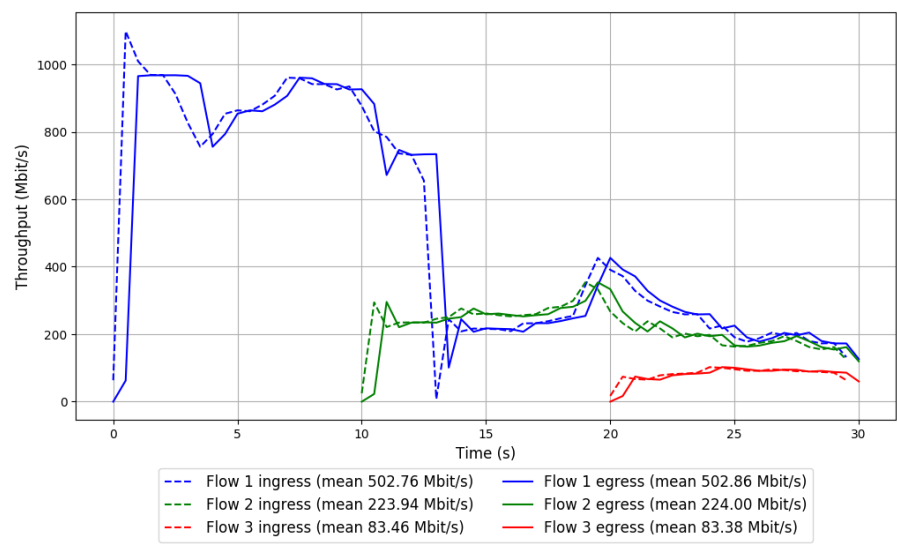
-- Flow 3:

Average throughput: 83.38 Mbit/s

95th percentile per-packet one-way delay: 1.480 ms

Loss rate: 0.22%

Run 2: Report of PCC-Allegro — Data Link

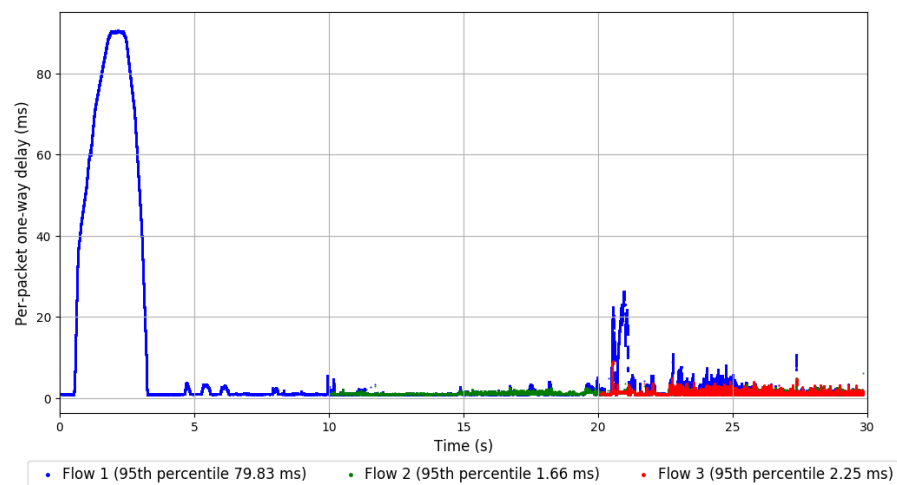
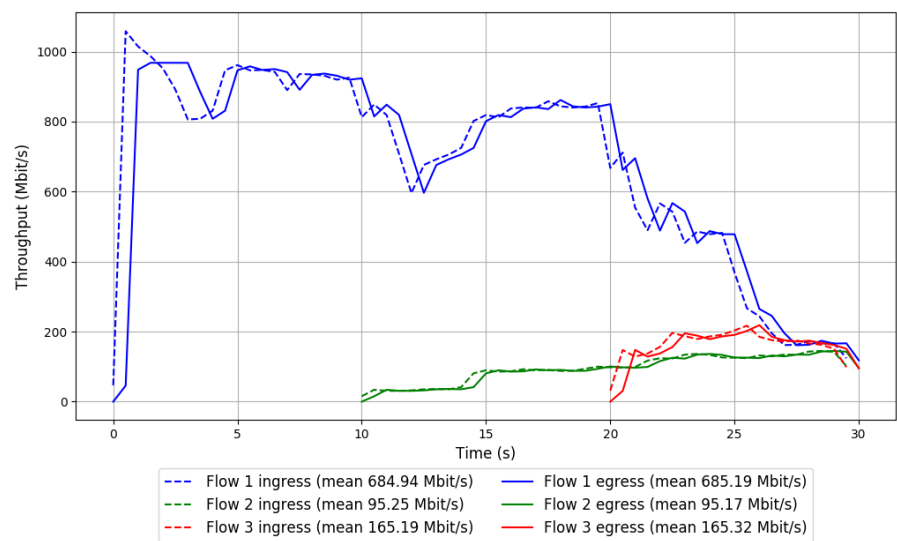


Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 20:34:36
End at: 2018-09-06 20:35:06
Local clock offset: 3.337 ms
Remote clock offset: -0.268 ms

Below is generated by plot.py at 2018-09-06 22:36:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 802.61 Mbit/s
95th percentile per-packet one-way delay: 75.817 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 685.19 Mbit/s
95th percentile per-packet one-way delay: 79.832 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 95.17 Mbit/s
95th percentile per-packet one-way delay: 1.658 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 165.32 Mbit/s
95th percentile per-packet one-way delay: 2.247 ms
Loss rate: 0.12%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 21:03:53

End at: 2018-09-06 21:04:23

Local clock offset: 3.177 ms

Remote clock offset: 3.038 ms

Below is generated by plot.py at 2018-09-06 22:36:13

Datalink statistics

-- Total of 3 flows:

Average throughput: 772.63 Mbit/s

95th percentile per-packet one-way delay: 16.974 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 661.49 Mbit/s

95th percentile per-packet one-way delay: 19.003 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 132.24 Mbit/s

95th percentile per-packet one-way delay: 1.888 ms

Loss rate: 0.10%

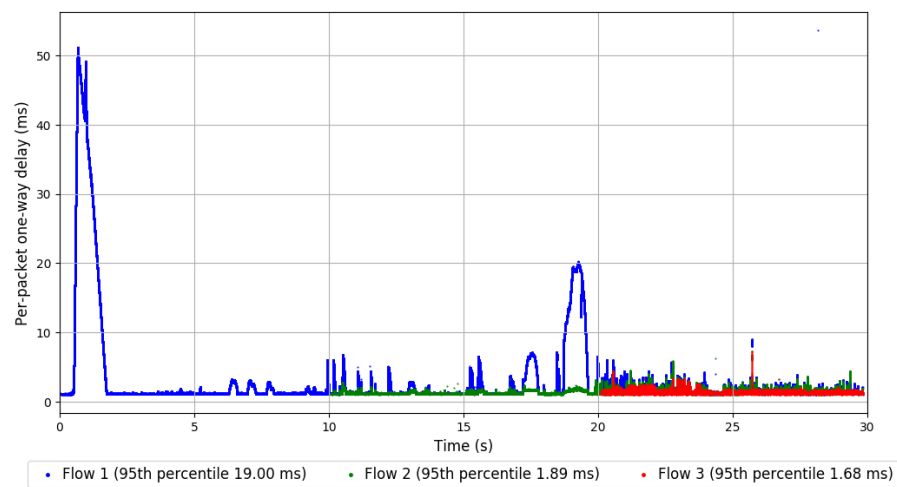
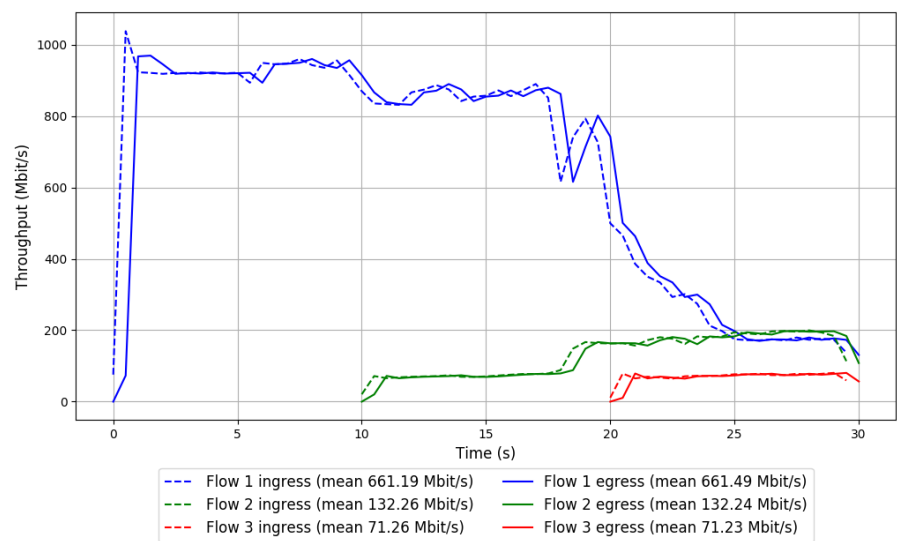
-- Flow 3:

Average throughput: 71.23 Mbit/s

95th percentile per-packet one-way delay: 1.684 ms

Loss rate: 0.23%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 21:33:00

End at: 2018-09-06 21:33:30

Local clock offset: 3.137 ms

Remote clock offset: 0.767 ms

Below is generated by plot.py at 2018-09-06 22:36:35

Datalink statistics

-- Total of 3 flows:

Average throughput: 791.95 Mbit/s

95th percentile per-packet one-way delay: 80.301 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 608.00 Mbit/s

95th percentile per-packet one-way delay: 86.762 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 155.81 Mbit/s

95th percentile per-packet one-way delay: 2.466 ms

Loss rate: 0.10%

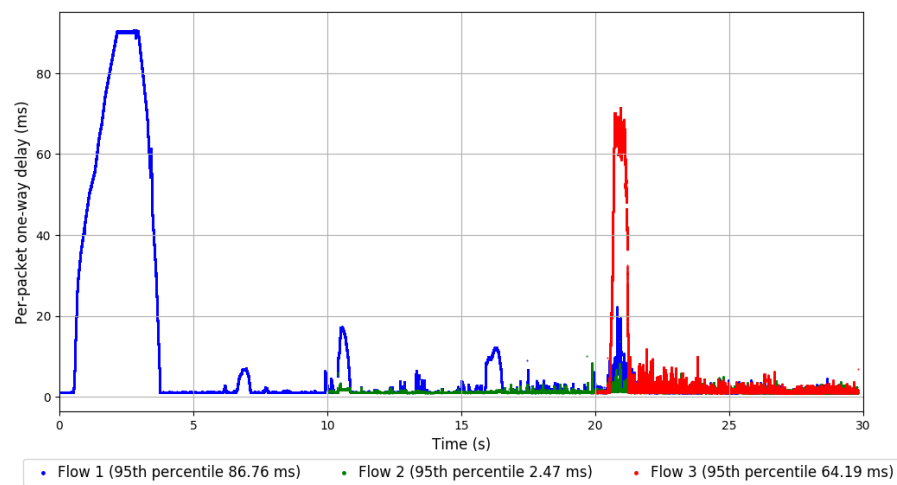
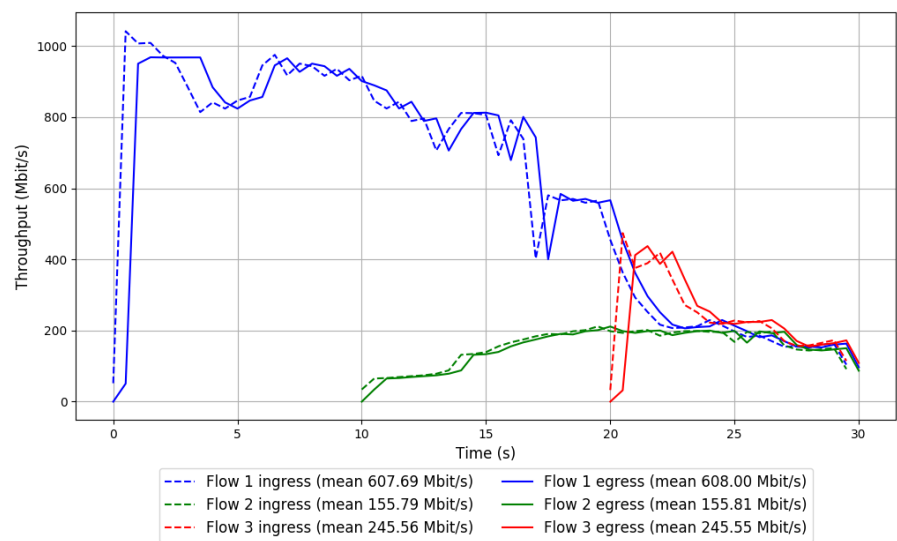
-- Flow 3:

Average throughput: 245.55 Mbit/s

95th percentile per-packet one-way delay: 64.195 ms

Loss rate: 0.15%

Run 5: Report of PCC-Allegro — Data Link

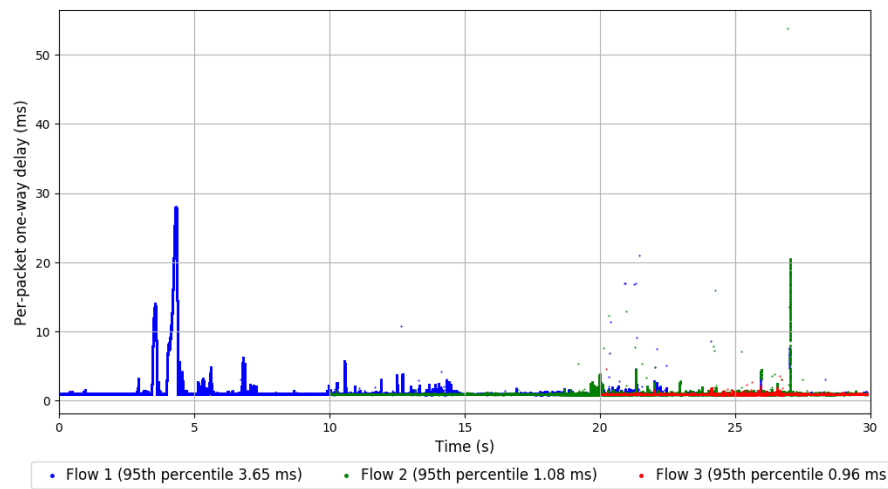
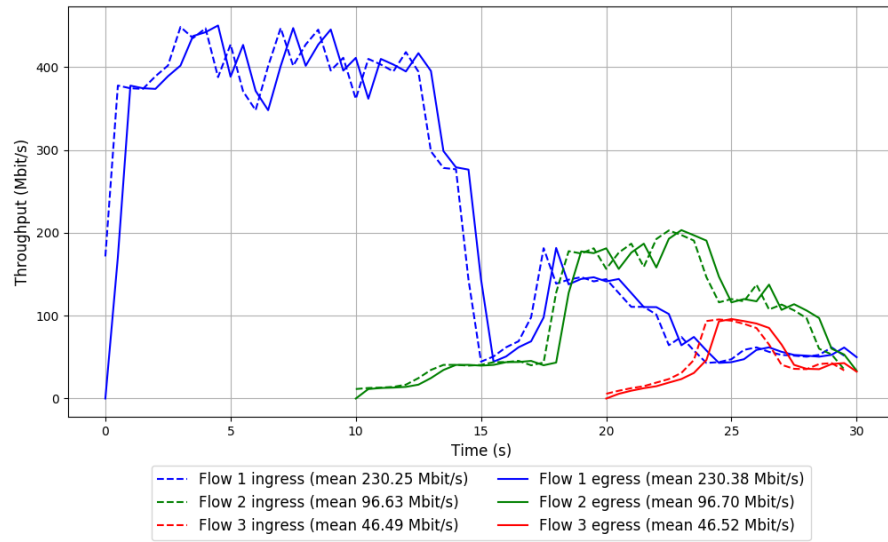


```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 19:31:31
End at: 2018-09-06 19:32:01
Local clock offset: 2.882 ms
Remote clock offset: 3.425 ms

# Below is generated by plot.py at 2018-09-06 22:36:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 309.95 Mbit/s
95th percentile per-packet one-way delay: 2.425 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 230.38 Mbit/s
95th percentile per-packet one-way delay: 3.654 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 96.70 Mbit/s
95th percentile per-packet one-way delay: 1.079 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 46.52 Mbit/s
95th percentile per-packet one-way delay: 0.961 ms
Loss rate: 0.18%
```

Run 1: Report of PCC-Expr — Data Link

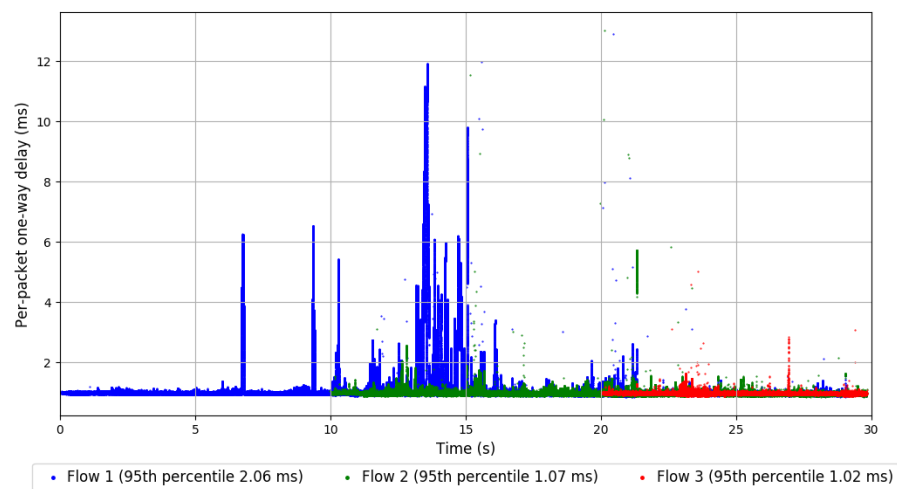
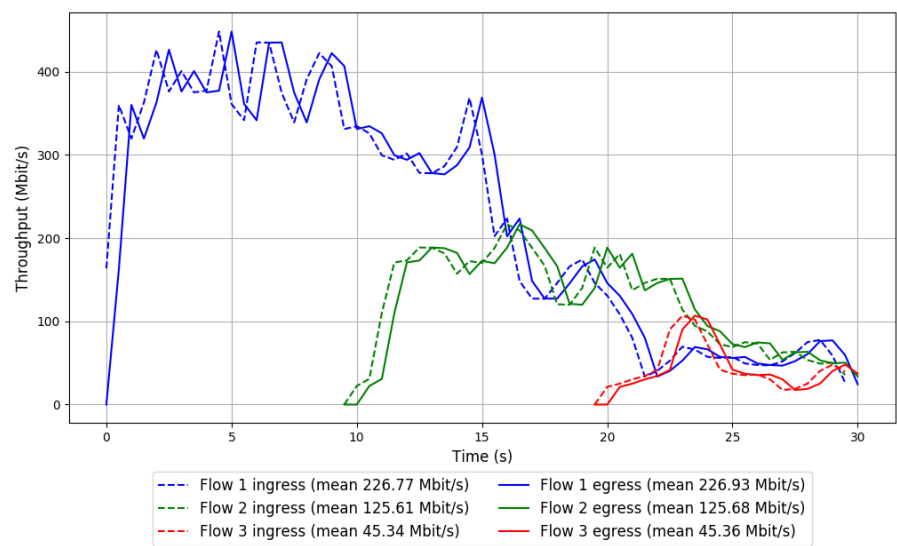


Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 20:00:32
End at: 2018-09-06 20:01:02
Local clock offset: 3.56 ms
Remote clock offset: -0.368 ms

Below is generated by plot.py at 2018-09-06 22:36:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 325.47 Mbit/s
95th percentile per-packet one-way delay: 1.352 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 226.93 Mbit/s
95th percentile per-packet one-way delay: 2.057 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 125.68 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 45.36 Mbit/s
95th percentile per-packet one-way delay: 1.025 ms
Loss rate: 0.27%

Run 2: Report of PCC-Expr — Data Link

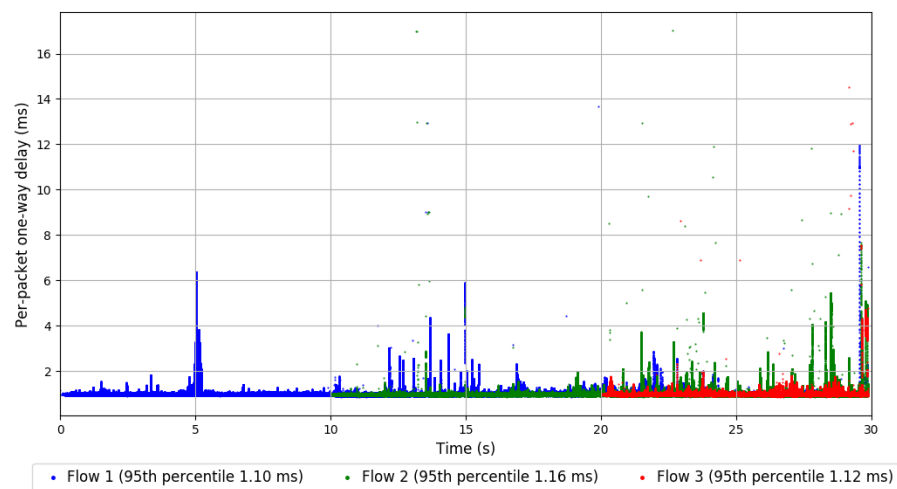
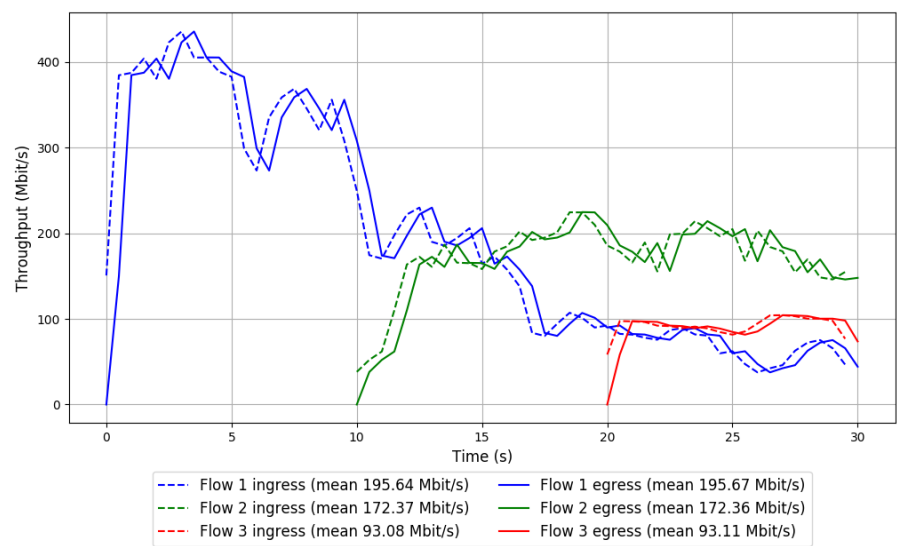


Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 20:29:34
End at: 2018-09-06 20:30:04
Local clock offset: 3.262 ms
Remote clock offset: -0.336 ms

Below is generated by plot.py at 2018-09-06 22:39:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 340.91 Mbit/s
95th percentile per-packet one-way delay: 1.119 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 195.67 Mbit/s
95th percentile per-packet one-way delay: 1.102 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 172.36 Mbit/s
95th percentile per-packet one-way delay: 1.159 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 93.11 Mbit/s
95th percentile per-packet one-way delay: 1.116 ms
Loss rate: 0.17%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 20:58:47

End at: 2018-09-06 20:59:17

Local clock offset: 3.174 ms

Remote clock offset: 2.478 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 362.05 Mbit/s

95th percentile per-packet one-way delay: 1.563 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 274.05 Mbit/s

95th percentile per-packet one-way delay: 1.740 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 101.84 Mbit/s

95th percentile per-packet one-way delay: 1.168 ms

Loss rate: 0.06%

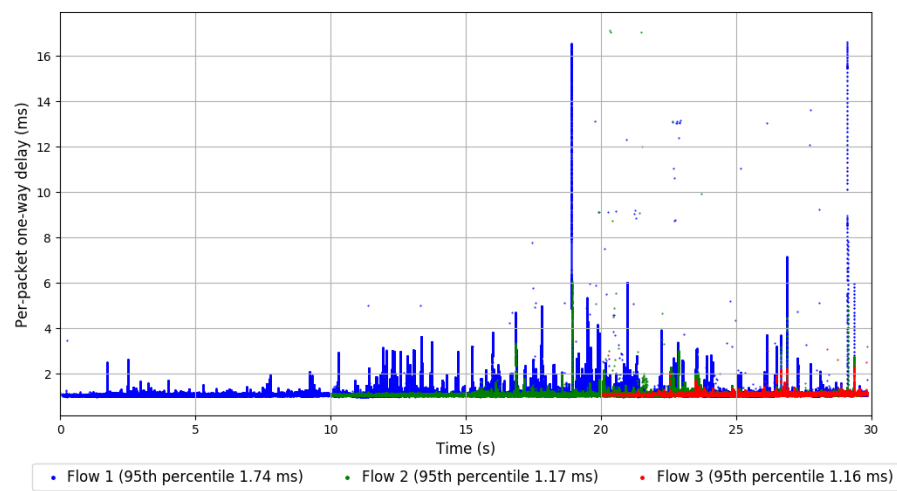
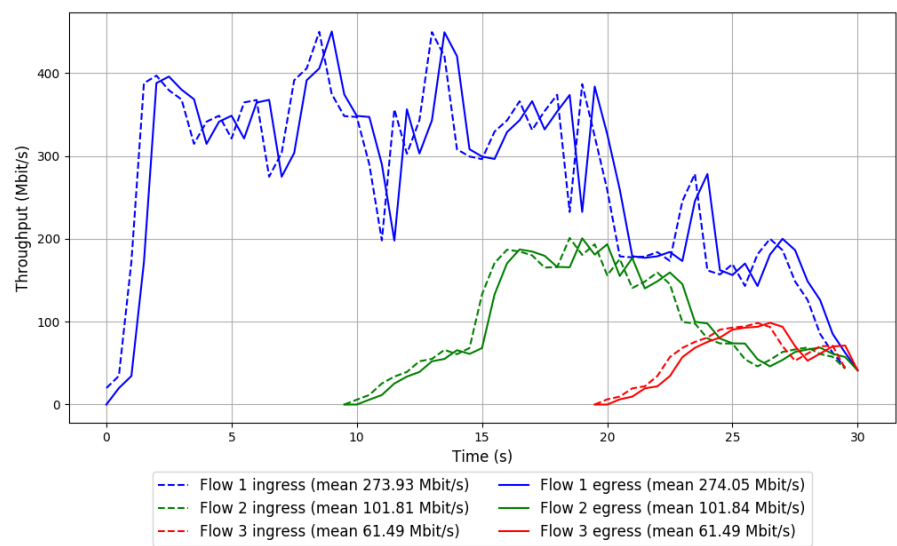
-- Flow 3:

Average throughput: 61.49 Mbit/s

95th percentile per-packet one-way delay: 1.159 ms

Loss rate: 0.20%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 21:28:00

End at: 2018-09-06 21:28:30

Local clock offset: 3.108 ms

Remote clock offset: 1.831 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 277.55 Mbit/s

95th percentile per-packet one-way delay: 0.966 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 212.53 Mbit/s

95th percentile per-packet one-way delay: 0.983 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 67.53 Mbit/s

95th percentile per-packet one-way delay: 0.891 ms

Loss rate: 0.08%

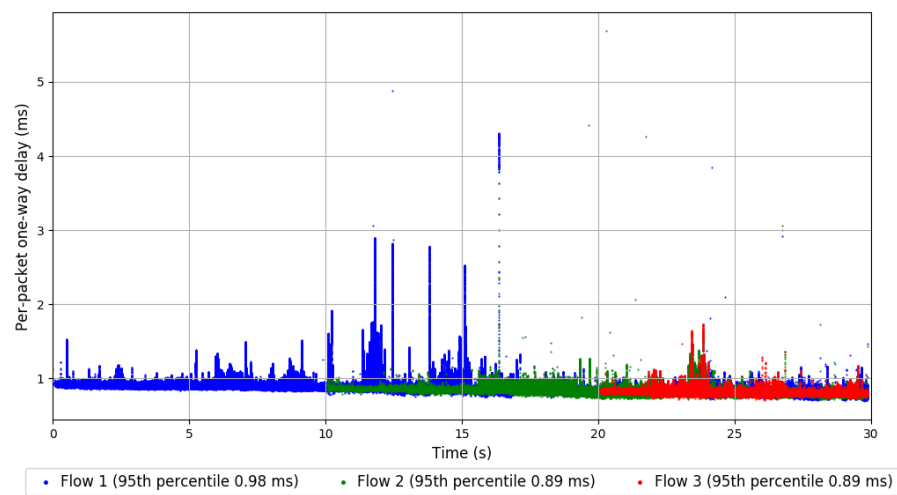
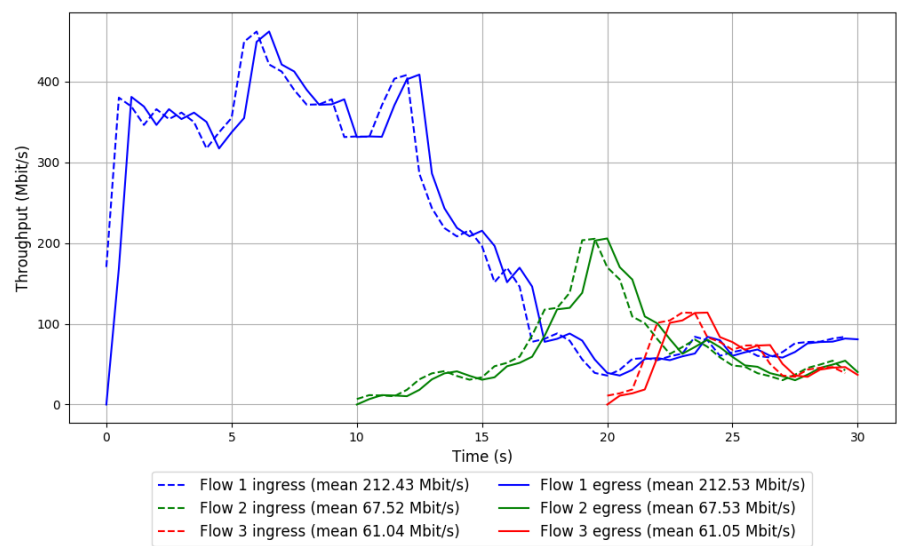
-- Flow 3:

Average throughput: 61.05 Mbit/s

95th percentile per-packet one-way delay: 0.893 ms

Loss rate: 0.18%

Run 5: Report of PCC-Expr — Data Link



Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 19:12:37

End at: 2018-09-06 19:13:07

Local clock offset: -0.855 ms

Remote clock offset: 1.266 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 133.55 Mbit/s

95th percentile per-packet one-way delay: 1.110 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 71.31 Mbit/s

95th percentile per-packet one-way delay: 1.102 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 65.31 Mbit/s

95th percentile per-packet one-way delay: 1.112 ms

Loss rate: 0.07%

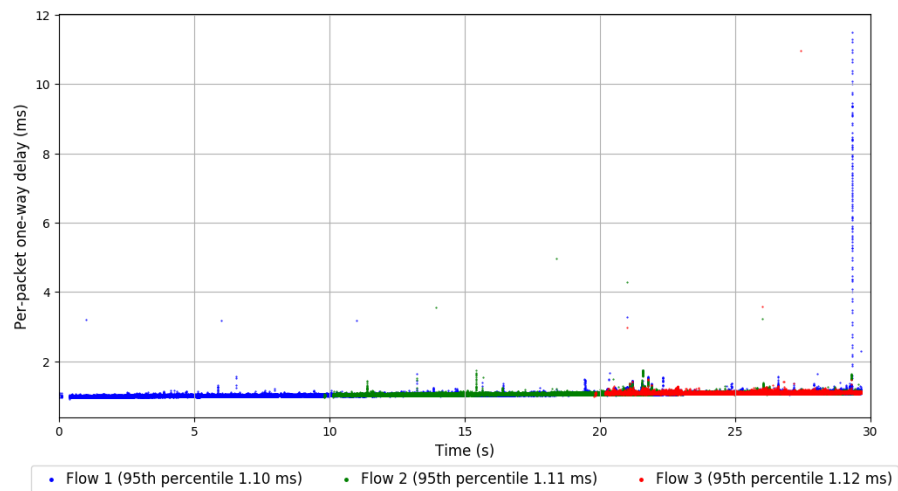
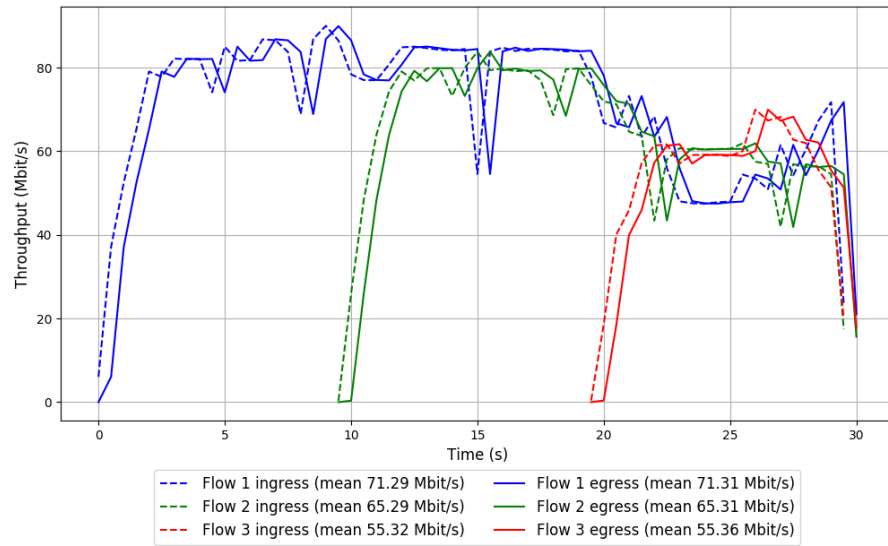
-- Flow 3:

Average throughput: 55.36 Mbit/s

95th percentile per-packet one-way delay: 1.120 ms

Loss rate: 0.21%

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 19:41:36

End at: 2018-09-06 19:42:06

Local clock offset: 3.482 ms

Remote clock offset: 2.476 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 134.36 Mbit/s

95th percentile per-packet one-way delay: 0.881 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 74.52 Mbit/s

95th percentile per-packet one-way delay: 0.890 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 62.37 Mbit/s

95th percentile per-packet one-way delay: 0.850 ms

Loss rate: 0.10%

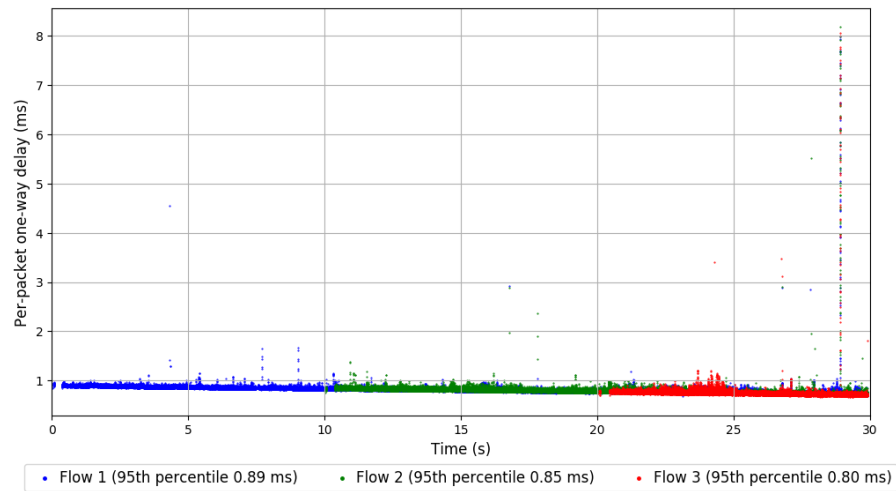
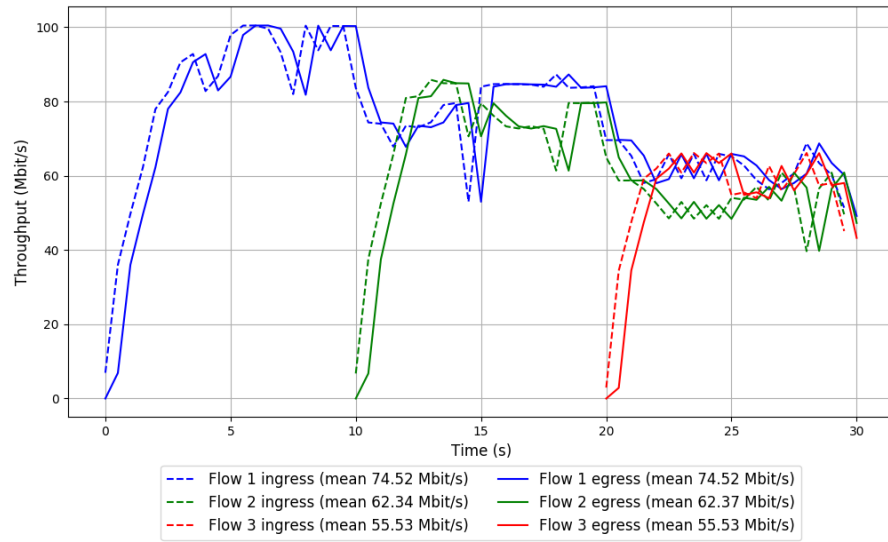
-- Flow 3:

Average throughput: 55.53 Mbit/s

95th percentile per-packet one-way delay: 0.796 ms

Loss rate: 0.18%

Run 2: Report of QUIC Cubic — Data Link

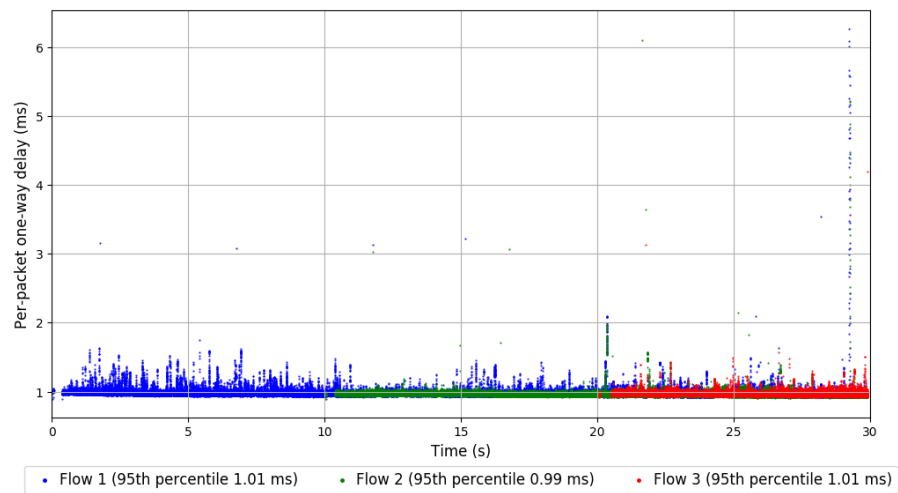
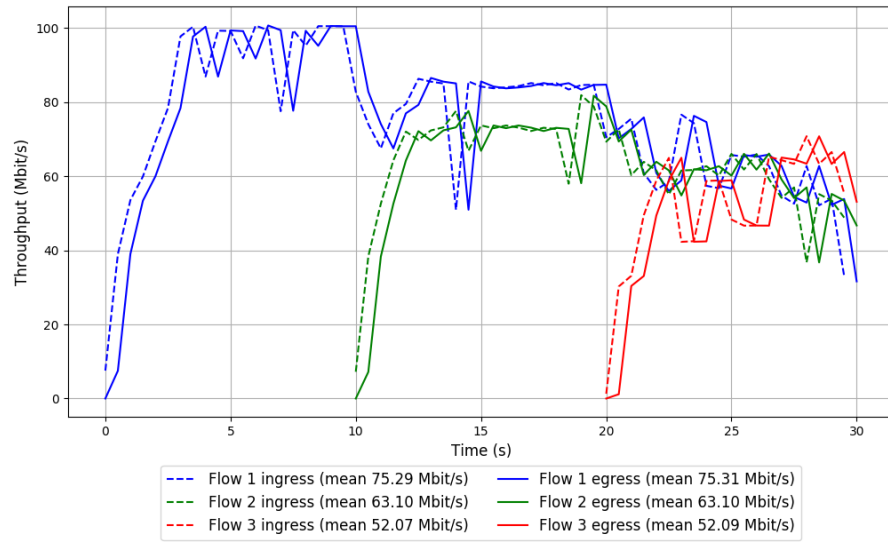


Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 20:10:38
End at: 2018-09-06 20:11:08
Local clock offset: 3.703 ms
Remote clock offset: -0.804 ms

Below is generated by plot.py at 2018-09-06 22:41:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 134.48 Mbit/s
95th percentile per-packet one-way delay: 1.005 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 75.31 Mbit/s
95th percentile per-packet one-way delay: 1.012 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 63.10 Mbit/s
95th percentile per-packet one-way delay: 0.994 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 52.09 Mbit/s
95th percentile per-packet one-way delay: 1.012 ms
Loss rate: 0.24%

Run 3: Report of QUIC Cubic — Data Link

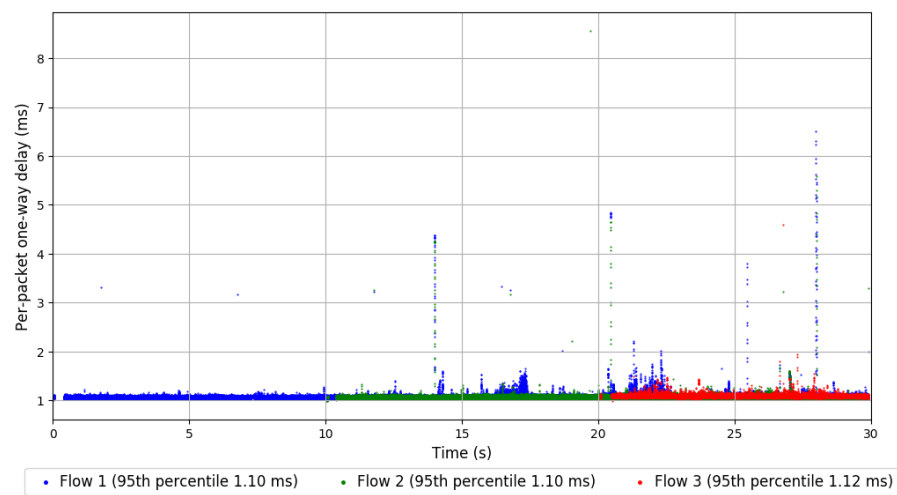
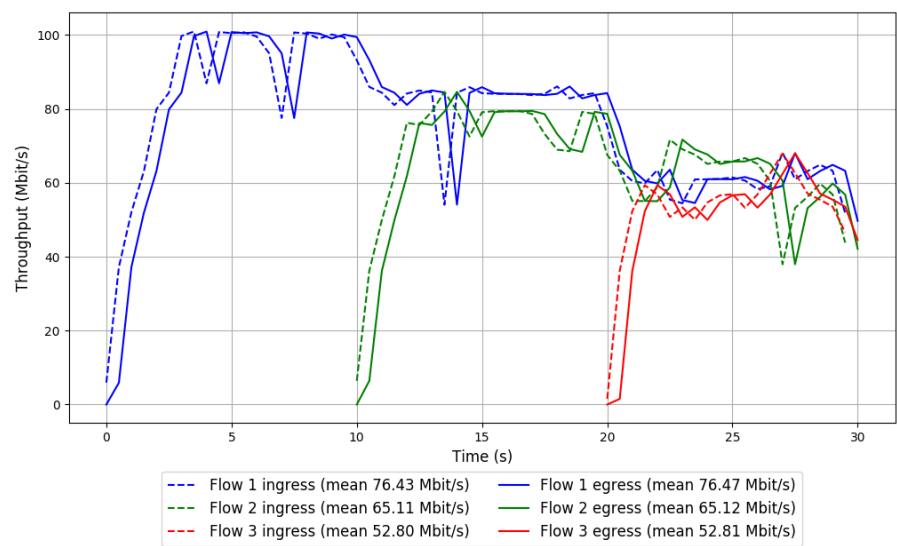


Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 20:39:45
End at: 2018-09-06 20:40:15
Local clock offset: 3.353 ms
Remote clock offset: -0.406 ms

Below is generated by plot.py at 2018-09-06 22:41:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 137.20 Mbit/s
95th percentile per-packet one-way delay: 1.104 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 76.47 Mbit/s
95th percentile per-packet one-way delay: 1.098 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 65.12 Mbit/s
95th percentile per-packet one-way delay: 1.097 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 52.81 Mbit/s
95th percentile per-packet one-way delay: 1.121 ms
Loss rate: 0.21%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 21:09:03

End at: 2018-09-06 21:09:33

Local clock offset: 3.137 ms

Remote clock offset: 3.547 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 132.37 Mbit/s

95th percentile per-packet one-way delay: 0.979 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 70.88 Mbit/s

95th percentile per-packet one-way delay: 0.969 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 63.94 Mbit/s

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

Loss rate: 0.10%

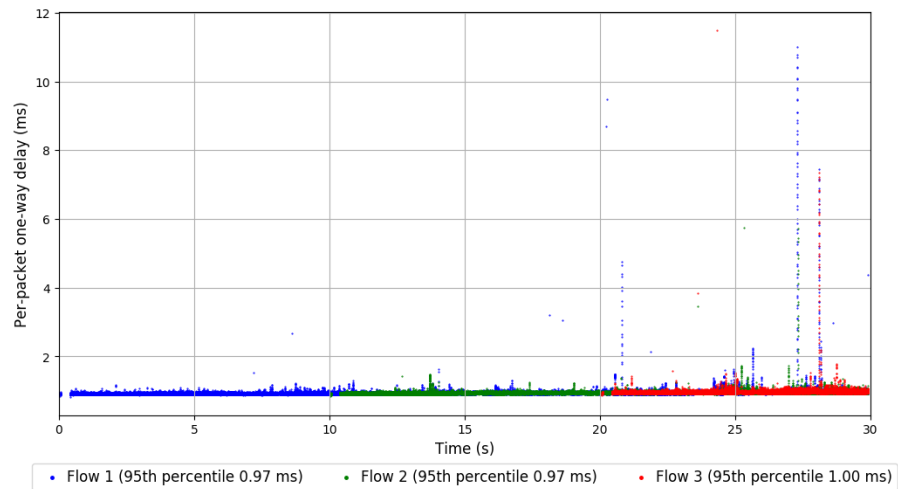
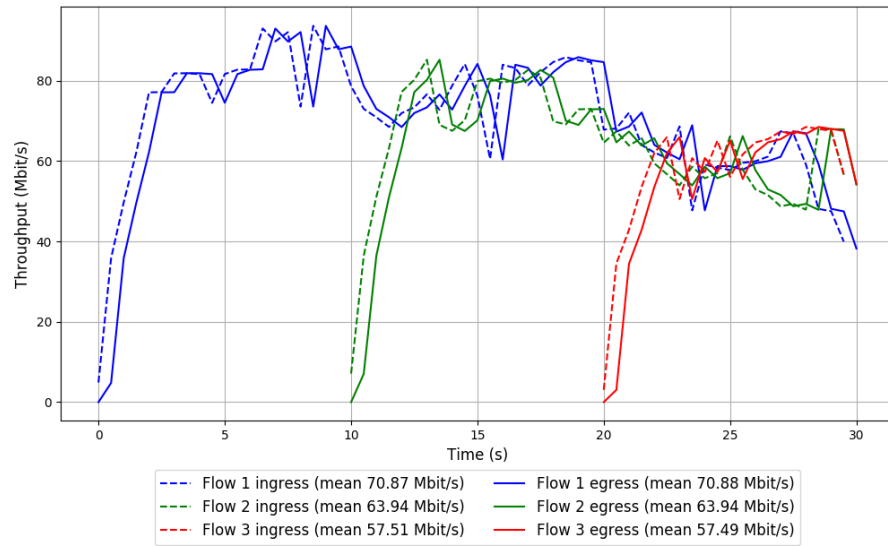
-- Flow 3:

Average throughput: 57.49 Mbit/s

95th percentile per-packet one-way delay: 1.004 ms

Loss rate: 0.22%

Run 5: Report of QUIC Cubic — Data Link

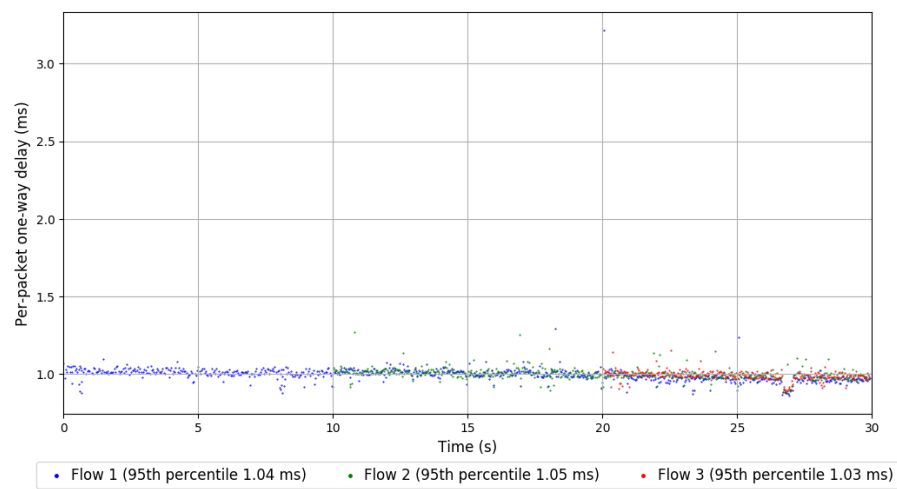
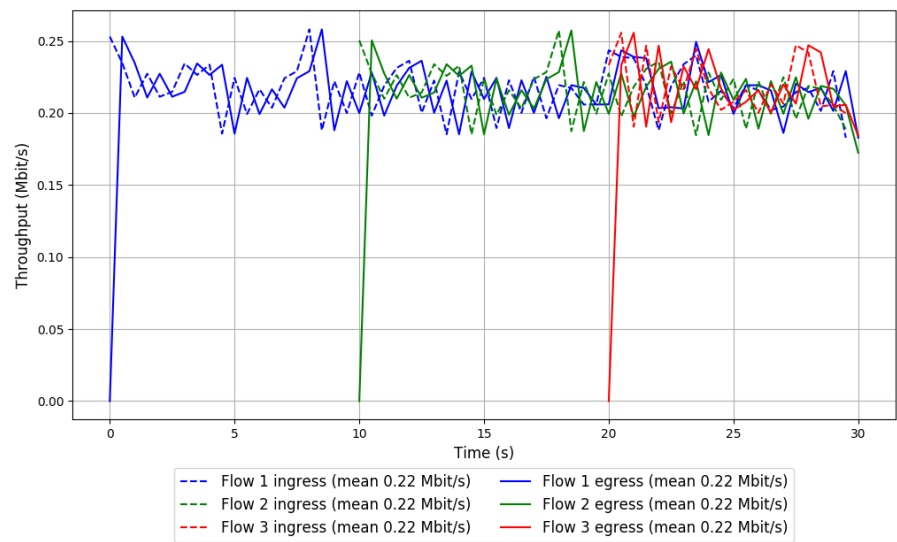


```
Run 1: Statistics of SReAM

Start at: 2018-09-06 19:23:50
End at: 2018-09-06 19:24:20
Local clock offset: 1.789 ms
Remote clock offset: 2.799 ms

# Below is generated by plot.py at 2018-09-06 22:41:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.042 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.044 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.049 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.029 ms
Loss rate: 0.35%
```

Run 1: Report of SReAM — Data Link

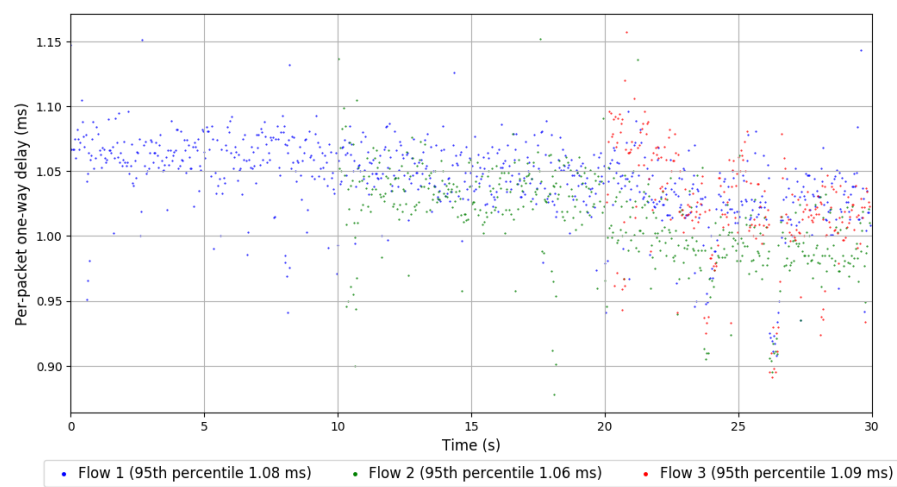
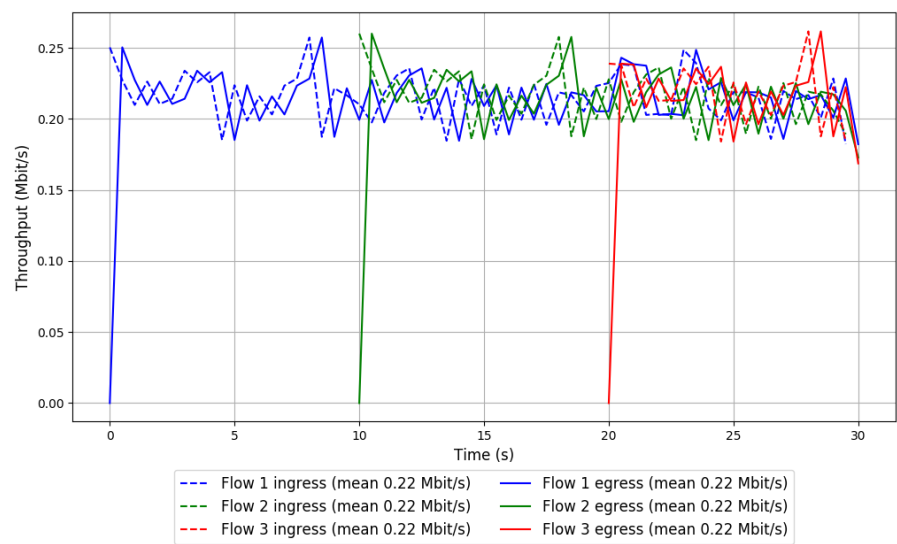


```
Run 2: Statistics of SReAM

Start at: 2018-09-06 19:52:51
End at: 2018-09-06 19:53:21
Local clock offset: 3.568 ms
Remote clock offset: 0.331 ms

# Below is generated by plot.py at 2018-09-06 22:41:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.082 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.060 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.087 ms
Loss rate: 0.35%
```


Run 2: Report of SReAM — Data Link

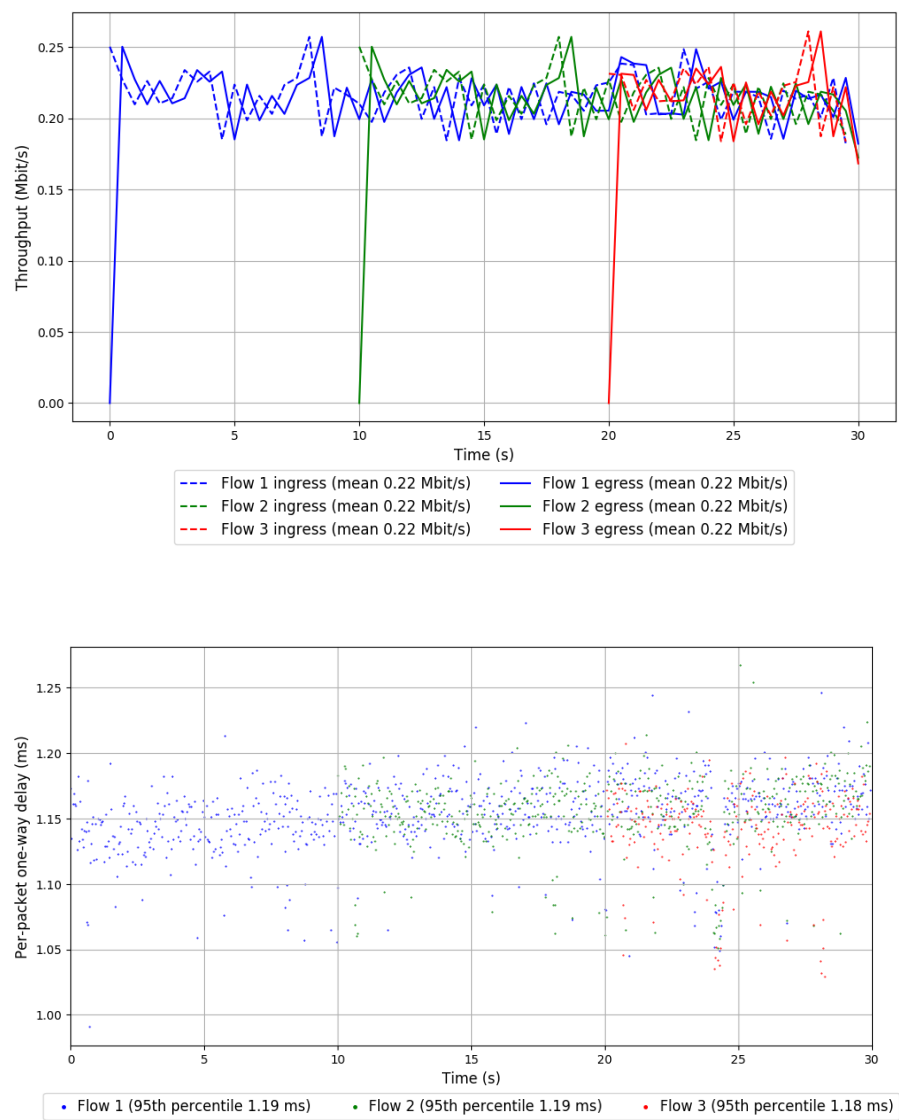


Run 3: Statistics of SReAM

Start at: 2018-09-06 20:21:53
End at: 2018-09-06 20:22:23
Local clock offset: 3.436 ms
Remote clock offset: -0.419 ms

Below is generated by plot.py at 2018-09-06 22:41:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.181 ms
Loss rate: 0.35%

Run 3: Report of SReAM — Data Link

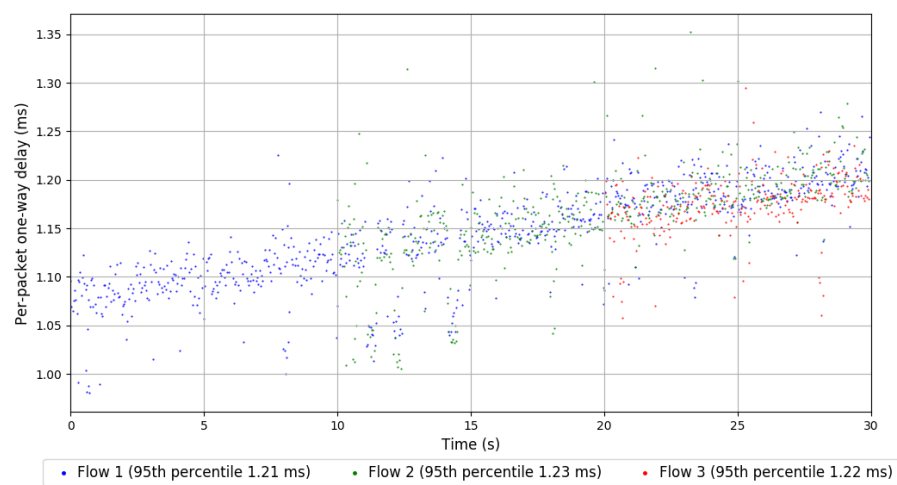
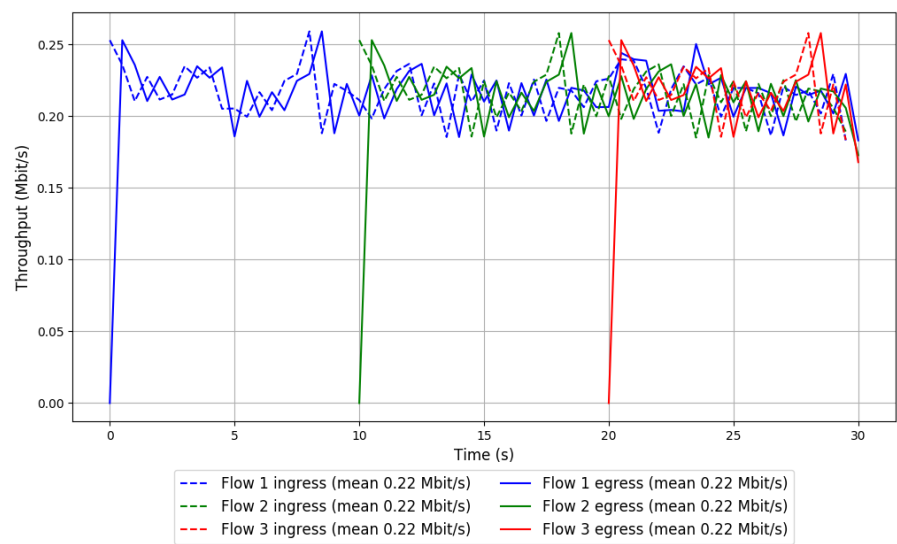


Run 4: Statistics of SReAM

Start at: 2018-09-06 20:51:03
End at: 2018-09-06 20:51:33
Local clock offset: 3.165 ms
Remote clock offset: 1.0 ms

Below is generated by plot.py at 2018-09-06 22:41:26
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.217 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.214 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.227 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.216 ms
Loss rate: 0.35%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-09-06 21:20:16

End at: 2018-09-06 21:20:46

Local clock offset: 3.083 ms

Remote clock offset: 4.247 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.43 Mbit/s

95th percentile per-packet one-way delay: 1.170 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.177 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.153 ms

Loss rate: 0.19%

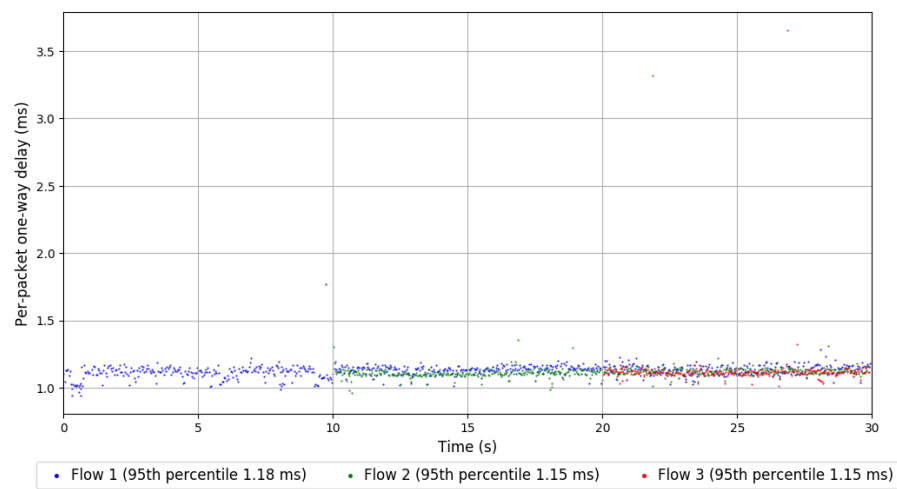
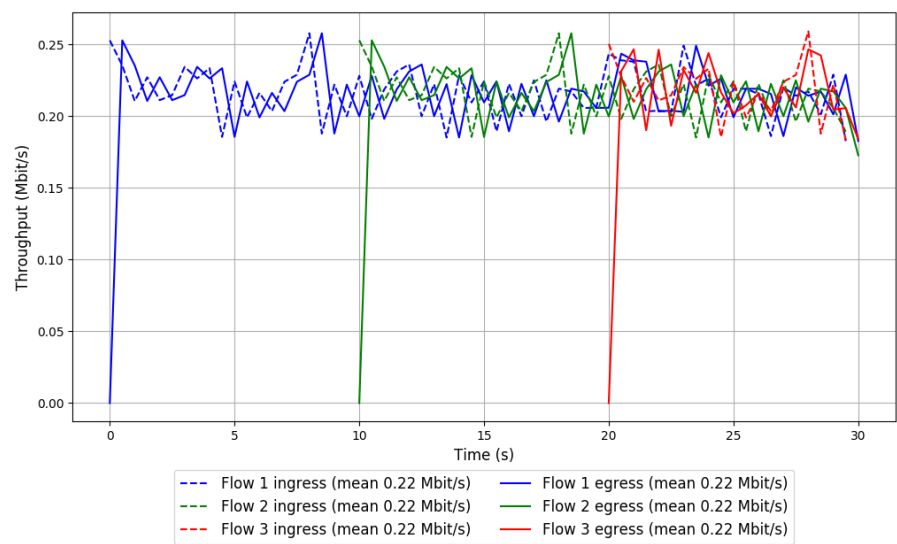
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 1.151 ms

Loss rate: 0.36%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-06 19:26:50

End at: 2018-09-06 19:27:20

Local clock offset: 2.349 ms

Remote clock offset: 3.114 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.57 Mbit/s

95th percentile per-packet one-way delay: 0.984 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 17.46 Mbit/s

95th percentile per-packet one-way delay: 0.993 ms

Loss rate: 0.85%

-- Flow 2:

Average throughput: 21.04 Mbit/s

95th percentile per-packet one-way delay: 0.983 ms

Loss rate: 0.00%

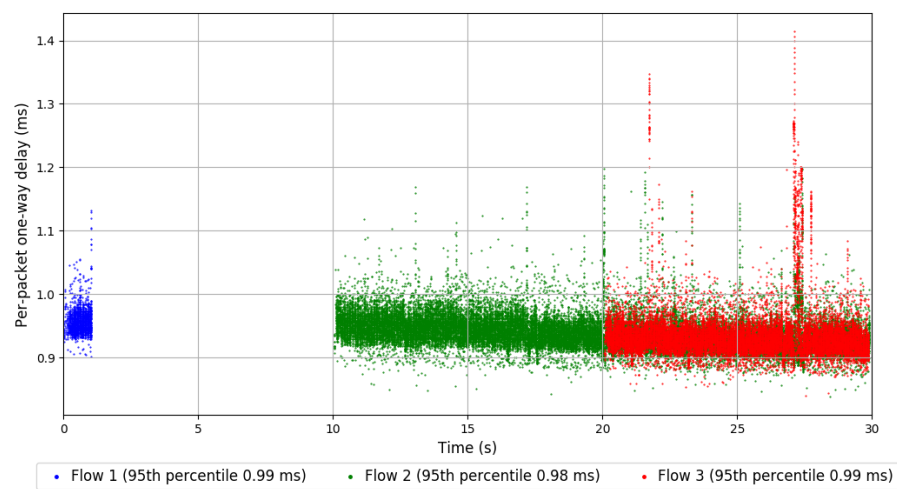
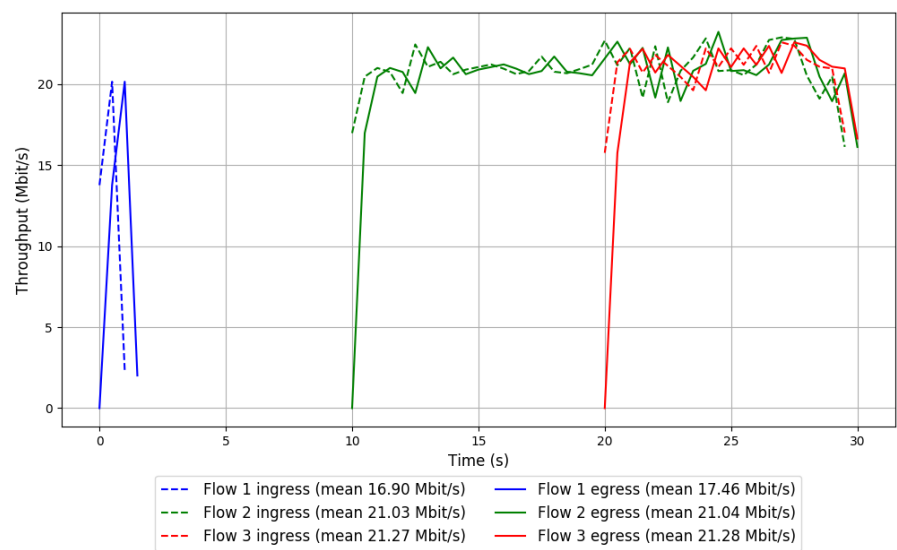
-- Flow 3:

Average throughput: 21.28 Mbit/s

95th percentile per-packet one-way delay: 0.987 ms

Loss rate: 0.09%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2018-09-06 19:55:50

End at: 2018-09-06 19:56:20

Local clock offset: 3.598 ms

Remote clock offset: 0.037 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.78 Mbit/s

95th percentile per-packet one-way delay: 1.052 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 20.51 Mbit/s

95th percentile per-packet one-way delay: 1.073 ms

Loss rate: 2.63%

-- Flow 2:

Average throughput: 21.23 Mbit/s

95th percentile per-packet one-way delay: 1.057 ms

Loss rate: 0.00%

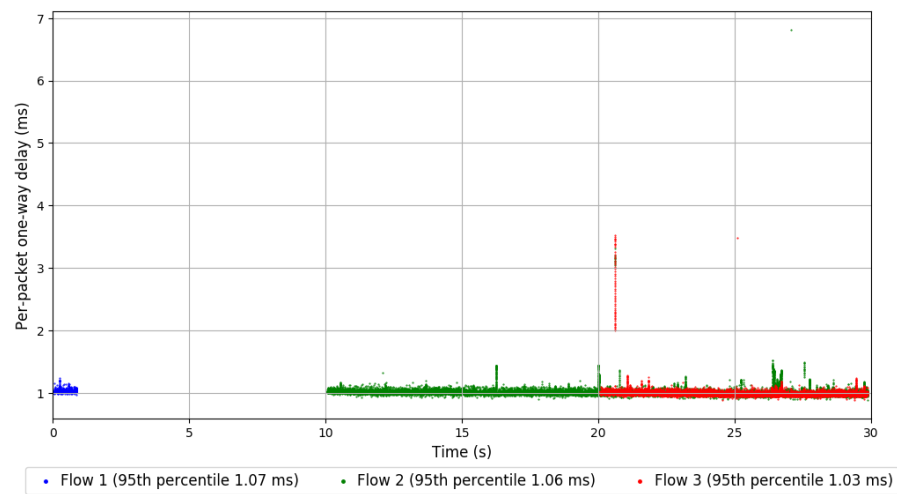
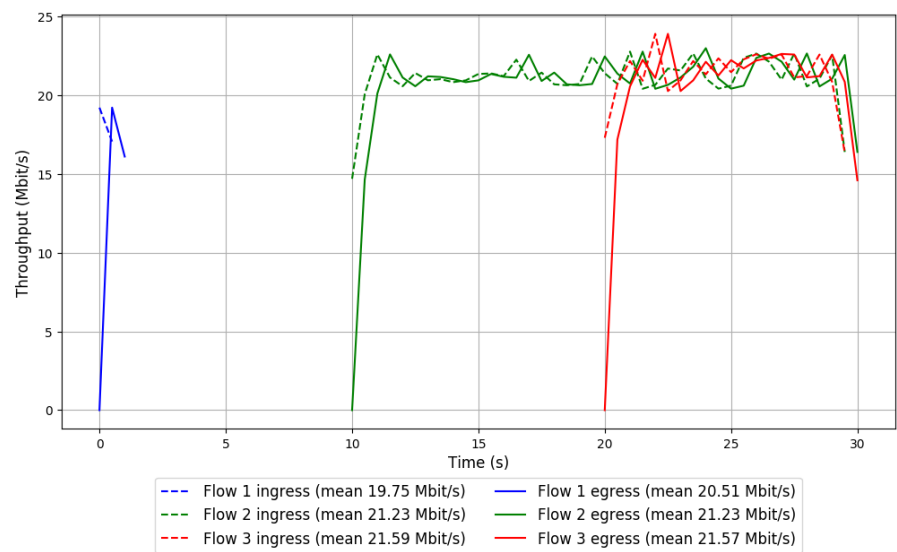
-- Flow 3:

Average throughput: 21.57 Mbit/s

95th percentile per-packet one-way delay: 1.034 ms

Loss rate: 0.41%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2018-09-06 20:24:53

End at: 2018-09-06 20:25:23

Local clock offset: 3.408 ms

Remote clock offset: -0.31 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.73 Mbit/s

95th percentile per-packet one-way delay: 1.112 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 19.61 Mbit/s

95th percentile per-packet one-way delay: 1.212 ms

Loss rate: 2.65%

-- Flow 2:

Average throughput: 21.05 Mbit/s

95th percentile per-packet one-way delay: 1.099 ms

Loss rate: 0.20%

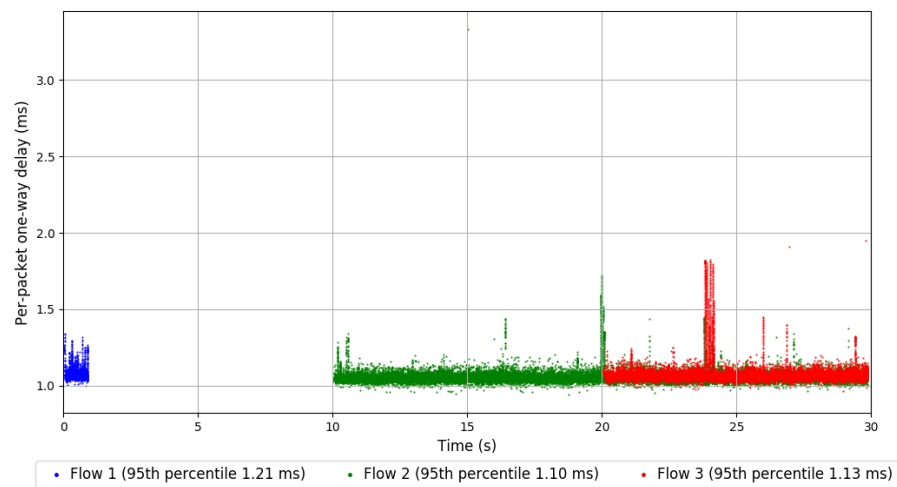
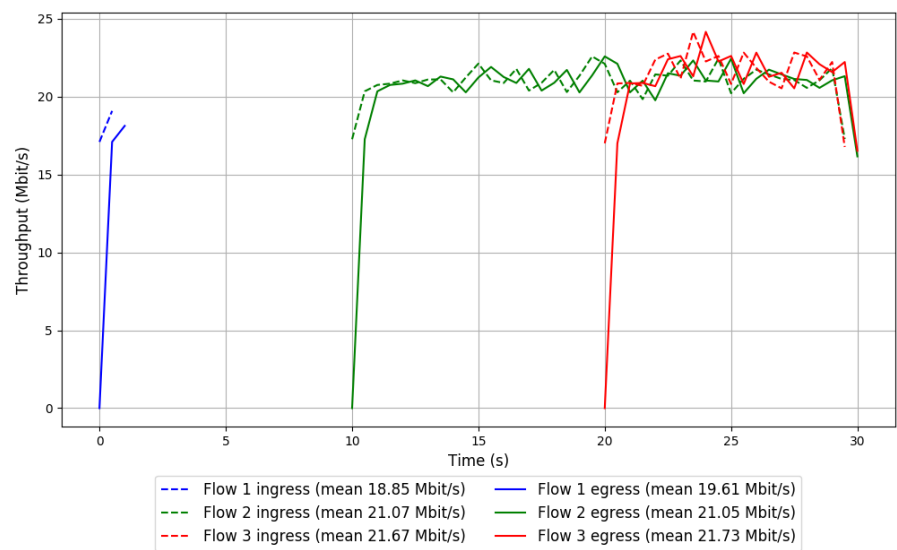
-- Flow 3:

Average throughput: 21.73 Mbit/s

95th percentile per-packet one-way delay: 1.126 ms

Loss rate: 0.06%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-06 20:54:04

End at: 2018-09-06 20:54:34

Local clock offset: 3.129 ms

Remote clock offset: 1.657 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.15 Mbit/s

95th percentile per-packet one-way delay: 1.157 ms

Loss rate: 0.24%

-- Flow 1:

Average throughput: 18.50 Mbit/s

95th percentile per-packet one-way delay: 1.103 ms

Loss rate: 2.61%

-- Flow 2:

Average throughput: 20.77 Mbit/s

95th percentile per-packet one-way delay: 1.158 ms

Loss rate: 0.00%

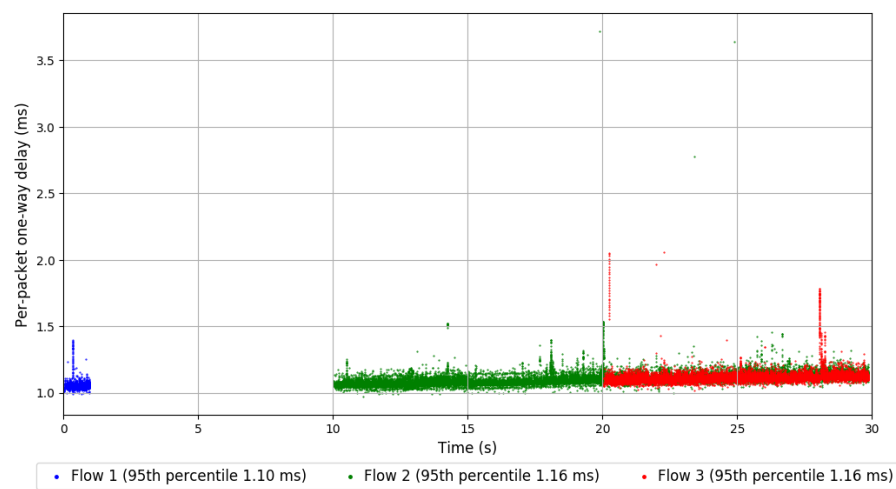
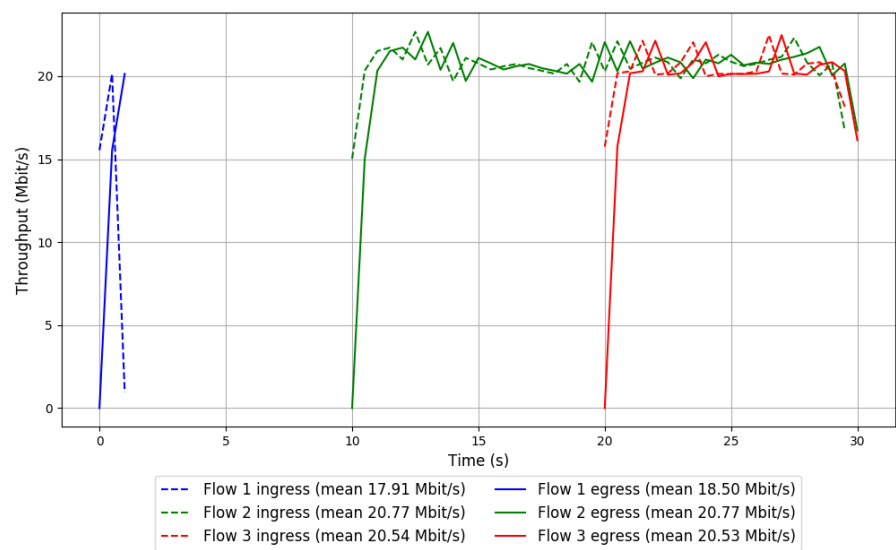
-- Flow 3:

Average throughput: 20.53 Mbit/s

95th percentile per-packet one-way delay: 1.156 ms

Loss rate: 0.52%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-06 21:23:17

End at: 2018-09-06 21:23:47

Local clock offset: 3.126 ms

Remote clock offset: 3.286 ms

Below is generated by plot.py at 2018-09-06 22:41:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 21.66 Mbit/s

95th percentile per-packet one-way delay: 0.928 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 18.91 Mbit/s

95th percentile per-packet one-way delay: 0.980 ms

Loss rate: 0.85%

-- Flow 2:

Average throughput: 21.10 Mbit/s

95th percentile per-packet one-way delay: 0.913 ms

Loss rate: 0.04%

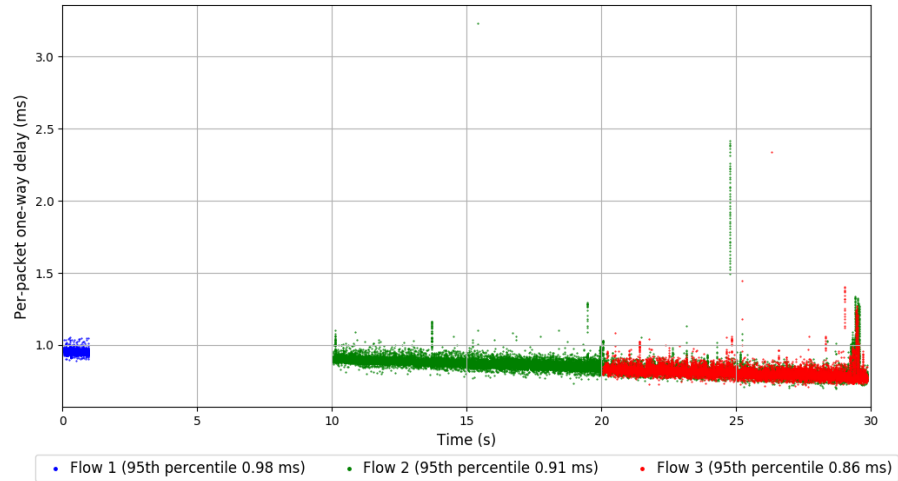
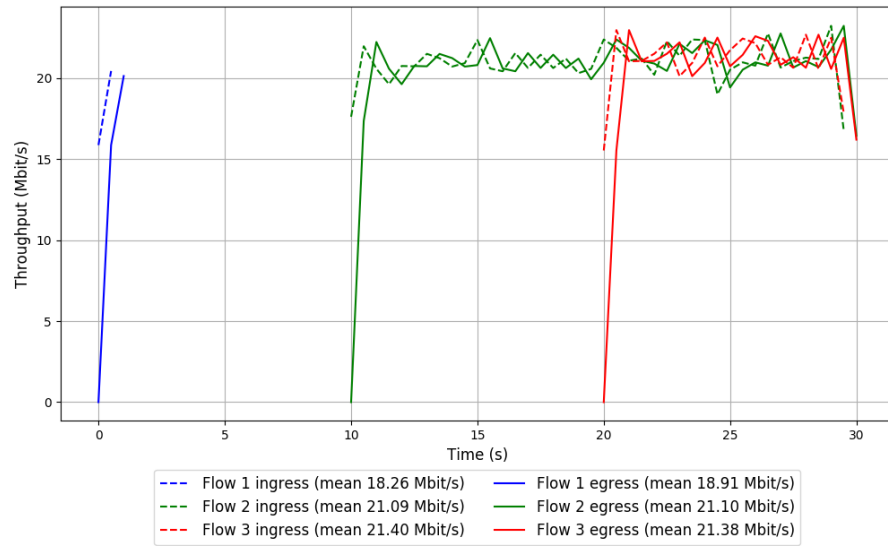
-- Flow 3:

Average throughput: 21.38 Mbit/s

95th percentile per-packet one-way delay: 0.865 ms

Loss rate: 0.39%

Run 5: Report of Sprout — Data Link



Run 1: Statistics of TaoVA-100x

Start at: 2018-09-06 19:14:01

End at: 2018-09-06 19:14:31

Local clock offset: -0.905 ms

Remote clock offset: 1.533 ms

Below is generated by plot.py at 2018-09-06 22:45:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 388.54 Mbit/s

95th percentile per-packet one-way delay: 1.114 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 223.08 Mbit/s

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

Loss rate: 0.02%

-- Flow 2:

Average throughput: 202.72 Mbit/s

95th percentile per-packet one-way delay: 1.112 ms

Loss rate: 0.14%

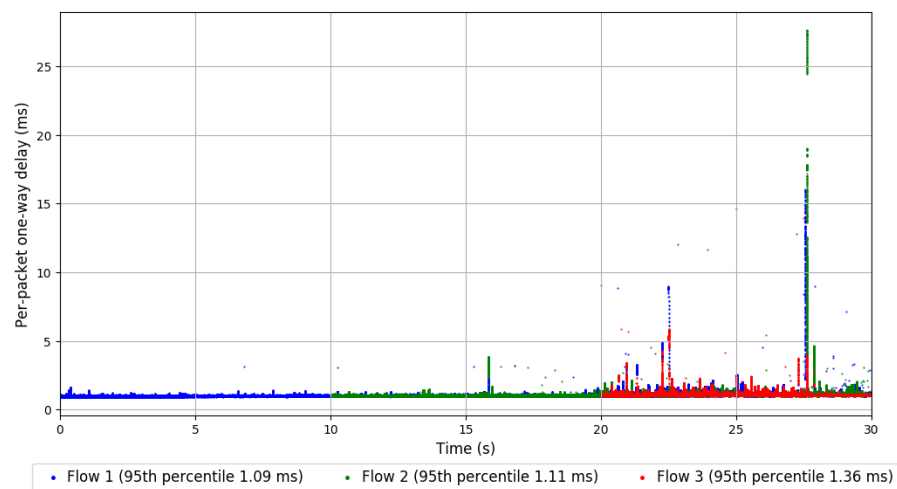
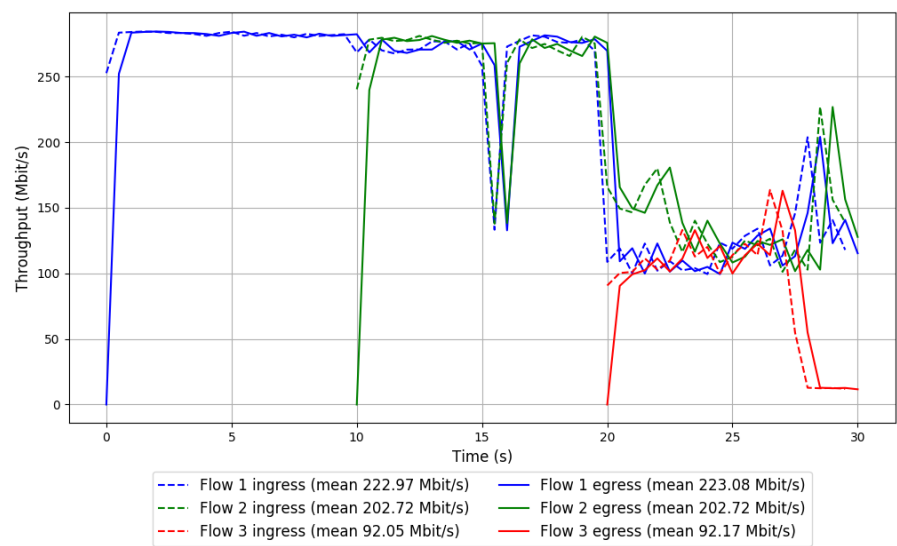
-- Flow 3:

Average throughput: 92.17 Mbit/s

95th percentile per-packet one-way delay: 1.359 ms

Loss rate: 0.05%

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

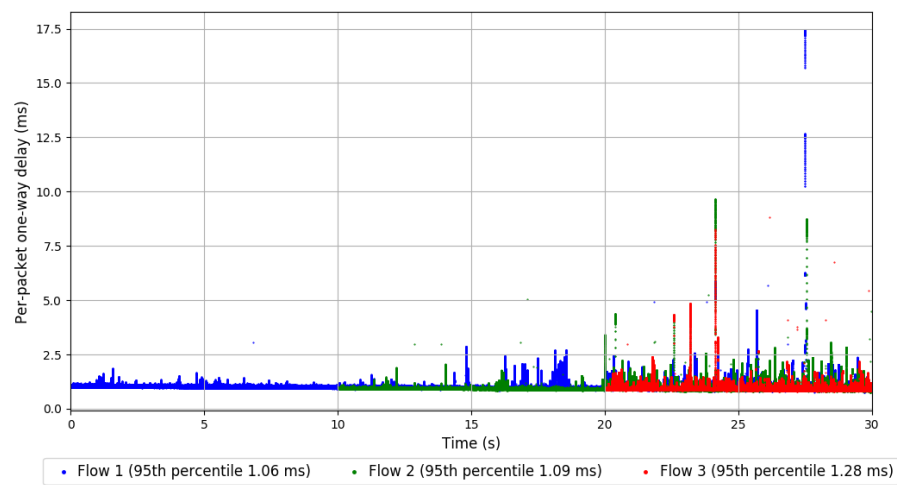
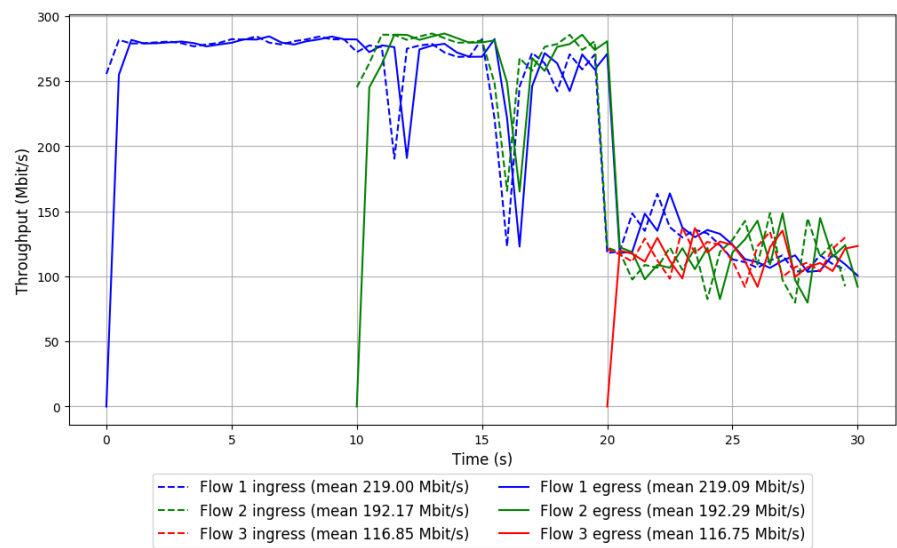


```
Run 2: Statistics of TaoVA-100x

Start at: 2018-09-06 19:43:01
End at: 2018-09-06 19:43:31
Local clock offset: 3.645 ms
Remote clock offset: 2.013 ms

# Below is generated by plot.py at 2018-09-06 22:45:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 385.86 Mbit/s
95th percentile per-packet one-way delay: 1.083 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 219.09 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 192.29 Mbit/s
95th percentile per-packet one-way delay: 1.091 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 116.75 Mbit/s
95th percentile per-packet one-way delay: 1.283 ms
Loss rate: 0.28%
```

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

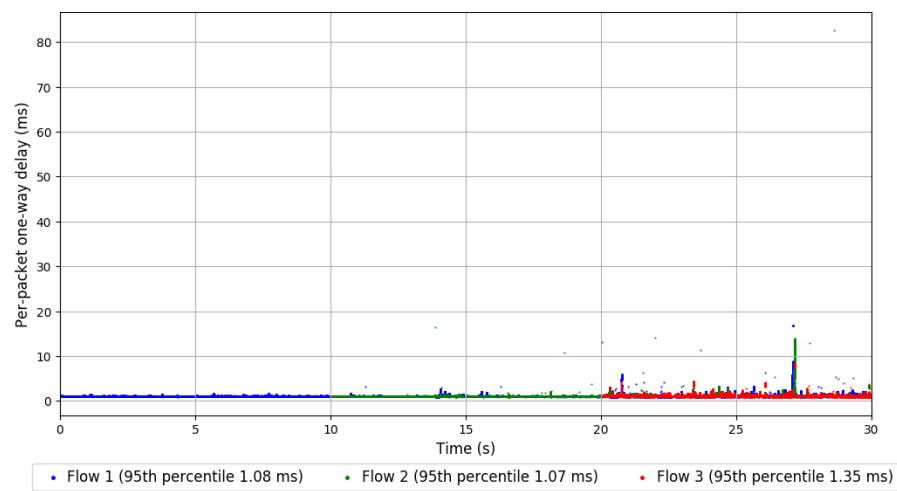
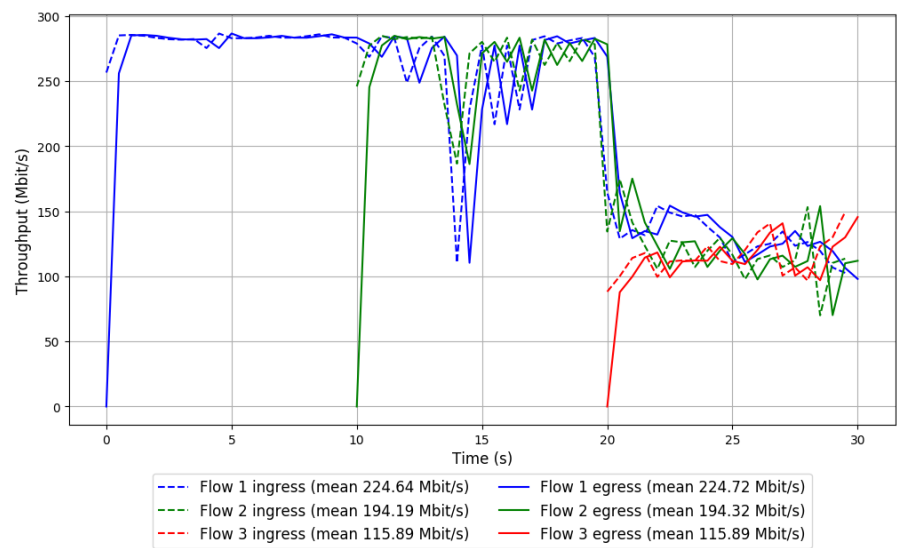


Run 3: Statistics of TaoVA-100x

Start at: 2018-09-06 20:12:03
End at: 2018-09-06 20:12:33
Local clock offset: 3.839 ms
Remote clock offset: -0.819 ms

Below is generated by plot.py at 2018-09-06 22:45:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 392.40 Mbit/s
95th percentile per-packet one-way delay: 1.100 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 224.72 Mbit/s
95th percentile per-packet one-way delay: 1.079 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 194.32 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 115.89 Mbit/s
95th percentile per-packet one-way delay: 1.348 ms
Loss rate: 0.18%

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

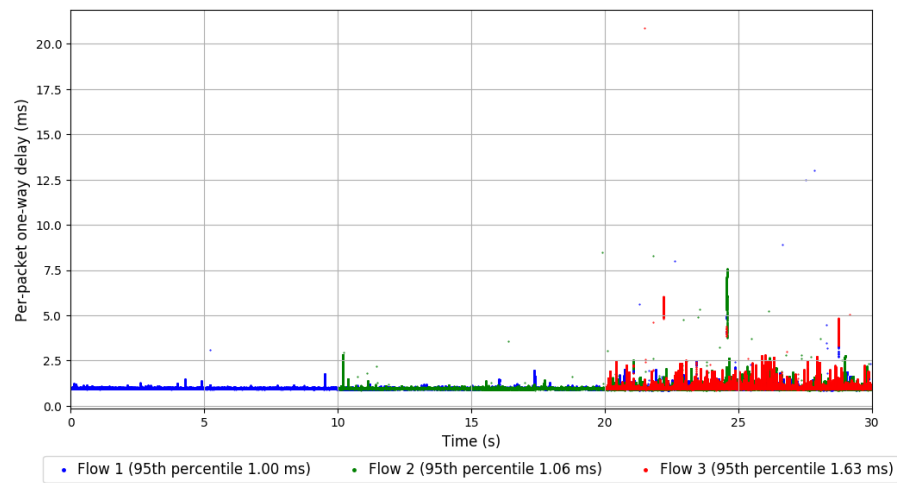
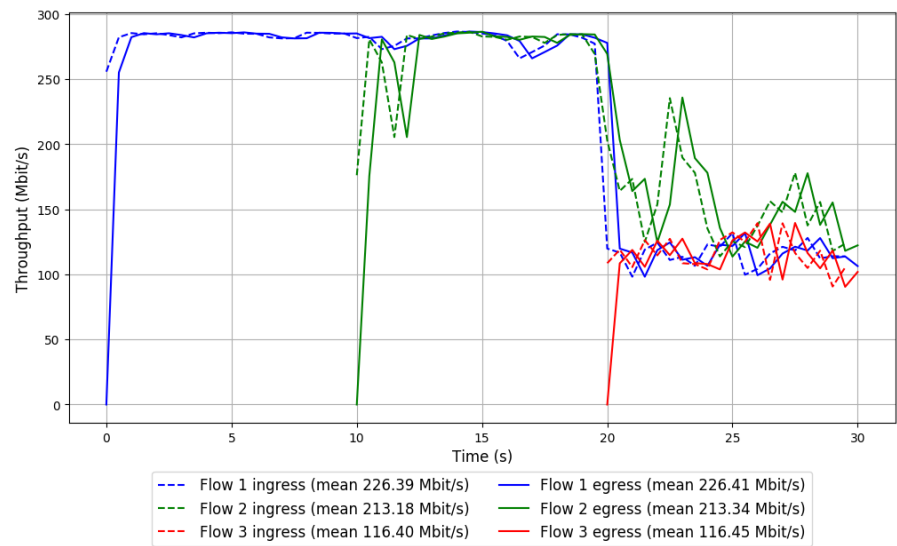


Run 4: Statistics of TaoVA-100x

Start at: 2018-09-06 20:41:10
End at: 2018-09-06 20:41:40
Local clock offset: 3.367 ms
Remote clock offset: -0.323 ms

Below is generated by plot.py at 2018-09-06 22:46:04
Datalink statistics
-- Total of 3 flows:
Average throughput: 407.00 Mbit/s
95th percentile per-packet one-way delay: 1.063 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 226.41 Mbit/s
95th percentile per-packet one-way delay: 1.002 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 213.34 Mbit/s
95th percentile per-packet one-way delay: 1.057 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 116.45 Mbit/s
95th percentile per-packet one-way delay: 1.634 ms
Loss rate: 0.16%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-06 21:10:28

End at: 2018-09-06 21:10:58

Local clock offset: 3.245 ms

Remote clock offset: 3.579 ms

Below is generated by plot.py at 2018-09-06 22:46:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 391.84 Mbit/s

95th percentile per-packet one-way delay: 1.273 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 219.16 Mbit/s

95th percentile per-packet one-way delay: 1.230 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 200.51 Mbit/s

95th percentile per-packet one-way delay: 1.225 ms

Loss rate: 0.04%

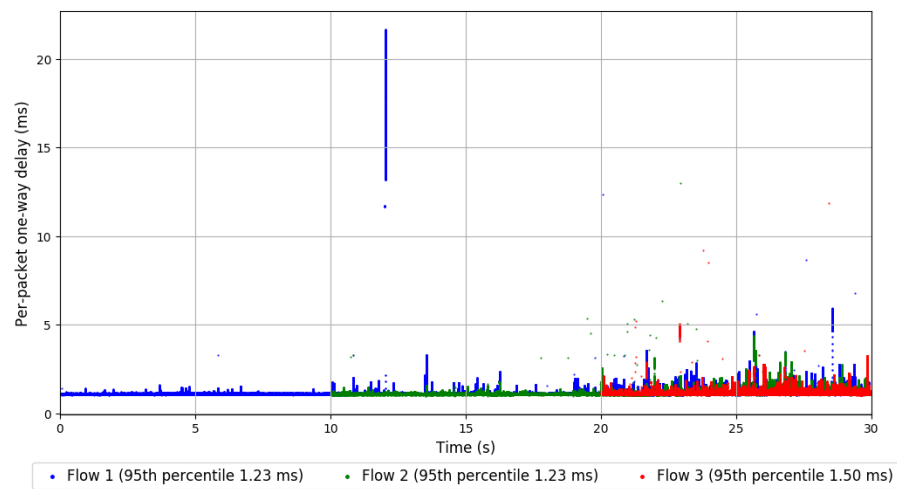
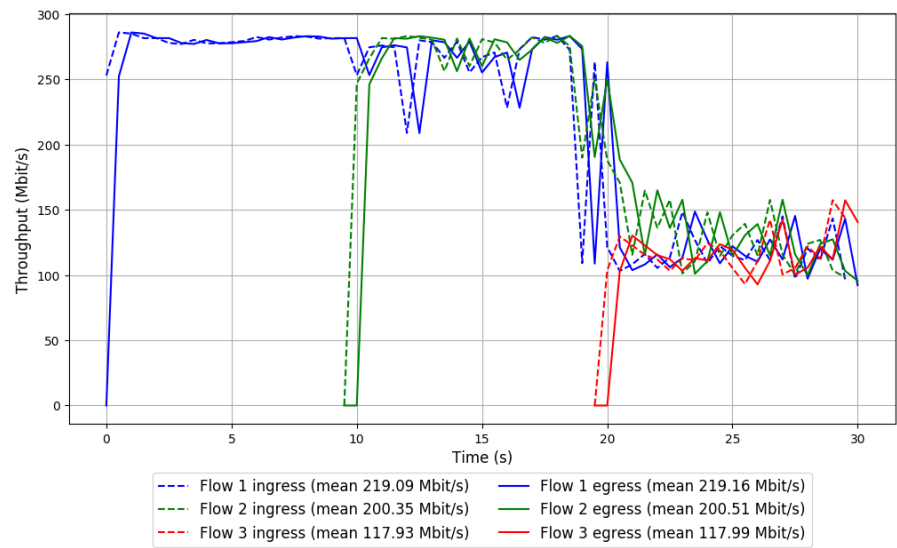
-- Flow 3:

Average throughput: 117.99 Mbit/s

95th percentile per-packet one-way delay: 1.495 ms

Loss rate: 0.16%

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



Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 19:39:56

End at: 2018-09-06 19:40:26

Local clock offset: 3.471 ms

Remote clock offset: 3.105 ms

Below is generated by plot.py at 2018-09-06 22:46:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 600.64 Mbit/s

95th percentile per-packet one-way delay: 1.352 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 300.29 Mbit/s

95th percentile per-packet one-way delay: 1.297 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 276.14 Mbit/s

95th percentile per-packet one-way delay: 1.341 ms

Loss rate: 0.11%

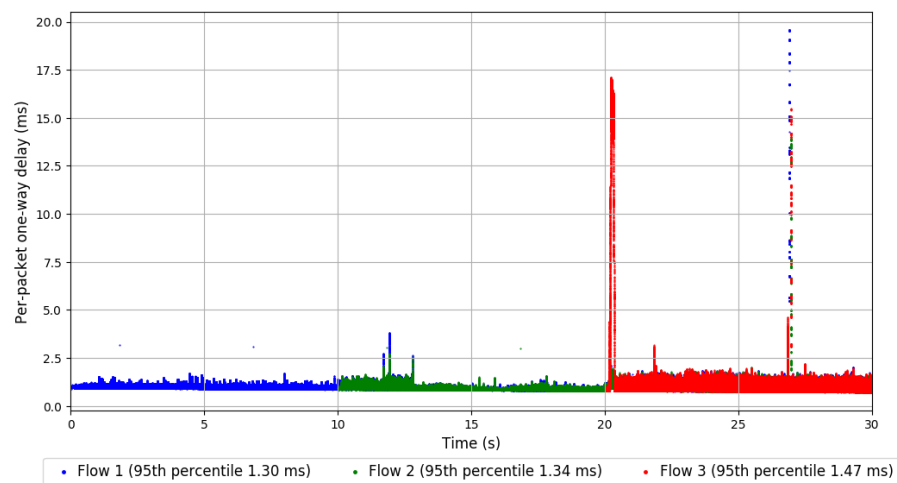
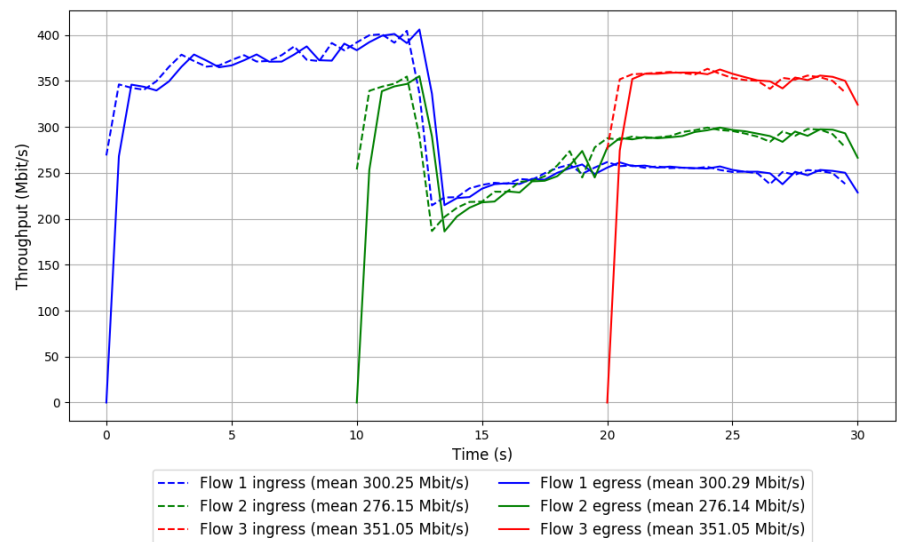
-- Flow 3:

Average throughput: 351.05 Mbit/s

95th percentile per-packet one-way delay: 1.469 ms

Loss rate: 0.20%

Run 1: Report of TCP Vegas — Data Link

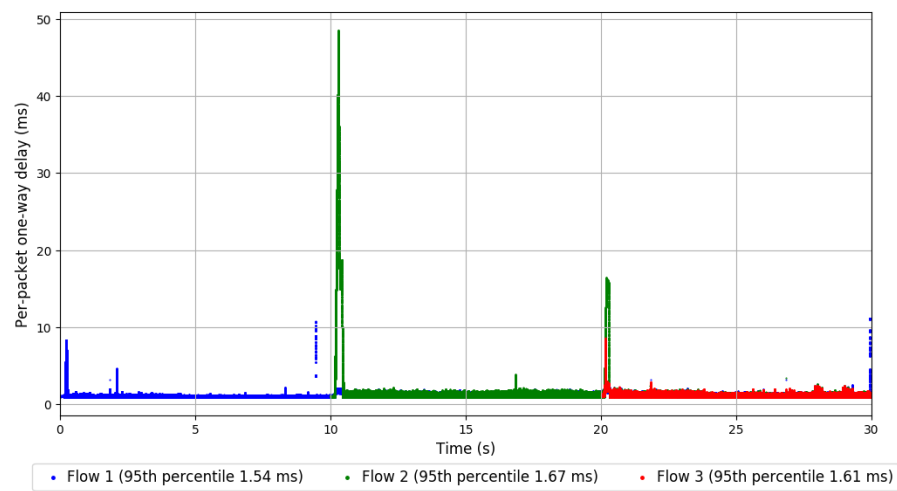
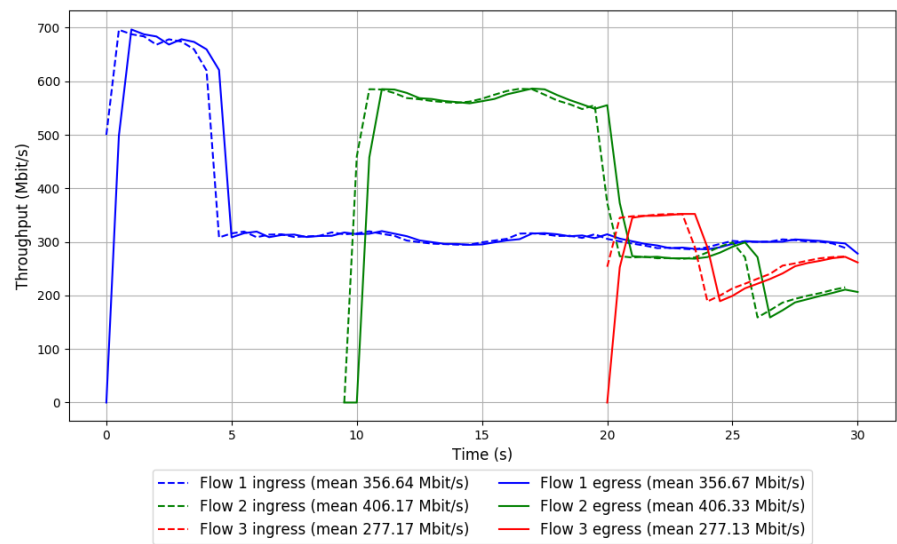


Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 20:08:55
End at: 2018-09-06 20:09:25
Local clock offset: 3.777 ms
Remote clock offset: -0.687 ms

Below is generated by plot.py at 2018-09-06 22:48:43
Datalink statistics
-- Total of 3 flows:
Average throughput: 719.49 Mbit/s
95th percentile per-packet one-way delay: 1.601 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 356.67 Mbit/s
95th percentile per-packet one-way delay: 1.539 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 406.33 Mbit/s
95th percentile per-packet one-way delay: 1.672 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 277.13 Mbit/s
95th percentile per-packet one-way delay: 1.609 ms
Loss rate: 0.20%

Run 2: Report of TCP Vegas — Data Link

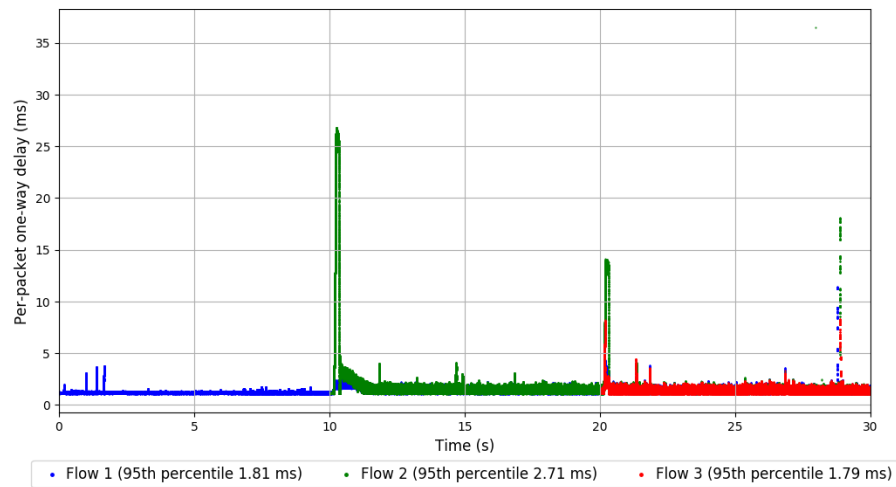
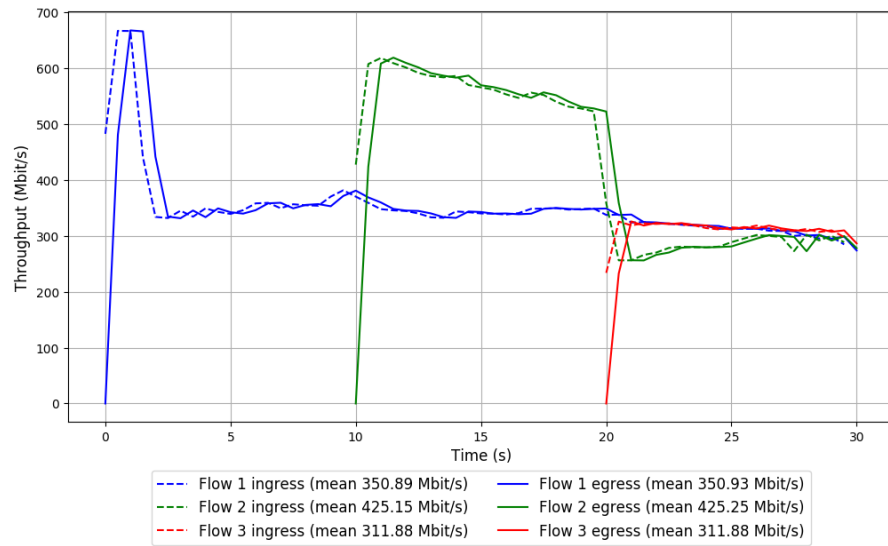


Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 20:38:01
End at: 2018-09-06 20:38:31
Local clock offset: 3.344 ms
Remote clock offset: -0.411 ms

Below is generated by plot.py at 2018-09-06 22:50:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 737.55 Mbit/s
95th percentile per-packet one-way delay: 1.976 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 350.93 Mbit/s
95th percentile per-packet one-way delay: 1.807 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 425.25 Mbit/s
95th percentile per-packet one-way delay: 2.715 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 311.88 Mbit/s
95th percentile per-packet one-way delay: 1.795 ms
Loss rate: 0.19%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 21:07:17

End at: 2018-09-06 21:07:47

Local clock offset: 3.114 ms

Remote clock offset: 3.396 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 781.33 Mbit/s

95th percentile per-packet one-way delay: 2.744 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 349.34 Mbit/s

95th percentile per-packet one-way delay: 1.734 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 550.02 Mbit/s

95th percentile per-packet one-way delay: 3.838 ms

Loss rate: 0.07%

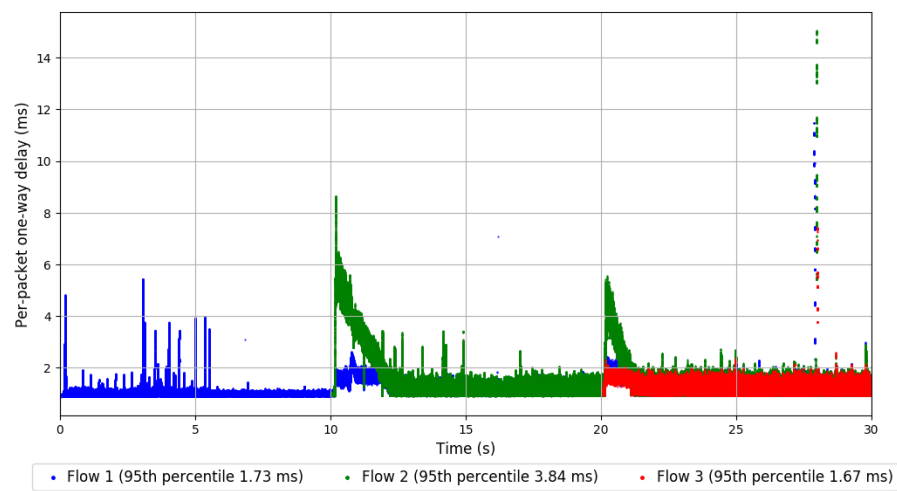
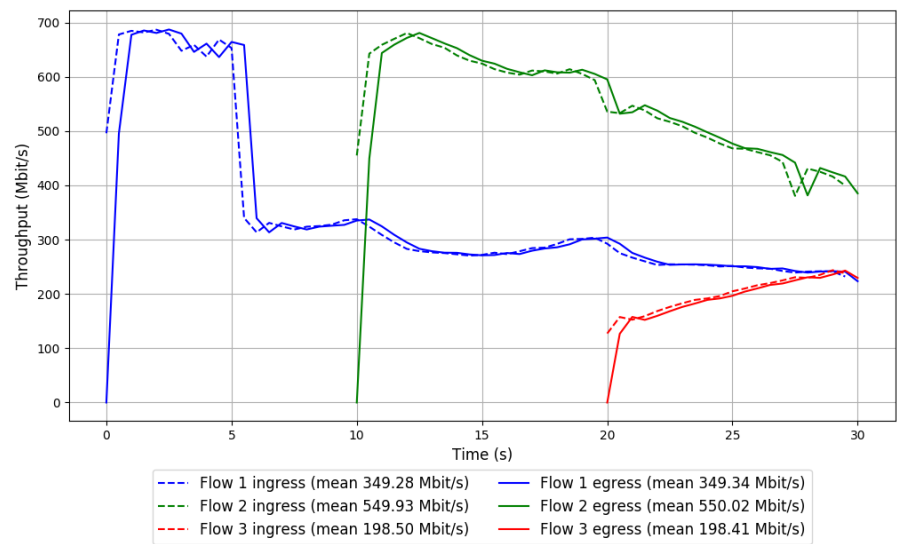
-- Flow 3:

Average throughput: 198.41 Mbit/s

95th percentile per-packet one-way delay: 1.674 ms

Loss rate: 0.24%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 21:36:24

End at: 2018-09-06 21:36:54

Local clock offset: 3.143 ms

Remote clock offset: 0.443 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 722.59 Mbit/s

95th percentile per-packet one-way delay: 2.751 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 302.80 Mbit/s

95th percentile per-packet one-way delay: 1.770 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 451.19 Mbit/s

95th percentile per-packet one-way delay: 4.343 ms

Loss rate: 0.06%

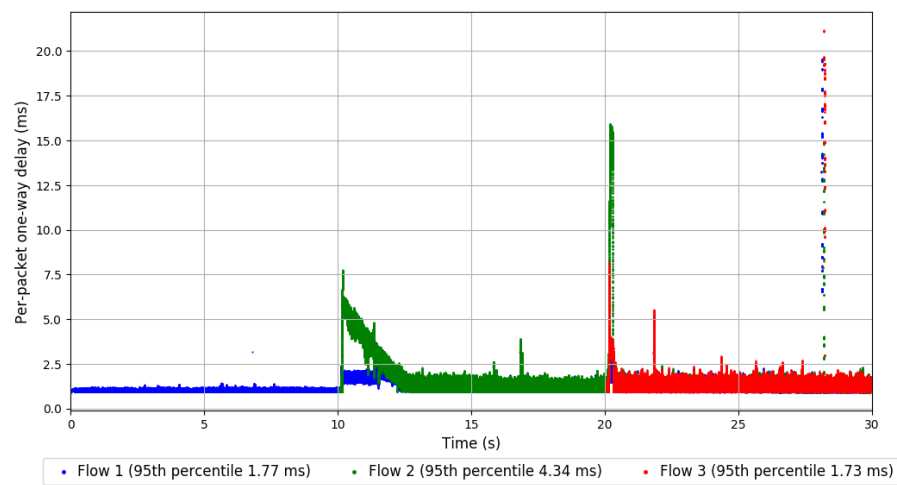
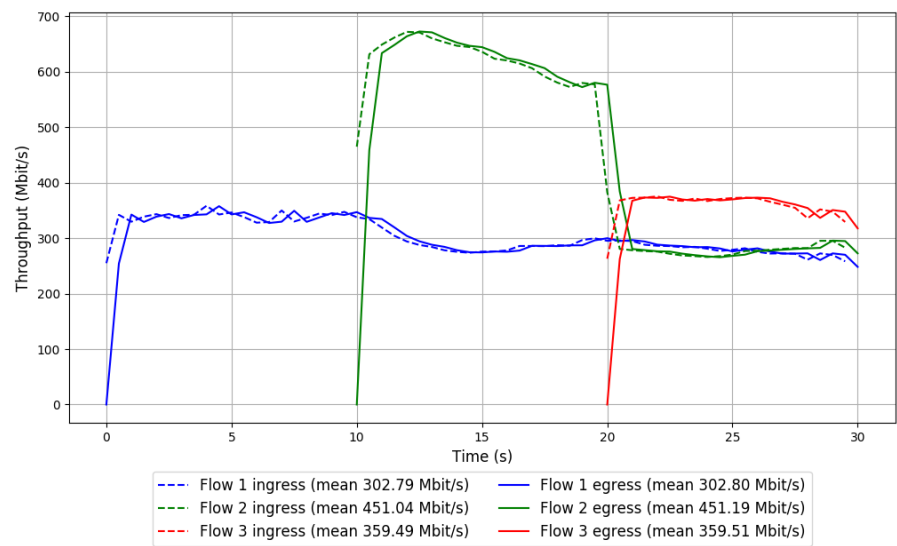
-- Flow 3:

Average throughput: 359.51 Mbit/s

95th percentile per-packet one-way delay: 1.727 ms

Loss rate: 0.18%

Run 5: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2018-09-06 19:20:26

End at: 2018-09-06 19:20:56

Local clock offset: 1.005 ms

Remote clock offset: 2.472 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 341.39 Mbit/s

95th percentile per-packet one-way delay: 5.205 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 203.10 Mbit/s

95th percentile per-packet one-way delay: 7.043 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 150.77 Mbit/s

95th percentile per-packet one-way delay: 2.314 ms

Loss rate: 0.04%

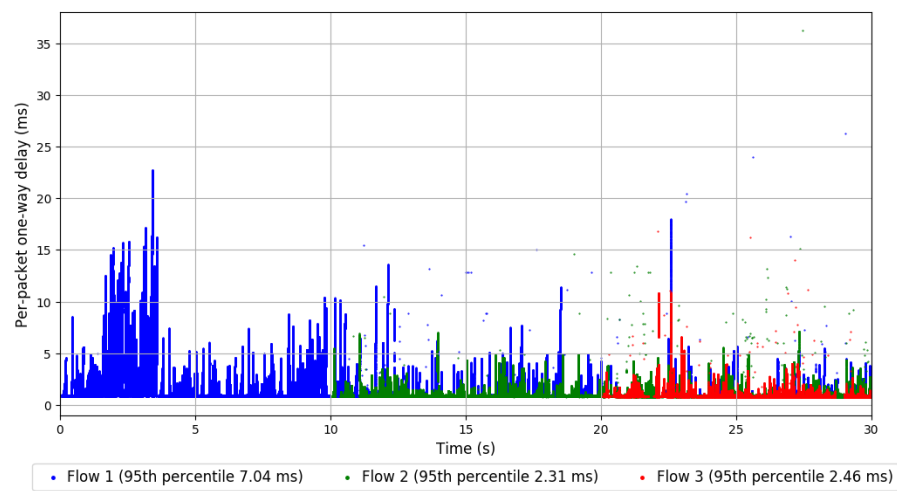
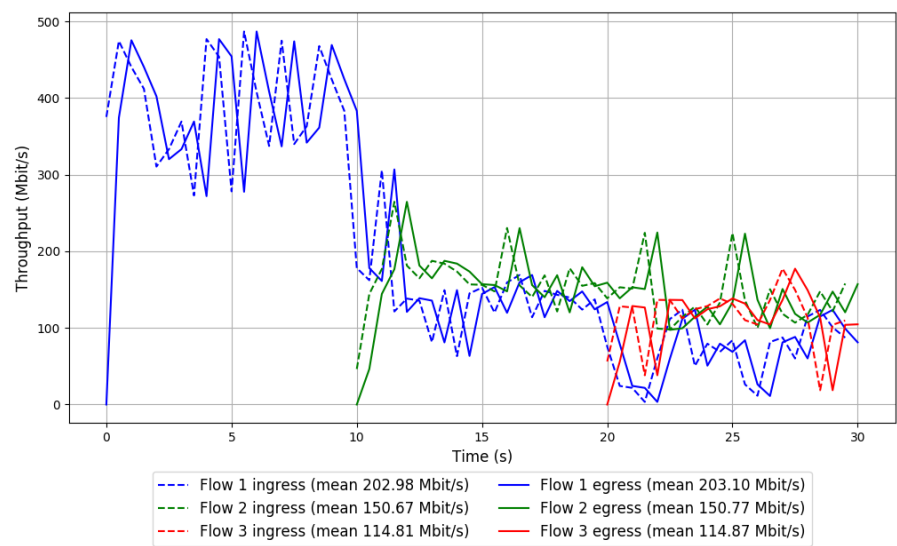
-- Flow 3:

Average throughput: 114.87 Mbit/s

95th percentile per-packet one-way delay: 2.457 ms

Loss rate: 0.22%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-06 19:49:25

End at: 2018-09-06 19:49:55

Local clock offset: 3.619 ms

Remote clock offset: 0.635 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 365.90 Mbit/s

95th percentile per-packet one-way delay: 5.690 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 223.08 Mbit/s

95th percentile per-packet one-way delay: 7.570 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 148.59 Mbit/s

95th percentile per-packet one-way delay: 2.730 ms

Loss rate: 0.07%

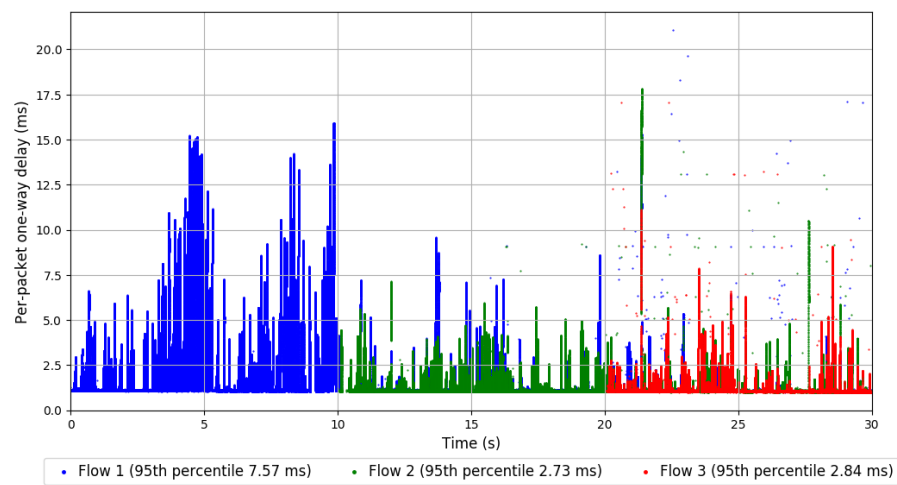
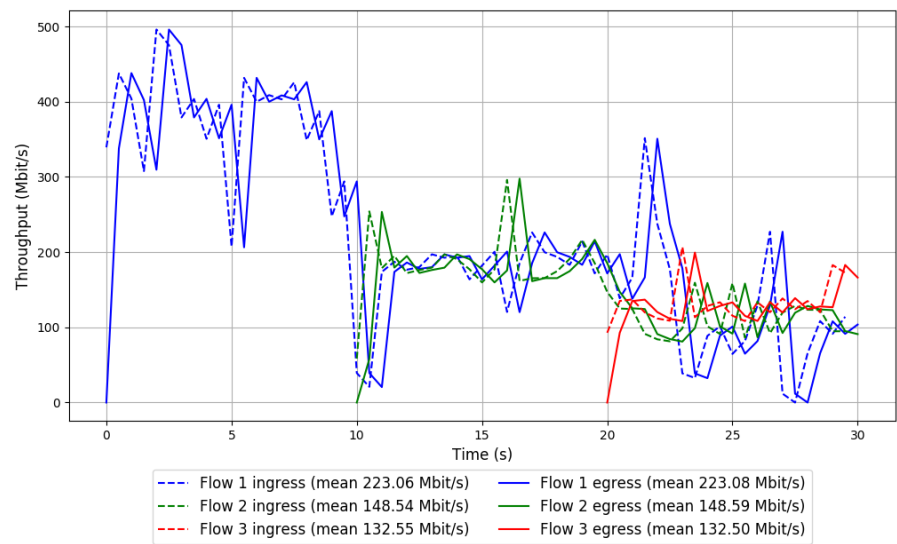
-- Flow 3:

Average throughput: 132.50 Mbit/s

95th percentile per-packet one-way delay: 2.836 ms

Loss rate: 0.26%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-06 20:18:28

End at: 2018-09-06 20:18:58

Local clock offset: 3.7 ms

Remote clock offset: -0.42 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 329.01 Mbit/s

95th percentile per-packet one-way delay: 3.073 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 198.22 Mbit/s

95th percentile per-packet one-way delay: 3.381 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 144.69 Mbit/s

95th percentile per-packet one-way delay: 2.354 ms

Loss rate: 0.08%

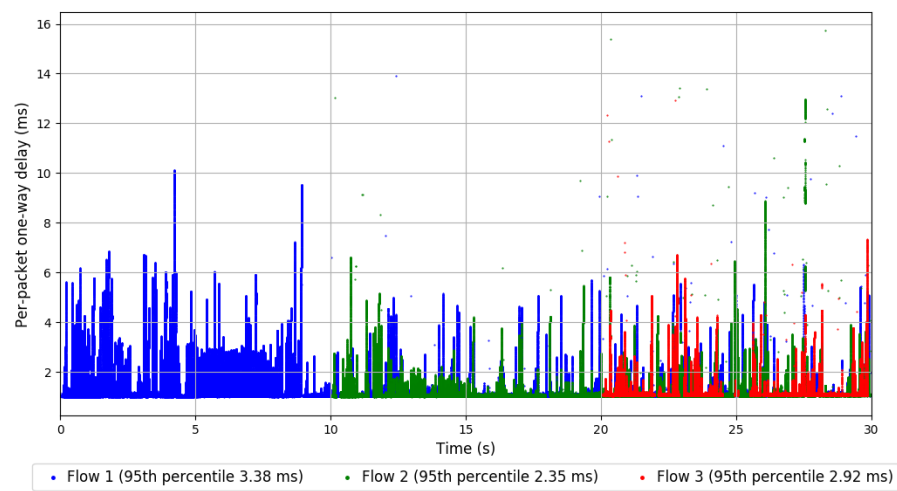
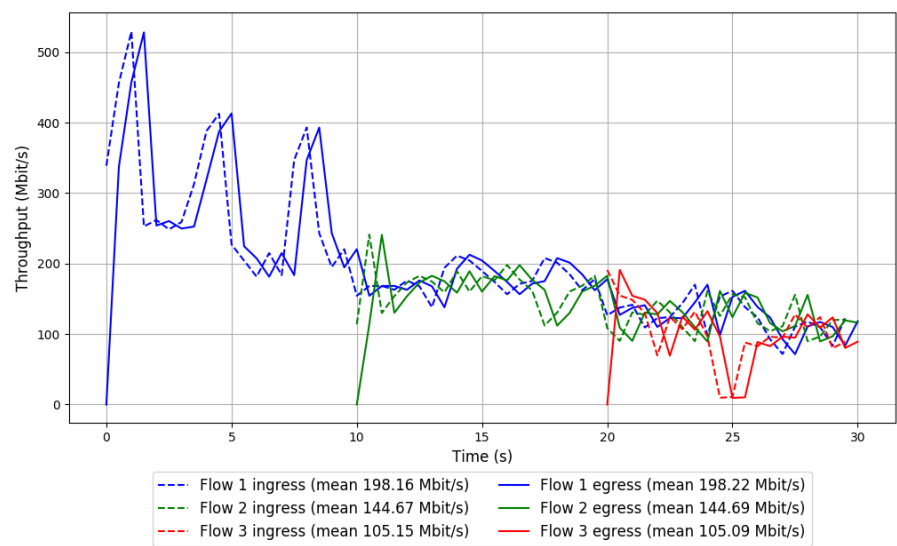
-- Flow 3:

Average throughput: 105.09 Mbit/s

95th percentile per-packet one-way delay: 2.922 ms

Loss rate: 0.00%

Run 3: Report of Verus — Data Link

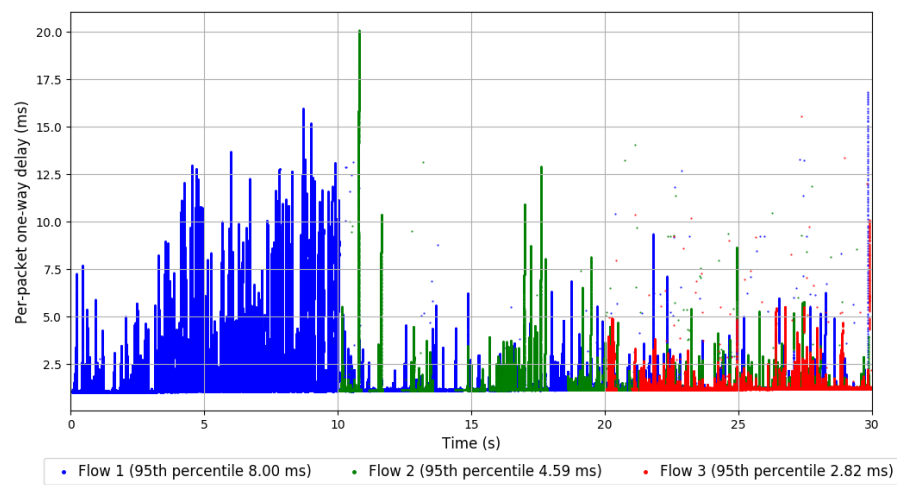
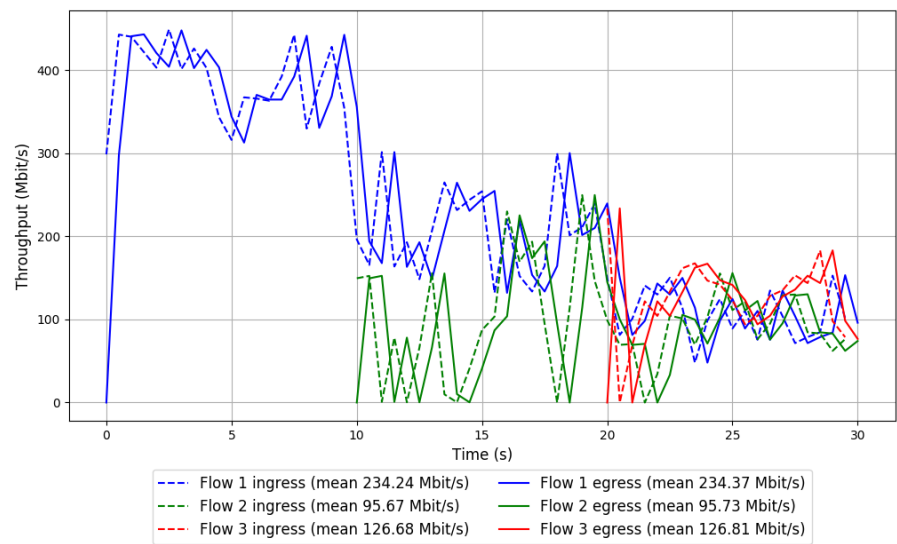


Run 4: Statistics of Verus

Start at: 2018-09-06 20:47:37
End at: 2018-09-06 20:48:07
Local clock offset: 3.33 ms
Remote clock offset: -0.067 ms

Below is generated by plot.py at 2018-09-06 22:53:57
Datalink statistics
-- Total of 3 flows:
Average throughput: 340.10 Mbit/s
95th percentile per-packet one-way delay: 7.287 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 234.37 Mbit/s
95th percentile per-packet one-way delay: 8.001 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 95.73 Mbit/s
95th percentile per-packet one-way delay: 4.587 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 126.81 Mbit/s
95th percentile per-packet one-way delay: 2.818 ms
Loss rate: 0.08%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-06 21:16:51

End at: 2018-09-06 21:17:21

Local clock offset: 3.246 ms

Remote clock offset: 4.002 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 325.53 Mbit/s

95th percentile per-packet one-way delay: 3.187 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 203.54 Mbit/s

95th percentile per-packet one-way delay: 3.517 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 127.33 Mbit/s

95th percentile per-packet one-way delay: 2.590 ms

Loss rate: 0.06%

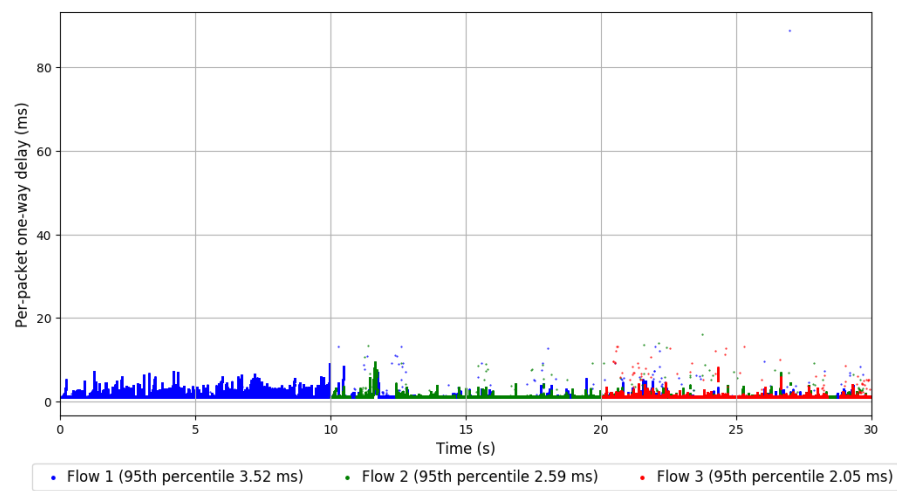
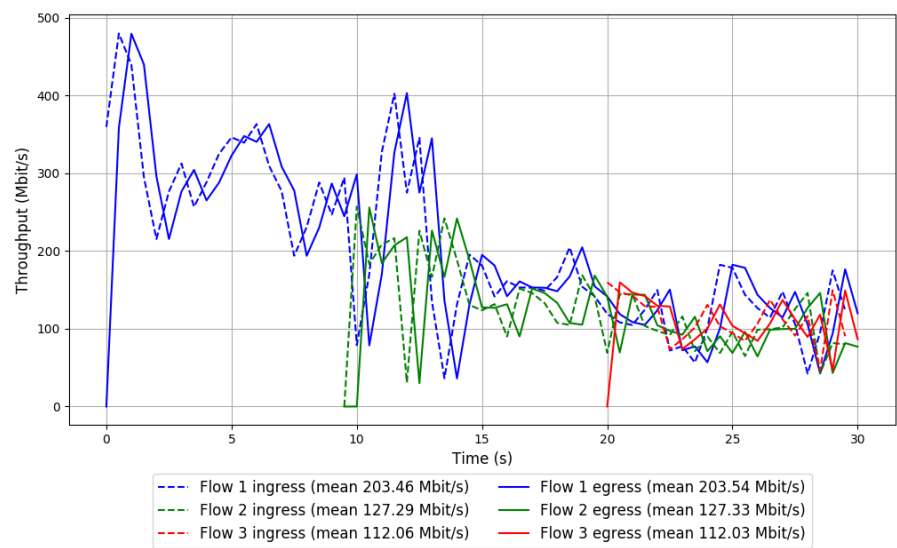
-- Flow 3:

Average throughput: 112.03 Mbit/s

95th percentile per-packet one-way delay: 2.046 ms

Loss rate: 0.20%

Run 5: Report of Verus — Data Link



Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 19:17:30

End at: 2018-09-06 19:18:00

Local clock offset: 0.032 ms

Remote clock offset: 2.138 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 342.79 Mbit/s

95th percentile per-packet one-way delay: 0.766 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 259.88 Mbit/s

95th percentile per-packet one-way delay: 0.766 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 85.09 Mbit/s

95th percentile per-packet one-way delay: 0.766 ms

Loss rate: 0.08%

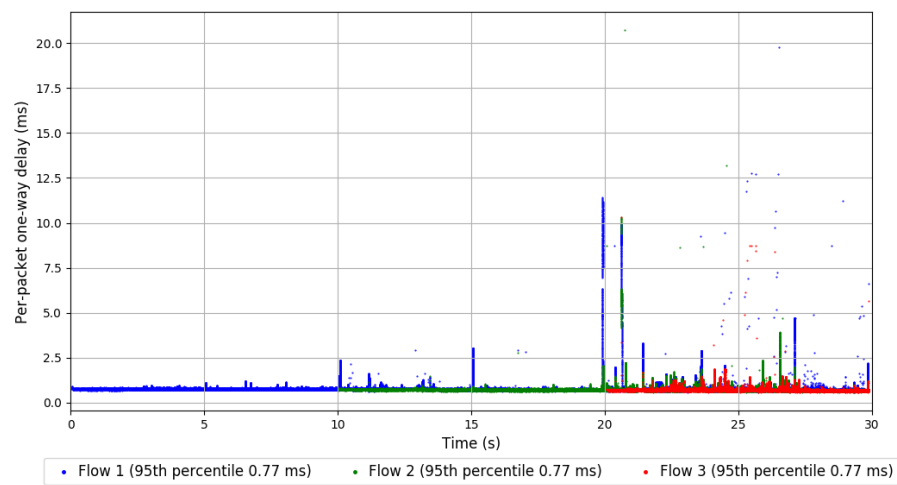
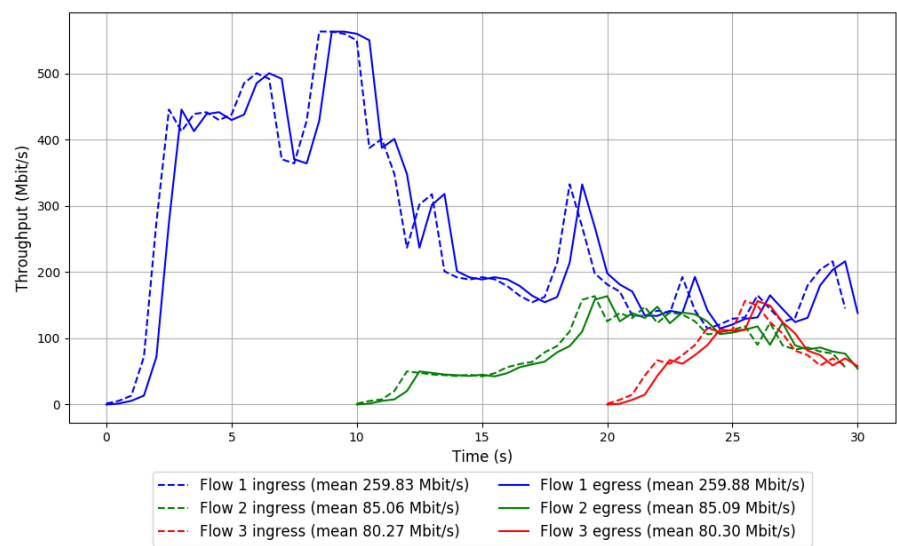
-- Flow 3:

Average throughput: 80.30 Mbit/s

95th percentile per-packet one-way delay: 0.770 ms

Loss rate: 0.09%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 19:46:31

End at: 2018-09-06 19:47:01

Local clock offset: 3.708 ms

Remote clock offset: 1.208 ms

Below is generated by plot.py at 2018-09-06 22:53:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 302.57 Mbit/s

95th percentile per-packet one-way delay: 1.045 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 228.95 Mbit/s

95th percentile per-packet one-way delay: 1.048 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 84.66 Mbit/s

95th percentile per-packet one-way delay: 1.021 ms

Loss rate: 0.09%

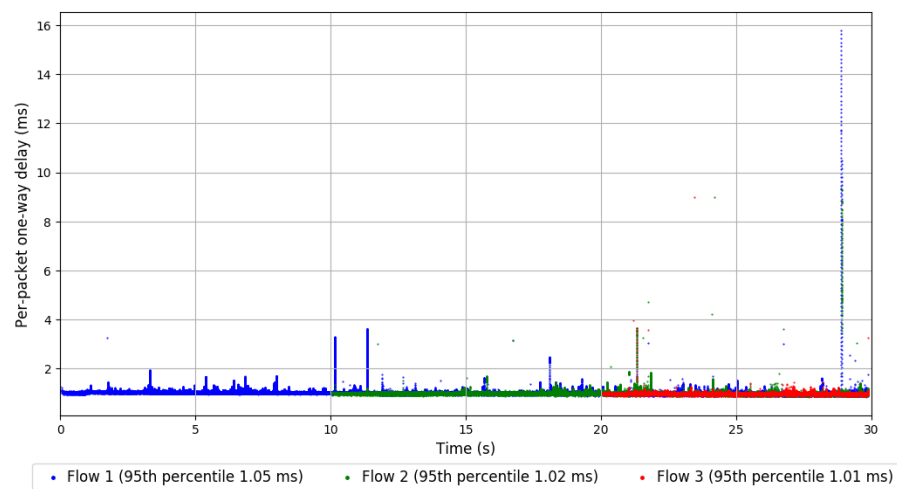
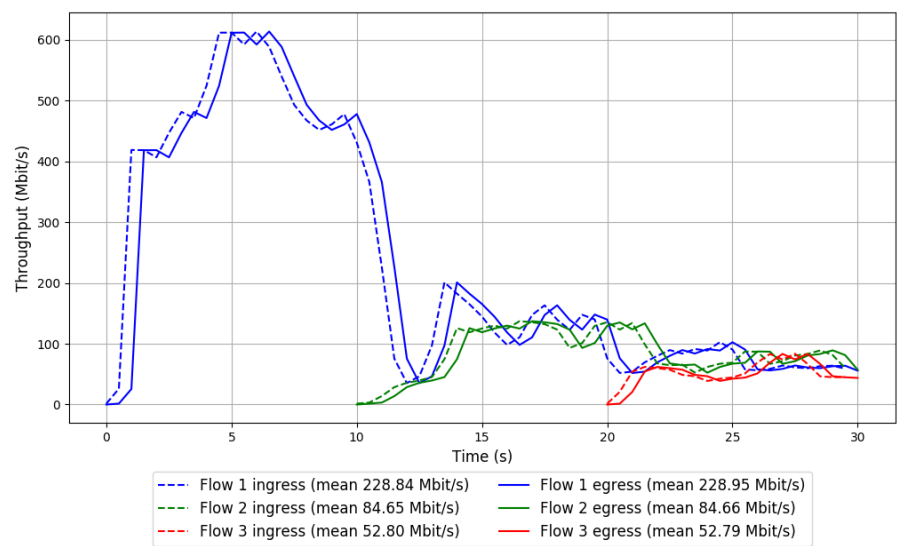
-- Flow 3:

Average throughput: 52.79 Mbit/s

95th percentile per-packet one-way delay: 1.013 ms

Loss rate: 0.15%

Run 2: Report of PCC-Vivace — Data Link

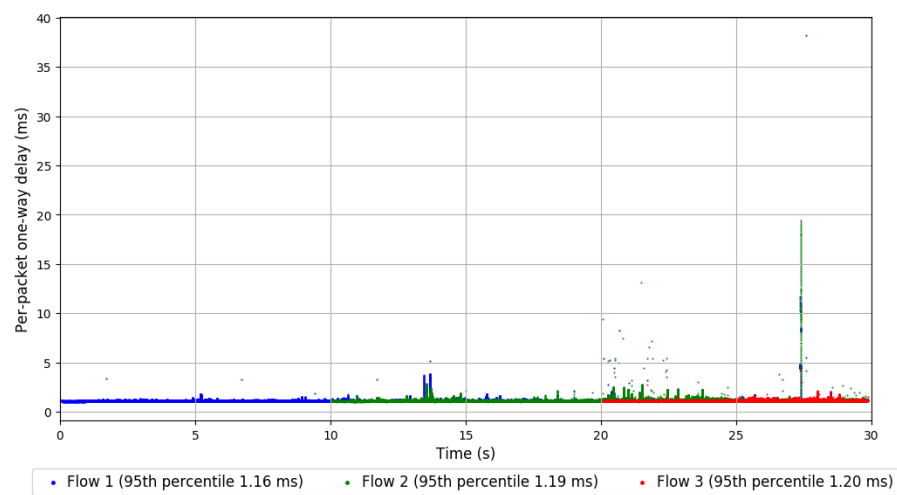
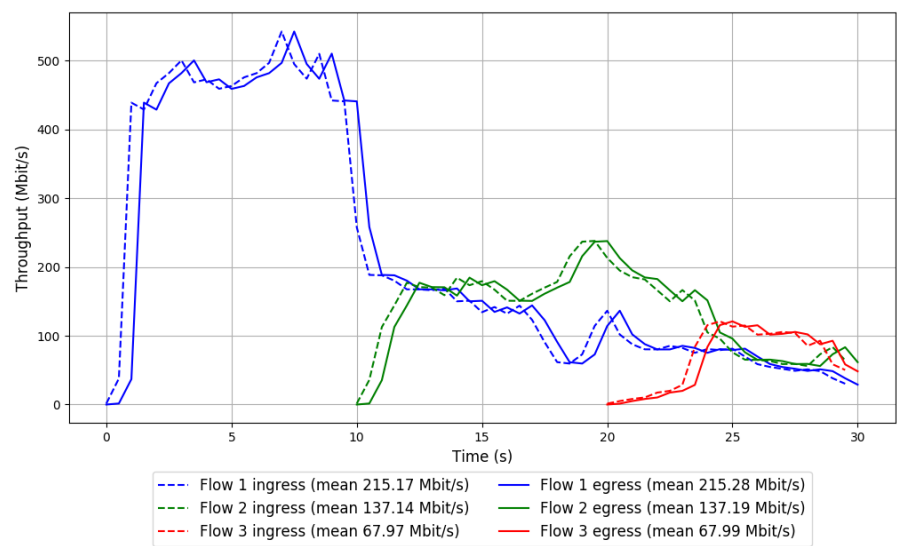


Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 20:15:33
End at: 2018-09-06 20:16:03
Local clock offset: 3.851 ms
Remote clock offset: -0.671 ms

Below is generated by plot.py at 2018-09-06 22:54:01
Datalink statistics
-- Total of 3 flows:
Average throughput: 328.87 Mbit/s
95th percentile per-packet one-way delay: 1.171 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 215.28 Mbit/s
95th percentile per-packet one-way delay: 1.162 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 137.19 Mbit/s
95th percentile per-packet one-way delay: 1.192 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 67.99 Mbit/s
95th percentile per-packet one-way delay: 1.202 ms
Loss rate: 0.16%

Run 3: Report of PCC-Vivace — Data Link

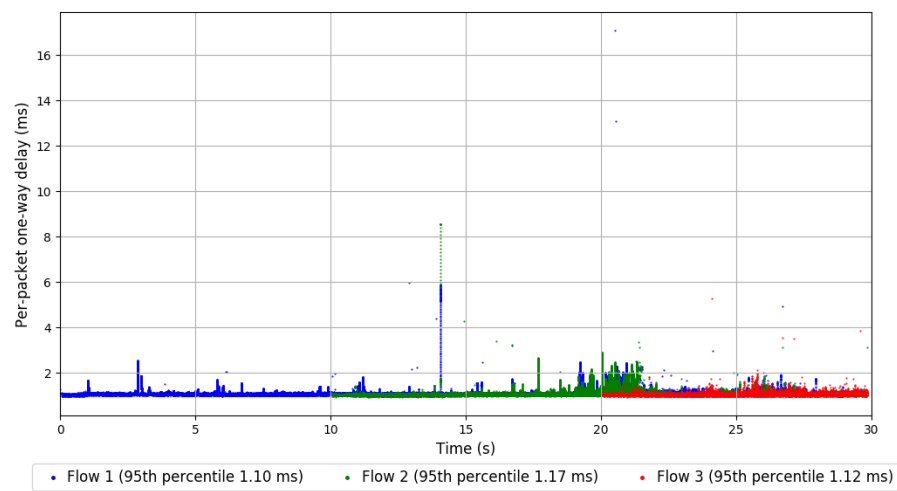
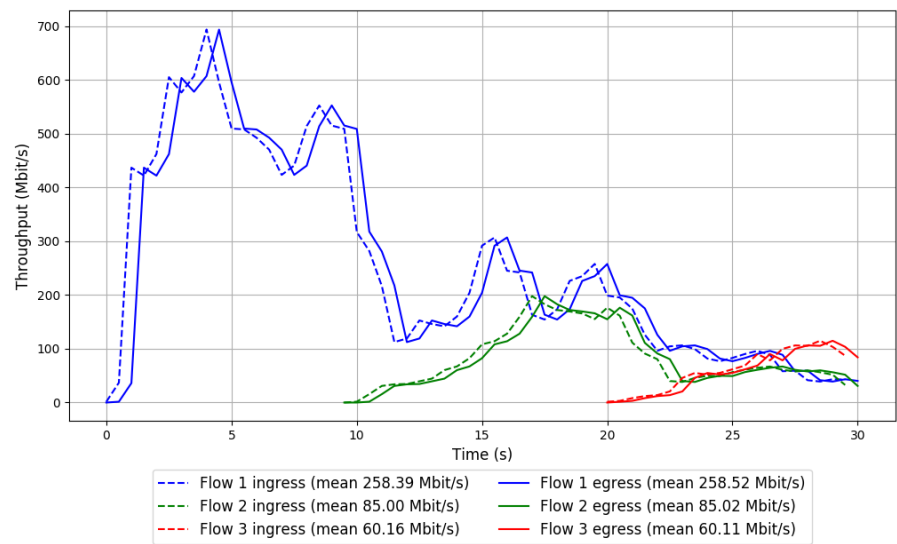


Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 20:44:41
End at: 2018-09-06 20:45:11
Local clock offset: 3.394 ms
Remote clock offset: -0.448 ms

Below is generated by plot.py at 2018-09-06 22:54:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 334.86 Mbit/s
95th percentile per-packet one-way delay: 1.109 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 258.52 Mbit/s
95th percentile per-packet one-way delay: 1.103 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 85.02 Mbit/s
95th percentile per-packet one-way delay: 1.169 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 60.11 Mbit/s
95th percentile per-packet one-way delay: 1.123 ms
Loss rate: 0.28%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 21:13:58

End at: 2018-09-06 21:14:28

Local clock offset: 3.307 ms

Remote clock offset: 3.835 ms

Below is generated by plot.py at 2018-09-06 22:54:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 287.64 Mbit/s

95th percentile per-packet one-way delay: 1.147 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 223.07 Mbit/s

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

Loss rate: 0.03%

-- Flow 2:

Average throughput: 54.46 Mbit/s

95th percentile per-packet one-way delay: 1.158 ms

Loss rate: 0.12%

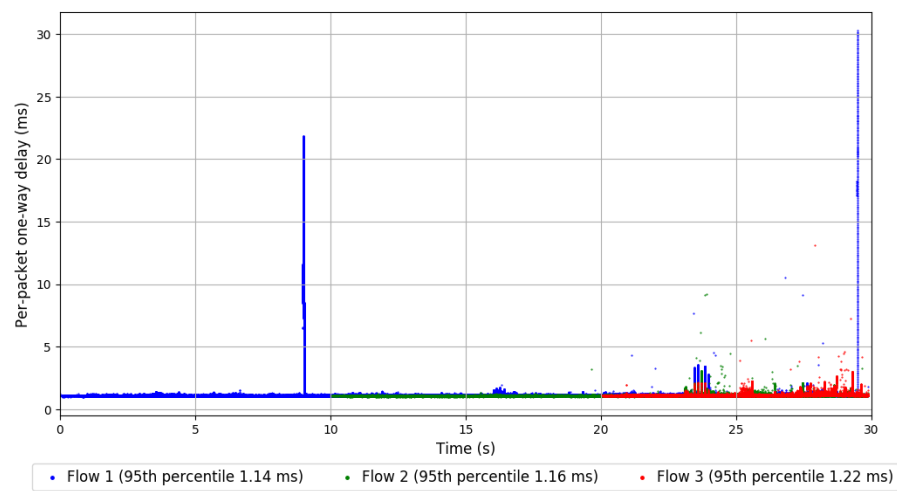
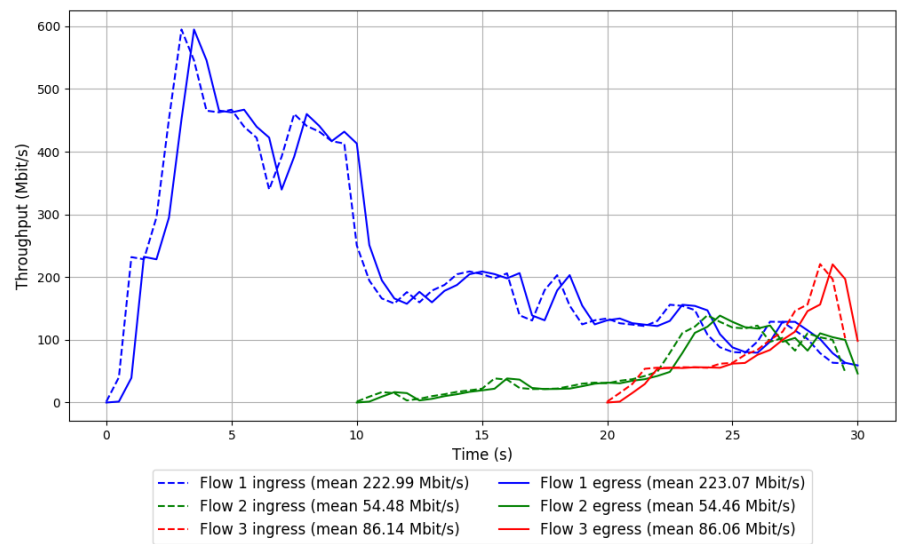
-- Flow 3:

Average throughput: 86.06 Mbit/s

95th percentile per-packet one-way delay: 1.217 ms

Loss rate: 0.28%

Run 5: Report of PCC-Vivace — Data Link



Run 1: Statistics of WebRTC media

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

End at: 2018-09-06 19:19:36

Local clock offset: 0.486 ms

Remote clock offset: 2.247 ms

Below is generated by plot.py at 2018-09-06 22:54:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.96 Mbit/s

95th percentile per-packet one-way delay: 0.846 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.45 Mbit/s

95th percentile per-packet one-way delay: 0.851 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.09 Mbit/s

95th percentile per-packet one-way delay: 0.842 ms

Loss rate: 0.00%

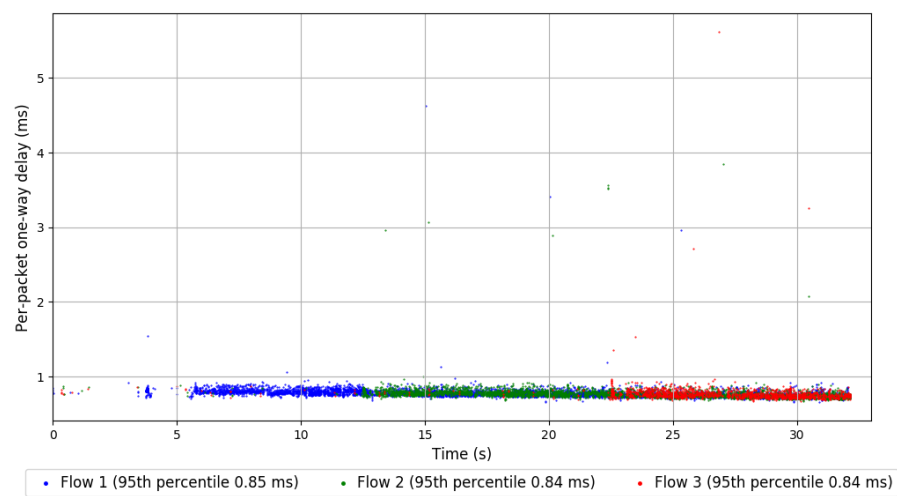
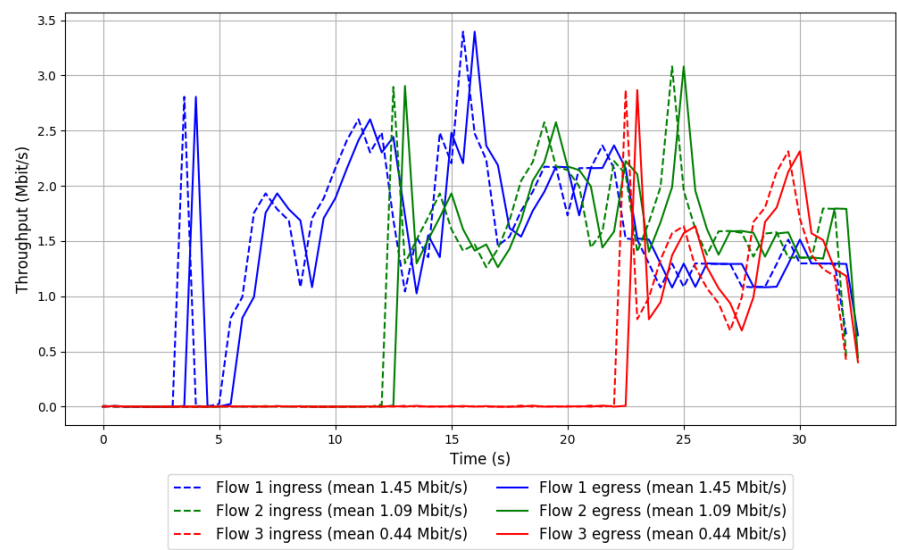
-- Flow 3:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 0.840 ms

Loss rate: 0.01%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-09-06 19:48:05

End at: 2018-09-06 19:48:35

Local clock offset: 3.661 ms

Remote clock offset: 0.978 ms

Below is generated by plot.py at 2018-09-06 22:54:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 3.02 Mbit/s

95th percentile per-packet one-way delay: 1.020 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 1.025 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 1.009 ms

Loss rate: 0.00%

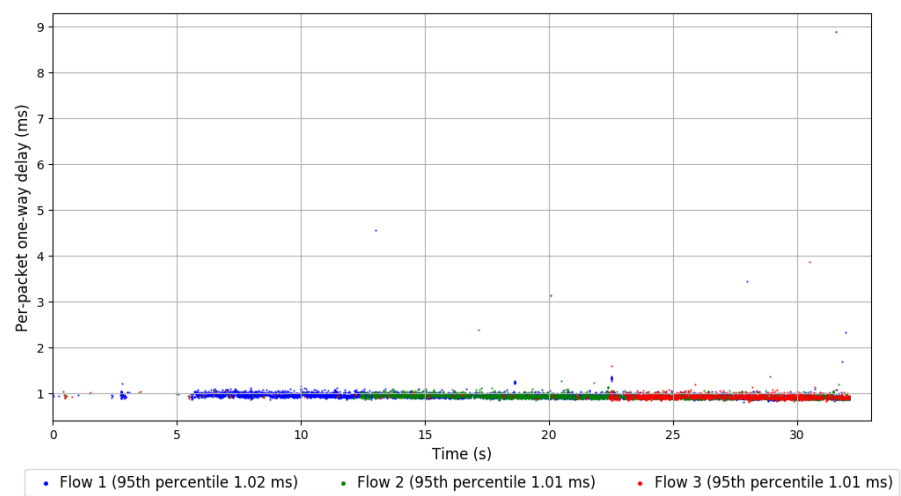
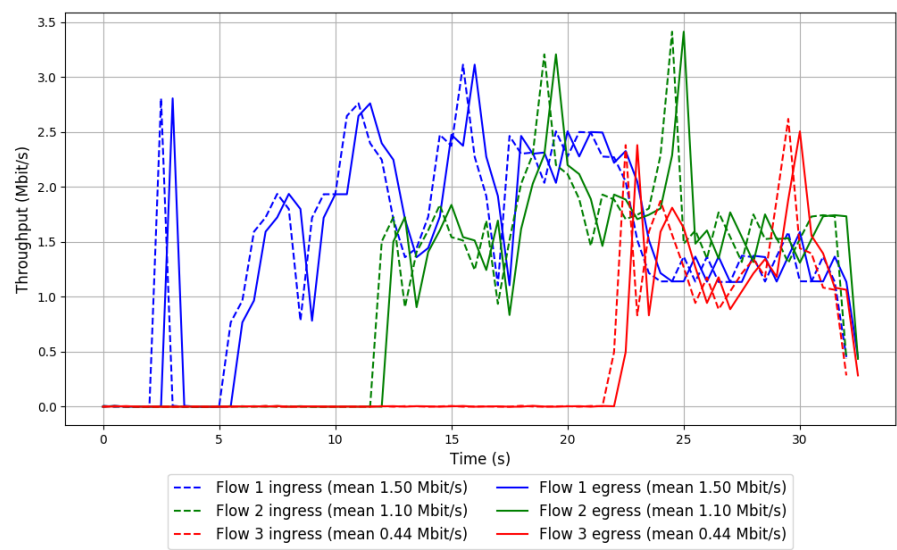
-- Flow 3:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 1.014 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

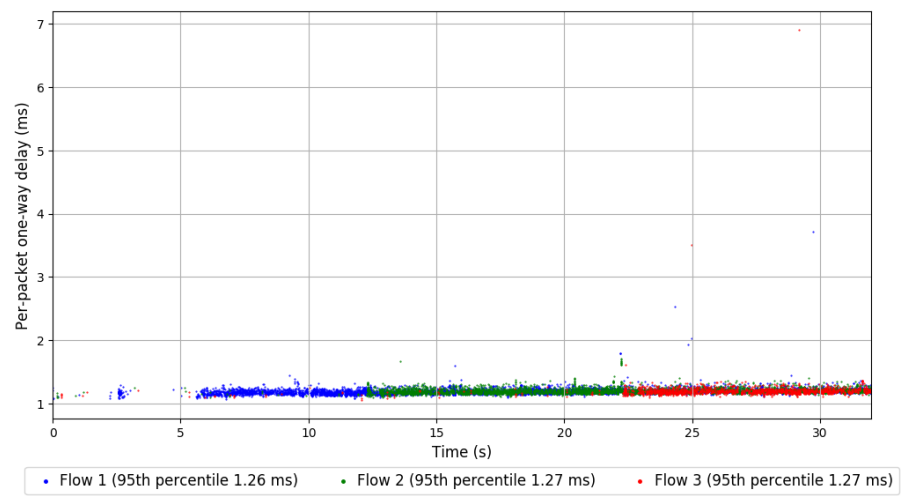
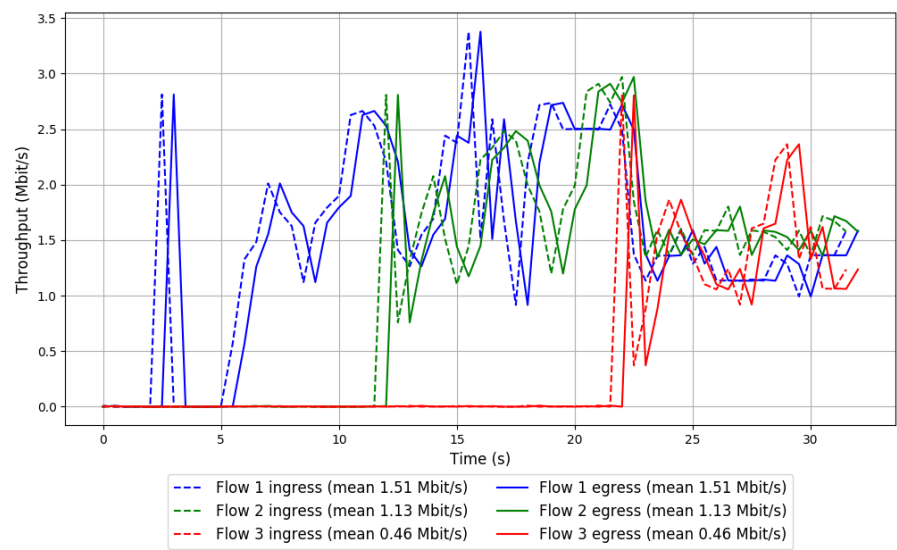


Run 3: Statistics of WebRTC media

Start at: 2018-09-06 20:17:08
End at: 2018-09-06 20:17:38
Local clock offset: 3.805 ms
Remote clock offset: -0.574 ms

Below is generated by plot.py at 2018-09-06 22:54:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 3.08 Mbit/s
95th percentile per-packet one-way delay: 1.267 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 1.261 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 1.273 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 1.273 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

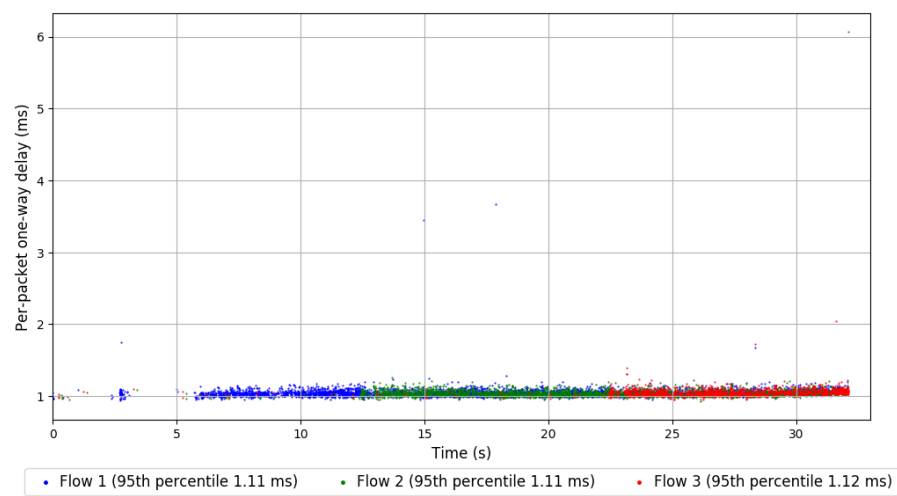
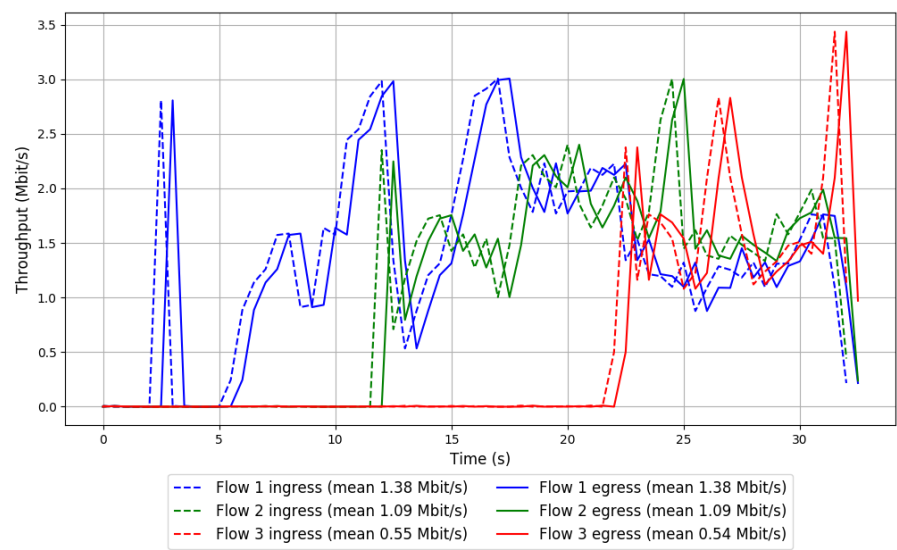


Run 4: Statistics of WebRTC media

Start at: 2018-09-06 20:46:17
End at: 2018-09-06 20:46:47
Local clock offset: 3.387 ms
Remote clock offset: -0.364 ms

Below is generated by plot.py at 2018-09-06 22:54:03
Datalink statistics
-- Total of 3 flows:
Average throughput: 2.99 Mbit/s
95th percentile per-packet one-way delay: 1.109 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 1.108 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 1.106 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 1.116 ms
Loss rate: 0.47%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-06 21:15:32

End at: 2018-09-06 21:16:02

Local clock offset: 3.311 ms

Remote clock offset: 3.925 ms

Below is generated by plot.py at 2018-09-06 22:54:03

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.92 Mbit/s

95th percentile per-packet one-way delay: 1.238 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 1.43 Mbit/s

95th percentile per-packet one-way delay: 1.238 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 1.10 Mbit/s

95th percentile per-packet one-way delay: 1.238 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.40 Mbit/s

95th percentile per-packet one-way delay: 1.238 ms

Loss rate: 0.55%

Run 5: Report of WebRTC media — Data Link

