

Pantheon Report

Generated at 2018-11-15 13:01:48 (UTC).

Data path: Brazil on **p4p1** (*remote*) → AWS Brazil 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 **gps.ntp.br** and have been applied to correct the timestamps in logs.

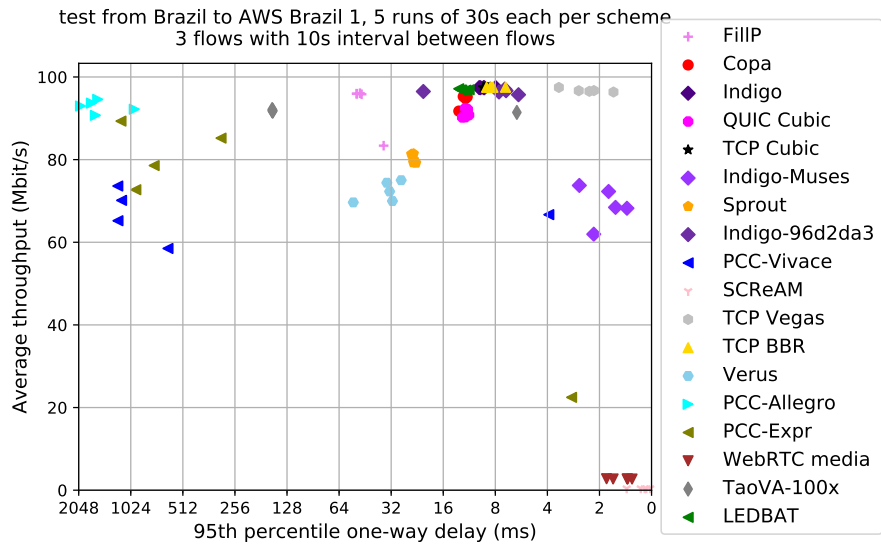
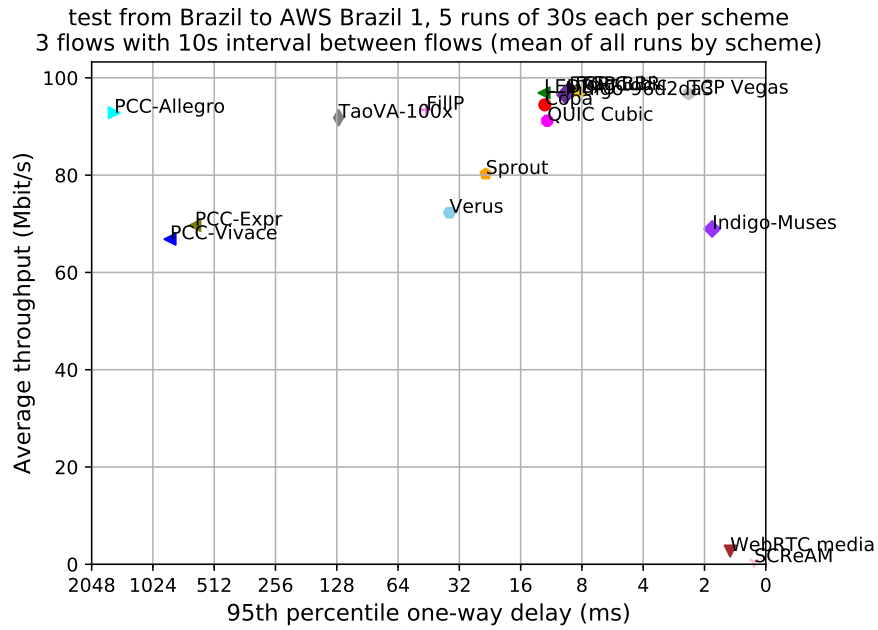
System info:

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

Git summary:

```
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851



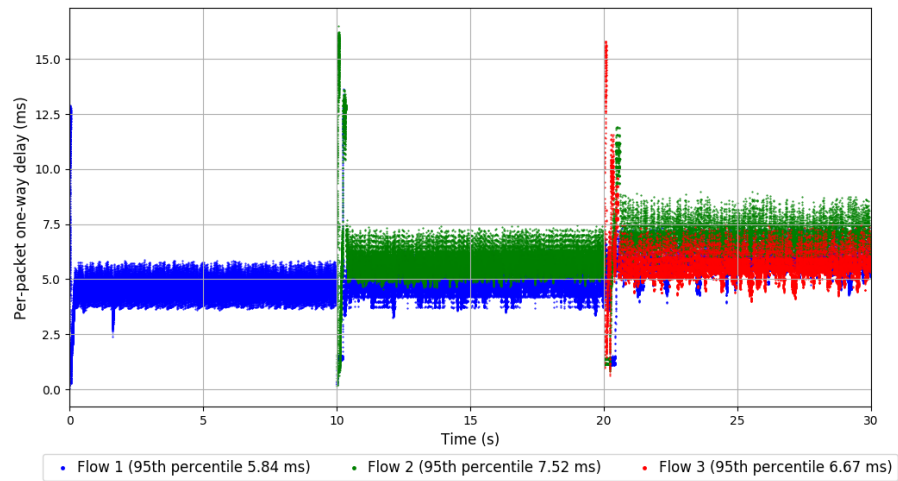
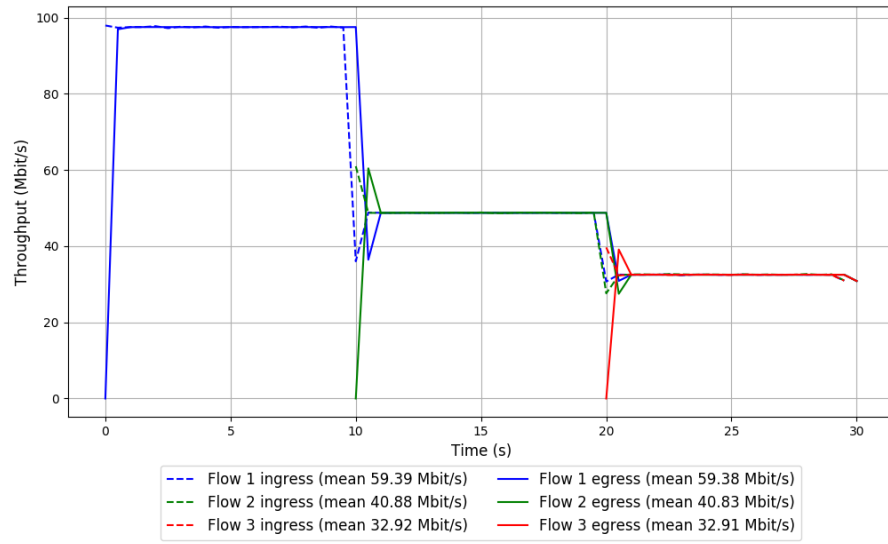
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	59.30	40.94	32.91	8.06	8.00	7.82	0.19	0.16	0.25
Copa	5	57.27	39.84	32.06	11.45	12.48	14.26	0.06	0.10	0.17
TCP Cubic	5	59.61	40.65	32.49	8.94	8.81	8.99	0.08	0.16	0.26
FillP	5	54.53	43.13	30.66	24.16	51.08	51.77	0.05	1.43	2.81
Indigo	5	59.69	40.67	32.46	9.24	9.22	8.00	0.65	0.93	0.25
Indigo-96d2da3	5	58.33	40.43	33.92	6.87	6.72	11.08	0.01	0.01	0.21
LEDBAT	5	59.15	40.45	32.55	11.96	12.22	12.73	0.14	0.25	0.40
Indigo-Muses	5	37.46	31.83	31.07	1.65	1.75	1.94	0.01	0.01	0.02
PCC-Allegro	5	63.41	31.21	26.32	1800.49	675.19	11.00	12.31	7.69	0.19
PCC-Expr	5	47.13	24.15	19.59	663.77	249.22	18.87	9.42	4.13	0.22
QUIC Cubic	5	54.21	40.10	31.14	11.72	11.69	12.22	0.18	0.36	0.53
SCReAM	5	0.22	0.22	0.22	0.38	0.37	0.37	0.00	0.00	0.00
Sprout	5	43.27	39.60	32.20	22.09	23.77	25.37	0.37	0.76	1.63
TaoVA-100x	5	53.52	40.08	34.86	125.31	124.91	125.92	0.41	0.90	2.10
TCP Vegas	5	52.15	43.90	46.23	1.83	2.22	2.97	0.00	0.01	0.02
Verus	5	36.92	35.97	34.30	30.00	27.23	117.41	0.02	0.03	0.06
PCC-Vivace	5	35.89	34.01	25.18	463.51	608.51	18.59	3.01	4.47	0.71
WebRTC media	5	1.50	0.87	0.36	1.13	1.14	1.22	0.00	0.00	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-11-15 11:07:49
End at: 2018-11-15 11:08:19
Local clock offset: -5.408 ms
Remote clock offset: -0.164 ms

Below is generated by plot.py at 2018-11-15 12:50:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 6.984 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 59.38 Mbit/s
95th percentile per-packet one-way delay: 5.841 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 40.83 Mbit/s
95th percentile per-packet one-way delay: 7.519 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.91 Mbit/s
95th percentile per-packet one-way delay: 6.668 ms
Loss rate: 0.07%

Run 1: Report of TCP BBR — Data Link

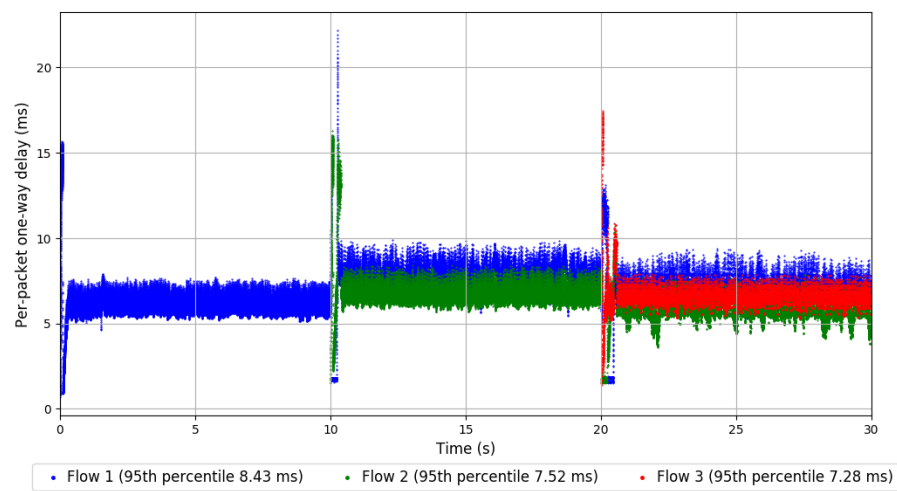
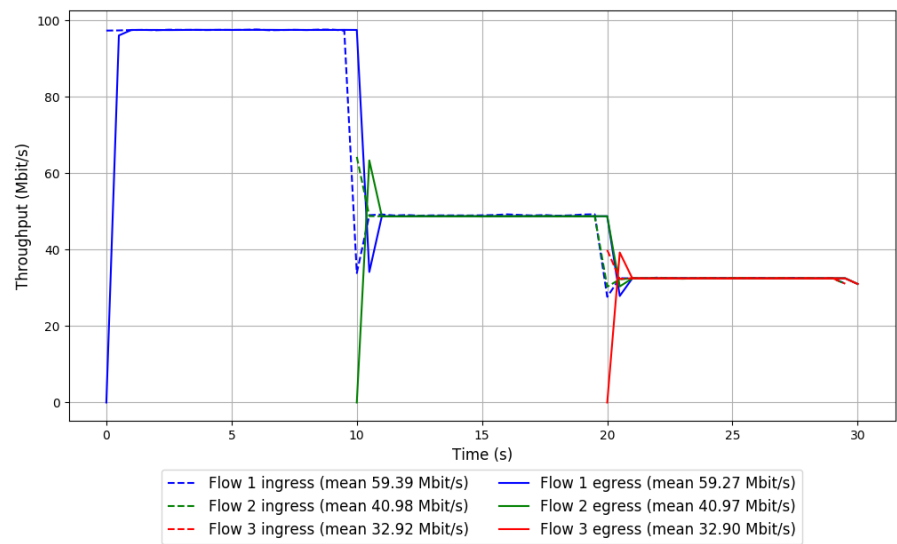


Run 2: Statistics of TCP BBR

Start at: 2018-11-15 11:28:28
End at: 2018-11-15 11:28:58
Local clock offset: -5.501 ms
Remote clock offset: -0.176 ms

Below is generated by plot.py at 2018-11-15 12:50:21
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 8.259 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 59.27 Mbit/s
95th percentile per-packet one-way delay: 8.431 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 40.97 Mbit/s
95th percentile per-packet one-way delay: 7.523 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 32.90 Mbit/s
95th percentile per-packet one-way delay: 7.278 ms
Loss rate: 0.08%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2018-11-15 11:49:12

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

Local clock offset: -0.999 ms

Remote clock offset: 0.113 ms

Below is generated by plot.py at 2018-11-15 12:50:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.45 Mbit/s

95th percentile per-packet one-way delay: 8.584 ms

Loss rate: 0.33%

-- Flow 1:

Average throughput: 59.24 Mbit/s

95th percentile per-packet one-way delay: 8.396 ms

Loss rate: 0.28%

-- Flow 2:

Average throughput: 40.93 Mbit/s

95th percentile per-packet one-way delay: 9.004 ms

Loss rate: 0.54%

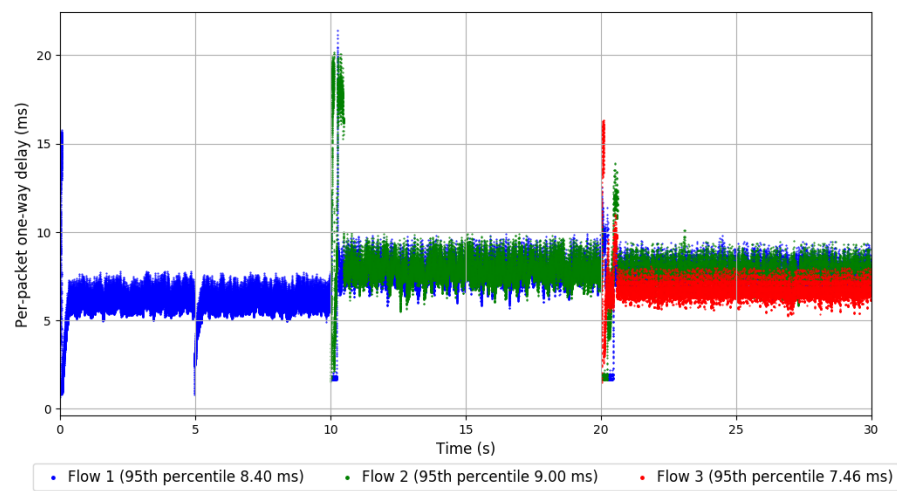
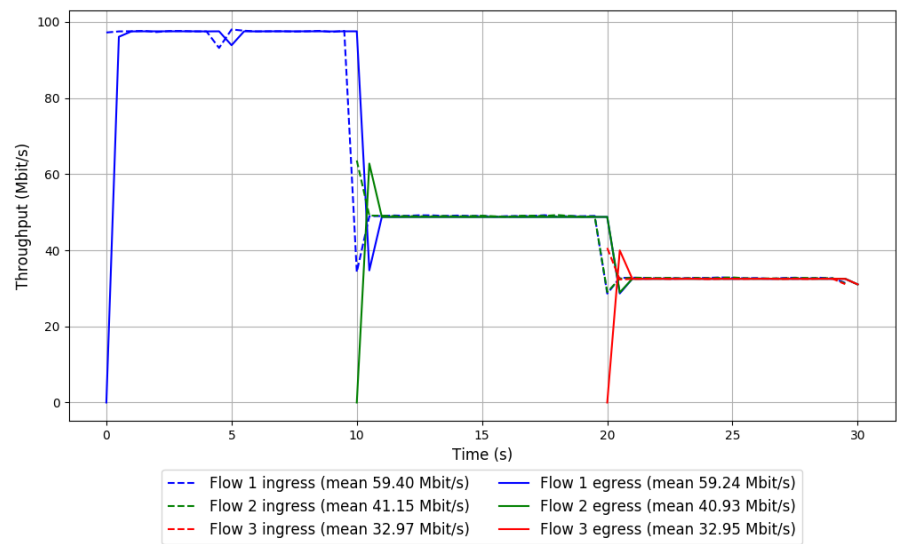
-- Flow 3:

Average throughput: 32.95 Mbit/s

95th percentile per-packet one-way delay: 7.458 ms

Loss rate: 0.08%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-11-15 12:09:57

End at: 2018-11-15 12:10:27

Local clock offset: -5.384 ms

Remote clock offset: 0.211 ms

Below is generated by plot.py at 2018-11-15 12:50:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.50 Mbit/s

95th percentile per-packet one-way delay: 8.992 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 59.29 Mbit/s

95th percentile per-packet one-way delay: 9.084 ms

Loss rate: 0.24%

-- Flow 2:

Average throughput: 41.00 Mbit/s

95th percentile per-packet one-way delay: 8.211 ms

Loss rate: 0.06%

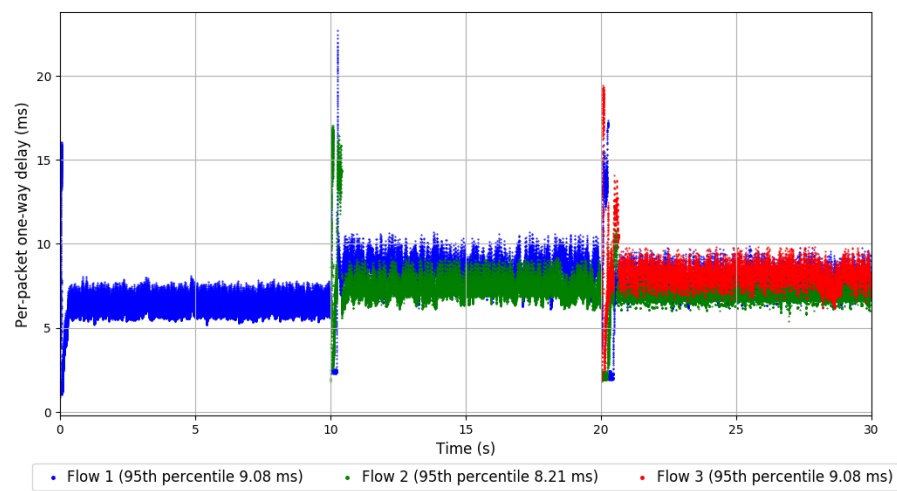
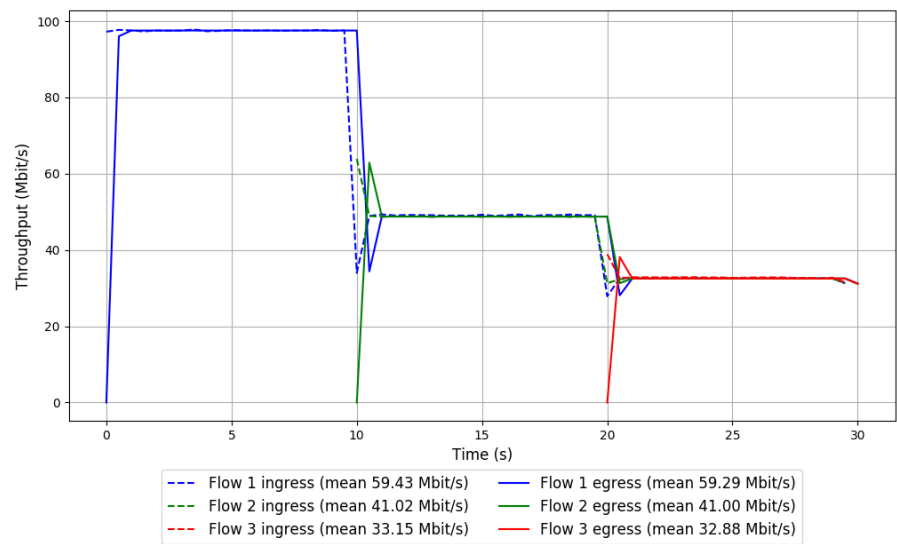
-- Flow 3:

Average throughput: 32.88 Mbit/s

95th percentile per-packet one-way delay: 9.078 ms

Loss rate: 0.84%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-11-15 12:30:42

End at: 2018-11-15 12:31:12

Local clock offset: -7.091 ms

Remote clock offset: 0.258 ms

Below is generated by plot.py at 2018-11-15 12:50:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.50 Mbit/s

95th percentile per-packet one-way delay: 8.448 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 59.30 Mbit/s

95th percentile per-packet one-way delay: 8.536 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 40.98 Mbit/s

95th percentile per-packet one-way delay: 7.758 ms

Loss rate: 0.03%

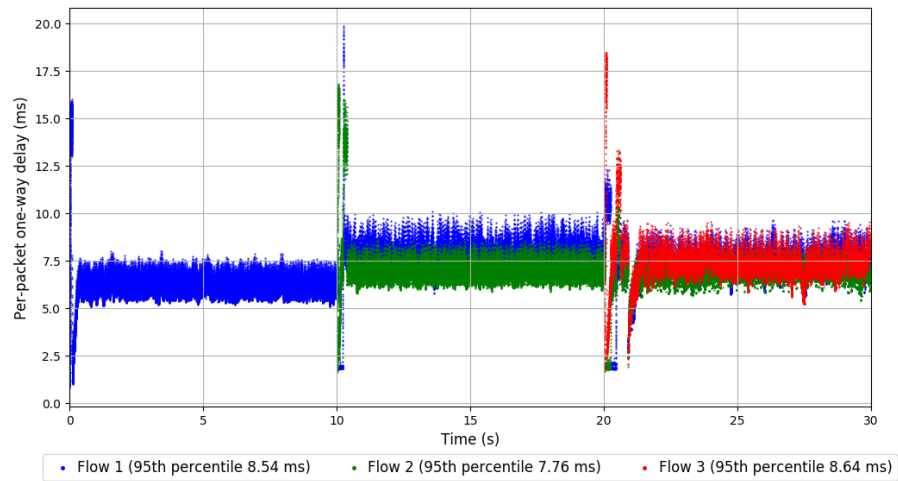
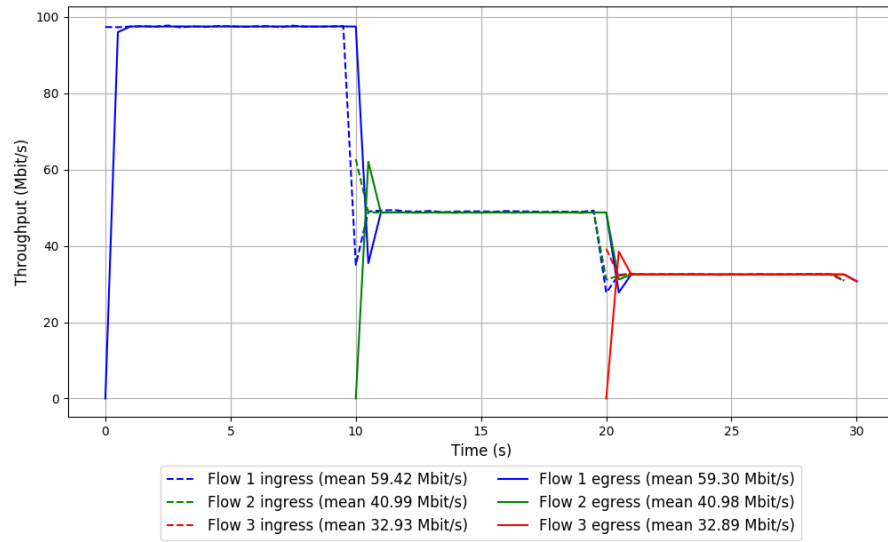
-- Flow 3:

Average throughput: 32.89 Mbit/s

95th percentile per-packet one-way delay: 8.636 ms

Loss rate: 0.16%

Run 5: Report of TCP BBR — Data Link

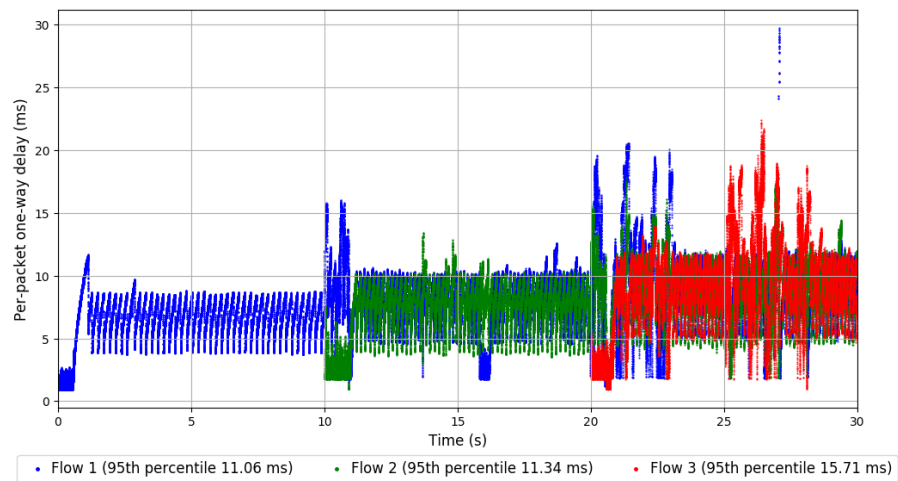
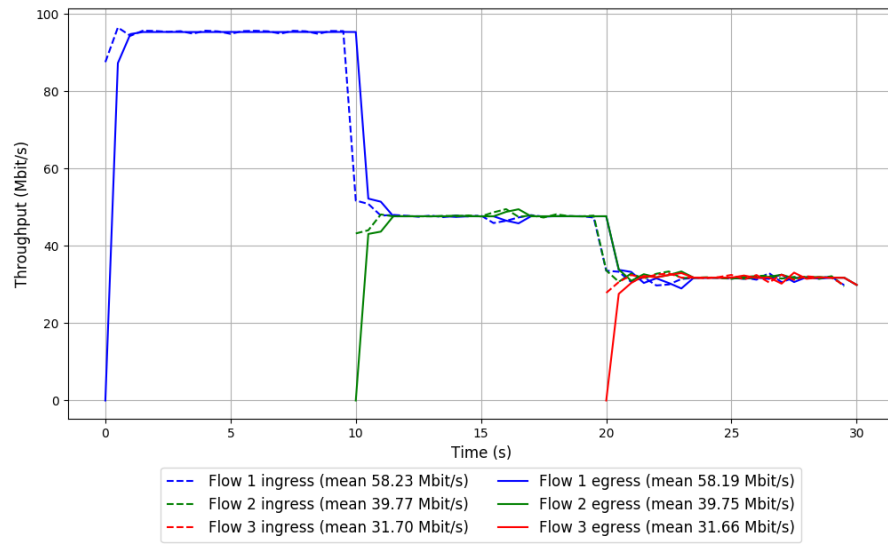


Run 1: Statistics of Copa

Start at: 2018-11-15 11:14:42
End at: 2018-11-15 11:15:12
Local clock offset: -5.717 ms
Remote clock offset: -0.229 ms

Below is generated by plot.py at 2018-11-15 12:51:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.20 Mbit/s
95th percentile per-packet one-way delay: 11.630 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 58.19 Mbit/s
95th percentile per-packet one-way delay: 11.063 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.75 Mbit/s
95th percentile per-packet one-way delay: 11.340 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 31.66 Mbit/s
95th percentile per-packet one-way delay: 15.712 ms
Loss rate: 0.13%

Run 1: Report of Copa — Data Link

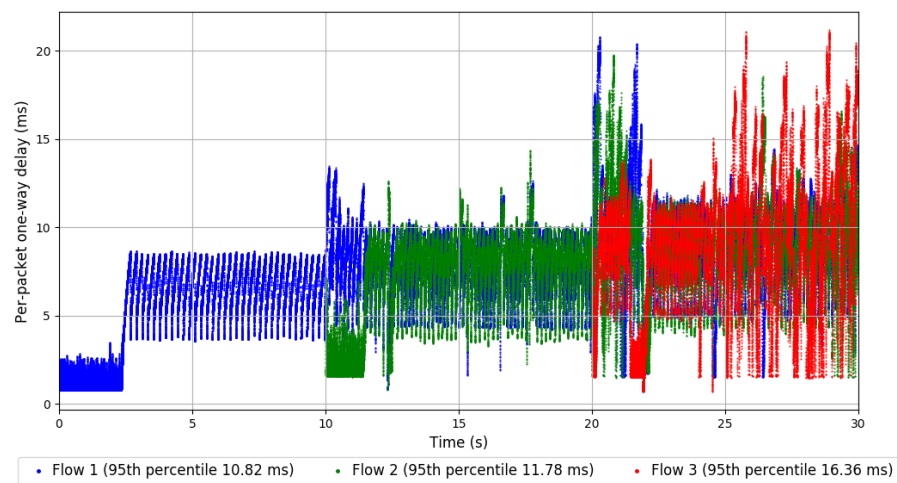
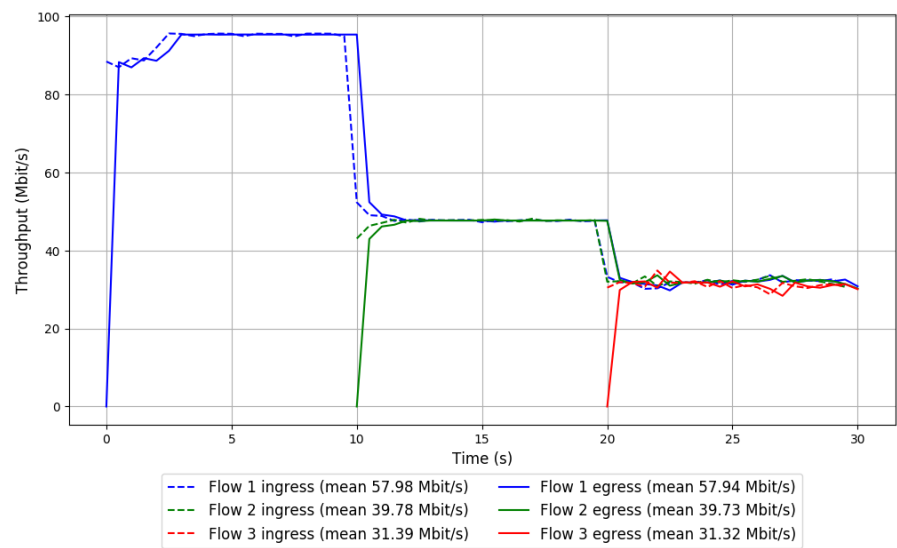


Run 2: Statistics of Copa

Start at: 2018-11-15 11:35:22
End at: 2018-11-15 11:35:52
Local clock offset: -2.969 ms
Remote clock offset: -0.012 ms

Below is generated by plot.py at 2018-11-15 12:51:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 94.81 Mbit/s
95th percentile per-packet one-way delay: 11.889 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 57.94 Mbit/s
95th percentile per-packet one-way delay: 10.823 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.73 Mbit/s
95th percentile per-packet one-way delay: 11.777 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 31.32 Mbit/s
95th percentile per-packet one-way delay: 16.361 ms
Loss rate: 0.24%

Run 2: Report of Copa — Data Link



Run 3: Statistics of Copa

Start at: 2018-11-15 11:56:06

End at: 2018-11-15 11:56:36

Local clock offset: -0.554 ms

Remote clock offset: 0.14 ms

Below is generated by plot.py at 2018-11-15 12:51:23

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.28 Mbit/s

95th percentile per-packet one-way delay: 12.263 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 57.17 Mbit/s

95th percentile per-packet one-way delay: 12.524 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 40.52 Mbit/s

95th percentile per-packet one-way delay: 11.763 ms

Loss rate: 0.10%

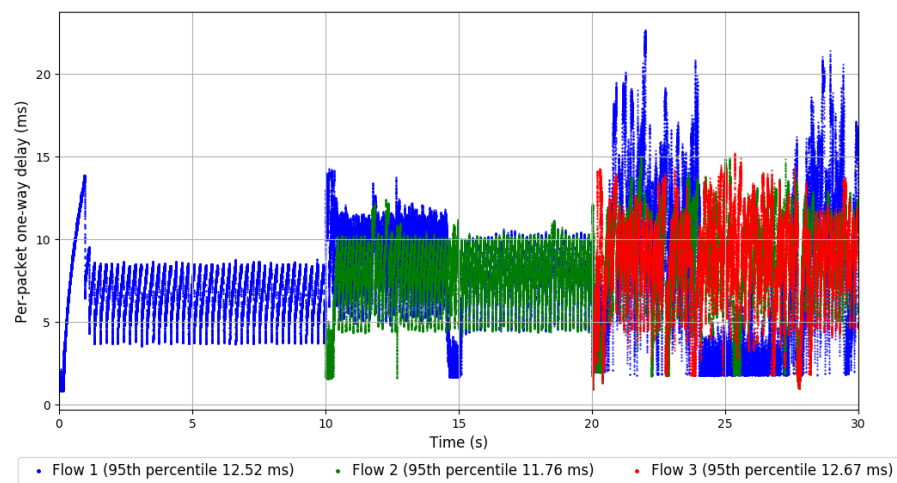
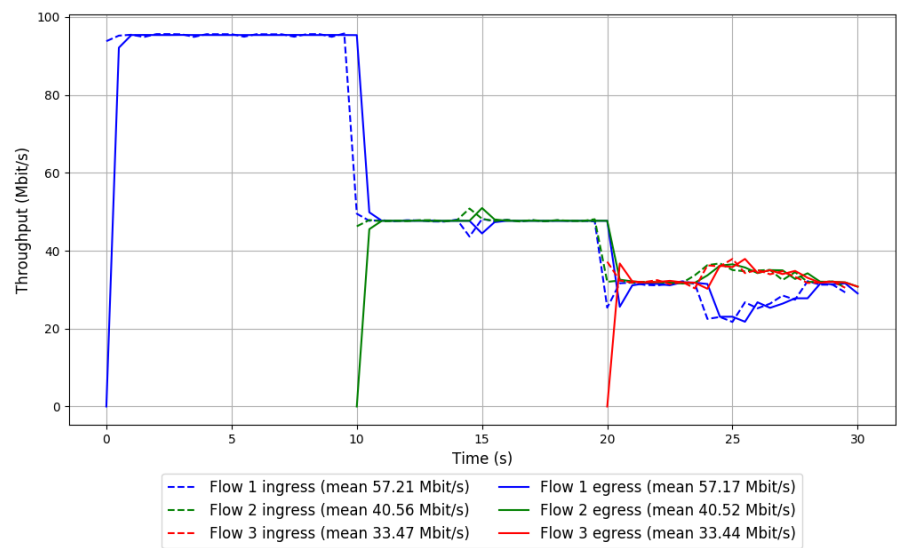
-- Flow 3:

Average throughput: 33.44 Mbit/s

95th percentile per-packet one-way delay: 12.674 ms

Loss rate: 0.11%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-11-15 12:16:51

End at: 2018-11-15 12:17:21

Local clock offset: -6.338 ms

Remote clock offset: 0.165 ms

Below is generated by plot.py at 2018-11-15 12:52:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.74 Mbit/s

95th percentile per-packet one-way delay: 13.004 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 54.75 Mbit/s

95th percentile per-packet one-way delay: 10.648 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 39.32 Mbit/s

95th percentile per-packet one-way delay: 15.931 ms

Loss rate: 0.12%

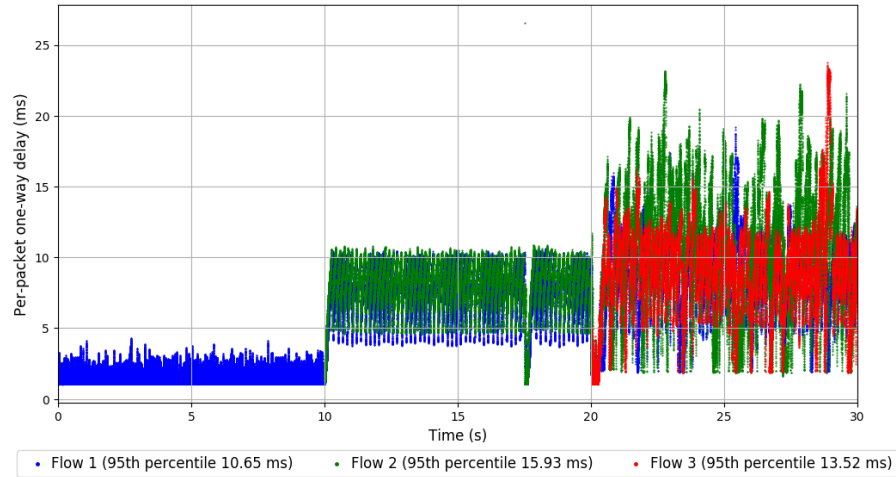
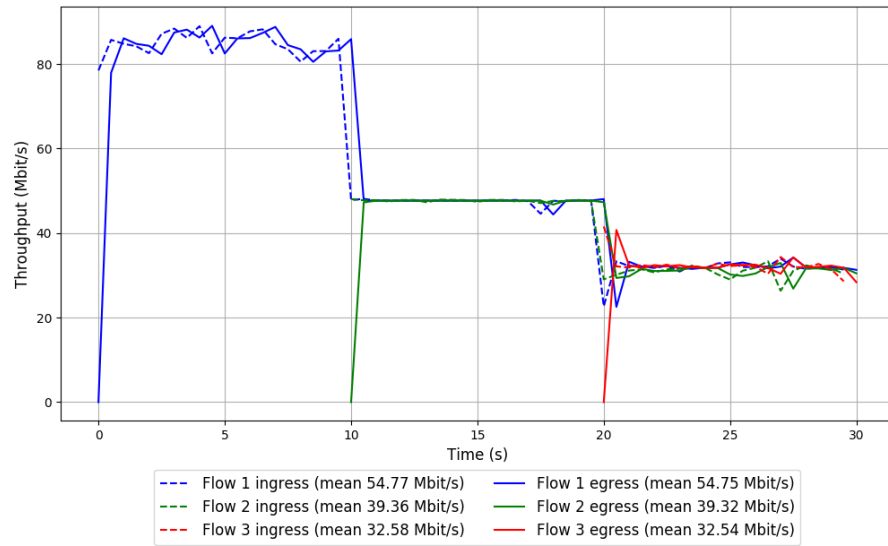
-- Flow 3:

Average throughput: 32.54 Mbit/s

95th percentile per-packet one-way delay: 13.523 ms

Loss rate: 0.16%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-11-15 12:37:37

End at: 2018-11-15 12:38:07

Local clock offset: -7.209 ms

Remote clock offset: 0.279 ms

Below is generated by plot.py at 2018-11-15 12:52:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.26 Mbit/s

95th percentile per-packet one-way delay: 12.057 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 58.31 Mbit/s

95th percentile per-packet one-way delay: 12.207 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 39.86 Mbit/s

95th percentile per-packet one-way delay: 11.593 ms

Loss rate: 0.10%

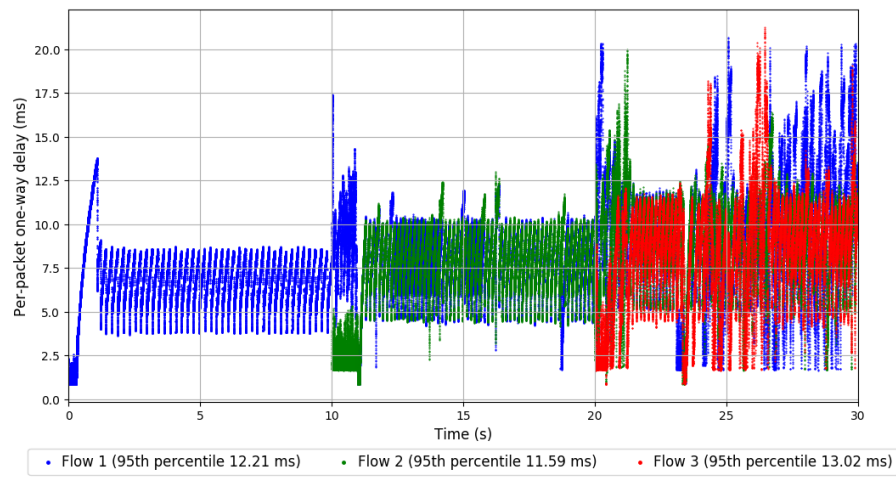
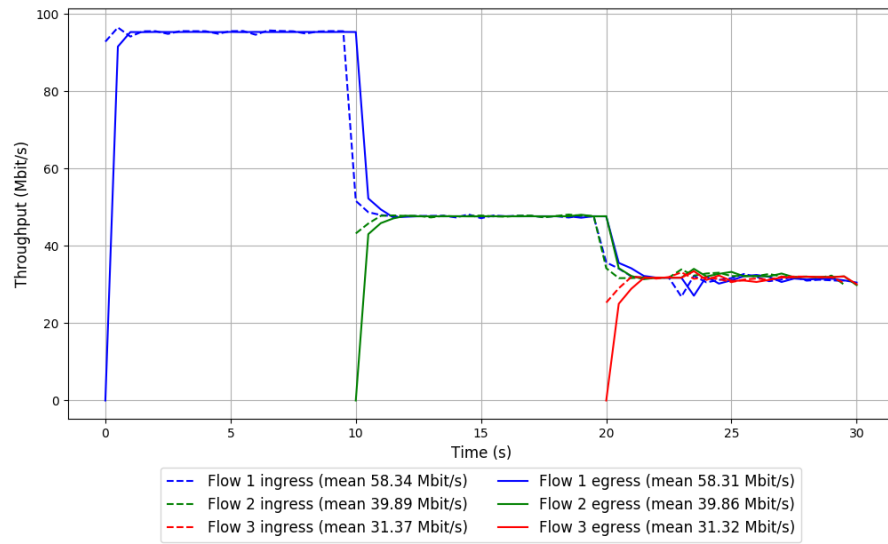
-- Flow 3:

Average throughput: 31.32 Mbit/s

95th percentile per-packet one-way delay: 13.024 ms

Loss rate: 0.19%

Run 5: Report of Copa — Data Link

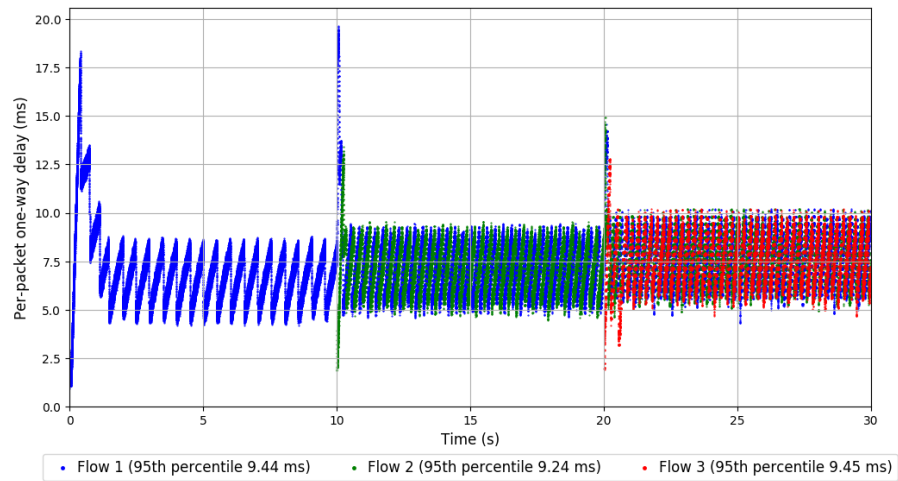
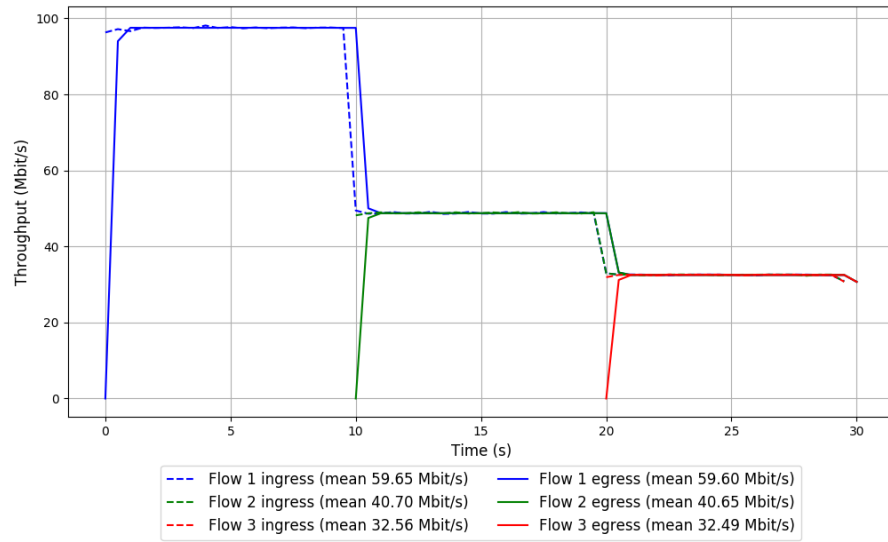


Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 11:15:54
End at: 2018-11-15 11:16:24
Local clock offset: -5.795 ms
Remote clock offset: -0.292 ms

Below is generated by plot.py at 2018-11-15 12:52:25
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.394 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.60 Mbit/s
95th percentile per-packet one-way delay: 9.442 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.242 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 9.449 ms
Loss rate: 0.23%

Run 1: Report of TCP Cubic — Data Link

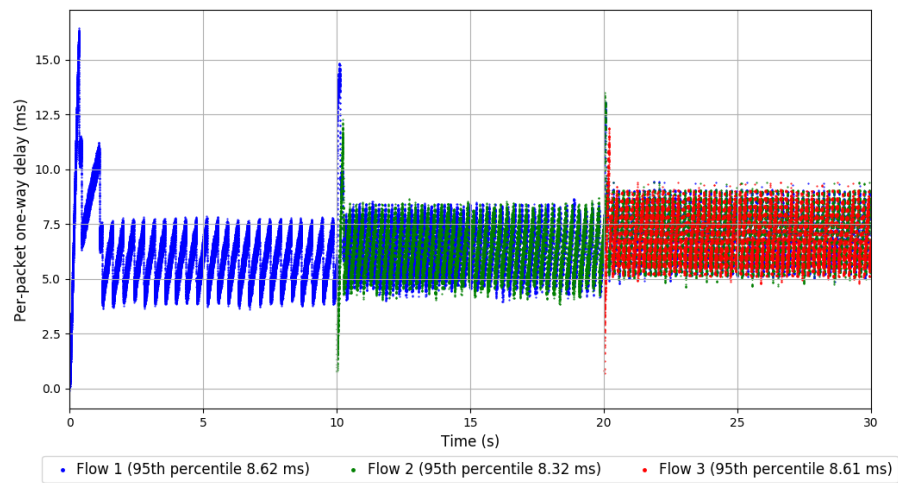
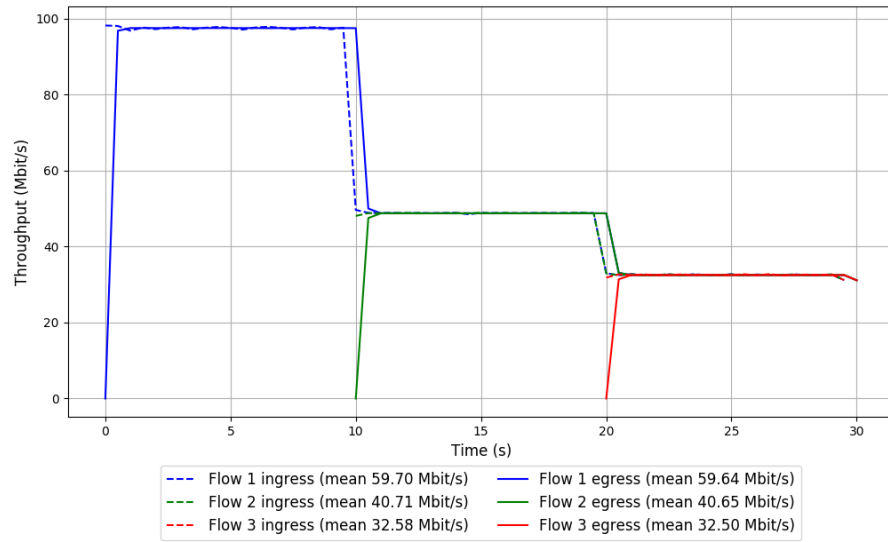


Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 11:36:34
End at: 2018-11-15 11:37:04
Local clock offset: -3.47 ms
Remote clock offset: -0.037 ms

Below is generated by plot.py at 2018-11-15 12:52:25
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.52 Mbit/s
95th percentile per-packet one-way delay: 8.545 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 8.622 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 8.321 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 8.611 ms
Loss rate: 0.27%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 11:57:19

End at: 2018-11-15 11:57:49

Local clock offset: -1.688 ms

Remote clock offset: 0.175 ms

Below is generated by plot.py at 2018-11-15 12:52:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 8.843 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 59.63 Mbit/s

95th percentile per-packet one-way delay: 8.861 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 40.65 Mbit/s

95th percentile per-packet one-way delay: 8.729 ms

Loss rate: 0.15%

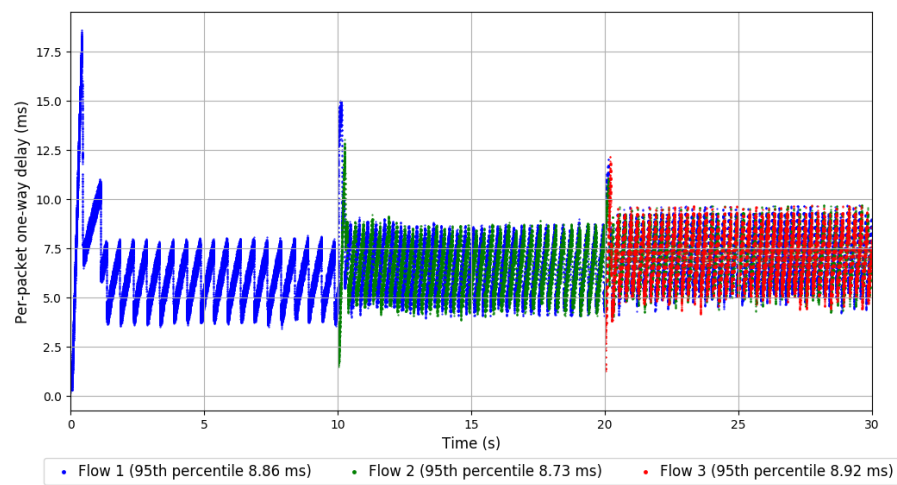
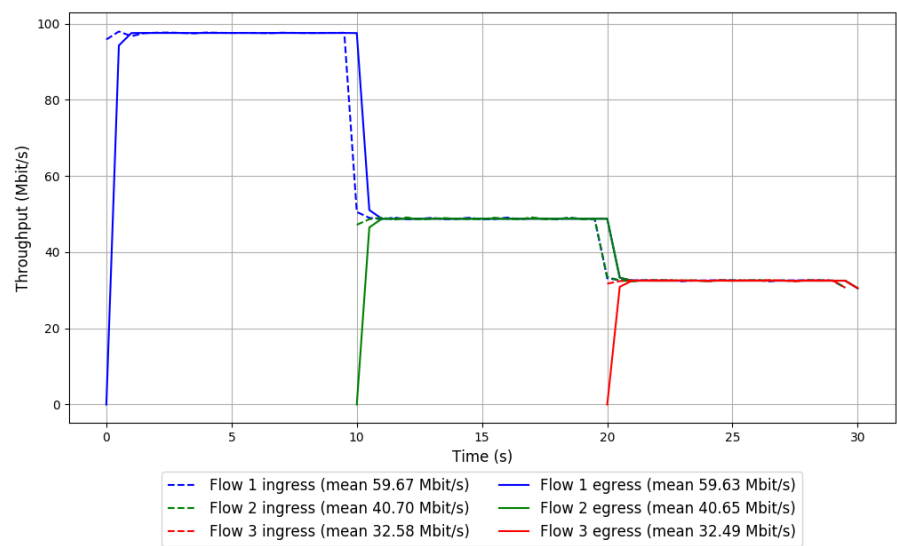
-- Flow 3:

Average throughput: 32.49 Mbit/s

95th percentile per-packet one-way delay: 8.923 ms

Loss rate: 0.28%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 12:18:04

End at: 2018-11-15 12:18:34

Local clock offset: -7.246 ms

Remote clock offset: 0.151 ms

Below is generated by plot.py at 2018-11-15 12:52:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 8.646 ms

Loss rate: 0.13%

-- Flow 1:

Average throughput: 59.60 Mbit/s

95th percentile per-packet one-way delay: 8.630 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 40.65 Mbit/s

95th percentile per-packet one-way delay: 8.655 ms

Loss rate: 0.17%

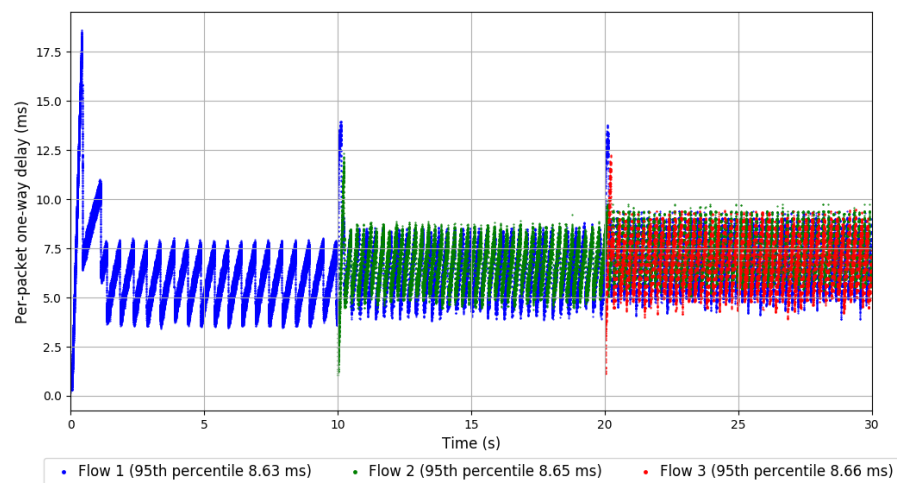
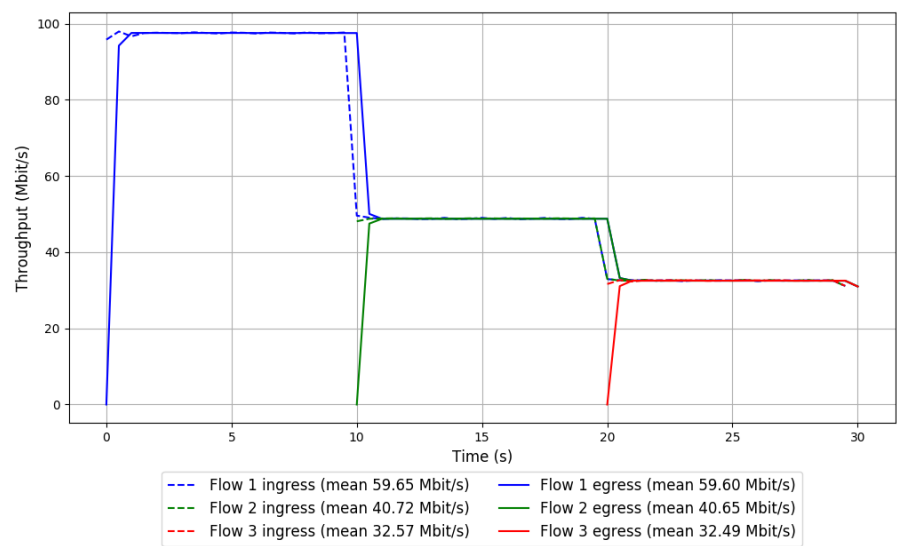
-- Flow 3:

Average throughput: 32.49 Mbit/s

95th percentile per-packet one-way delay: 8.658 ms

Loss rate: 0.25%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 12:38:49

End at: 2018-11-15 12:39:19

Local clock offset: -7.153 ms

Remote clock offset: 0.305 ms

Below is generated by plot.py at 2018-11-15 12:52:27

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.47 Mbit/s

95th percentile per-packet one-way delay: 9.184 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 59.60 Mbit/s

95th percentile per-packet one-way delay: 9.152 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 40.65 Mbit/s

95th percentile per-packet one-way delay: 9.080 ms

Loss rate: 0.15%

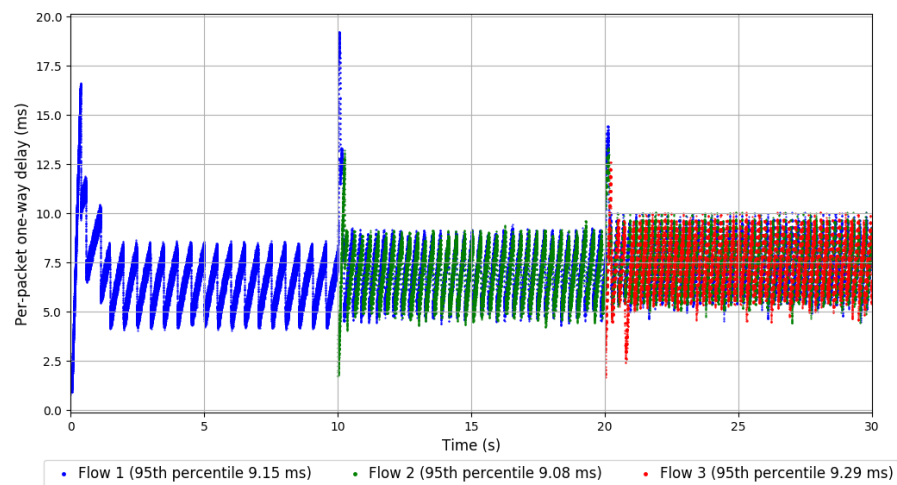
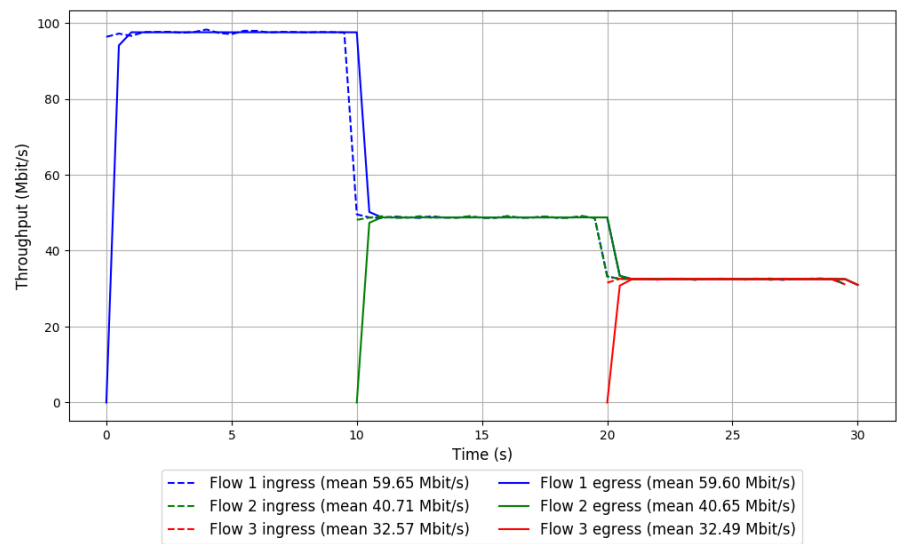
-- Flow 3:

Average throughput: 32.49 Mbit/s

95th percentile per-packet one-way delay: 9.288 ms

Loss rate: 0.26%

Run 5: Report of TCP Cubic — Data Link

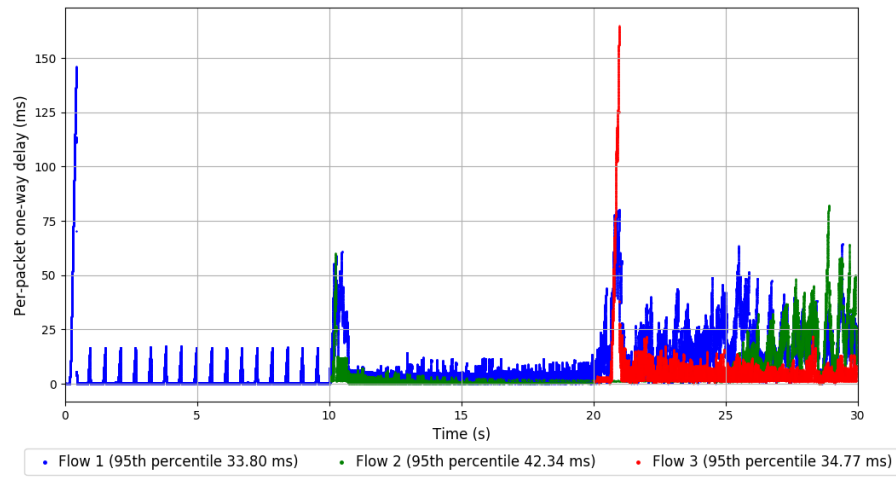
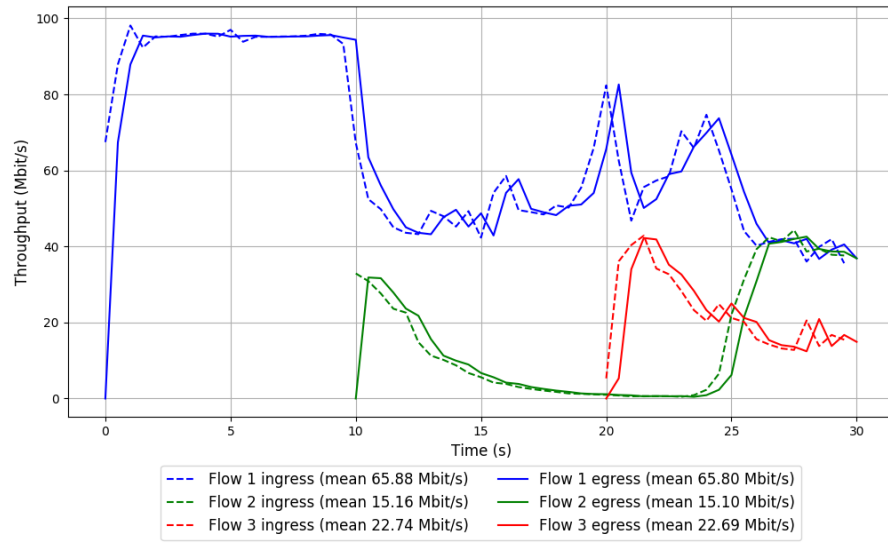


Run 1: Statistics of FillP

Start at: 2018-11-15 11:10:09
End at: 2018-11-15 11:10:39
Local clock offset: -5.837 ms
Remote clock offset: -0.198 ms

Below is generated by plot.py at 2018-11-15 12:52:37
Datalink statistics
-- Total of 3 flows:
Average throughput: 83.38 Mbit/s
95th percentile per-packet one-way delay: 35.373 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 65.80 Mbit/s
95th percentile per-packet one-way delay: 33.795 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 15.10 Mbit/s
95th percentile per-packet one-way delay: 42.344 ms
Loss rate: 0.39%
-- Flow 3:
Average throughput: 22.69 Mbit/s
95th percentile per-packet one-way delay: 34.773 ms
Loss rate: 0.18%

Run 1: Report of FillP — Data Link

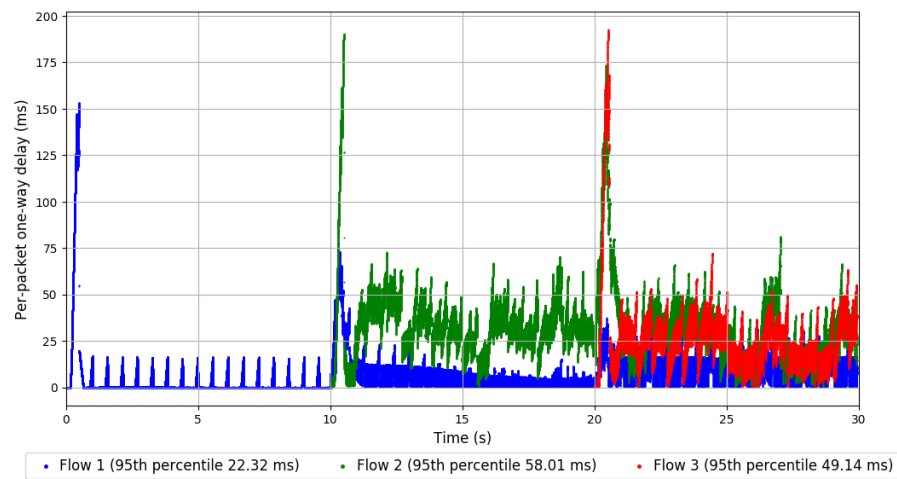
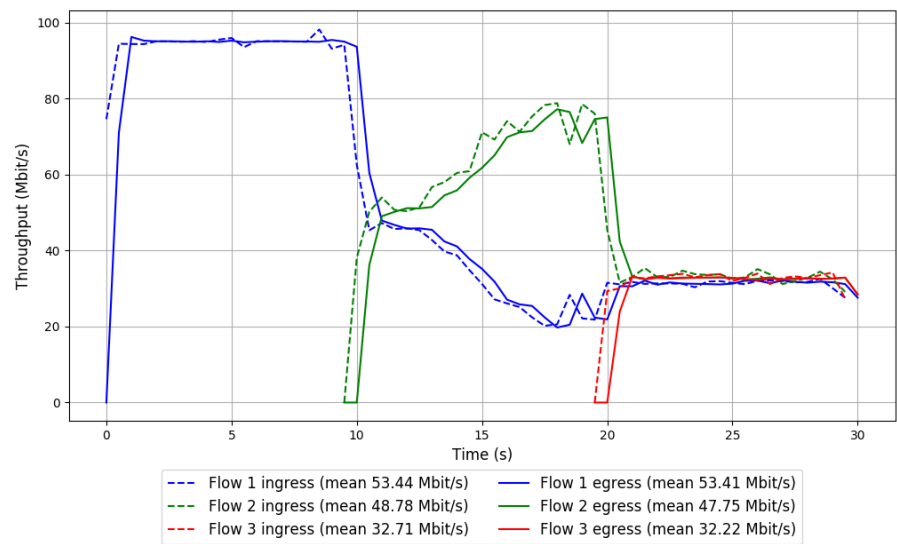


Run 2: Statistics of FillP

Start at: 2018-11-15 11:30:48
End at: 2018-11-15 11:31:18
Local clock offset: -5.288 ms
Remote clock offset: -0.108 ms

Below is generated by plot.py at 2018-11-15 12:52:54
Datalink statistics
-- Total of 3 flows:
Average throughput: 95.93 Mbit/s
95th percentile per-packet one-way delay: 50.502 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 53.41 Mbit/s
95th percentile per-packet one-way delay: 22.316 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 47.75 Mbit/s
95th percentile per-packet one-way delay: 58.005 ms
Loss rate: 2.11%
-- Flow 3:
Average throughput: 32.22 Mbit/s
95th percentile per-packet one-way delay: 49.143 ms
Loss rate: 1.37%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-11-15 11:51:32

End at: 2018-11-15 11:52:02

Local clock offset: -1.531 ms

Remote clock offset: 0.144 ms

Below is generated by plot.py at 2018-11-15 12:52:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.81 Mbit/s

95th percentile per-packet one-way delay: 47.422 ms

Loss rate: 0.79%

-- Flow 1:

Average throughput: 52.17 Mbit/s

95th percentile per-packet one-way delay: 23.168 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 49.42 Mbit/s

95th percentile per-packet one-way delay: 42.891 ms

Loss rate: 0.90%

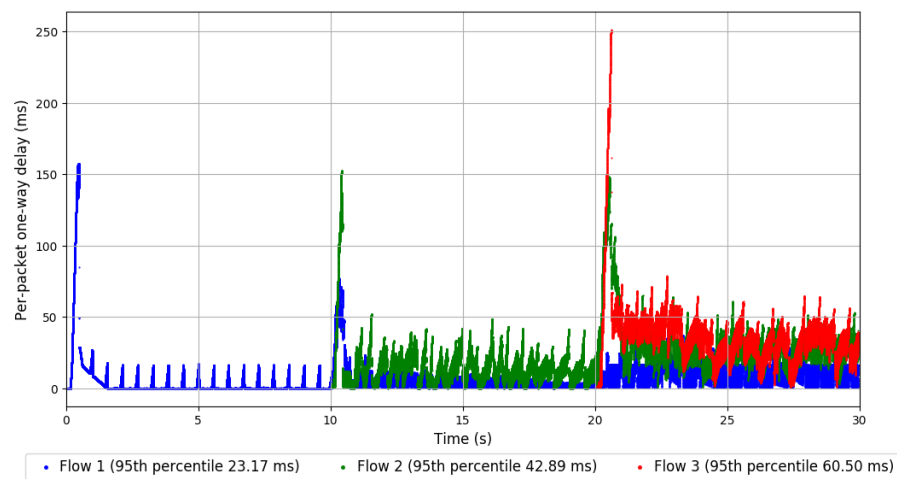
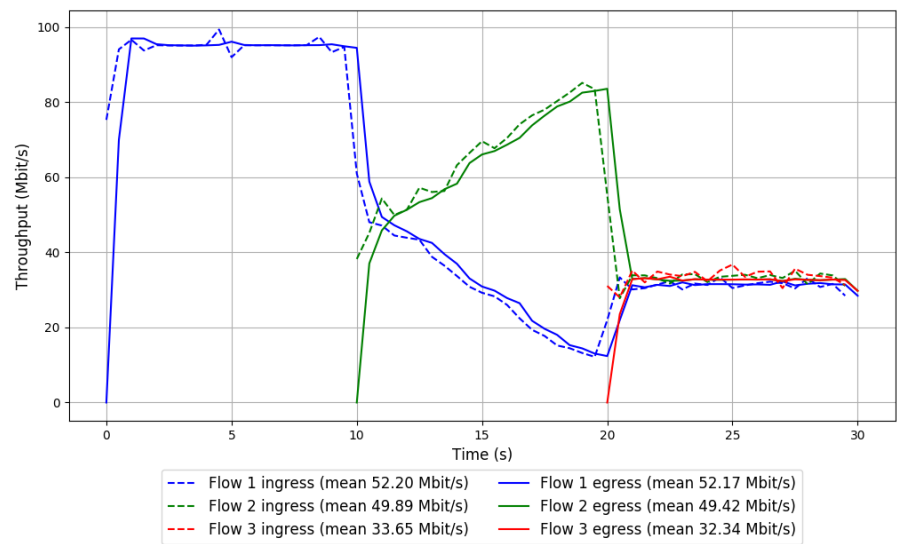
-- Flow 3:

Average throughput: 32.34 Mbit/s

95th percentile per-packet one-way delay: 60.503 ms

Loss rate: 3.93%

Run 3: Report of FillP — Data Link



Run 4: Statistics of FillP

Start at: 2018-11-15 12:12:17

End at: 2018-11-15 12:12:47

Local clock offset: -5.745 ms

Remote clock offset: 0.276 ms

Below is generated by plot.py at 2018-11-15 12:52:55

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.96 Mbit/s

95th percentile per-packet one-way delay: 50.716 ms

Loss rate: 1.13%

-- Flow 1:

Average throughput: 51.70 Mbit/s

95th percentile per-packet one-way delay: 22.785 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 50.99 Mbit/s

95th percentile per-packet one-way delay: 58.410 ms

Loss rate: 1.81%

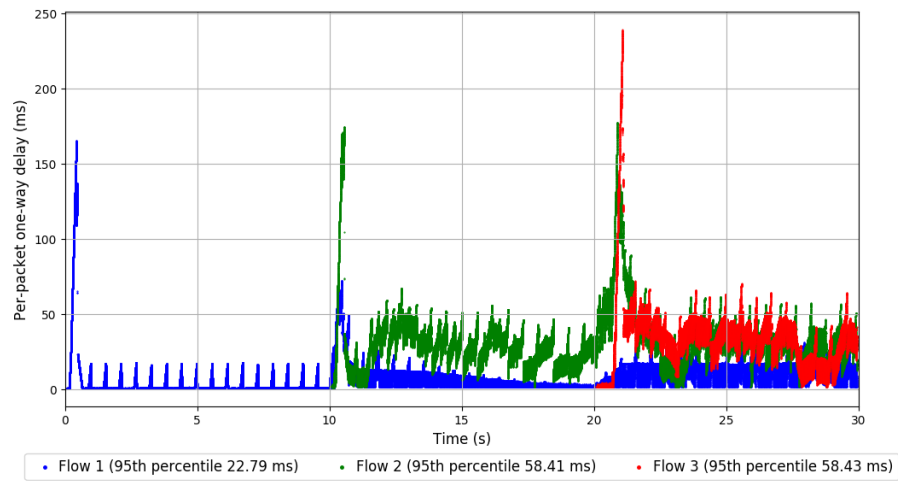
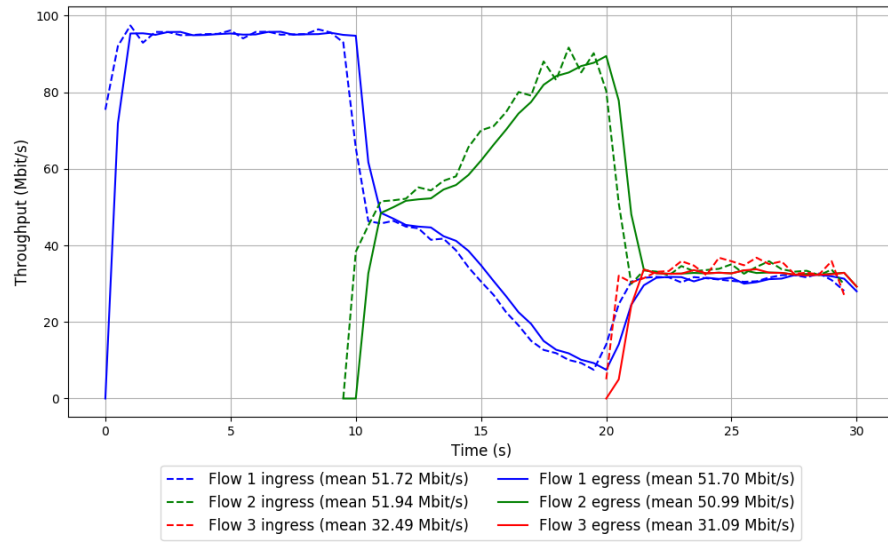
-- Flow 3:

Average throughput: 31.09 Mbit/s

95th percentile per-packet one-way delay: 58.430 ms

Loss rate: 4.18%

Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-11-15 12:33:02

End at: 2018-11-15 12:33:32

Local clock offset: -7.854 ms

Remote clock offset: 0.164 ms

Below is generated by plot.py at 2018-11-15 12:53:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.07 Mbit/s

95th percentile per-packet one-way delay: 48.472 ms

Loss rate: 1.26%

-- Flow 1:

Average throughput: 49.58 Mbit/s

95th percentile per-packet one-way delay: 18.746 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 52.39 Mbit/s

95th percentile per-packet one-way delay: 53.738 ms

Loss rate: 1.92%

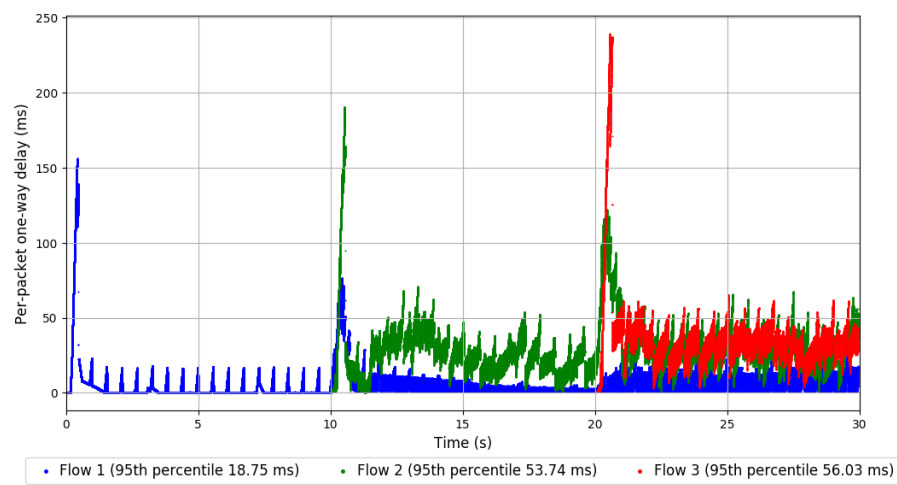
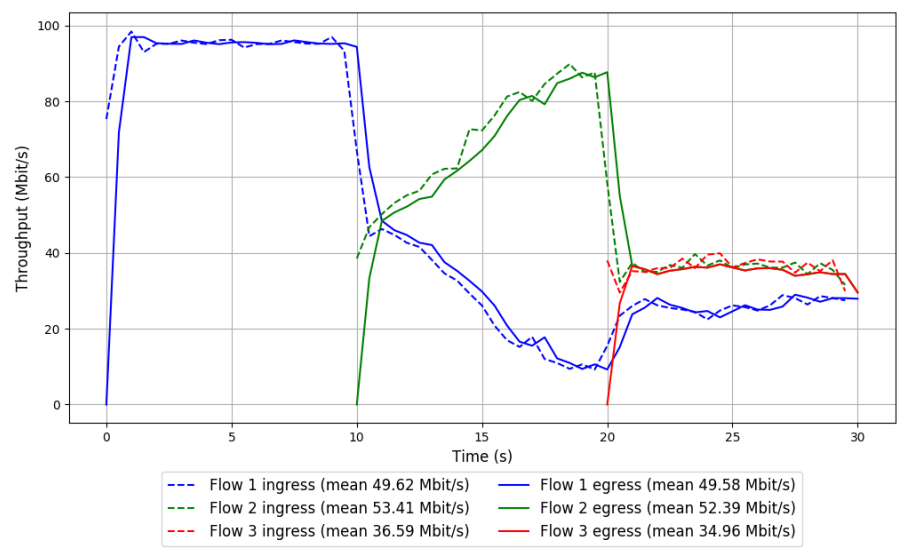
-- Flow 3:

Average throughput: 34.96 Mbit/s

95th percentile per-packet one-way delay: 56.026 ms

Loss rate: 4.39%

Run 5: Report of FillP — Data Link

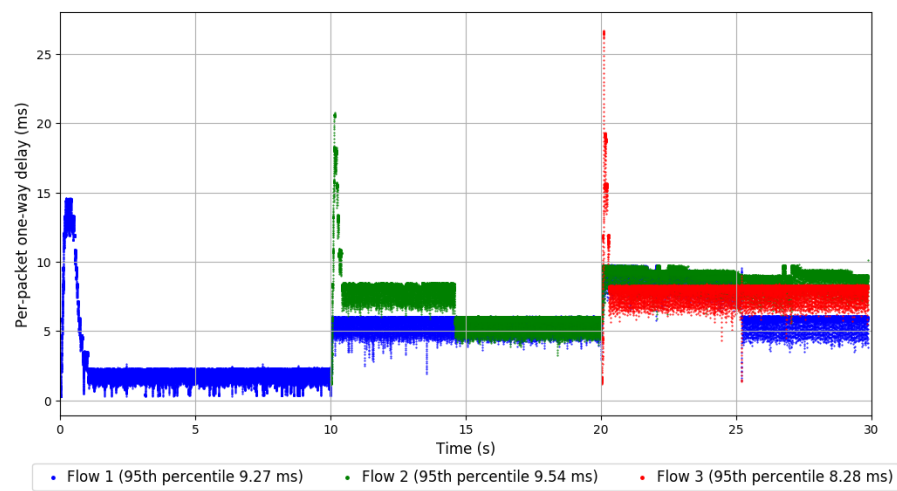
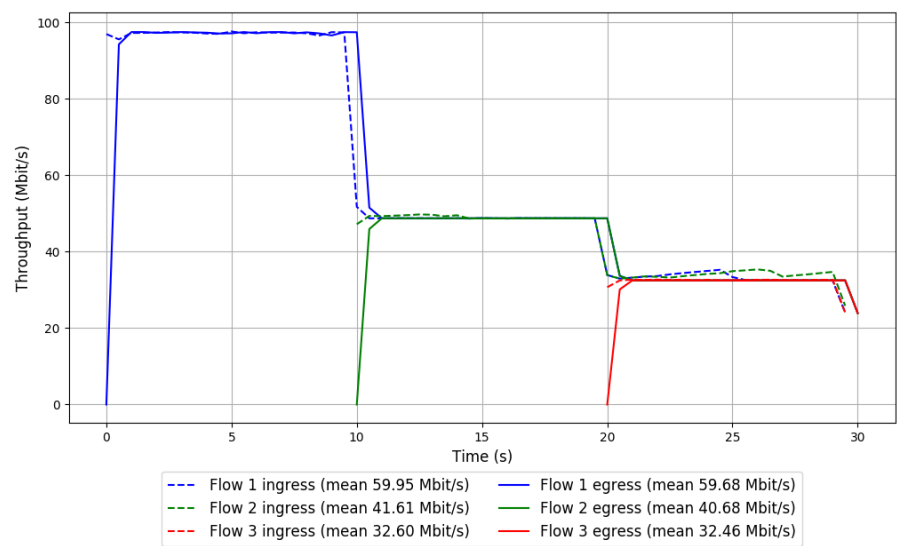



```
Run 1: Statistics of Indigo

Start at: 2018-11-15 11:05:31
End at: 2018-11-15 11:06:01
Local clock offset: -4.898 ms
Remote clock offset: -0.297 ms

# Below is generated by plot.py at 2018-11-15 12:53:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 9.346 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 9.269 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 40.68 Mbit/s
95th percentile per-packet one-way delay: 9.545 ms
Loss rate: 2.27%
-- Flow 3:
Average throughput: 32.46 Mbit/s
95th percentile per-packet one-way delay: 8.283 ms
Loss rate: 0.43%
```

Run 1: Report of Indigo — Data Link

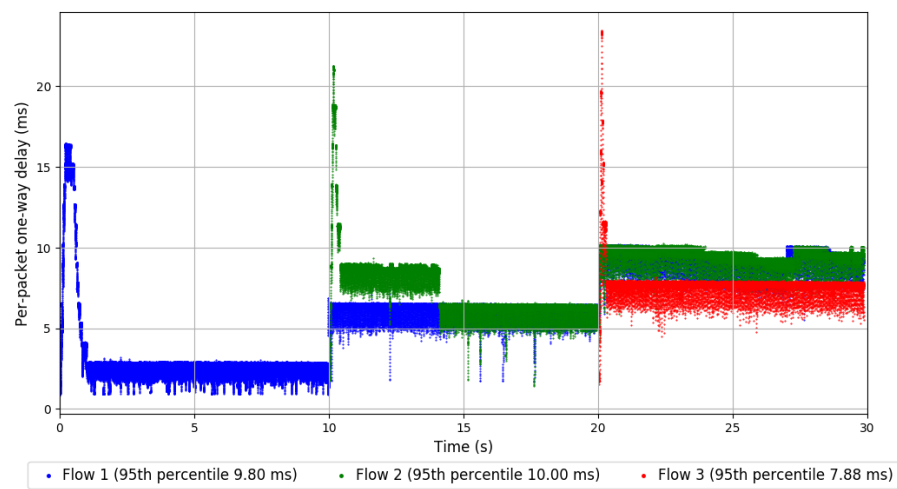
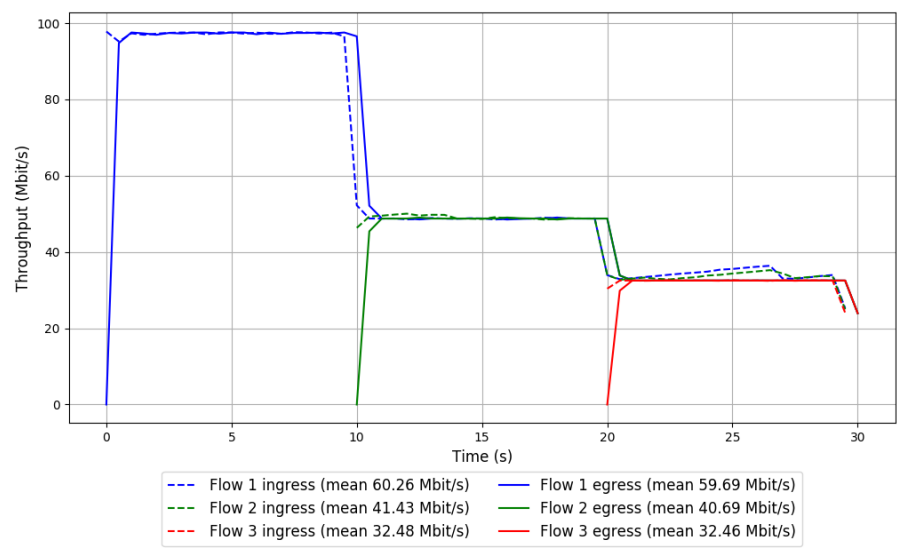


Run 2: Statistics of Indigo

Start at: 2018-11-15 11:26:10
End at: 2018-11-15 11:26:40
Local clock offset: -6.613 ms
Remote clock offset: -0.152 ms

Below is generated by plot.py at 2018-11-15 12:53:50
Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 9.912 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 59.69 Mbit/s
95th percentile per-packet one-way delay: 9.799 ms
Loss rate: 0.95%
-- Flow 2:
Average throughput: 40.69 Mbit/s
95th percentile per-packet one-way delay: 9.996 ms
Loss rate: 1.78%
-- Flow 3:
Average throughput: 32.46 Mbit/s
95th percentile per-packet one-way delay: 7.878 ms
Loss rate: 0.09%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

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

End at: 2018-11-15 11:47:24

Local clock offset: -1.914 ms

Remote clock offset: 0.009 ms

Below is generated by plot.py at 2018-11-15 12:53:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.43 Mbit/s

95th percentile per-packet one-way delay: 7.964 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 59.72 Mbit/s

95th percentile per-packet one-way delay: 7.943 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 40.63 Mbit/s

95th percentile per-packet one-way delay: 8.689 ms

Loss rate: 0.15%

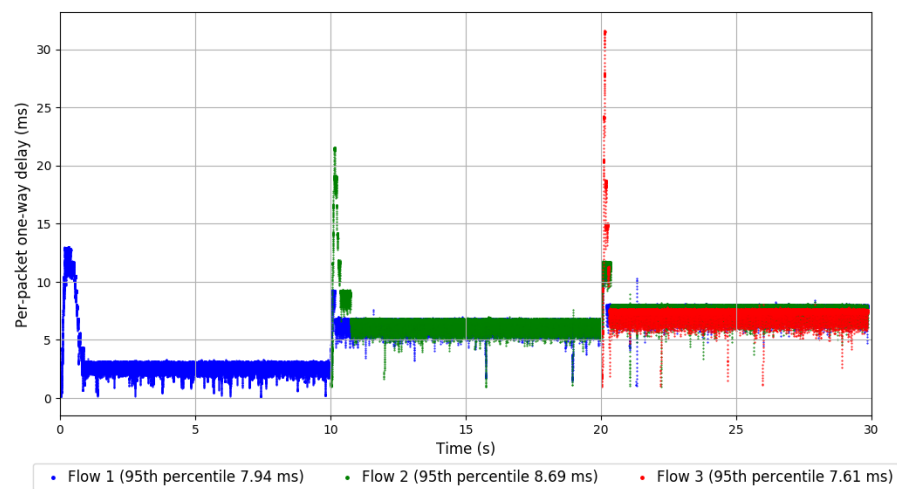
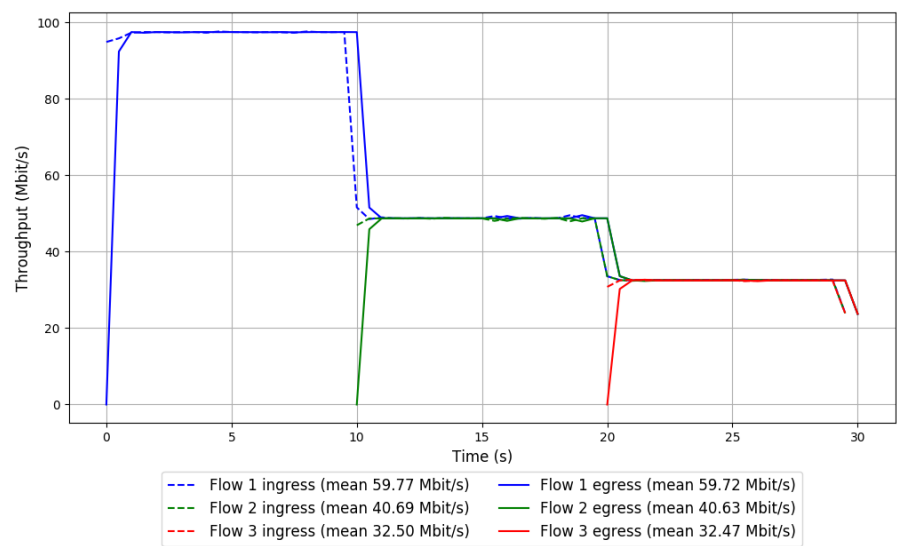
-- Flow 3:

Average throughput: 32.47 Mbit/s

95th percentile per-packet one-way delay: 7.613 ms

Loss rate: 0.12%

Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-11-15 12:07:39

End at: 2018-11-15 12:08:09

Local clock offset: -5.703 ms

Remote clock offset: 0.176 ms

Below is generated by plot.py at 2018-11-15 12:53:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.39 Mbit/s

95th percentile per-packet one-way delay: 9.268 ms

Loss rate: 0.55%

-- Flow 1:

Average throughput: 59.66 Mbit/s

95th percentile per-packet one-way delay: 9.389 ms

Loss rate: 0.77%

-- Flow 2:

Average throughput: 40.66 Mbit/s

95th percentile per-packet one-way delay: 8.910 ms

Loss rate: 0.24%

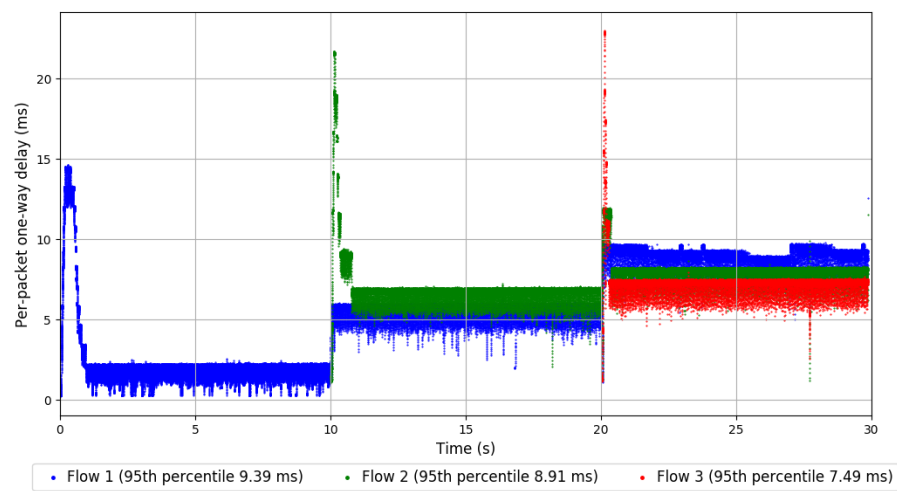
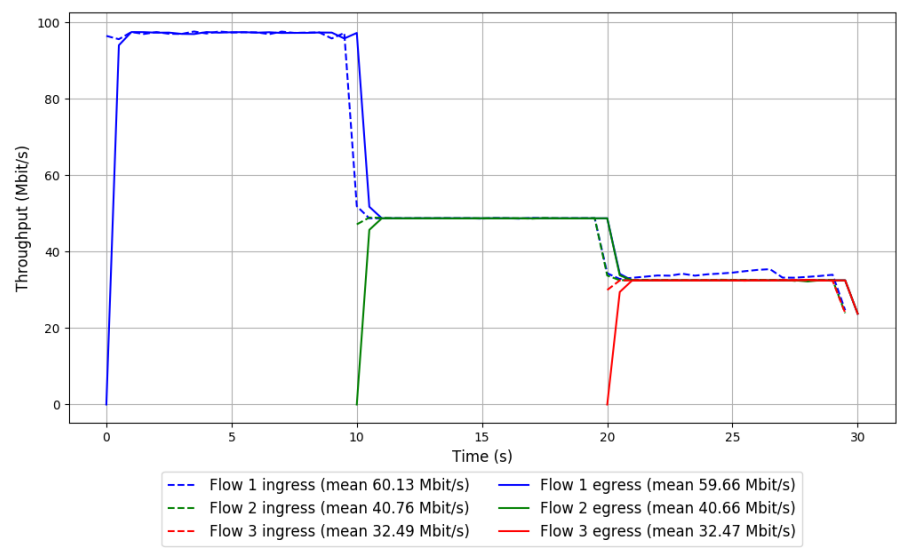
-- Flow 3:

Average throughput: 32.47 Mbit/s

95th percentile per-packet one-way delay: 7.488 ms

Loss rate: 0.09%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-11-15 12:28:24

End at: 2018-11-15 12:28:54

Local clock offset: -7.091 ms

Remote clock offset: 0.309 ms

Below is generated by plot.py at 2018-11-15 12:54:04

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.40 Mbit/s

95th percentile per-packet one-way delay: 9.747 ms

Loss rate: 0.73%

-- Flow 1:

Average throughput: 59.69 Mbit/s

95th percentile per-packet one-way delay: 9.806 ms

Loss rate: 1.01%

-- Flow 2:

Average throughput: 40.67 Mbit/s

95th percentile per-packet one-way delay: 8.974 ms

Loss rate: 0.19%

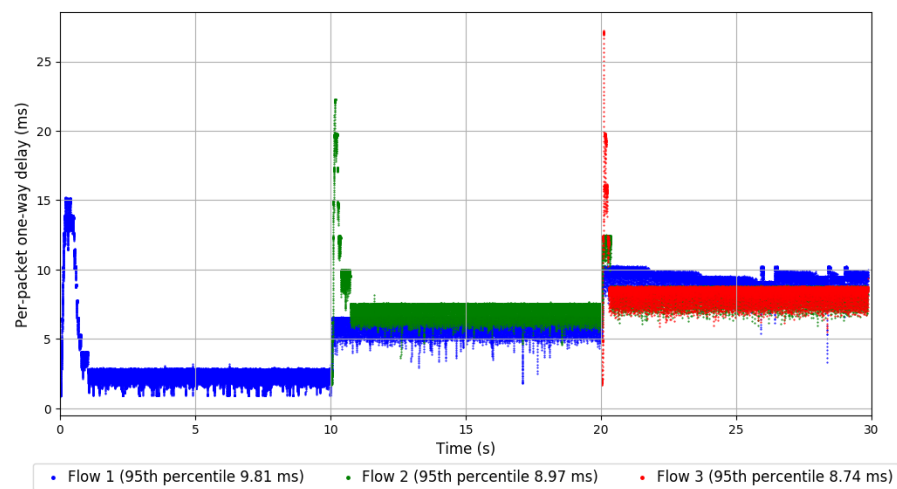
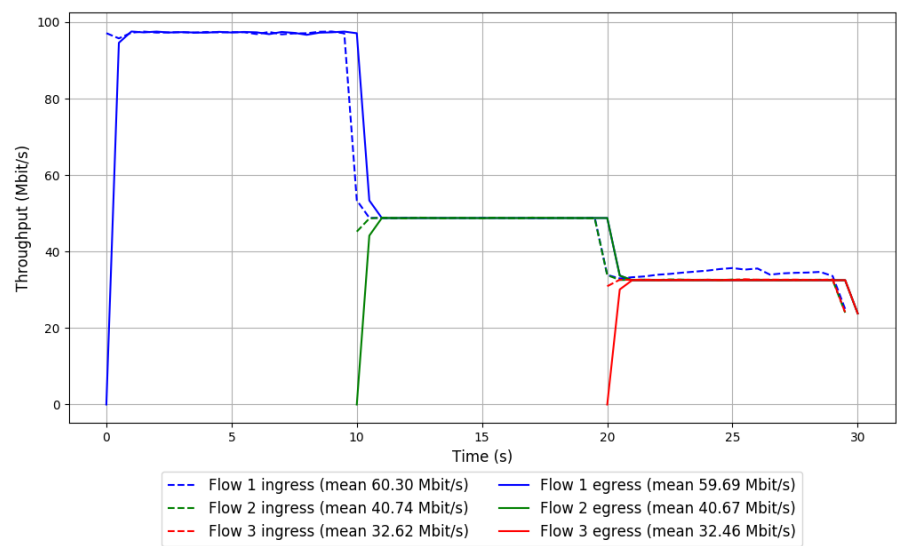
-- Flow 3:

Average throughput: 32.46 Mbit/s

95th percentile per-packet one-way delay: 8.743 ms

Loss rate: 0.52%

Run 5: Report of Indigo — Data Link

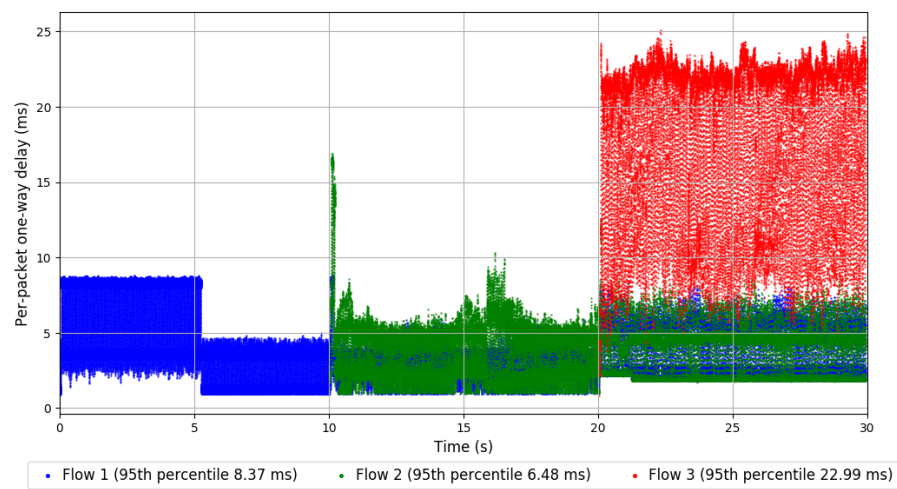
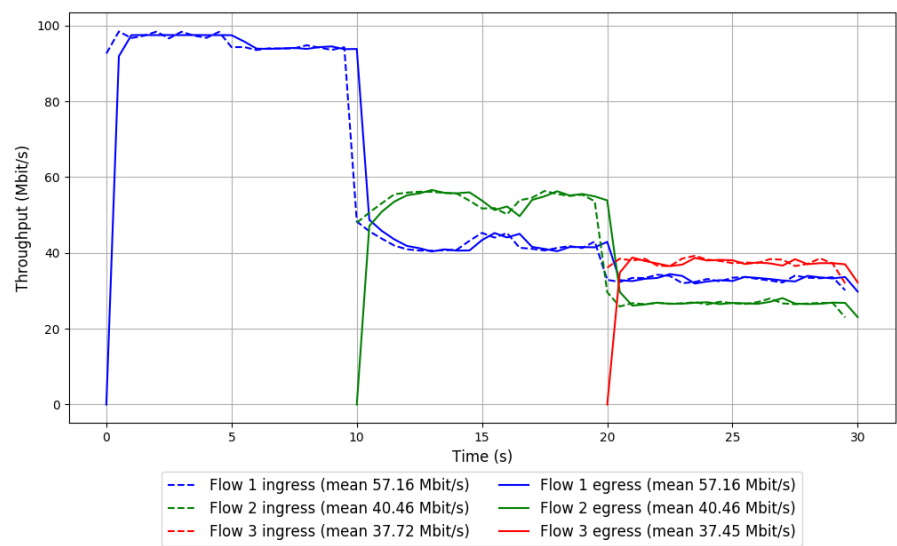


Run 1: Statistics of Indigo-96d2da3

Start at: 2018-11-15 11:18:09
End at: 2018-11-15 11:18:39
Local clock offset: -6.003 ms
Remote clock offset: -0.135 ms

Below is generated by plot.py at 2018-11-15 12:54:05
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.49 Mbit/s
95th percentile per-packet one-way delay: 20.854 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 57.16 Mbit/s
95th percentile per-packet one-way delay: 8.374 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 40.46 Mbit/s
95th percentile per-packet one-way delay: 6.479 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 37.45 Mbit/s
95th percentile per-packet one-way delay: 22.993 ms
Loss rate: 0.74%

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



Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 11:38:49

End at: 2018-11-15 11:39:19

Local clock offset: -2.237 ms

Remote clock offset: 0.019 ms

Below is generated by plot.py at 2018-11-15 12:54:06

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.67 Mbit/s

95th percentile per-packet one-way delay: 6.935 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 59.11 Mbit/s

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

Loss rate: 0.00%

-- Flow 2:

Average throughput: 40.79 Mbit/s

95th percentile per-packet one-way delay: 6.906 ms

Loss rate: 0.01%

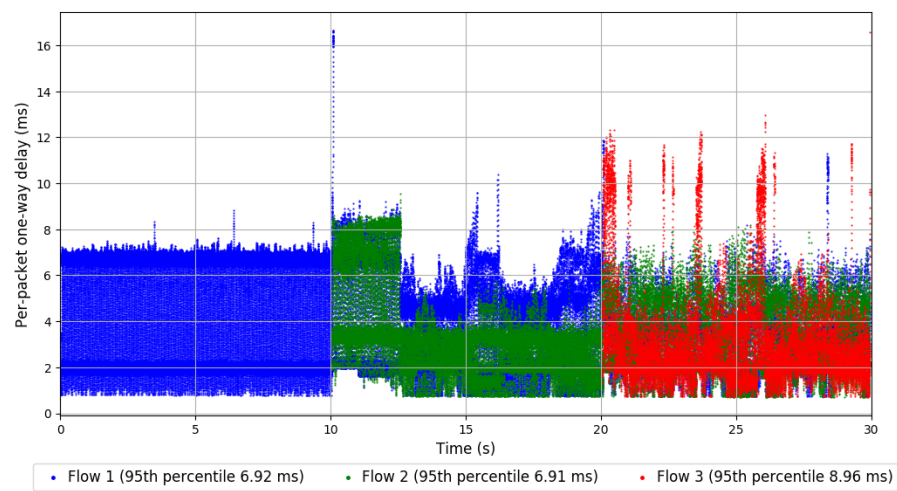
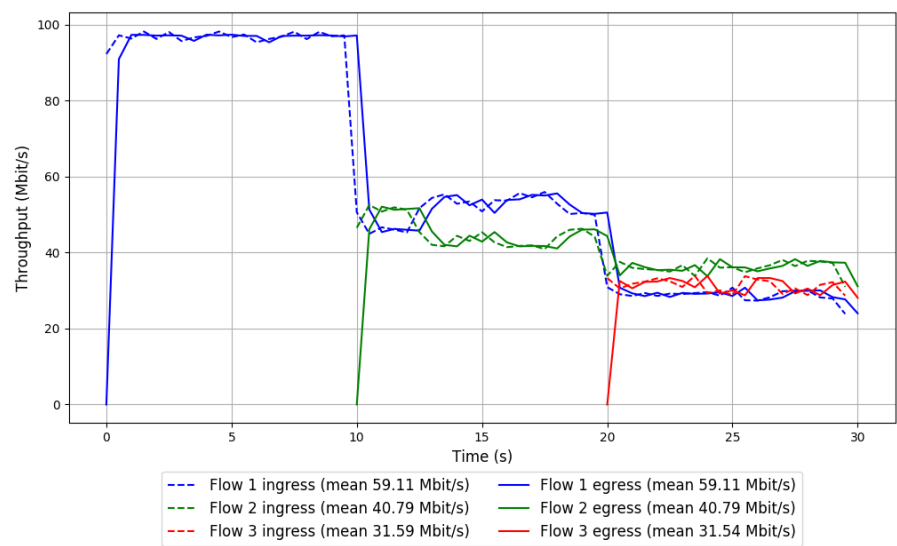
-- Flow 3:

Average throughput: 31.54 Mbit/s

95th percentile per-packet one-way delay: 8.955 ms

Loss rate: 0.11%

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



Run 3: Statistics of Indigo-96d2da3

Start at: 2018-11-15 11:59:33

End at: 2018-11-15 12:00:03

Local clock offset: -2.824 ms

Remote clock offset: 0.169 ms

Below is generated by plot.py at 2018-11-15 12:54:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 95.71 Mbit/s

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

Loss rate: 0.02%

-- Flow 1:

Average throughput: 57.33 Mbit/s

95th percentile per-packet one-way delay: 5.061 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 40.36 Mbit/s

95th percentile per-packet one-way delay: 6.540 ms

Loss rate: 0.01%

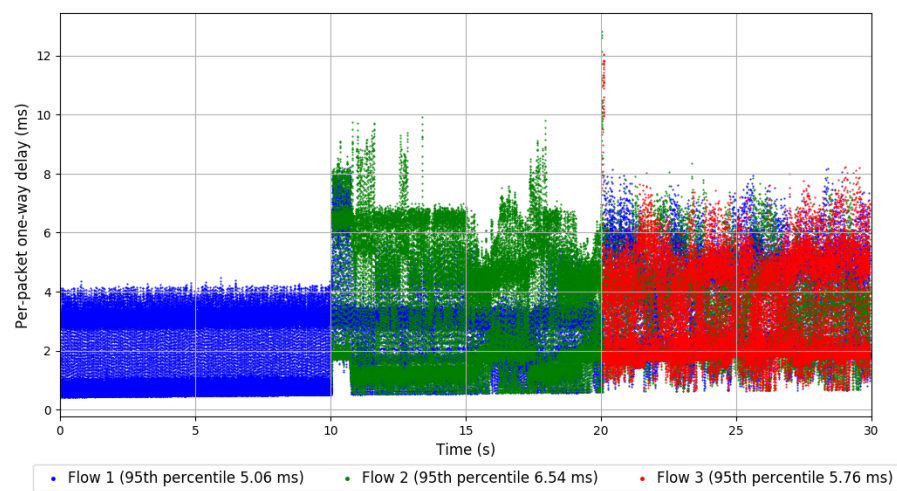
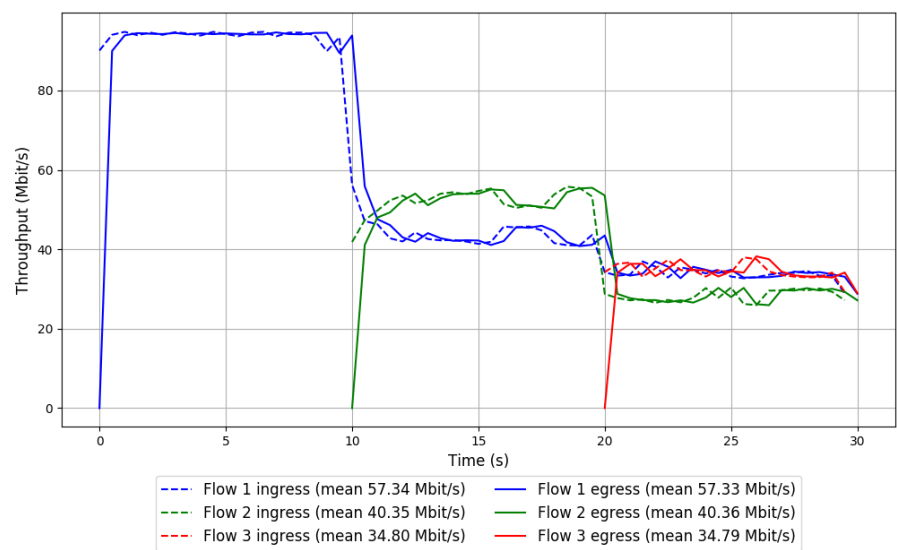
-- Flow 3:

Average throughput: 34.79 Mbit/s

95th percentile per-packet one-way delay: 5.764 ms

Loss rate: 0.06%

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



Run 4: Statistics of Indigo-96d2da3

Start at: 2018-11-15 12:20:18

End at: 2018-11-15 12:20:48

Local clock offset: -7.451 ms

Remote clock offset: 0.299 ms

Below is generated by plot.py at 2018-11-15 12:54:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.07 Mbit/s

95th percentile per-packet one-way delay: 7.056 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 58.74 Mbit/s

95th percentile per-packet one-way delay: 6.344 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 40.37 Mbit/s

95th percentile per-packet one-way delay: 7.399 ms

Loss rate: 0.02%

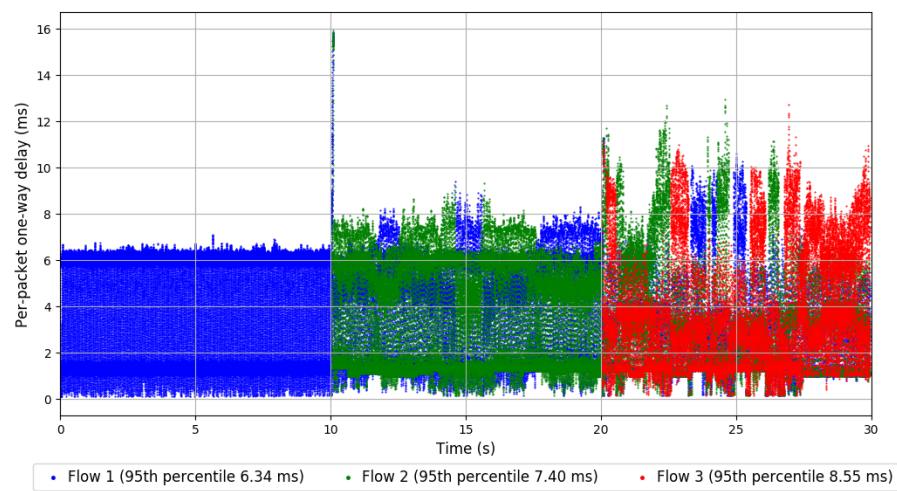
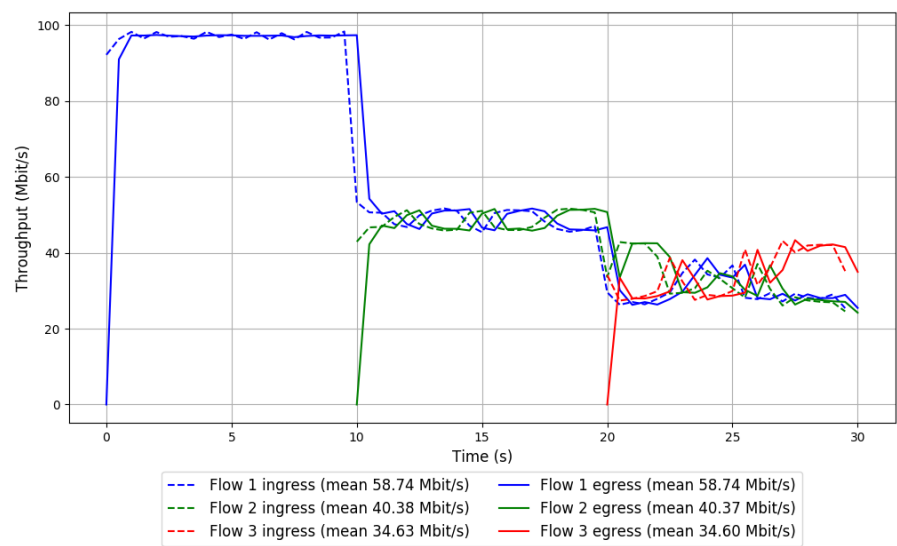
-- Flow 3:

Average throughput: 34.60 Mbit/s

95th percentile per-packet one-way delay: 8.552 ms

Loss rate: 0.13%

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



Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 12:41:03

End at: 2018-11-15 12:41:33

Local clock offset: -7.968 ms

Remote clock offset: 0.289 ms

Below is generated by plot.py at 2018-11-15 12:54:47

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.37 Mbit/s

95th percentile per-packet one-way delay: 7.619 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 59.29 Mbit/s

95th percentile per-packet one-way delay: 7.656 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 40.19 Mbit/s

95th percentile per-packet one-way delay: 6.295 ms

Loss rate: 0.02%

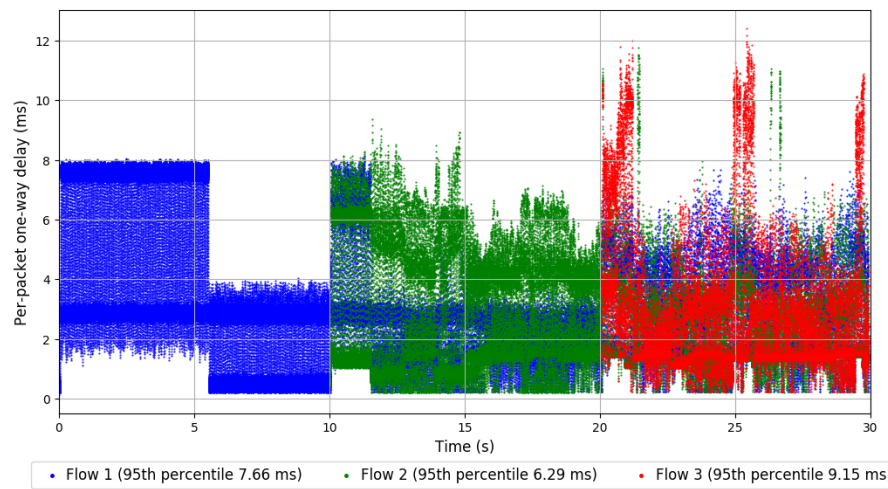
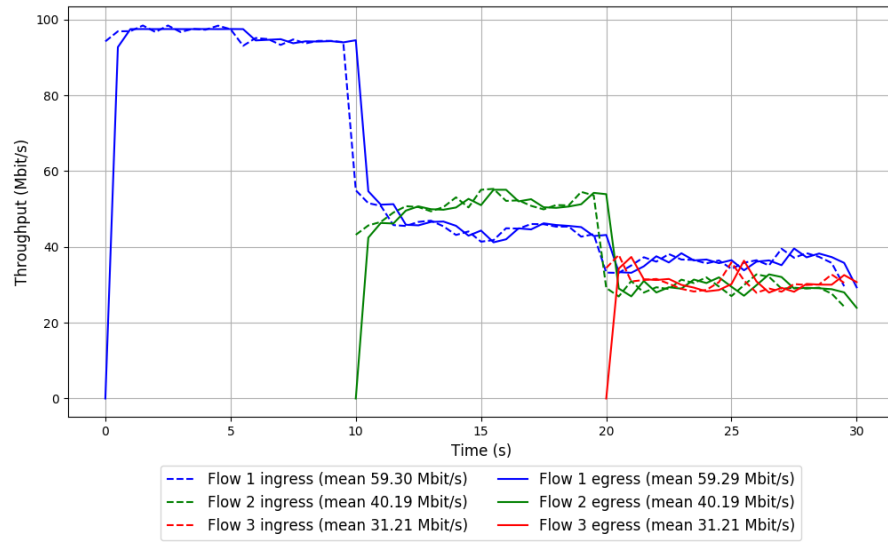
-- Flow 3:

Average throughput: 31.21 Mbit/s

95th percentile per-packet one-way delay: 9.147 ms

Loss rate: 0.02%

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



Run 1: Statistics of LEDBAT

Start at: 2018-11-15 11:08:58

End at: 2018-11-15 11:09:28

Local clock offset: -4.859 ms

Remote clock offset: -0.3 ms

Below is generated by plot.py at 2018-11-15 12:54:52

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.85 Mbit/s

95th percentile per-packet one-way delay: 12.666 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 59.08 Mbit/s

95th percentile per-packet one-way delay: 12.377 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 40.47 Mbit/s

95th percentile per-packet one-way delay: 12.762 ms

Loss rate: 0.23%

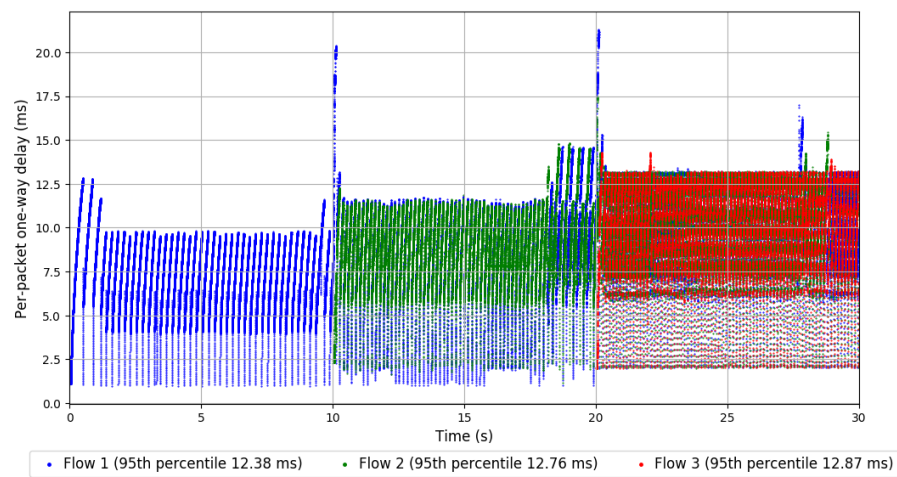
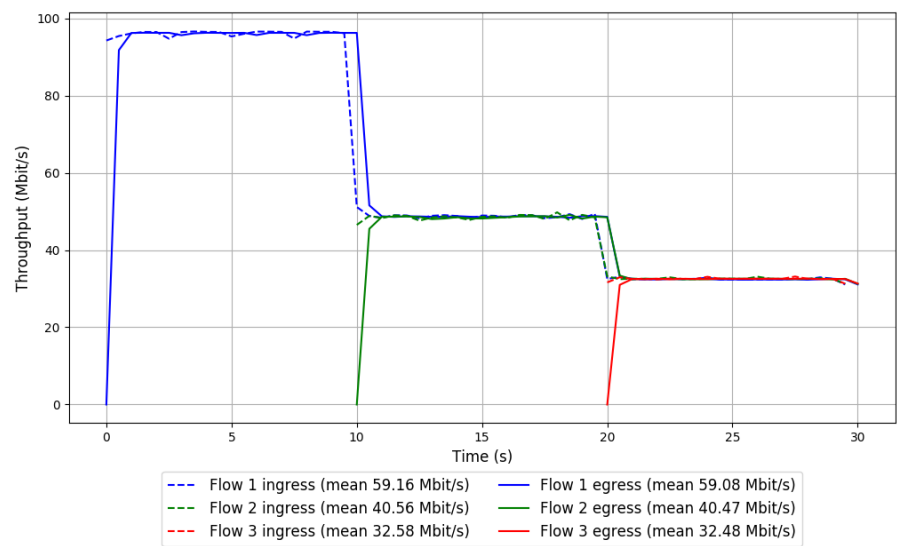
-- Flow 3:

Average throughput: 32.48 Mbit/s

95th percentile per-packet one-way delay: 12.869 ms

Loss rate: 0.36%

Run 1: Report of LEDBAT — Data Link

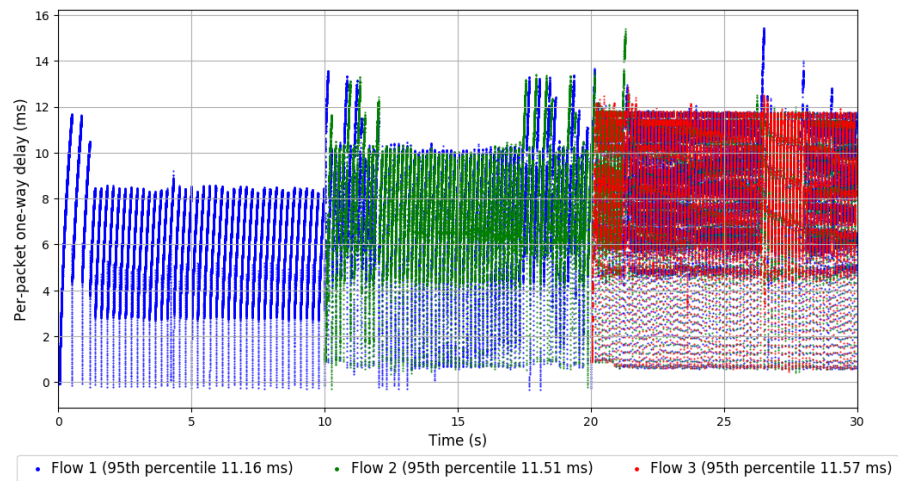
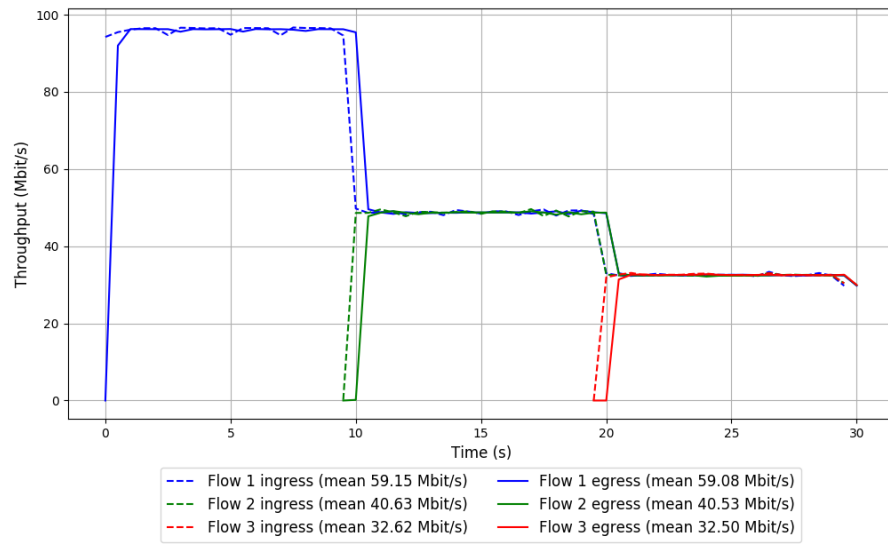


Run 2: Statistics of LEDBAT

Start at: 2018-11-15 11:29:37
End at: 2018-11-15 11:30:07
Local clock offset: -5.841 ms
Remote clock offset: -0.133 ms

Below is generated by plot.py at 2018-11-15 12:55:01
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.90 Mbit/s
95th percentile per-packet one-way delay: 11.342 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 59.08 Mbit/s
95th percentile per-packet one-way delay: 11.159 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.53 Mbit/s
95th percentile per-packet one-way delay: 11.511 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 11.575 ms
Loss rate: 0.40%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-11-15 11:50:21

End at: 2018-11-15 11:50:51

Local clock offset: -0.858 ms

Remote clock offset: 0.05 ms

Below is generated by plot.py at 2018-11-15 12:55:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.15 Mbit/s

95th percentile per-packet one-way delay: 13.026 ms

Loss rate: 0.21%

-- Flow 1:

Average throughput: 59.52 Mbit/s

95th percentile per-packet one-way delay: 12.804 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 40.28 Mbit/s

95th percentile per-packet one-way delay: 12.320 ms

Loss rate: 0.27%

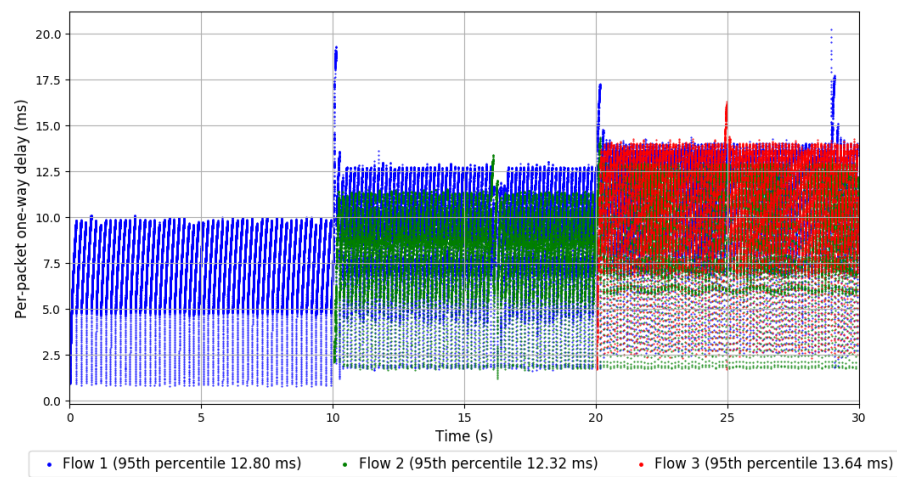
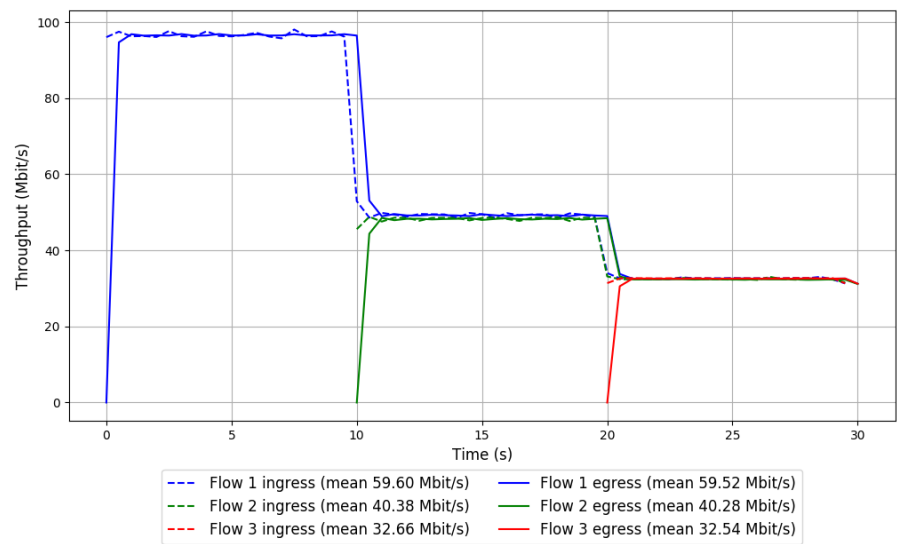
-- Flow 3:

Average throughput: 32.54 Mbit/s

95th percentile per-packet one-way delay: 13.641 ms

Loss rate: 0.41%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-11-15 12:11:07

End at: 2018-11-15 12:11:37

Local clock offset: -6.362 ms

Remote clock offset: 0.226 ms

Below is generated by plot.py at 2018-11-15 12:55:16

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.80 Mbit/s

95th percentile per-packet one-way delay: 11.858 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 59.03 Mbit/s

95th percentile per-packet one-way delay: 11.167 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 40.44 Mbit/s

95th percentile per-packet one-way delay: 11.683 ms

Loss rate: 0.24%

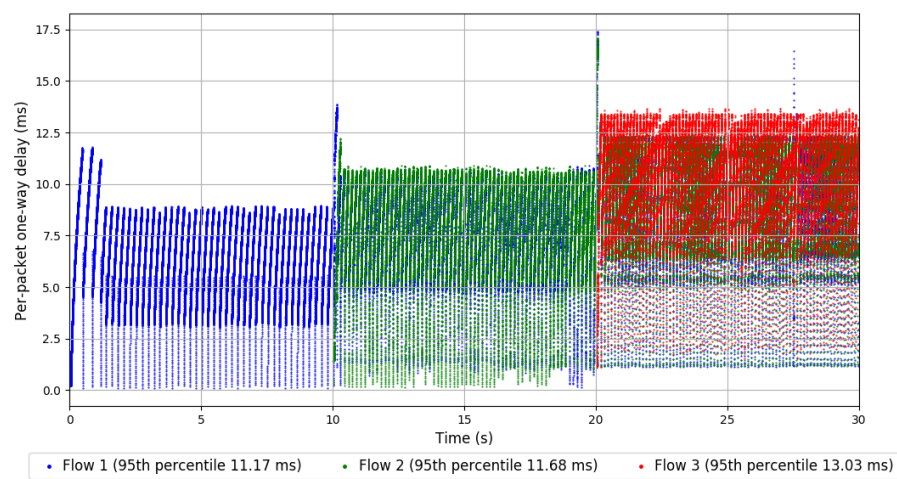
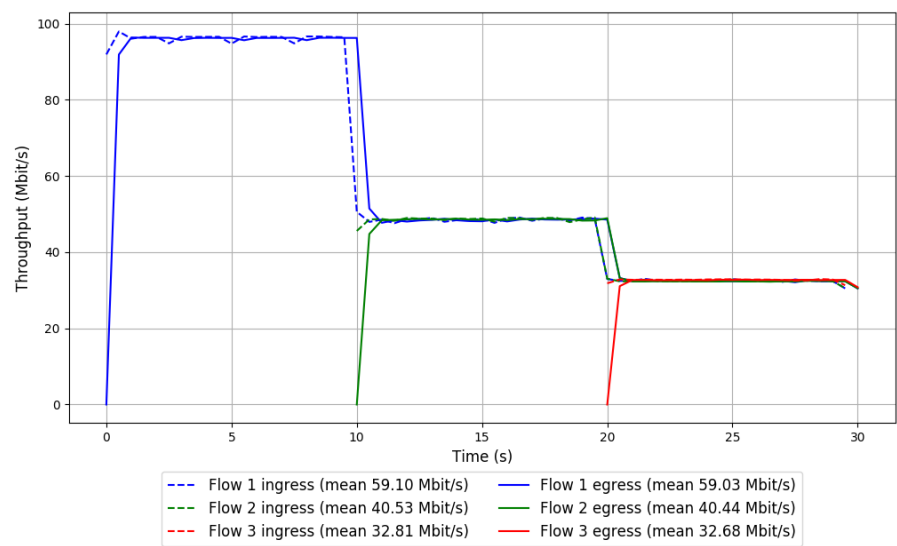
-- Flow 3:

Average throughput: 32.68 Mbit/s

95th percentile per-packet one-way delay: 13.027 ms

Loss rate: 0.43%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2018-11-15 12:31:51

End at: 2018-11-15 12:32:21

Local clock offset: -7.121 ms

Remote clock offset: 0.282 ms

Below is generated by plot.py at 2018-11-15 12:55:18

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.81 Mbit/s

95th percentile per-packet one-way delay: 12.495 ms

Loss rate: 0.20%

-- Flow 1:

Average throughput: 59.02 Mbit/s

95th percentile per-packet one-way delay: 12.306 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 40.52 Mbit/s

95th percentile per-packet one-way delay: 12.835 ms

Loss rate: 0.25%

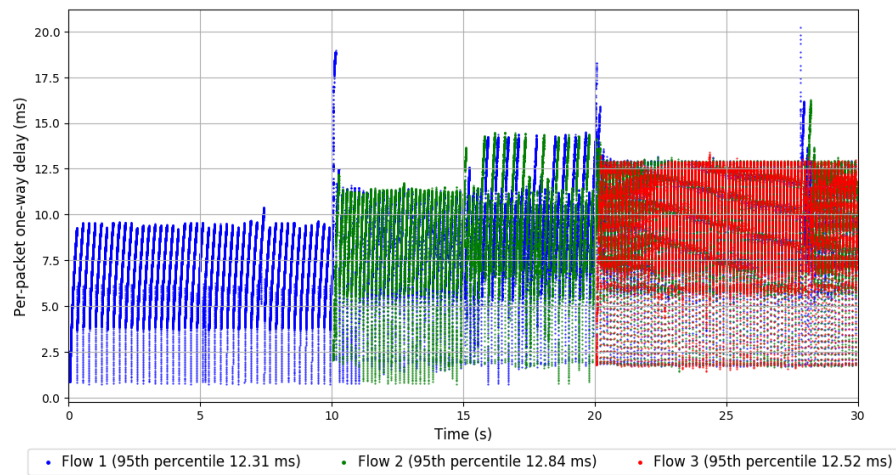
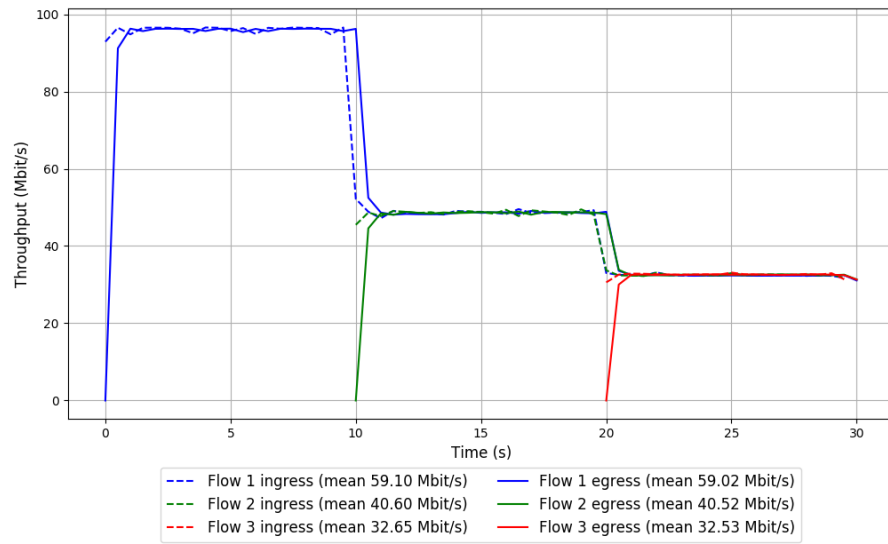
-- Flow 3:

Average throughput: 32.53 Mbit/s

95th percentile per-packet one-way delay: 12.517 ms

Loss rate: 0.40%

Run 5: Report of LEDBAT — Data Link

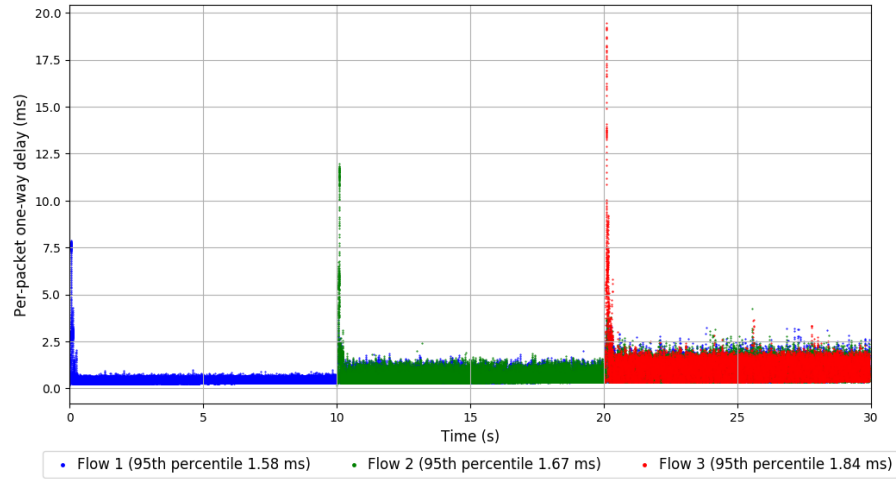
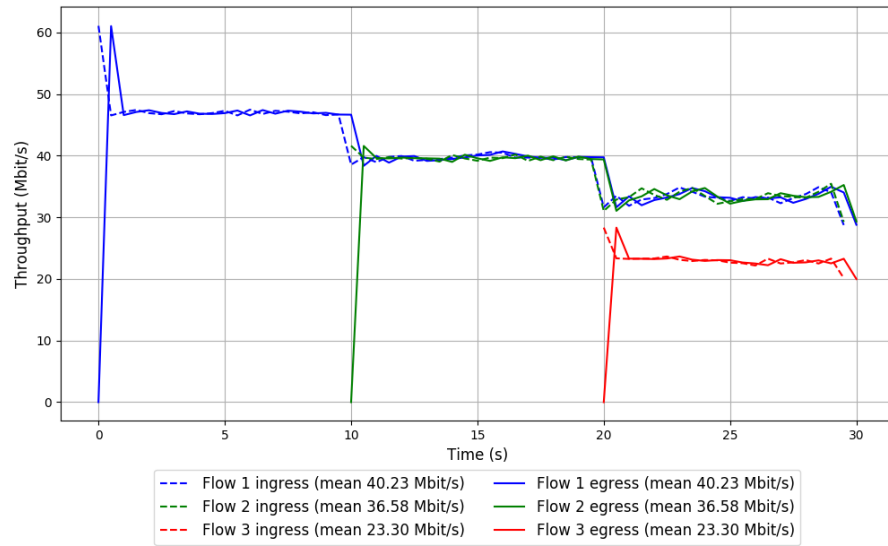


Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 11:06:41
End at: 2018-11-15 11:07:11
Local clock offset: -5.105 ms
Remote clock offset: -0.164 ms

Below is generated by plot.py at 2018-11-15 12:55:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 72.29 Mbit/s
95th percentile per-packet one-way delay: 1.650 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 40.23 Mbit/s
95th percentile per-packet one-way delay: 1.576 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 36.58 Mbit/s
95th percentile per-packet one-way delay: 1.669 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 23.30 Mbit/s
95th percentile per-packet one-way delay: 1.836 ms
Loss rate: 0.04%

Run 1: Report of Indigo-Muses — Data Link

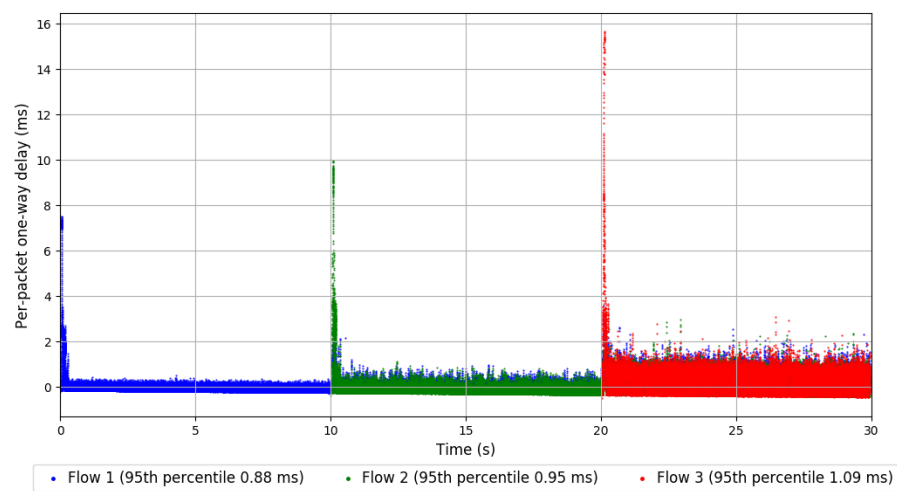
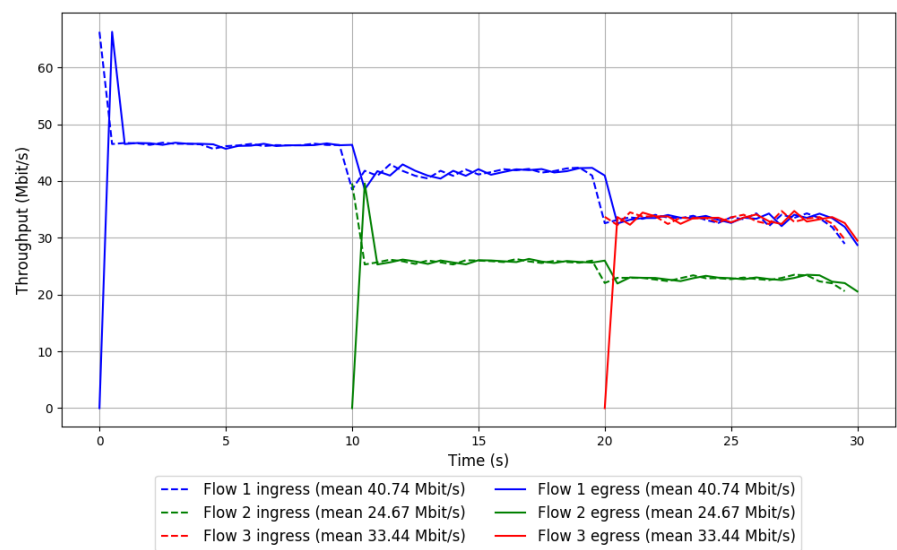


Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 11:27:20
End at: 2018-11-15 11:27:50
Local clock offset: -7.011 ms
Remote clock offset: -0.082 ms

Below is generated by plot.py at 2018-11-15 12:55:40
Datalink statistics
-- Total of 3 flows:
Average throughput: 68.23 Mbit/s
95th percentile per-packet one-way delay: 0.945 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 40.74 Mbit/s
95th percentile per-packet one-way delay: 0.875 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 24.67 Mbit/s
95th percentile per-packet one-way delay: 0.946 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 33.44 Mbit/s
95th percentile per-packet one-way delay: 1.086 ms
Loss rate: 0.03%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 11:48:04

End at: 2018-11-15 11:48:34

Local clock offset: -1.021 ms

Remote clock offset: 0.103 ms

Below is generated by plot.py at 2018-11-15 12:55:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 61.96 Mbit/s

95th percentile per-packet one-way delay: 2.158 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 25.84 Mbit/s

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

Loss rate: 0.01%

-- Flow 2:

Average throughput: 37.54 Mbit/s

95th percentile per-packet one-way delay: 2.153 ms

Loss rate: 0.01%

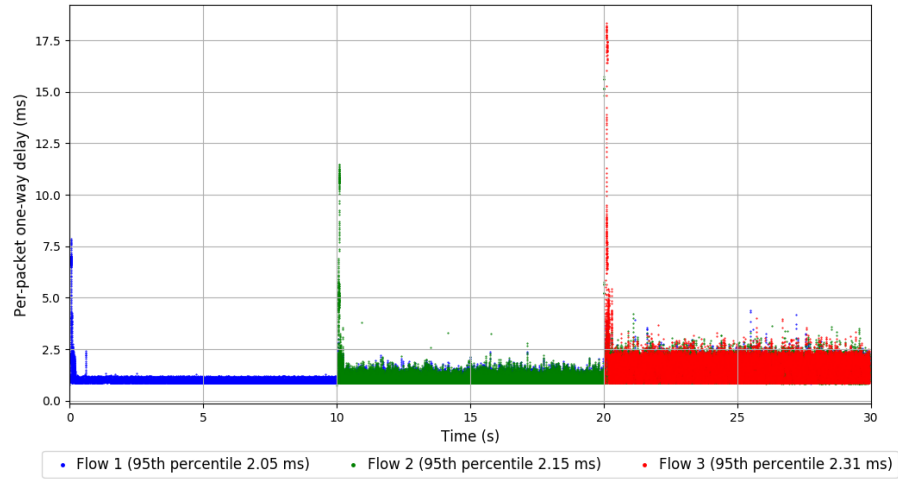
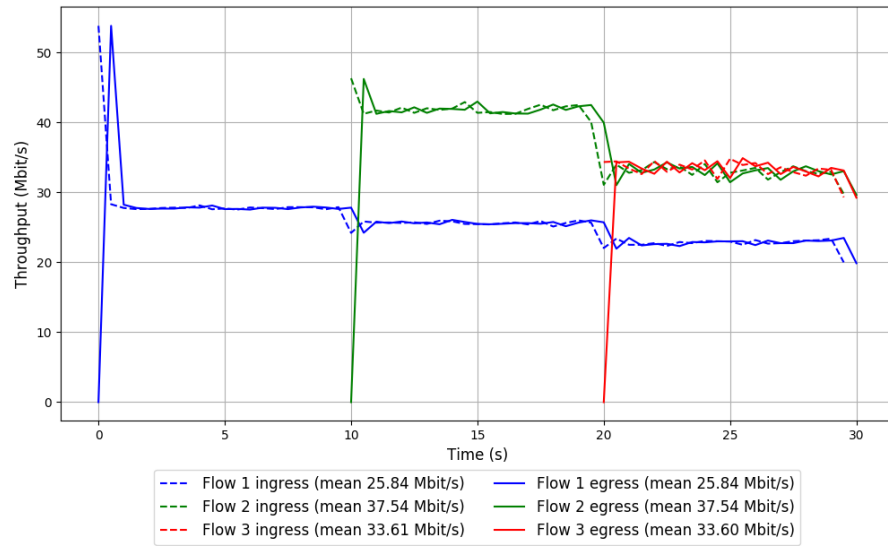
-- Flow 3:

Average throughput: 33.60 Mbit/s

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

Loss rate: 0.02%

Run 3: Report of Indigo-Muses — Data Link



Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 12:08:49

End at: 2018-11-15 12:09:19

Local clock offset: -5.22 ms

Remote clock offset: 0.253 ms

Below is generated by plot.py at 2018-11-15 12:55:48

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.75 Mbit/s

95th percentile per-packet one-way delay: 2.615 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 39.48 Mbit/s

95th percentile per-packet one-way delay: 2.487 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 35.74 Mbit/s

95th percentile per-packet one-way delay: 2.604 ms

Loss rate: 0.02%

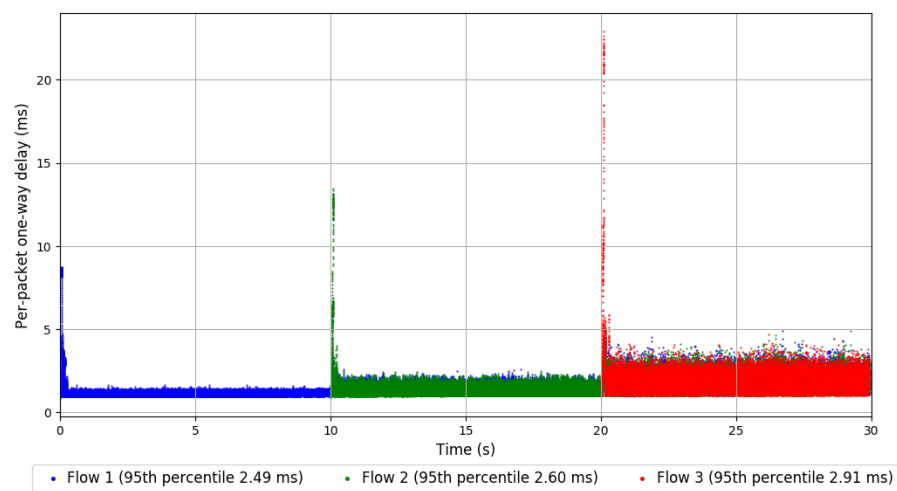
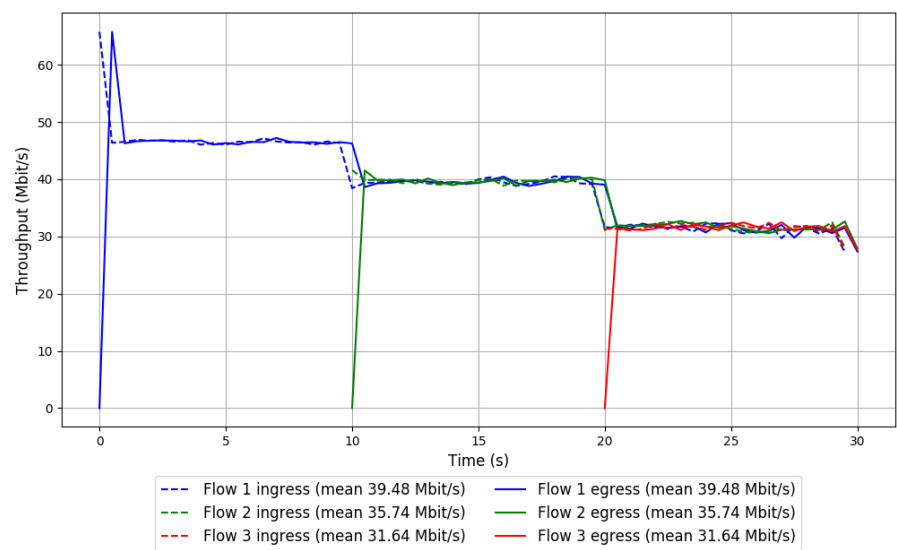
-- Flow 3:

Average throughput: 31.64 Mbit/s

95th percentile per-packet one-way delay: 2.909 ms

Loss rate: 0.01%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 12:29:34

End at: 2018-11-15 12:30:04

Local clock offset: -7.91 ms

Remote clock offset: 0.303 ms

Below is generated by plot.py at 2018-11-15 12:55:49

Datalink statistics

-- Total of 3 flows:

Average throughput: 68.44 Mbit/s

95th percentile per-packet one-way delay: 1.384 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 41.01 Mbit/s

95th percentile per-packet one-way delay: 1.277 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 24.61 Mbit/s

95th percentile per-packet one-way delay: 1.395 ms

Loss rate: 0.01%

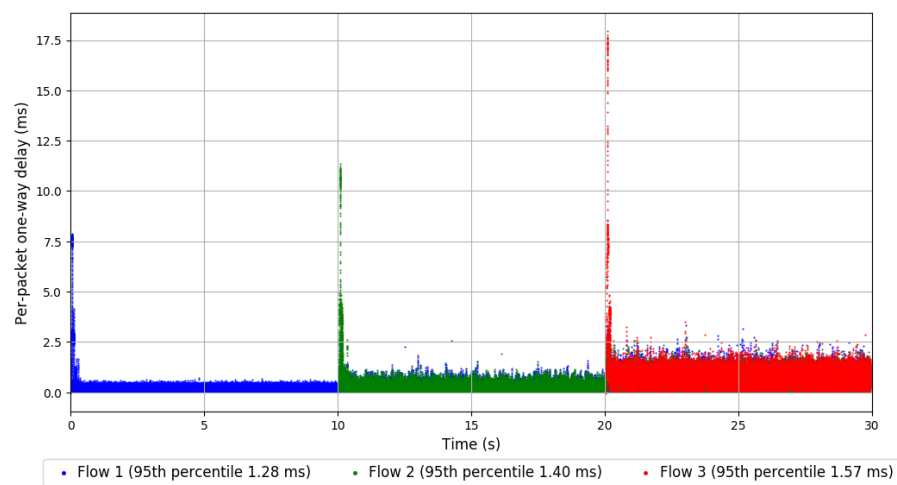
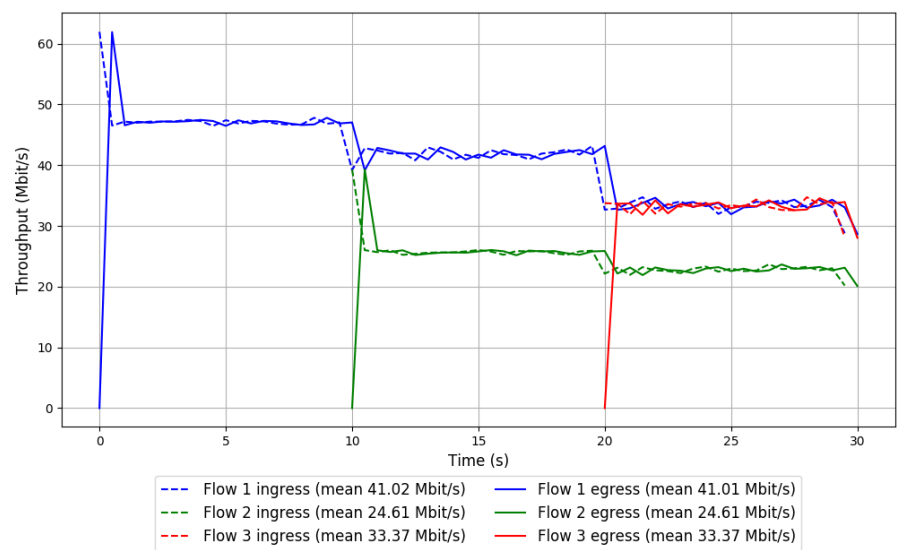
-- Flow 3:

Average throughput: 33.37 Mbit/s

95th percentile per-packet one-way delay: 1.566 ms

Loss rate: 0.02%

Run 5: Report of Indigo-Muses — Data Link

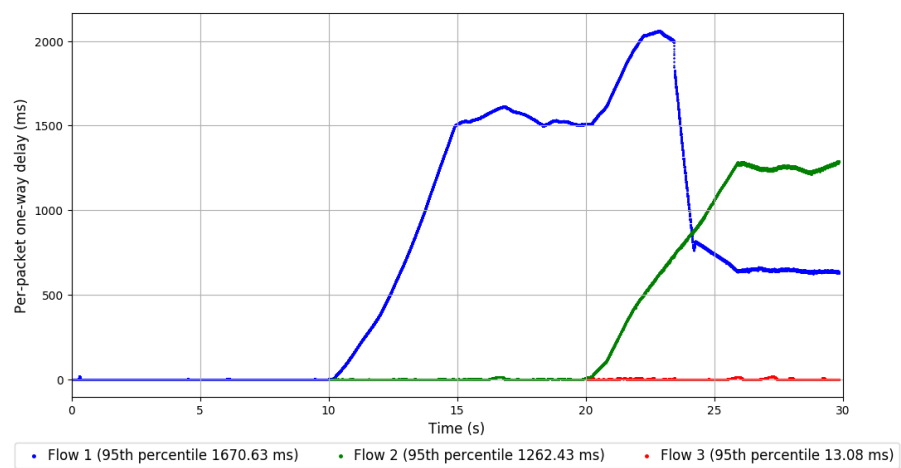
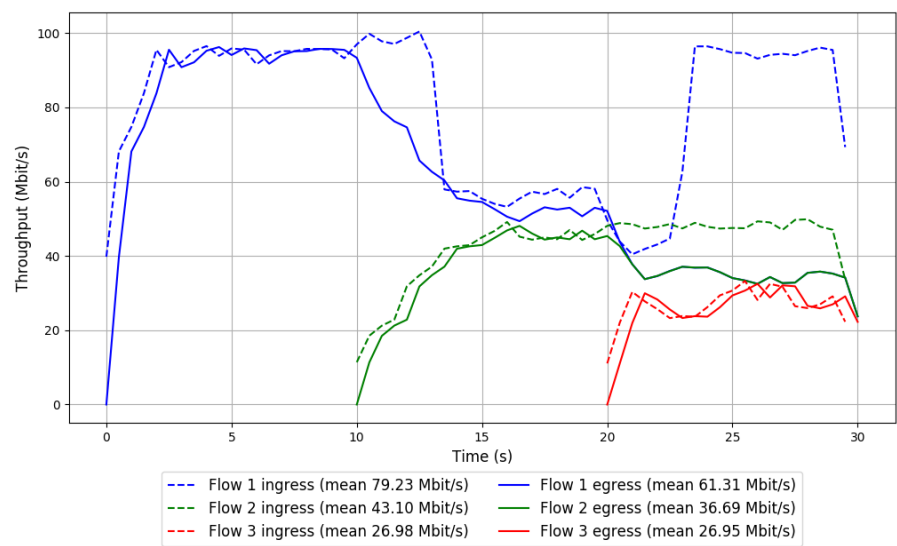



```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 11:21:30
End at: 2018-11-15 11:22:00
Local clock offset: -6.341 ms
Remote clock offset: -0.115 ms

# Below is generated by plot.py at 2018-11-15 12:56:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.57 Mbit/s
95th percentile per-packet one-way delay: 1589.208 ms
Loss rate: 19.02%
-- Flow 1:
Average throughput: 61.31 Mbit/s
95th percentile per-packet one-way delay: 1670.627 ms
Loss rate: 22.63%
-- Flow 2:
Average throughput: 36.69 Mbit/s
95th percentile per-packet one-way delay: 1262.432 ms
Loss rate: 14.89%
-- Flow 3:
Average throughput: 26.95 Mbit/s
95th percentile per-packet one-way delay: 13.076 ms
Loss rate: 0.10%
```

Run 1: Report of PCC-Allegro — Data Link

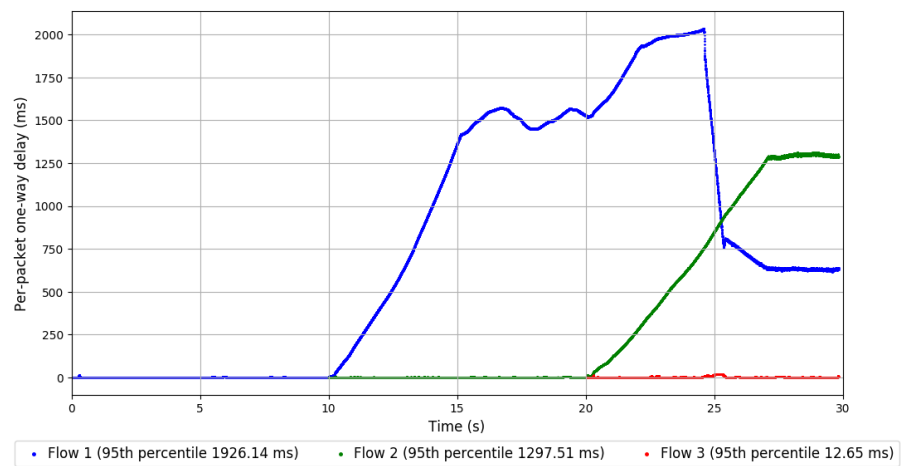
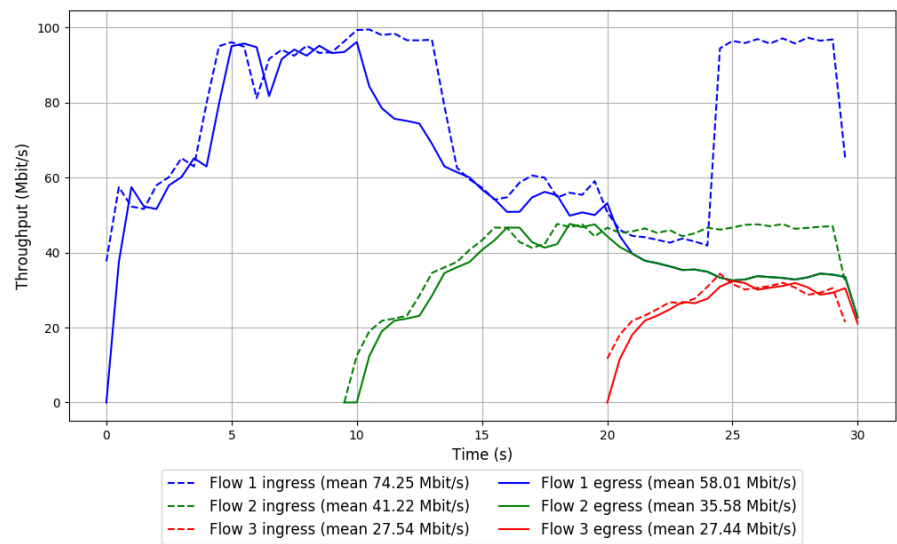


Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 11:42:14
End at: 2018-11-15 11:42:44
Local clock offset: -1.681 ms
Remote clock offset: -0.017 ms

Below is generated by plot.py at 2018-11-15 12:56:30
Datalink statistics
-- Total of 3 flows:
Average throughput: 90.72 Mbit/s
95th percentile per-packet one-way delay: 1639.567 ms
Loss rate: 18.09%
-- Flow 1:
Average throughput: 58.01 Mbit/s
95th percentile per-packet one-way delay: 1926.143 ms
Loss rate: 21.88%
-- Flow 2:
Average throughput: 35.58 Mbit/s
95th percentile per-packet one-way delay: 1297.507 ms
Loss rate: 13.71%
-- Flow 3:
Average throughput: 27.44 Mbit/s
95th percentile per-packet one-way delay: 12.648 ms
Loss rate: 0.40%

Run 2: Report of PCC-Allegro — Data Link



Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 12:03:00

End at: 2018-11-15 12:03:30

Local clock offset: -4.315 ms

Remote clock offset: 0.077 ms

Below is generated by plot.py at 2018-11-15 12:56:30

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.68 Mbit/s

95th percentile per-packet one-way delay: 1728.510 ms

Loss rate: 4.08%

-- Flow 1:

Average throughput: 70.28 Mbit/s

95th percentile per-packet one-way delay: 1886.534 ms

Loss rate: 5.27%

-- Flow 2:

Average throughput: 22.95 Mbit/s

95th percentile per-packet one-way delay: 37.659 ms

Loss rate: 0.46%

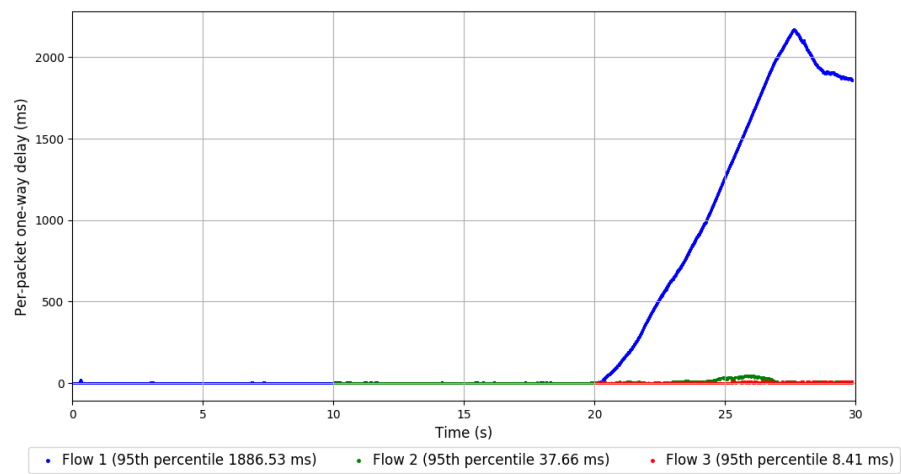
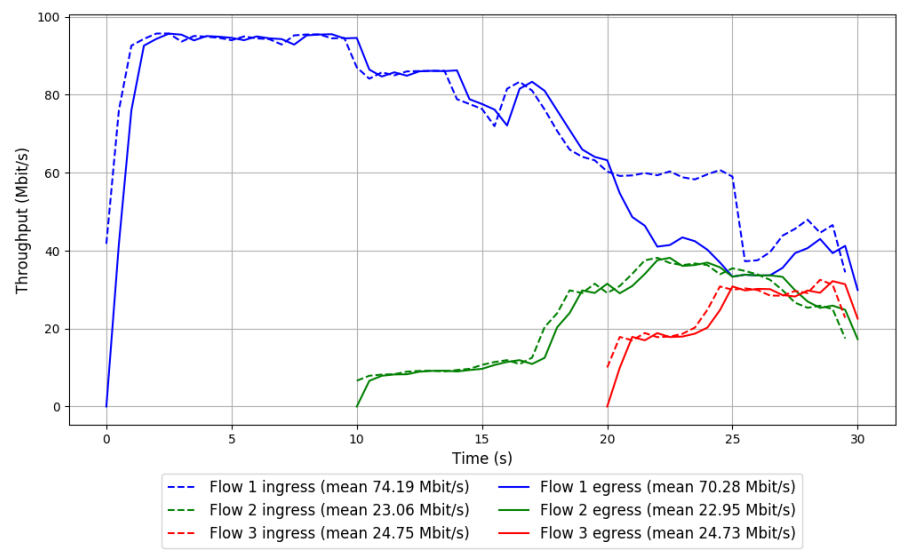
-- Flow 3:

Average throughput: 24.73 Mbit/s

95th percentile per-packet one-way delay: 8.415 ms

Loss rate: 0.10%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 12:23:45

End at: 2018-11-15 12:24:15

Local clock offset: -7.769 ms

Remote clock offset: 0.191 ms

Below is generated by plot.py at 2018-11-15 12:56:41

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.97 Mbit/s

95th percentile per-packet one-way delay: 1998.655 ms

Loss rate: 6.08%

-- Flow 1:

Average throughput: 61.97 Mbit/s

95th percentile per-packet one-way delay: 2181.945 ms

Loss rate: 6.21%

-- Flow 2:

Average throughput: 32.65 Mbit/s

95th percentile per-packet one-way delay: 686.888 ms

Loss rate: 8.01%

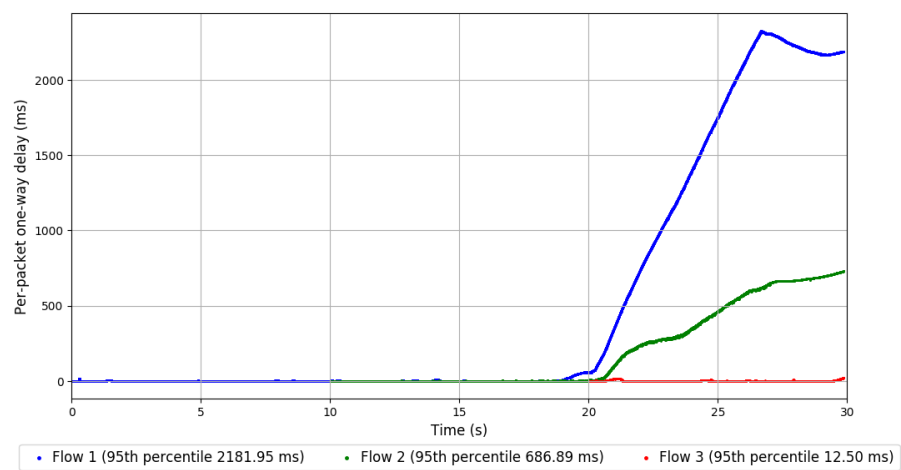
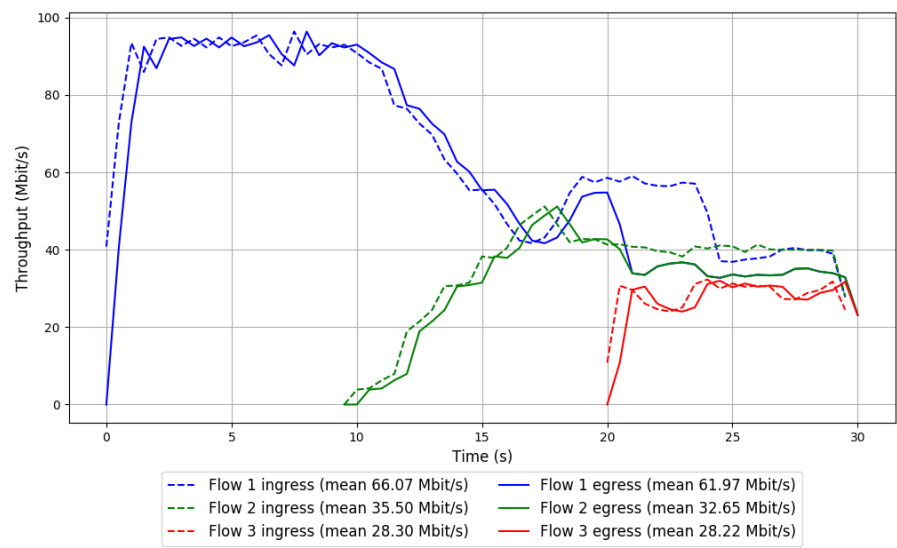
-- Flow 3:

Average throughput: 28.22 Mbit/s

95th percentile per-packet one-way delay: 12.504 ms

Loss rate: 0.30%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 12:44:30

End at: 2018-11-15 12:45:00

Local clock offset: -8.053 ms

Remote clock offset: 0.272 ms

Below is generated by plot.py at 2018-11-15 12:56:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.20 Mbit/s

95th percentile per-packet one-way delay: 977.334 ms

Loss rate: 4.26%

-- Flow 1:

Average throughput: 65.49 Mbit/s

95th percentile per-packet one-way delay: 1337.190 ms

Loss rate: 5.54%

-- Flow 2:

Average throughput: 28.17 Mbit/s

95th percentile per-packet one-way delay: 91.462 ms

Loss rate: 1.38%

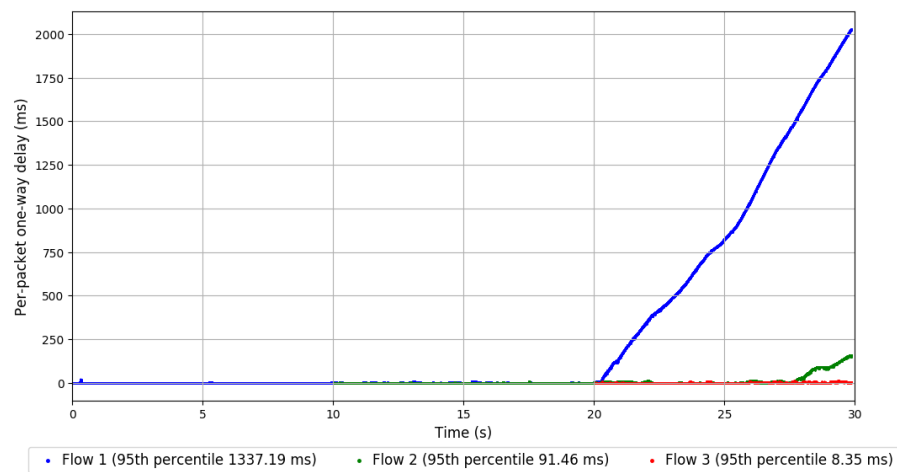
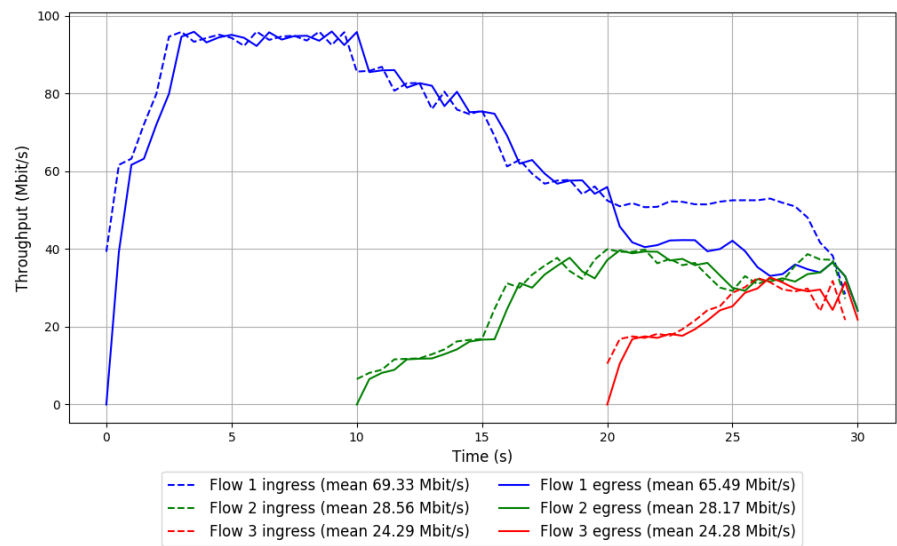
-- Flow 3:

Average throughput: 24.28 Mbit/s

95th percentile per-packet one-way delay: 8.349 ms

Loss rate: 0.06%

Run 5: Report of PCC-Allegro — Data Link

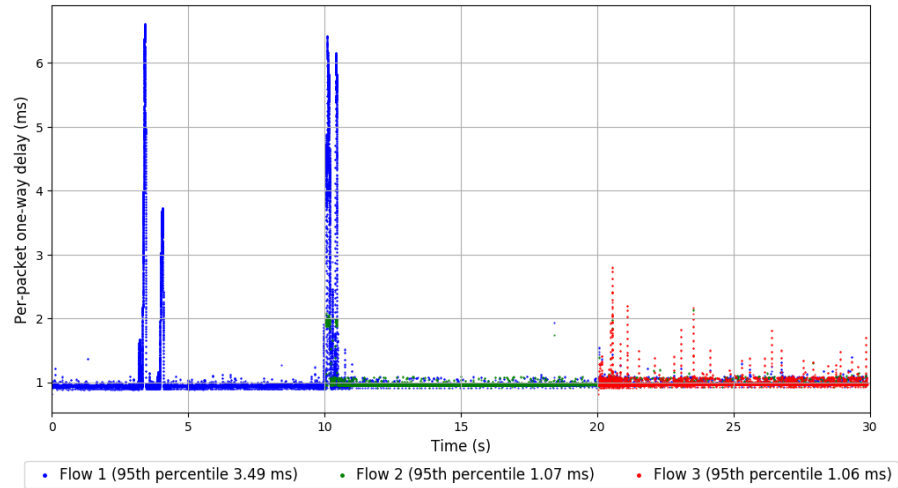
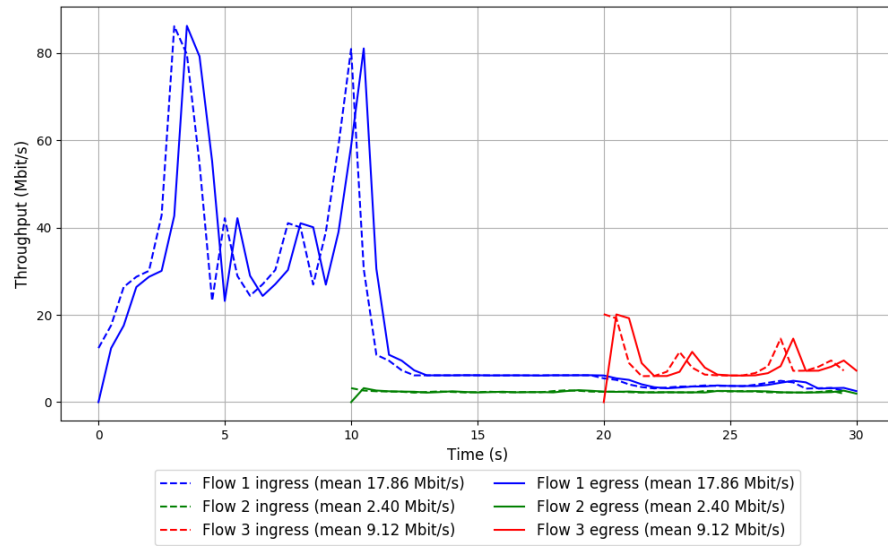


```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 11:20:23
End at: 2018-11-15 11:20:53
Local clock offset: -6.209 ms
Remote clock offset: -0.167 ms

# Below is generated by plot.py at 2018-11-15 12:56:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.46 Mbit/s
95th percentile per-packet one-way delay: 2.900 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 17.86 Mbit/s
95th percentile per-packet one-way delay: 3.490 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.40 Mbit/s
95th percentile per-packet one-way delay: 1.066 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.12 Mbit/s
95th percentile per-packet one-way delay: 1.057 ms
Loss rate: 0.01%
```

Run 1: Report of PCC-Expr — Data Link

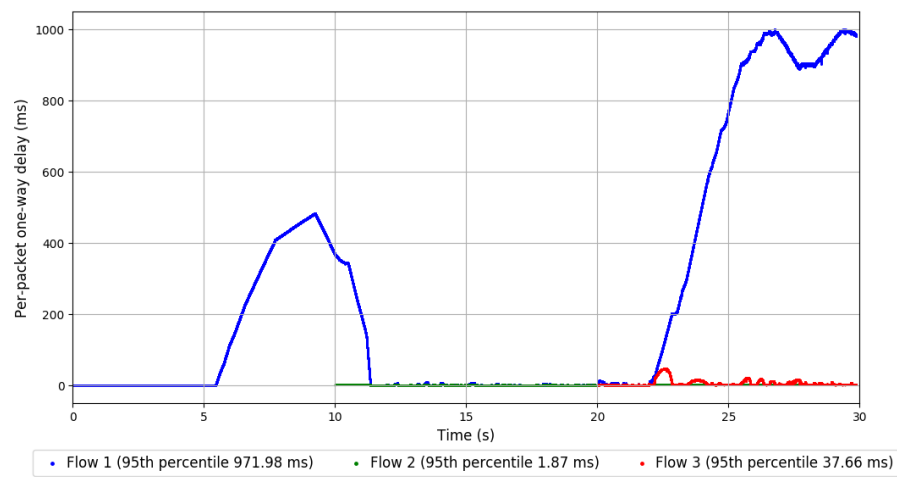
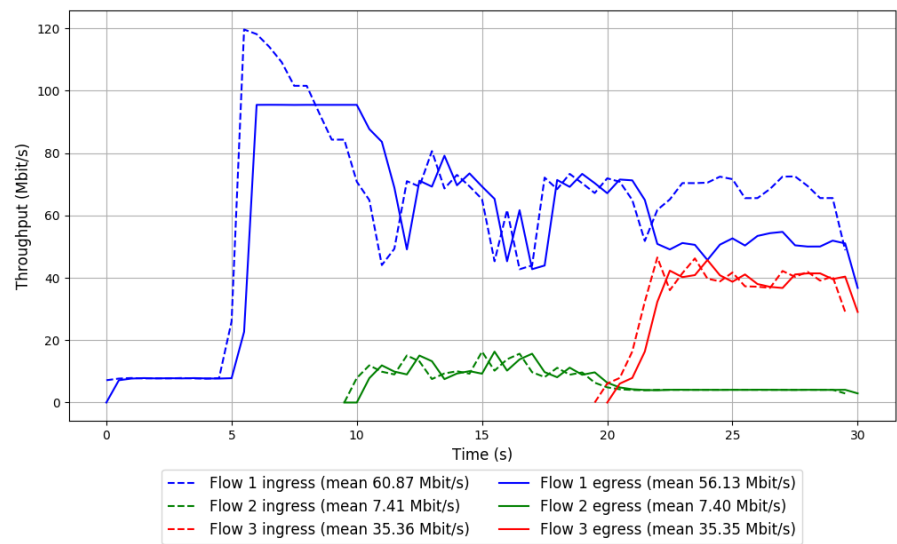


Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 11:41:03
End at: 2018-11-15 11:41:33
Local clock offset: -1.863 ms
Remote clock offset: -0.049 ms

Below is generated by plot.py at 2018-11-15 12:57:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 72.72 Mbit/s
95th percentile per-packet one-way delay: 957.794 ms
Loss rate: 6.14%
-- Flow 1:
Average throughput: 56.13 Mbit/s
95th percentile per-packet one-way delay: 971.982 ms
Loss rate: 7.81%
-- Flow 2:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 1.866 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.35 Mbit/s
95th percentile per-packet one-way delay: 37.662 ms
Loss rate: 0.05%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 12:01:47

End at: 2018-11-15 12:02:17

Local clock offset: -3.921 ms

Remote clock offset: 0.156 ms

Below is generated by plot.py at 2018-11-15 12:57:43

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.32 Mbit/s

95th percentile per-packet one-way delay: 1167.327 ms

Loss rate: 2.61%

-- Flow 1:

Average throughput: 63.46 Mbit/s

95th percentile per-packet one-way delay: 1177.269 ms

Loss rate: 3.63%

-- Flow 2:

Average throughput: 37.52 Mbit/s

95th percentile per-packet one-way delay: 121.575 ms

Loss rate: 0.04%

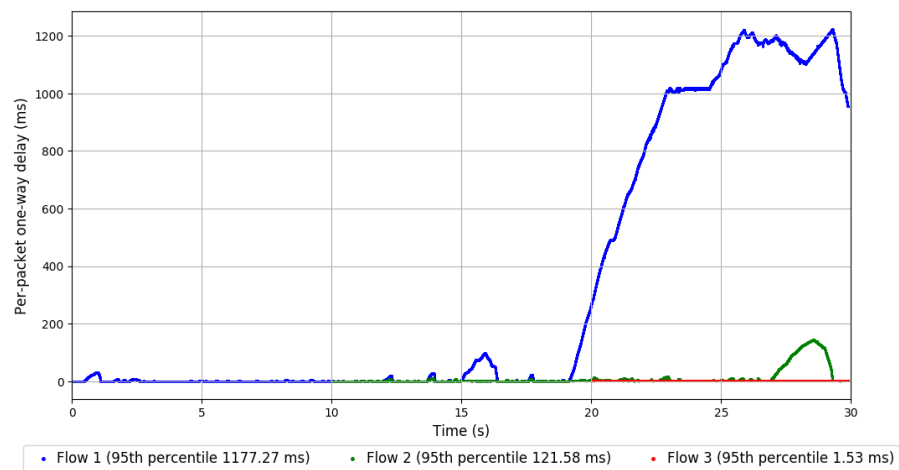
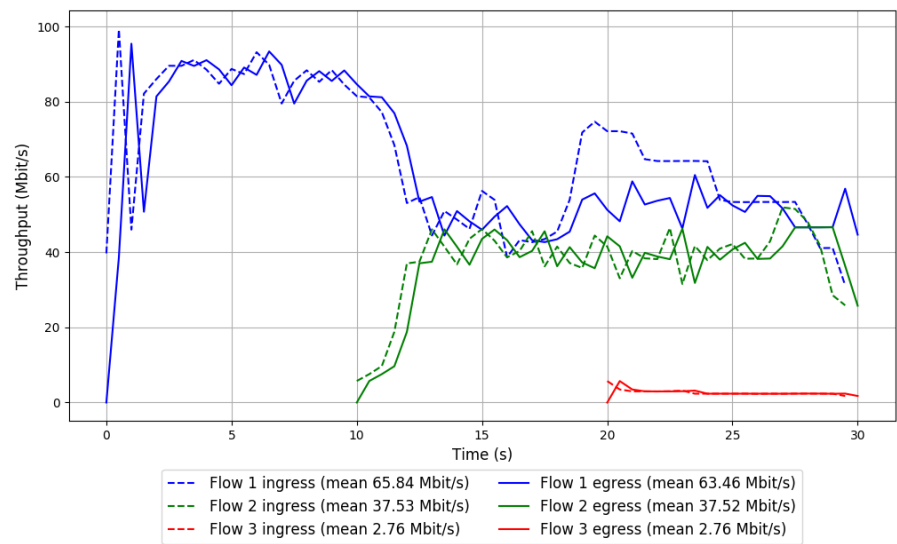
-- Flow 3:

Average throughput: 2.76 Mbit/s

95th percentile per-packet one-way delay: 1.535 ms

Loss rate: 0.00%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 12:22:32

End at: 2018-11-15 12:23:02

Local clock offset: -7.596 ms

Remote clock offset: 0.212 ms

Below is generated by plot.py at 2018-11-15 12:58:00

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.20 Mbit/s

95th percentile per-packet one-way delay: 308.151 ms

Loss rate: 3.89%

-- Flow 1:

Average throughput: 55.65 Mbit/s

95th percentile per-packet one-way delay: 457.615 ms

Loss rate: 4.64%

-- Flow 2:

Average throughput: 33.22 Mbit/s

95th percentile per-packet one-way delay: 304.168 ms

Loss rate: 2.95%

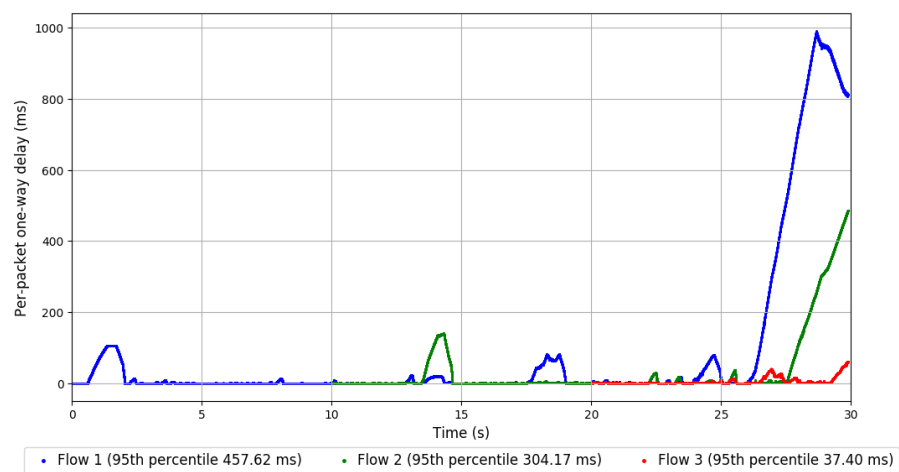
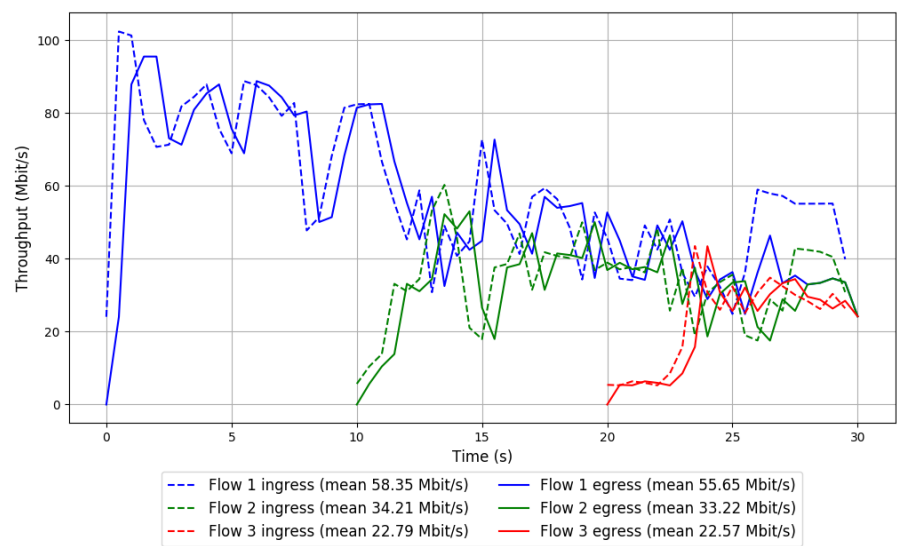
-- Flow 3:

Average throughput: 22.57 Mbit/s

95th percentile per-packet one-way delay: 37.399 ms

Loss rate: 0.95%

Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 12:43:18

End at: 2018-11-15 12:43:48

Local clock offset: -8.093 ms

Remote clock offset: 0.245 ms

Below is generated by plot.py at 2018-11-15 12:58:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 78.57 Mbit/s

95th percentile per-packet one-way delay: 750.500 ms

Loss rate: 24.03%

-- Flow 1:

Average throughput: 42.55 Mbit/s

95th percentile per-packet one-way delay: 708.508 ms

Loss rate: 31.00%

-- Flow 2:

Average throughput: 40.20 Mbit/s

95th percentile per-packet one-way delay: 817.404 ms

Loss rate: 17.64%

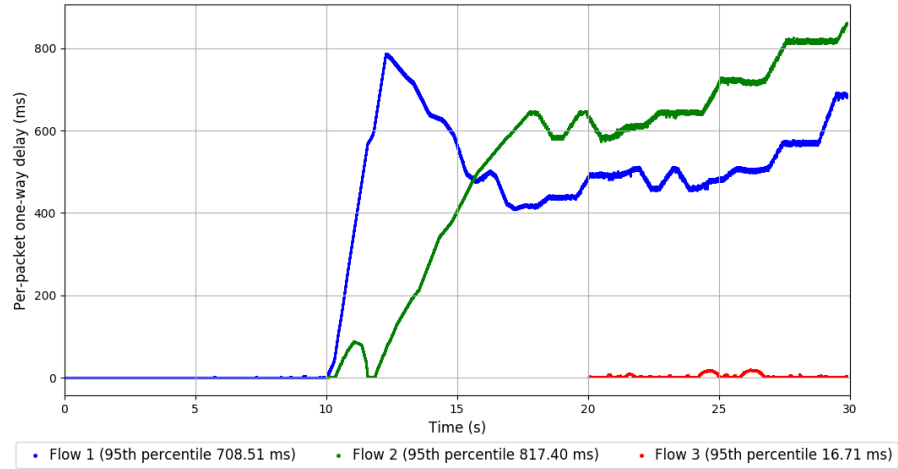
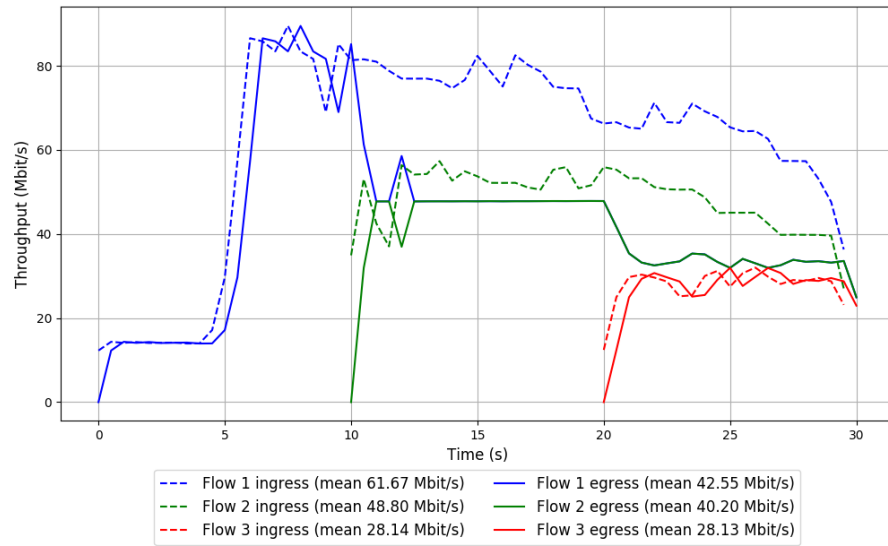
-- Flow 3:

Average throughput: 28.13 Mbit/s

95th percentile per-packet one-way delay: 16.708 ms

Loss rate: 0.07%

Run 5: Report of PCC-Expr — Data Link

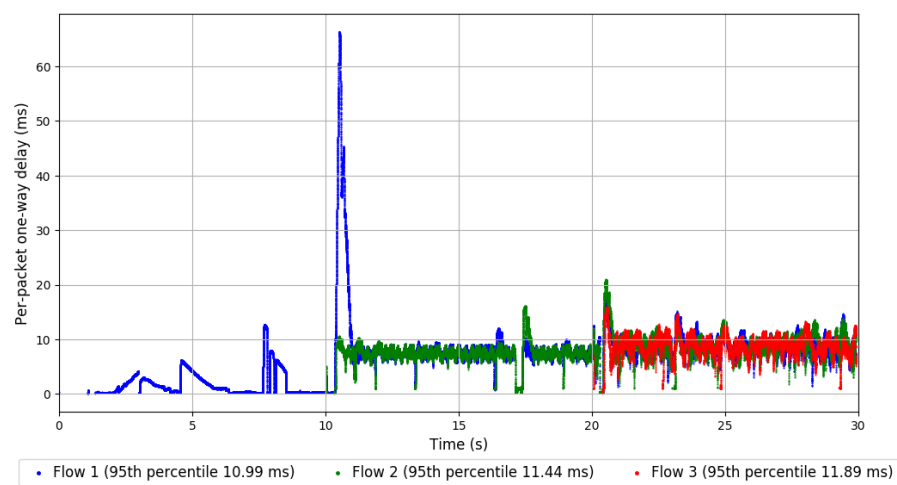
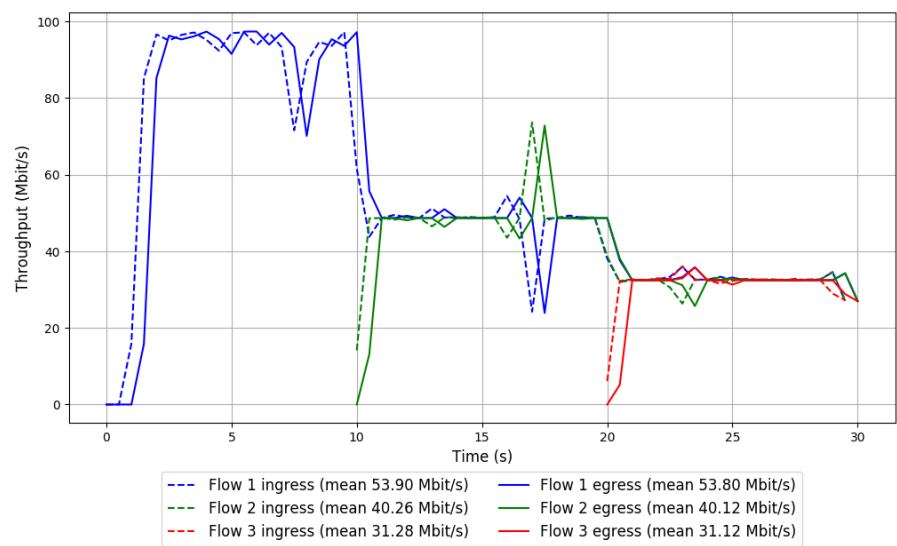


Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 11:23:49
End at: 2018-11-15 11:24:19
Local clock offset: -7.186 ms
Remote clock offset: -0.139 ms

Below is generated by plot.py at 2018-11-15 12:58:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 90.79 Mbit/s
95th percentile per-packet one-way delay: 11.353 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 53.80 Mbit/s
95th percentile per-packet one-way delay: 10.991 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 40.12 Mbit/s
95th percentile per-packet one-way delay: 11.435 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 31.12 Mbit/s
95th percentile per-packet one-way delay: 11.894 ms
Loss rate: 0.52%

Run 1: Report of QUIC Cubic — Data Link

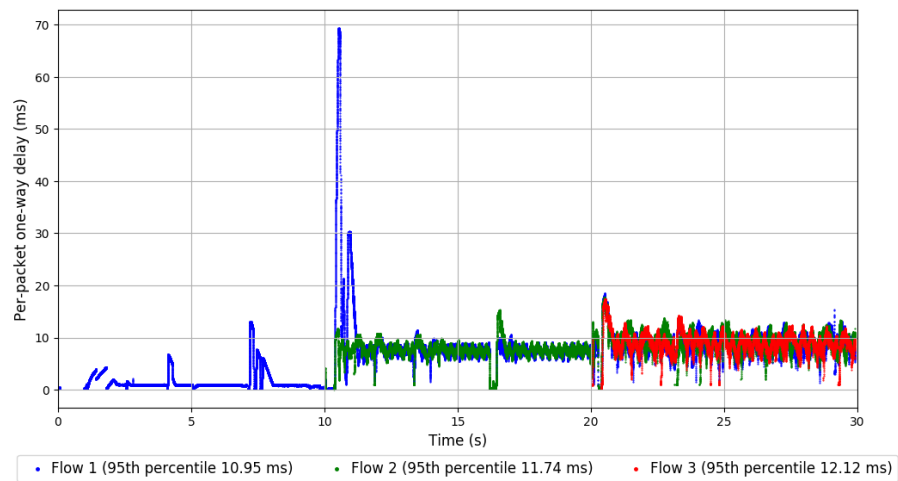
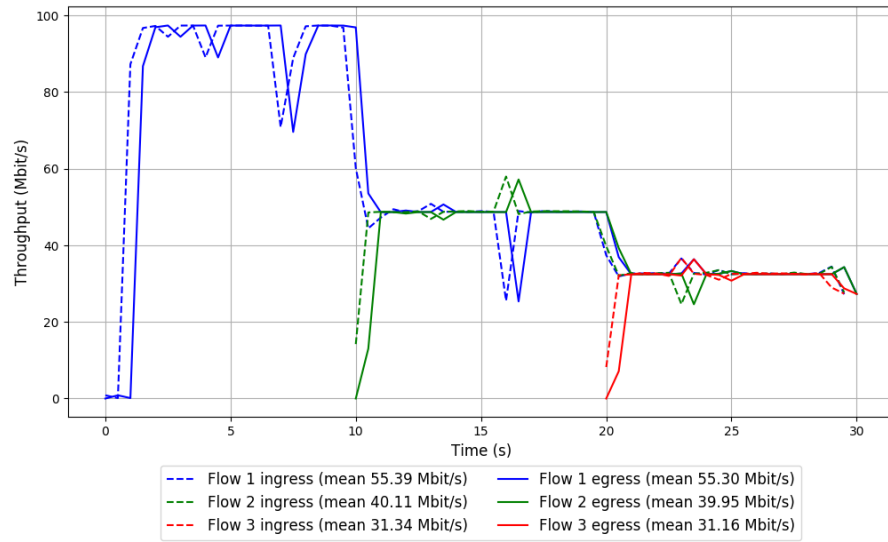


Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 11:44:32
End at: 2018-11-15 11:45:02
Local clock offset: -2.156 ms
Remote clock offset: -0.079 ms

Below is generated by plot.py at 2018-11-15 12:58:17
Datalink statistics
-- Total of 3 flows:
Average throughput: 92.17 Mbit/s
95th percentile per-packet one-way delay: 11.543 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 55.30 Mbit/s
95th percentile per-packet one-way delay: 10.954 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 39.95 Mbit/s
95th percentile per-packet one-way delay: 11.736 ms
Loss rate: 0.41%
-- Flow 3:
Average throughput: 31.16 Mbit/s
95th percentile per-packet one-way delay: 12.121 ms
Loss rate: 0.57%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 12:05:17

End at: 2018-11-15 12:05:47

Local clock offset: -5.047 ms

Remote clock offset: 0.183 ms

Below is generated by plot.py at 2018-11-15 12:58:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.46 Mbit/s

95th percentile per-packet one-way delay: 11.936 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 55.45 Mbit/s

95th percentile per-packet one-way delay: 11.819 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 40.15 Mbit/s

95th percentile per-packet one-way delay: 11.961 ms

Loss rate: 0.40%

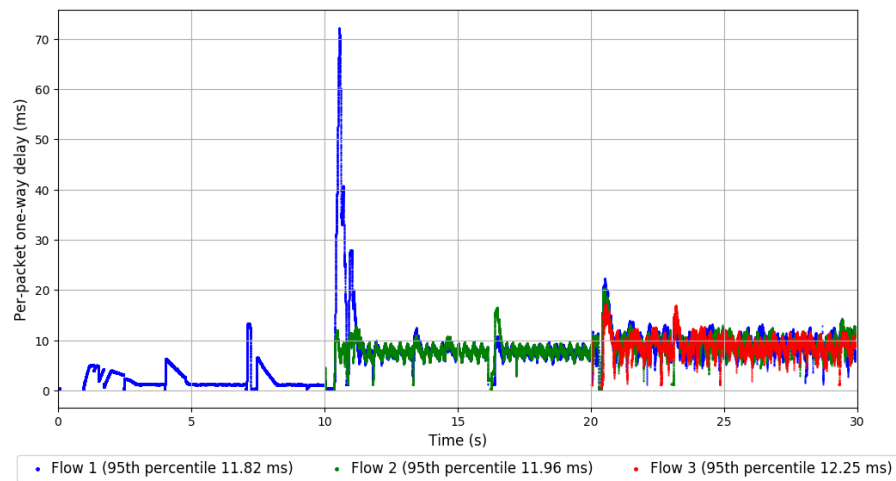
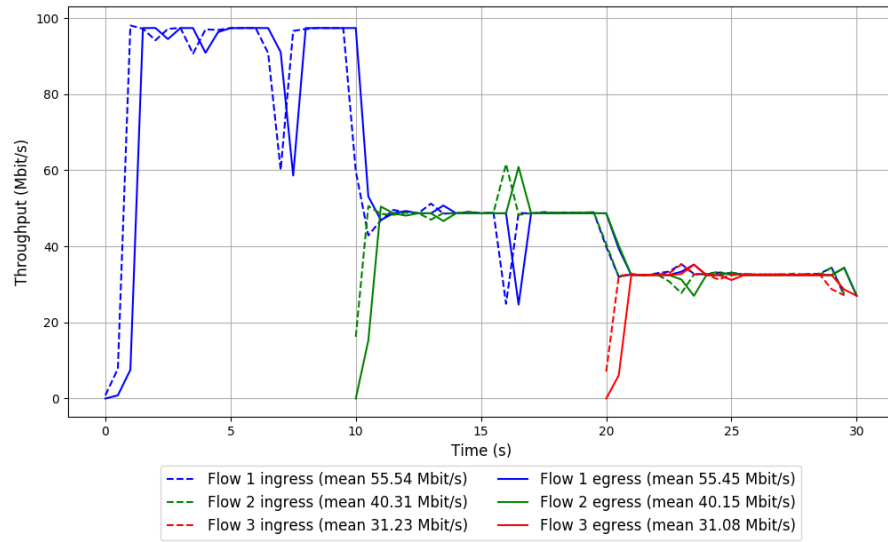
-- Flow 3:

Average throughput: 31.08 Mbit/s

95th percentile per-packet one-way delay: 12.246 ms

Loss rate: 0.50%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 12:26:03

End at: 2018-11-15 12:26:33

Local clock offset: -7.092 ms

Remote clock offset: 0.244 ms

Below is generated by plot.py at 2018-11-15 12:58:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.21 Mbit/s

95th percentile per-packet one-way delay: 12.429 ms

Loss rate: 0.27%

-- Flow 1:

Average throughput: 53.22 Mbit/s

95th percentile per-packet one-way delay: 12.867 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 40.14 Mbit/s

95th percentile per-packet one-way delay: 11.745 ms

Loss rate: 0.34%

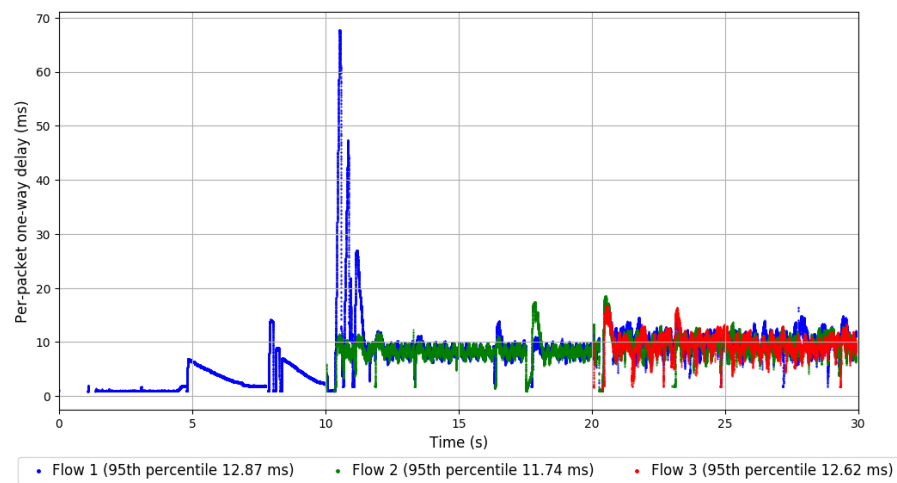
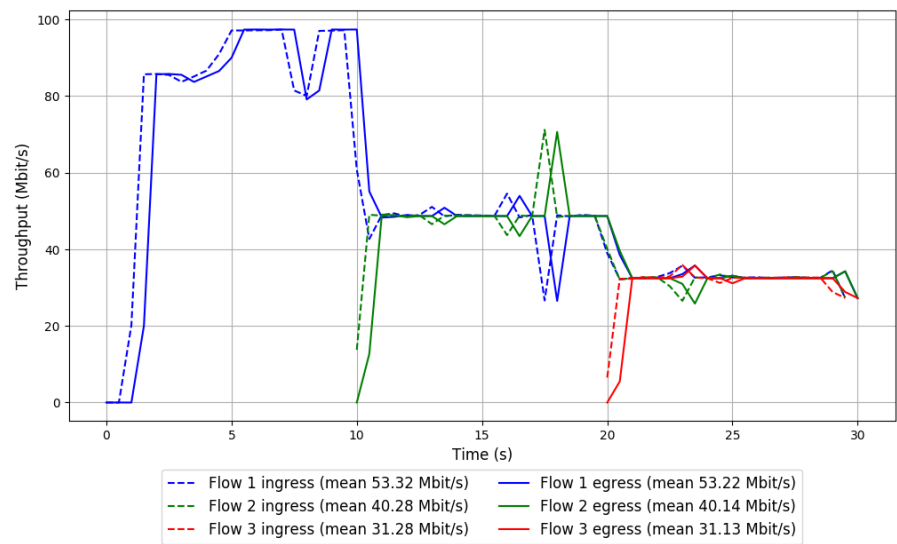
-- Flow 3:

Average throughput: 31.13 Mbit/s

95th percentile per-packet one-way delay: 12.621 ms

Loss rate: 0.48%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 12:46:47

End at: 2018-11-15 12:47:17

Local clock offset: -8.138 ms

Remote clock offset: 0.311 ms

Below is generated by plot.py at 2018-11-15 12:58:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 90.28 Mbit/s

95th percentile per-packet one-way delay: 11.908 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 53.27 Mbit/s

95th percentile per-packet one-way delay: 11.979 ms

Loss rate: 0.16%

-- Flow 2:

Average throughput: 40.12 Mbit/s

95th percentile per-packet one-way delay: 11.553 ms

Loss rate: 0.32%

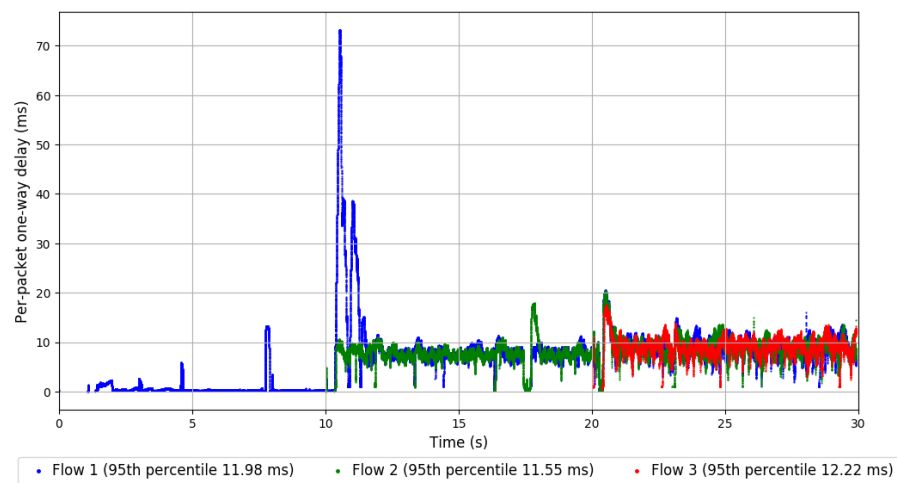
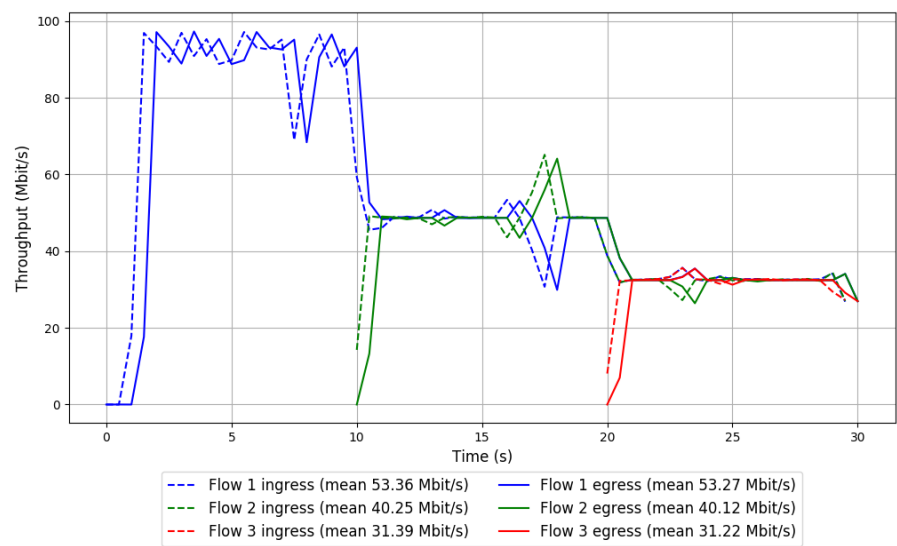
-- Flow 3:

Average throughput: 31.22 Mbit/s

95th percentile per-packet one-way delay: 12.225 ms

Loss rate: 0.57%

Run 5: Report of QUIC Cubic — Data Link

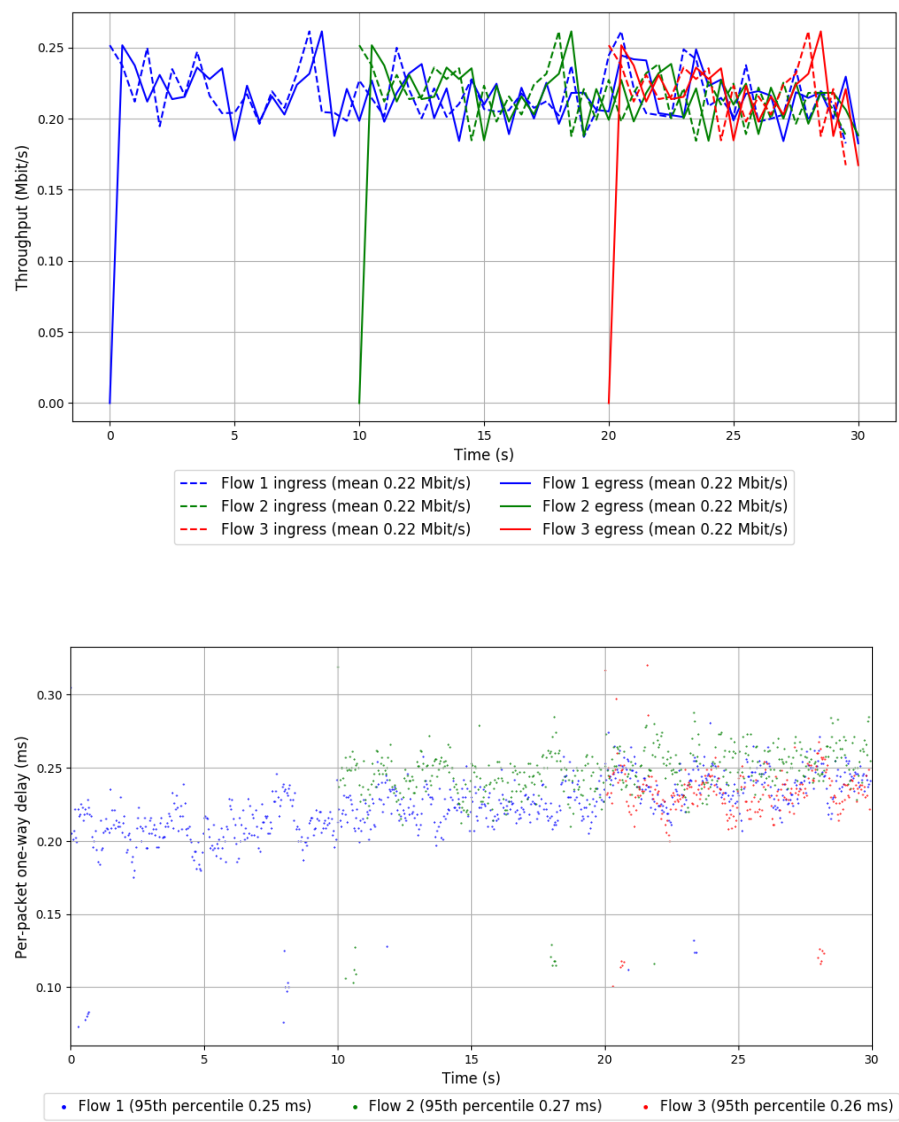


Run 1: Statistics of SReAM

Start at: 2018-11-15 11:19:18
End at: 2018-11-15 11:19:48
Local clock offset: -6.878 ms
Remote clock offset: -0.197 ms

Below is generated by plot.py at 2018-11-15 12:58:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 0.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.253 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.271 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.256 ms
Loss rate: 0.00%

Run 1: Report of SReAM — Data Link

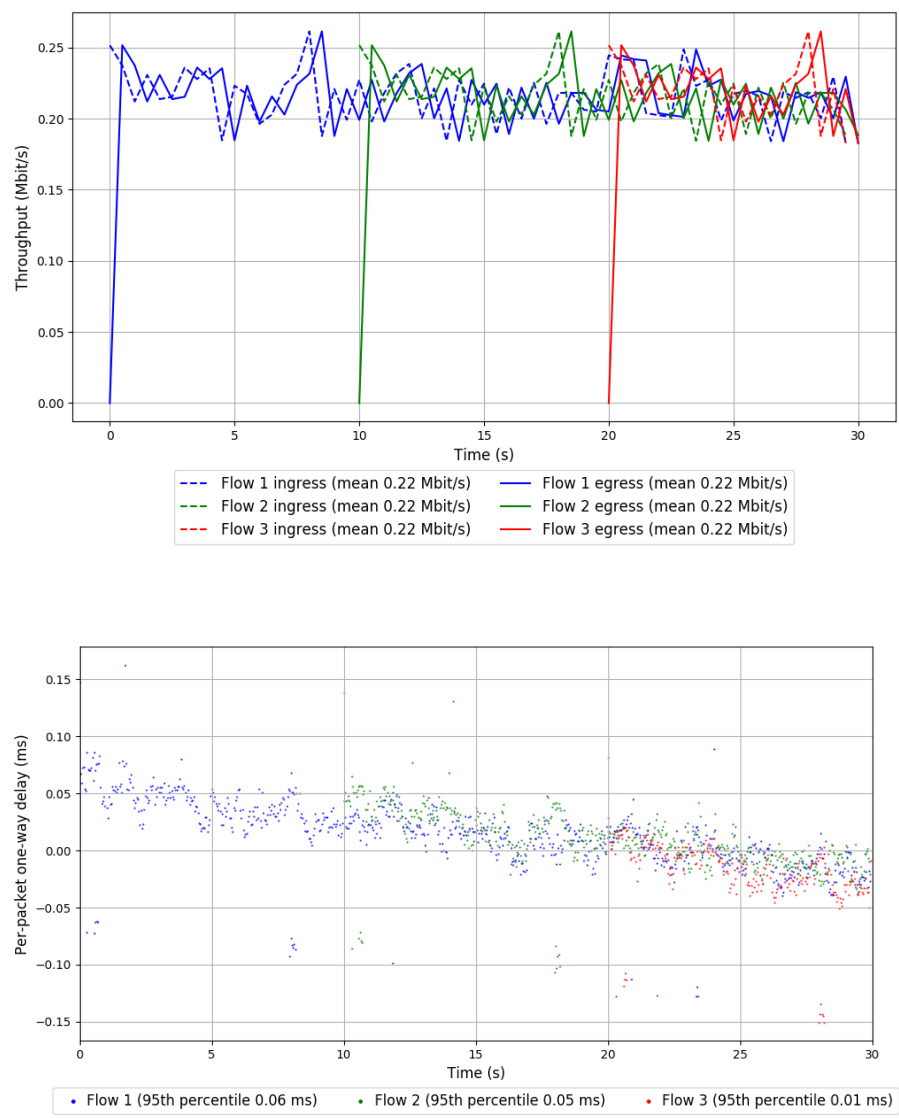


Run 2: Statistics of SReAM

Start at: 2018-11-15 11:39:58
End at: 2018-11-15 11:40:28
Local clock offset: -2.81 ms
Remote clock offset: -0.009 ms

Below is generated by plot.py at 2018-11-15 12:58:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 0.053 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.056 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.048 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.013 ms
Loss rate: 0.00%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SReAM

Start at: 2018-11-15 12:00:42

End at: 2018-11-15 12:01:12

Local clock offset: -3.536 ms

Remote clock offset: 0.207 ms

Below is generated by plot.py at 2018-11-15 12:58:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 0.413 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.415 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.411 ms

Loss rate: 0.00%

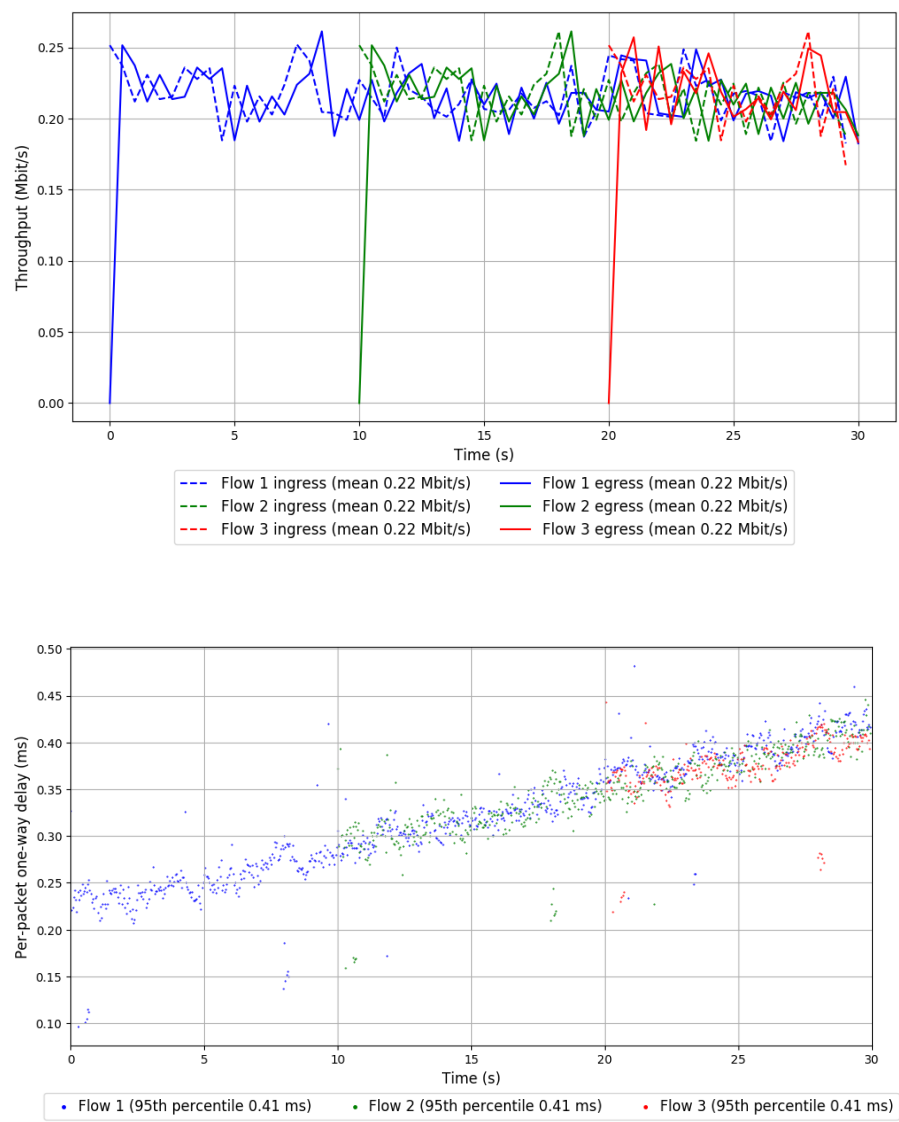
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.410 ms

Loss rate: 0.00%

Run 3: Report of SReAM — Data Link



Run 4: Statistics of SReAM

Start at: 2018-11-15 12:21:27

End at: 2018-11-15 12:21:57

Local clock offset: -6.842 ms

Remote clock offset: 0.224 ms

Below is generated by plot.py at 2018-11-15 12:58:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 0.954 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.955 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.952 ms

Loss rate: 0.00%

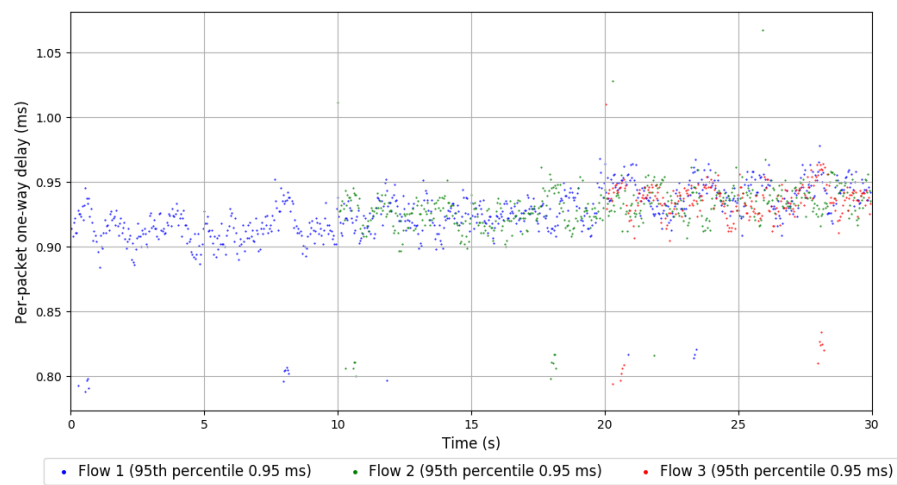
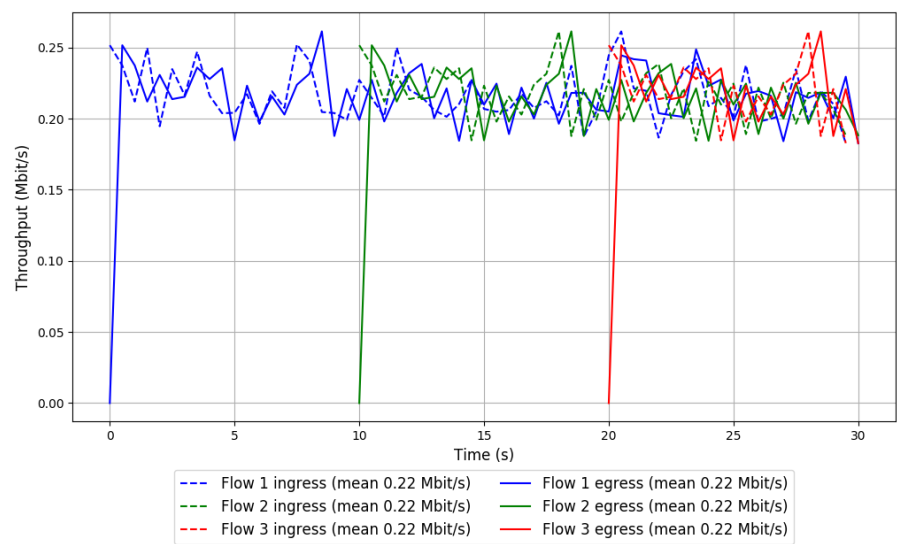
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.954 ms

Loss rate: 0.00%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SReAM

Start at: 2018-11-15 12:42:12

End at: 2018-11-15 12:42:43

Local clock offset: -7.992 ms

Remote clock offset: 0.318 ms

Below is generated by plot.py at 2018-11-15 12:58:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 0.44 Mbit/s

95th percentile per-packet one-way delay: 0.203 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.197 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.188 ms

Loss rate: 0.00%

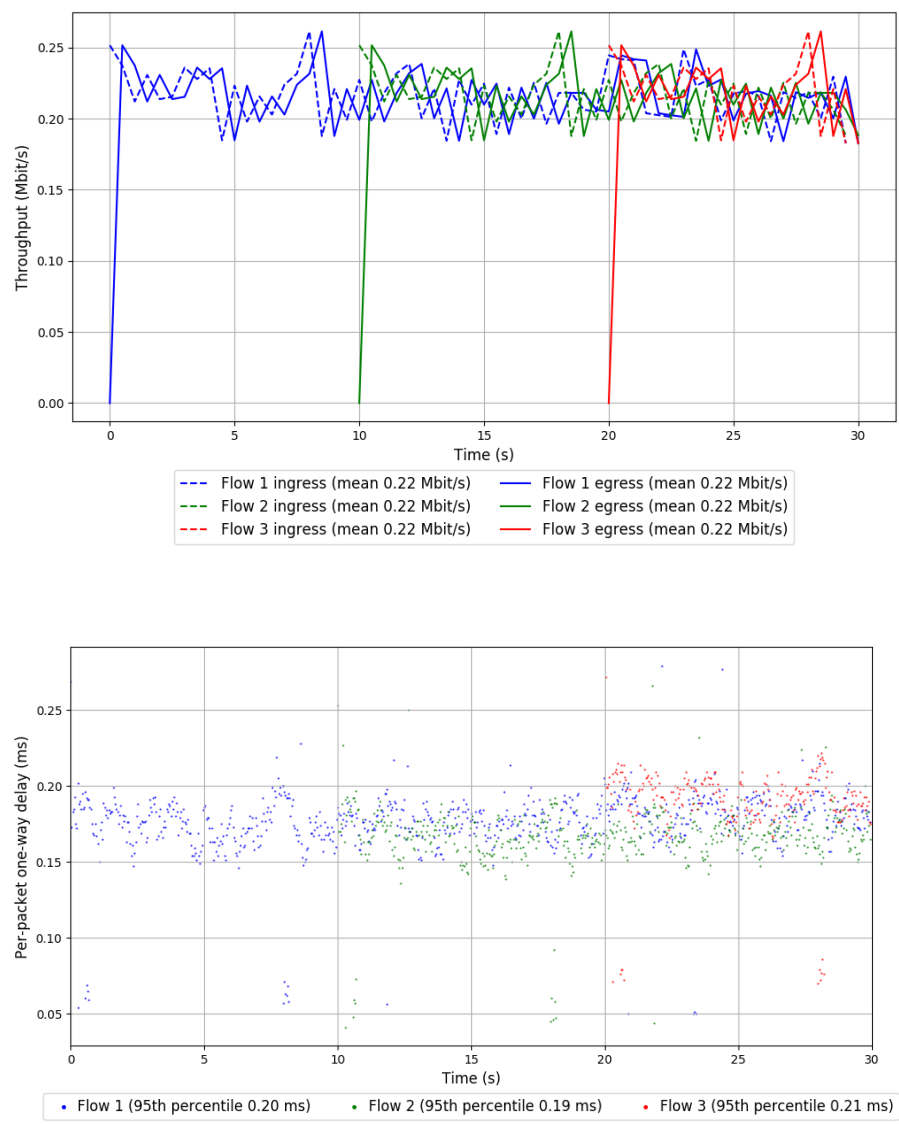
-- Flow 3:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 0.211 ms

Loss rate: 0.00%

Run 5: Report of SReAM — Data Link

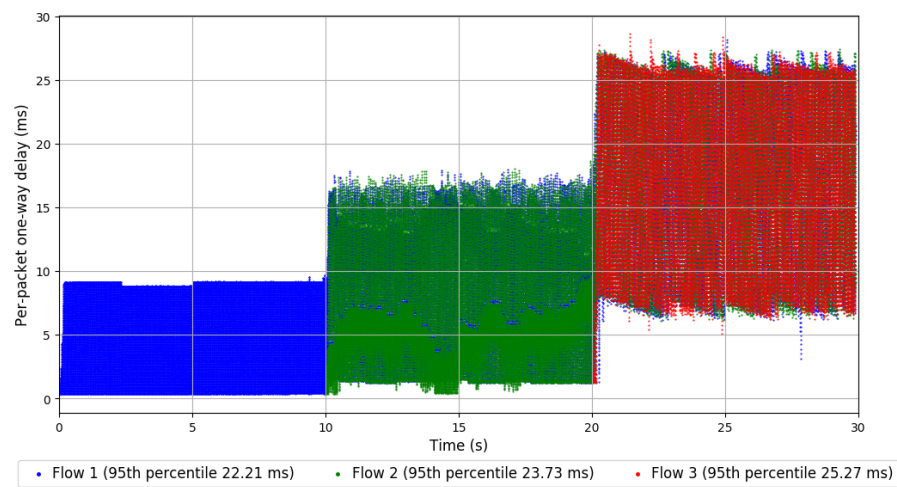
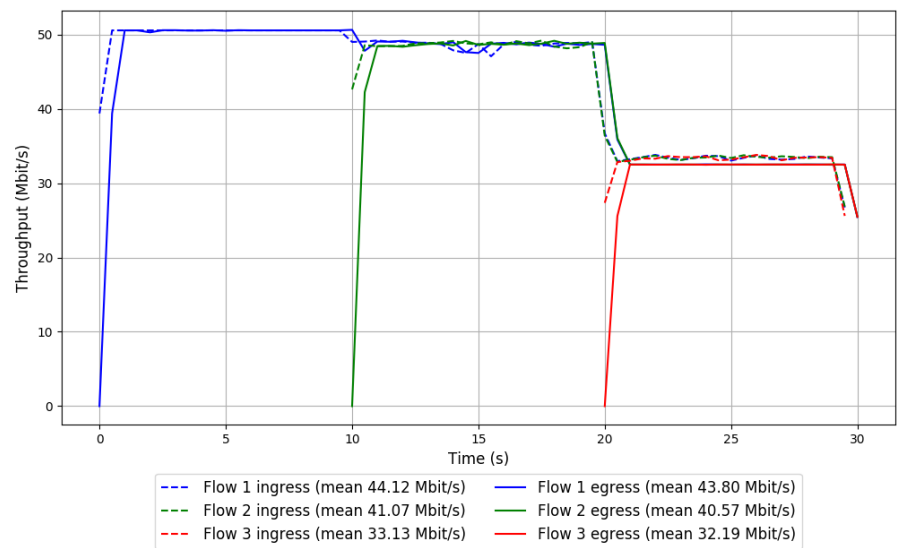


Run 1: Statistics of Sprout

Start at: 2018-11-15 11:13:35
End at: 2018-11-15 11:14:05
Local clock offset: -6.29 ms
Remote clock offset: -0.313 ms

Below is generated by plot.py at 2018-11-15 12:58:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 81.43 Mbit/s
95th percentile per-packet one-way delay: 23.745 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 43.80 Mbit/s
95th percentile per-packet one-way delay: 22.211 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 40.57 Mbit/s
95th percentile per-packet one-way delay: 23.733 ms
Loss rate: 1.16%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 25.274 ms
Loss rate: 2.71%

Run 1: Report of Sprout — Data Link

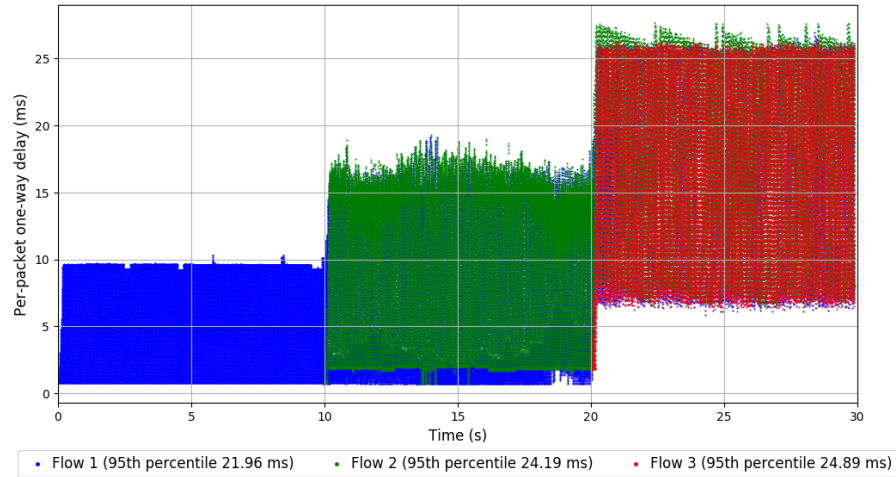
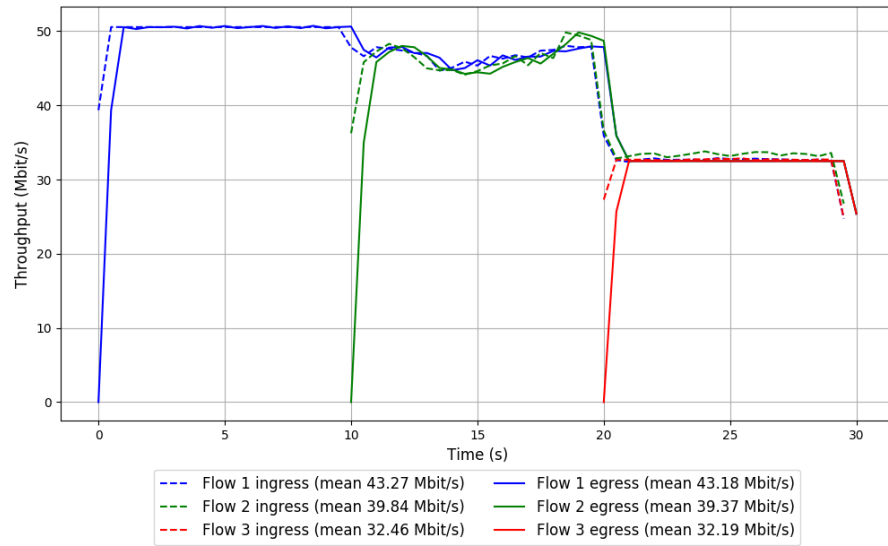


Run 2: Statistics of Sprout

Start at: 2018-11-15 11:34:14
End at: 2018-11-15 11:34:44
Local clock offset: -3.32 ms
Remote clock offset: -0.051 ms

Below is generated by plot.py at 2018-11-15 12:58:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 80.00 Mbit/s
95th percentile per-packet one-way delay: 23.696 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 43.18 Mbit/s
95th percentile per-packet one-way delay: 21.957 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 39.37 Mbit/s
95th percentile per-packet one-way delay: 24.194 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 24.894 ms
Loss rate: 0.72%

Run 2: Report of Sprout — Data Link

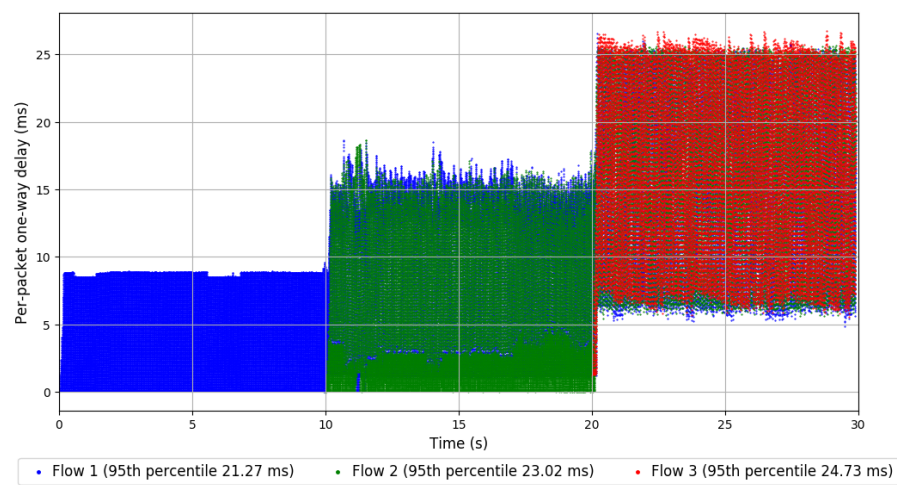
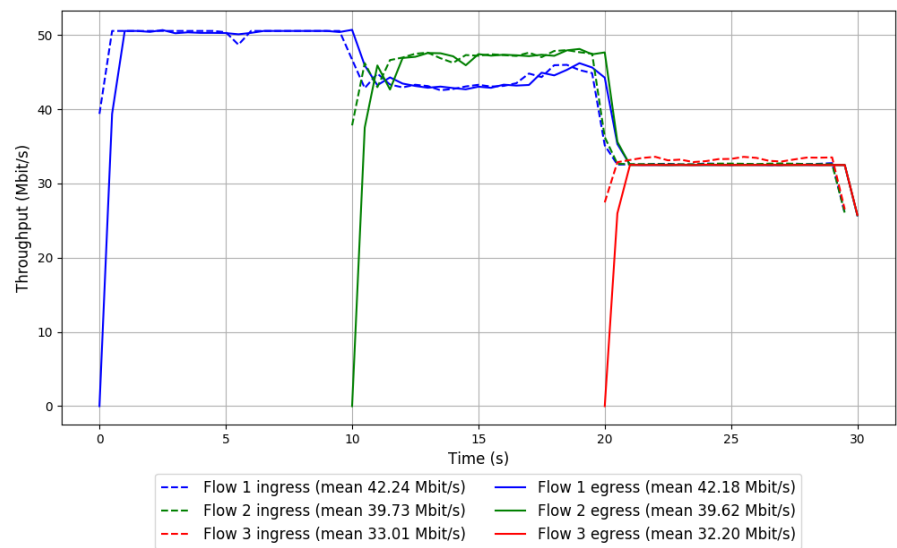


Run 3: Statistics of Sprout

Start at: 2018-11-15 11:54:59
End at: 2018-11-15 11:55:29
Local clock offset: -1.364 ms
Remote clock offset: 0.16 ms

```
# Below is generated by plot.py at 2018-11-15 12:58:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.19 Mbit/s
95th percentile per-packet one-way delay: 23.013 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 42.18 Mbit/s
95th percentile per-packet one-way delay: 21.269 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 39.62 Mbit/s
95th percentile per-packet one-way delay: 23.017 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.20 Mbit/s
95th percentile per-packet one-way delay: 24.725 ms
Loss rate: 2.46%
```

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-11-15 12:15:44

End at: 2018-11-15 12:16:14

Local clock offset: -6.22 ms

Remote clock offset: 0.271 ms

Below is generated by plot.py at 2018-11-15 12:58:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 81.32 Mbit/s

95th percentile per-packet one-way delay: 24.442 ms

Loss rate: 0.54%

-- Flow 1:

Average throughput: 43.49 Mbit/s

95th percentile per-packet one-way delay: 22.424 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 40.89 Mbit/s

95th percentile per-packet one-way delay: 24.406 ms

Loss rate: 1.19%

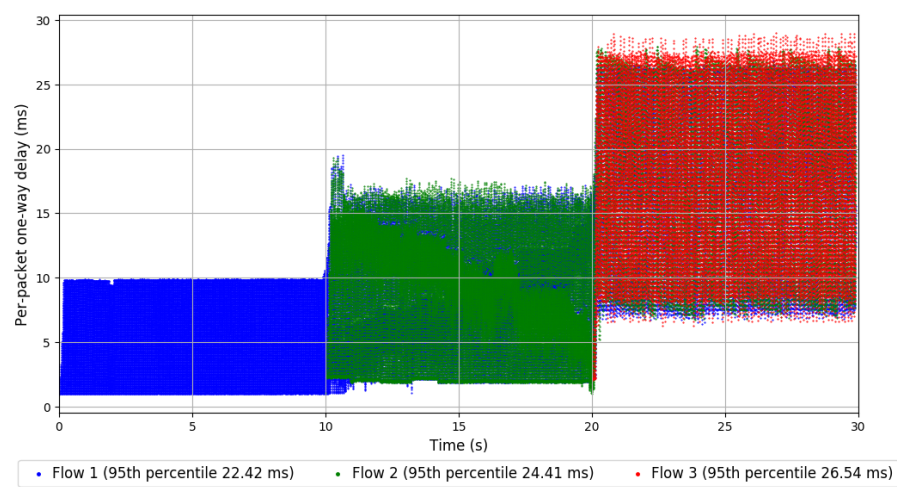
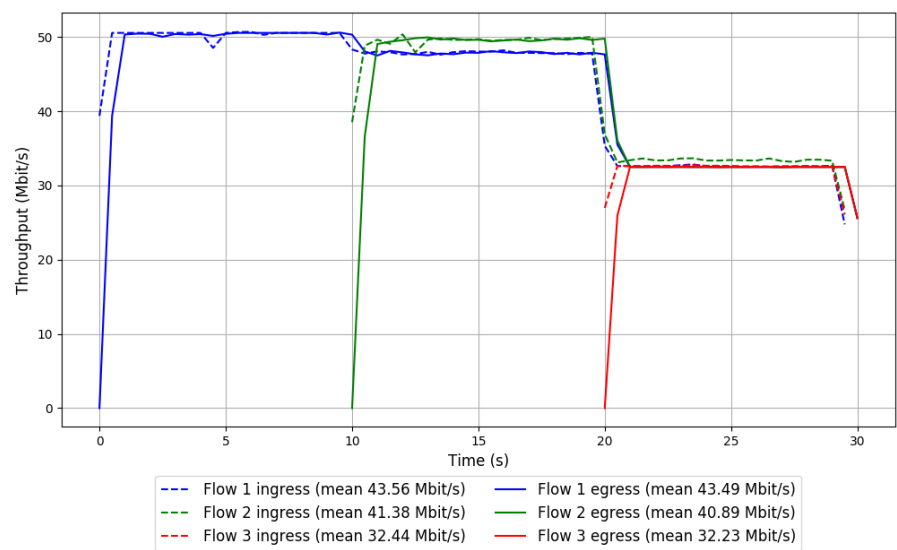
-- Flow 3:

Average throughput: 32.23 Mbit/s

95th percentile per-packet one-way delay: 26.537 ms

Loss rate: 0.57%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-11-15 12:36:29

End at: 2018-11-15 12:36:59

Local clock offset: -7.179 ms

Remote clock offset: 0.347 ms

Below is generated by plot.py at 2018-11-15 12:58:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 79.30 Mbit/s

95th percentile per-packet one-way delay: 23.820 ms

Loss rate: 0.63%

-- Flow 1:

Average throughput: 43.69 Mbit/s

95th percentile per-packet one-way delay: 22.572 ms

Loss rate: 0.68%

-- Flow 2:

Average throughput: 37.54 Mbit/s

95th percentile per-packet one-way delay: 23.481 ms

Loss rate: 0.07%

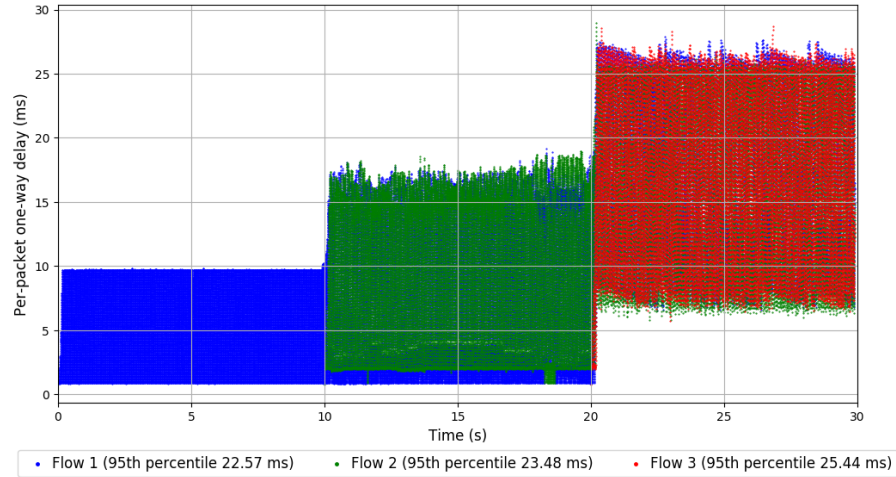
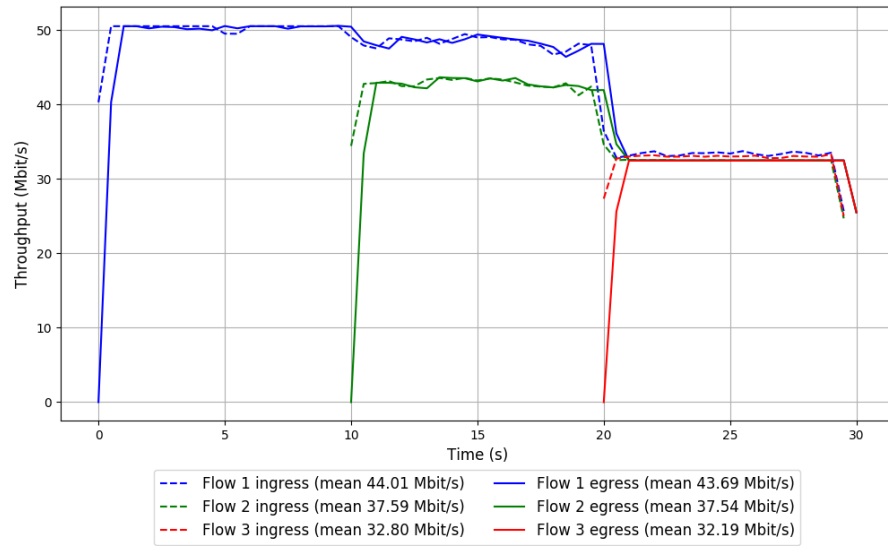
-- Flow 3:

Average throughput: 32.19 Mbit/s

95th percentile per-packet one-way delay: 25.438 ms

Loss rate: 1.71%

Run 5: Report of Sprout — Data Link

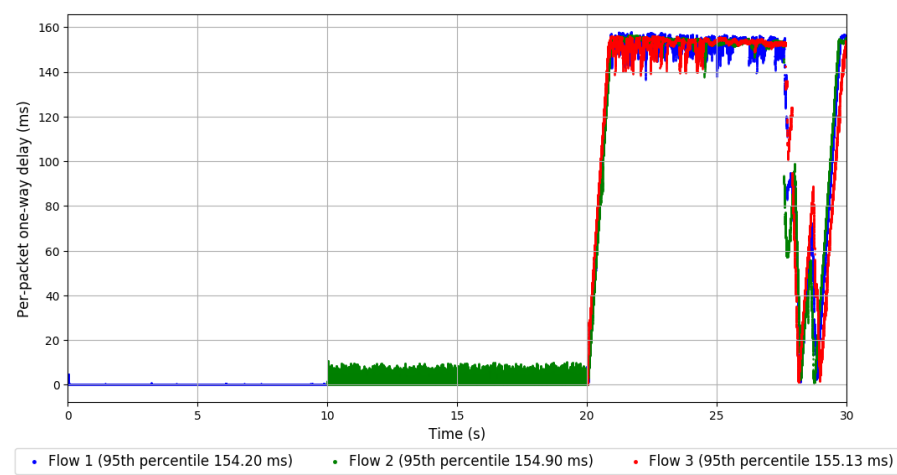
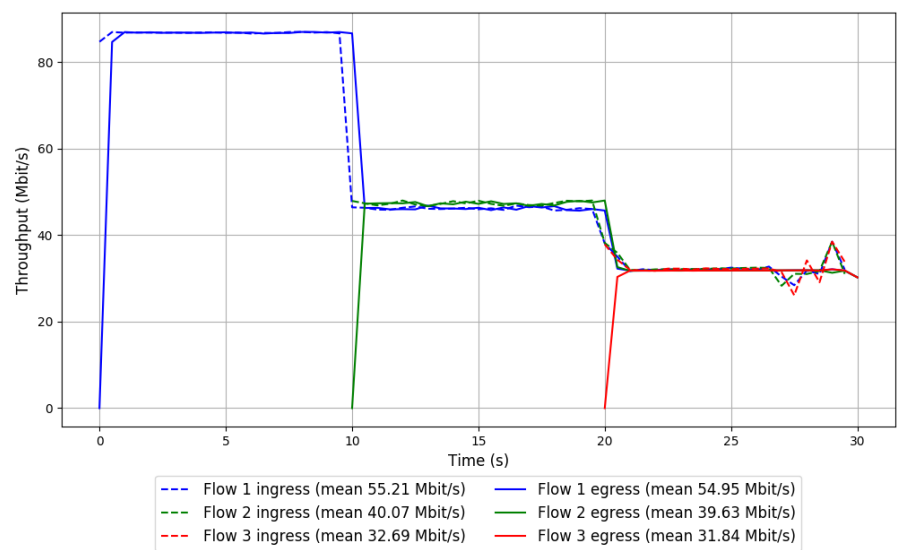


Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 11:04:18
End at: 2018-11-15 11:04:48
Local clock offset: -4.567 ms
Remote clock offset: -0.206 ms

Below is generated by plot.py at 2018-11-15 12:59:55
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.93 Mbit/s
95th percentile per-packet one-way delay: 154.734 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 54.95 Mbit/s
95th percentile per-packet one-way delay: 154.202 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 39.63 Mbit/s
95th percentile per-packet one-way delay: 154.903 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 31.84 Mbit/s
95th percentile per-packet one-way delay: 155.130 ms
Loss rate: 2.66%

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

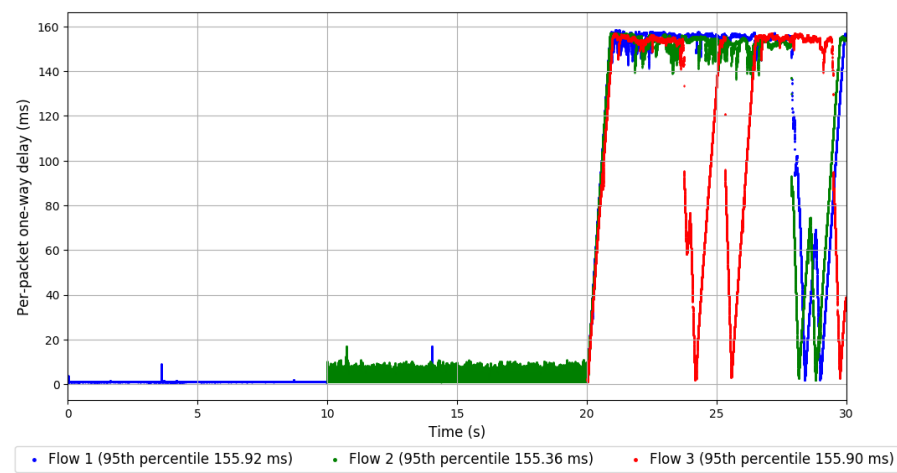
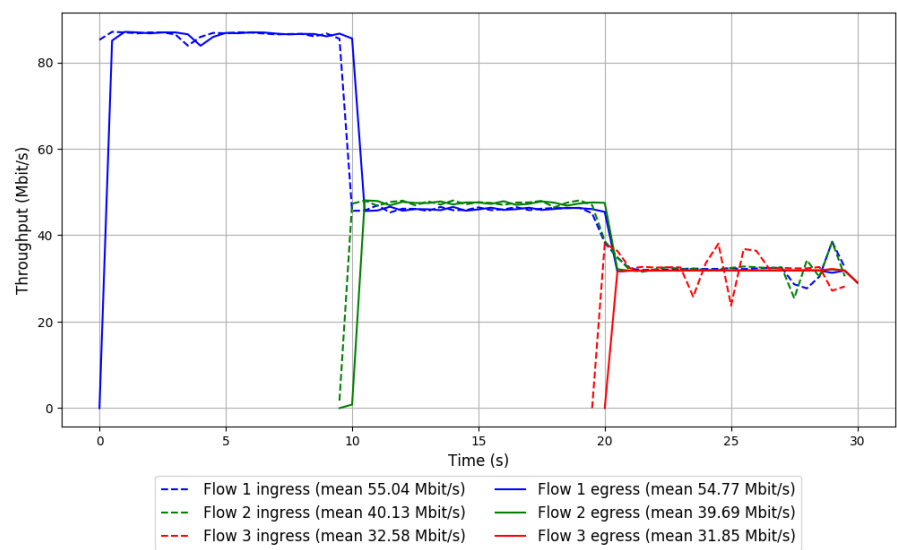


Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 11:24:58
End at: 2018-11-15 11:25:28
Local clock offset: -6.495 ms
Remote clock offset: -0.172 ms

Below is generated by plot.py at 2018-11-15 13:00:19
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.81 Mbit/s
95th percentile per-packet one-way delay: 155.833 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 54.77 Mbit/s
95th percentile per-packet one-way delay: 155.924 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.69 Mbit/s
95th percentile per-packet one-way delay: 155.357 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 31.85 Mbit/s
95th percentile per-packet one-way delay: 155.904 ms
Loss rate: 2.28%

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

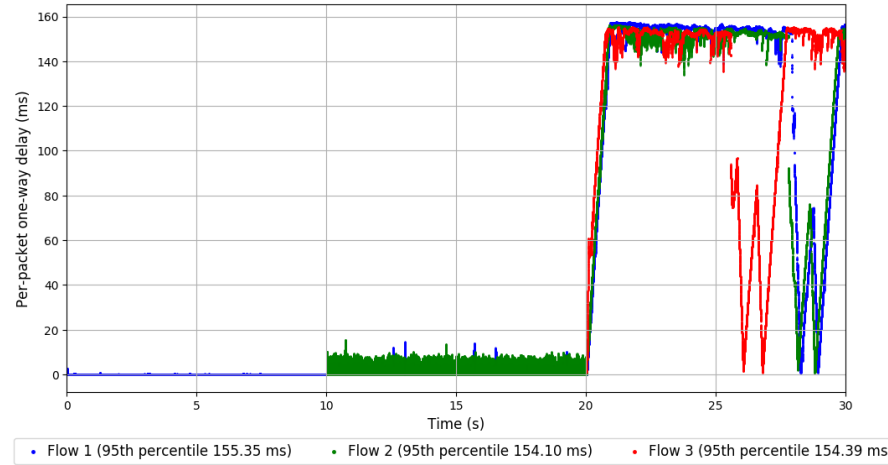
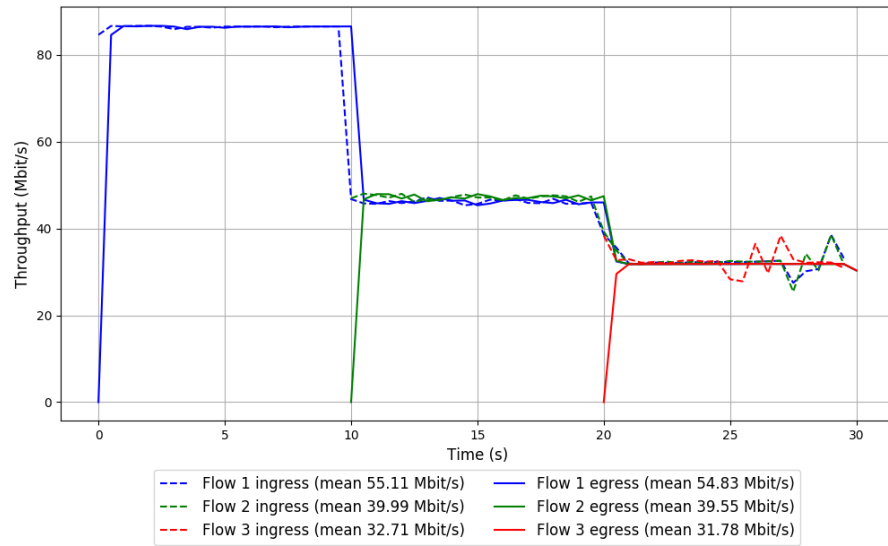


Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 11:45:41
End at: 2018-11-15 11:46:11
Local clock offset: -2.036 ms
Remote clock offset: -0.004 ms

Below is generated by plot.py at 2018-11-15 13:00:35
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.72 Mbit/s
95th percentile per-packet one-way delay: 154.833 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 54.83 Mbit/s
95th percentile per-packet one-way delay: 155.355 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.55 Mbit/s
95th percentile per-packet one-way delay: 154.104 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 31.78 Mbit/s
95th percentile per-packet one-way delay: 154.388 ms
Loss rate: 2.85%

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



Run 4: Statistics of TaoVA-100x

Start at: 2018-11-15 12:06:26

End at: 2018-11-15 12:06:56

Local clock offset: -4.724 ms

Remote clock offset: 0.182 ms

Below is generated by plot.py at 2018-11-15 13:00:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 92.12 Mbit/s

95th percentile per-packet one-way delay: 155.966 ms

Loss rate: 0.95%

-- Flow 1:

Average throughput: 55.56 Mbit/s

95th percentile per-packet one-way delay: 155.118 ms

Loss rate: 0.50%

-- Flow 2:

Average throughput: 38.98 Mbit/s

95th percentile per-packet one-way delay: 156.346 ms

Loss rate: 1.18%

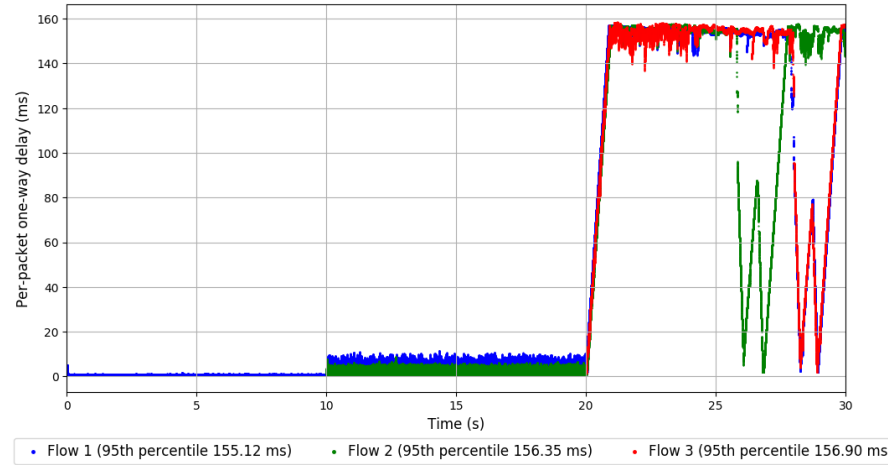
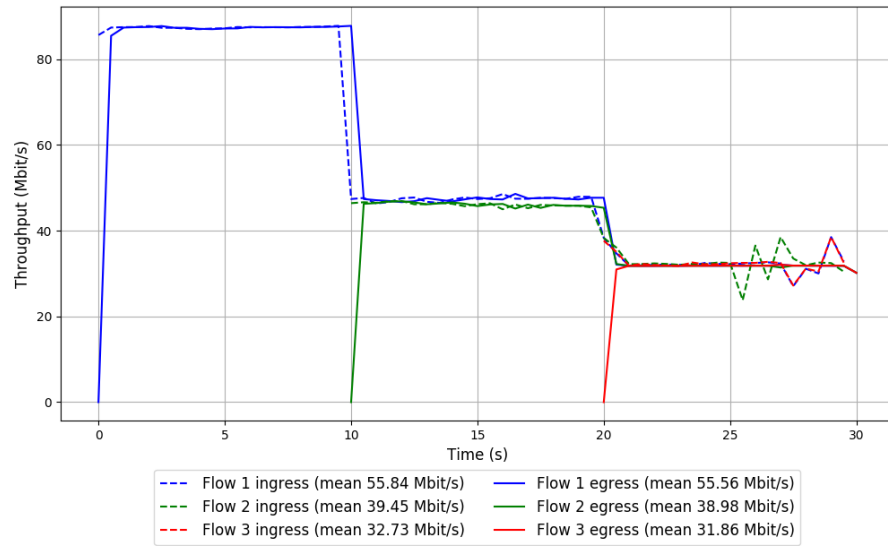
-- Flow 3:

Average throughput: 31.86 Mbit/s

95th percentile per-packet one-way delay: 156.901 ms

Loss rate: 2.70%

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



Run 5: Statistics of TaoVA-100x

Start at: 2018-11-15 12:27:12

End at: 2018-11-15 12:27:42

Local clock offset: -7.883 ms

Remote clock offset: 0.221 ms

Below is generated by plot.py at 2018-11-15 13:00:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 91.42 Mbit/s

95th percentile per-packet one-way delay: 6.006 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 47.49 Mbit/s

95th percentile per-packet one-way delay: 5.941 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 42.55 Mbit/s

95th percentile per-packet one-way delay: 3.861 ms

Loss rate: 0.01%

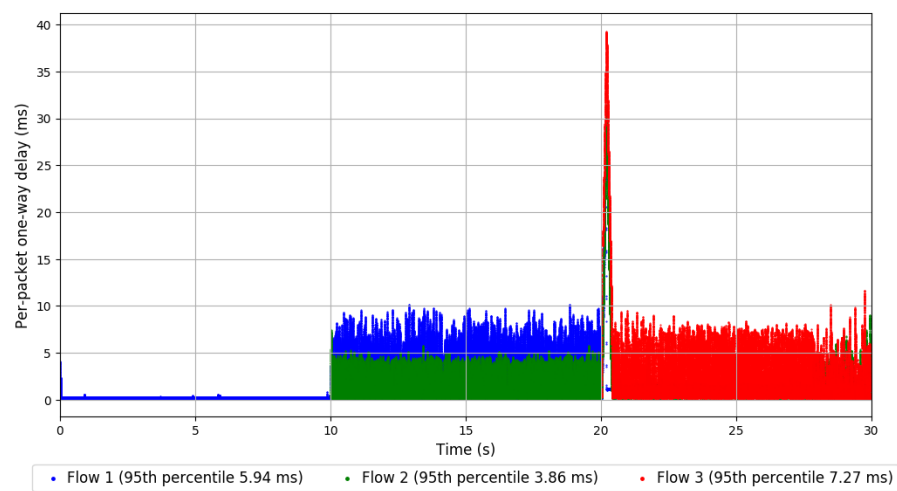
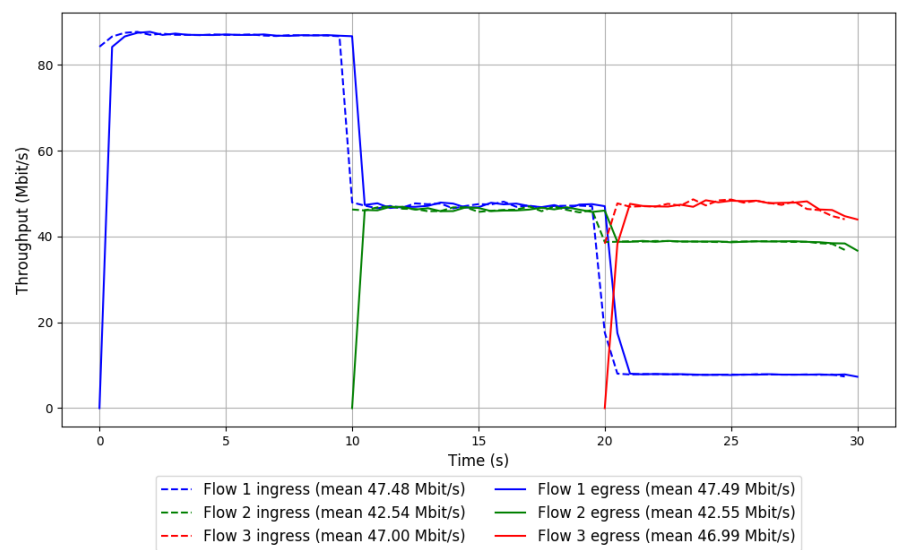
-- Flow 3:

Average throughput: 46.99 Mbit/s

95th percentile per-packet one-way delay: 7.272 ms

Loss rate: 0.02%

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

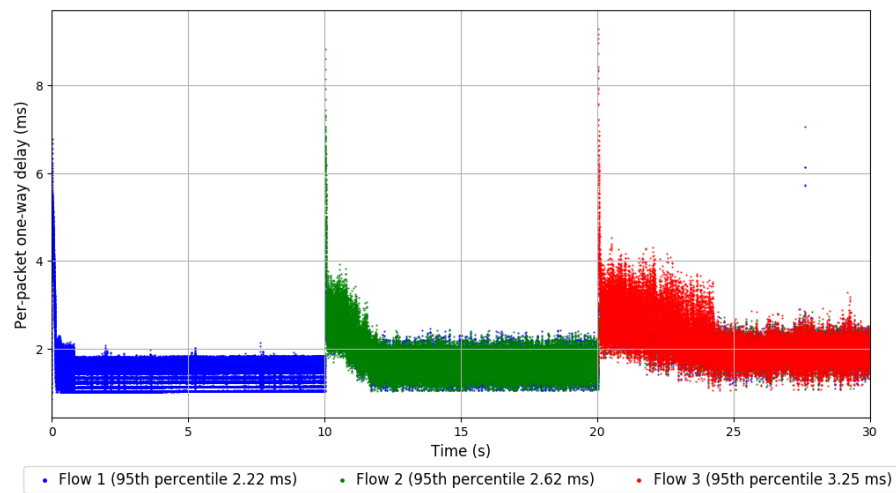
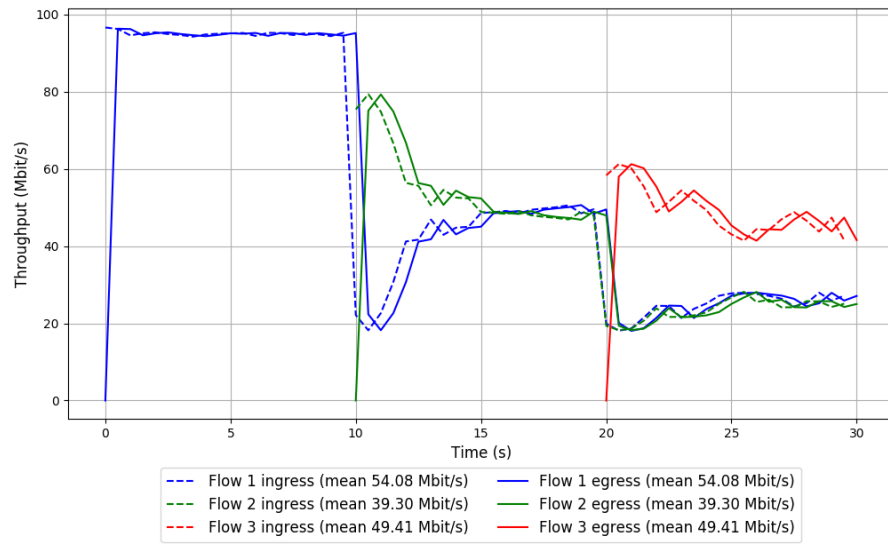


Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 11:11:17
End at: 2018-11-15 11:11:47
Local clock offset: -5.215 ms
Remote clock offset: -0.205 ms

Below is generated by plot.py at 2018-11-15 13:00:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.68 Mbit/s
95th percentile per-packet one-way delay: 2.635 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 54.08 Mbit/s
95th percentile per-packet one-way delay: 2.223 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 39.30 Mbit/s
95th percentile per-packet one-way delay: 2.621 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 49.41 Mbit/s
95th percentile per-packet one-way delay: 3.253 ms
Loss rate: 0.02%

Run 1: Report of TCP Vegas — Data Link

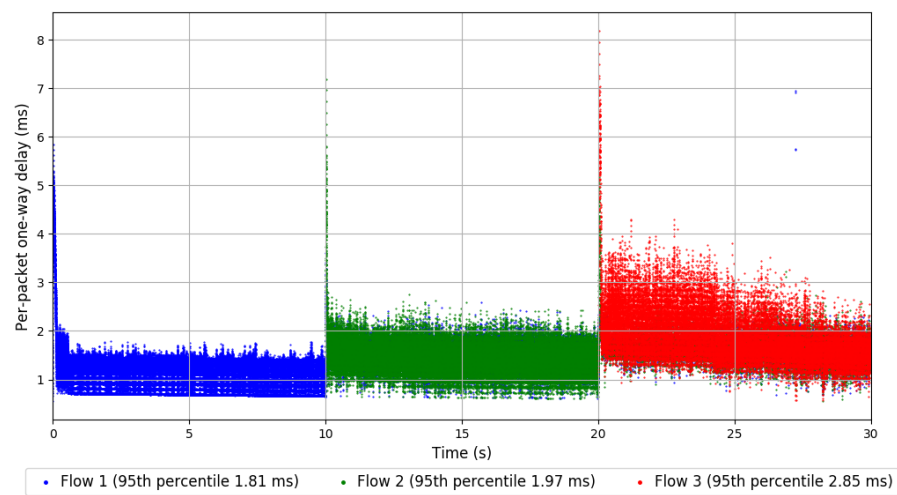
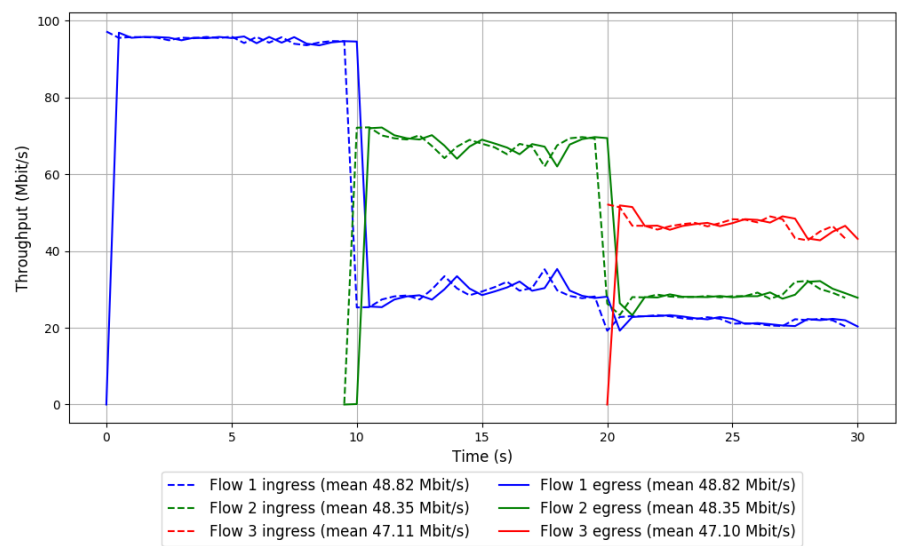


Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 11:31:56
End at: 2018-11-15 11:32:26
Local clock offset: -4.058 ms
Remote clock offset: -0.027 ms

Below is generated by plot.py at 2018-11-15 13:00:38
Datalink statistics
-- Total of 3 flows:
Average throughput: 96.71 Mbit/s
95th percentile per-packet one-way delay: 2.154 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 48.82 Mbit/s
95th percentile per-packet one-way delay: 1.811 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 48.35 Mbit/s
95th percentile per-packet one-way delay: 1.970 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 47.10 Mbit/s
95th percentile per-packet one-way delay: 2.847 ms
Loss rate: 0.02%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 11:52:40

End at: 2018-11-15 11:53:10

Local clock offset: -1.469 ms

Remote clock offset: 0.073 ms

Below is generated by plot.py at 2018-11-15 13:00:38

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.35 Mbit/s

95th percentile per-packet one-way delay: 1.462 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 50.30 Mbit/s

95th percentile per-packet one-way delay: 1.321 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 50.17 Mbit/s

95th percentile per-packet one-way delay: 1.453 ms

Loss rate: 0.01%

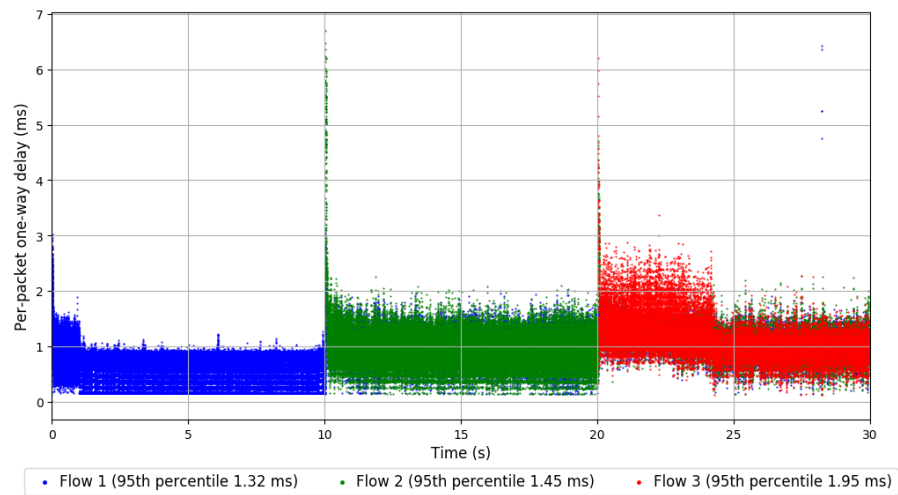
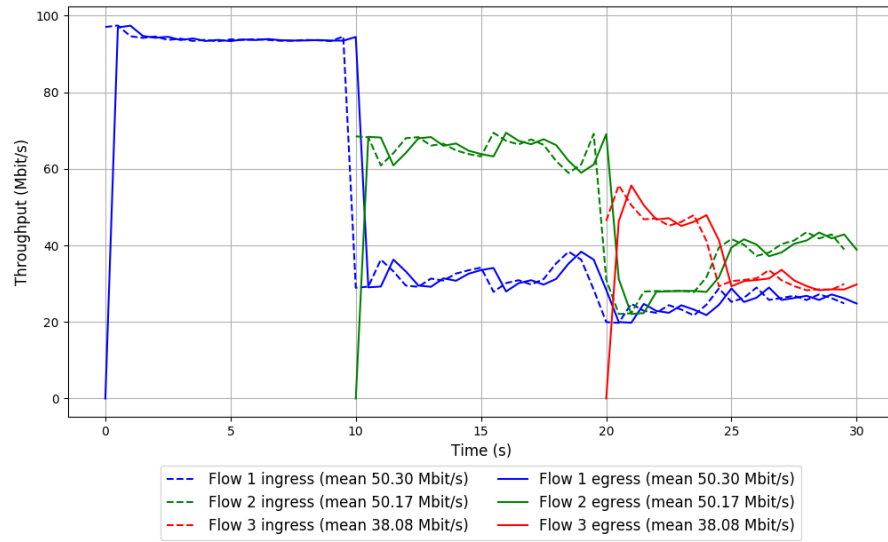
-- Flow 3:

Average throughput: 38.08 Mbit/s

95th percentile per-packet one-way delay: 1.949 ms

Loss rate: 0.02%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 12:13:25

End at: 2018-11-15 12:13:55

Local clock offset: -5.927 ms

Remote clock offset: 0.268 ms

Below is generated by plot.py at 2018-11-15 13:00:54

Datalink statistics

-- Total of 3 flows:

Average throughput: 97.46 Mbit/s

95th percentile per-packet one-way delay: 3.433 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 59.67 Mbit/s

95th percentile per-packet one-way delay: 2.462 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 32.59 Mbit/s

95th percentile per-packet one-way delay: 2.861 ms

Loss rate: 0.01%

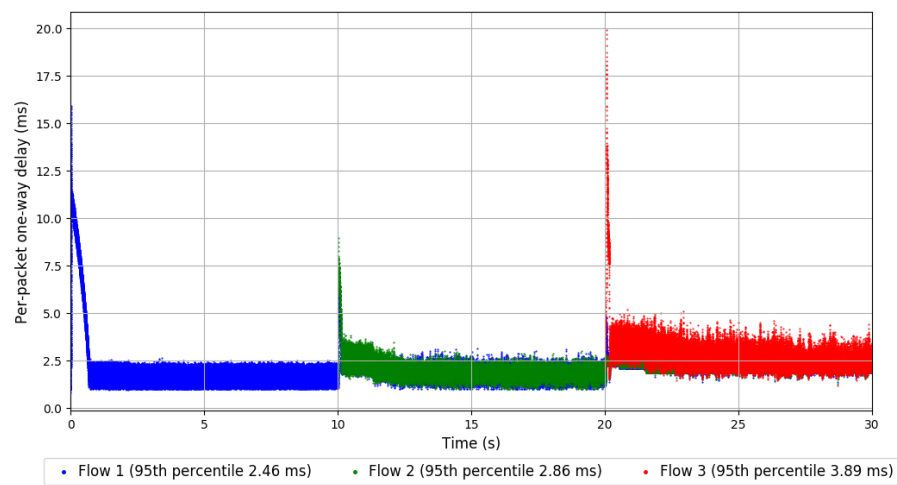
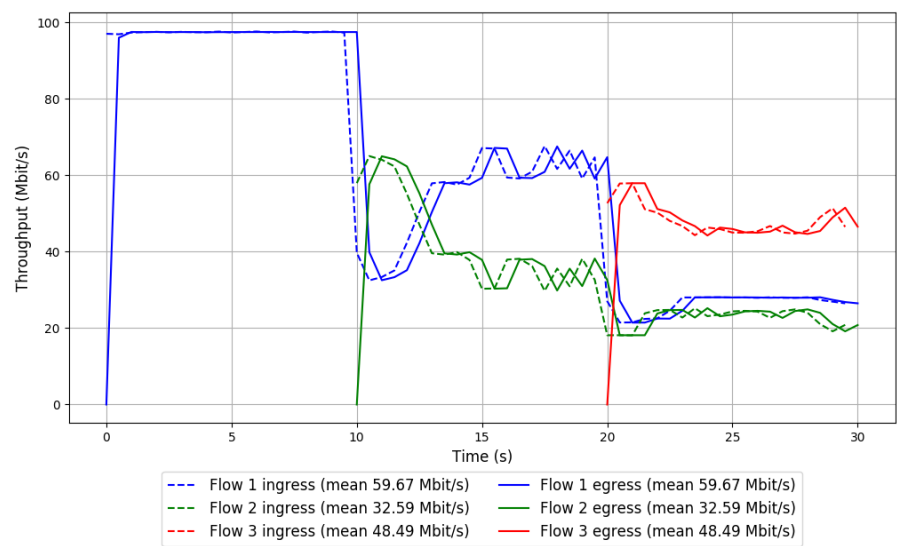
-- Flow 3:

Average throughput: 48.49 Mbit/s

95th percentile per-packet one-way delay: 3.891 ms

Loss rate: 0.02%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 12:34:10

End at: 2018-11-15 12:34:40

Local clock offset: -7.866 ms

Remote clock offset: 0.327 ms

Below is generated by plot.py at 2018-11-15 13:01:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 96.53 Mbit/s

95th percentile per-packet one-way delay: 2.287 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 47.86 Mbit/s

95th percentile per-packet one-way delay: 1.337 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 49.10 Mbit/s

95th percentile per-packet one-way delay: 2.209 ms

Loss rate: 0.01%

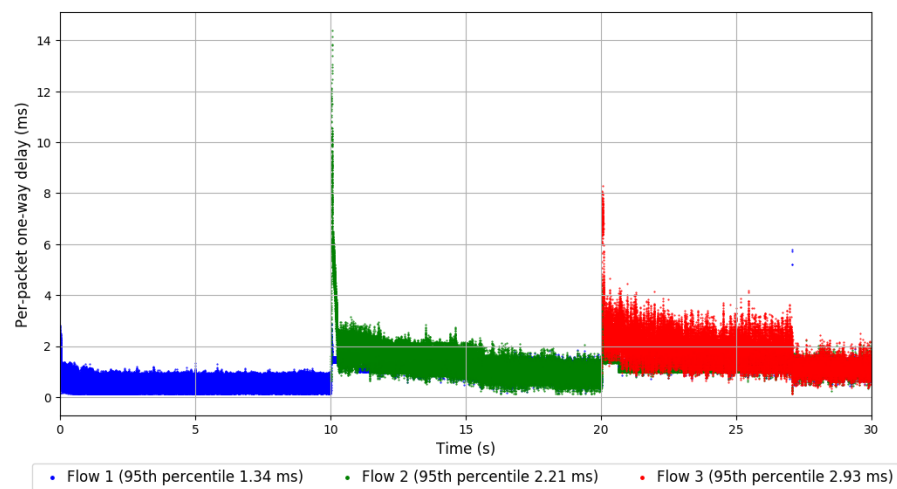
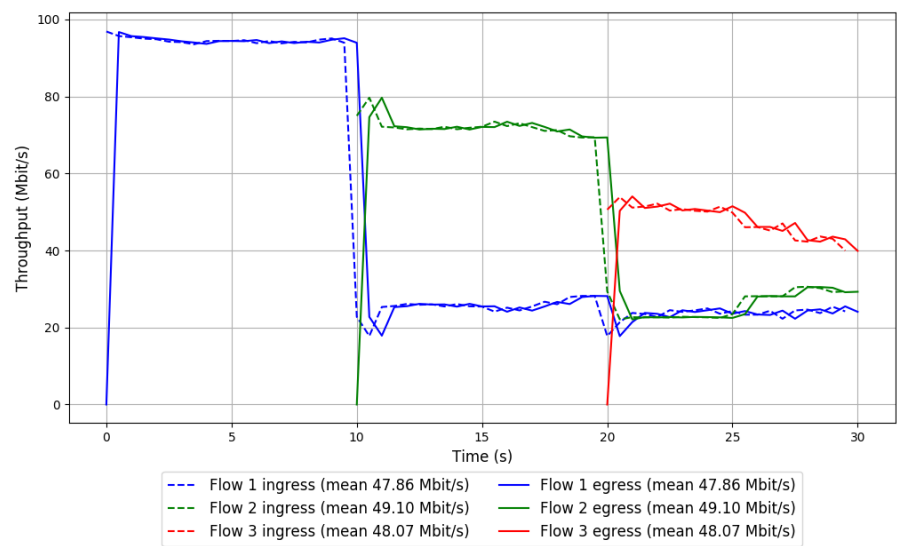
-- Flow 3:

Average throughput: 48.07 Mbit/s

95th percentile per-packet one-way delay: 2.928 ms

Loss rate: 0.03%

Run 5: Report of TCP Vegas — Data Link

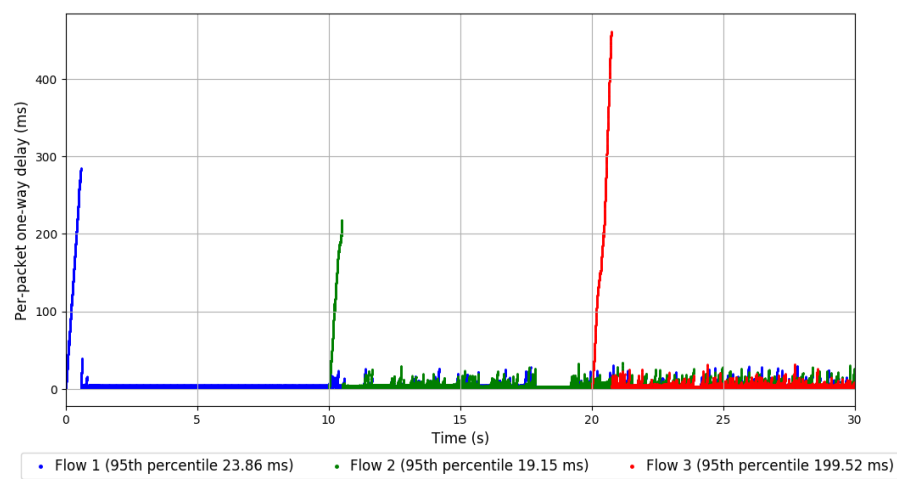
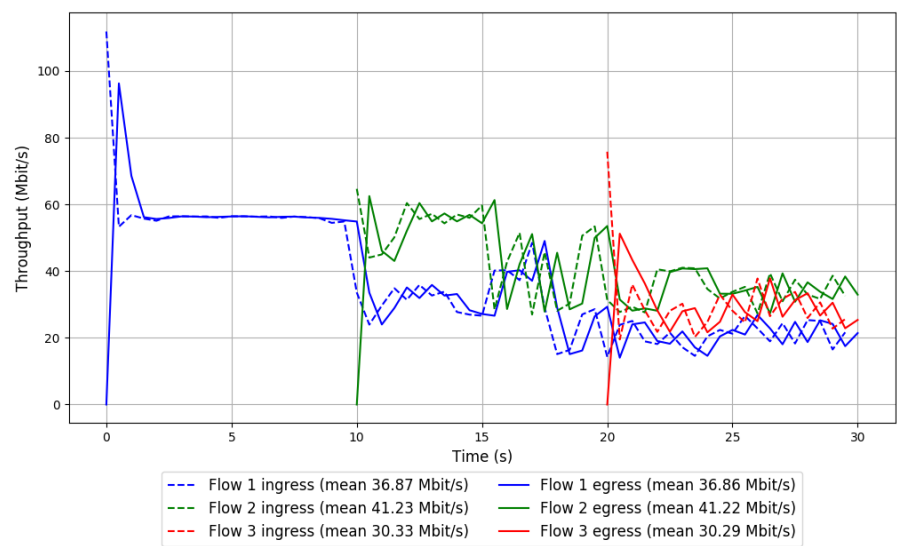


Run 1: Statistics of Verus

Start at: 2018-11-15 11:22:39
End at: 2018-11-15 11:23:09
Local clock offset: -6.352 ms
Remote clock offset: -0.099 ms

Below is generated by plot.py at 2018-11-15 13:01:07
Datalink statistics
-- Total of 3 flows:
Average throughput: 74.41 Mbit/s
95th percentile per-packet one-way delay: 33.910 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 36.86 Mbit/s
95th percentile per-packet one-way delay: 23.861 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 41.22 Mbit/s
95th percentile per-packet one-way delay: 19.151 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 30.29 Mbit/s
95th percentile per-packet one-way delay: 199.516 ms
Loss rate: 0.13%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-11-15 11:43:23

End at: 2018-11-15 11:43:53

Local clock offset: -2.297 ms

Remote clock offset: 0.016 ms

Below is generated by plot.py at 2018-11-15 13:01:07

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.98 Mbit/s

95th percentile per-packet one-way delay: 31.468 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 33.11 Mbit/s

95th percentile per-packet one-way delay: 24.396 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 33.40 Mbit/s

95th percentile per-packet one-way delay: 25.753 ms

Loss rate: 0.05%

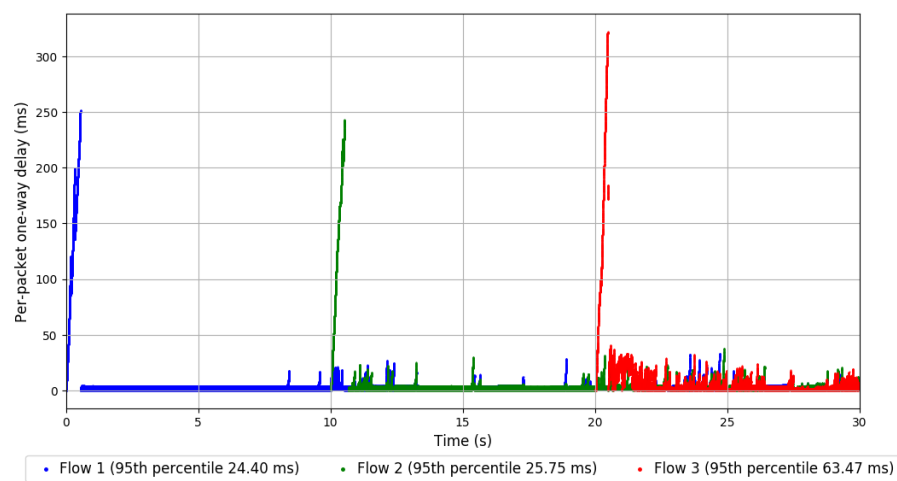
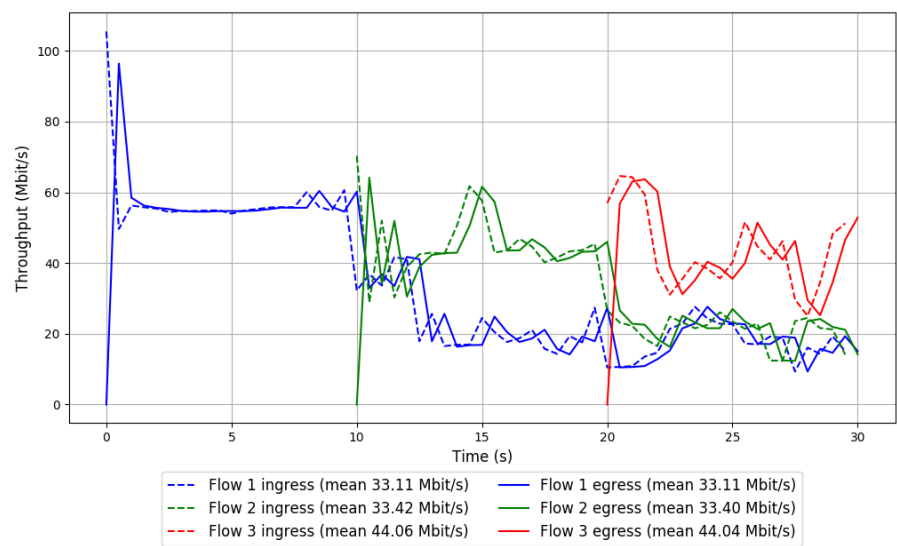
-- Flow 3:

Average throughput: 44.04 Mbit/s

95th percentile per-packet one-way delay: 63.467 ms

Loss rate: 0.04%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-11-15 12:04:08

End at: 2018-11-15 12:04:38

Local clock offset: -4.761 ms

Remote clock offset: 0.239 ms

Below is generated by plot.py at 2018-11-15 13:01:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 72.29 Mbit/s

95th percentile per-packet one-way delay: 32.660 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 37.91 Mbit/s

95th percentile per-packet one-way delay: 31.594 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 33.73 Mbit/s

95th percentile per-packet one-way delay: 20.152 ms

Loss rate: 0.03%

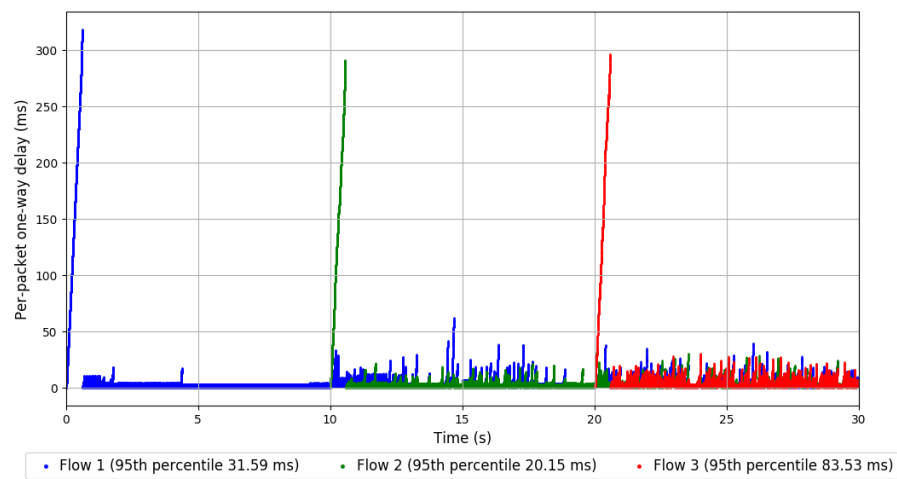
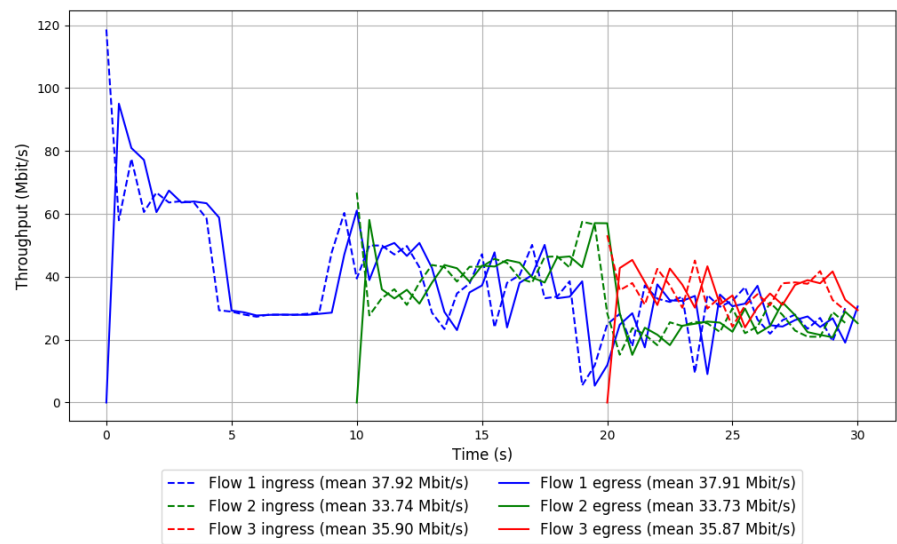
-- Flow 3:

Average throughput: 35.87 Mbit/s

95th percentile per-packet one-way delay: 83.532 ms

Loss rate: 0.04%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2018-11-15 12:24:54

End at: 2018-11-15 12:25:24

Local clock offset: -7.02 ms

Remote clock offset: 0.254 ms

Below is generated by plot.py at 2018-11-15 13:01:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.02 Mbit/s

95th percentile per-packet one-way delay: 28.006 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 37.55 Mbit/s

95th percentile per-packet one-way delay: 31.562 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 42.08 Mbit/s

95th percentile per-packet one-way delay: 18.890 ms

Loss rate: 0.03%

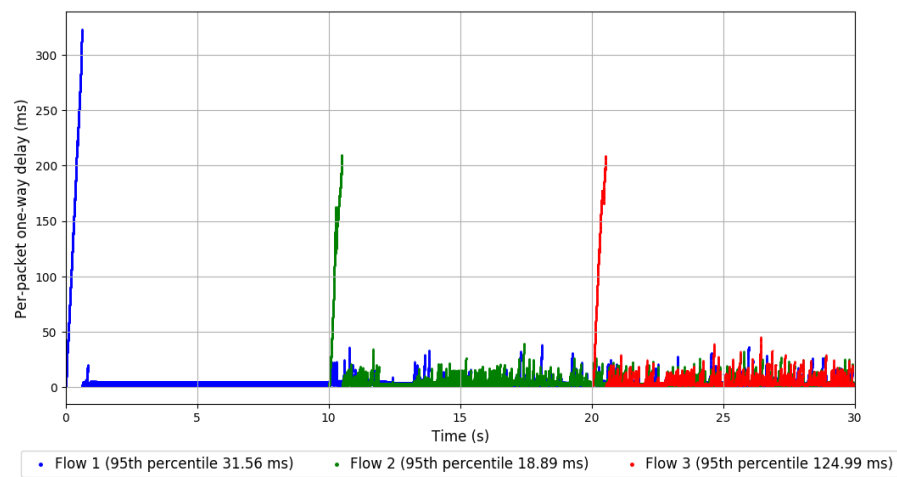
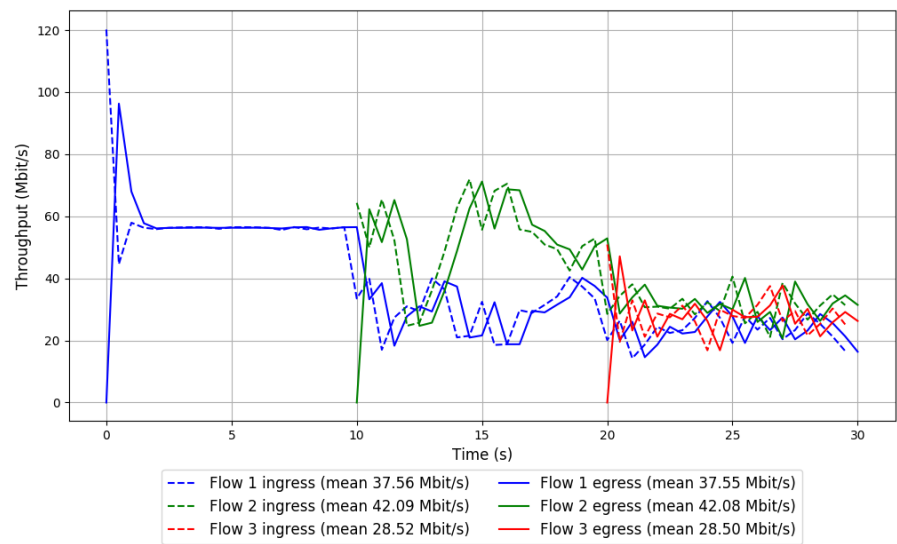
-- Flow 3:

Average throughput: 28.50 Mbit/s

95th percentile per-packet one-way delay: 124.986 ms

Loss rate: 0.03%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-11-15 12:45:38

End at: 2018-11-15 12:46:08

Local clock offset: -8.095 ms

Remote clock offset: 0.343 ms

Below is generated by plot.py at 2018-11-15 13:01:34

Datalink statistics

-- Total of 3 flows:

Average throughput: 69.65 Mbit/s

95th percentile per-packet one-way delay: 52.979 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 39.17 Mbit/s

95th percentile per-packet one-way delay: 38.587 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 29.41 Mbit/s

95th percentile per-packet one-way delay: 52.212 ms

Loss rate: 0.05%

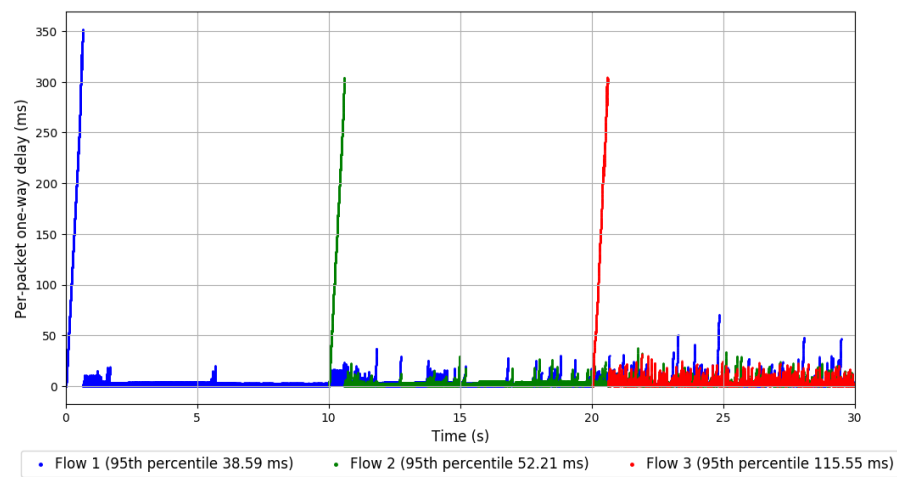
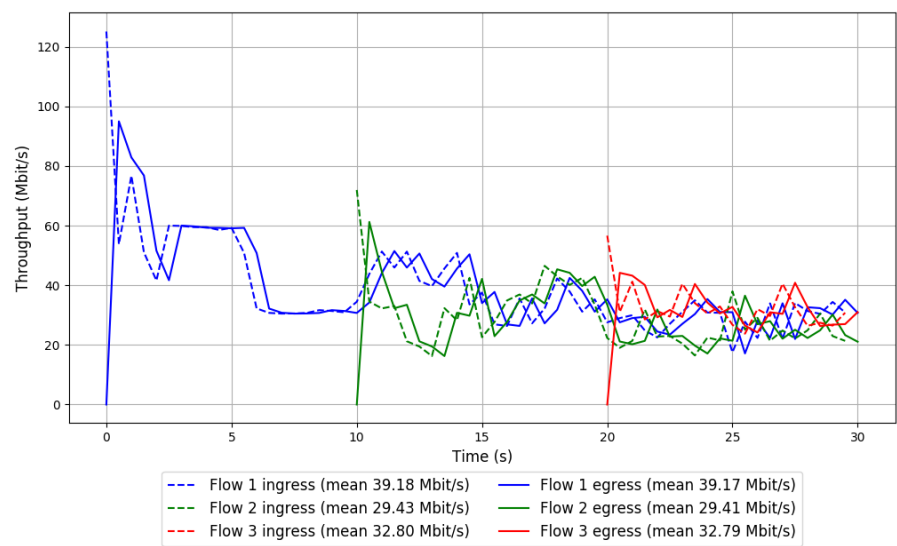
-- Flow 3:

Average throughput: 32.79 Mbit/s

95th percentile per-packet one-way delay: 115.545 ms

Loss rate: 0.04%

Run 5: Report of Verus — Data Link

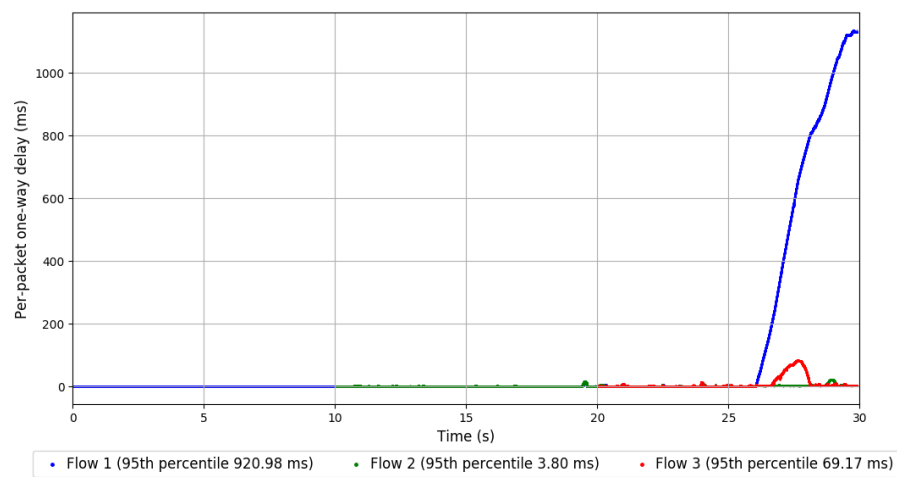
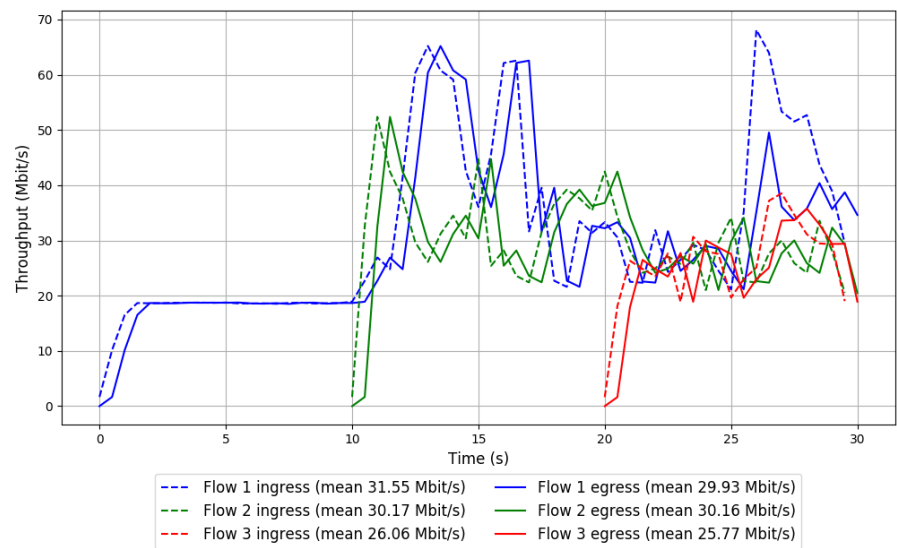


Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 11:12:26
End at: 2018-11-15 11:12:56
Local clock offset: -6.162 ms
Remote clock offset: -0.157 ms

Below is generated by plot.py at 2018-11-15 13:01:34
Datalink statistics
-- Total of 3 flows:
Average throughput: 58.50 Mbit/s
95th percentile per-packet one-way delay: 624.515 ms
Loss rate: 2.87%
-- Flow 1:
Average throughput: 29.93 Mbit/s
95th percentile per-packet one-way delay: 920.984 ms
Loss rate: 5.16%
-- Flow 2:
Average throughput: 30.16 Mbit/s
95th percentile per-packet one-way delay: 3.803 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 25.77 Mbit/s
95th percentile per-packet one-way delay: 69.174 ms
Loss rate: 1.12%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

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

End at: 2018-11-15 11:33:35

Local clock offset: -3.621 ms

Remote clock offset: -0.06 ms

Below is generated by plot.py at 2018-11-15 13:01:40

Datalink statistics

-- Total of 3 flows:

Average throughput: 66.69 Mbit/s

95th percentile per-packet one-way delay: 3.927 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 38.51 Mbit/s

95th percentile per-packet one-way delay: 5.841 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 30.40 Mbit/s

95th percentile per-packet one-way delay: 3.300 ms

Loss rate: 0.01%

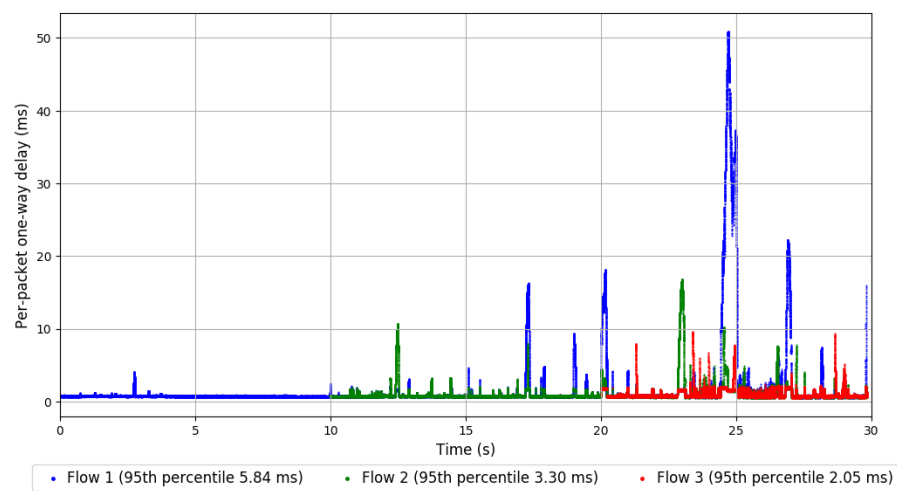
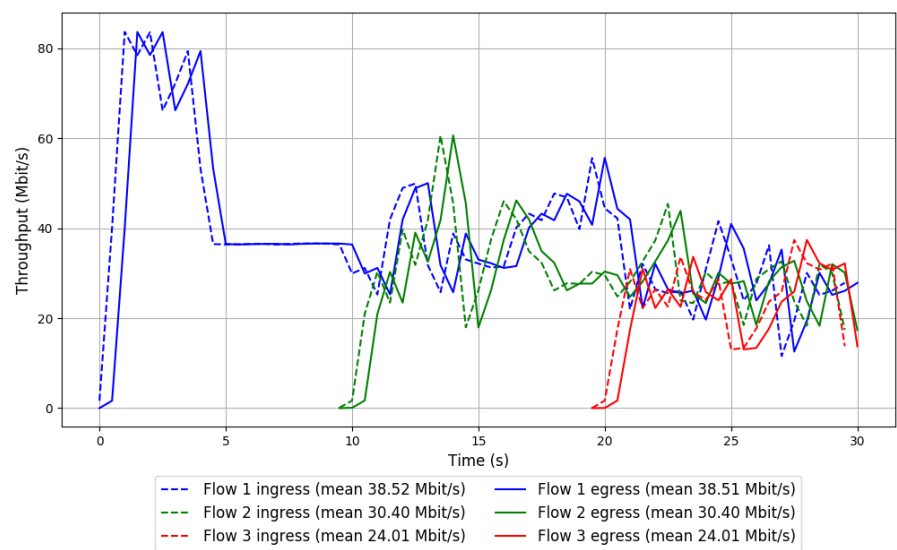
-- Flow 3:

Average throughput: 24.01 Mbit/s

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

Loss rate: 0.01%

Run 2: Report of PCC-Vivace — Data Link



Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 11:53:49

End at: 2018-11-15 11:54:19

Local clock offset: -0.621 ms

Remote clock offset: 0.101 ms

Below is generated by plot.py at 2018-11-15 13:01:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 73.61 Mbit/s

95th percentile per-packet one-way delay: 1217.785 ms

Loss rate: 4.21%

-- Flow 1:

Average throughput: 40.41 Mbit/s

95th percentile per-packet one-way delay: 2.717 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 37.53 Mbit/s

95th percentile per-packet one-way delay: 1762.316 ms

Loss rate: 11.48%

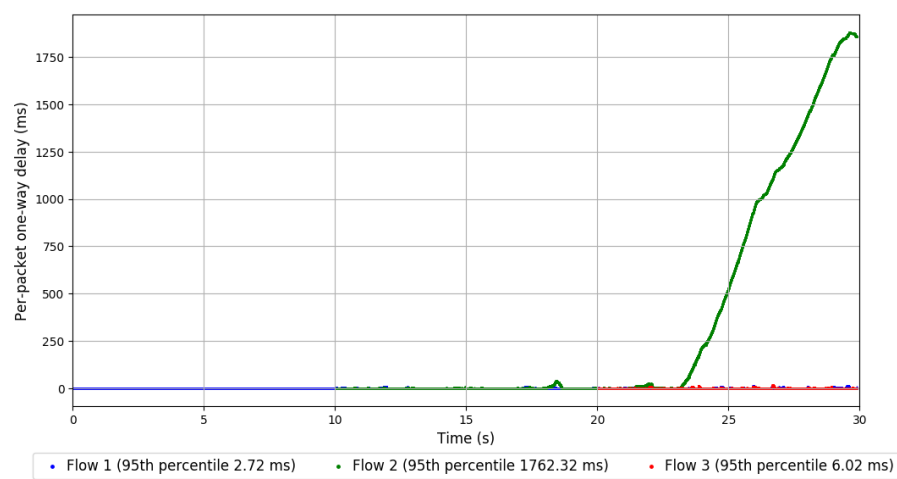
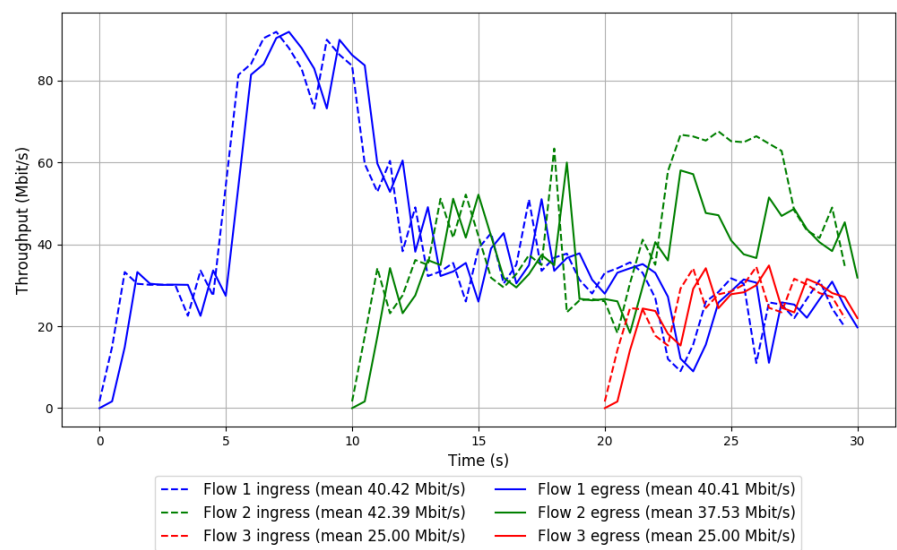
-- Flow 3:

Average throughput: 25.00 Mbit/s

95th percentile per-packet one-way delay: 6.018 ms

Loss rate: 0.02%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 12:14:35

End at: 2018-11-15 12:15:05

Local clock offset: -6.107 ms

Remote clock offset: 0.179 ms

Below is generated by plot.py at 2018-11-15 13:01:44

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.21 Mbit/s

95th percentile per-packet one-way delay: 1215.137 ms

Loss rate: 5.82%

-- Flow 1:

Average throughput: 34.97 Mbit/s

95th percentile per-packet one-way delay: 1381.446 ms

Loss rate: 9.85%

-- Flow 2:

Average throughput: 32.47 Mbit/s

95th percentile per-packet one-way delay: 3.461 ms

Loss rate: 0.01%

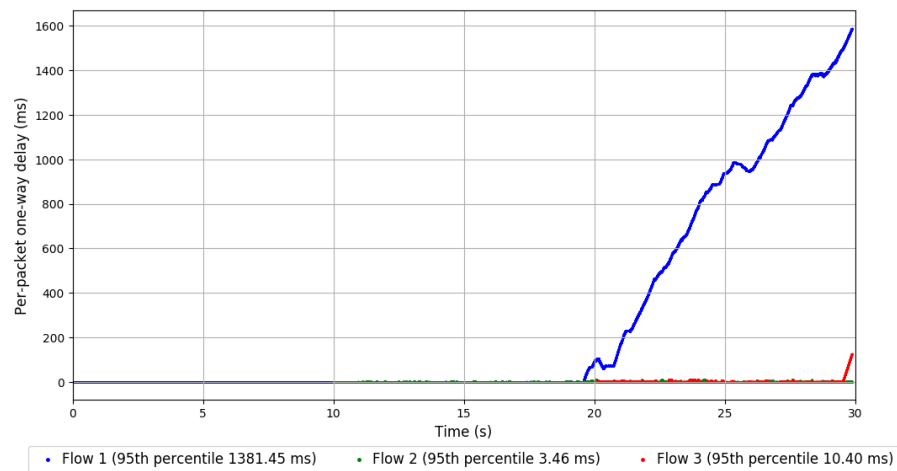
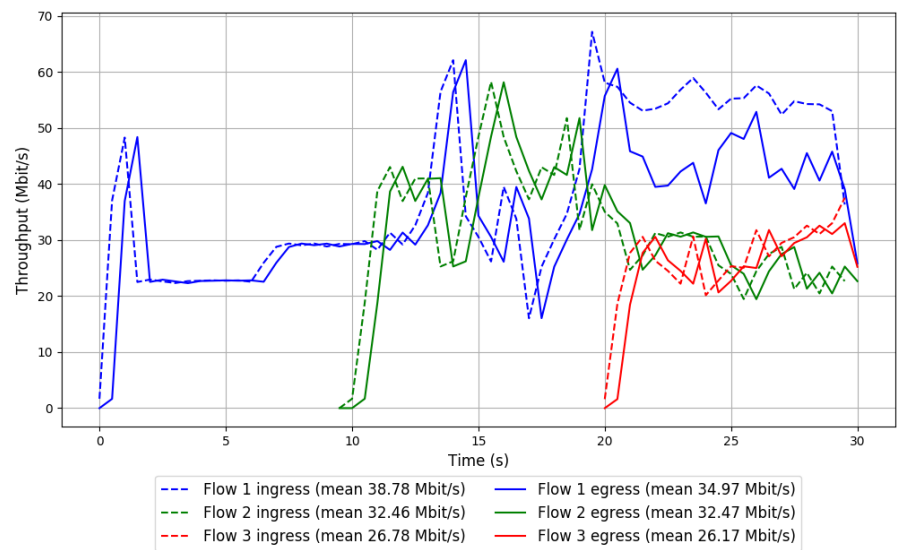
-- Flow 3:

Average throughput: 26.17 Mbit/s

95th percentile per-packet one-way delay: 10.398 ms

Loss rate: 2.36%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 12:35:19

End at: 2018-11-15 12:35:49

Local clock offset: -7.111 ms

Remote clock offset: 0.357 ms

Below is generated by plot.py at 2018-11-15 13:01:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 70.14 Mbit/s

95th percentile per-packet one-way delay: 1157.858 ms

Loss rate: 4.36%

-- Flow 1:

Average throughput: 35.64 Mbit/s

95th percentile per-packet one-way delay: 6.557 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 39.48 Mbit/s

95th percentile per-packet one-way delay: 1269.652 ms

Loss rate: 10.84%

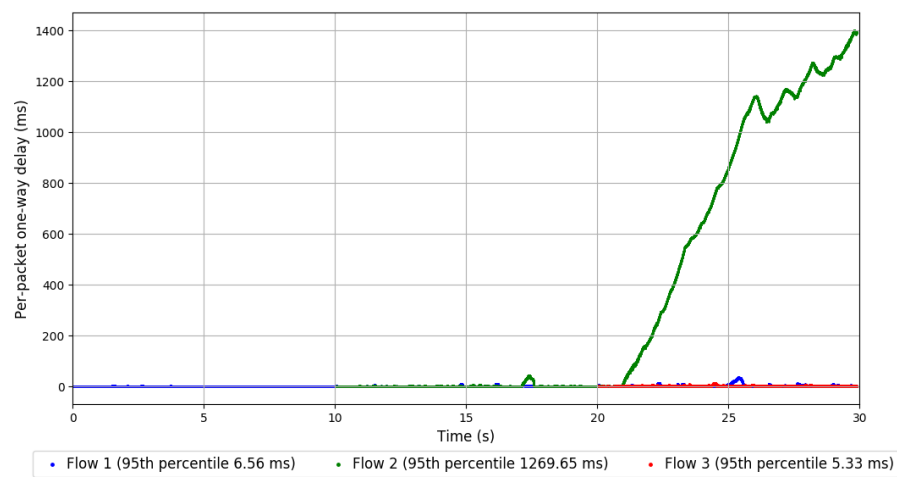
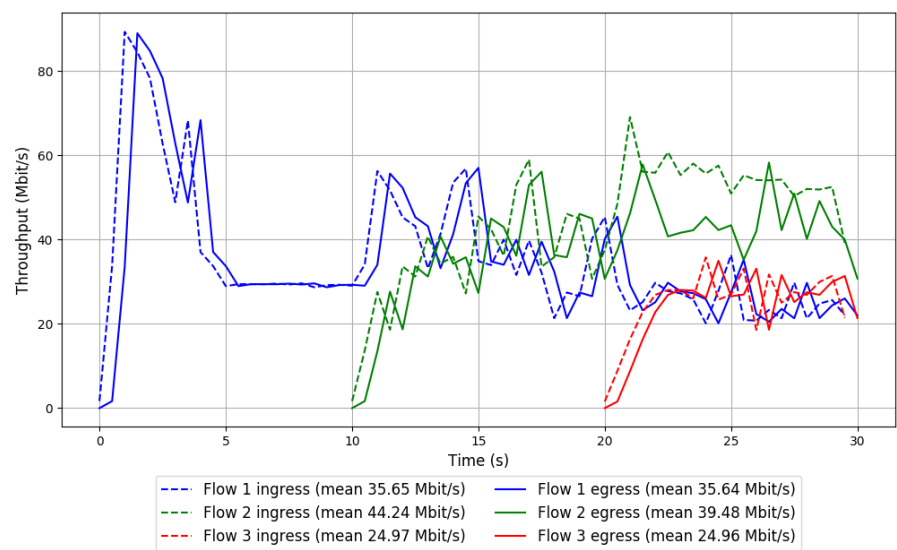
-- Flow 3:

Average throughput: 24.96 Mbit/s

95th percentile per-packet one-way delay: 5.327 ms

Loss rate: 0.04%

Run 5: Report of PCC-Vivace — Data Link

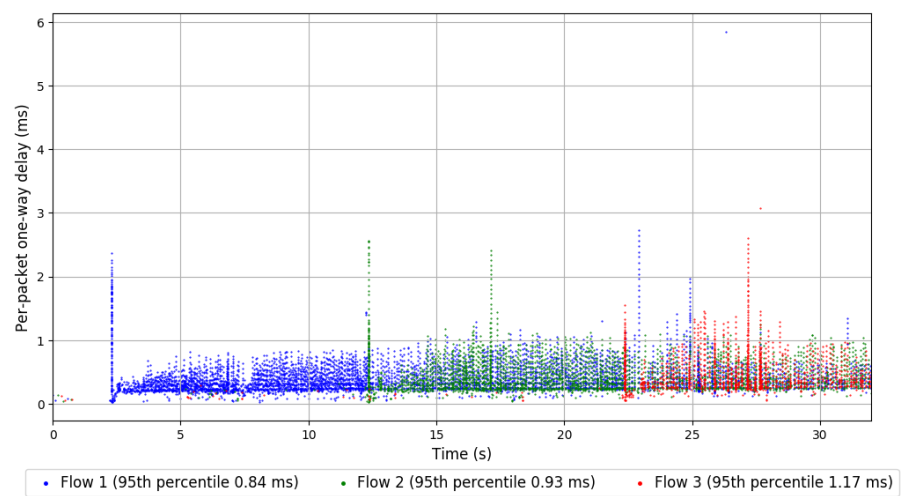
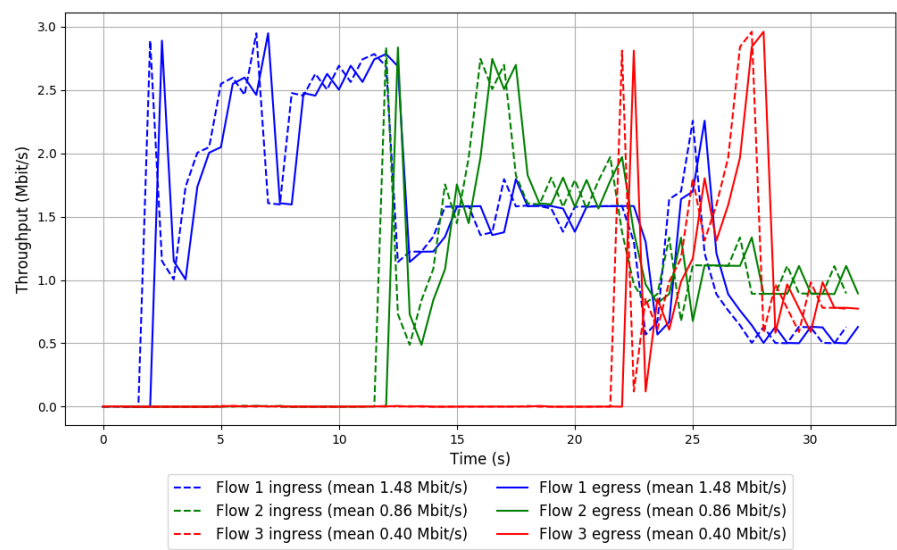


Run 1: Statistics of WebRTC media

Start at: 2018-11-15 11:17:04
End at: 2018-11-15 11:17:34
Local clock offset: -6.763 ms
Remote clock offset: -0.242 ms

Below is generated by plot.py at 2018-11-15 13:01:45
Datalink statistics
-- Total of 3 flows:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 0.938 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.48 Mbit/s
95th percentile per-packet one-way delay: 0.843 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 0.934 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 1.169 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link



Run 2: Statistics of WebRTC media

Start at: 2018-11-15 11:37:43

End at: 2018-11-15 11:38:13

Local clock offset: -3.304 ms

Remote clock offset: -0.09 ms

Below is generated by plot.py at 2018-11-15 13:01:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.70 Mbit/s

95th percentile per-packet one-way delay: 0.749 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.53 Mbit/s

95th percentile per-packet one-way delay: 0.767 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 0.763 ms

Loss rate: 0.00%

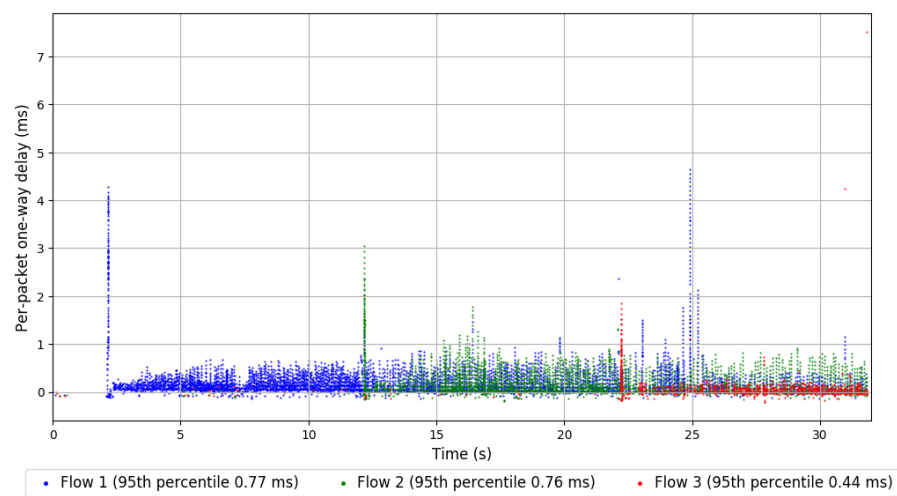
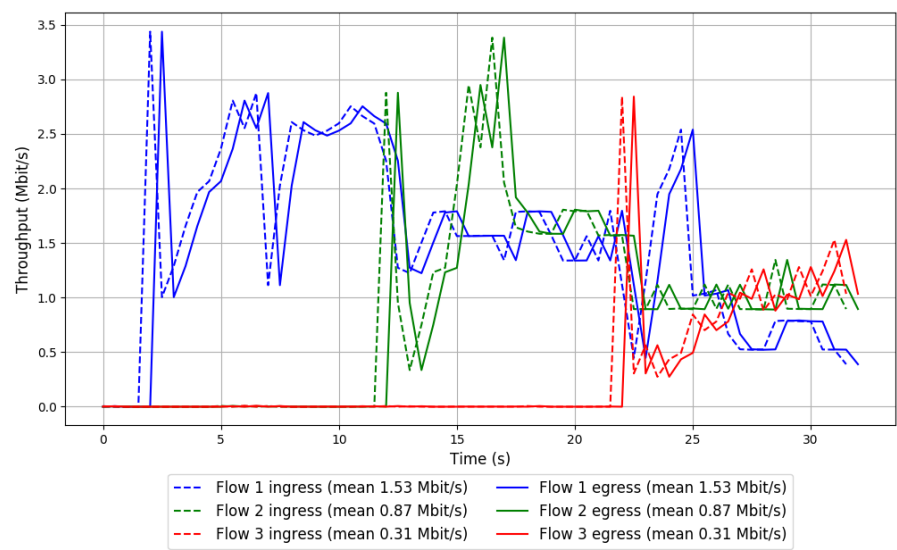
-- Flow 3:

Average throughput: 0.31 Mbit/s

95th percentile per-packet one-way delay: 0.443 ms

Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-11-15 11:58:28

End at: 2018-11-15 11:58:58

Local clock offset: -2.243 ms

Remote clock offset: 0.072 ms

Below is generated by plot.py at 2018-11-15 13:01:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.72 Mbit/s

95th percentile per-packet one-way delay: 1.476 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.50 Mbit/s

95th percentile per-packet one-way delay: 1.429 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.88 Mbit/s

95th percentile per-packet one-way delay: 1.498 ms

Loss rate: 0.00%

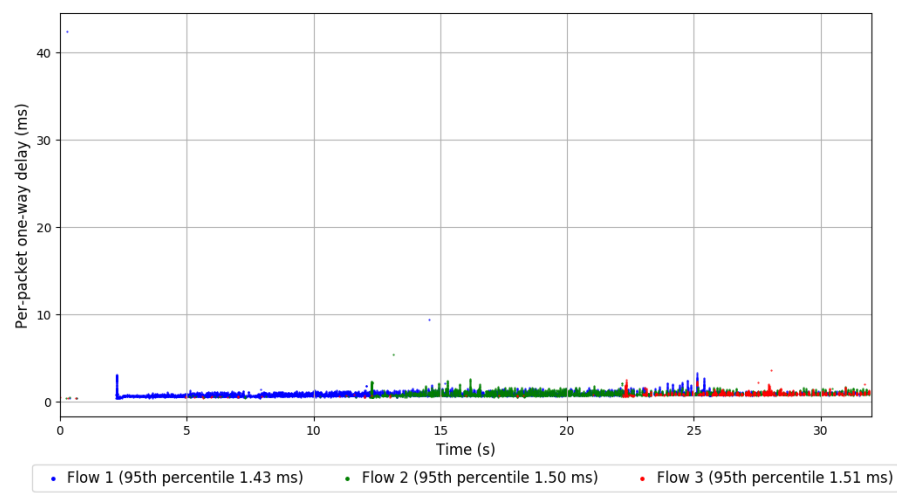
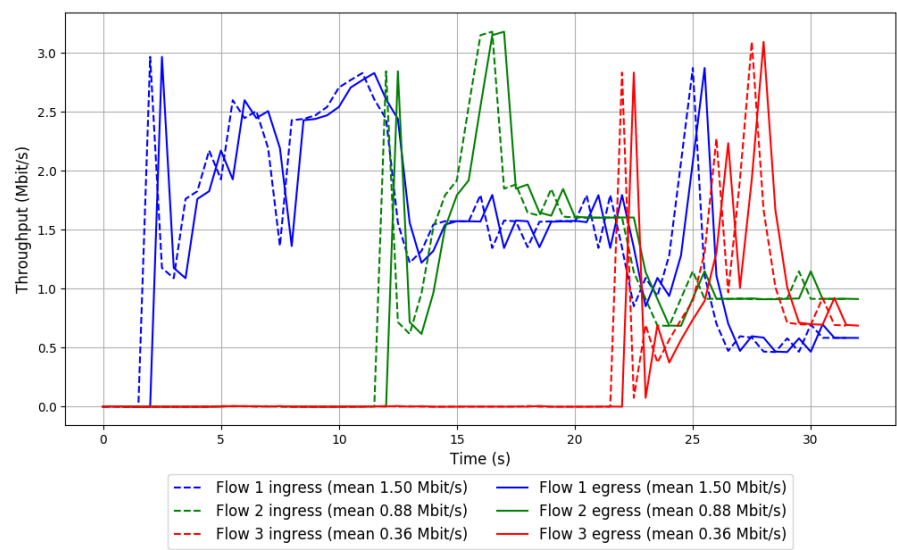
-- Flow 3:

Average throughput: 0.36 Mbit/s

95th percentile per-packet one-way delay: 1.511 ms

Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-11-15 12:19:13

End at: 2018-11-15 12:19:43

Local clock offset: -7.34 ms

Remote clock offset: 0.211 ms

Below is generated by plot.py at 2018-11-15 13:01:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.69 Mbit/s

95th percentile per-packet one-way delay: 0.920 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 0.892 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.88 Mbit/s

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

Loss rate: 0.00%

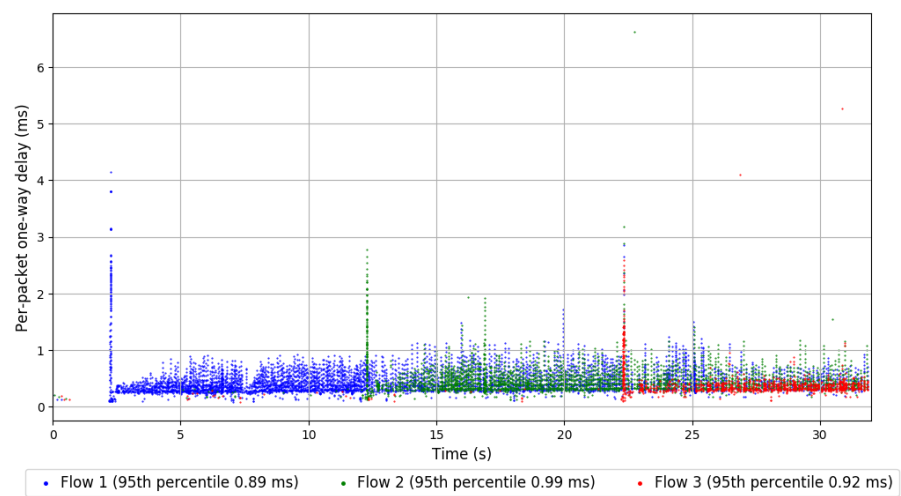
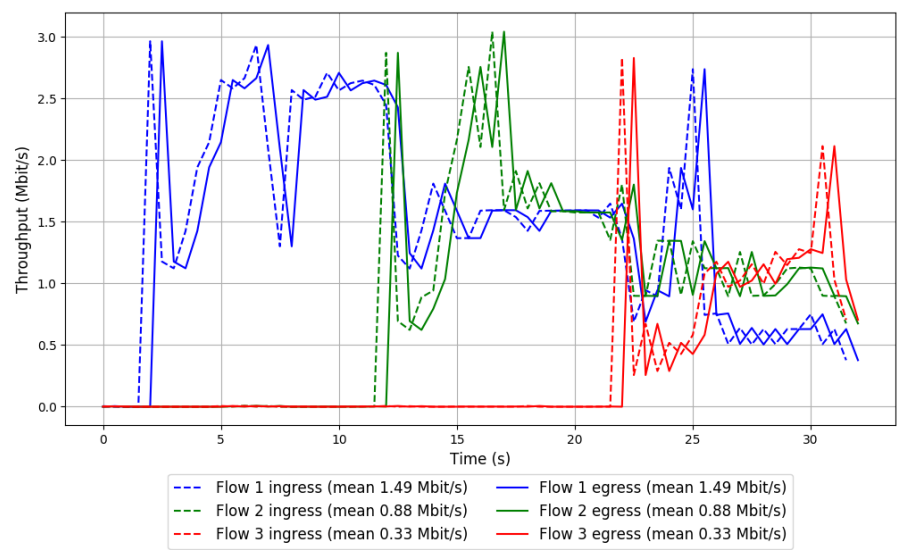
-- Flow 3:

Average throughput: 0.33 Mbit/s

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

Loss rate: 0.00%

Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-11-15 12:39:58

End at: 2018-11-15 12:40:28

Local clock offset: -7.188 ms

Remote clock offset: 0.307 ms

Below is generated by plot.py at 2018-11-15 13:01:45

Datalink statistics

-- Total of 3 flows:

Average throughput: 2.77 Mbit/s

95th percentile per-packet one-way delay: 1.728 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 1.49 Mbit/s

95th percentile per-packet one-way delay: 1.705 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 0.87 Mbit/s

95th percentile per-packet one-way delay: 1.493 ms

Loss rate: 0.00%

-- Flow 3:

Average throughput: 0.42 Mbit/s

95th percentile per-packet one-way delay: 2.045 ms

Loss rate: 0.00%

Run 5: Report of WebRTC media — Data Link

