Pantheon Report

Generated at 2018-09-26 00:26:24 (UTC).

Data path: GCE Iowa on ens4 (*local*) →GCE Tokyo on ens4 (*remote*).

Repeated the test of 19 congestion control schemes 5 times.

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

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
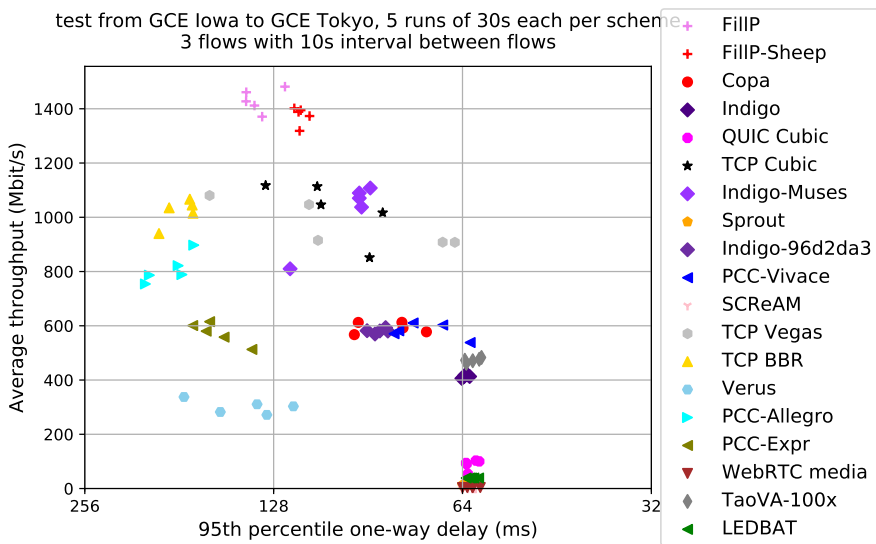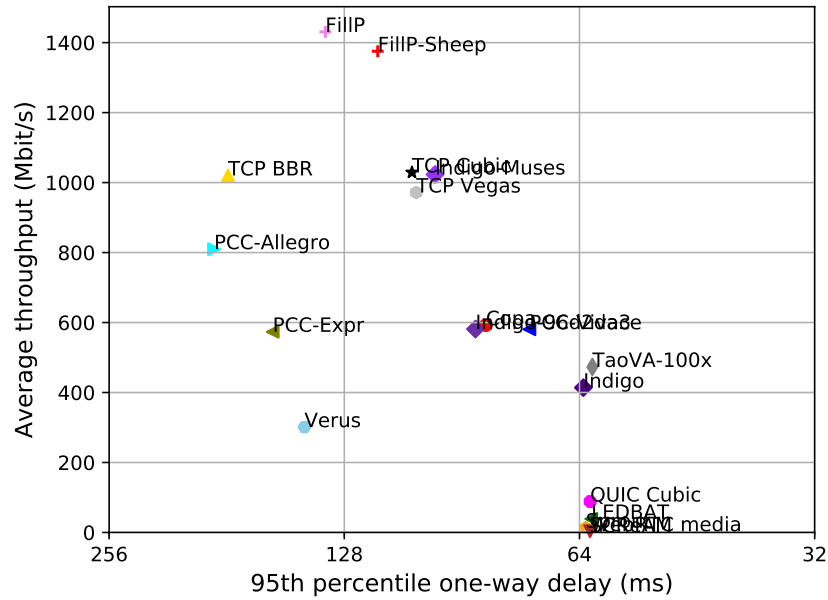
```
System info:
Linux 4.15.0-1019-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 190986 254651 381972
```

```
Git summary:
branch: muses @ 90192f6b64ce1a1191dcca0e9ff9ee24950674d7
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
```

```
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from GCE Iowa to GCE Tokyo, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

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

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	532.21	494.93	476.28	172.90	184.05	154.74	1.59	1.79	1.26
Copa	5	316.03	279.57	271.93	81.69	85.78	84.50	0.00	0.06	0.04
TCP Cubic	5	538.49	512.22	449.57	106.38	97.91	106.46	0.06	0.07	0.11
FillP	5	768.50	695.34	600.61	133.02	134.24	124.08	2.11	2.32	2.21
FillP-Sheep	5	748.83	669.64	543.77	118.41	109.08	110.23	0.67	0.27	0.05
Indigo	5	223.79	204.71	167.67	62.15	63.90	62.90	0.00	0.00	0.00
Indigo-96d2da3	5	301.87	290.40	265.66	85.31	88.86	88.67	0.01	0.03	0.19
LEDBAT	5	24.96	16.71	8.21	61.66	61.53	61.50	0.00	0.00	0.00
Indigo-Muses	5	542.75	528.67	401.01	98.24	99.85	89.01	0.01	0.01	0.10
PCC-Allegro	5	447.82	380.28	330.06	183.02	170.07	173.04	3.79	2.17	3.57
PCC-Expr	5	317.84	269.77	229.91	152.47	132.26	123.19	1.27	1.04	0.84
QUIC Cubic	5	46.40	46.99	33.01	60.86	61.70	61.50	0.00	0.00	0.00
SCReAM	5	0.22	0.22	0.22	62.11	61.25	61.22	0.00	0.00	0.00
Sprout	5	6.99	6.88	6.54	62.09	62.08	62.52	0.00	0.00	0.00
TaoVA-100x	5	240.34	236.04	228.94	61.13	61.72	60.84	0.03	0.00	0.10
TCP Vegas	5	526.99	458.02	419.77	92.17	94.46	81.24	0.00	0.08	0.00
Verus	5	160.88	151.32	120.54	133.16	109.24	163.45	0.49	0.06	2.19
PCC-Vivace	5	346.39	287.55	130.39	80.26	76.73	66.63	0.13	0.00	0.00
WebRTC media	5	1.90	1.30	0.51	60.71	61.32	61.96	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-25 18:45:44
End at: 2018-09-25 18:46:14
Local clock offset: -0.091 ms
Remote clock offset: 0.077 ms


# Below is generated by plot.py at 2018-09-25 22:08:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1045.26 Mbit/s
95th percentile per-packet one-way delay: 172.611 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 543.16 Mbit/s
95th percentile per-packet one-way delay: 177.382 ms
Loss rate: 1.98%
-- Flow 2:
Average throughput: 519.66 Mbit/s
95th percentile per-packet one-way delay: 176.635 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 465.89 Mbit/s
95th percentile per-packet one-way delay: 82.602 ms
Loss rate: 0.22%
```
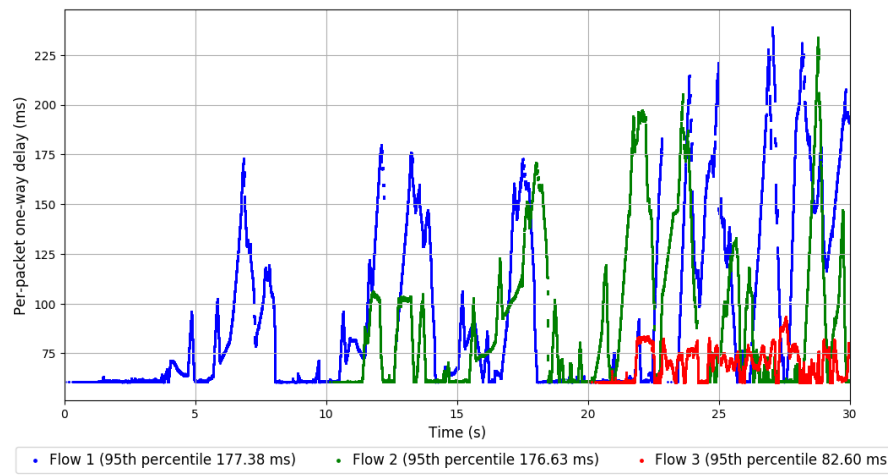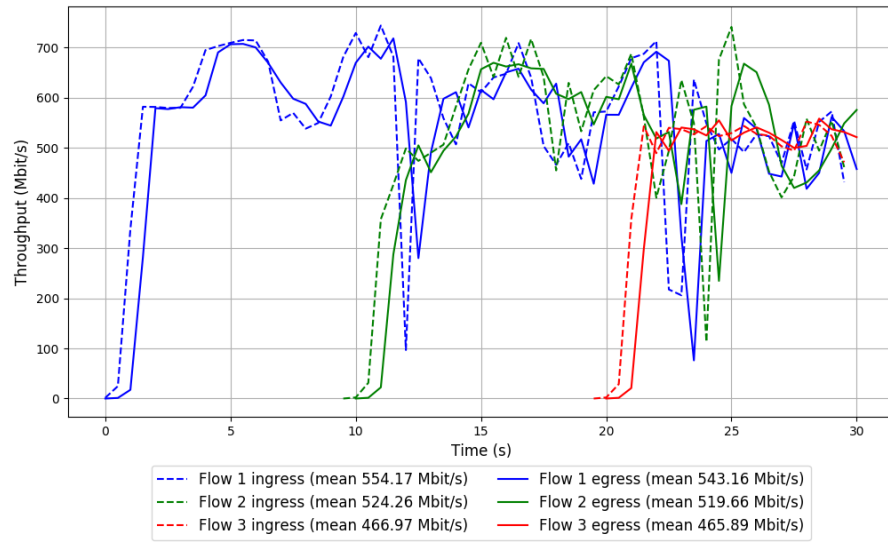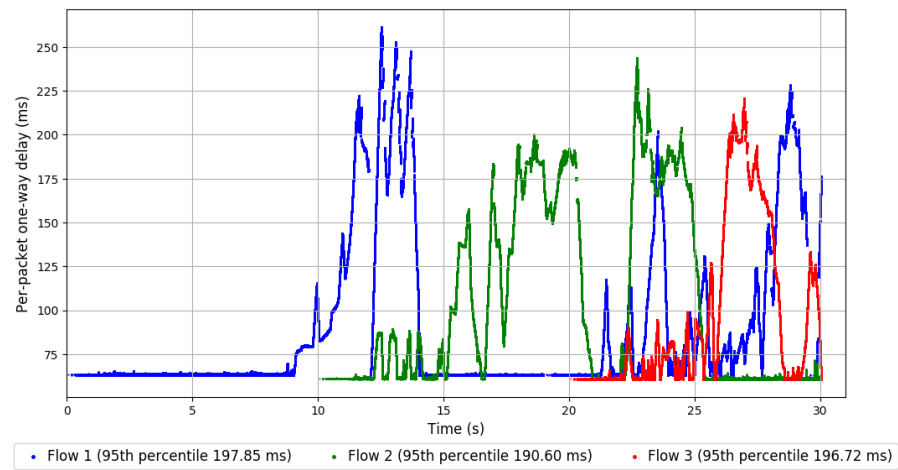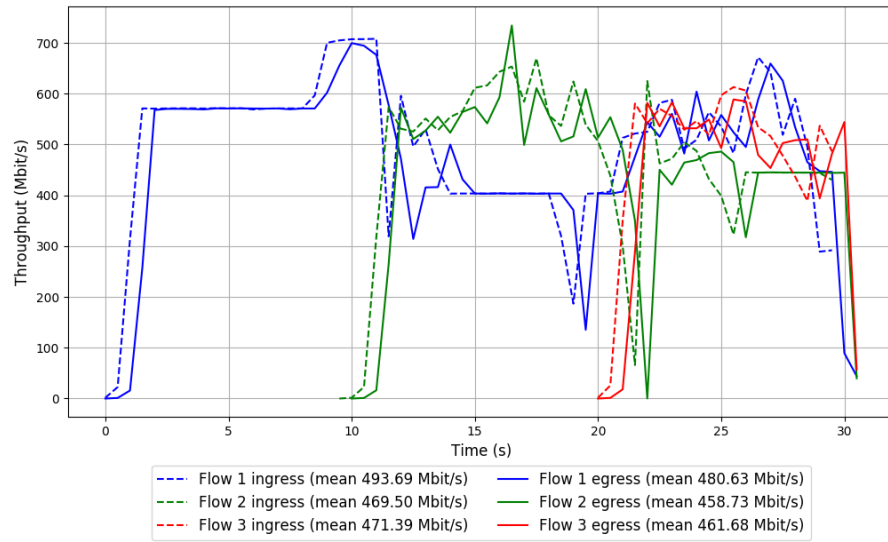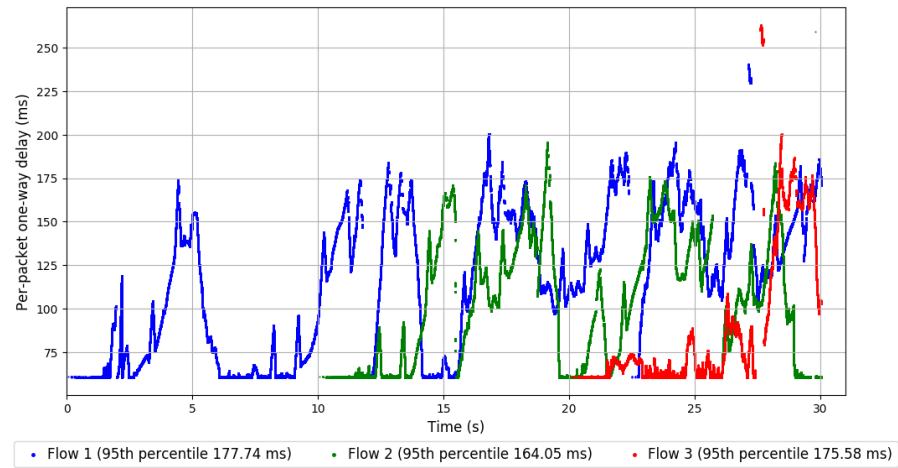
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 554.17 Mbit/s) --- Flow 1 egress (mean 543.16 Mbit/s)
Flow 2 ingress (mean 524.26 Mbit/s) --- Flow 2 egress (mean 519.66 Mbit/s)
Flow 3 ingress (mean 466.97 Mbit/s) --- Flow 3 egress (mean 465.89 Mbit/s)

Flow 1 (95th percentile 177.38 ms)   Flow 2 (95th percentile 176.63 ms)   Flow 3 (95th percentile 82.60 ms)
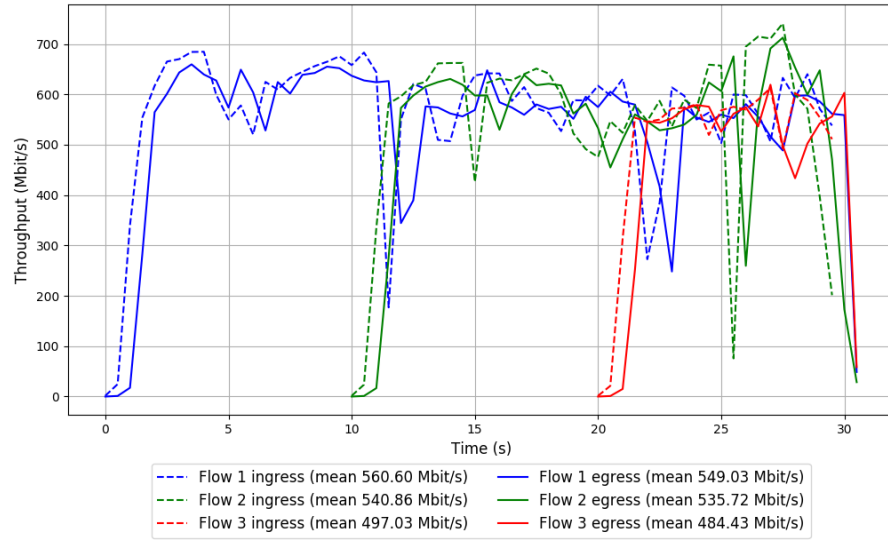
6

```
Run 2: Statistics of TCP BBR

Start at: 2018-09-25 19:19:29
End at: 2018-09-25 19:19:59
Local clock offset: -0.026 ms
Remote clock offset: 0.409 ms


# Below is generated by plot.py at 2018-09-25 22:08:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 940.11 Mbit/s
95th percentile per-packet one-way delay: 194.982 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 480.63 Mbit/s
95th percentile per-packet one-way delay: 197.847 ms
Loss rate: 2.65%
-- Flow 2:
Average throughput: 458.73 Mbit/s
95th percentile per-packet one-way delay: 190.601 ms
Loss rate: 2.29%
-- Flow 3:
Average throughput: 461.68 Mbit/s
95th percentile per-packet one-way delay: 196.717 ms
Loss rate: 2.05%
```

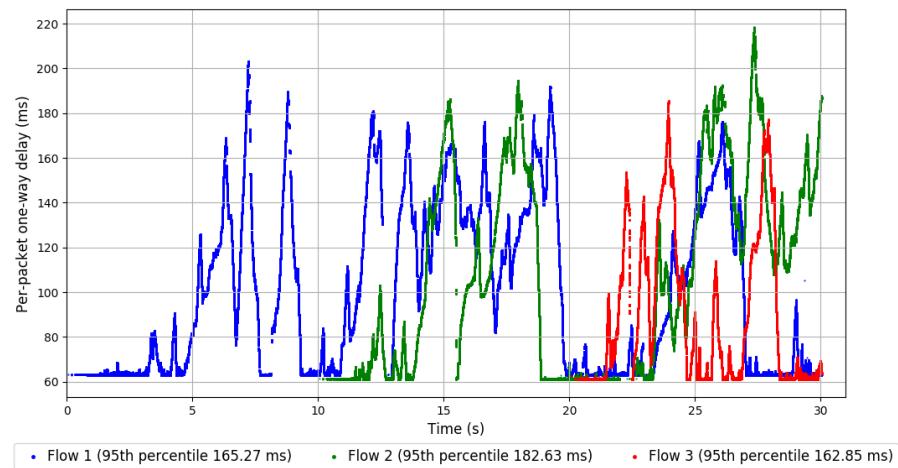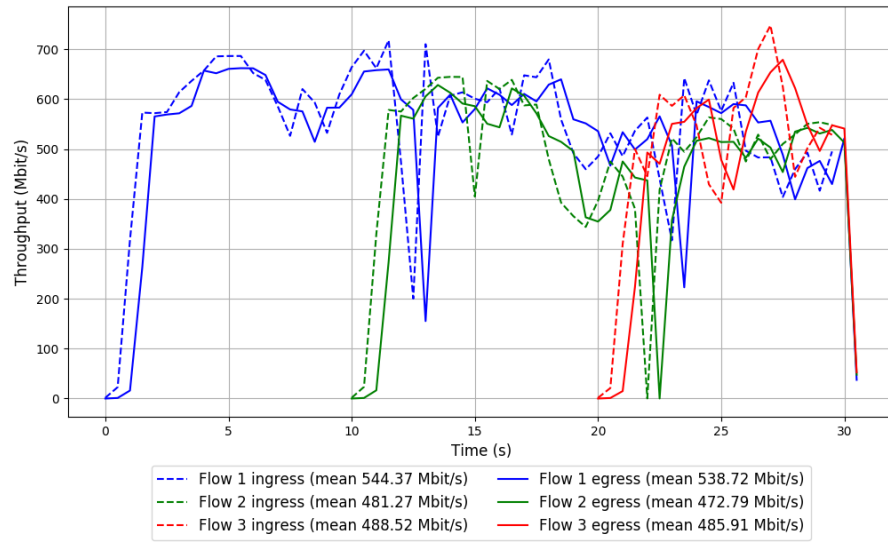Run 2: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 493.69 Mbit/s) ——— Flow 1 egress (mean 480.63 Mbit/s)
- - - Flow 2 ingress (mean 469.50 Mbit/s) ——— Flow 2 egress (mean 458.73 Mbit/s)
- - - Flow 3 ingress (mean 471.39 Mbit/s) ——— Flow 3 egress (mean 461.68 Mbit/s)

- Flow 1 (95th percentile 197.85 ms)   - Flow 2 (95th percentile 190.60 ms)   - Flow 3 (95th percentile 196.72 ms)
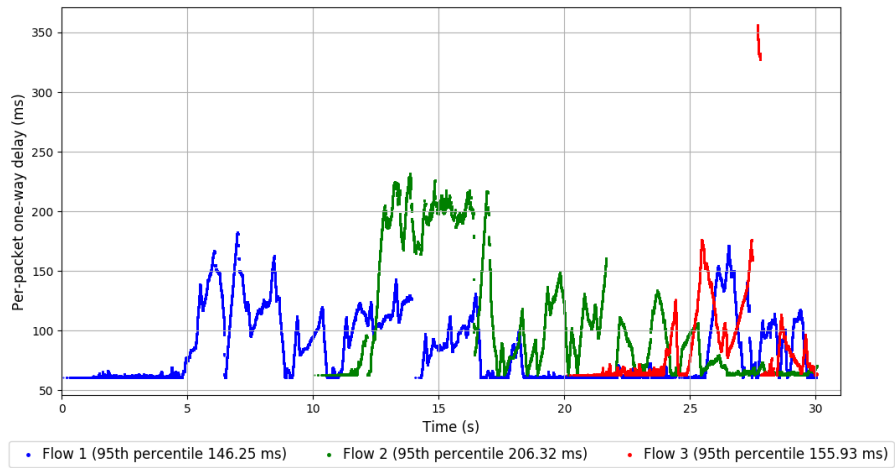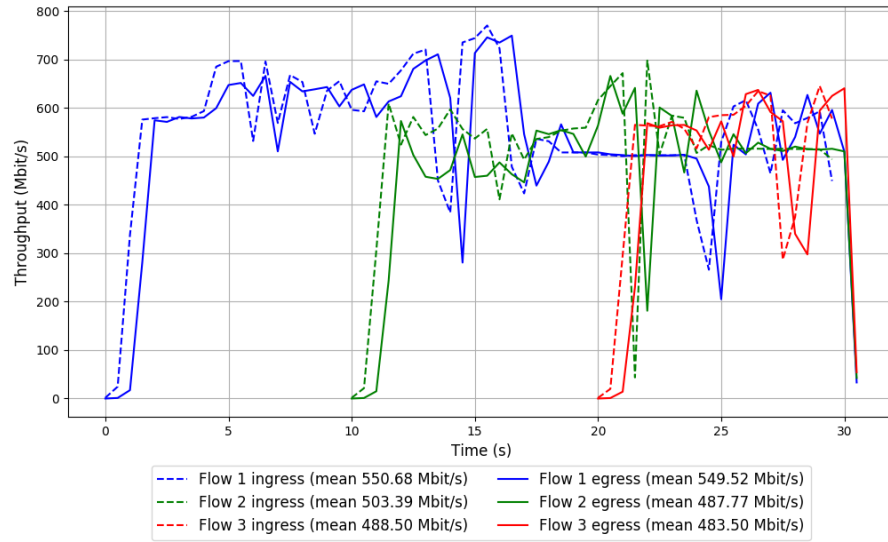
8

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-25 19:53:35
End at: 2018-09-25 19:54:05
Local clock offset: 0.041 ms
Remote clock offset: -0.148 ms


# Below is generated by plot.py at 2018-09-25 22:09:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1066.70 Mbit/s
95th percentile per-packet one-way delay: 174.141 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 549.03 Mbit/s
95th percentile per-packet one-way delay: 177.741 ms
Loss rate: 2.06%
-- Flow 2:
Average throughput: 535.72 Mbit/s
95th percentile per-packet one-way delay: 164.048 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 484.43 Mbit/s
95th percentile per-packet one-way delay: 175.576 ms
Loss rate: 2.51%
```
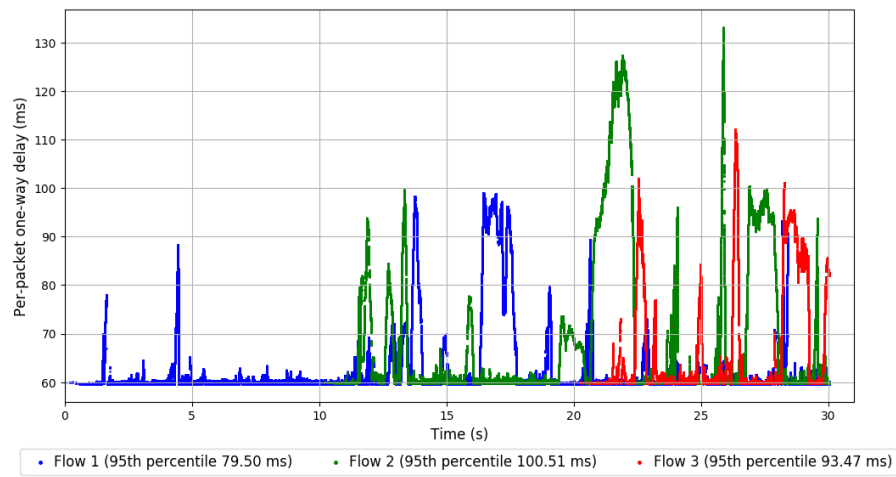
Run 3: Report of TCP BBR — Data Link

- - - - Flow 1 ingress (mean 560.60 Mbit/s)   —— Flow 1 egress (mean 549.03 Mbit/s)
- - - - Flow 2 ingress (mean 540.86 Mbit/s)   —— Flow 2 egress (mean 535.72 Mbit/s)
- - - - Flow 3 ingress (mean 497.03 Mbit/s)   —— Flow 3 egress (mean 484.43 Mbit/s)

• Flow 1 (95th percentile 177.74 ms)   • Flow 2 (95th percentile 164.05 ms)   • Flow 3 (95th percentile 175.58 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-25 20:27:29
End at: 2018-09-25 20:27:59
Local clock offset: -0.094 ms
Remote clock offset: -0.144 ms


# Below is generated by plot.py at 2018-09-25 22:09:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1015.03 Mbit/s
95th percentile per-packet one-way delay: 172.072 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 538.72 Mbit/s
95th percentile per-packet one-way delay: 165.268 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 472.79 Mbit/s
95th percentile per-packet one-way delay: 182.626 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 485.91 Mbit/s
95th percentile per-packet one-way delay: 162.855 ms
Loss rate: 0.52%
```

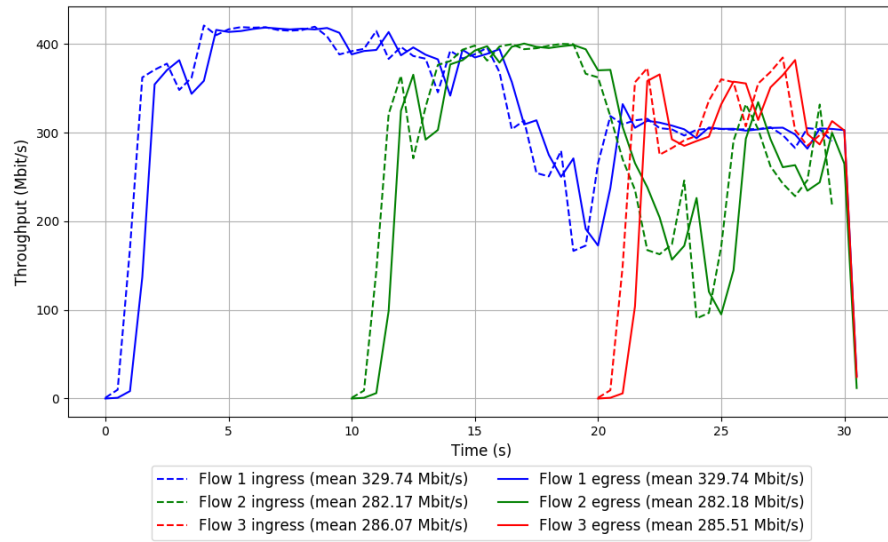Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 544.37 Mbit/s) — — — Flow 1 egress (mean 538.72 Mbit/s)
Flow 2 ingress (mean 481.27 Mbit/s) — — — Flow 2 egress (mean 472.79 Mbit/s)
Flow 3 ingress (mean 488.52 Mbit/s) — — — Flow 3 egress (mean 485.91 Mbit/s)

Flow 1 (95th percentile 165.27 ms)   Flow 2 (95th percentile 182.63 ms)   Flow 3 (95th percentile 162.85 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-25 21:01:15
End at: 2018-09-25 21:01:45
Local clock offset: -0.014 ms
Remote clock offset: -0.675 ms


# Below is generated by plot.py at 2018-09-25 22:09:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1034.91 Mbit/s
95th percentile per-packet one-way delay: 187.813 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 549.52 Mbit/s
95th percentile per-packet one-way delay: 146.248 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 487.77 Mbit/s
95th percentile per-packet one-way delay: 206.318 ms
Loss rate: 3.10%
-- Flow 3:
Average throughput: 483.50 Mbit/s
95th percentile per-packet one-way delay: 155.933 ms
Loss rate: 1.02%
```
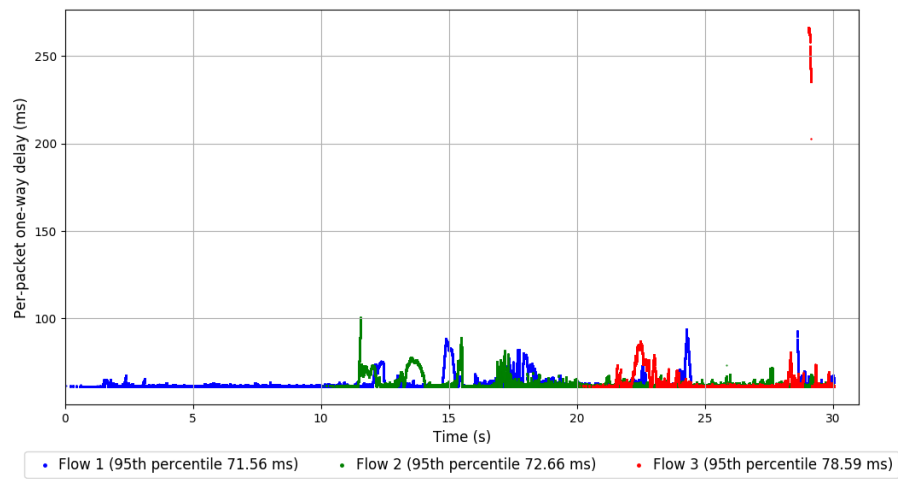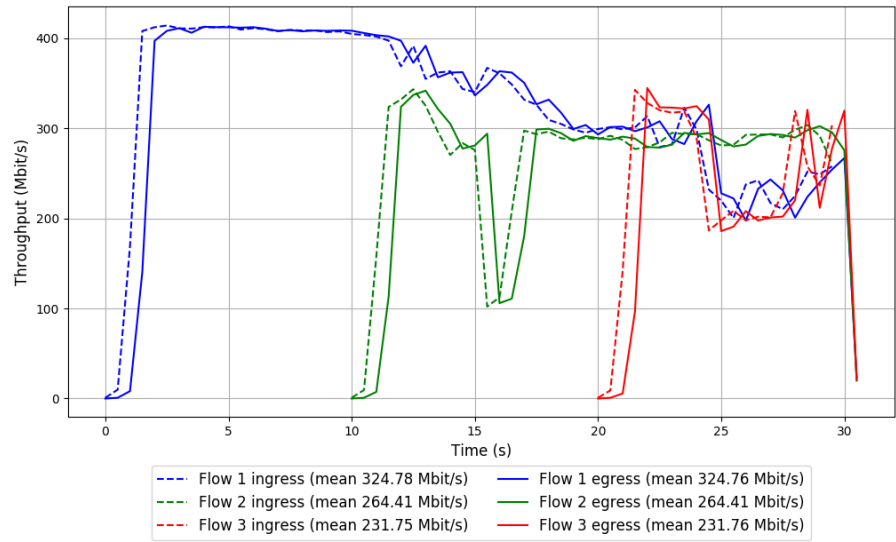
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 550.68 Mbit/s) — Flow 1 egress (mean 549.52 Mbit/s)
Flow 2 ingress (mean 503.39 Mbit/s) — Flow 2 egress (mean 487.77 Mbit/s)
Flow 3 ingress (mean 488.50 Mbit/s) — Flow 3 egress (mean 483.50 Mbit/s)

Flow 1 (95th percentile 146.25 ms)   Flow 2 (95th percentile 206.32 ms)   Flow 3 (95th percentile 155.93 ms)

```
Run 1: Statistics of Copa

Start at: 2018-09-25 18:54:22
End at: 2018-09-25 18:54:52
Local clock offset: -0.072 ms
Remote clock offset: -0.711 ms


# Below is generated by plot.py at 2018-09-25 22:10:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 612.39 Mbit/s
95th percentile per-packet one-way delay: 93.823 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 329.74 Mbit/s
95th percentile per-packet one-way delay: 79.500 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 282.18 Mbit/s
95th percentile per-packet one-way delay: 100.506 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 285.51 Mbit/s
95th percentile per-packet one-way delay: 93.474 ms
Loss rate: 0.19%
```
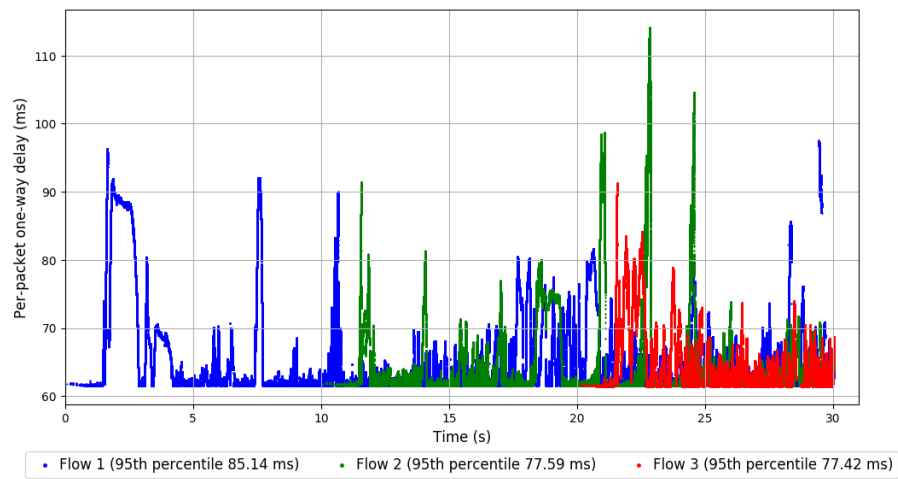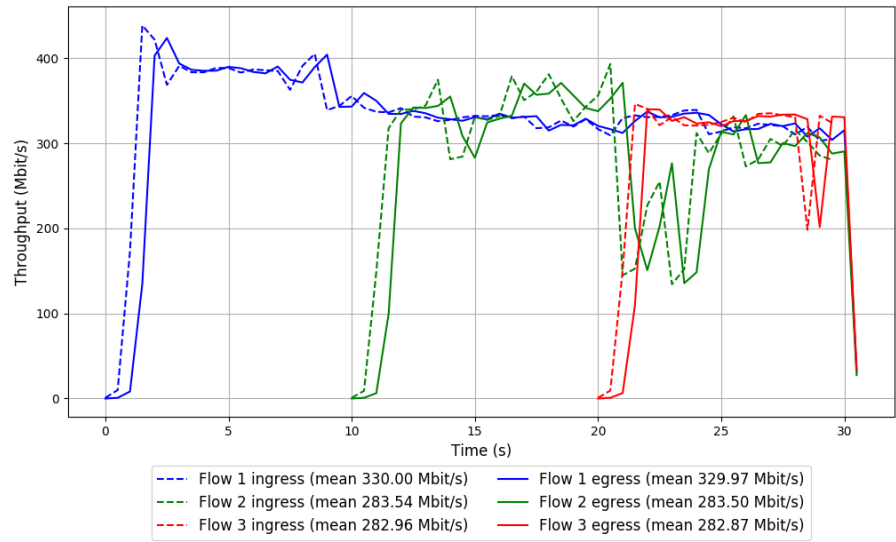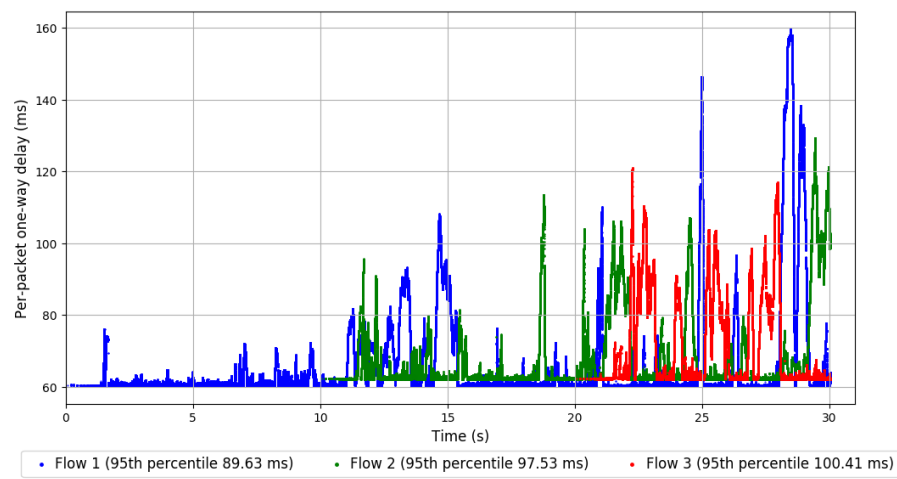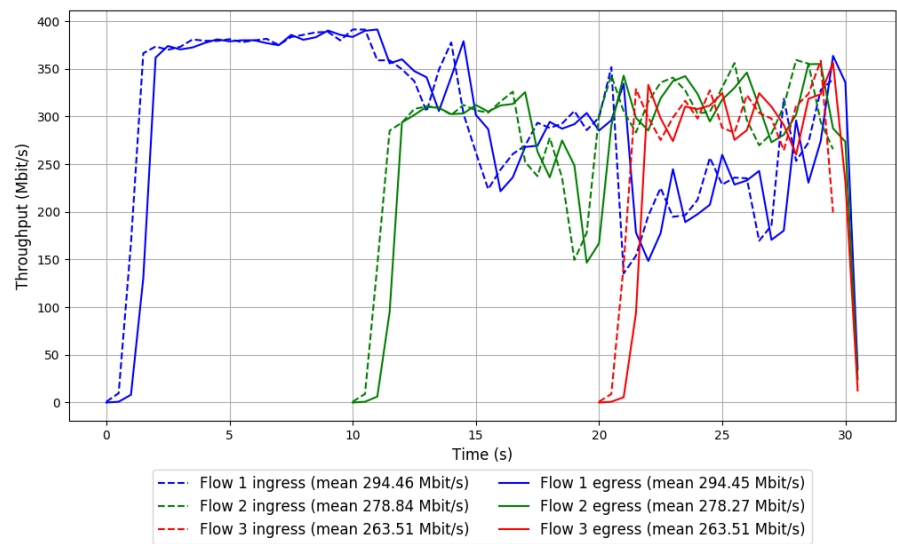
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 329.74 Mbit/s)   Flow 1 egress (mean 329.74 Mbit/s)
Flow 2 ingress (mean 282.17 Mbit/s)   Flow 2 egress (mean 282.18 Mbit/s)
Flow 3 ingress (mean 286.07 Mbit/s)   Flow 3 egress (mean 285.51 Mbit/s)

Flow 1 (95th percentile 79.50 ms)   Flow 2 (95th percentile 100.51 ms)   Flow 3 (95th percentile 93.47 ms)

```
Run 2: Statistics of Copa

Start at: 2018-09-25 19:28:06
End at: 2018-09-25 19:28:36
Local clock offset: -0.003 ms
Remote clock offset: 0.639 ms


# Below is generated by plot.py at 2018-09-25 22:10:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 577.70 Mbit/s
95th percentile per-packet one-way delay: 73.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 324.76 Mbit/s
95th percentile per-packet one-way delay: 71.562 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 264.41 Mbit/s
95th percentile per-packet one-way delay: 72.658 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 231.76 Mbit/s
95th percentile per-packet one-way delay: 78.590 ms
Loss rate: 0.00%
```
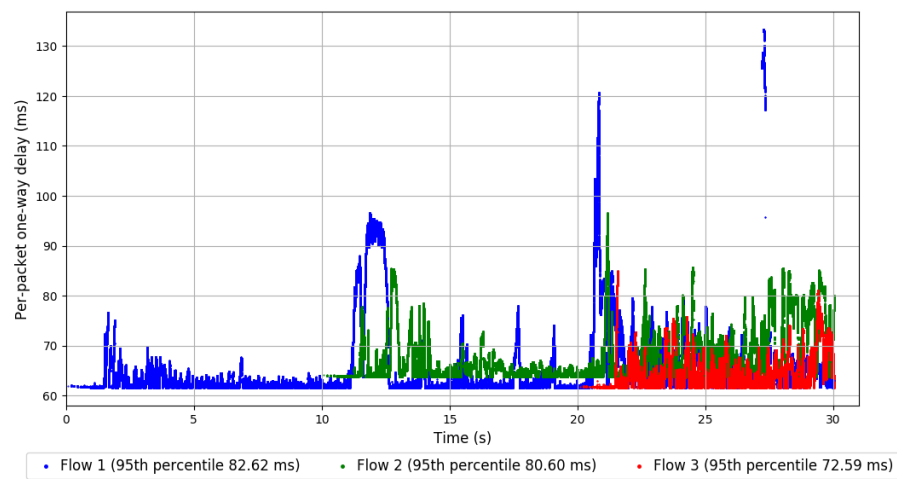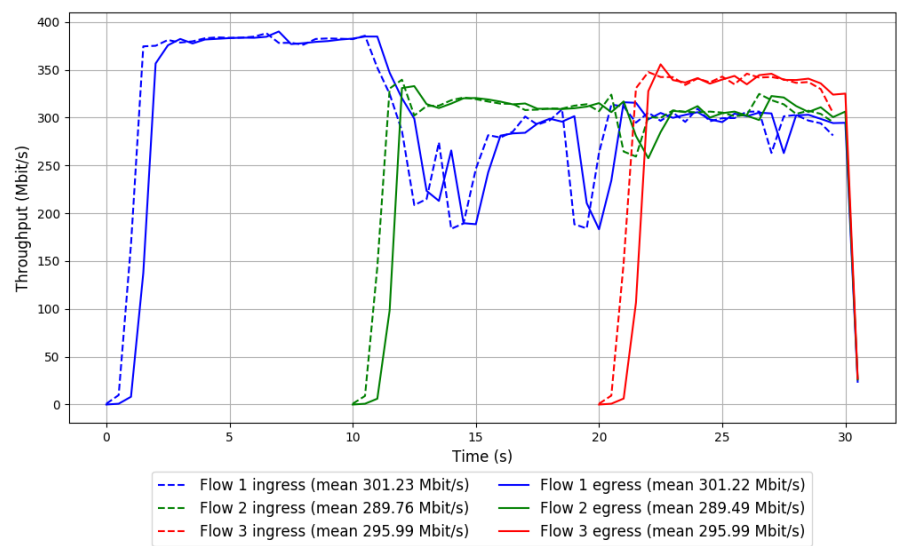
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 324.78 Mbit/s) — — — Flow 1 egress (mean 324.76 Mbit/s)
Flow 2 ingress (mean 264.41 Mbit/s) — — — Flow 2 egress (mean 264.41 Mbit/s)
Flow 3 ingress (mean 231.75 Mbit/s) — — — Flow 3 egress (mean 231.76 Mbit/s)

Flow 1 (95th percentile 71.56 ms)   Flow 2 (95th percentile 72.66 ms)   Flow 3 (95th percentile 78.59 ms)

18

```
Run 3: Statistics of Copa

Start at: 2018-09-25 20:02:15
End at: 2018-09-25 20:02:45
Local clock offset: 0.021 ms
Remote clock offset: 0.513 ms


# Below is generated by plot.py at 2018-09-25 22:10:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 612.74 Mbit/s
95th percentile per-packet one-way delay: 79.940 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 329.97 Mbit/s
95th percentile per-packet one-way delay: 85.143 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 283.50 Mbit/s
95th percentile per-packet one-way delay: 77.595 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 282.87 Mbit/s
95th percentile per-packet one-way delay: 77.425 ms
Loss rate: 0.00%
```
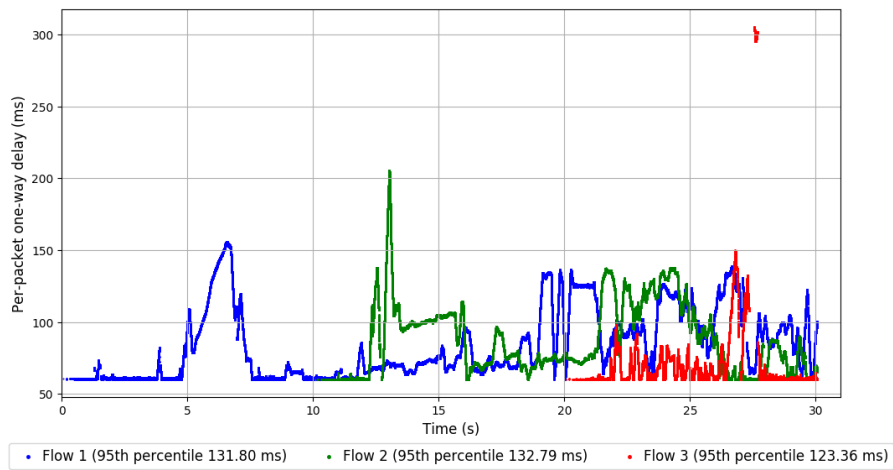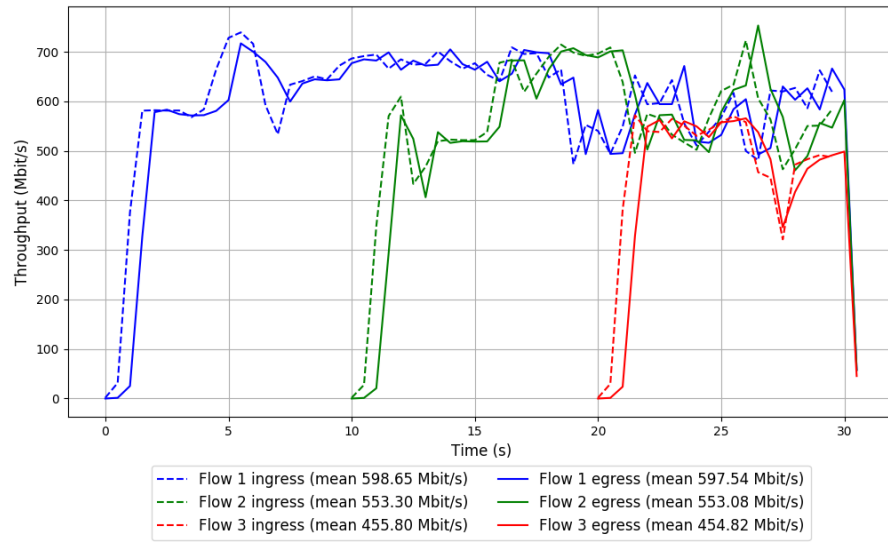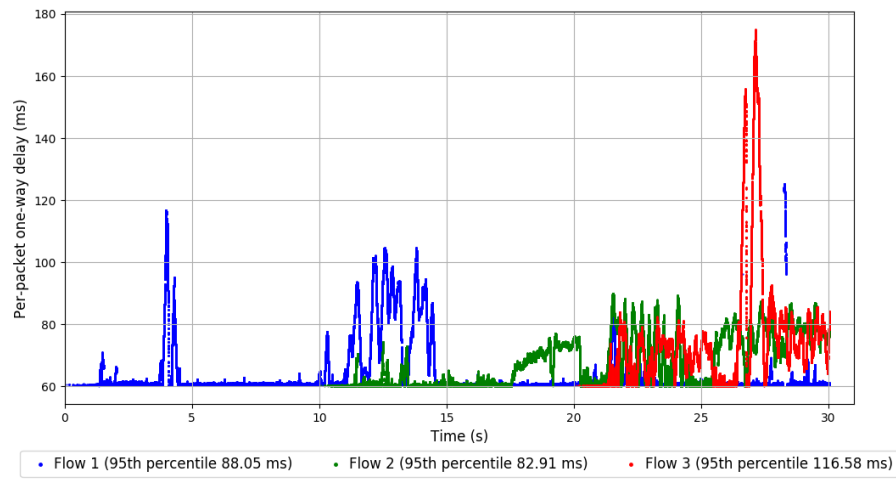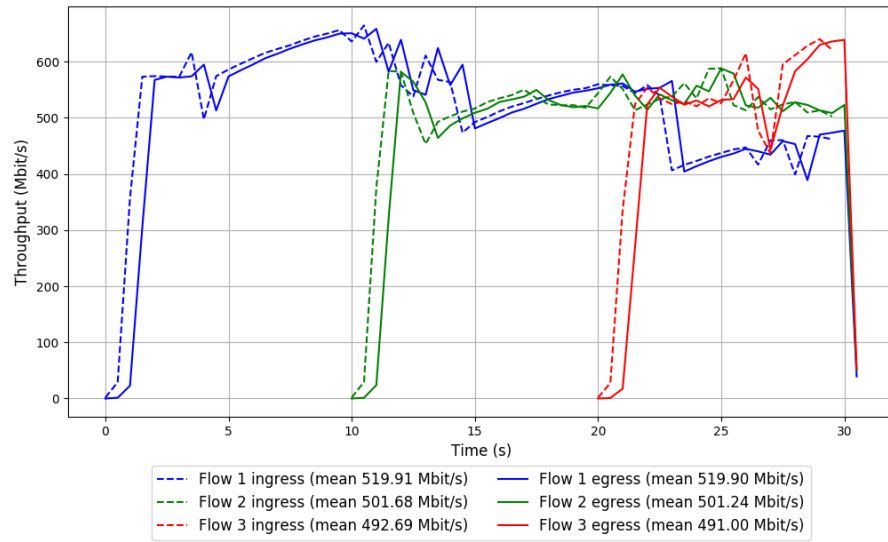
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 330.00 Mbit/s) --- Flow 1 egress (mean 329.97 Mbit/s)
Flow 2 ingress (mean 283.54 Mbit/s) --- Flow 2 egress (mean 283.50 Mbit/s)
Flow 3 ingress (mean 282.96 Mbit/s) --- Flow 3 egress (mean 282.87 Mbit/s)

Flow 1 (95th percentile 85.14 ms)   Flow 2 (95th percentile 77.59 ms)   Flow 3 (95th percentile 77.42 ms)

```
Run 4: Statistics of Copa

Start at: 2018-09-25 20:36:04
End at: 2018-09-25 20:36:34
Local clock offset: -0.112 ms
Remote clock offset: -0.954 ms


# Below is generated by plot.py at 2018-09-25 22:23:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 567.32 Mbit/s
95th percentile per-packet one-way delay: 95.189 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 294.45 Mbit/s
95th percentile per-packet one-way delay: 89.633 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 278.27 Mbit/s
95th percentile per-packet one-way delay: 97.526 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 263.51 Mbit/s
95th percentile per-packet one-way delay: 100.409 ms
Loss rate: 0.00%
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-09-25 21:09:50
End at: 2018-09-25 21:10:20
Local clock offset: 0.017 ms
Remote clock offset: 0.218 ms

# Below is generated by plot.py at 2018-09-25 22:25:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 592.24 Mbit/s
95th percentile per-packet one-way delay: 79.612 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 301.22 Mbit/s
95th percentile per-packet one-way delay: 82.625 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 289.49 Mbit/s
95th percentile per-packet one-way delay: 80.602 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 295.99 Mbit/s
95th percentile per-packet one-way delay: 72.595 ms
Loss rate: 0.00%
```
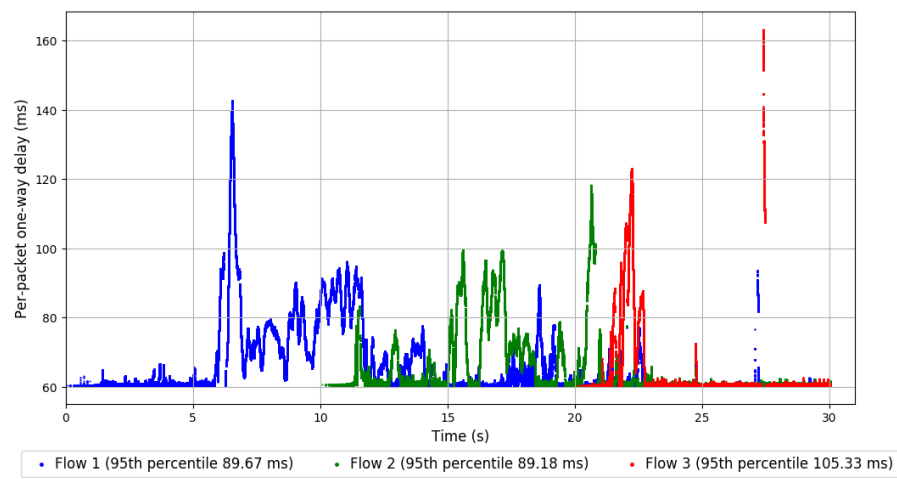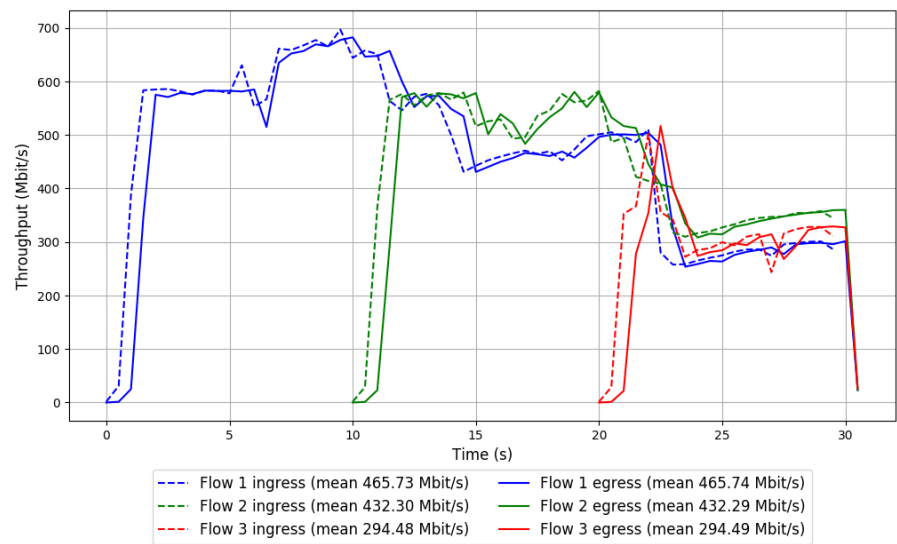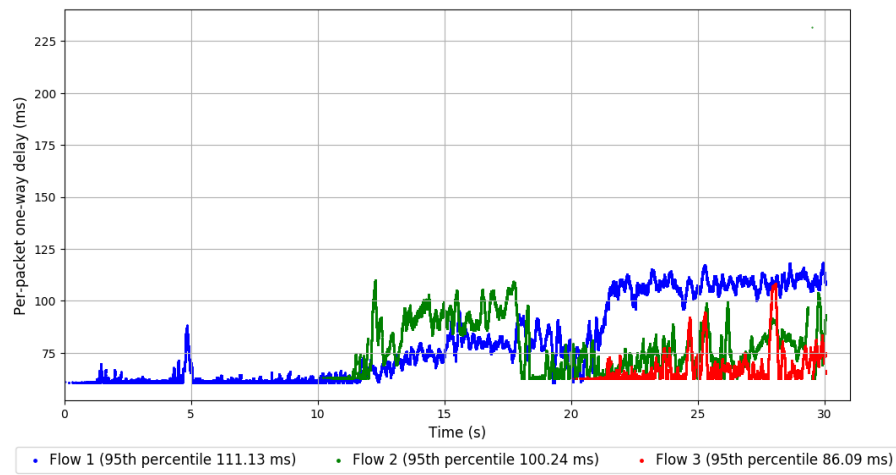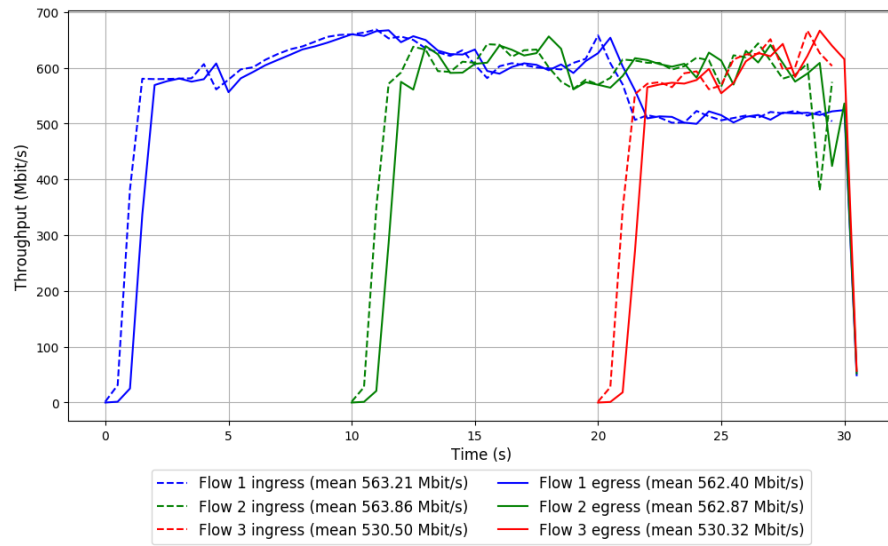
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-25 18:56:30
End at: 2018-09-25 18:57:00
Local clock offset: -0.03 ms
Remote clock offset: -0.17 ms


# Below is generated by plot.py at 2018-09-25 22:26:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1117.27 Mbit/s
95th percentile per-packet one-way delay: 131.837 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 597.54 Mbit/s
95th percentile per-packet one-way delay: 131.804 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 553.08 Mbit/s
95th percentile per-packet one-way delay: 132.786 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 454.82 Mbit/s
95th percentile per-packet one-way delay: 123.362 ms
Loss rate: 0.21%
```

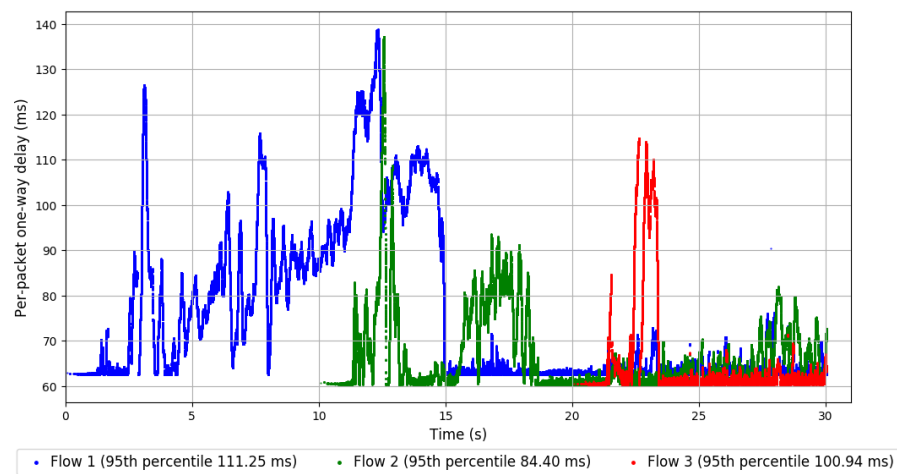Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-25 19:30:11
End at: 2018-09-25 19:30:41
Local clock offset: -0.004 ms
Remote clock offset: -0.074 ms


# Below is generated by plot.py at 2018-09-25 22:26:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1016.72 Mbit/s
95th percentile per-packet one-way delay: 85.790 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 519.90 Mbit/s
95th percentile per-packet one-way delay: 88.050 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 501.24 Mbit/s
95th percentile per-packet one-way delay: 82.914 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 491.00 Mbit/s
95th percentile per-packet one-way delay: 116.579 ms
Loss rate: 0.32%
```

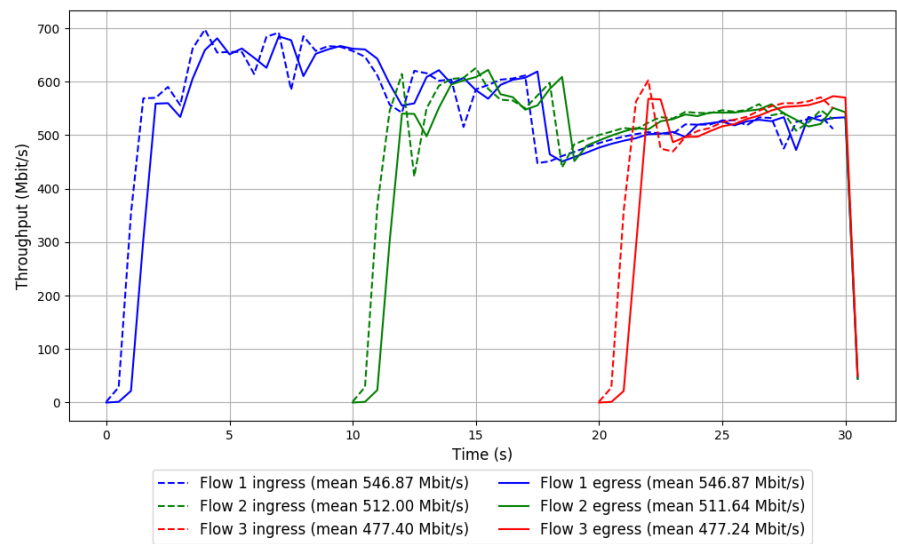Run 2: Report of TCP Cubic — Data Link

28

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-25 20:04:23
End at: 2018-09-25 20:04:53
Local clock offset: 0.012 ms
Remote clock offset: -0.68 ms


# Below is generated by plot.py at 2018-09-25 22:26:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 851.47 Mbit/s
95th percentile per-packet one-way delay: 90.019 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 465.74 Mbit/s
95th percentile per-packet one-way delay: 89.672 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 432.29 Mbit/s
95th percentile per-packet one-way delay: 89.182 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 294.49 Mbit/s
95th percentile per-packet one-way delay: 105.329 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-25 20:38:10
End at: 2018-09-25 20:38:40
Local clock offset: -0.147 ms
Remote clock offset: -0.554 ms


# Below is generated by plot.py at 2018-09-25 22:26:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1113.40 Mbit/s
95th percentile per-packet one-way delay: 109.071 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 562.40 Mbit/s
95th percentile per-packet one-way delay: 111.131 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 562.87 Mbit/s
95th percentile per-packet one-way delay: 100.244 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 530.32 Mbit/s
95th percentile per-packet one-way delay: 86.095 ms
Loss rate: 0.03%
```
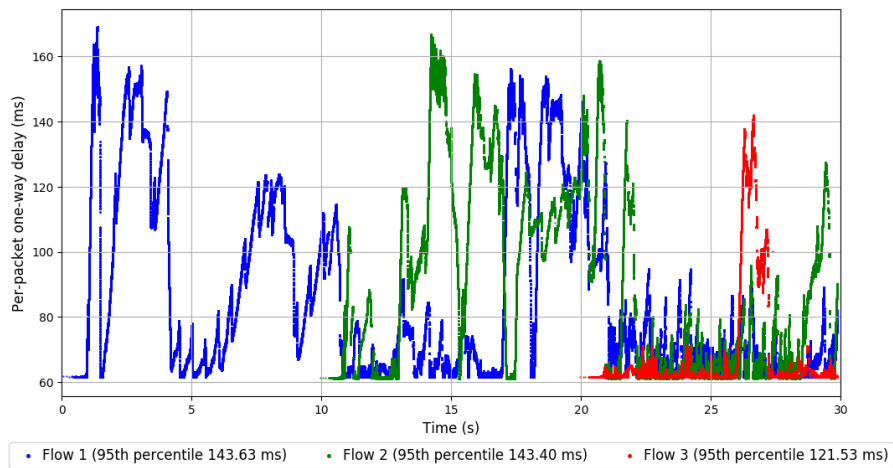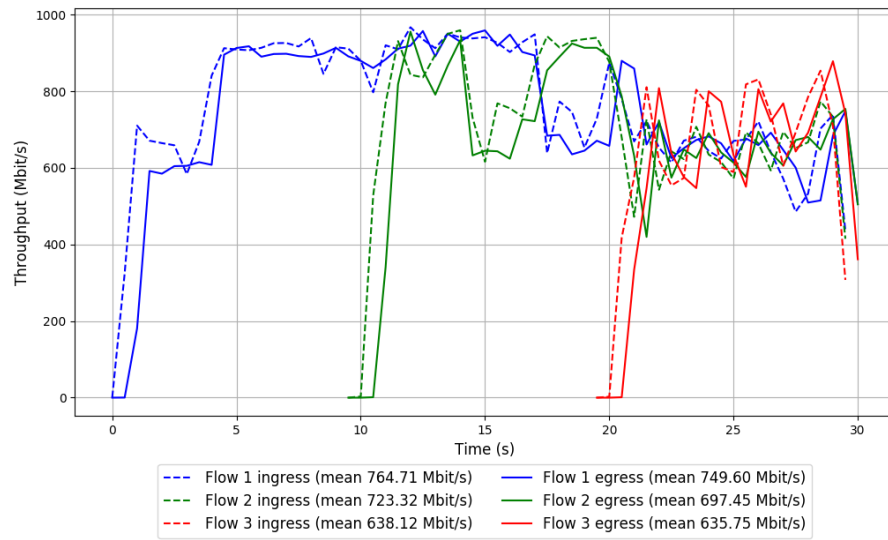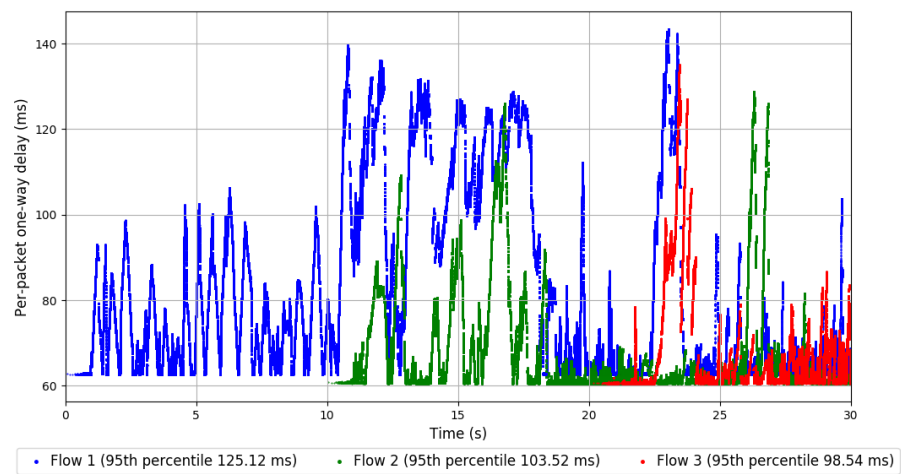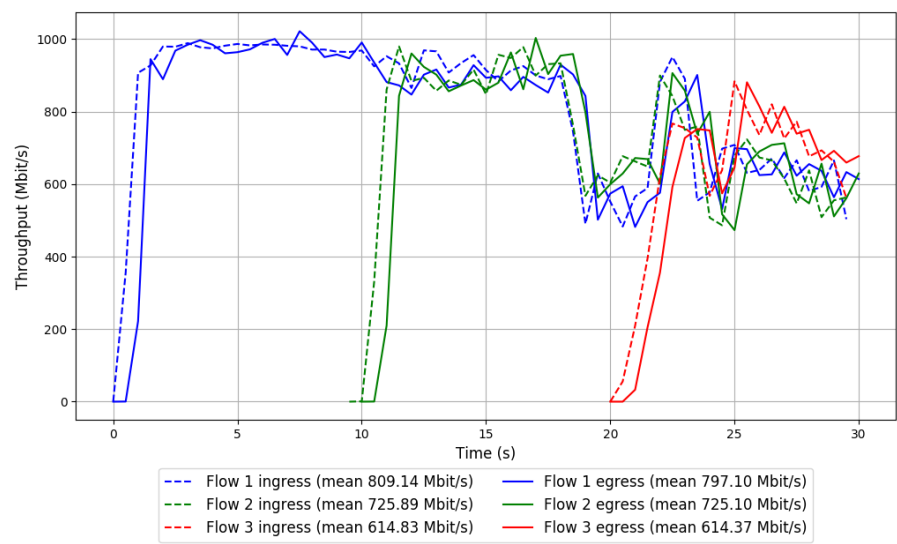
Run 4: Report of TCP Cubic — Data Link

- - - - Flow 1 ingress (mean 563.21 Mbit/s) ——— Flow 1 egress (mean 562.40 Mbit/s)
- - - - Flow 2 ingress (mean 563.86 Mbit/s) ——— Flow 2 egress (mean 562.87 Mbit/s)
- - - - Flow 3 ingress (mean 530.50 Mbit/s) ——— Flow 3 egress (mean 530.32 Mbit/s)

- Flow 1 (95th percentile 111.13 ms)   - Flow 2 (95th percentile 100.24 ms)   - Flow 3 (95th percentile 86.09 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-25 21:11:58
End at: 2018-09-25 21:12:28
Local clock offset: 0.019 ms
Remote clock offset: -0.881 ms


# Below is generated by plot.py at 2018-09-25 22:26:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1046.25 Mbit/s
95th percentile per-packet one-way delay: 107.593 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 546.87 Mbit/s
95th percentile per-packet one-way delay: 111.253 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 511.64 Mbit/s
95th percentile per-packet one-way delay: 84.400 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 477.24 Mbit/s
95th percentile per-packet one-way delay: 100.937 ms
Loss rate: 0.00%
```
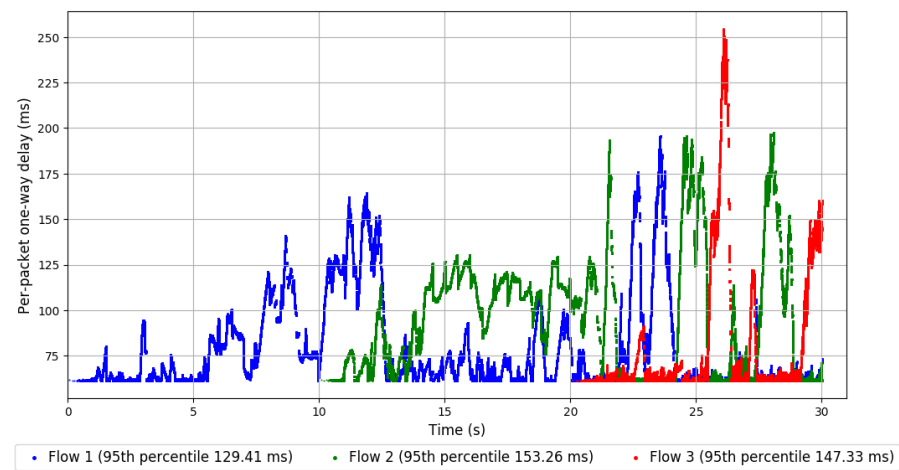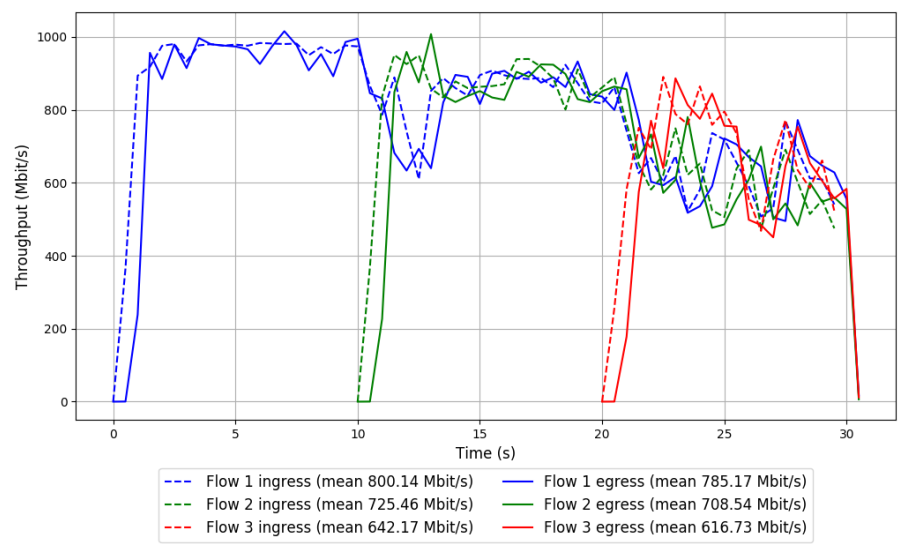
Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-09-25 18:47:54
End at: 2018-09-25 18:48:24
Local clock offset: -0.098 ms
Remote clock offset: 0.858 ms


# Below is generated by plot.py at 2018-09-25 22:35:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1427.33 Mbit/s
95th percentile per-packet one-way delay: 141.621 ms
Loss rate: 2.27%
-- Flow 1:
Average throughput: 749.60 Mbit/s
95th percentile per-packet one-way delay: 143.629 ms
Loss rate: 1.97%
-- Flow 2:
Average throughput: 697.45 Mbit/s
95th percentile per-packet one-way delay: 143.404 ms
Loss rate: 3.57%
-- Flow 3:
Average throughput: 635.75 Mbit/s
95th percentile per-packet one-way delay: 121.528 ms
Loss rate: 0.38%
```
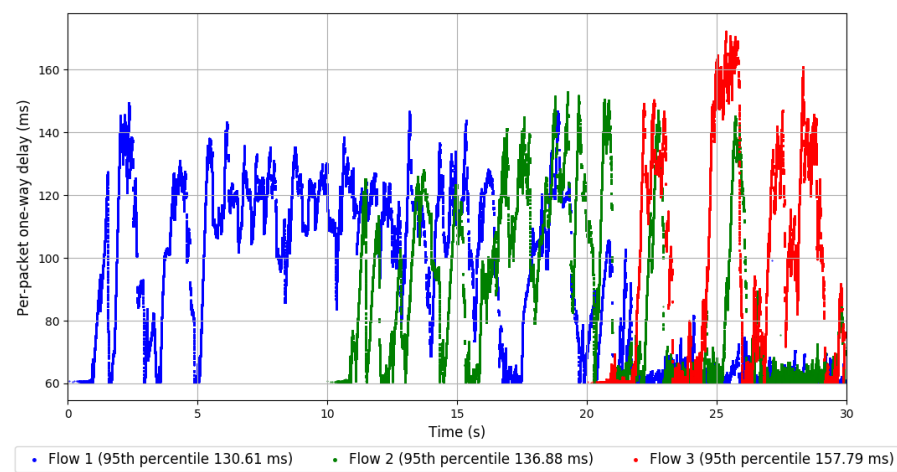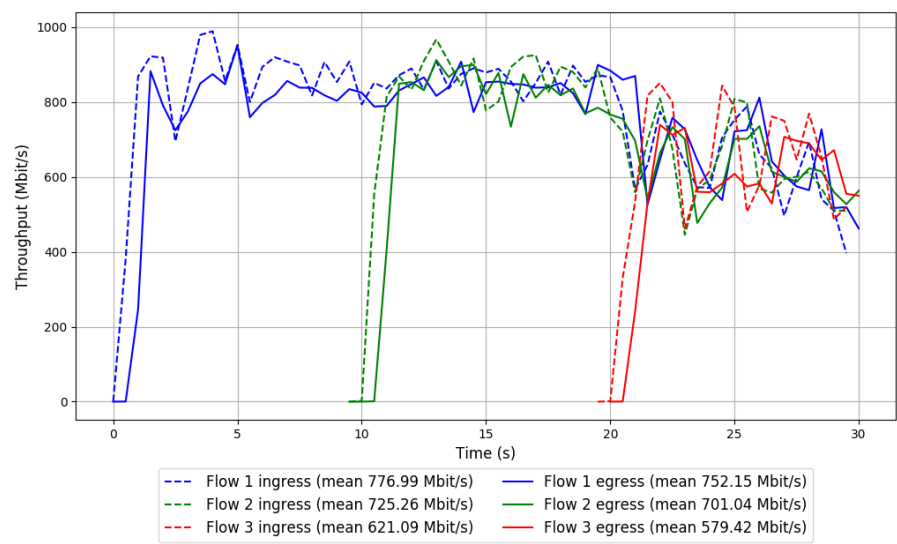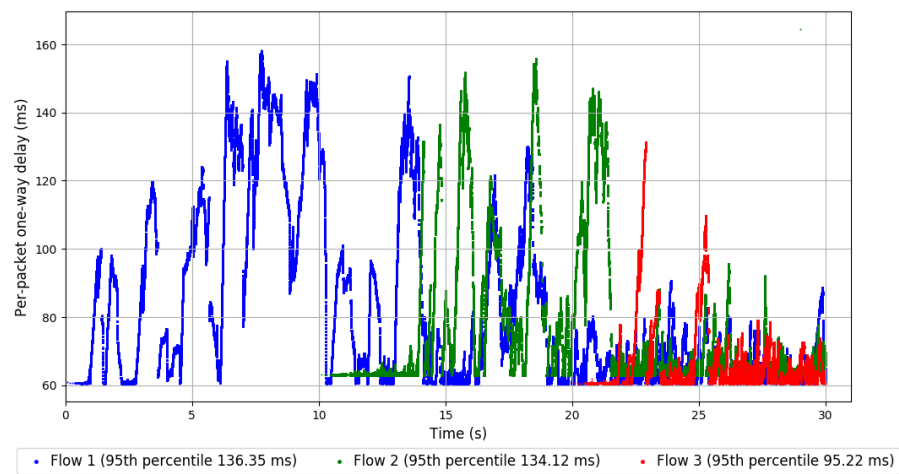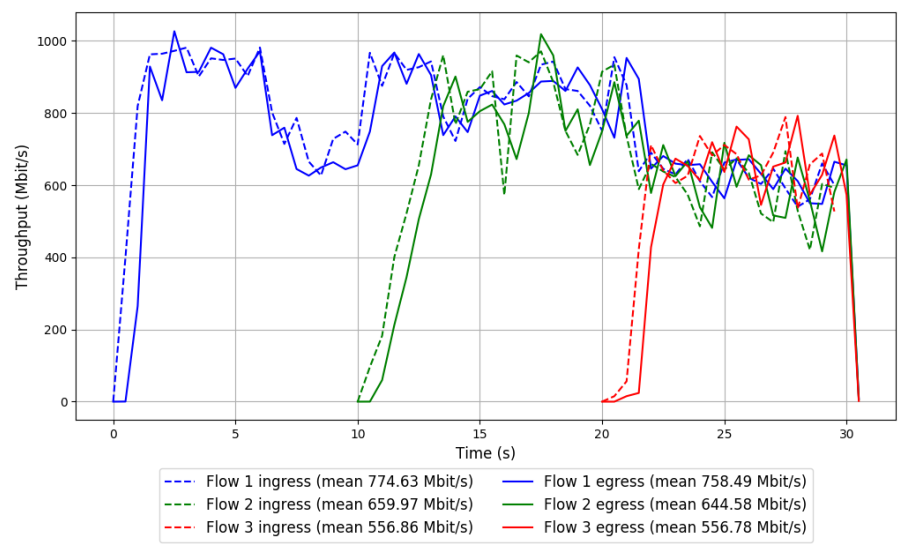
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-09-25 19:21:33
End at: 2018-09-25 19:22:03
Local clock offset: -0.02 ms
Remote clock offset: 0.273 ms

# Below is generated by plot.py at 2018-09-25 22:51:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1481.60 Mbit/s
95th percentile per-packet one-way delay: 122.787 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 797.10 Mbit/s
95th percentile per-packet one-way delay: 125.117 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 725.10 Mbit/s
95th percentile per-packet one-way delay: 103.523 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 614.37 Mbit/s
95th percentile per-packet one-way delay: 98.541 ms
Loss rate: 0.05%
```

Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 809.14 Mbit/s) --- Flow 1 egress (mean 797.10 Mbit/s)
Flow 2 ingress (mean 725.89 Mbit/s) --- Flow 2 egress (mean 725.10 Mbit/s)
Flow 3 ingress (mean 614.83 Mbit/s) --- Flow 3 egress (mean 614.37 Mbit/s)

Flow 1 (95th percentile 125.12 ms) Flow 2 (95th percentile 103.52 ms) Flow 3 (95th percentile 98.54 ms)

```
Run 3: Statistics of FillP

Start at: 2018-09-25 19:55:46
End at: 2018-09-25 19:56:16
Local clock offset: 0.008 ms
Remote clock offset: 0.423 ms

# Below is generated by plot.py at 2018-09-25 22:53:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1460.99 Mbit/s
95th percentile per-packet one-way delay: 141.535 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 785.17 Mbit/s
95th percentile per-packet one-way delay: 129.405 ms
Loss rate: 1.86%
-- Flow 2:
Average throughput: 708.54 Mbit/s
95th percentile per-packet one-way delay: 153.256 ms
Loss rate: 2.33%
-- Flow 3:
Average throughput: 616.73 Mbit/s
95th percentile per-packet one-way delay: 147.328 ms
Loss rate: 3.91%
```
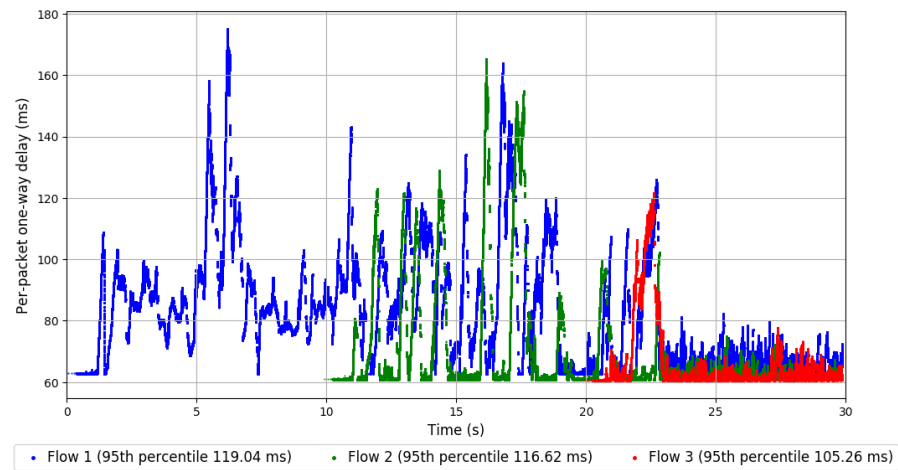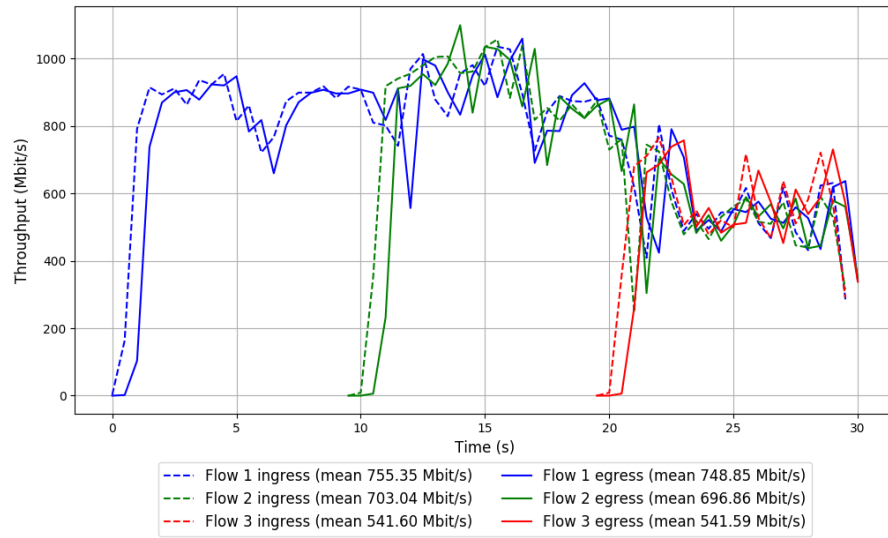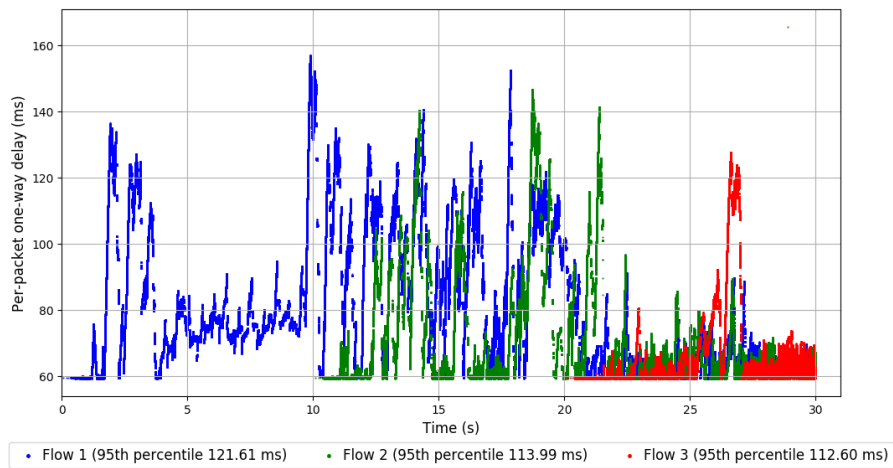
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 800.14 Mbit/s)   Flow 1 egress (mean 785.17 Mbit/s)
Flow 2 ingress (mean 725.46 Mbit/s)   Flow 2 egress (mean 708.54 Mbit/s)
Flow 3 ingress (mean 642.17 Mbit/s)   Flow 3 egress (mean 616.73 Mbit/s)

Flow 1 (95th percentile 129.41 ms)   Flow 2 (95th percentile 153.26 ms)   Flow 3 (95th percentile 147.33 ms)

```
Run 4: Statistics of FillP

Start at: 2018-09-25 20:29:37
End at: 2018-09-25 20:30:07
Local clock offset: -0.136 ms
Remote clock offset: -0.908 ms


# Below is generated by plot.py at 2018-09-25 22:53:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1411.94 Mbit/s
95th percentile per-packet one-way delay: 137.327 ms
Loss rate: 3.72%
-- Flow 1:
Average throughput: 752.15 Mbit/s
95th percentile per-packet one-way delay: 130.614 ms
Loss rate: 3.20%
-- Flow 2:
Average throughput: 701.04 Mbit/s
95th percentile per-packet one-way delay: 136.879 ms
Loss rate: 3.30%
-- Flow 3:
Average throughput: 579.42 Mbit/s
95th percentile per-packet one-way delay: 157.786 ms
Loss rate: 6.68%
```
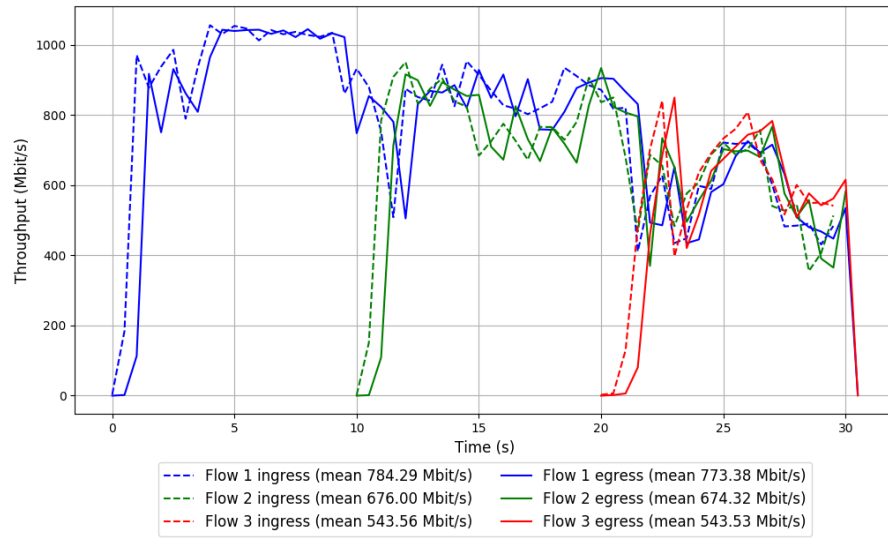
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 776.99 Mbit/s) --- Flow 1 egress (mean 752.15 Mbit/s)
Flow 2 ingress (mean 725.26 Mbit/s) --- Flow 2 egress (mean 701.04 Mbit/s)
Flow 3 ingress (mean 621.09 Mbit/s) --- Flow 3 egress (mean 579.42 Mbit/s)

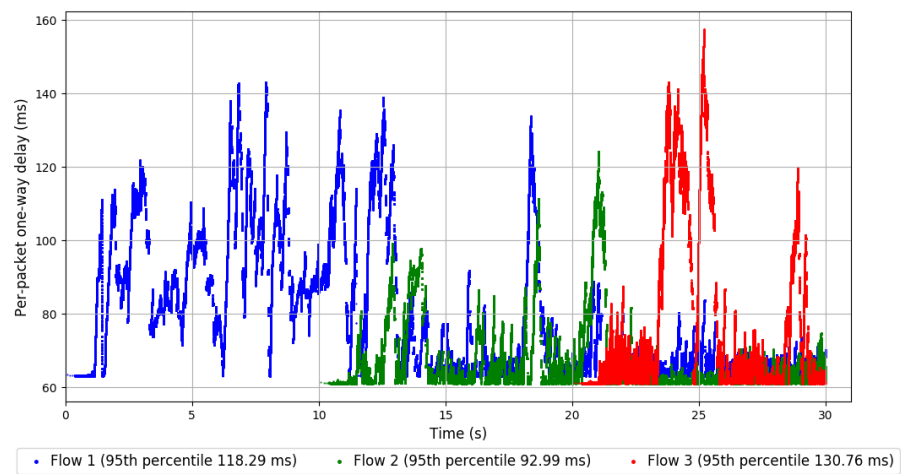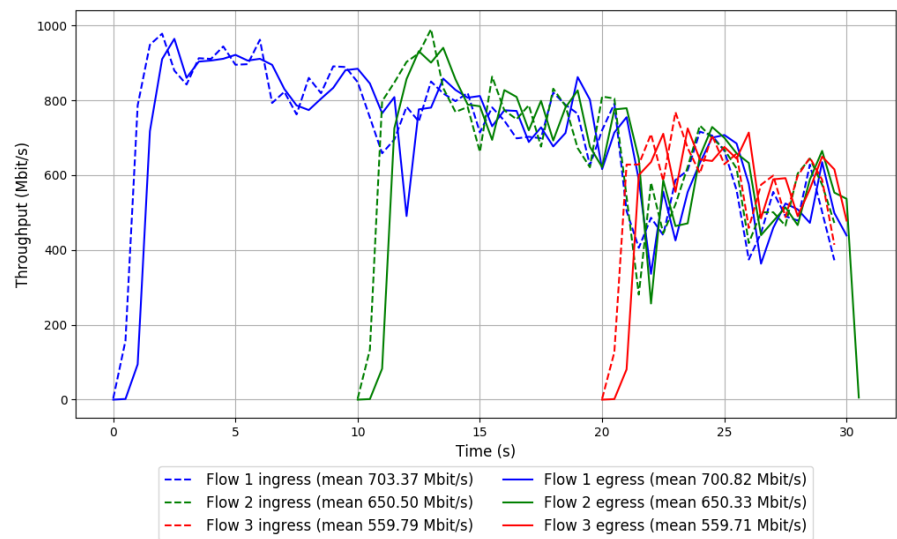Flow 1 (95th percentile 130.61 ms)   Flow 2 (95th percentile 136.88 ms)   Flow 3 (95th percentile 157.79 ms)

```
Run 5: Statistics of FillP

Start at: 2018-09-25 21:03:23
End at: 2018-09-25 21:03:53
Local clock offset: -0.006 ms
Remote clock offset: -0.876 ms

# Below is generated by plot.py at 2018-09-25 22:53:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1370.93 Mbit/s
95th percentile per-packet one-way delay: 133.512 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 758.49 Mbit/s
95th percentile per-packet one-way delay: 136.351 ms
Loss rate: 2.07%
-- Flow 2:
Average throughput: 644.58 Mbit/s
95th percentile per-packet one-way delay: 134.115 ms
Loss rate: 2.30%
-- Flow 3:
Average throughput: 556.78 Mbit/s
95th percentile per-packet one-way delay: 95.224 ms
Loss rate: 0.02%
```
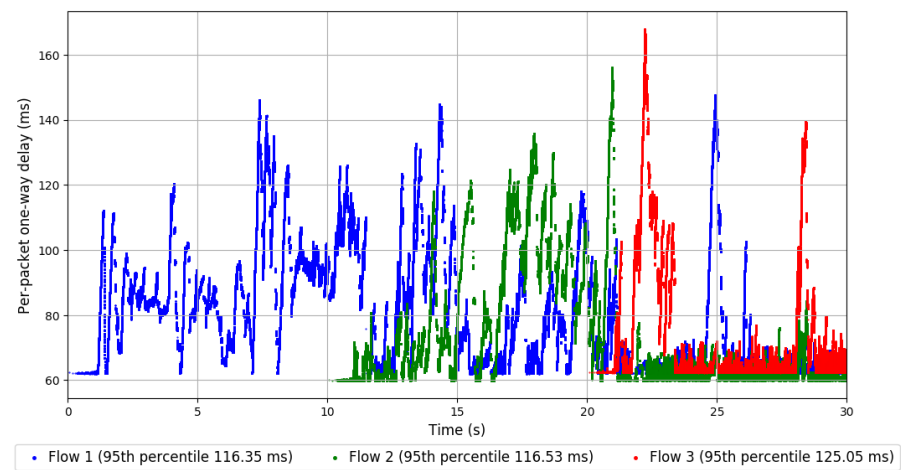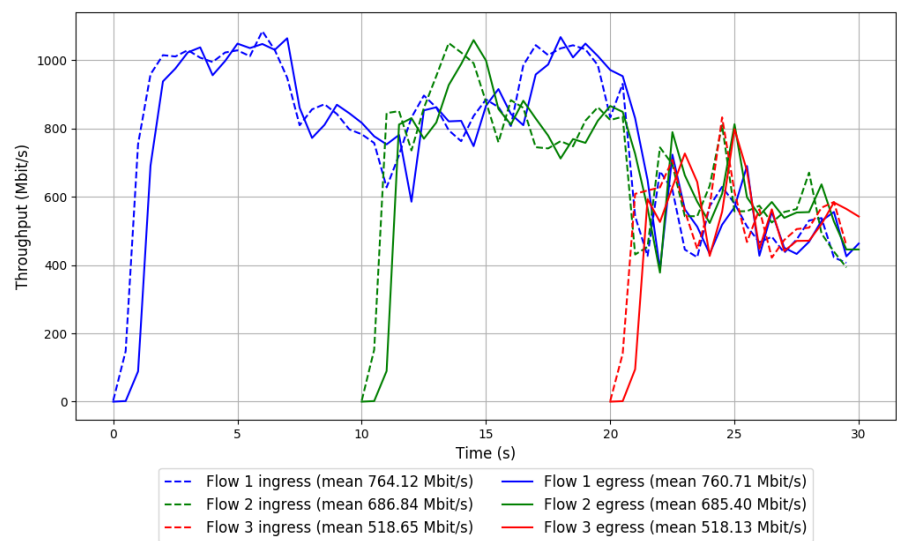
Run 5: Report of FillP — Data Link

44

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-25 19:11:24
End at: 2018-09-25 19:11:54
Local clock offset: -0.01 ms
Remote clock offset: 0.415 ms


# Below is generated by plot.py at 2018-09-25 22:53:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1394.74 Mbit/s
95th percentile per-packet one-way delay: 115.892 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 748.85 Mbit/s
95th percentile per-packet one-way delay: 119.043 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 696.86 Mbit/s
95th percentile per-packet one-way delay: 116.621 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 541.59 Mbit/s
95th percentile per-packet one-way delay: 105.261 ms
Loss rate: 0.00%
```
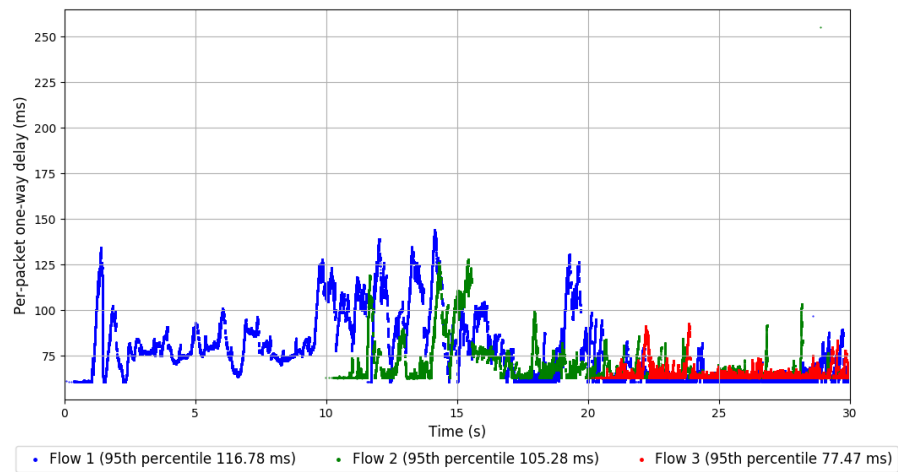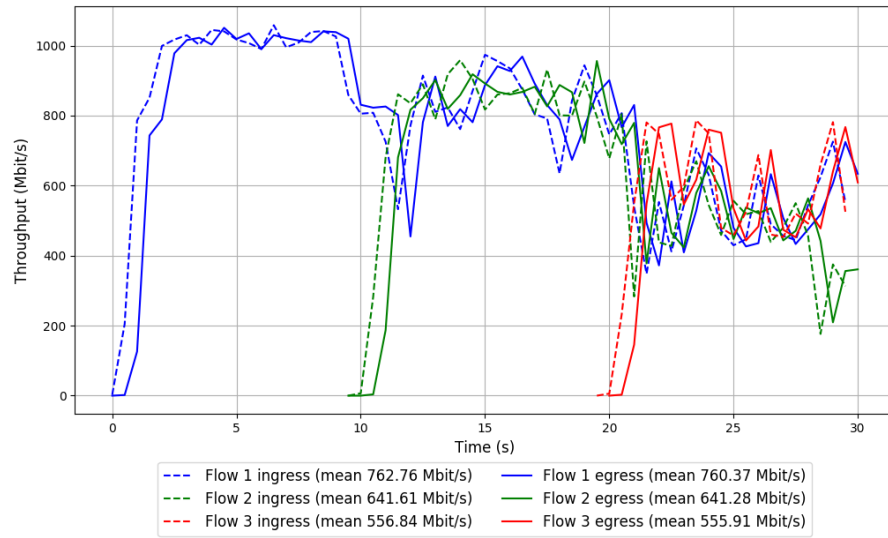
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 755.35 Mbit/s) --- Flow 1 egress (mean 748.85 Mbit/s)
Flow 2 ingress (mean 703.04 Mbit/s) --- Flow 2 egress (mean 696.86 Mbit/s)
Flow 3 ingress (mean 541.60 Mbit/s) --- Flow 3 egress (mean 541.59 Mbit/s)

Flow 1 (95th percentile 119.04 ms)   Flow 2 (95th percentile 116.62 ms)   Flow 3 (95th percentile 105.26 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-25 19:45:23
End at: 2018-09-25 19:45:53
Local clock offset: 0.012 ms
Remote clock offset: -1.404 ms


# Below is generated by plot.py at 2018-09-25 22:54:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1401.63 Mbit/s
95th percentile per-packet one-way delay: 118.654 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 773.38 Mbit/s
95th percentile per-packet one-way delay: 121.609 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 674.32 Mbit/s
95th percentile per-packet one-way delay: 113.990 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 543.53 Mbit/s
95th percentile per-packet one-way delay: 112.599 ms
Loss rate: 0.00%
```
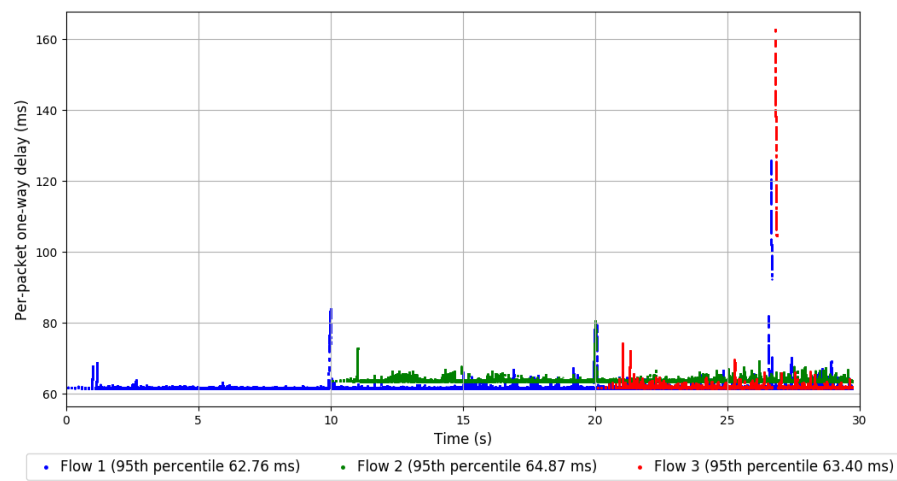
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 784.29 Mbit/s)   Flow 1 egress (mean 773.38 Mbit/s)
Flow 2 ingress (mean 676.00 Mbit/s)   Flow 2 egress (mean 674.32 Mbit/s)
Flow 3 ingress (mean 543.56 Mbit/s)   Flow 3 egress (mean 543.53 Mbit/s)

Flow 1 (95th percentile 121.61 ms)   Flow 2 (95th percentile 113.99 ms)   Flow 3 (95th percentile 112.60 ms)

48

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-25 20:19:24
End at: 2018-09-25 20:19:54
Local clock offset: -0.174 ms
Remote clock offset: -0.075 ms


# Below is generated by plot.py at 2018-09-25 22:54:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1318.54 Mbit/s
95th percentile per-packet one-way delay: 116.376 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 700.82 Mbit/s
95th percentile per-packet one-way delay: 118.286 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 650.33 Mbit/s
95th percentile per-packet one-way delay: 92.994 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 559.71 Mbit/s
95th percentile per-packet one-way delay: 130.762 ms
Loss rate: 0.02%
```
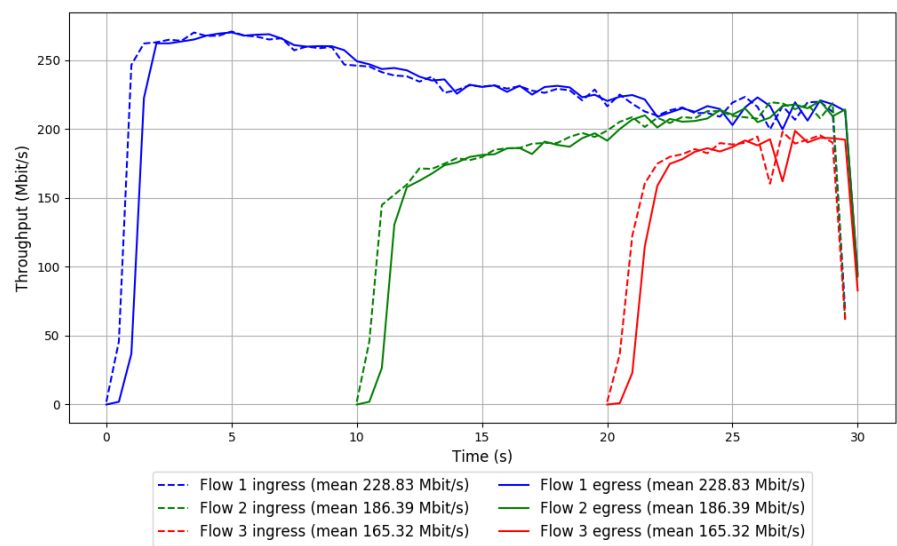
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-25 20:53:08
End at: 2018-09-25 20:53:38
Local clock offset: 0.003 ms
Remote clock offset: -1.255 ms


# Below is generated by plot.py at 2018-09-25 23:07:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1388.61 Mbit/s
95th percentile per-packet one-way delay: 116.823 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 760.71 Mbit/s
95th percentile per-packet one-way delay: 116.353 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 685.40 Mbit/s
95th percentile per-packet one-way delay: 116.526 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 518.13 Mbit/s
95th percentile per-packet one-way delay: 125.047 ms
Loss rate: 0.08%
```

Run 4: Report of FillP-Sheep — Data Link
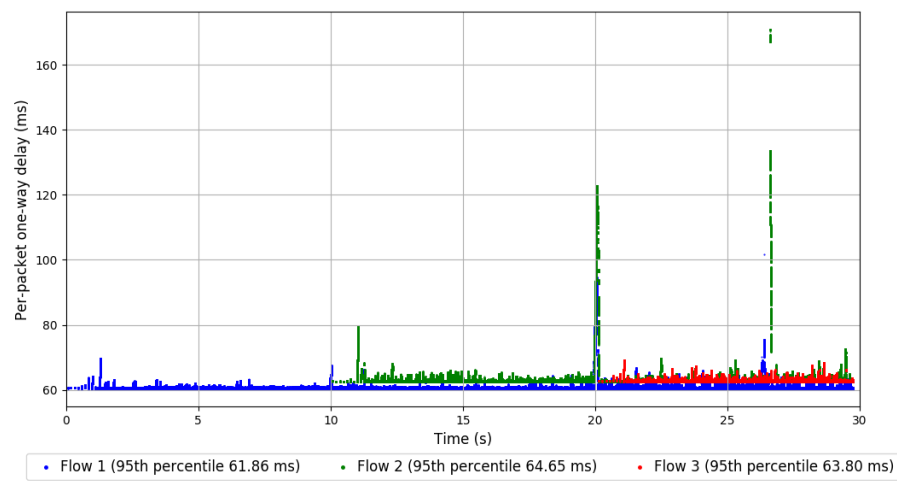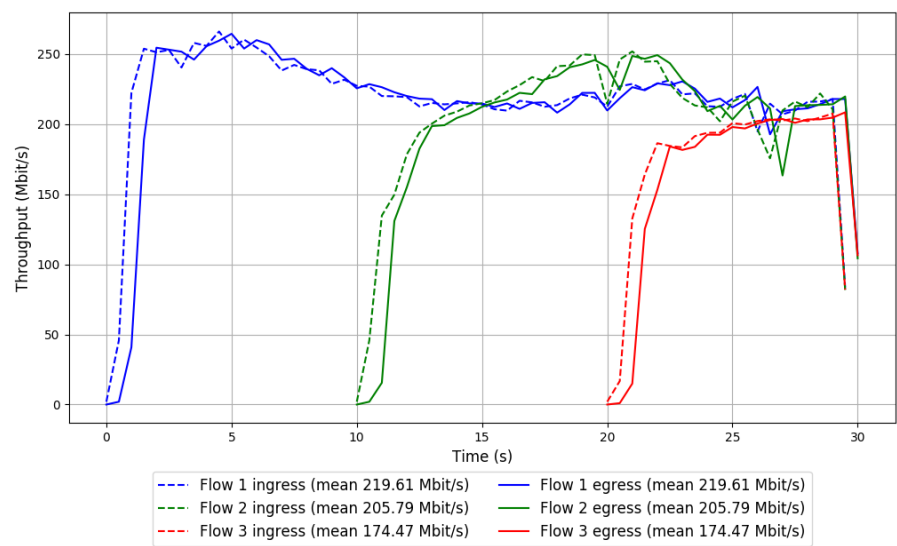

Flow 1 ingress (mean 764.12 Mbit/s) ----
Flow 1 egress (mean 760.71 Mbit/s) ——
Flow 2 ingress (mean 686.84 Mbit/s) ----
Flow 2 egress (mean 685.40 Mbit/s) ——
Flow 3 ingress (mean 518.65 Mbit/s) ----
Flow 3 egress (mean 518.13 Mbit/s) ——

• Flow 1 (95th percentile 116.35 ms) • Flow 2 (95th percentile 116.53 ms) • Flow 3 (95th percentile 125.05 ms)
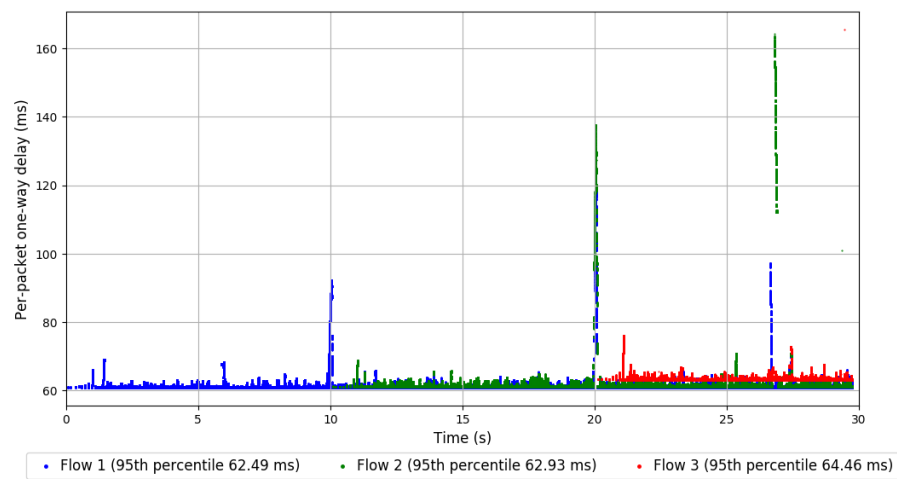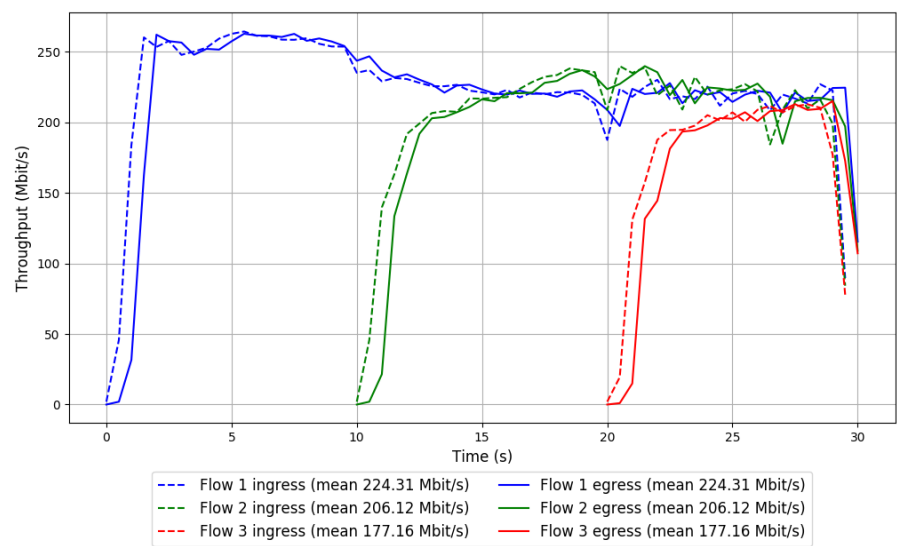
```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-25 21:27:11
End at: 2018-09-25 21:27:41
Local clock offset: -0.114 ms
Remote clock offset: -0.913 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1373.21 Mbit/s
95th percentile per-packet one-way delay: 112.197 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 760.37 Mbit/s
95th percentile per-packet one-way delay: 116.782 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 641.28 Mbit/s
95th percentile per-packet one-way delay: 105.283 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 555.91 Mbit/s
95th percentile per-packet one-way delay: 77.466 ms
Loss rate: 0.17%
```

Run 5: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 762.76 Mbit/s)   —— Flow 1 egress (mean 760.37 Mbit/s)
- - - - Flow 2 ingress (mean 641.61 Mbit/s)   —— Flow 2 egress (mean 641.28 Mbit/s)
- - - - Flow 3 ingress (mean 556.84 Mbit/s)   —— Flow 3 egress (mean 555.91 Mbit/s)

- Flow 1 (95th percentile 116.78 ms)   • Flow 2 (95th percentile 105.28 ms)   • Flow 3 (95th percentile 77.47 ms)
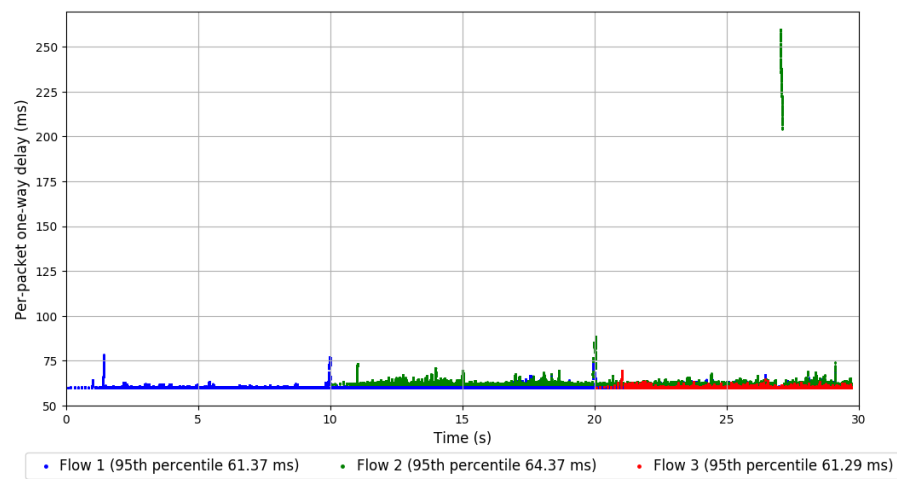
```
Run 1: Statistics of Indigo

Start at: 2018-09-25 19:09:35
End at: 2018-09-25 19:10:05
Local clock offset: -0.046 ms
Remote clock offset: 1.116 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 405.87 Mbit/s
95th percentile per-packet one-way delay: 64.148 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 228.83 Mbit/s
95th percentile per-packet one-way delay: 62.757 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 186.39 Mbit/s
95th percentile per-packet one-way delay: 64.874 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 165.32 Mbit/s
95th percentile per-packet one-way delay: 63.399 ms
Loss rate: 0.00%
```
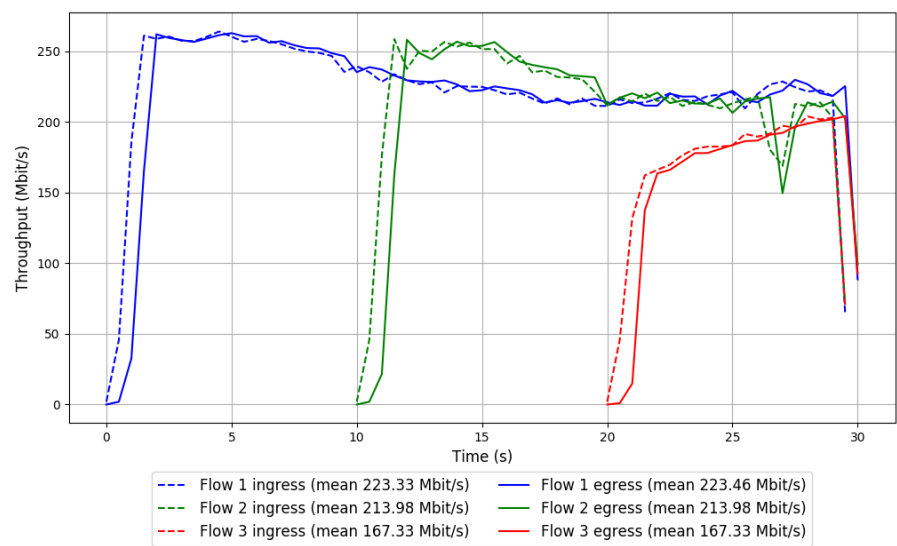
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-25 19:43:32
End at: 2018-09-25 19:44:02
Local clock offset: 0.025 ms
Remote clock offset: -0.044 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 413.02 Mbit/s
95th percentile per-packet one-way delay: 62.348 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 222.72 Mbit/s
95th percentile per-packet one-way delay: 62.288 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 211.29 Mbit/s
95th percentile per-packet one-way delay: 62.670 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 154.09 Mbit/s
95th percentile per-packet one-way delay: 61.537 ms
Loss rate: 0.00%
```
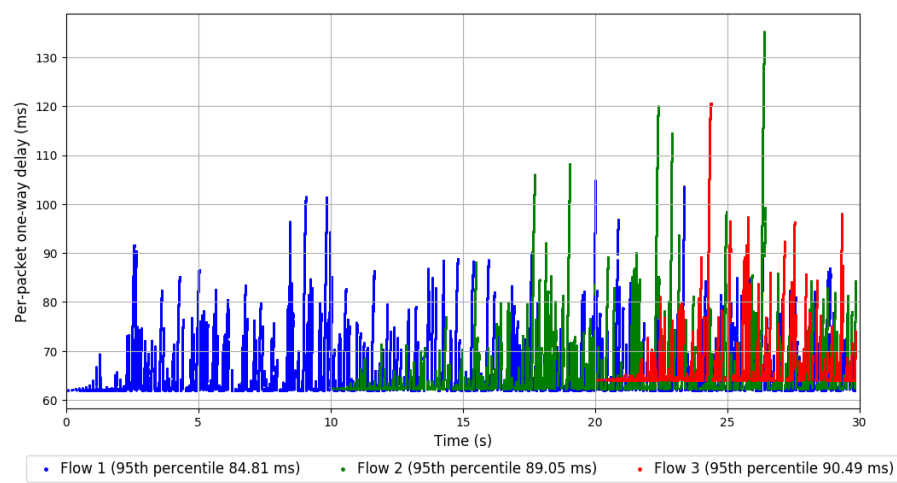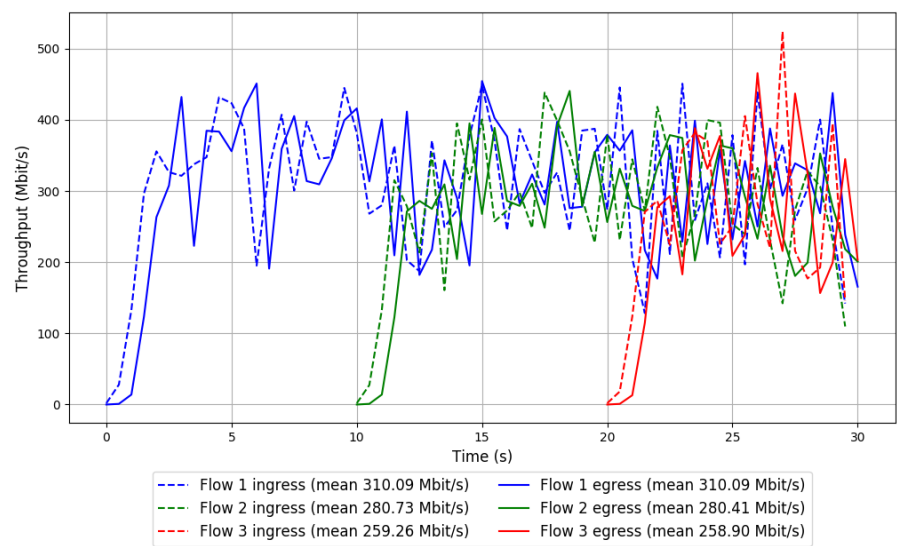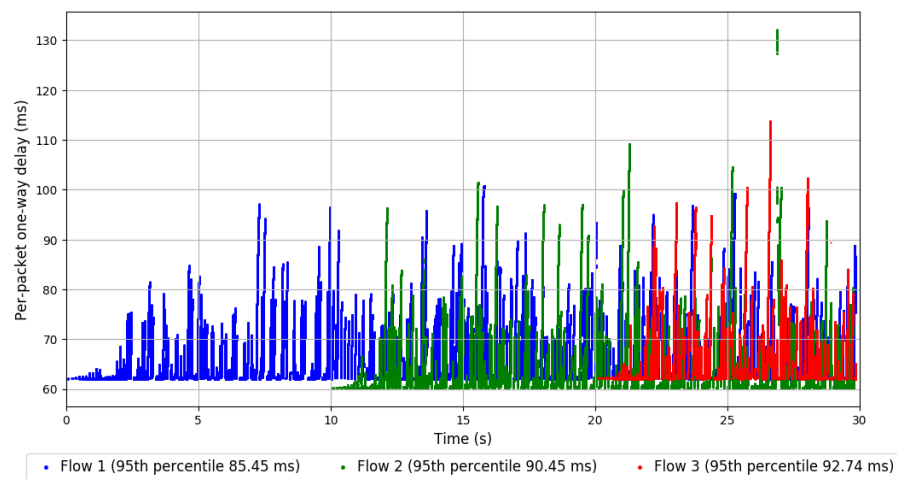
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-09-25 20:17:34
End at: 2018-09-25 20:18:04
Local clock offset: -0.073 ms
Remote clock offset: -0.608 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 412.52 Mbit/s
95th percentile per-packet one-way delay: 63.629 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 219.61 Mbit/s
95th percentile per-packet one-way delay: 61.856 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 205.79 Mbit/s
95th percentile per-packet one-way delay: 64.652 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 174.47 Mbit/s
95th percentile per-packet one-way delay: 63.796 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-09-25 20:51:18
End at: 2018-09-25 20:51:48
Local clock offset: -0.018 ms
Remote clock offset: -0.261 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 418.26 Mbit/s
95th percentile per-packet one-way delay: 63.411 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 224.31 Mbit/s
95th percentile per-packet one-way delay: 62.492 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 206.12 Mbit/s
95th percentile per-packet one-way delay: 62.930 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 177.16 Mbit/s
95th percentile per-packet one-way delay: 64.456 ms
Loss rate: 0.00%
```
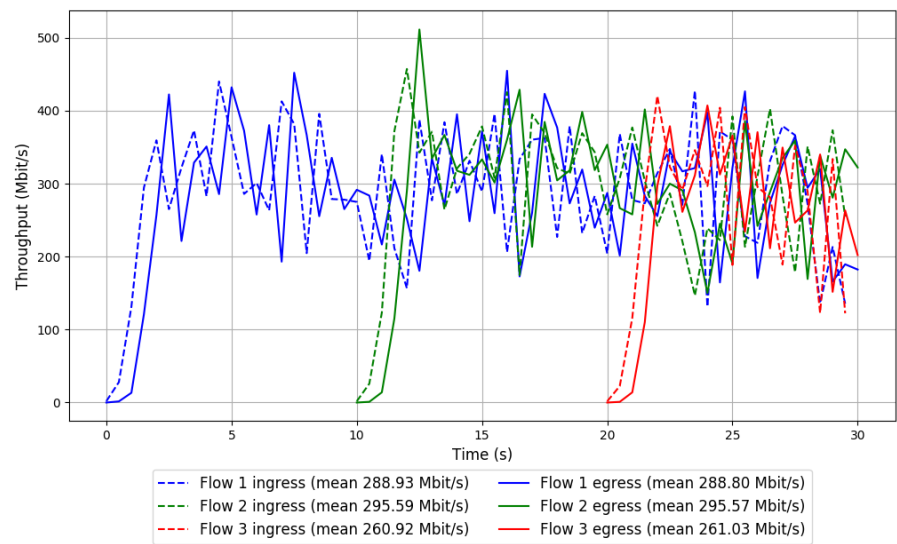
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-09-25 21:25:20
End at: 2018-09-25 21:25:50
Local clock offset: -0.088 ms
Remote clock offset: -1.368 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 419.67 Mbit/s
95th percentile per-packet one-way delay: 62.844 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 223.46 Mbit/s
95th percentile per-packet one-way delay: 61.369 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 213.98 Mbit/s
95th percentile per-packet one-way delay: 64.367 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 167.33 Mbit/s
95th percentile per-packet one-way delay: 61.290 ms
Loss rate: 0.00%
```
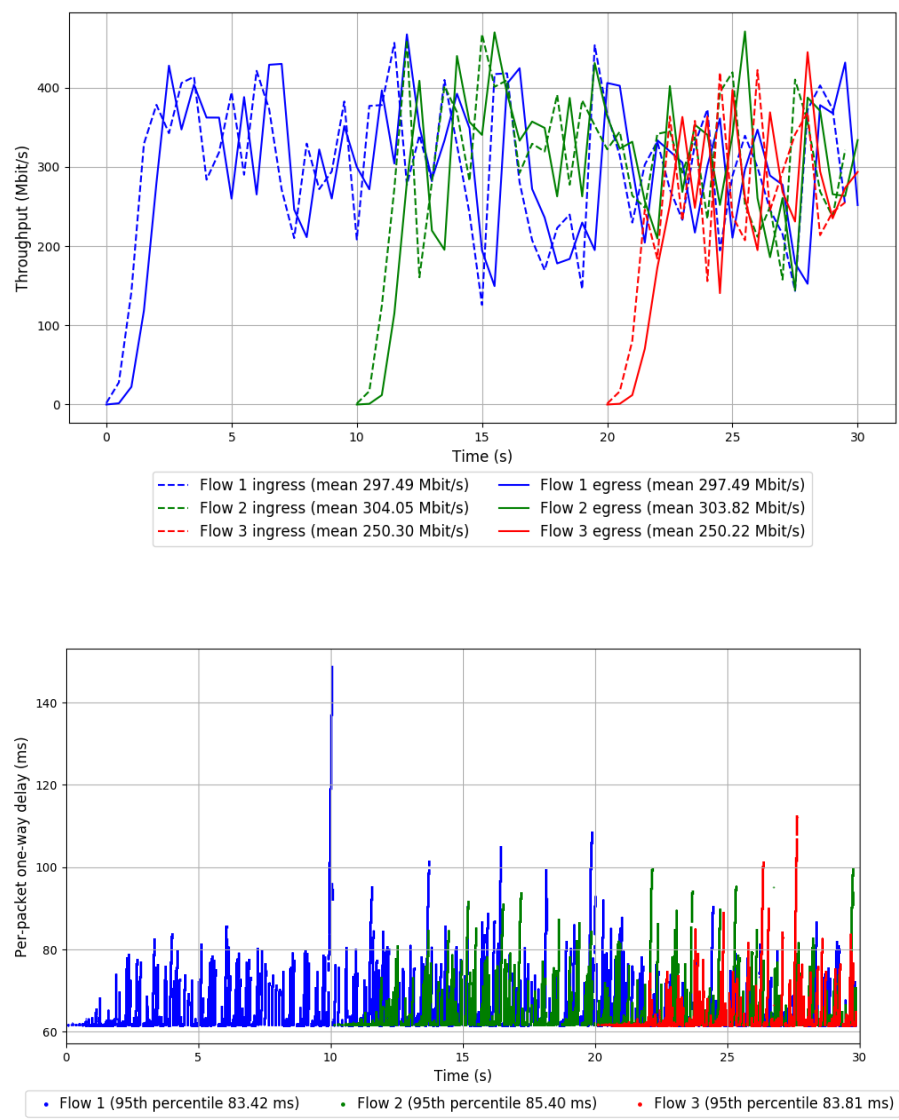
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-09-25 19:05:48
End at: 2018-09-25 19:06:18
Local clock offset: -0.025 ms
Remote clock offset: 1.656 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 580.91 Mbit/s
95th percentile per-packet one-way delay: 86.689 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 310.09 Mbit/s
95th percentile per-packet one-way delay: 84.809 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 280.41 Mbit/s
95th percentile per-packet one-way delay: 89.050 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 258.90 Mbit/s
95th percentile per-packet one-way delay: 90.492 ms
Loss rate: 0.12%
```
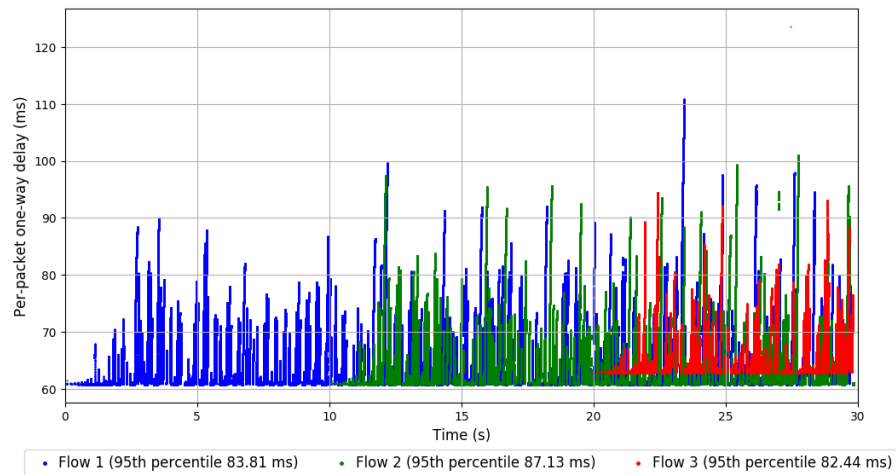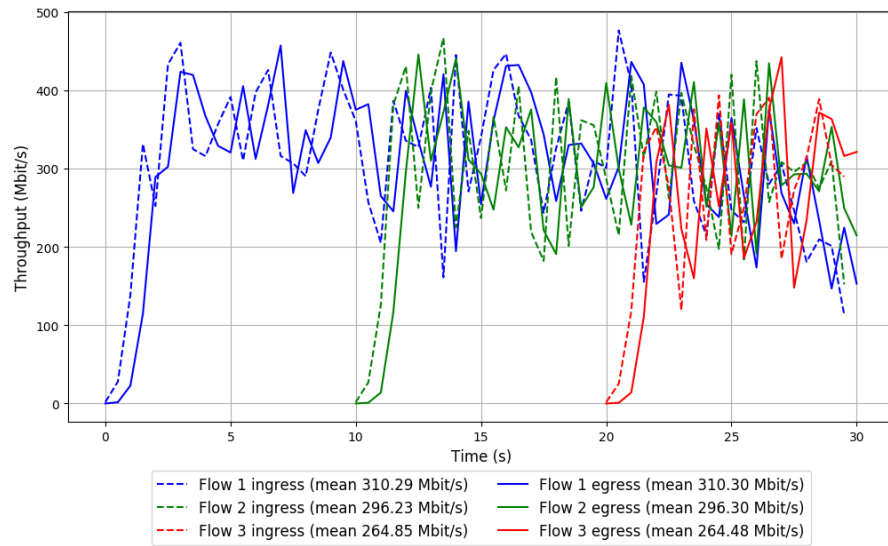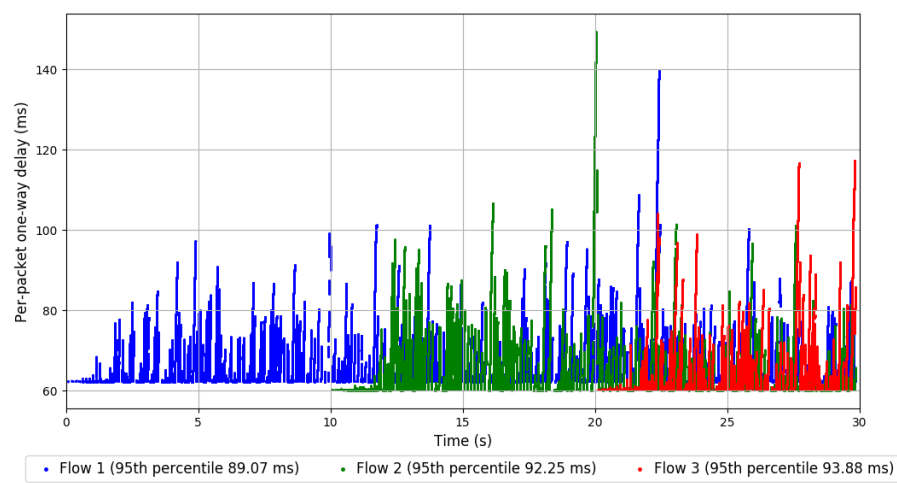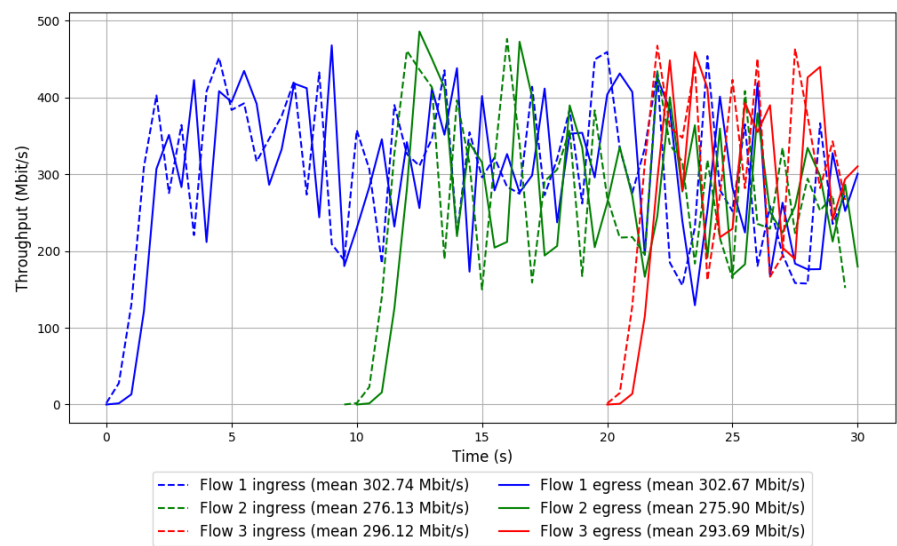
Run 1: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 310.09 Mbit/s)   Flow 1 egress (mean 310.09 Mbit/s)
Flow 2 ingress (mean 280.73 Mbit/s)   Flow 2 egress (mean 280.41 Mbit/s)
Flow 3 ingress (mean 259.26 Mbit/s)   Flow 3 egress (mean 258.90 Mbit/s)

Flow 1 (95th percentile 84.81 ms)   Flow 2 (95th percentile 89.05 ms)   Flow 3 (95th percentile 90.49 ms)

```
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-09-25 19:39:42
End at: 2018-09-25 19:40:12
Local clock offset: 0.03 ms
Remote clock offset: -0.635 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 569.71 Mbit/s
95th percentile per-packet one-way delay: 88.238 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 288.80 Mbit/s
95th percentile per-packet one-way delay: 85.447 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 295.57 Mbit/s
95th percentile per-packet one-way delay: 90.453 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 261.03 Mbit/s
95th percentile per-packet one-way delay: 92.738 ms
Loss rate: 0.00%
```

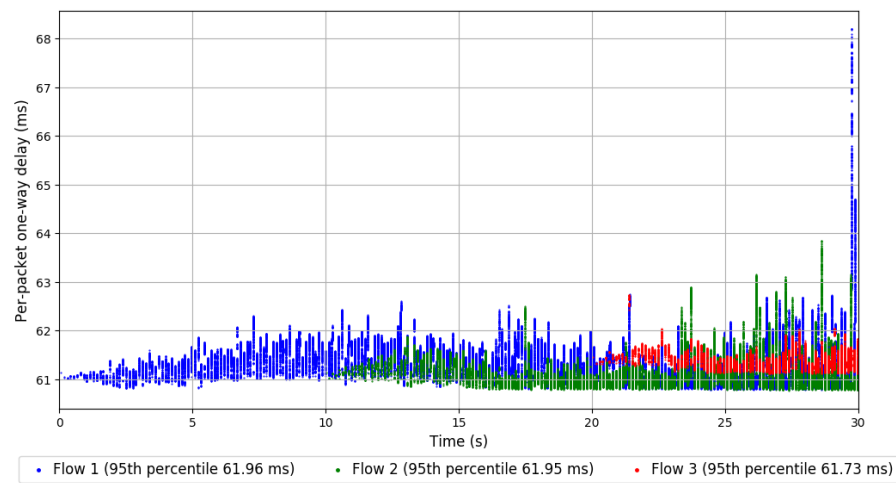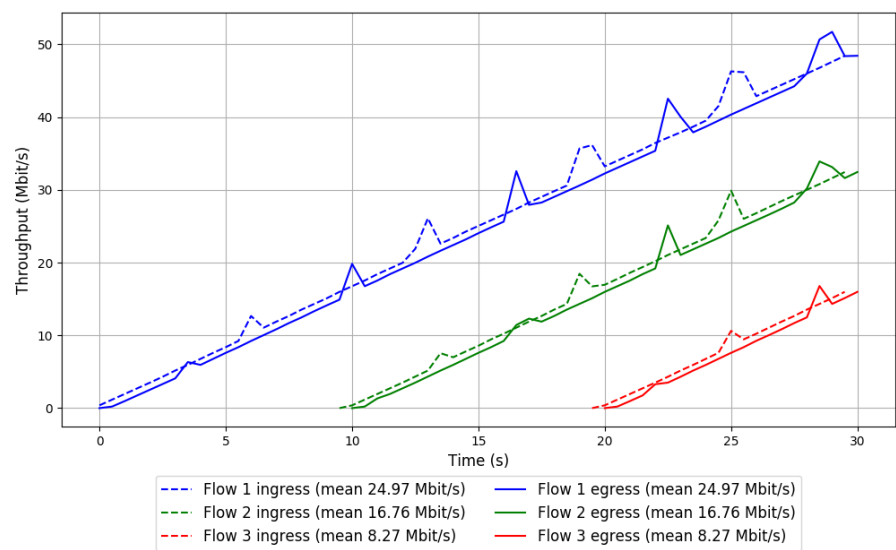Run 2: Report of Indigo-96d2da3 — Data Link

```
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-09-25 20:13:50
End at: 2018-09-25 20:14:20
Local clock offset: -0.113 ms
Remote clock offset: 0.463 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 580.62 Mbit/s
95th percentile per-packet one-way delay: 84.183 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 297.49 Mbit/s
95th percentile per-packet one-way delay: 83.420 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 303.82 Mbit/s
95th percentile per-packet one-way delay: 85.404 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 250.22 Mbit/s
95th percentile per-packet one-way delay: 83.814 ms
Loss rate: 0.01%
```

Run 3: Report of Indigo-96d2da3 — Data Link
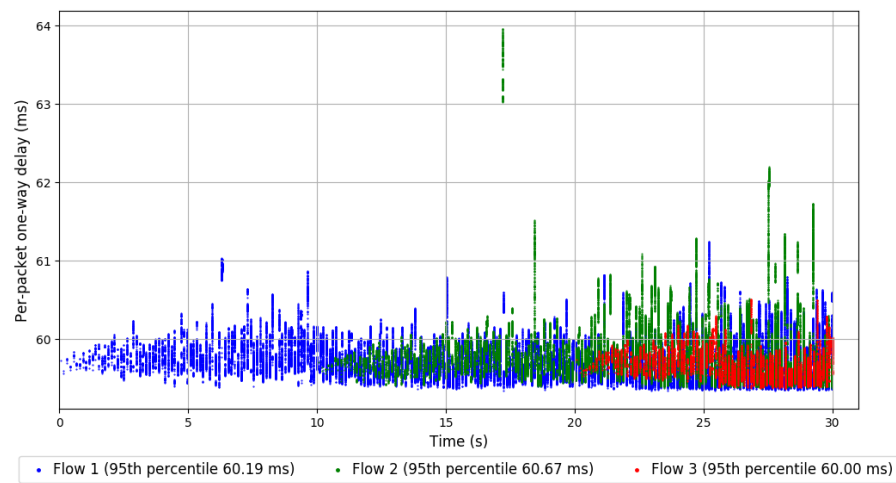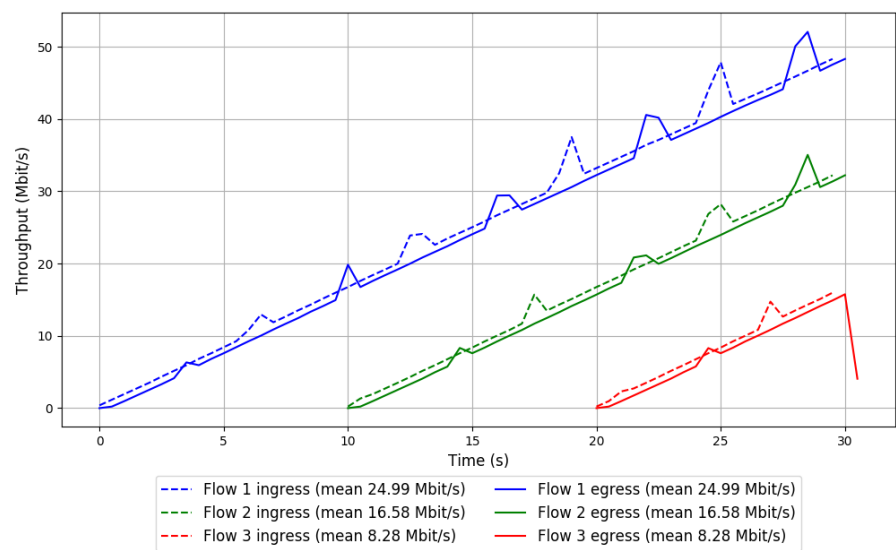
```
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-09-25 20:47:36
End at: 2018-09-25 20:48:06
Local clock offset: -0.056 ms
Remote clock offset: -0.48 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 593.25 Mbit/s
95th percentile per-packet one-way delay: 84.872 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 310.30 Mbit/s
95th percentile per-packet one-way delay: 83.813 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 296.30 Mbit/s
95th percentile per-packet one-way delay: 87.130 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 264.48 Mbit/s
95th percentile per-packet one-way delay: 82.436 ms
Loss rate: 0.00%
```

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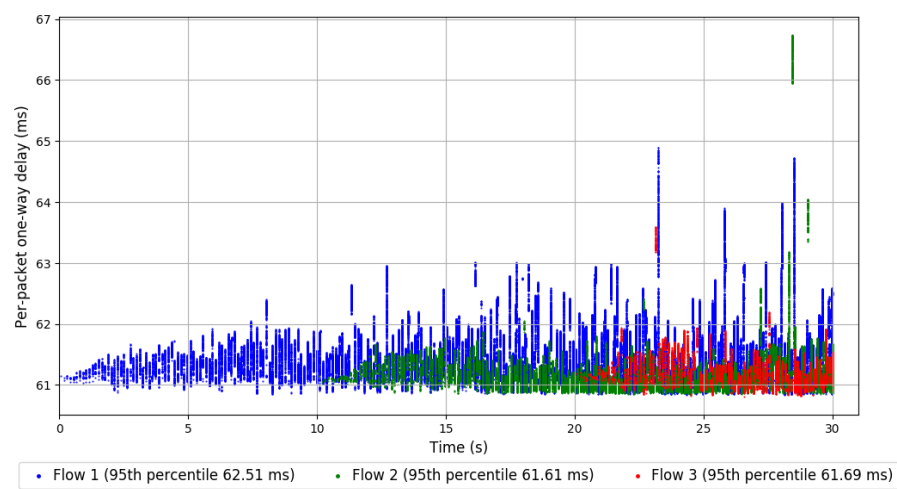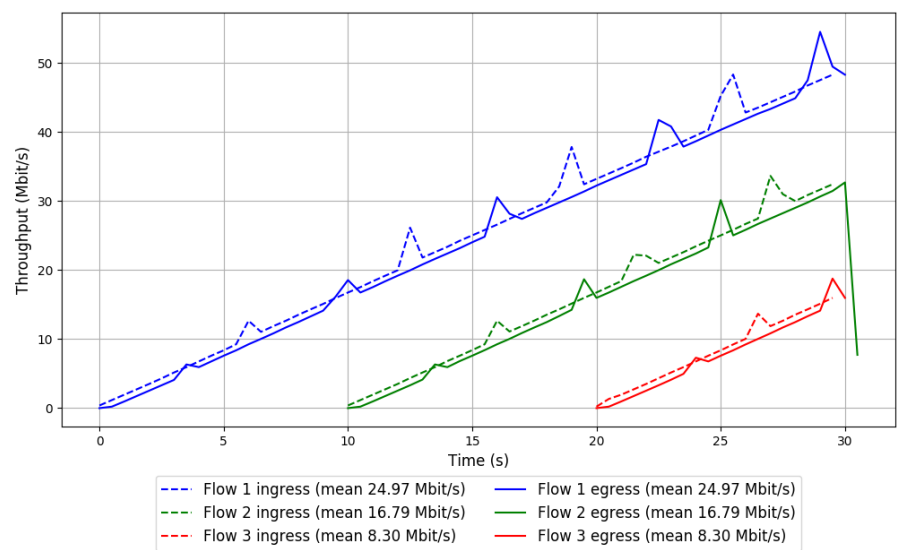

Flow 1 ingress (mean 310.29 Mbit/s) ----- Flow 1 egress (mean 310.30 Mbit/s)
Flow 2 ingress (mean 296.23 Mbit/s) ----- Flow 2 egress (mean 296.30 Mbit/s)
Flow 3 ingress (mean 264.85 Mbit/s) ----- Flow 3 egress (mean 264.48 Mbit/s)

Flow 1 (95th percentile 83.81 ms)   Flow 2 (95th percentile 87.13 ms)   Flow 3 (95th percentile 82.44 ms)

```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-09-25 21:21:36
End at: 2018-09-25 21:22:06
Local clock offset: -0.083 ms
Remote clock offset: -1.346 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.92 Mbit/s
95th percentile per-packet one-way delay: 90.840 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 302.67 Mbit/s
95th percentile per-packet one-way delay: 89.071 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 275.90 Mbit/s
95th percentile per-packet one-way delay: 92.251 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 293.69 Mbit/s
95th percentile per-packet one-way delay: 93.881 ms
Loss rate: 0.81%
```
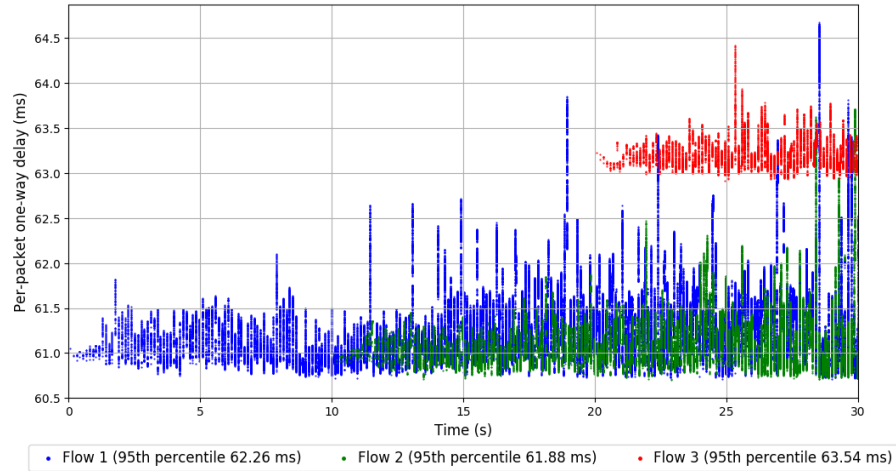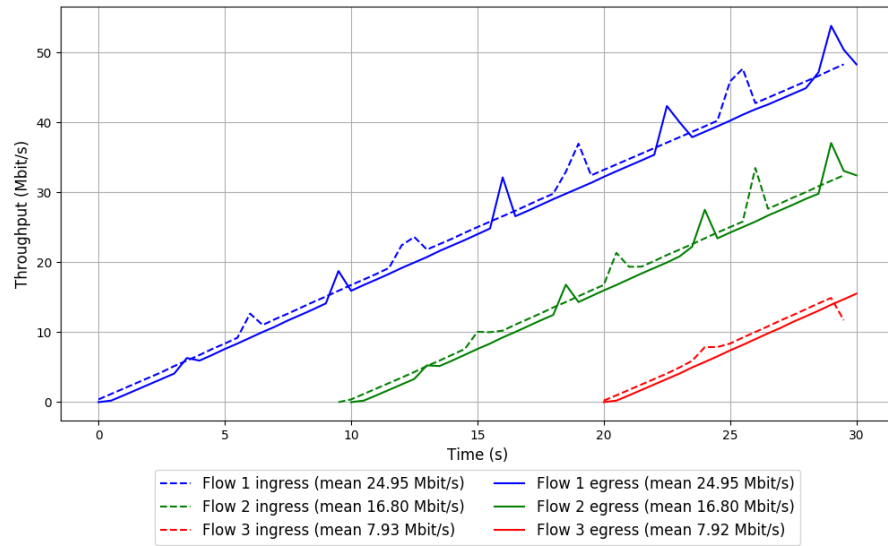
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-25 18:53:07
End at: 2018-09-25 18:53:37
Local clock offset: -0.105 ms
Remote clock offset: 0.474 ms

# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.90 Mbit/s
95th percentile per-packet one-way delay: 61.931 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.97 Mbit/s
95th percentile per-packet one-way delay: 61.961 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.76 Mbit/s
95th percentile per-packet one-way delay: 61.948 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.27 Mbit/s
95th percentile per-packet one-way delay: 61.731 ms
Loss rate: 0.00%
```
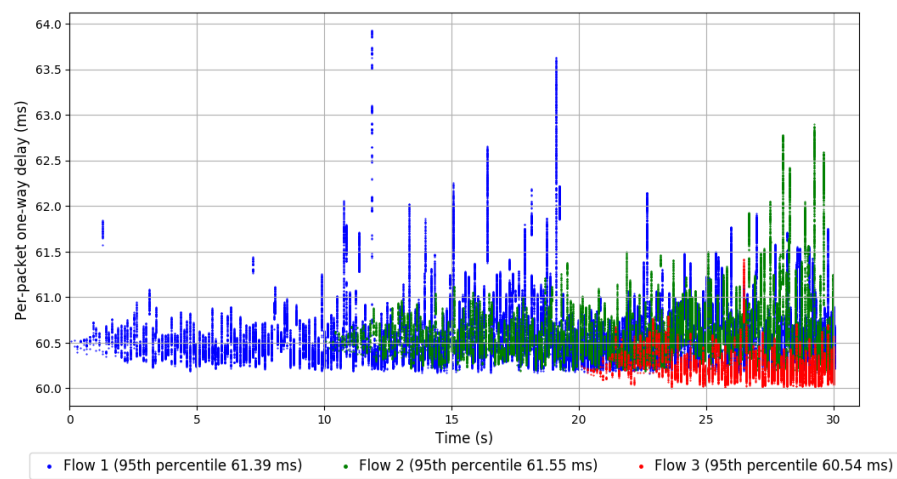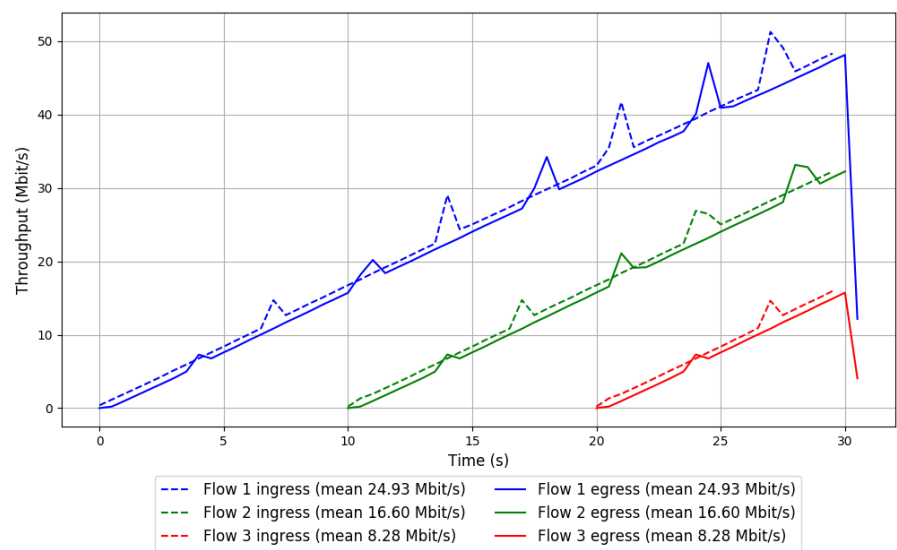
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-25 19:26:51
End at: 2018-09-25 19:27:21
Local clock offset: 0.0 ms
Remote clock offset: -0.828 ms

# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.72 Mbit/s
95th percentile per-packet one-way delay: 60.330 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.99 Mbit/s
95th percentile per-packet one-way delay: 60.189 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.58 Mbit/s
95th percentile per-packet one-way delay: 60.675 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 60.000 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-09-25 20:00:59
End at: 2018-09-25 20:01:29
Local clock offset: 0.043 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.86 Mbit/s
95th percentile per-packet one-way delay: 62.344 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.97 Mbit/s
95th percentile per-packet one-way delay: 62.510 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.79 Mbit/s
95th percentile per-packet one-way delay: 61.610 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.30 Mbit/s
95th percentile per-packet one-way delay: 61.694 ms
Loss rate: 0.00%
```
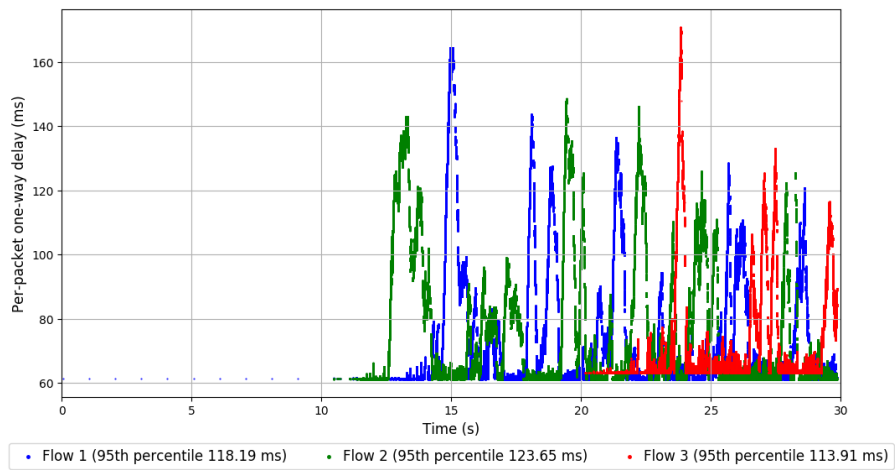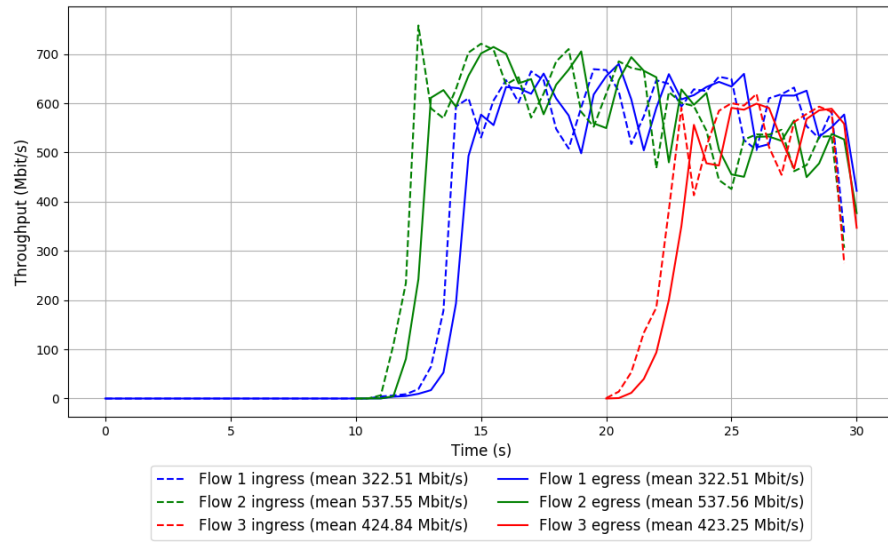
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-25 20:34:49
End at: 2018-09-25 20:35:19
Local clock offset: -0.143 ms
Remote clock offset: -0.445 ms


# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.74 Mbit/s
95th percentile per-packet one-way delay: 63.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.95 Mbit/s
95th percentile per-packet one-way delay: 62.264 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.80 Mbit/s
95th percentile per-packet one-way delay: 61.885 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 63.541 ms
Loss rate: 0.00%
```
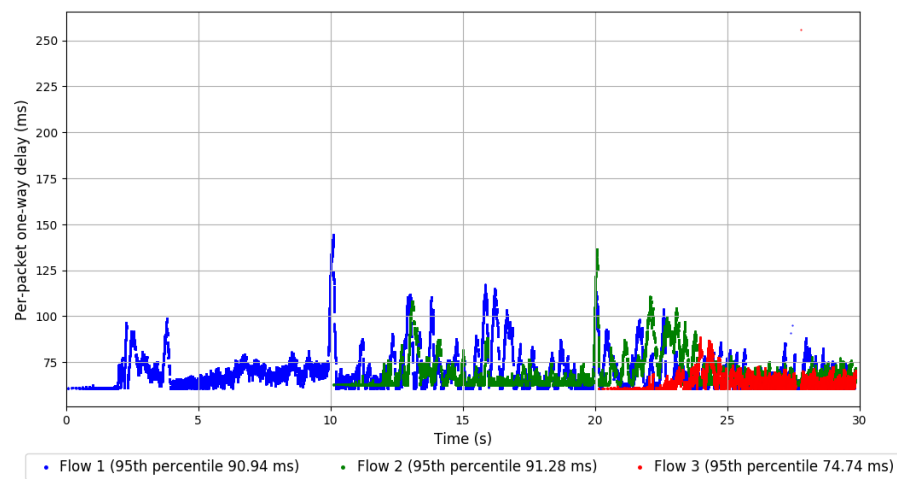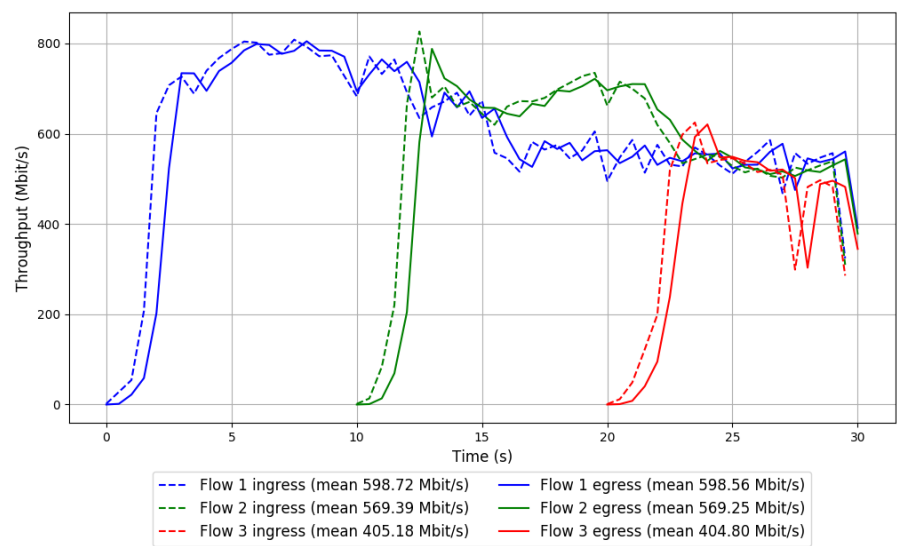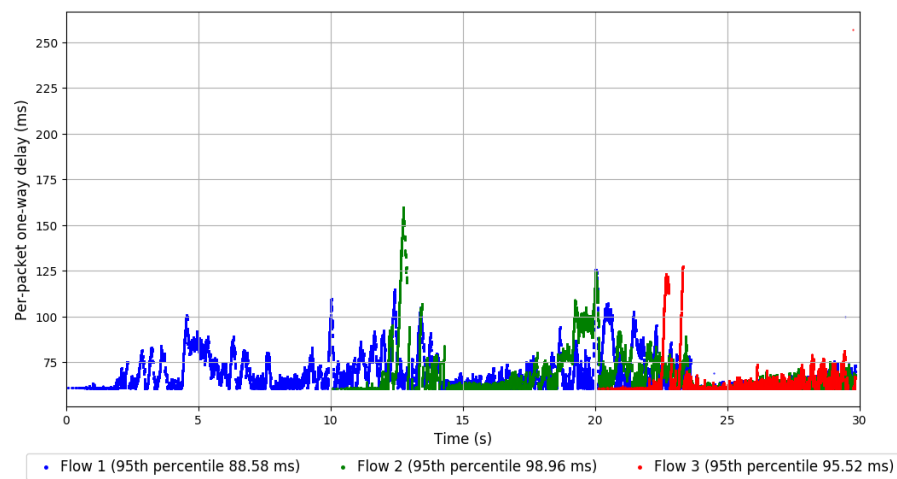
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-25 21:08:35
End at: 2018-09-25 21:09:05
Local clock offset: 0.024 ms
Remote clock offset: -1.393 ms

# Below is generated by plot.py at 2018-09-25 23:19:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.70 Mbit/s
95th percentile per-packet one-way delay: 61.386 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 24.93 Mbit/s
95th percentile per-packet one-way delay: 61.386 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.60 Mbit/s
95th percentile per-packet one-way delay: 61.547 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 60.537 ms
Loss rate: 0.00%
```
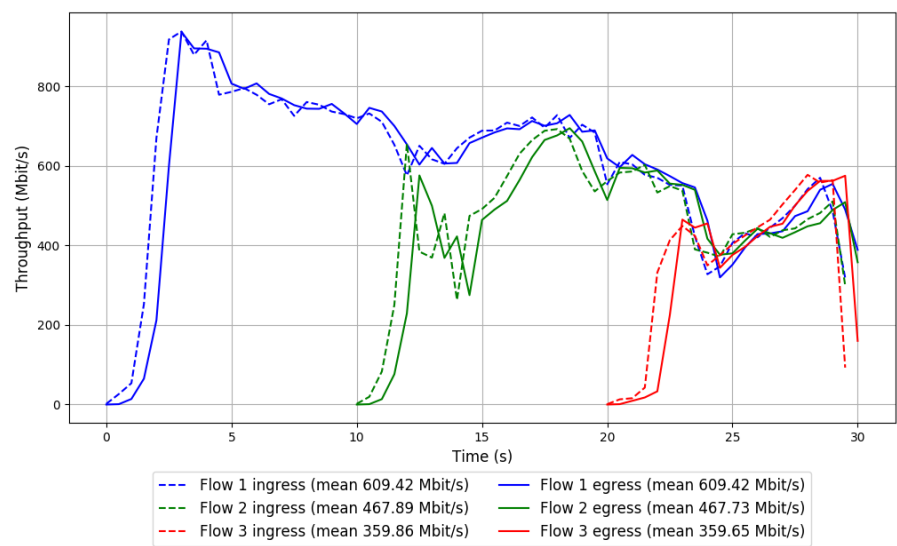
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-25 19:00:45
End at: 2018-09-25 19:01:15
Local clock offset: -0.086 ms
Remote clock offset: 0.733 ms


# Below is generated by plot.py at 2018-09-25 23:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 810.07 Mbit/s
95th percentile per-packet one-way delay: 120.497 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 322.51 Mbit/s
95th percentile per-packet one-way delay: 118.186 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 537.56 Mbit/s
95th percentile per-packet one-way delay: 123.647 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 423.25 Mbit/s
95th percentile per-packet one-way delay: 113.912 ms
Loss rate: 0.37%
```
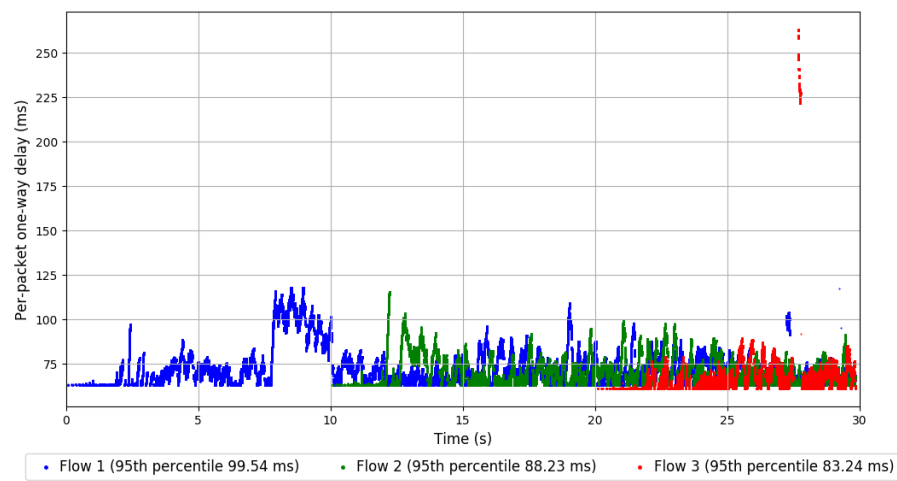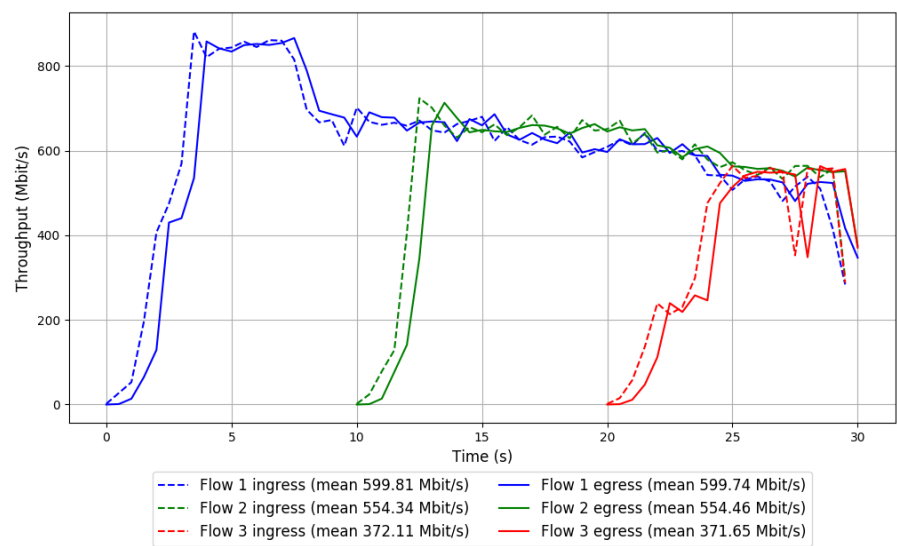
Run 1: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 322.51 Mbit/s) Flow 1 egress (mean 322.51 Mbit/s)
Flow 2 ingress (mean 537.55 Mbit/s) Flow 2 egress (mean 537.56 Mbit/s)
Flow 3 ingress (mean 424.84 Mbit/s) Flow 3 egress (mean 423.25 Mbit/s)

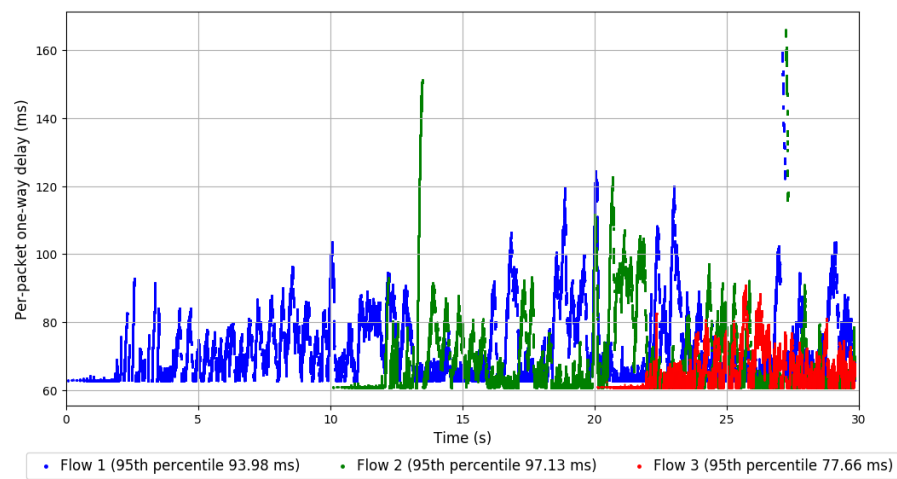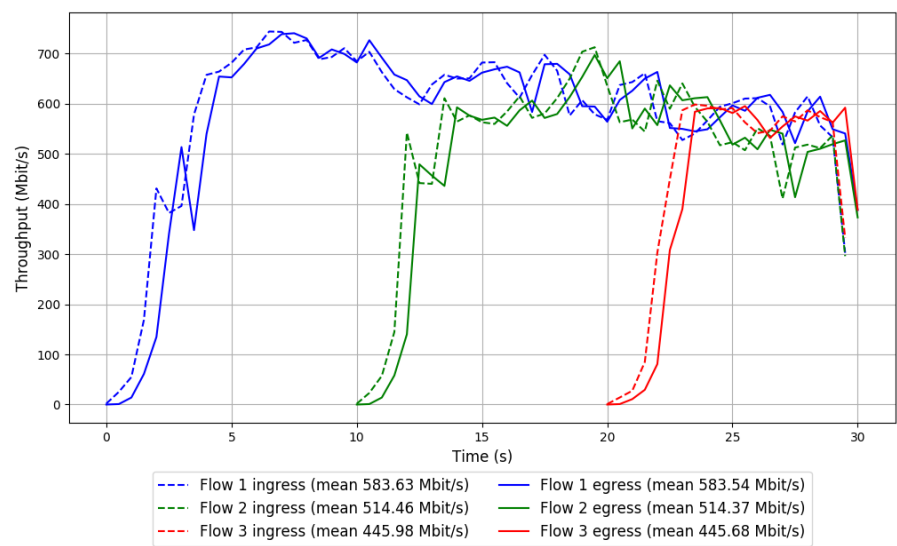Flow 1 (95th percentile 118.19 ms)   Flow 2 (95th percentile 123.65 ms)   Flow 3 (95th percentile 113.91 ms)

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-25 19:34:16
End at: 2018-09-25 19:34:46
Local clock offset: 0.007 ms
Remote clock offset: 0.214 ms


# Below is generated by plot.py at 2018-09-25 23:27:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1107.86 Mbit/s
95th percentile per-packet one-way delay: 89.774 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 598.56 Mbit/s
95th percentile per-packet one-way delay: 90.935 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 569.25 Mbit/s
95th percentile per-packet one-way delay: 91.284 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 404.80 Mbit/s
95th percentile per-packet one-way delay: 74.739 ms
Loss rate: 0.03%
```

Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-25 20:08:25
End at: 2018-09-25 20:08:55
Local clock offset: -0.019 ms
Remote clock offset: -0.312 ms


# Below is generated by plot.py at 2018-09-25 23:27:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1037.36 Mbit/s
95th percentile per-packet one-way delay: 92.702 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 609.42 Mbit/s
95th percentile per-packet one-way delay: 88.578 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 467.73 Mbit/s
95th percentile per-packet one-way delay: 98.964 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 359.65 Mbit/s
95th percentile per-packet one-way delay: 95.515 ms
Loss rate: 0.00%
```
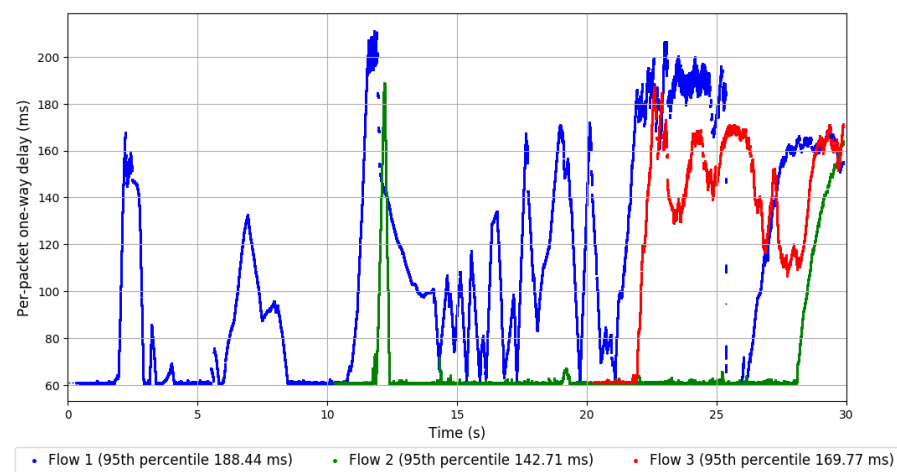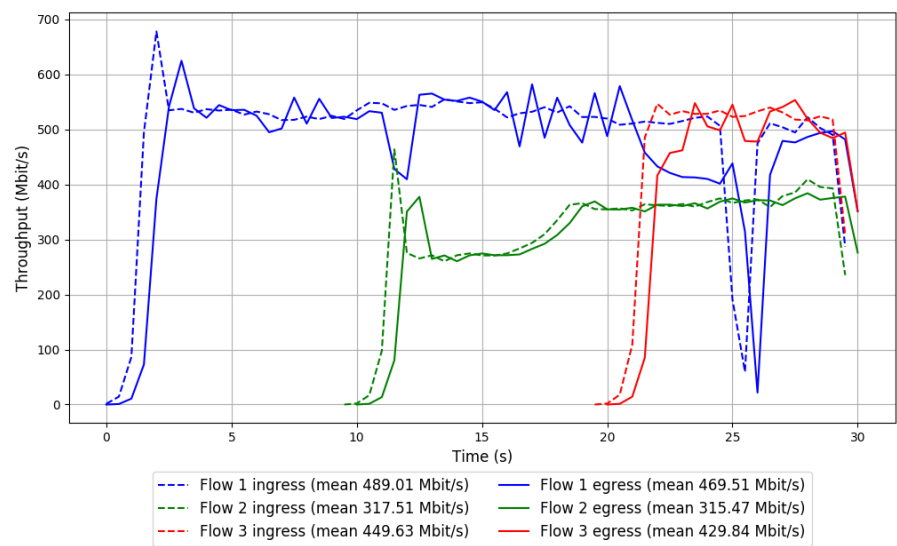
Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 609.42 Mbit/s) —— Flow 1 egress (mean 609.42 Mbit/s)
Flow 2 ingress (mean 467.89 Mbit/s) —— Flow 2 egress (mean 467.73 Mbit/s)
Flow 3 ingress (mean 359.86 Mbit/s) —— Flow 3 egress (mean 359.65 Mbit/s)

• Flow 1 (95th percentile 88.58 ms)   • Flow 2 (95th percentile 98.96 ms)   • Flow 3 (95th percentile 95.52 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-25 20:42:16
End at: 2018-09-25 20:42:46
Local clock offset: -0.09 ms
Remote clock offset: 0.021 ms

# Below is generated by plot.py at 2018-09-25 23:31:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1089.47 Mbit/s
95th percentile per-packet one-way delay: 93.467 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 599.74 Mbit/s
95th percentile per-packet one-way delay: 99.542 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 554.46 Mbit/s
95th percentile per-packet one-way delay: 88.232 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 371.65 Mbit/s
95th percentile per-packet one-way delay: 83.241 ms
Loss rate: 0.12%
```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-25 21:16:08
End at: 2018-09-25 21:16:38
Local clock offset: -0.013 ms
Remote clock offset: -0.652 ms


# Below is generated by plot.py at 2018-09-25 23:31:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1070.36 Mbit/s
95th percentile per-packet one-way delay: 93.470 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 583.54 Mbit/s
95th percentile per-packet one-way delay: 93.980 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 514.37 Mbit/s
95th percentile per-packet one-way delay: 97.130 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 445.68 Mbit/s
95th percentile per-packet one-way delay: 77.659 ms
Loss rate: 0.00%
```
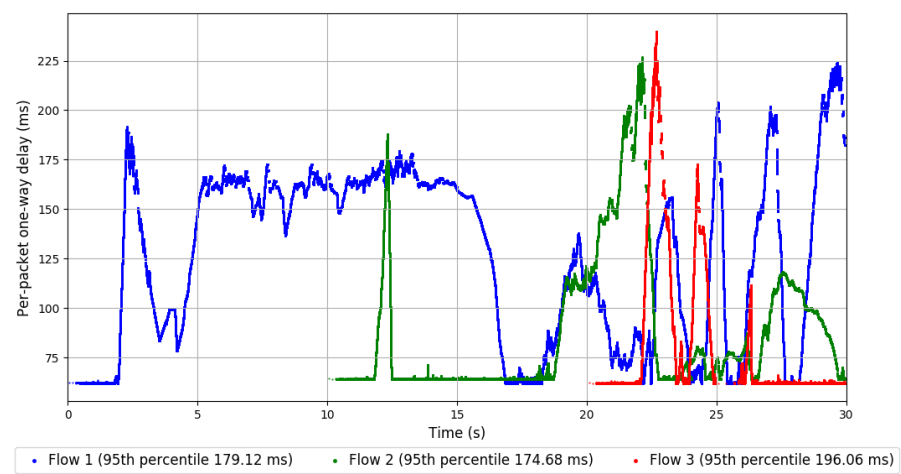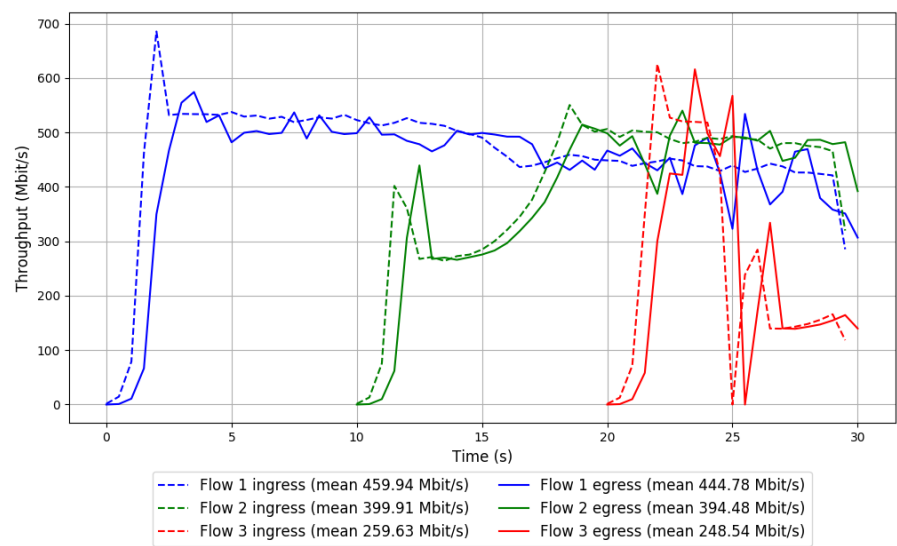
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-25 19:07:29
End at: 2018-09-25 19:07:59
Local clock offset: -0.04 ms
Remote clock offset: 0.422 ms

# Below is generated by plot.py at 2018-09-25 23:41:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 821.58 Mbit/s
95th percentile per-packet one-way delay: 181.731 ms
Loss rate: 3.21%
-- Flow 1:
Average throughput: 469.51 Mbit/s
95th percentile per-packet one-way delay: 188.442 ms
Loss rate: 3.98%
-- Flow 2:
Average throughput: 315.47 Mbit/s
95th percentile per-packet one-way delay: 142.705 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 429.84 Mbit/s
95th percentile per-packet one-way delay: 169.772 ms
Loss rate: 4.37%
```

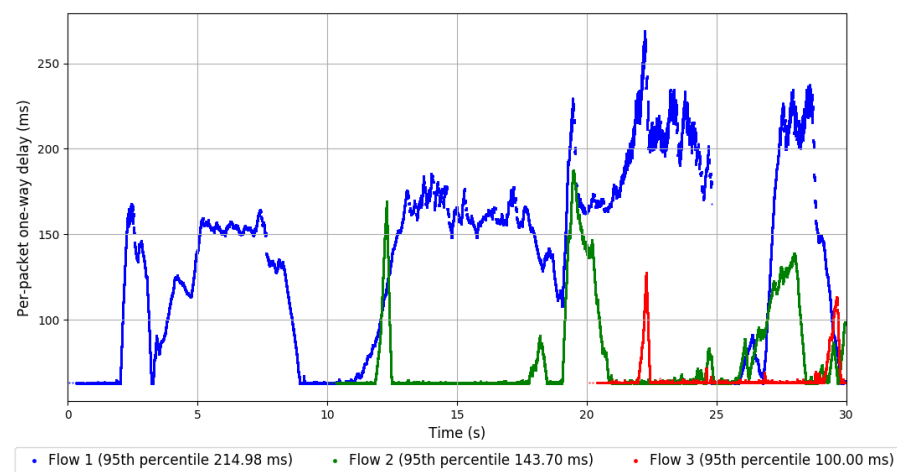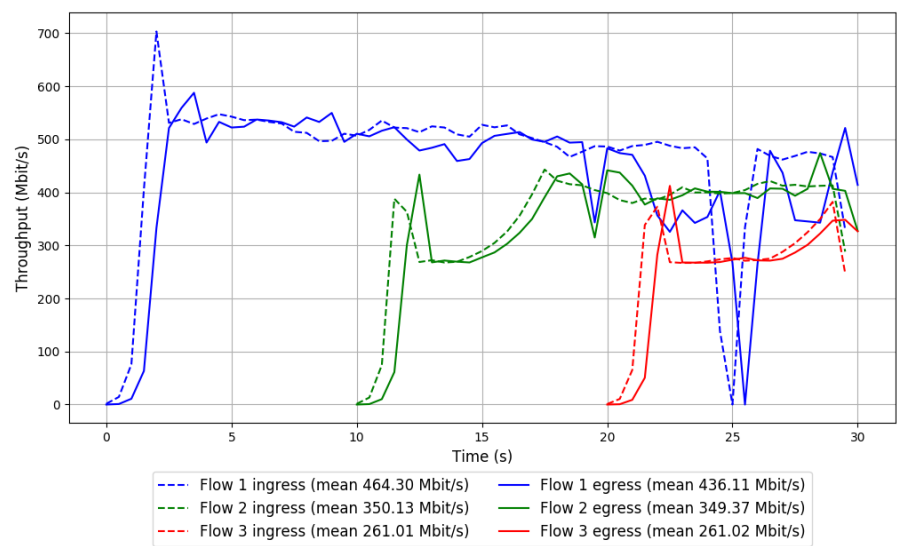Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 489.01 Mbit/s) --- Flow 1 egress (mean 469.51 Mbit/s)
Flow 2 ingress (mean 317.51 Mbit/s) --- Flow 2 egress (mean 315.47 Mbit/s)
Flow 3 ingress (mean 449.63 Mbit/s) --- Flow 3 egress (mean 429.84 Mbit/s)

Flow 1 (95th percentile 188.44 ms)   Flow 2 (95th percentile 142.71 ms)   Flow 3 (95th percentile 169.77 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-25 19:41:22
End at: 2018-09-25 19:41:52
Local clock offset: -0.037 ms
Remote clock offset: -0.162 ms


# Below is generated by plot.py at 2018-09-25 23:43:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 897.26 Mbit/s
95th percentile per-packet one-way delay: 171.597 ms
Loss rate: 4.22%
-- Flow 1:
Average throughput: 474.37 Mbit/s
95th percentile per-packet one-way delay: 170.708 ms
Loss rate: 4.94%
-- Flow 2:
Average throughput: 481.95 Mbit/s
95th percentile per-packet one-way delay: 170.119 ms
Loss rate: 3.79%
-- Flow 3:
Average throughput: 309.04 Mbit/s
95th percentile per-packet one-way delay: 180.625 ms
Loss rate: 2.11%
```
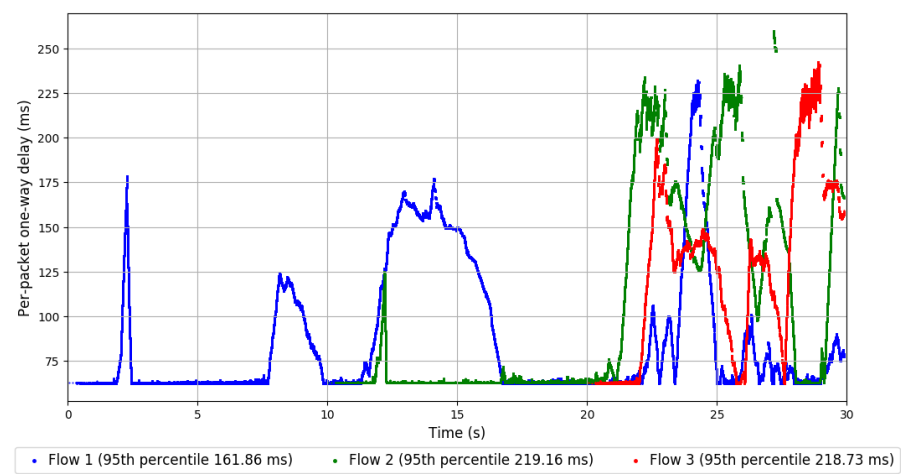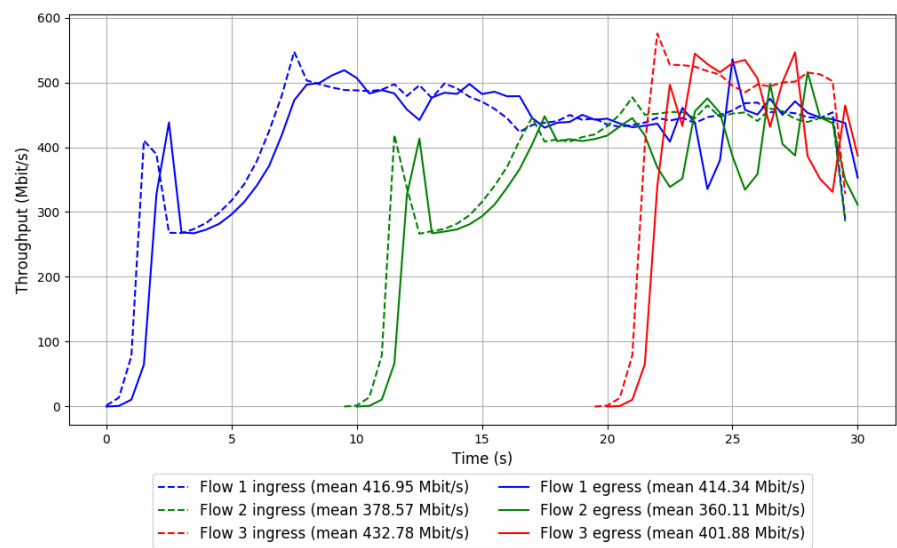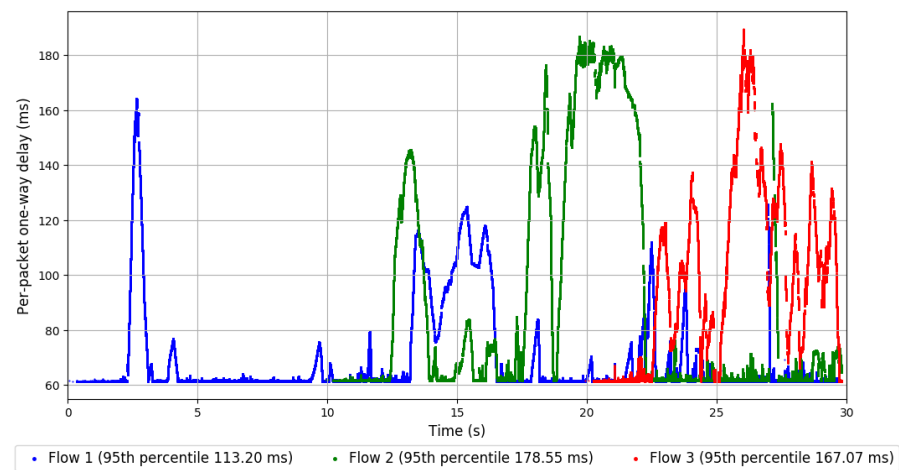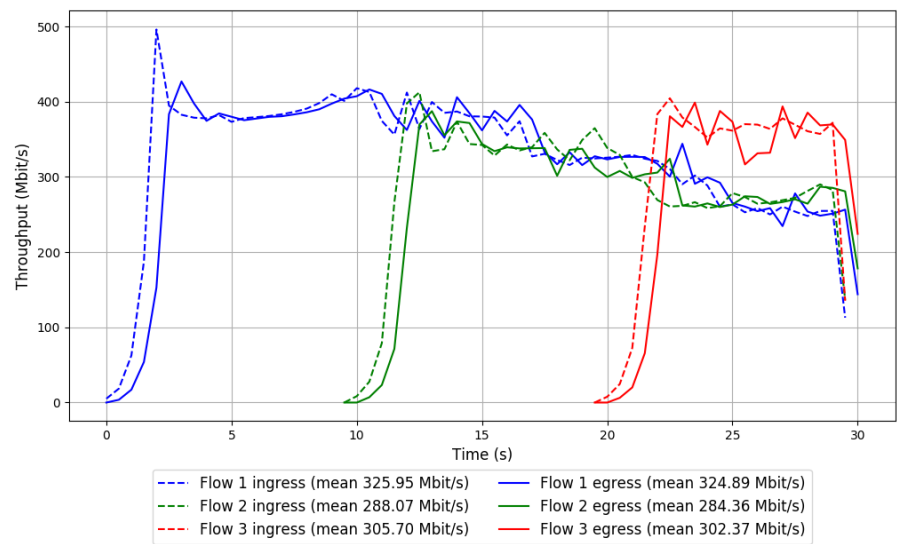
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 499.07 Mbit/s)   Flow 1 egress (mean 474.37 Mbit/s)
Flow 2 ingress (mean 501.04 Mbit/s)   Flow 2 egress (mean 481.95 Mbit/s)
Flow 3 ingress (mean 315.77 Mbit/s)   Flow 3 egress (mean 309.04 Mbit/s)

Flow 1 (95th percentile 170.71 ms)   Flow 2 (95th percentile 170.12 ms)   Flow 3 (95th percentile 180.62 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-25 20:15:31
End at: 2018-09-25 20:16:01
Local clock offset: -0.096 ms
Remote clock offset: 0.872 ms

# Below is generated by plot.py at 2018-09-25 23:45:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 788.83 Mbit/s
95th percentile per-packet one-way delay: 179.241 ms
Loss rate: 2.80%
-- Flow 1:
Average throughput: 444.78 Mbit/s
95th percentile per-packet one-way delay: 179.124 ms
Loss rate: 3.36%
-- Flow 2:
Average throughput: 394.48 Mbit/s
95th percentile per-packet one-way delay: 174.682 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 248.54 Mbit/s
95th percentile per-packet one-way delay: 196.055 ms
Loss rate: 4.27%
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 459.94 Mbit/s) — Flow 1 egress (mean 444.78 Mbit/s)
Flow 2 ingress (mean 399.91 Mbit/s) — Flow 2 egress (mean 394.48 Mbit/s)
Flow 3 ingress (mean 259.63 Mbit/s) — Flow 3 egress (mean 248.54 Mbit/s)

Flow 1 (95th percentile 179.12 ms) — Flow 2 (95th percentile 174.68 ms) — Flow 3 (95th percentile 196.06 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-25 20:49:17
End at: 2018-09-25 20:49:47
Local clock offset: -0.024 ms
Remote clock offset: -0.532 ms


# Below is generated by plot.py at 2018-09-25 23:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 754.17 Mbit/s
95th percentile per-packet one-way delay: 204.934 ms
Loss rate: 3.66%
-- Flow 1:
Average throughput: 436.11 Mbit/s
95th percentile per-packet one-way delay: 214.979 ms
Loss rate: 6.07%
-- Flow 2:
Average throughput: 349.37 Mbit/s
95th percentile per-packet one-way delay: 143.698 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 261.02 Mbit/s
95th percentile per-packet one-way delay: 99.996 ms
Loss rate: 0.00%
```
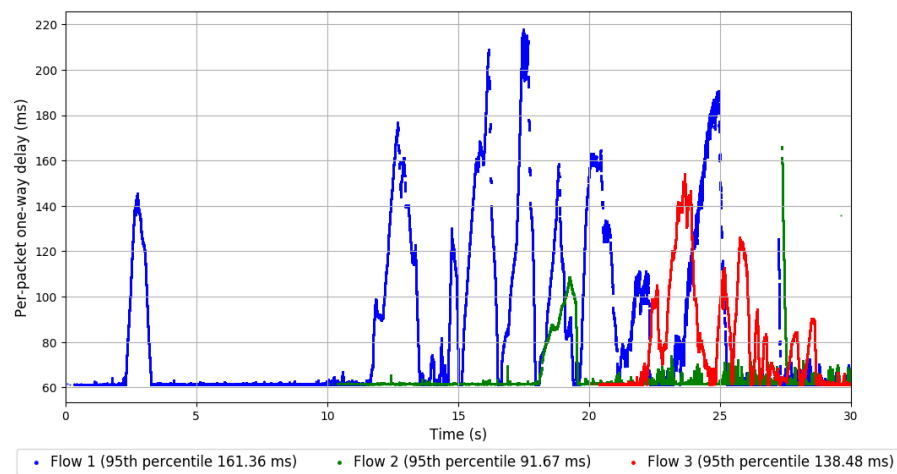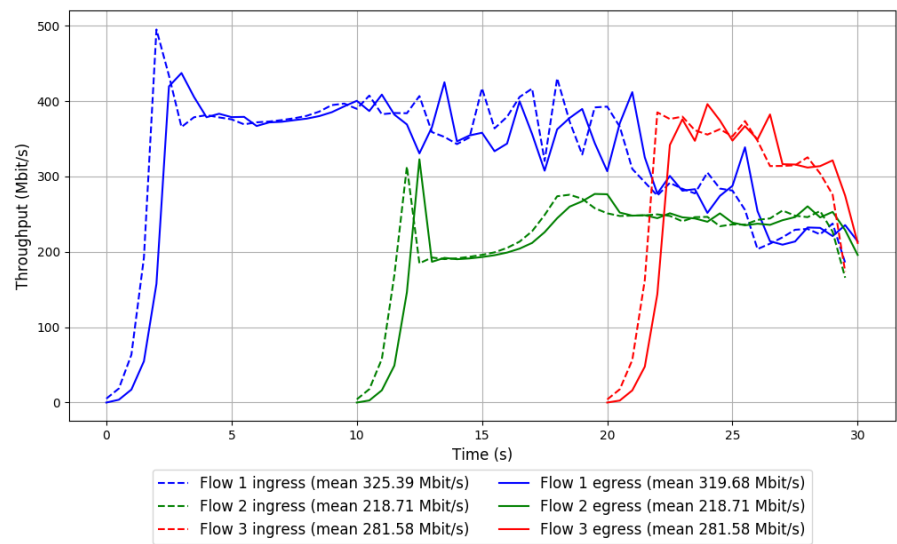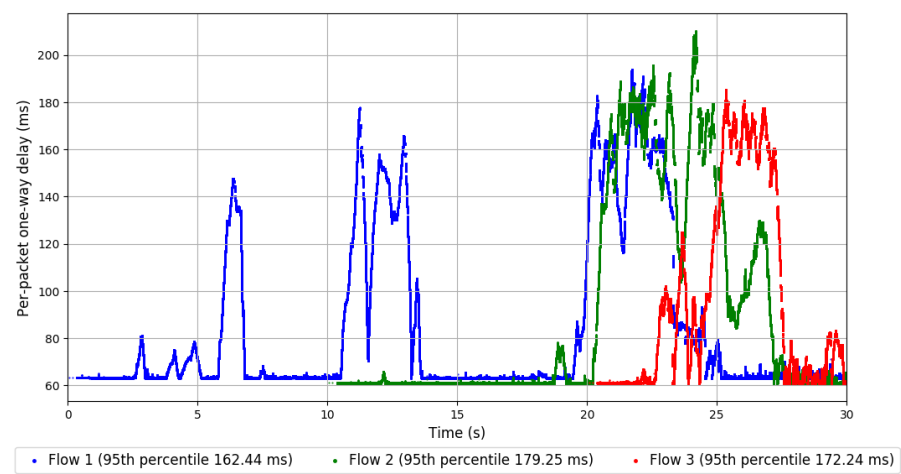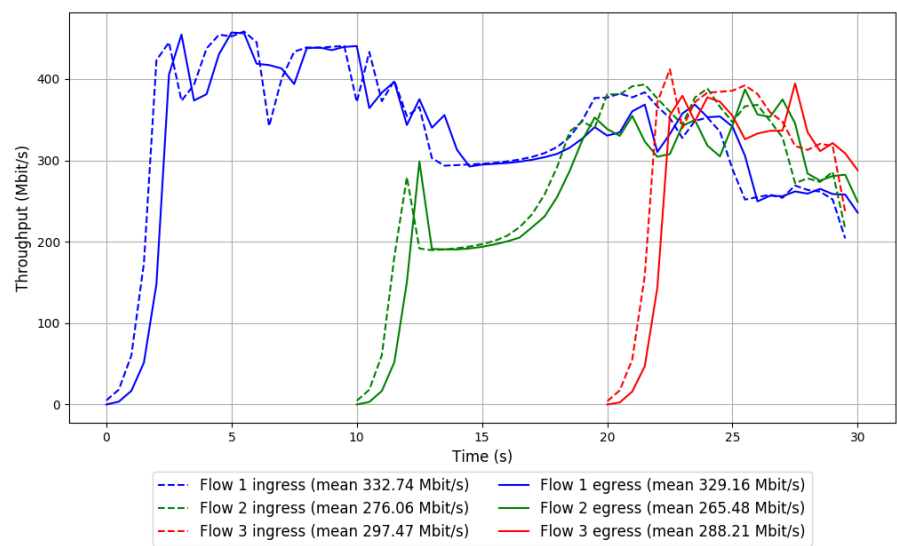
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 464.30 Mbit/s) --- Flow 1 egress (mean 436.11 Mbit/s)
Flow 2 ingress (mean 350.13 Mbit/s) --- Flow 2 egress (mean 349.37 Mbit/s)
Flow 3 ingress (mean 261.01 Mbit/s) --- Flow 3 egress (mean 261.02 Mbit/s)

Flow 1 (95th percentile 214.98 ms)   Flow 2 (95th percentile 143.70 ms)   Flow 3 (95th percentile 100.00 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-25 21:23:17
End at: 2018-09-25 21:23:47
Local clock offset: -0.069 ms
Remote clock offset: -0.86 ms

# Below is generated by plot.py at 2018-09-25 23:53:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 786.47 Mbit/s
95th percentile per-packet one-way delay: 201.977 ms
Loss rate: 3.08%
-- Flow 1:
Average throughput: 414.34 Mbit/s
95th percentile per-packet one-way delay: 161.858 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 360.11 Mbit/s
95th percentile per-packet one-way delay: 219.159 ms
Loss rate: 4.87%
-- Flow 3:
Average throughput: 401.88 Mbit/s
95th percentile per-packet one-way delay: 218.728 ms
Loss rate: 7.12%
```
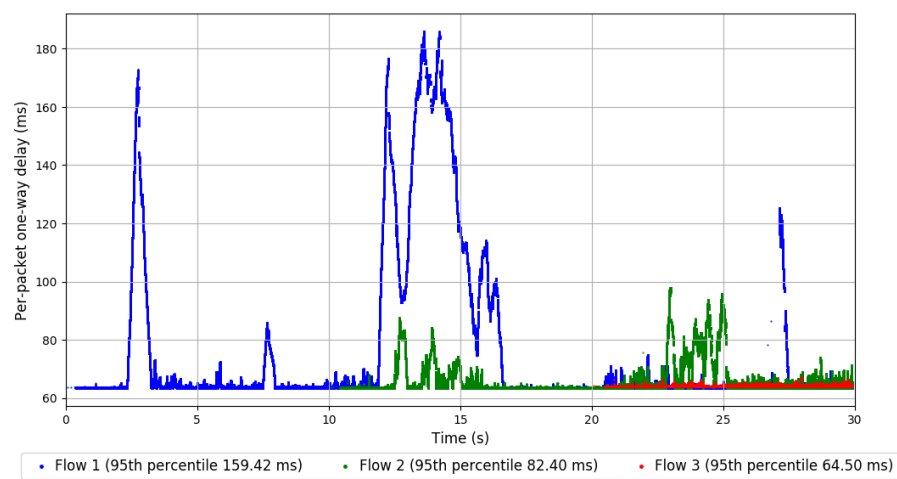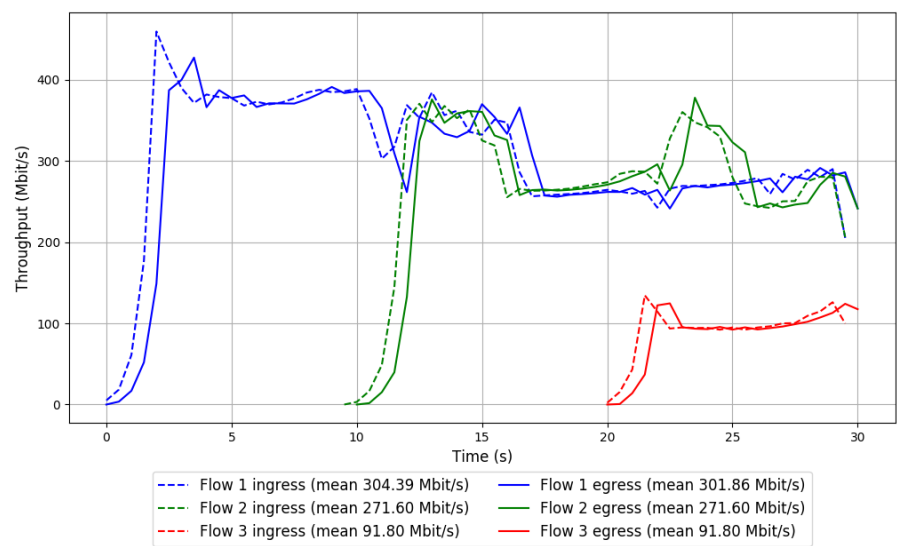
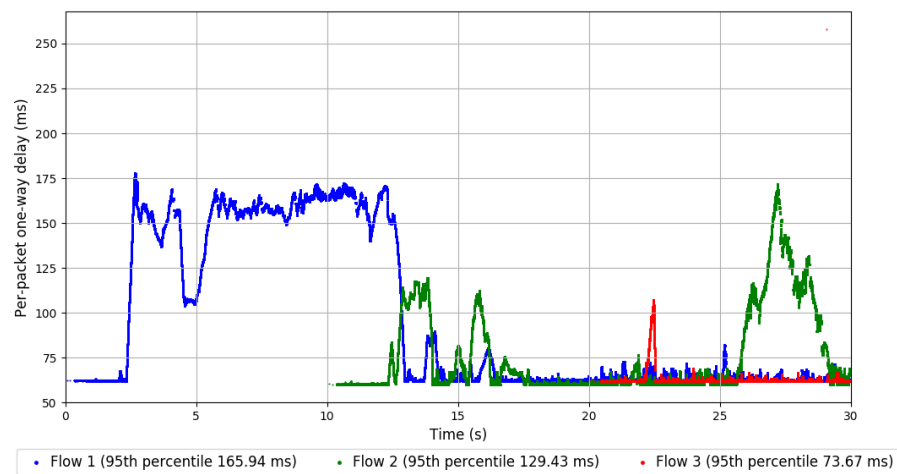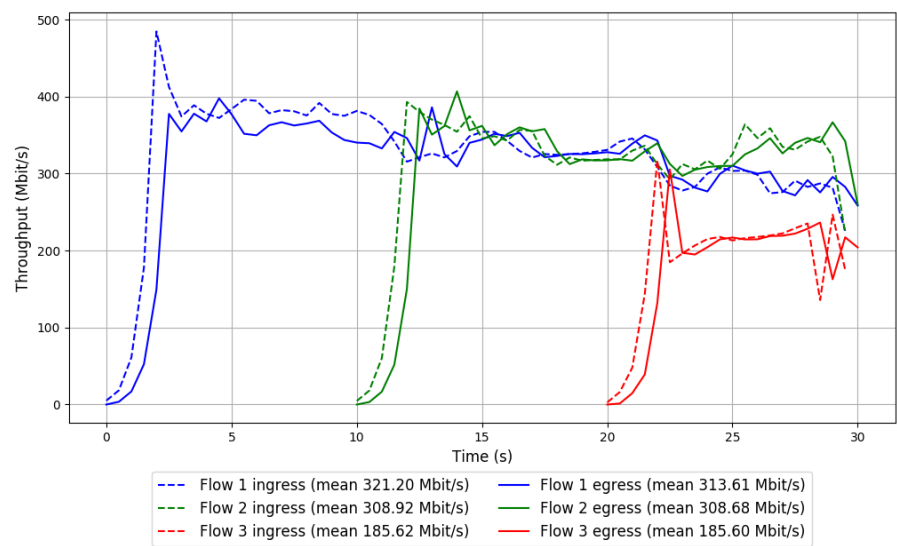# Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-25 18:58:38
End at: 2018-09-25 18:59:08
Local clock offset: -0.076 ms
Remote clock offset: 0.984 ms


# Below is generated by plot.py at 2018-09-25 23:53:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 615.22 Mbit/s
95th percentile per-packet one-way delay: 161.922 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 324.89 Mbit/s
95th percentile per-packet one-way delay: 113.200 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 284.36 Mbit/s
95th percentile per-packet one-way delay: 178.550 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 302.37 Mbit/s
95th percentile per-packet one-way delay: 167.068 ms
Loss rate: 1.09%
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 325.95 Mbit/s) --- Flow 1 egress (mean 324.89 Mbit/s)
Flow 2 ingress (mean 288.07 Mbit/s) --- Flow 2 egress (mean 284.36 Mbit/s)
Flow 3 ingress (mean 305.70 Mbit/s) --- Flow 3 egress (mean 302.37 Mbit/s)

Flow 1 (95th percentile 113.20 ms) Flow 2 (95th percentile 178.55 ms) Flow 3 (95th percentile 167.07 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-25 19:32:14
End at: 2018-09-25 19:32:44
Local clock offset: 0.048 ms
Remote clock offset: 1.009 ms


# Below is generated by plot.py at 2018-09-25 23:53:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 558.07 Mbit/s
95th percentile per-packet one-way delay: 153.555 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 319.68 Mbit/s
95th percentile per-packet one-way delay: 161.358 ms
Loss rate: 1.75%
-- Flow 2:
Average throughput: 218.71 Mbit/s
95th percentile per-packet one-way delay: 91.673 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 281.58 Mbit/s
95th percentile per-packet one-way delay: 138.480 ms
Loss rate: 0.00%
```
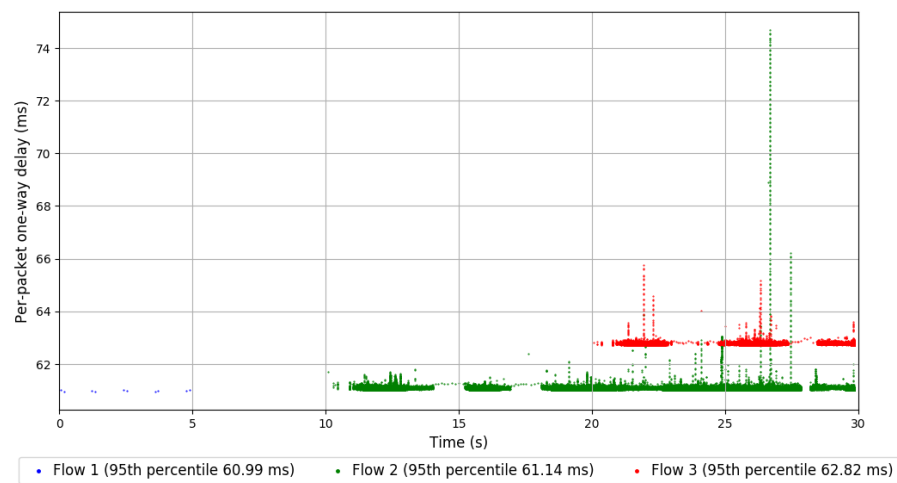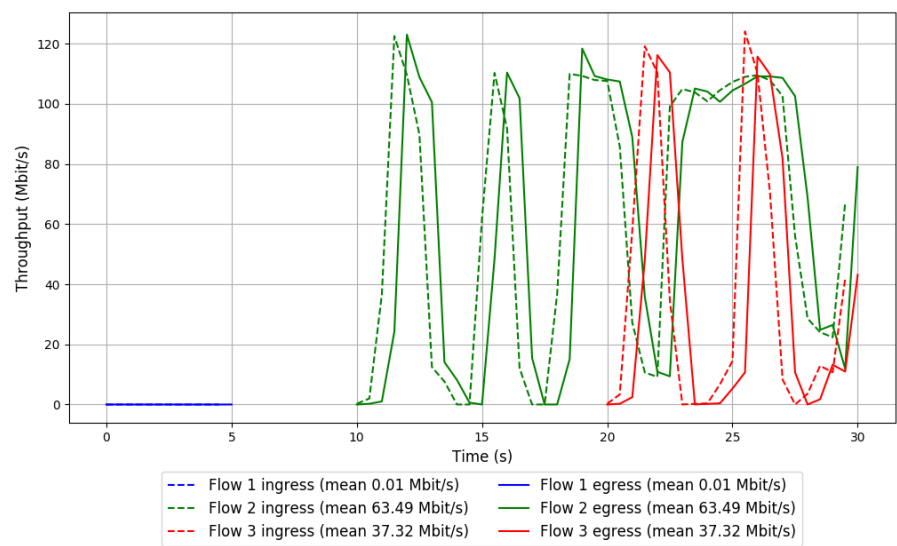
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-25 20:06:18
End at: 2018-09-25 20:06:48
Local clock offset: 0.009 ms
Remote clock offset: 0.017 ms

# Below is generated by plot.py at 2018-09-25 23:53:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 600.85 Mbit/s
95th percentile per-packet one-way delay: 172.289 ms
Loss rate: 2.23%
-- Flow 1:
Average throughput: 329.16 Mbit/s
95th percentile per-packet one-way delay: 162.445 ms
Loss rate: 1.08%
-- Flow 2:
Average throughput: 265.48 Mbit/s
95th percentile per-packet one-way delay: 179.253 ms
Loss rate: 3.83%
-- Flow 3:
Average throughput: 288.21 Mbit/s
95th percentile per-packet one-way delay: 172.236 ms
Loss rate: 3.12%
```

Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 332.74 Mbit/s) — — —   Flow 1 egress (mean 329.16 Mbit/s)
Flow 2 ingress (mean 276.06 Mbit/s) — — —   Flow 2 egress (mean 265.48 Mbit/s)
Flow 3 ingress (mean 297.47 Mbit/s) — — —   Flow 3 egress (mean 288.21 Mbit/s)

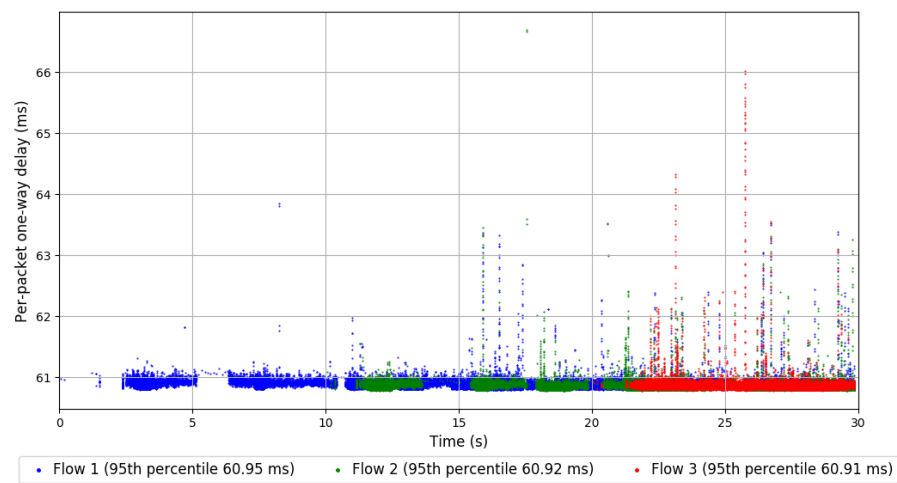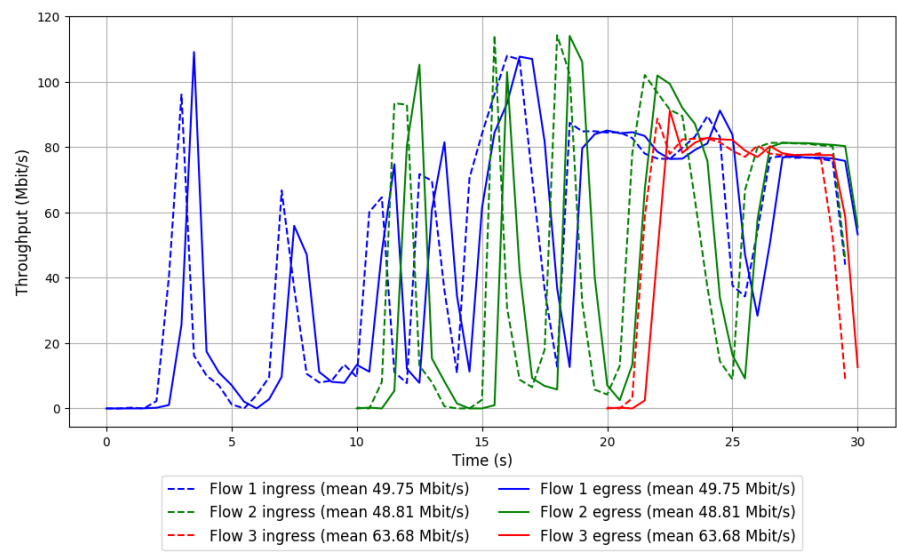Flow 1 (95th percentile 162.44 ms)   Flow 2 (95th percentile 179.25 ms)   Flow 3 (95th percentile 172.24 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-09-25 20:40:18
End at: 2018-09-25 20:40:48
Local clock offset: -0.058 ms
Remote clock offset: 0.318 ms


# Below is generated by plot.py at 2018-09-25 23:57:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 512.79 Mbit/s
95th percentile per-packet one-way delay: 138.652 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 301.86 Mbit/s
95th percentile per-packet one-way delay: 159.419 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 271.60 Mbit/s
95th percentile per-packet one-way delay: 82.403 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 91.80 Mbit/s
95th percentile per-packet one-way delay: 64.499 ms
Loss rate: 0.00%
```

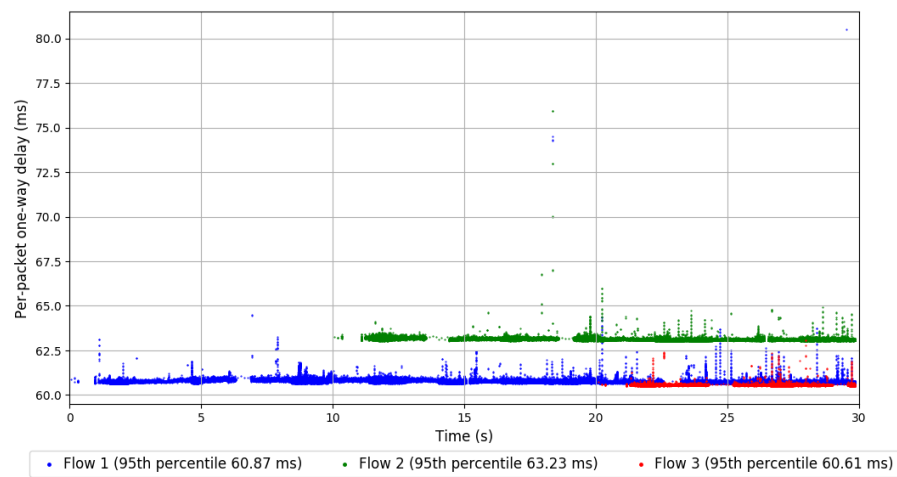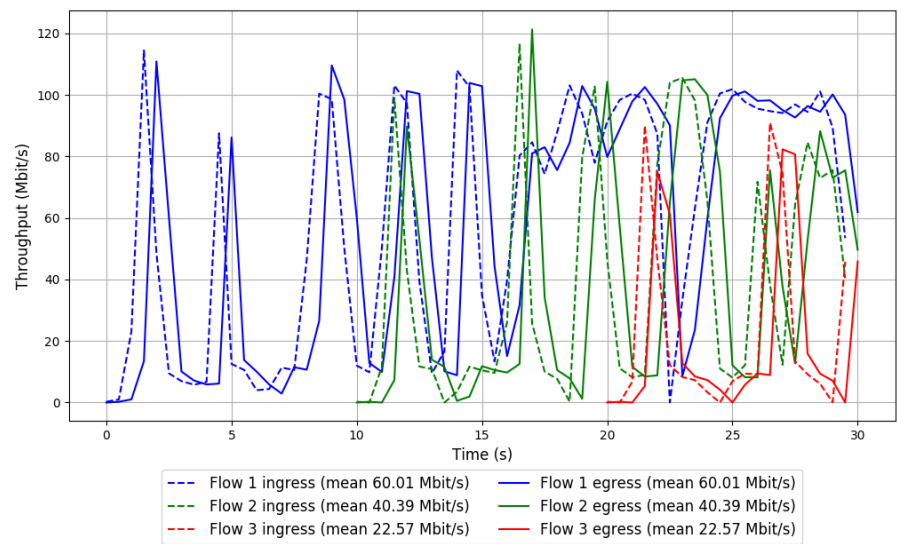Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-25 21:14:03
End at: 2018-09-25 21:14:33
Local clock offset: 0.001 ms
Remote clock offset: -1.293 ms


# Below is generated by plot.py at 2018-09-26 00:02:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 580.11 Mbit/s
95th percentile per-packet one-way delay: 163.993 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 313.61 Mbit/s
95th percentile per-packet one-way delay: 165.939 ms
Loss rate: 2.37%
-- Flow 2:
Average throughput: 308.68 Mbit/s
95th percentile per-packet one-way delay: 129.431 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 185.60 Mbit/s
95th percentile per-packet one-way delay: 73.670 ms
Loss rate: 0.01%
```

Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-25 19:02:37
End at: 2018-09-25 19:03:07
Local clock offset: -0.075 ms
Remote clock offset: 0.385 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.35 Mbit/s
95th percentile per-packet one-way delay: 62.772 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 60.995 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 63.49 Mbit/s
95th percentile per-packet one-way delay: 61.136 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.32 Mbit/s
95th percentile per-packet one-way delay: 62.818 ms
Loss rate: 0.00%
```
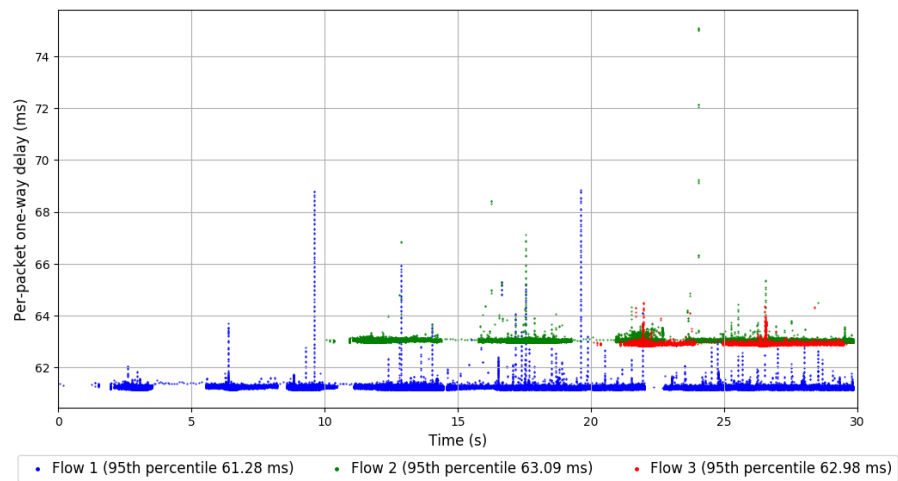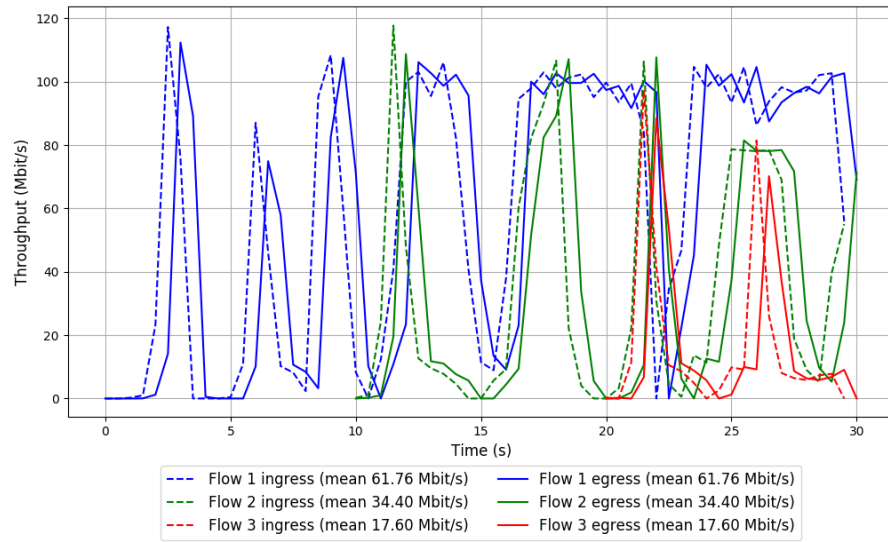
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.01 Mbit/s)   Flow 1 egress (mean 0.01 Mbit/s)
Flow 2 ingress (mean 63.49 Mbit/s)   Flow 2 egress (mean 63.49 Mbit/s)
Flow 3 ingress (mean 37.32 Mbit/s)   Flow 3 egress (mean 37.32 Mbit/s)

Flow 1 (95th percentile 60.99 ms)   Flow 2 (95th percentile 61.14 ms)   Flow 3 (95th percentile 62.82 ms)

116

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-25 19:36:22
End at: 2018-09-25 19:36:52
Local clock offset: -0.01 ms
Remote clock offset: -0.624 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.06 Mbit/s
95th percentile per-packet one-way delay: 60.182 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.47 Mbit/s
95th percentile per-packet one-way delay: 60.192 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 47.85 Mbit/s
95th percentile per-packet one-way delay: 60.152 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.89 Mbit/s
95th percentile per-packet one-way delay: 60.185 ms
Loss rate: 0.00%
```
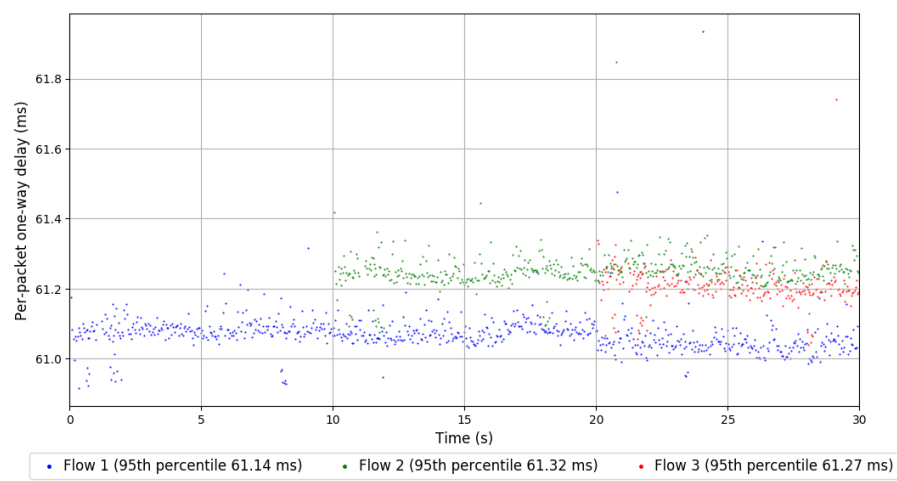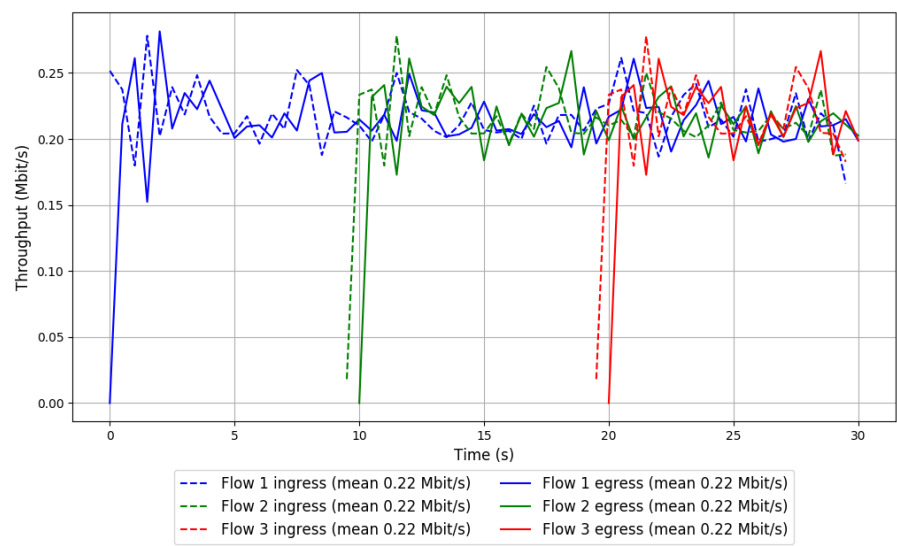
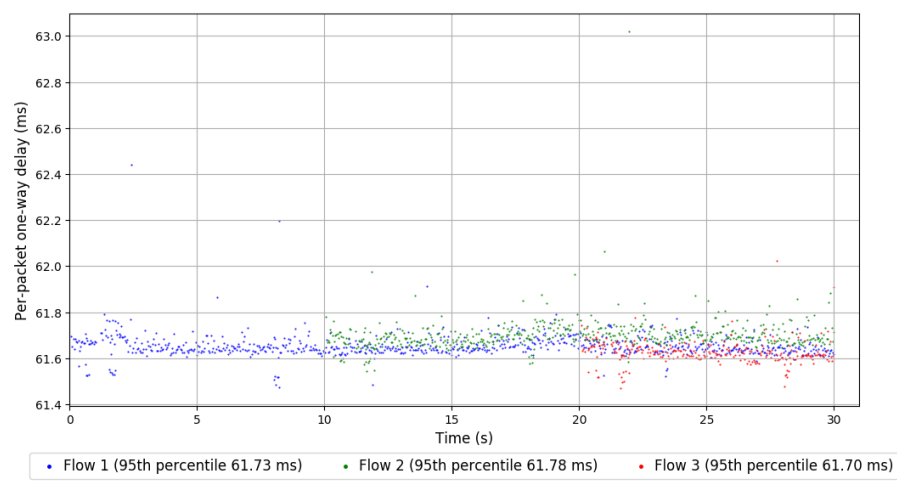Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-25 20:10:28
End at: 2018-09-25 20:10:58
Local clock offset: -0.045 ms
Remote clock offset: -0.309 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.02 Mbit/s
95th percentile per-packet one-way delay: 60.933 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.75 Mbit/s
95th percentile per-packet one-way delay: 60.945 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 48.81 Mbit/s
95th percentile per-packet one-way delay: 60.917 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 63.68 Mbit/s
95th percentile per-packet one-way delay: 60.915 ms
Loss rate: 0.00%
```
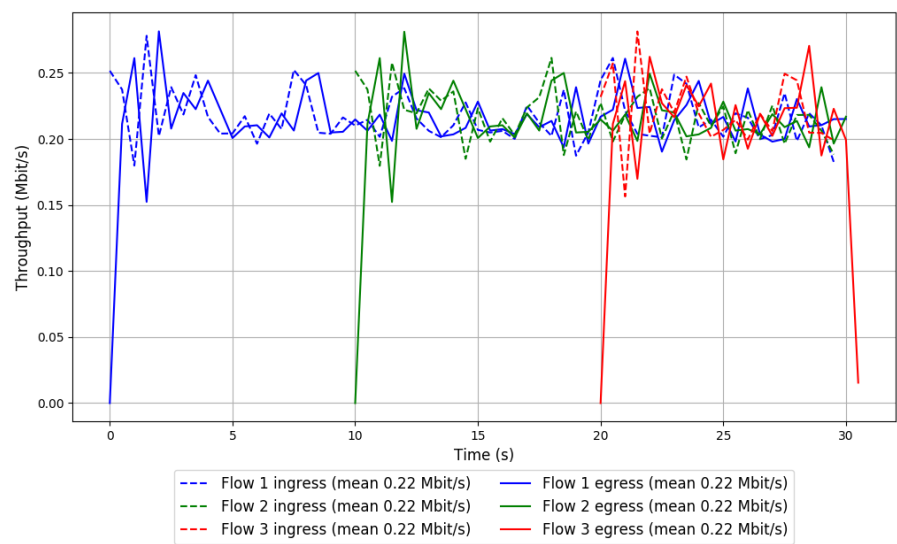
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-25 20:44:21
End at: 2018-09-25 20:44:51
Local clock offset: -0.048 ms
Remote clock offset: -0.552 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.21 Mbit/s
95th percentile per-packet one-way delay: 63.162 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.01 Mbit/s
95th percentile per-packet one-way delay: 60.873 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 40.39 Mbit/s
95th percentile per-packet one-way delay: 63.228 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 22.57 Mbit/s
95th percentile per-packet one-way delay: 60.612 ms
Loss rate: 0.00%
```
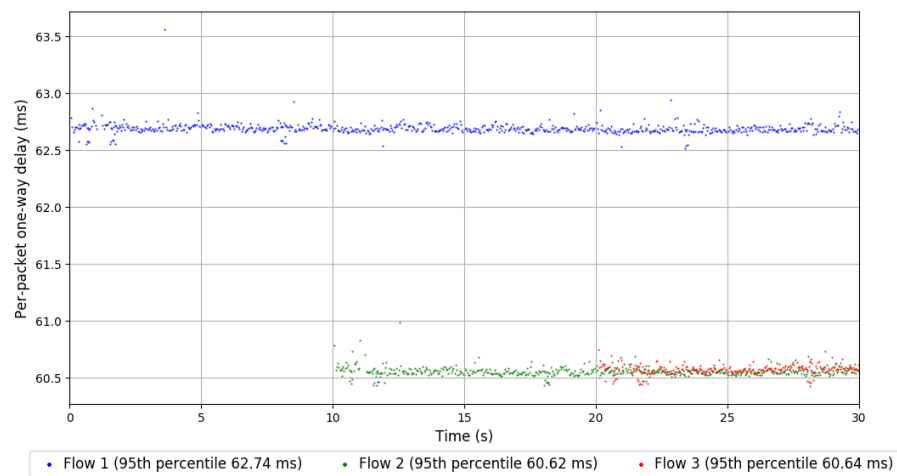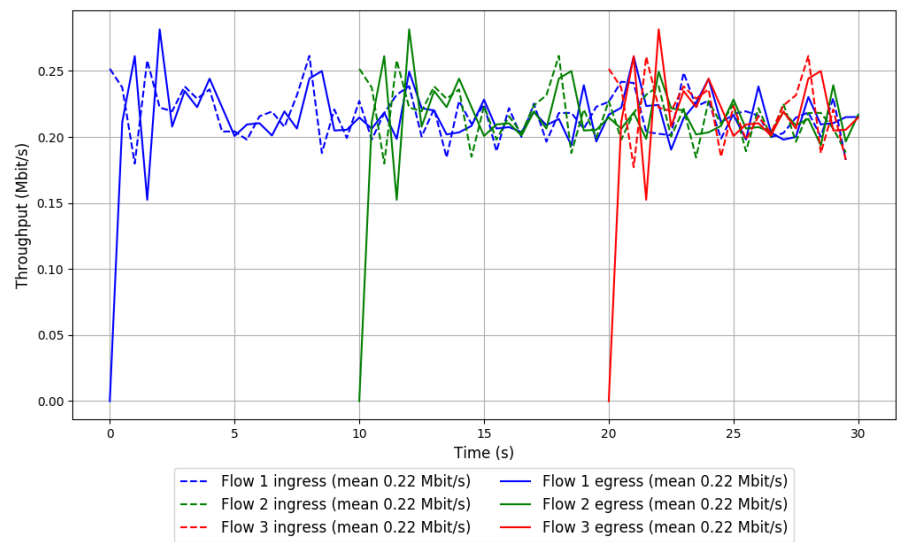
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-25 21:18:13
End at: 2018-09-25 21:18:43
Local clock offset: -0.063 ms
Remote clock offset: -0.478 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.30 Mbit/s
95th percentile per-packet one-way delay: 63.045 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 61.76 Mbit/s
95th percentile per-packet one-way delay: 61.278 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 34.40 Mbit/s
95th percentile per-packet one-way delay: 63.086 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.60 Mbit/s
95th percentile per-packet one-way delay: 62.982 ms
Loss rate: 0.00%
```

Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-09-25 19:14:44
End at: 2018-09-25 19:15:14
Local clock offset: -0.081 ms
Remote clock offset: 0.58 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 61.293 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.137 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.318 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.272 ms
Loss rate: 0.00%
```
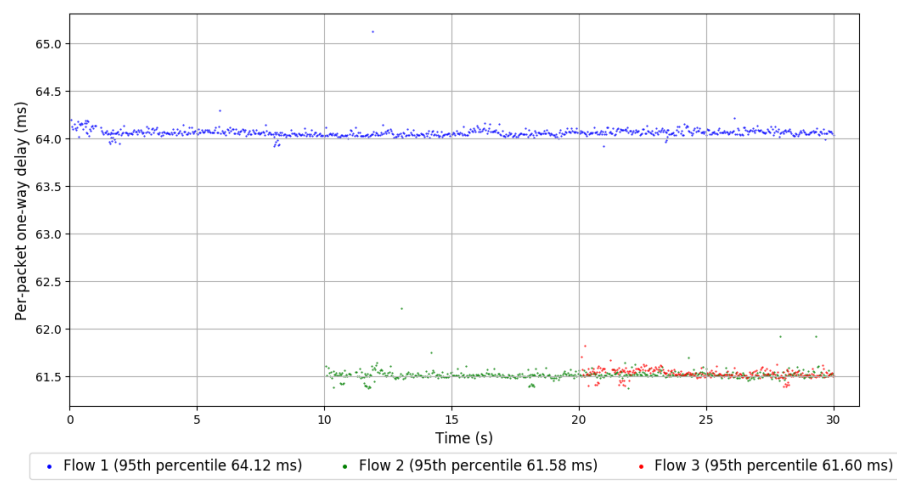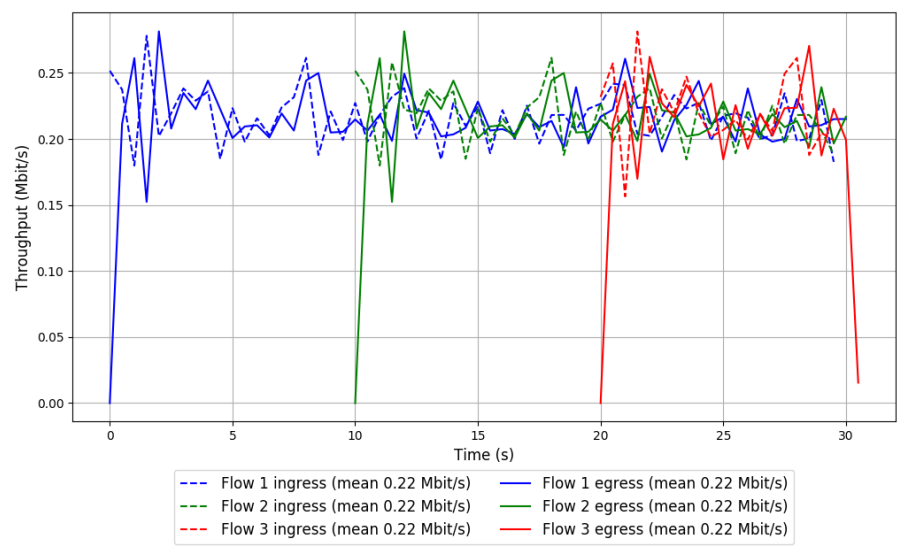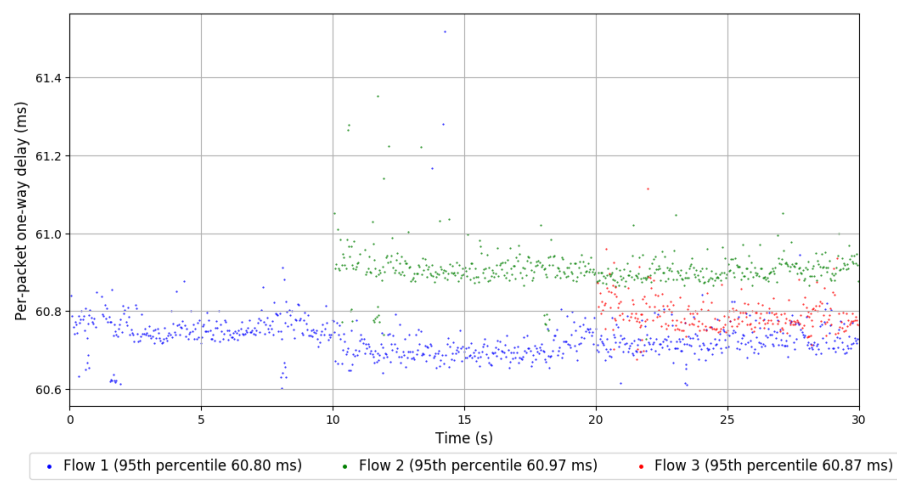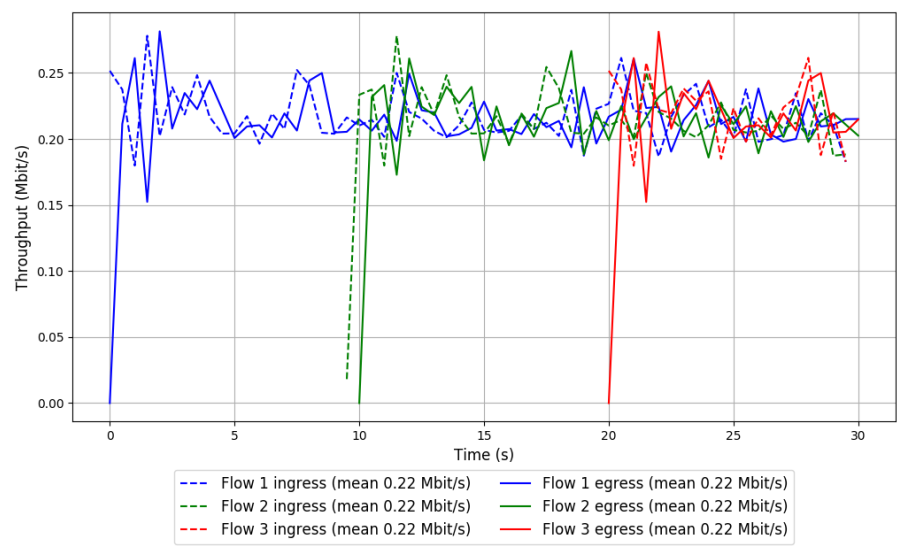
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-09-25 19:48:42
End at: 2018-09-25 19:49:12
Local clock offset: -0.006 ms
Remote clock offset: 0.606 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 61.748 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.726 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.778 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.702 ms
Loss rate: 0.00%
```
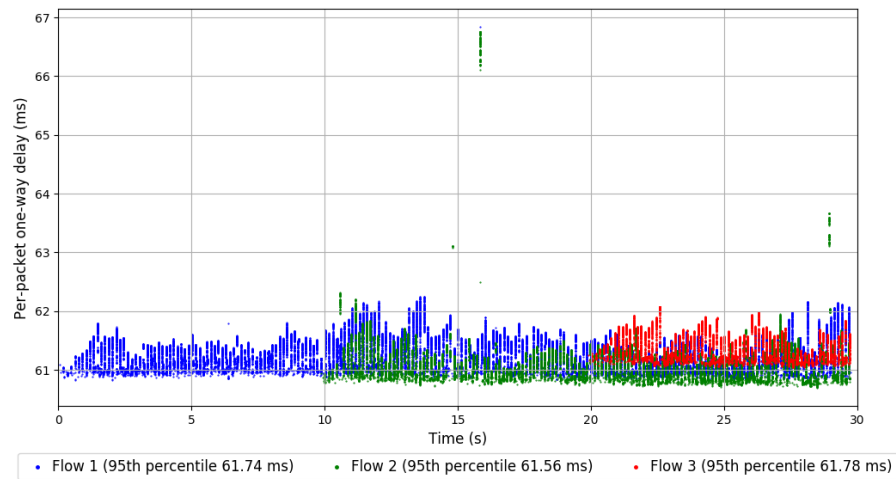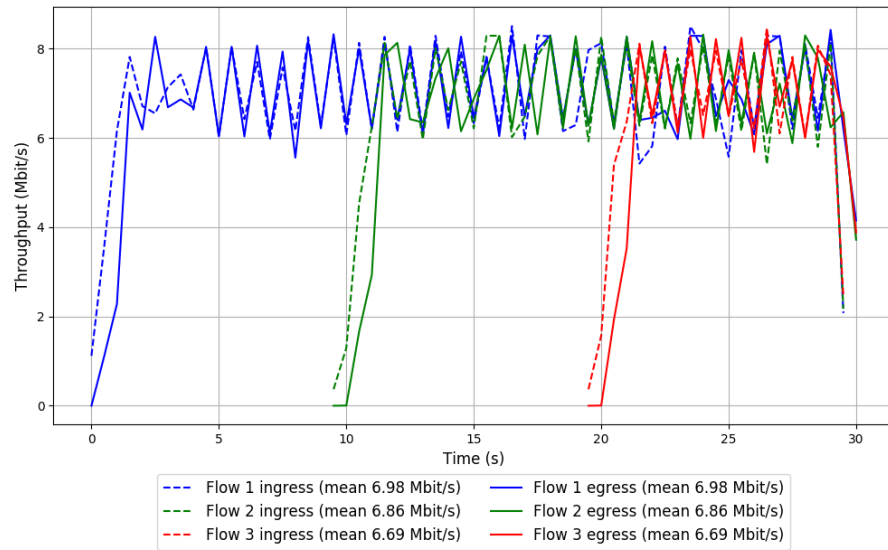
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-09-25 20:22:42
End at: 2018-09-25 20:23:12
Local clock offset: -0.08 ms
Remote clock offset: -0.772 ms

# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 62.727 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 62.745 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.617 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.642 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-09-25 20:56:27
End at: 2018-09-25 20:56:57
Local clock offset: 0.006 ms
Remote clock offset: 0.176 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 64.106 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 64.124 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.584 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.604 ms
Loss rate: 0.00%
```
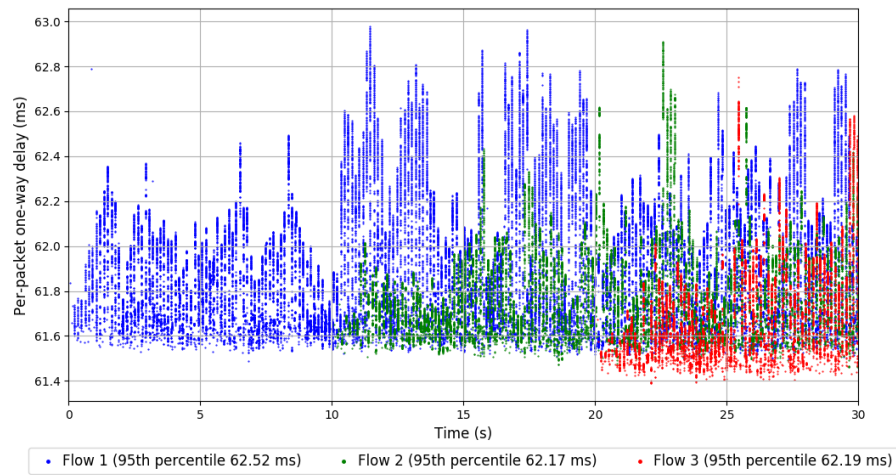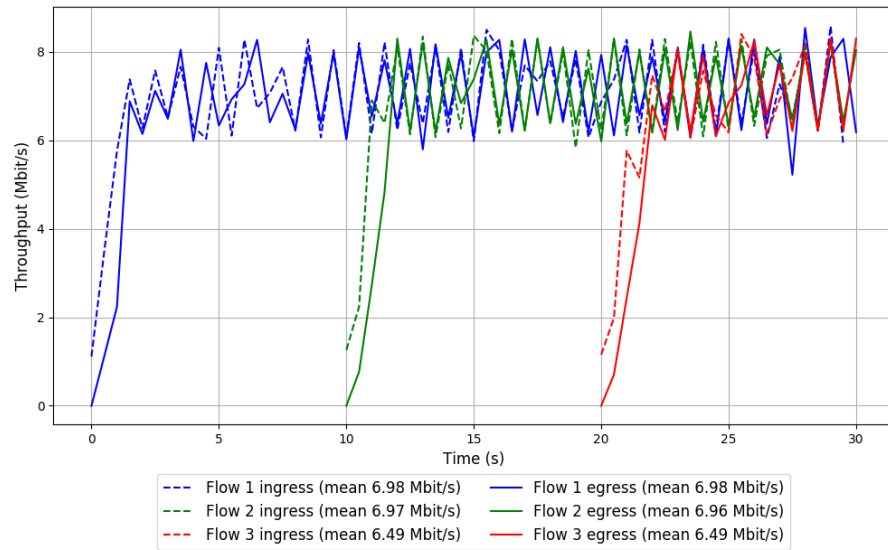
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-09-25 21:30:29
End at: 2018-09-25 21:30:59
Local clock offset: -0.139 ms
Remote clock offset: -0.842 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.939 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.801 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.973 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.868 ms
Loss rate: 0.00%
```
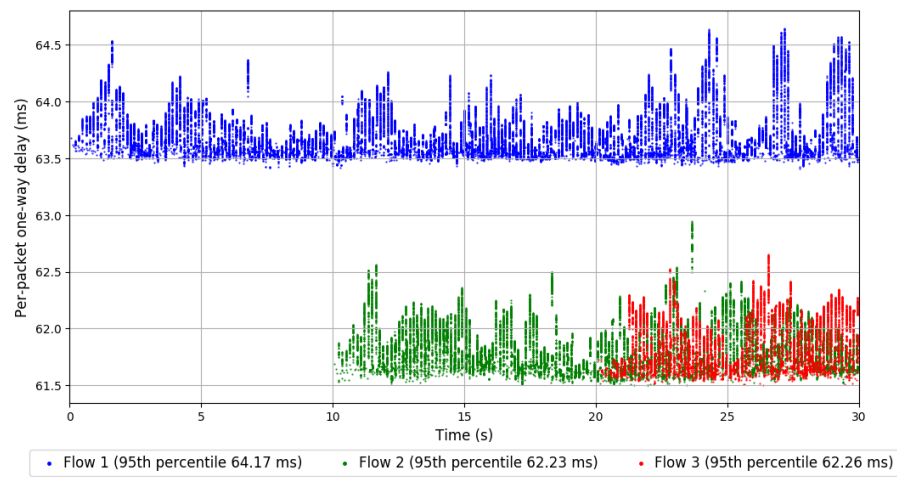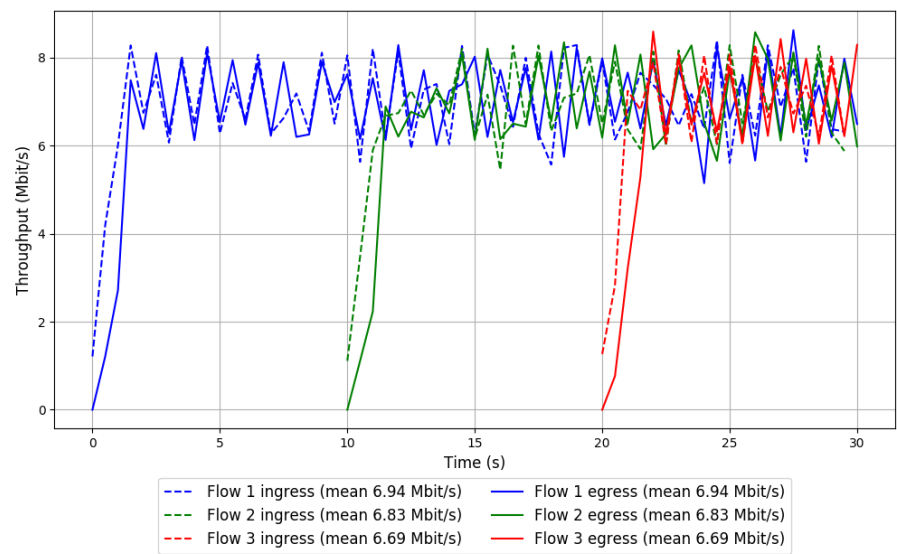
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-09-25 18:51:55
End at: 2018-09-25 18:52:25
Local clock offset: -0.096 ms
Remote clock offset: 0.346 ms


# Below is generated by plot.py at 2018-09-26 00:02:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.78 Mbit/s
95th percentile per-packet one-way delay: 61.721 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 61.742 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 61.556 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.69 Mbit/s
95th percentile per-packet one-way delay: 61.779 ms
Loss rate: 0.00%
```
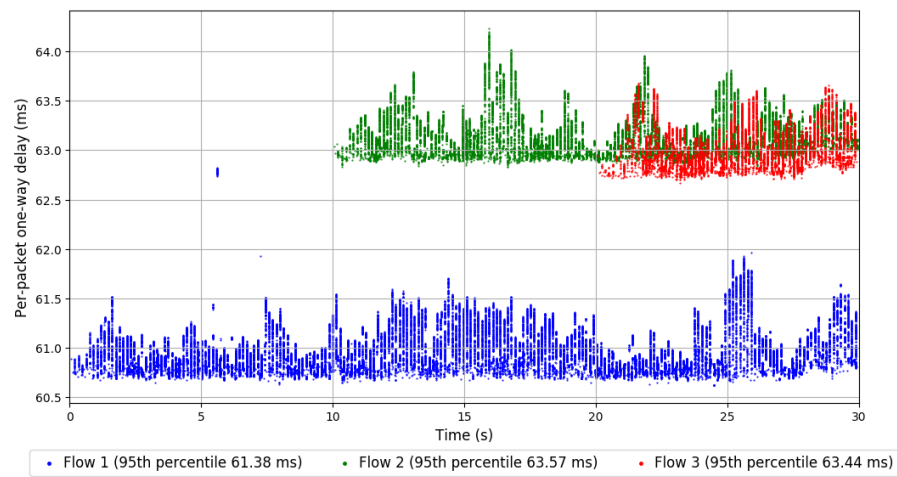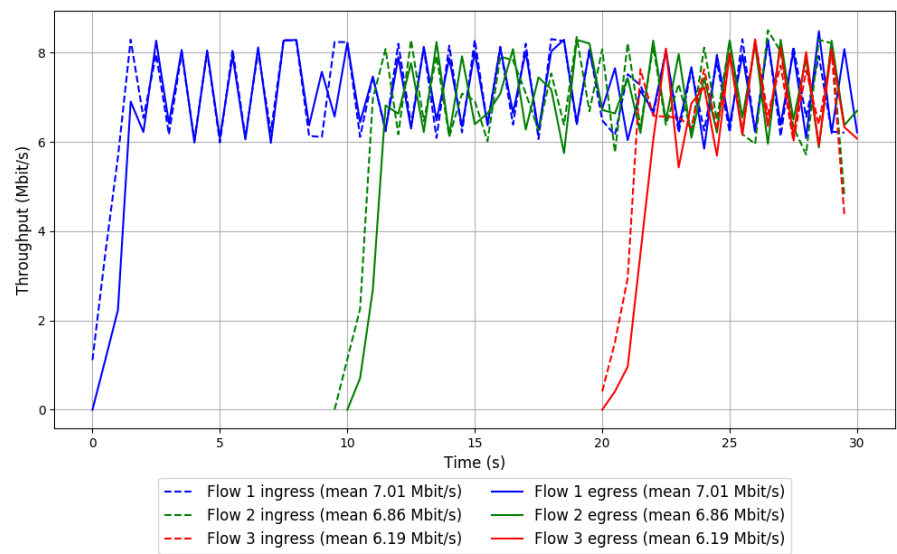
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-09-25 19:25:38
End at: 2018-09-25 19:26:08
Local clock offset: -0.037 ms
Remote clock offset: 1.203 ms


# Below is generated by plot.py at 2018-09-26 00:02:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.75 Mbit/s
95th percentile per-packet one-way delay: 62.432 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 62.516 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.96 Mbit/s
95th percentile per-packet one-way delay: 62.173 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 62.190 ms
Loss rate: 0.00%
```
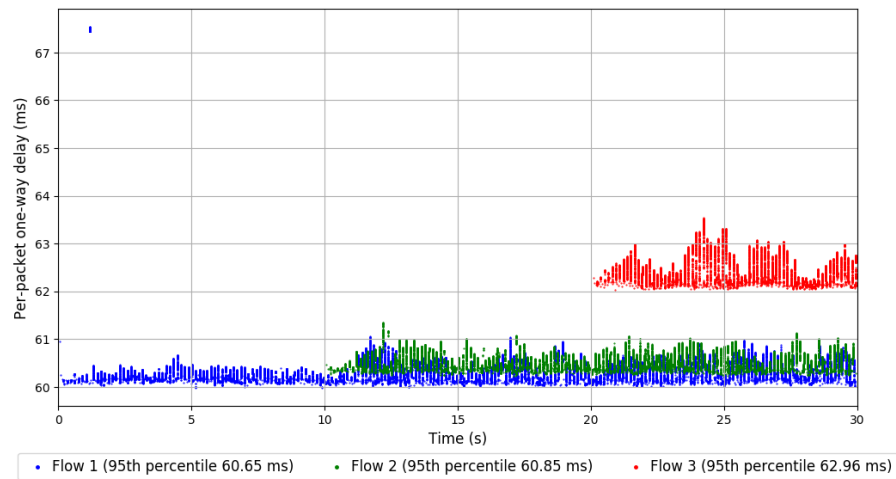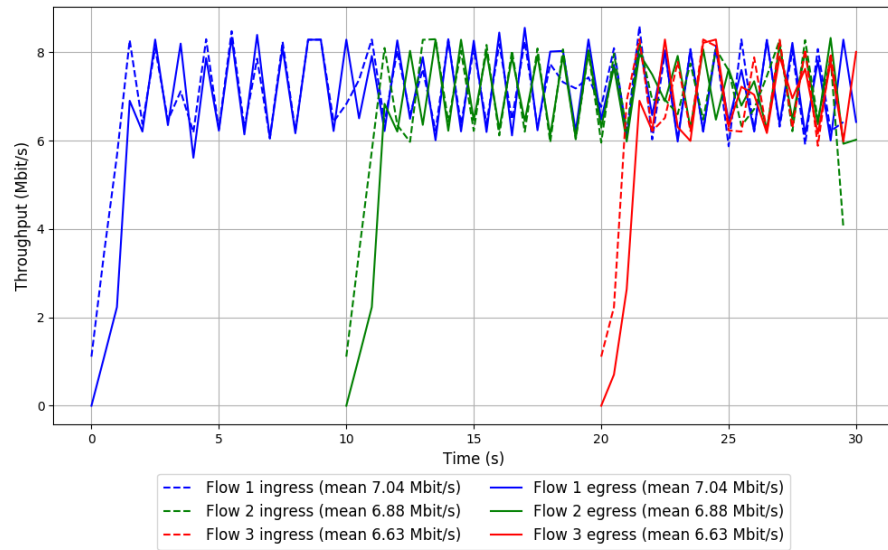
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-25 19:59:47
End at: 2018-09-25 20:00:17
Local clock offset: -0.004 ms
Remote clock offset: 0.406 ms


# Below is generated by plot.py at 2018-09-26 00:02:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.68 Mbit/s
95th percentile per-packet one-way delay: 64.028 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.94 Mbit/s
95th percentile per-packet one-way delay: 64.173 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.83 Mbit/s
95th percentile per-packet one-way delay: 62.227 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.69 Mbit/s
95th percentile per-packet one-way delay: 62.257 ms
Loss rate: 0.00%
```
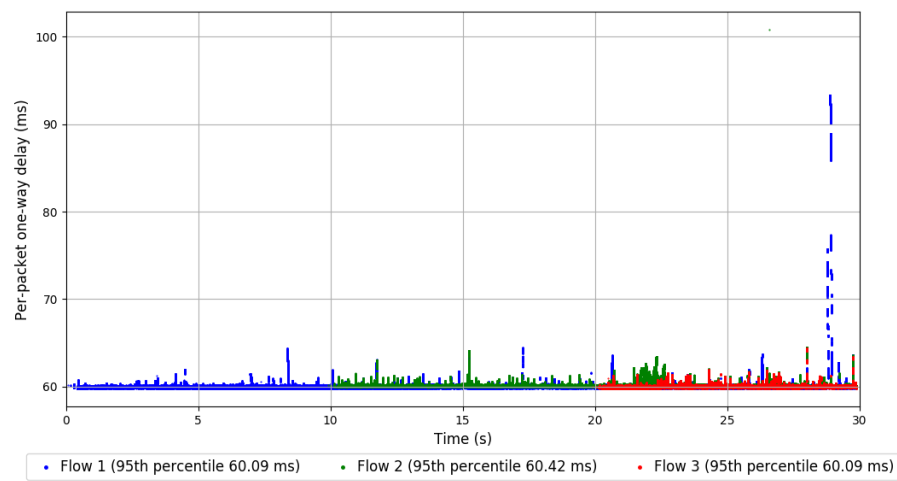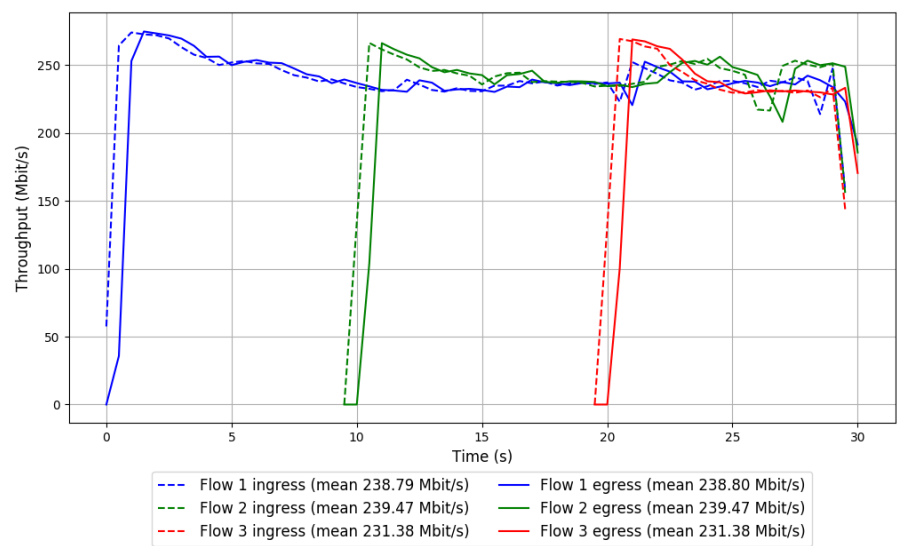
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-09-25 20:33:36
End at: 2018-09-25 20:34:06
Local clock offset: -0.124 ms
Remote clock offset: -0.551 ms


# Below is generated by plot.py at 2018-09-26 00:02:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.60 Mbit/s
95th percentile per-packet one-way delay: 63.400 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.01 Mbit/s
95th percentile per-packet one-way delay: 61.382 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.86 Mbit/s
95th percentile per-packet one-way delay: 63.571 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.19 Mbit/s
95th percentile per-packet one-way delay: 63.436 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-25 21:07:22
End at: 2018-09-25 21:07:52
Local clock offset: 0.02 ms
Remote clock offset: -1.401 ms


# Below is generated by plot.py at 2018-09-26 00:02:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.80 Mbit/s
95th percentile per-packet one-way delay: 62.544 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 60.648 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.88 Mbit/s
95th percentile per-packet one-way delay: 60.853 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.63 Mbit/s
95th percentile per-packet one-way delay: 62.958 ms
Loss rate: 0.00%
```
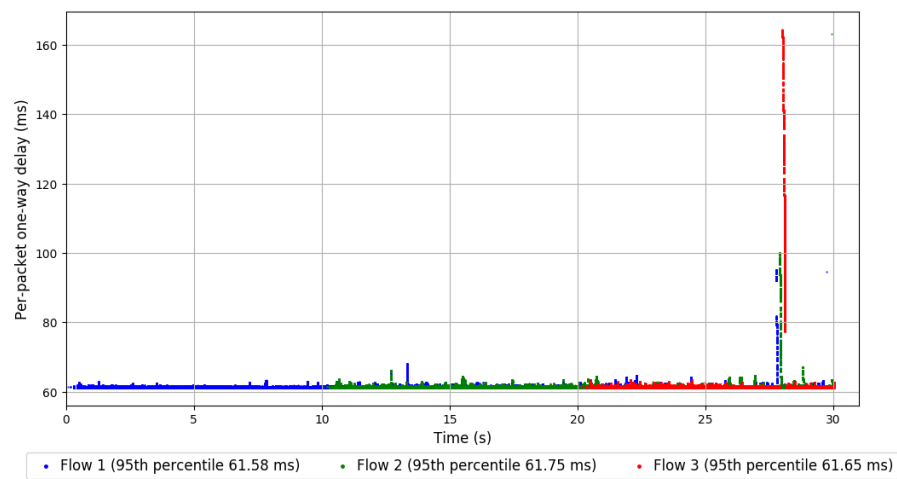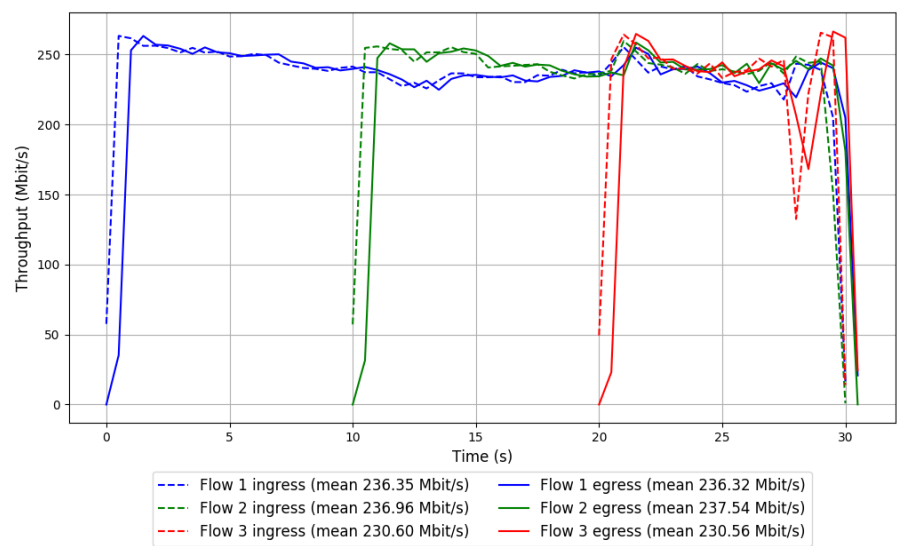
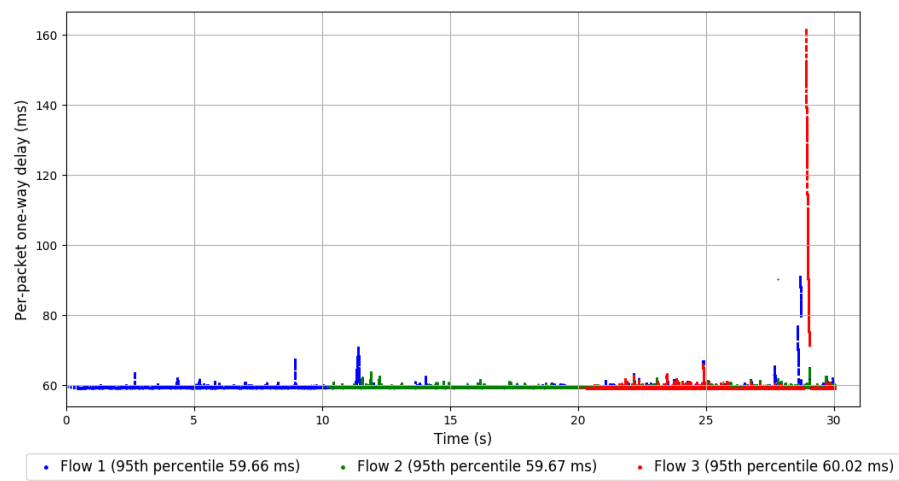Run 5: Report of Sprout — Data Link

144

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

Start at: 2018-09-25 18:43:49
End at: 2018-09-25 18:44:19
Local clock offset: -0.07 ms
Remote clock offset: -0.608 ms


# Below is generated by plot.py at 2018-09-26 00:05:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 476.54 Mbit/s
95th percentile per-packet one-way delay: 60.184 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 238.80 Mbit/s
95th percentile per-packet one-way delay: 60.094 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 239.47 Mbit/s
95th percentile per-packet one-way delay: 60.422 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 231.38 Mbit/s
95th percentile per-packet one-way delay: 60.089 ms
Loss rate: 0.00%
```

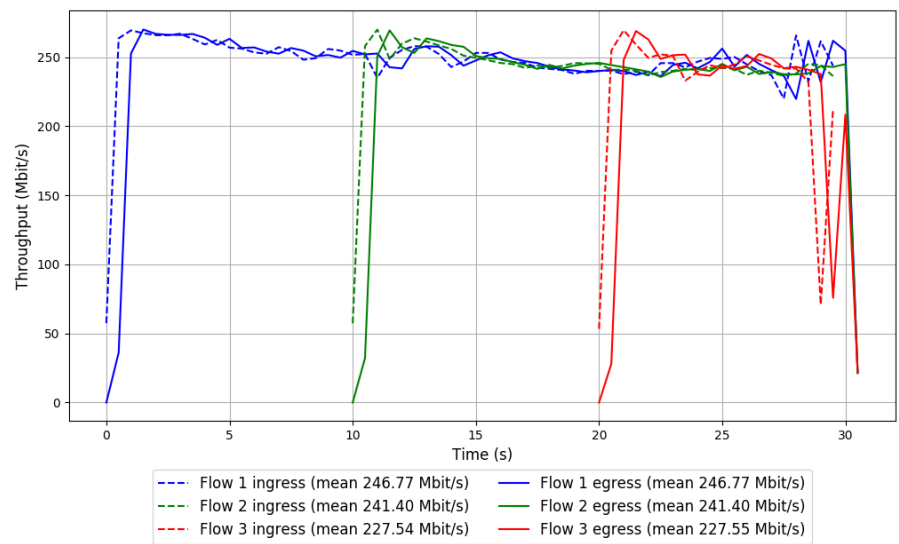Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-25 19:17:33
End at: 2018-09-25 19:18:03
Local clock offset: -0.024 ms
Remote clock offset: 0.989 ms


# Below is generated by plot.py at 2018-09-26 00:05:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 471.08 Mbit/s
95th percentile per-packet one-way delay: 61.641 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 236.32 Mbit/s
95th percentile per-packet one-way delay: 61.576 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 237.54 Mbit/s
95th percentile per-packet one-way delay: 61.746 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 230.56 Mbit/s
95th percentile per-packet one-way delay: 61.648 ms
Loss rate: 0.50%
```

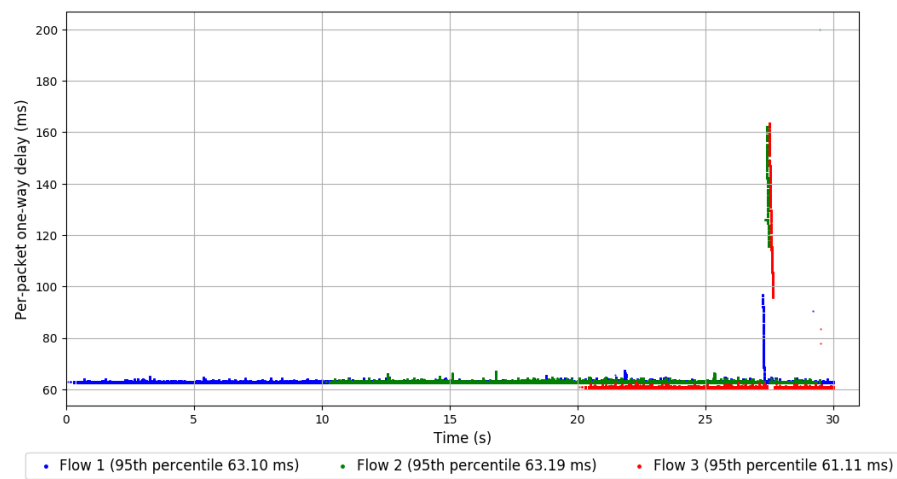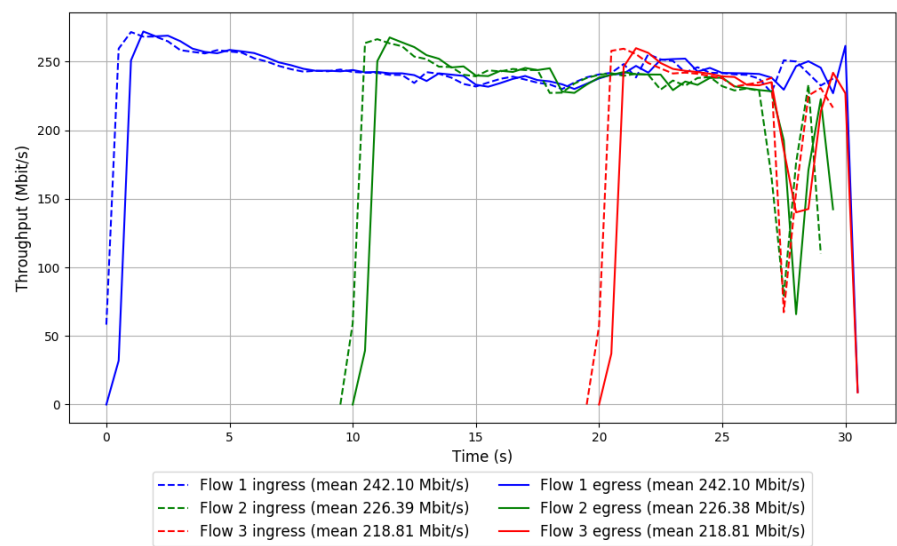Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 236.35 Mbit/s) --- Flow 1 egress (mean 236.32 Mbit/s)
Flow 2 ingress (mean 236.96 Mbit/s) --- Flow 2 egress (mean 237.54 Mbit/s)
Flow 3 ingress (mean 230.60 Mbit/s) --- Flow 3 egress (mean 230.56 Mbit/s)

Flow 1 (95th percentile 61.58 ms)   Flow 2 (95th percentile 61.75 ms)   Flow 3 (95th percentile 61.65 ms)

```
Run 3: Statistics of TaoVA-100x

Start at: 2018-09-25 19:51:37
End at: 2018-09-25 19:52:07
Local clock offset: 0.015 ms
Remote clock offset: -1.647 ms


# Below is generated by plot.py at 2018-09-26 00:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 483.18 Mbit/s
95th percentile per-packet one-way delay: 59.688 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 246.77 Mbit/s
95th percentile per-packet one-way delay: 59.660 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 241.40 Mbit/s
95th percentile per-packet one-way delay: 59.675 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 227.55 Mbit/s
95th percentile per-packet one-way delay: 60.018 ms
Loss rate: 0.00%
```

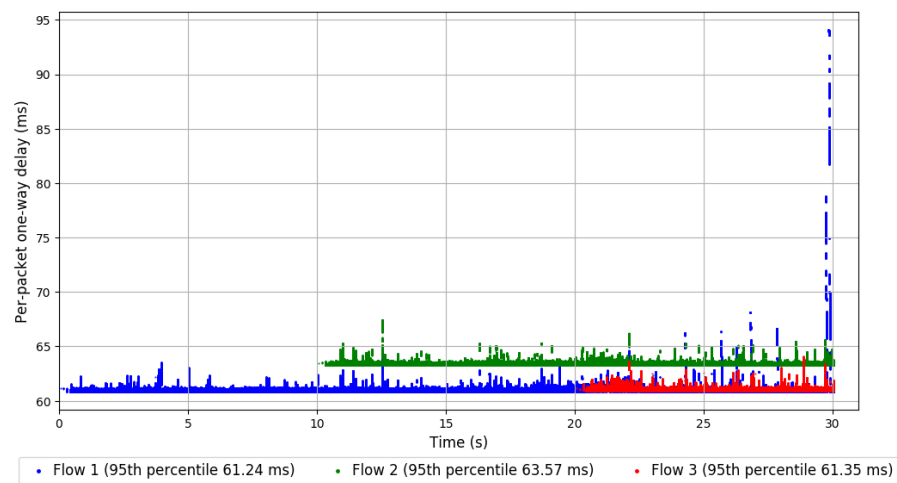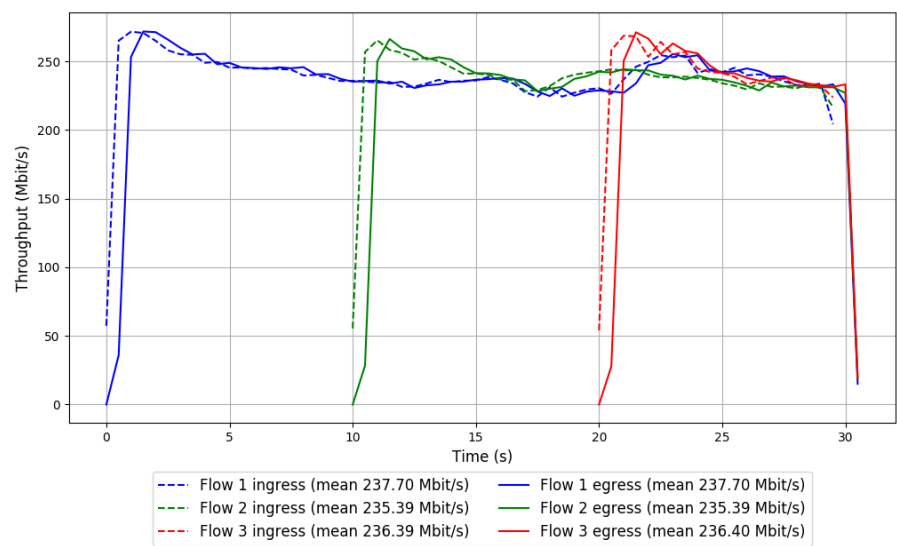Run 3: Report of TaoVA-100x — Data Link

```
Run 4: Statistics of TaoVA-100x

Start at: 2018-09-25 20:25:34
End at: 2018-09-25 20:26:04
Local clock offset: -0.102 ms
Remote clock offset: -0.362 ms


# Below is generated by plot.py at 2018-09-26 00:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 461.71 Mbit/s
95th percentile per-packet one-way delay: 63.111 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 242.10 Mbit/s
95th percentile per-packet one-way delay: 63.099 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 226.38 Mbit/s
95th percentile per-packet one-way delay: 63.191 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 218.81 Mbit/s
95th percentile per-packet one-way delay: 61.113 ms
Loss rate: 0.00%
```
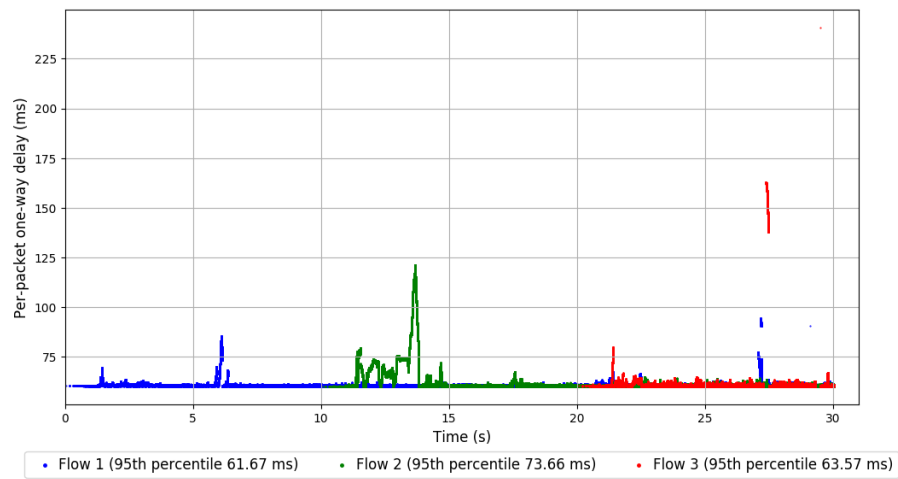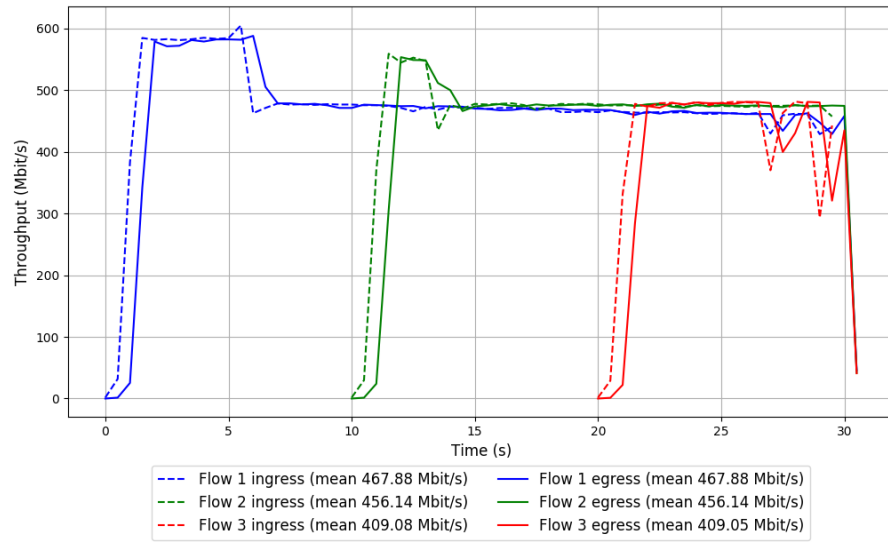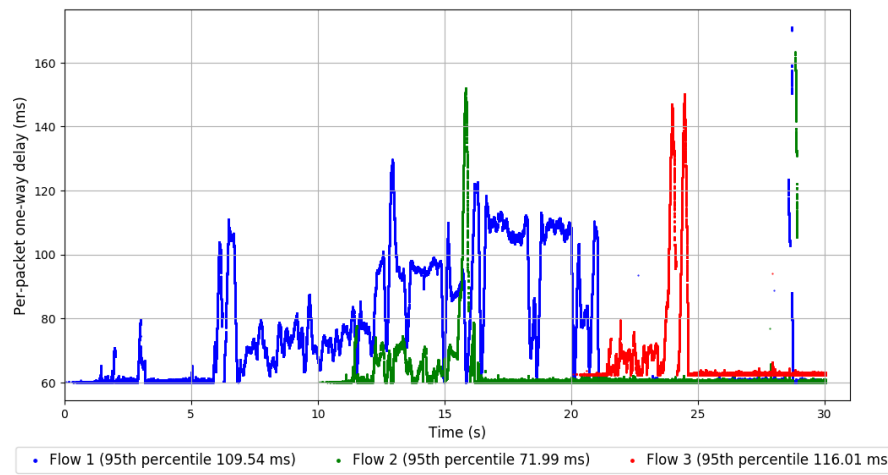
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 242.10 Mbit/s)   Flow 1 egress (mean 242.10 Mbit/s)
Flow 2 ingress (mean 226.39 Mbit/s)   Flow 2 egress (mean 226.38 Mbit/s)
Flow 3 ingress (mean 218.81 Mbit/s)   Flow 3 egress (mean 218.81 Mbit/s)

Flow 1 (95th percentile 63.10 ms)   Flow 2 (95th percentile 63.19 ms)   Flow 3 (95th percentile 61.11 ms)

152

```
Run 5: Statistics of TaoVA-100x

Start at: 2018-09-25 20:59:20
End at: 2018-09-25 20:59:50
Local clock offset: 0.001 ms
Remote clock offset: -0.416 ms


# Below is generated by plot.py at 2018-09-26 00:07:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 473.02 Mbit/s
95th percentile per-packet one-way delay: 63.453 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 237.70 Mbit/s
95th percentile per-packet one-way delay: 61.243 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 235.39 Mbit/s
95th percentile per-packet one-way delay: 63.570 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 236.40 Mbit/s
95th percentile per-packet one-way delay: 61.346 ms
Loss rate: 0.00%
```

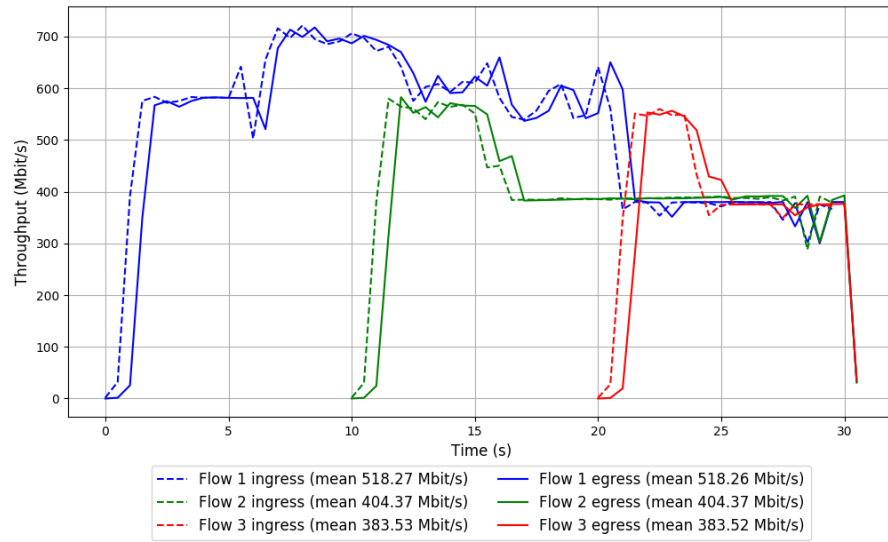# Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 237.70 Mbit/s)   Flow 1 egress (mean 237.70 Mbit/s)
Flow 2 ingress (mean 235.39 Mbit/s)   Flow 2 egress (mean 235.39 Mbit/s)
Flow 3 ingress (mean 236.39 Mbit/s)   Flow 3 egress (mean 236.40 Mbit/s)

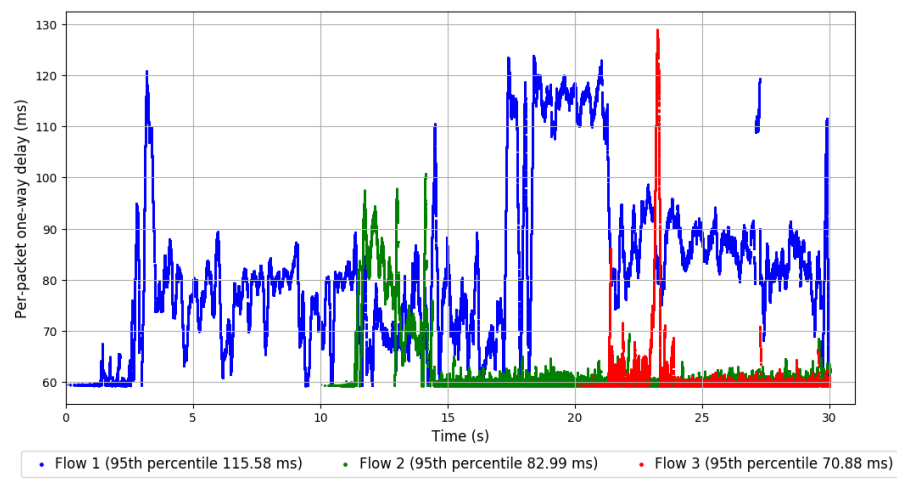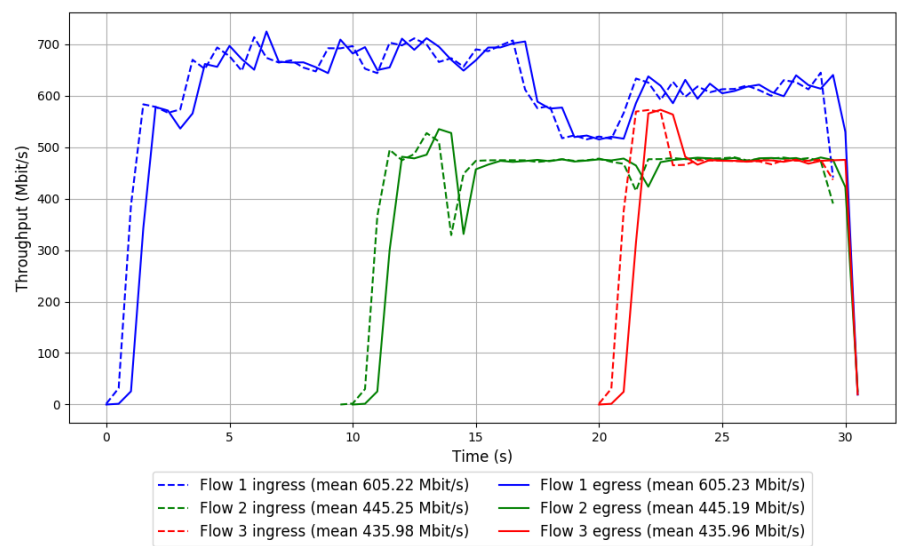Flow 1 (95th percentile 61.24 ms)   Flow 2 (95th percentile 63.57 ms)   Flow 3 (95th percentile 61.35 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-25 19:03:51
End at: 2018-09-25 19:04:21
Local clock offset: 0.015 ms
Remote clock offset: -0.16 ms


# Below is generated by plot.py at 2018-09-26 00:08:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 907.66 Mbit/s
95th percentile per-packet one-way delay: 65.827 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 467.88 Mbit/s
95th percentile per-packet one-way delay: 61.673 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 456.14 Mbit/s
95th percentile per-packet one-way delay: 73.657 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 409.05 Mbit/s
95th percentile per-packet one-way delay: 63.568 ms
Loss rate: 0.00%
```

Run 1: Report of TCP Vegas — Data Link

156

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-25 19:37:43
End at: 2018-09-25 19:38:13
Local clock offset: 0.0 ms
Remote clock offset: -0.611 ms


# Below is generated by plot.py at 2018-09-26 00:13:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 915.05 Mbit/s
95th percentile per-packet one-way delay: 108.770 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 518.26 Mbit/s
95th percentile per-packet one-way delay: 109.542 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 404.37 Mbit/s
95th percentile per-packet one-way delay: 71.990 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 383.52 Mbit/s
95th percentile per-packet one-way delay: 116.011 ms
Loss rate: 0.00%
```
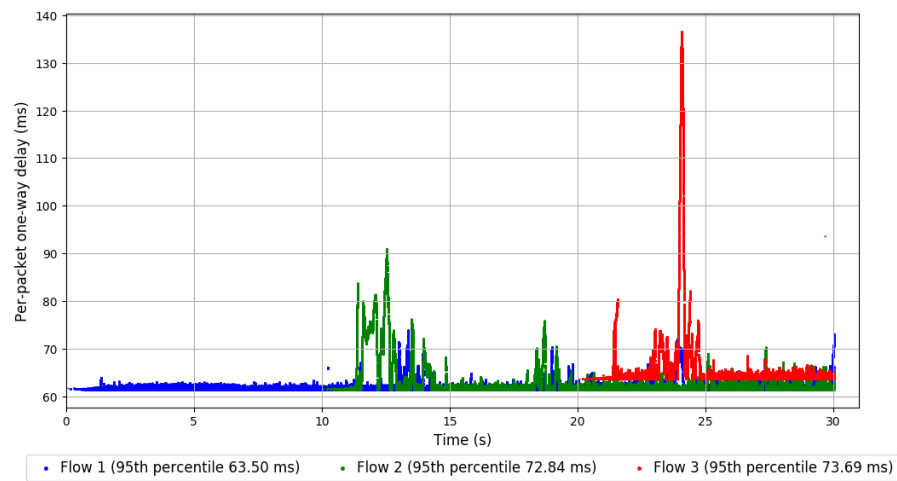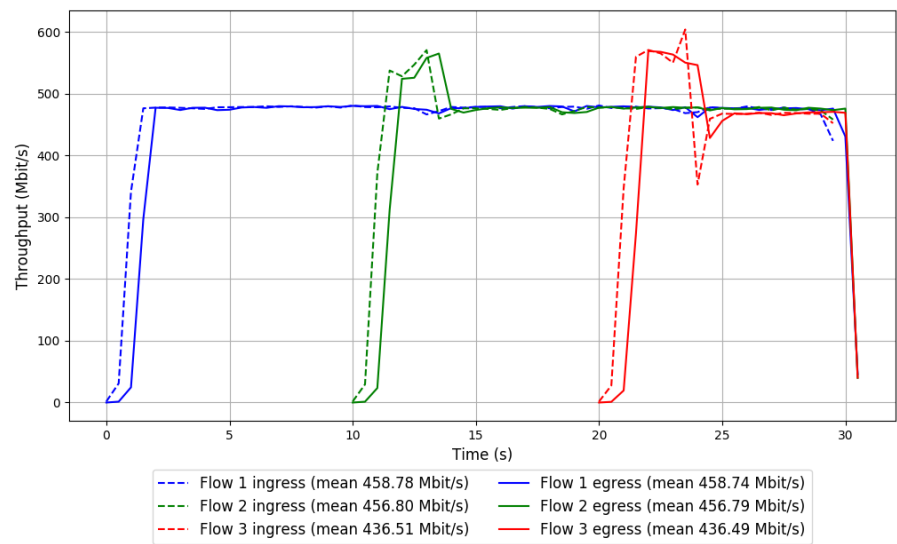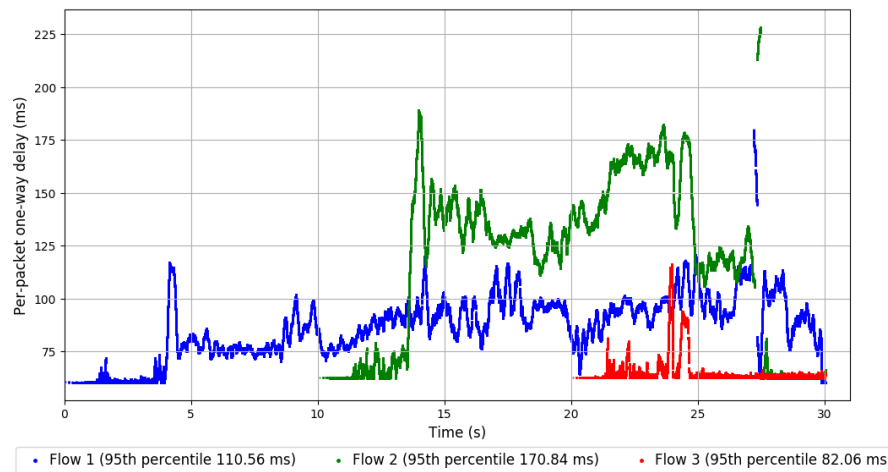
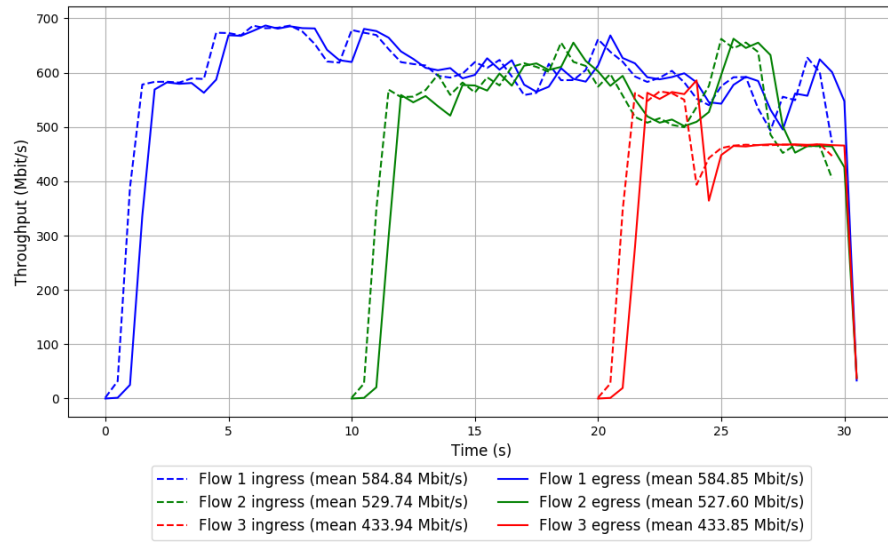Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-25 20:11:46
End at: 2018-09-25 20:12:16
Local clock offset: -0.049 ms
Remote clock offset: -1.704 ms


# Below is generated by plot.py at 2018-09-26 00:20:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1046.86 Mbit/s
95th percentile per-packet one-way delay: 112.416 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 605.23 Mbit/s
95th percentile per-packet one-way delay: 115.578 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 445.19 Mbit/s
95th percentile per-packet one-way delay: 82.986 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 435.96 Mbit/s
95th percentile per-packet one-way delay: 70.881 ms
Loss rate: 0.00%
```

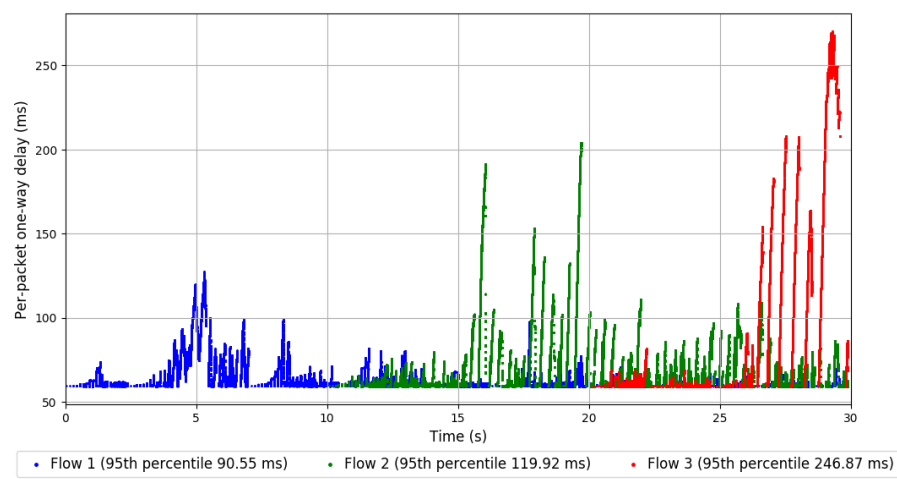Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-25 20:45:39
End at: 2018-09-25 20:46:09
Local clock offset: -0.036 ms
Remote clock offset: 0.195 ms


# Below is generated by plot.py at 2018-09-26 00:20:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 908.15 Mbit/s
95th percentile per-packet one-way delay: 68.831 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 458.74 Mbit/s
95th percentile per-packet one-way delay: 63.496 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 456.79 Mbit/s
95th percentile per-packet one-way delay: 72.841 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 436.49 Mbit/s
95th percentile per-packet one-way delay: 73.693 ms
Loss rate: 0.00%
```

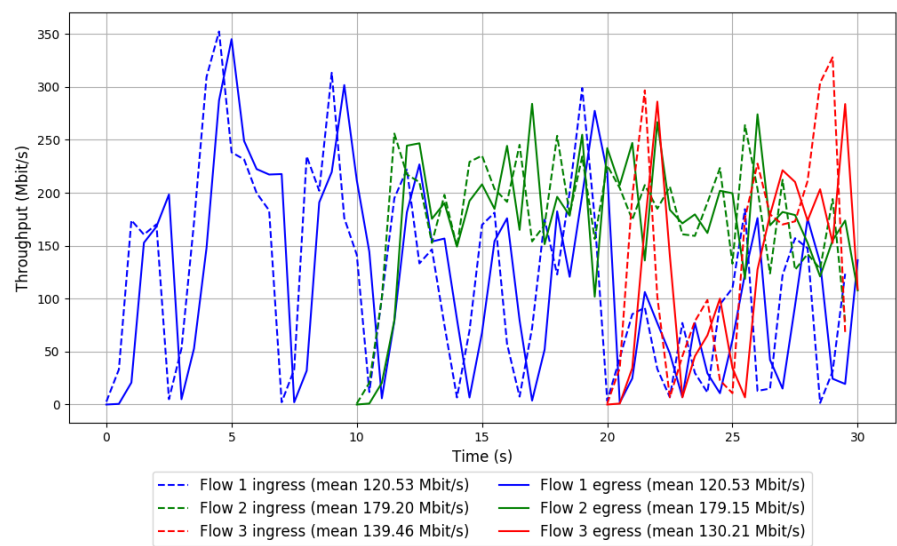# Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-25 21:19:30
End at: 2018-09-25 21:20:00
Local clock offset: -0.072 ms
Remote clock offset: -1.069 ms


# Below is generated by plot.py at 2018-09-26 00:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1080.31 Mbit/s
95th percentile per-packet one-way delay: 161.936 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 584.85 Mbit/s
95th percentile per-packet one-way delay: 110.564 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 527.60 Mbit/s
95th percentile per-packet one-way delay: 170.838 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 433.85 Mbit/s
95th percentile per-packet one-way delay: 82.060 ms
Loss rate: 0.02%
```
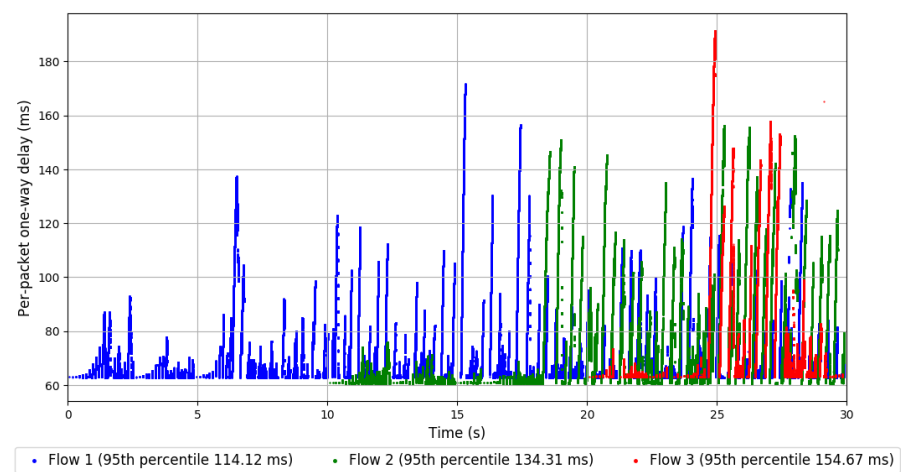
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-09-25 18:42:10
End at: 2018-09-25 18:42:40
Local clock offset: -0.044 ms
Remote clock offset: -1.165 ms


# Below is generated by plot.py at 2018-09-26 00:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 282.22 Mbit/s
95th percentile per-packet one-way delay: 155.671 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 120.53 Mbit/s
95th percentile per-packet one-way delay: 90.551 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 179.15 Mbit/s
95th percentile per-packet one-way delay: 119.919 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 130.21 Mbit/s
95th percentile per-packet one-way delay: 246.870 ms
Loss rate: 6.63%
```
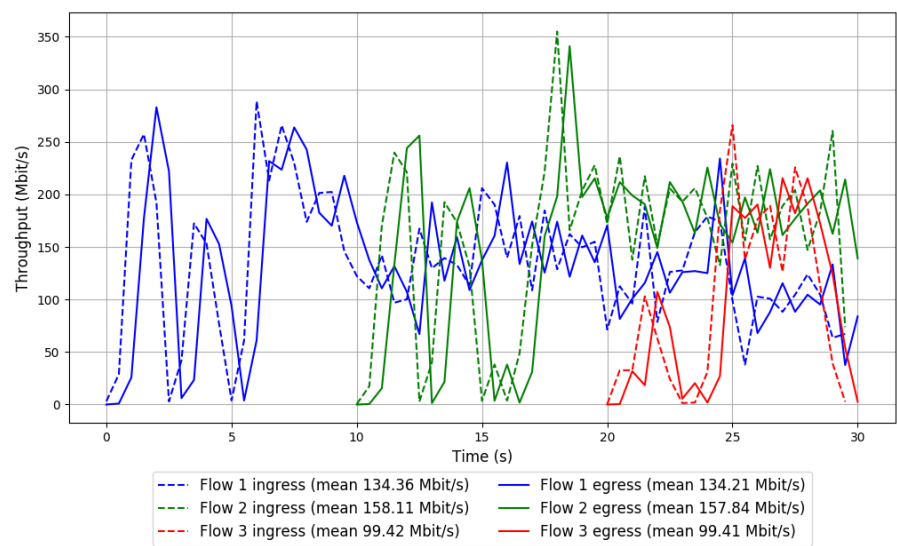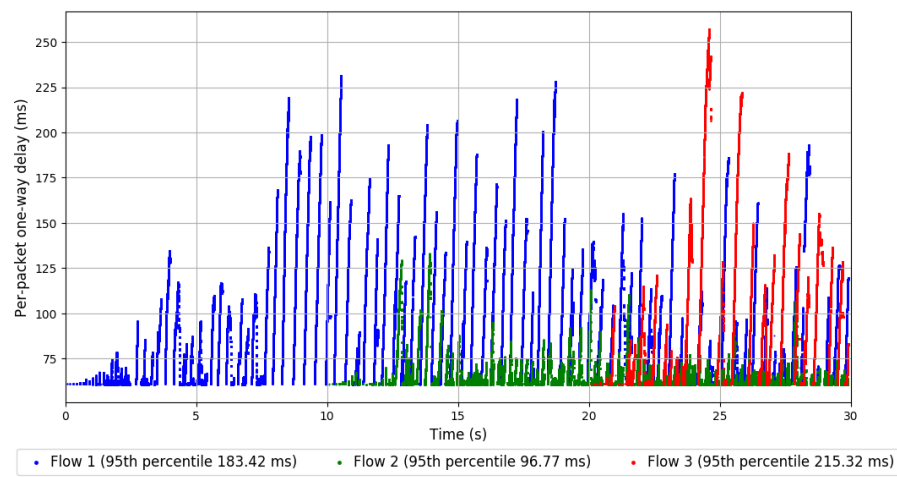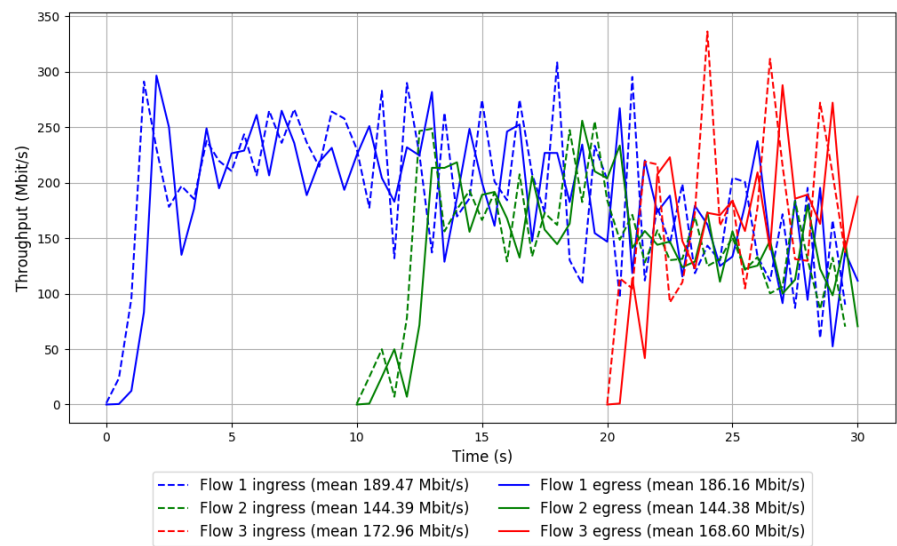
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-09-25 19:15:55
End at: 2018-09-25 19:16:25
Local clock offset: 0.0 ms
Remote clock offset: 0.418 ms


# Below is generated by plot.py at 2018-09-26 00:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 271.57 Mbit/s
95th percentile per-packet one-way delay: 131.232 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 134.21 Mbit/s
95th percentile per-packet one-way delay: 114.119 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 157.84 Mbit/s
95th percentile per-packet one-way delay: 134.314 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 99.41 Mbit/s
95th percentile per-packet one-way delay: 154.674 ms
Loss rate: 0.00%
```

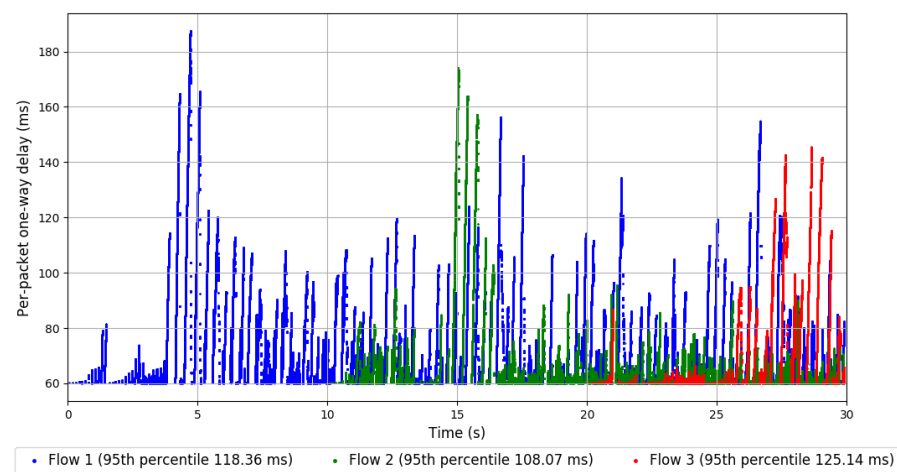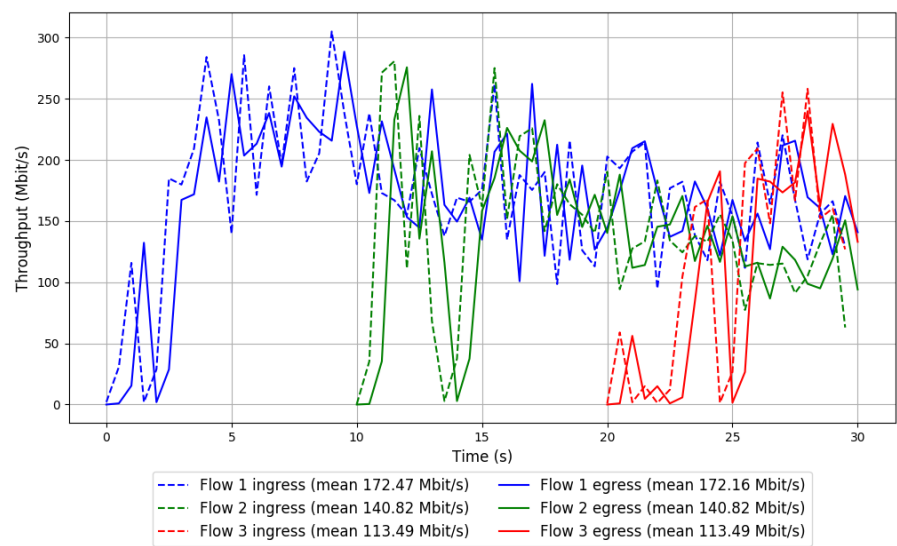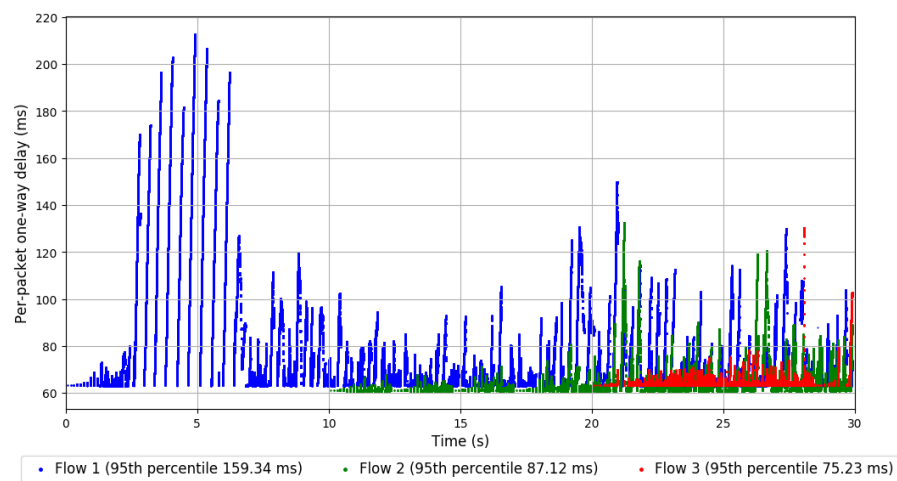Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-09-25 19:49:53
End at: 2018-09-25 19:50:23
Local clock offset: -0.024 ms
Remote clock offset: -0.111 ms


# Below is generated by plot.py at 2018-09-26 00:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 337.51 Mbit/s
95th percentile per-packet one-way delay: 177.877 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 186.16 Mbit/s
95th percentile per-packet one-way delay: 183.420 ms
Loss rate: 1.59%
-- Flow 2:
Average throughput: 144.38 Mbit/s
95th percentile per-packet one-way delay: 96.773 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 168.60 Mbit/s
95th percentile per-packet one-way delay: 215.325 ms
Loss rate: 2.49%
```

Run 3: Report of Verus — Data Link

- Flow 1 ingress (mean 189.47 Mbit/s)
- Flow 1 egress (mean 186.16 Mbit/s)
- Flow 2 ingress (mean 144.39 Mbit/s)
- Flow 2 egress (mean 144.38 Mbit/s)
- Flow 3 ingress (mean 172.96 Mbit/s)
- Flow 3 egress (mean 168.60 Mbit/s)

- Flow 1 (95th percentile 183.42 ms)
- Flow 2 (95th percentile 96.77 ms)
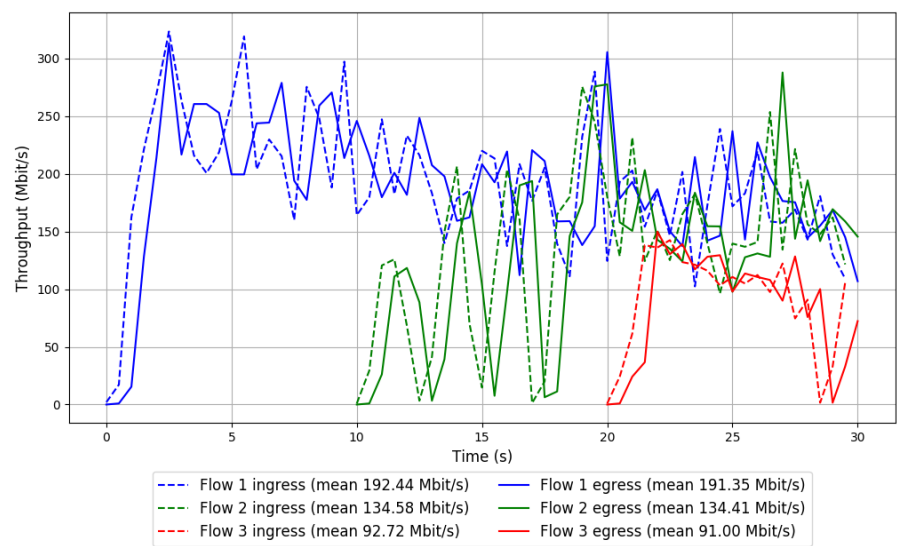- Flow 3 (95th percentile 215.32 ms)

```
Run 4: Statistics of Verus

Start at: 2018-09-25 20:23:53
End at: 2018-09-25 20:24:23
Local clock offset: -0.09 ms
Remote clock offset: -1.221 ms


# Below is generated by plot.py at 2018-09-26 00:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 303.02 Mbit/s
95th percentile per-packet one-way delay: 119.058 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 172.16 Mbit/s
95th percentile per-packet one-way delay: 118.361 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 140.82 Mbit/s
95th percentile per-packet one-way delay: 108.073 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 113.49 Mbit/s
95th percentile per-packet one-way delay: 125.136 ms
Loss rate: 0.00%
```

Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-25 20:57:38
End at: 2018-09-25 20:58:09
Local clock offset: -0.004 ms
Remote clock offset: -0.319 ms

# Below is generated by plot.py at 2018-09-26 00:24:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 310.61 Mbit/s
95th percentile per-packet one-way delay: 136.025 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 191.35 Mbit/s
95th percentile per-packet one-way delay: 159.340 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 134.41 Mbit/s
95th percentile per-packet one-way delay: 87.120 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 91.00 Mbit/s
95th percentile per-packet one-way delay: 75.226 ms
Loss rate: 1.85%
```
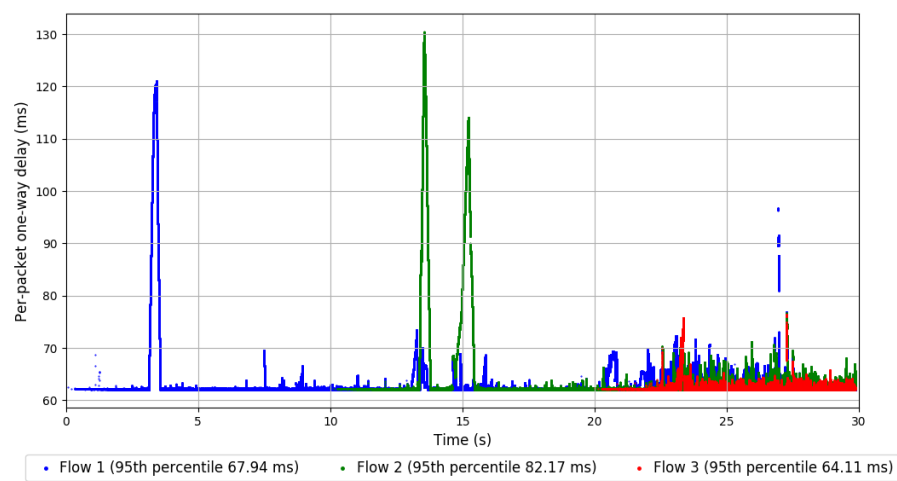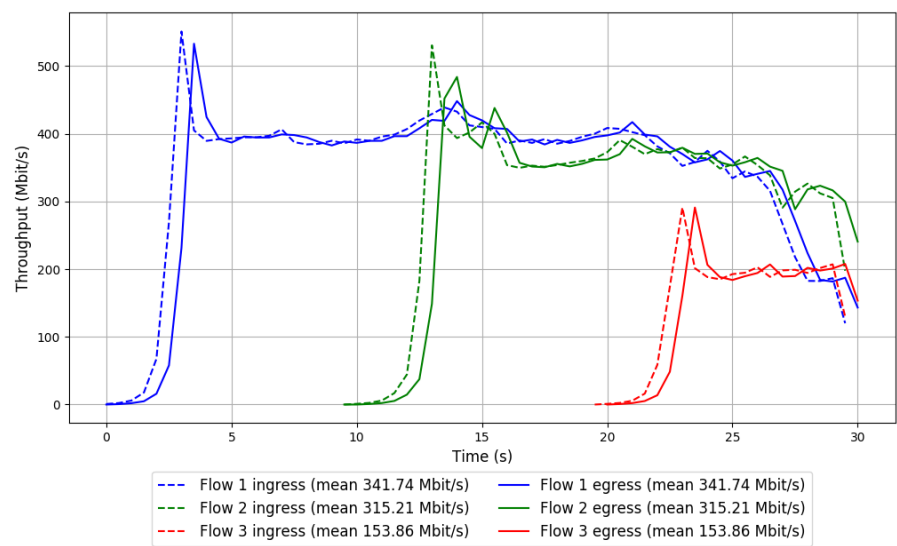
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-25 18:50:02
End at: 2018-09-25 18:50:32
Local clock offset: -0.065 ms
Remote clock offset: 1.751 ms


# Below is generated by plot.py at 2018-09-26 00:24:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 602.73 Mbit/s
95th percentile per-packet one-way delay: 68.822 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 341.74 Mbit/s
95th percentile per-packet one-way delay: 67.940 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 315.21 Mbit/s
95th percentile per-packet one-way delay: 82.175 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 153.86 Mbit/s
95th percentile per-packet one-way delay: 64.110 ms
Loss rate: 0.00%
```
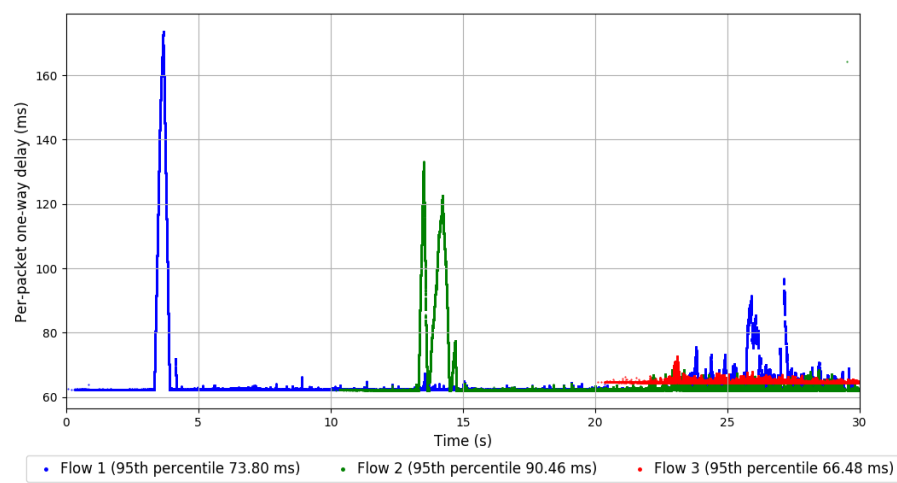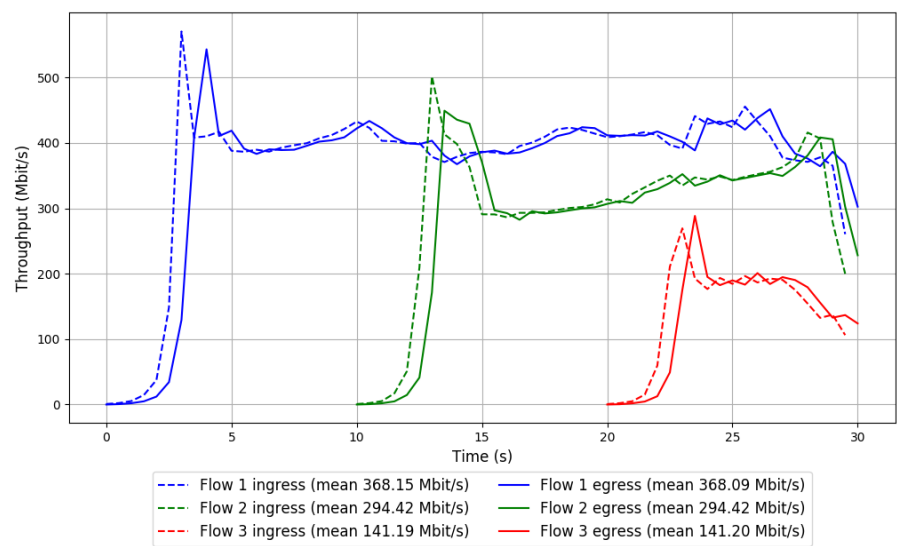
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-25 19:23:44
End at: 2018-09-25 19:24:14
Local clock offset: 0.012 ms
Remote clock offset: 1.888 ms


# Below is generated by plot.py at 2018-09-26 00:25:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 610.32 Mbit/s
95th percentile per-packet one-way delay: 76.715 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 368.09 Mbit/s
95th percentile per-packet one-way delay: 73.803 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 294.42 Mbit/s
95th percentile per-packet one-way delay: 90.464 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 141.20 Mbit/s
95th percentile per-packet one-way delay: 66.481 ms
Loss rate: 0.00%
```
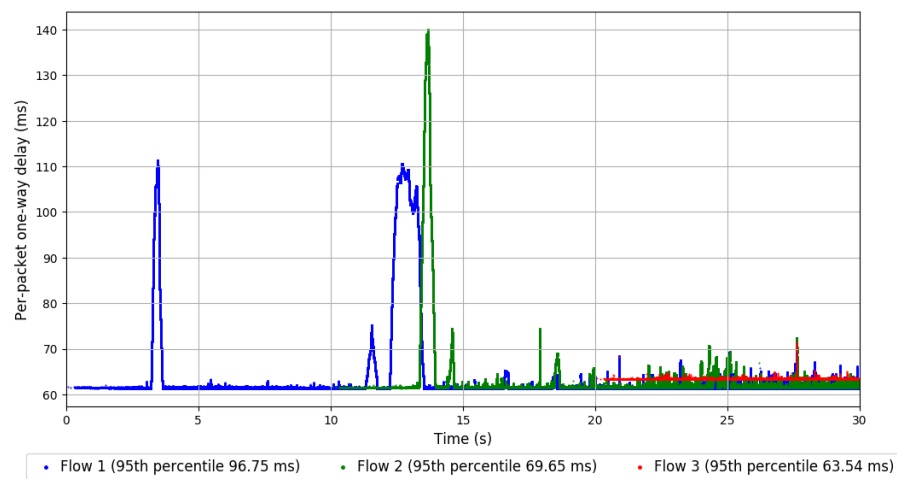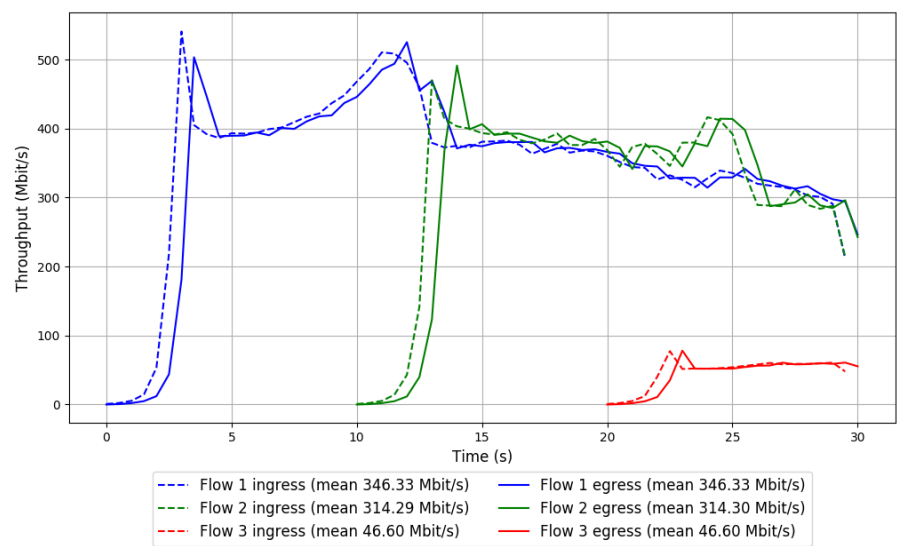
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-25 19:57:56
End at: 2018-09-25 19:58:26
Local clock offset: -0.018 ms
Remote clock offset: 0.351 ms


# Below is generated by plot.py at 2018-09-26 00:26:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 570.73 Mbit/s
95th percentile per-packet one-way delay: 82.275 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 346.33 Mbit/s
95th percentile per-packet one-way delay: 96.752 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 314.30 Mbit/s
95th percentile per-packet one-way delay: 69.654 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 46.60 Mbit/s
95th percentile per-packet one-way delay: 63.536 ms
Loss rate: 0.01%
```

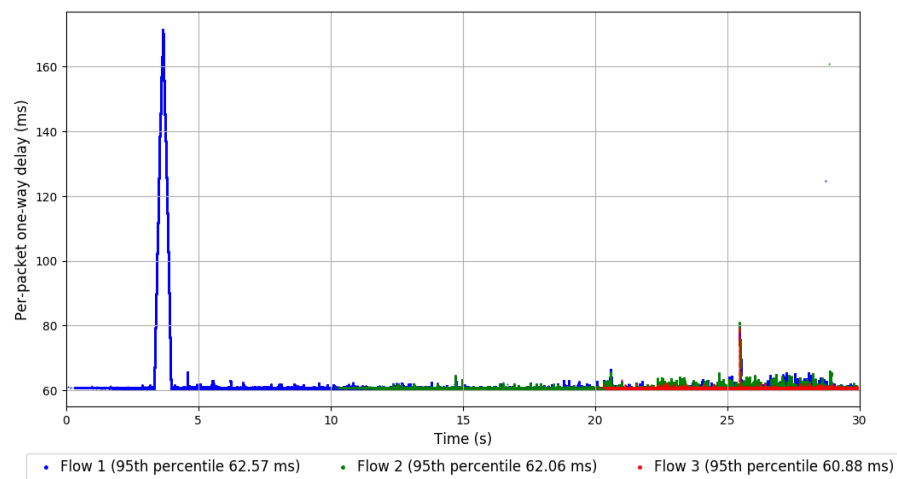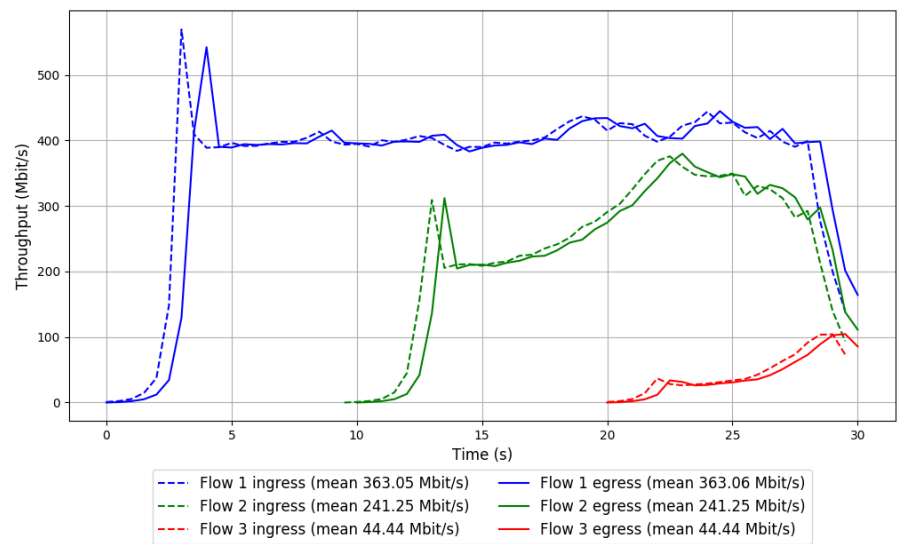## Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-25 20:31:47
End at: 2018-09-25 20:32:17
Local clock offset: -0.144 ms
Remote clock offset: -0.556 ms


# Below is generated by plot.py at 2018-09-26 00:26:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.21 Mbit/s
95th percentile per-packet one-way delay: 62.232 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 363.06 Mbit/s
95th percentile per-packet one-way delay: 62.574 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 241.25 Mbit/s
95th percentile per-packet one-way delay: 62.064 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 44.44 Mbit/s
95th percentile per-packet one-way delay: 60.878 ms
Loss rate: 0.00%
```

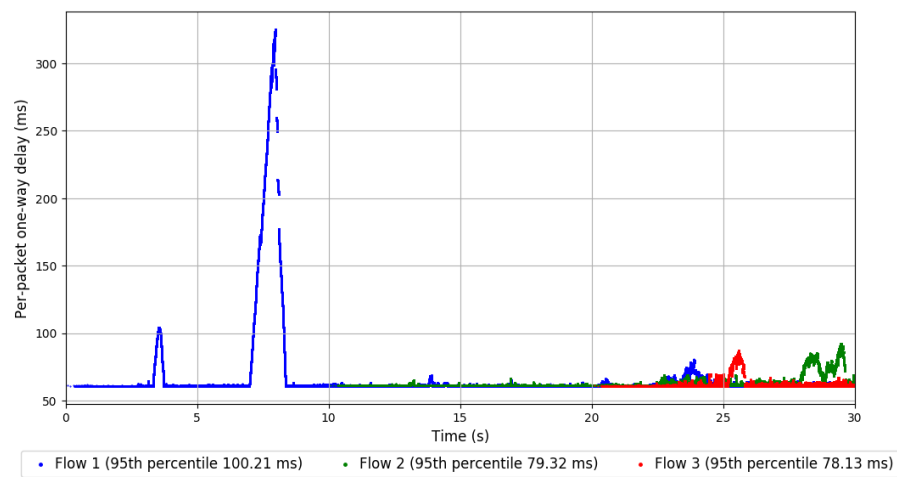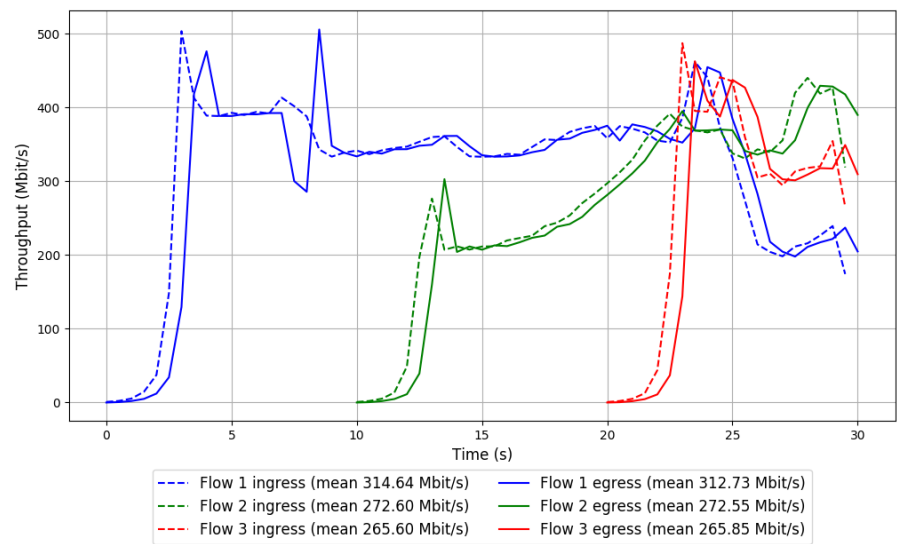Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-25 21:05:30
End at: 2018-09-25 21:06:00
Local clock offset: 0.028 ms
Remote clock offset: -0.362 ms


# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.41 Mbit/s
95th percentile per-packet one-way delay: 80.860 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 312.73 Mbit/s
95th percentile per-packet one-way delay: 100.209 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 272.55 Mbit/s
95th percentile per-packet one-way delay: 79.316 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 265.85 Mbit/s
95th percentile per-packet one-way delay: 78.127 ms
Loss rate: 0.00%
```

Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-09-25 19:13:32
End at: 2018-09-25 19:14:02
Local clock offset: -0.033 ms
Remote clock offset: 1.115 ms


# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 63.992 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 61.663 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 64.036 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.61 Mbit/s
95th percentile per-packet one-way delay: 63.678 ms
Loss rate: 0.00%
```
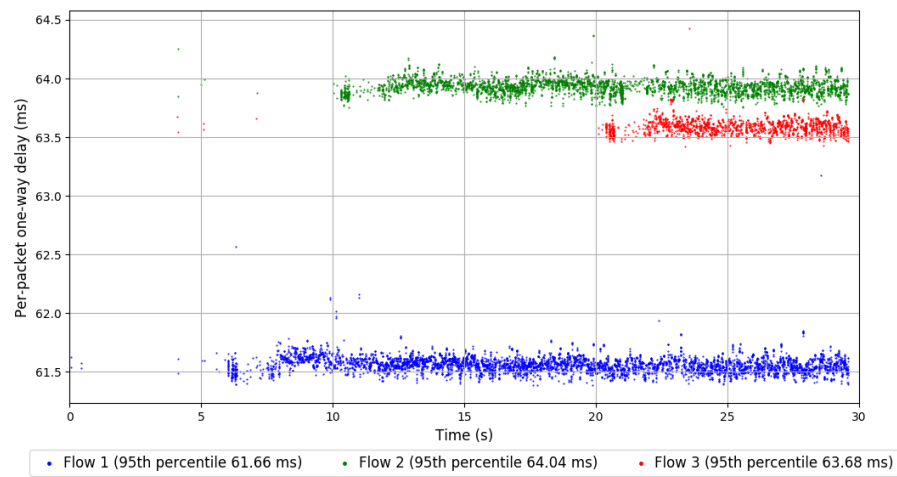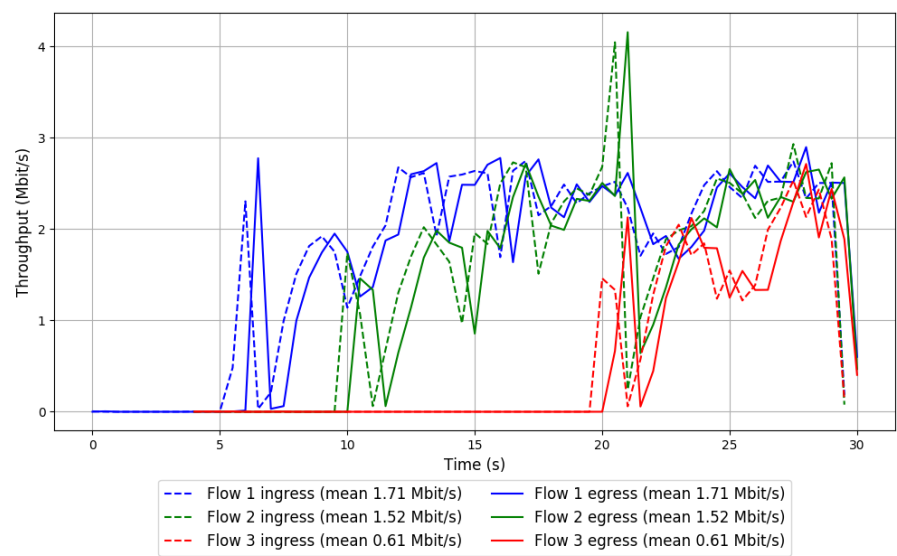
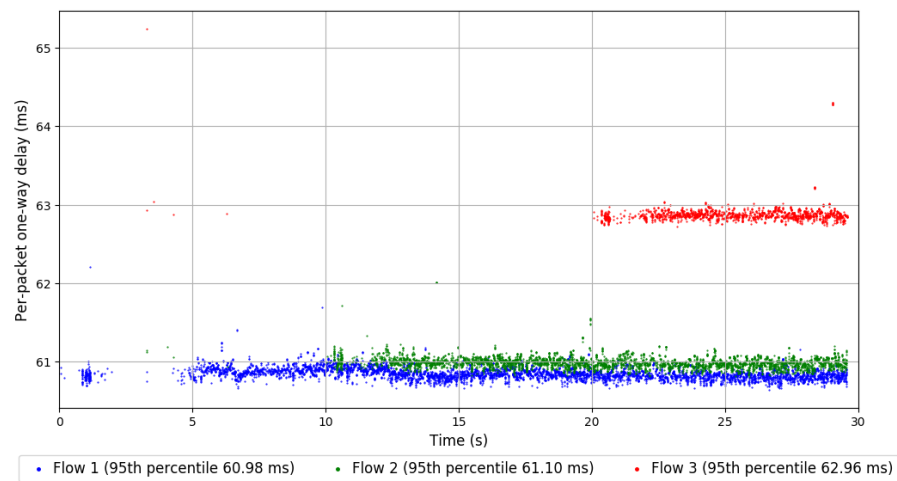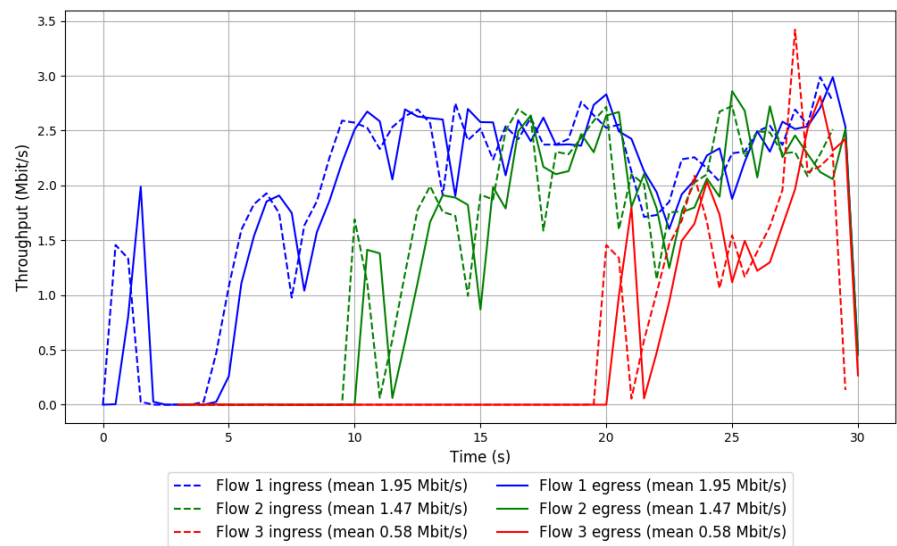Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-25 19:47:31
End at: 2018-09-25 19:48:01
Local clock offset: 0.025 ms
Remote clock offset: -0.109 ms


# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 62.883 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 60.975 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 61.100 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 62.960 ms
Loss rate: 0.00%
```

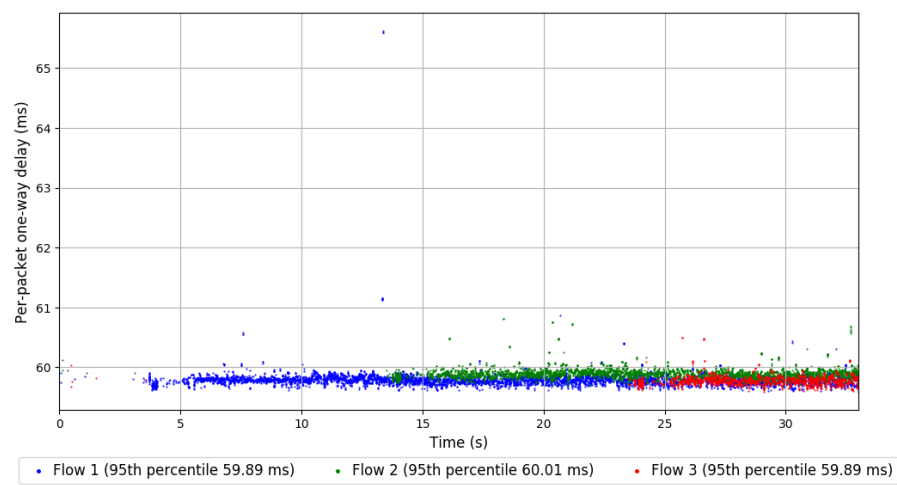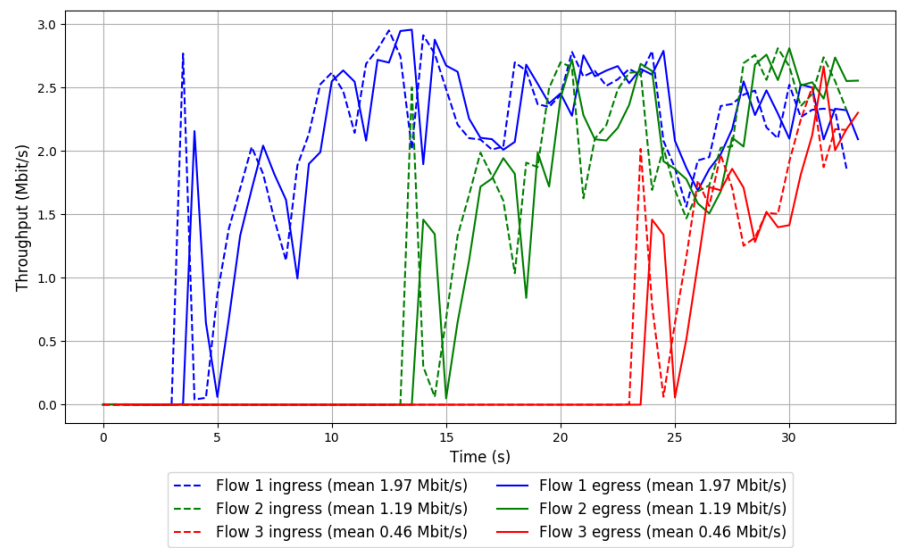Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-25 20:21:30
End at: 2018-09-25 20:22:00
Local clock offset: -0.036 ms
Remote clock offset: -1.429 ms


# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.62 Mbit/s
95th percentile per-packet one-way delay: 59.955 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 59.888 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 60.005 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 59.890 ms
Loss rate: 0.00%
```
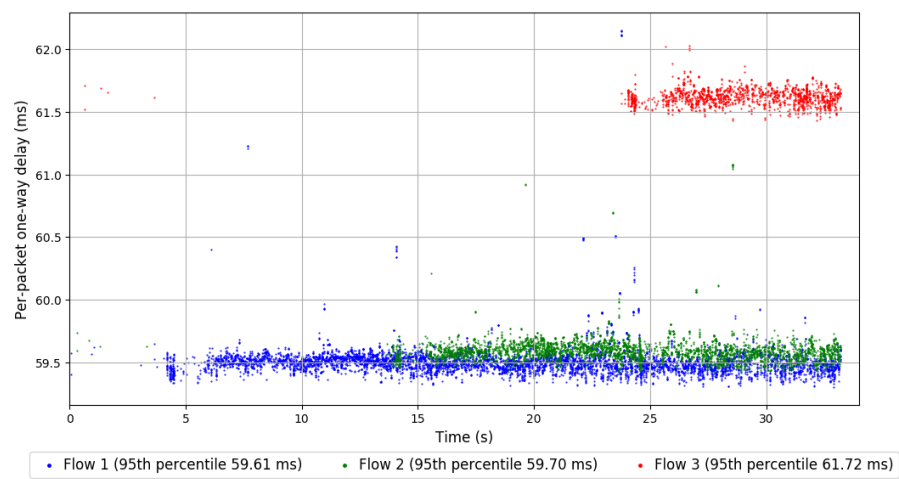
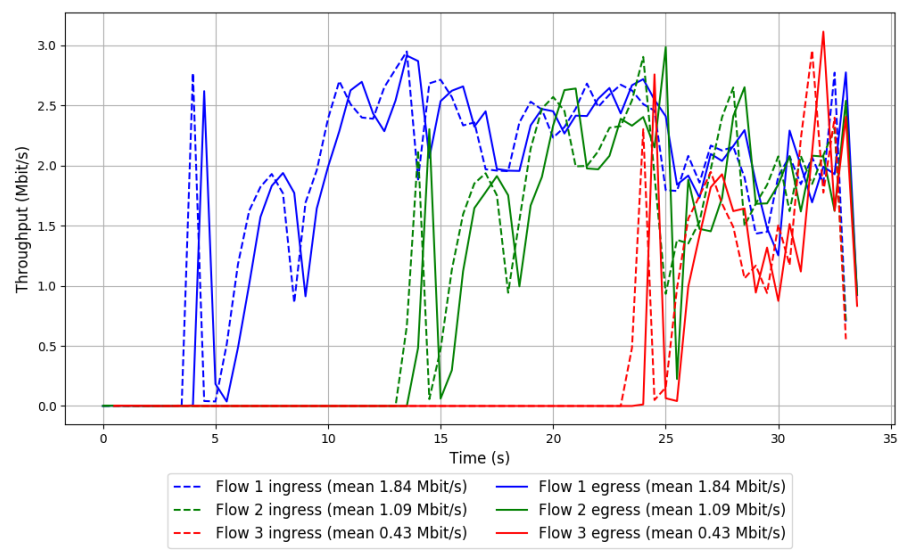Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-25 20:55:16
End at: 2018-09-25 20:55:46
Local clock offset: 0.014 ms
Remote clock offset: -1.836 ms

# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.35 Mbit/s
95th percentile per-packet one-way delay: 61.639 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 59.607 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.09 Mbit/s
95th percentile per-packet one-way delay: 59.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 61.724 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-25 21:29:18
End at: 2018-09-25 21:29:48
Local clock offset: -0.158 ms
Remote clock offset: -0.321 ms


# Below is generated by plot.py at 2018-09-26 00:26:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.73 Mbit/s
95th percentile per-packet one-way delay: 61.690 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 61.392 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 61.738 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 61.539 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link