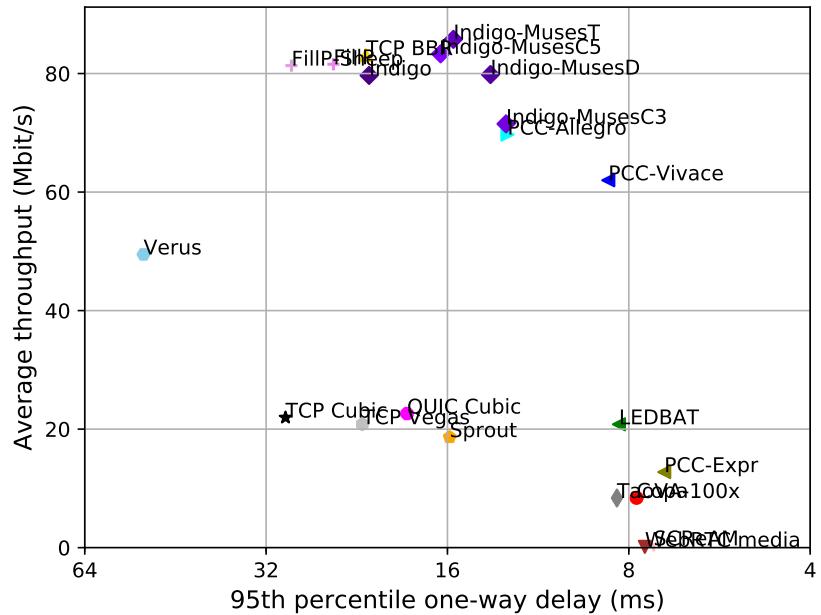# Pantheon Report

Generated at 2019-01-19 02:24:43 (UTC).

Data path: AWS India 1 on `ens5` (*local*) →India on `em1` (*remote*).

Repeated the test of 21 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 `nets.org.sg` and have been applied to correct the timestamps in logs.

```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c80a283586bf7b0cc1fe08c69c8f60d56498f81c
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-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
```
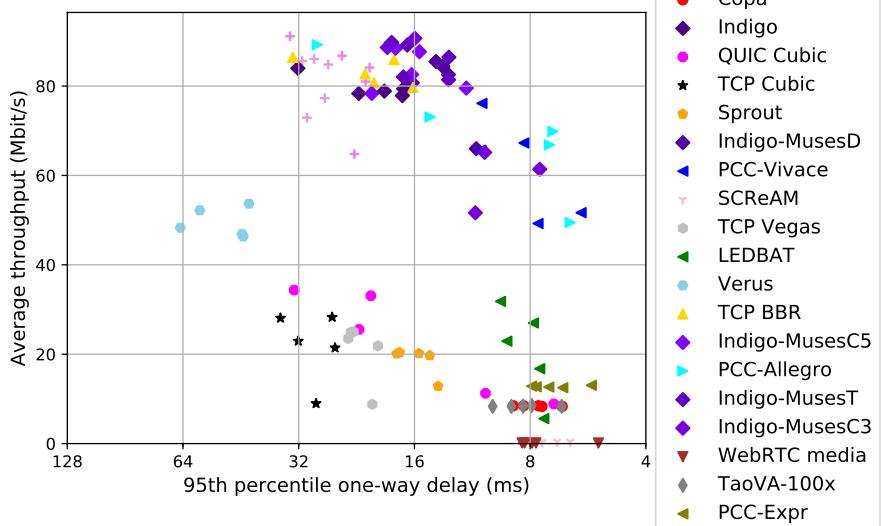
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS India 1 to India, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from AWS India 1 to India, 5 runs of 30s each per scheme
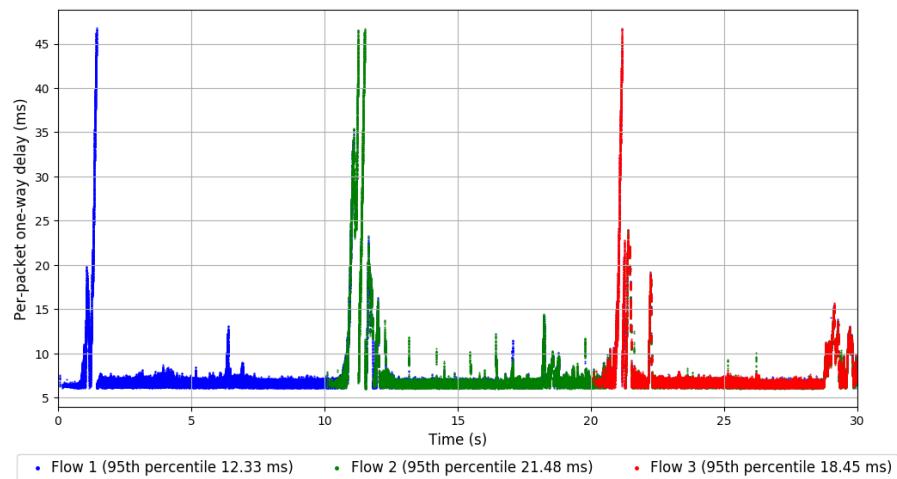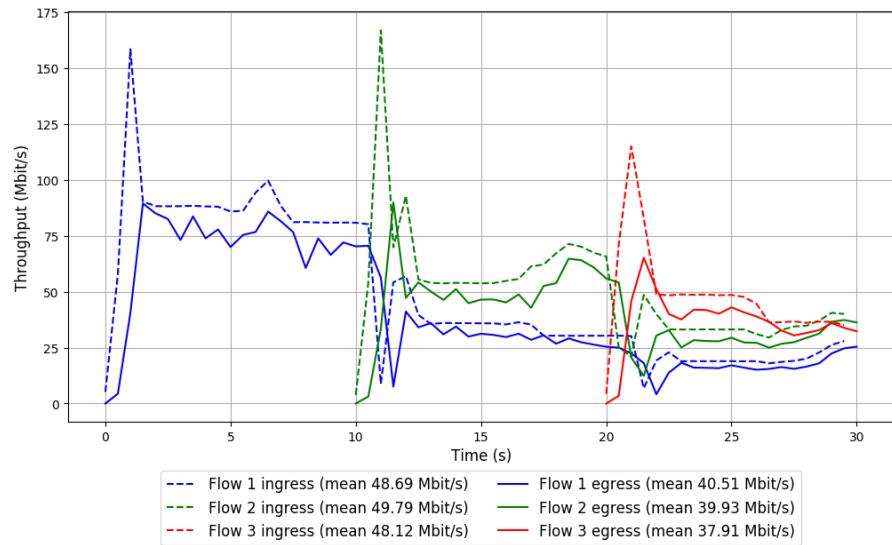3 flows with 10s interval between flows

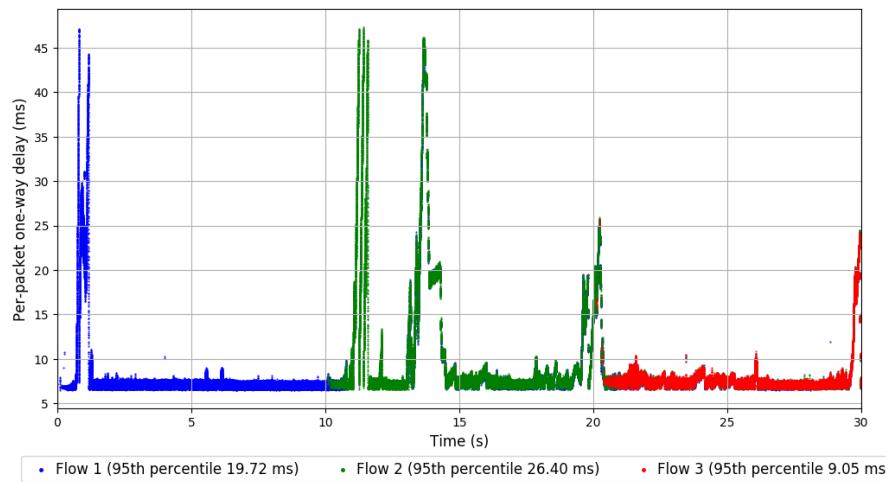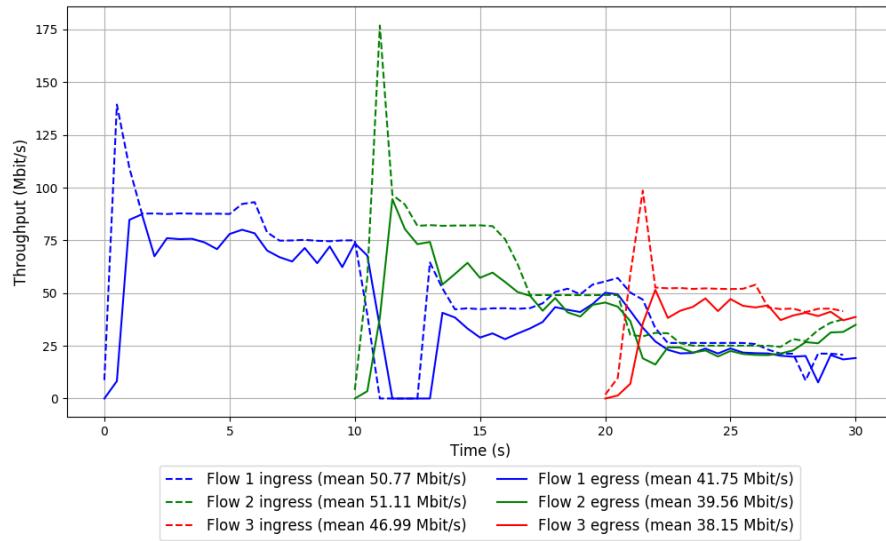| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	47.26	37.07	34.91	19.74	28.81	13.66	17.02	21.56	20.61
Copa	5	0.00	9.89	5.50	7.67	8.08	7.51	98.49	70.23	74.56
TCP Cubic	5	9.46	11.41	14.73	31.30	21.33	23.32	6.76	3.66	2.80
FillP	5	49.21	35.80	25.92	24.60	26.48	20.51	27.09	37.84	38.35
FillP-Sheep	5	50.79	34.18	23.70	28.50	31.19	23.47	15.96	19.71	19.00
Indigo	5	47.03	37.15	24.71	20.60	22.69	20.11	23.58	26.78	55.80
Indigo-MusesC3	5	47.21	27.04	22.11	12.05	13.21	13.22	9.33	10.14	10.15
Indigo-MusesC5	5	75.24	9.17	7.21	16.33	16.86	17.49	13.31	15.23	14.63
Indigo-MusesD	5	74.55	7.02	2.55	13.50	14.46	14.68	11.87	14.29	13.77
Indigo-MusesT	5	82.17	3.19	5.03	15.73	13.74	12.73	15.60	17.54	18.45
LEDBAT	5	12.73	9.03	6.46	8.18	8.37	8.36	0.67	0.65	0.66
PCC-Allegro	5	61.98	7.41	8.45	12.46	12.90	16.40	9.87	9.07	10.31
PCC-Expr	5	8.15	4.79	4.26	6.98	7.01	7.02	43.75	36.73	30.36
QUIC Cubic	5	12.83	7.81	13.65	18.34	8.36	17.27	5.61	2.19	4.04
SCReAM	5	0.19	0.19	0.20	7.29	7.24	7.26	0.63	0.52	0.52
Sprout	5	9.46	9.16	9.42	15.04	16.04	17.11	2.19	2.83	2.72
TaoVA-100x	5	0.00	9.18	7.15	7.80	9.22	8.00	95.92	35.15	49.43
TCP Vegas	5	10.59	9.10	12.58	18.08	17.86	29.25	3.73	2.15	3.46
Verus	5	29.04	24.19	15.43	44.78	56.17	32.70	74.59	64.84	46.87
PCC-Vivace	5	50.30	12.80	9.61	8.44	9.13	9.93	5.73	6.43	6.17
WebRTC media	5	0.05	0.04	0.05	7.40	7.48	7.62	0.05	0.02	0.23

```
Run 1: Statistics of TCP BBR

Start at: 2019-01-19 00:05:26
End at: 2019-01-19 00:05:56
Local clock offset: 1.092 ms
Remote clock offset: -4.017 ms


# Below is generated by plot.py at 2019-01-19 02:17:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.71 Mbit/s
95th percentile per-packet one-way delay: 16.142 ms
Loss rate: 18.53%
-- Flow 1:
Average throughput: 40.51 Mbit/s
95th percentile per-packet one-way delay: 12.327 ms
Loss rate: 16.80%
-- Flow 2:
Average throughput: 39.93 Mbit/s
95th percentile per-packet one-way delay: 21.478 ms
Loss rate: 19.79%
-- Flow 3:
Average throughput: 37.91 Mbit/s
95th percentile per-packet one-way delay: 18.453 ms
Loss rate: 21.20%
```
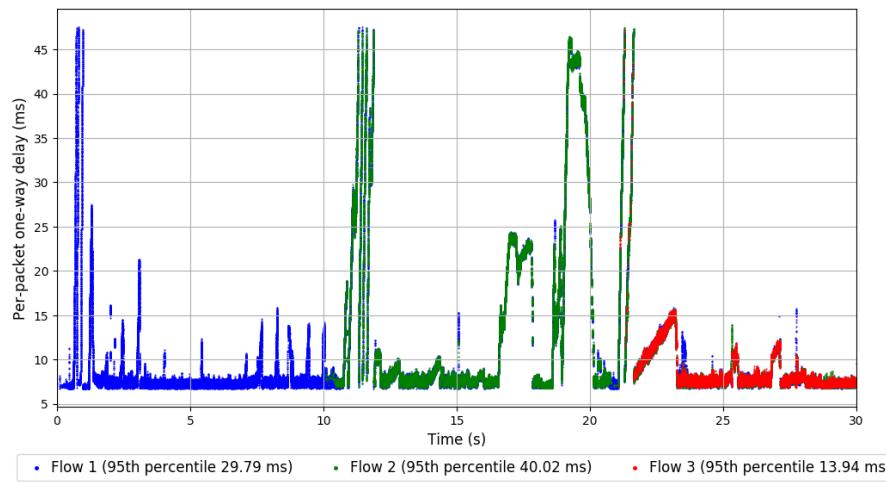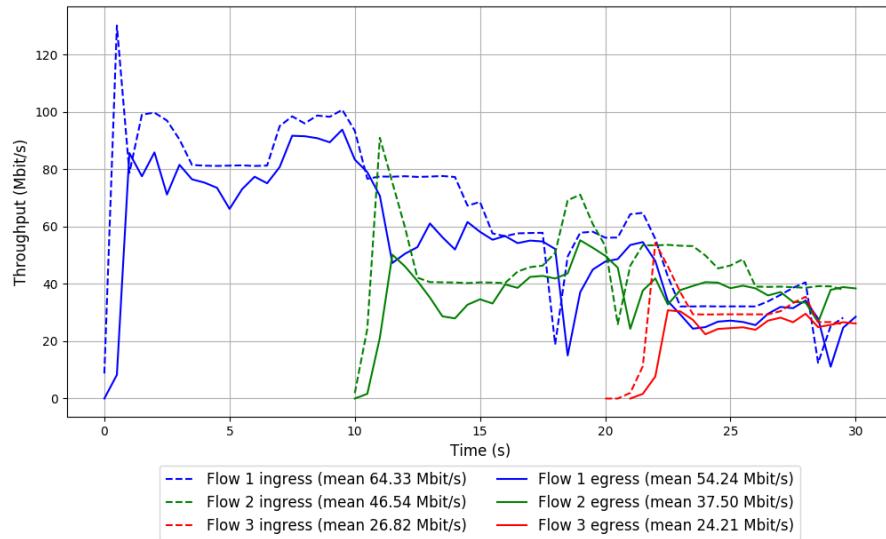
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-01-19 00:31:16
End at: 2019-01-19 00:31:46
Local clock offset: 1.094 ms
Remote clock offset: -3.885 ms


# Below is generated by plot.py at 2019-01-19 02:17:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.77 Mbit/s
95th percentile per-packet one-way delay: 20.382 ms
Loss rate: 19.58%
-- Flow 1:
Average throughput: 41.75 Mbit/s
95th percentile per-packet one-way delay: 19.724 ms
Loss rate: 17.77%
-- Flow 2:
Average throughput: 39.56 Mbit/s
95th percentile per-packet one-way delay: 26.399 ms
Loss rate: 22.59%
-- Flow 3:
Average throughput: 38.15 Mbit/s
95th percentile per-packet one-way delay: 9.049 ms
Loss rate: 18.88%
```
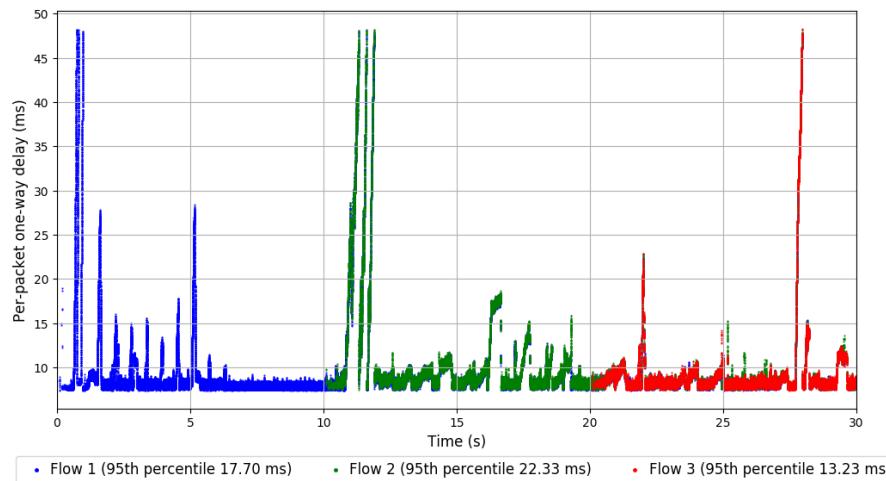
Run 2: Report of TCP BBR — Data Link

8

```
Run 3: Statistics of TCP BBR

Start at: 2019-01-19 00:57:35
End at: 2019-01-19 00:58:05
Local clock offset: 1.629 ms
Remote clock offset: -3.434 ms


# Below is generated by plot.py at 2019-01-19 02:17:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.42 Mbit/s
95th percentile per-packet one-way delay: 33.180 ms
Loss rate: 17.09%
-- Flow 1:
Average throughput: 54.24 Mbit/s
95th percentile per-packet one-way delay: 29.791 ms
Loss rate: 15.69%
-- Flow 2:
Average throughput: 37.50 Mbit/s
95th percentile per-packet one-way delay: 40.022 ms
Loss rate: 19.45%
-- Flow 3:
Average throughput: 24.21 Mbit/s
95th percentile per-packet one-way delay: 13.939 ms
Loss rate: 19.02%
```
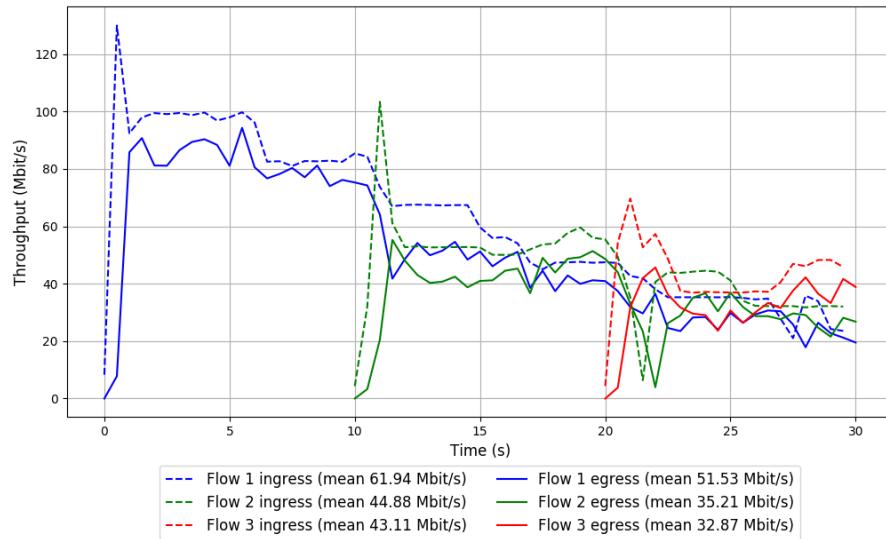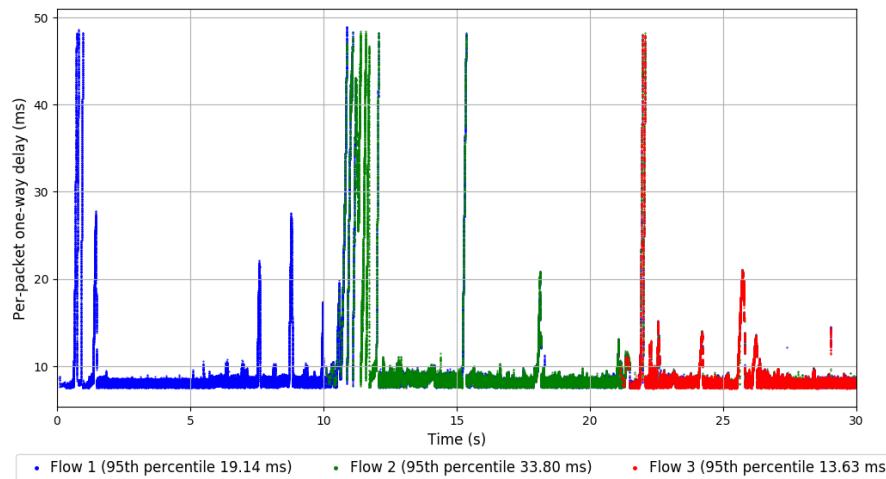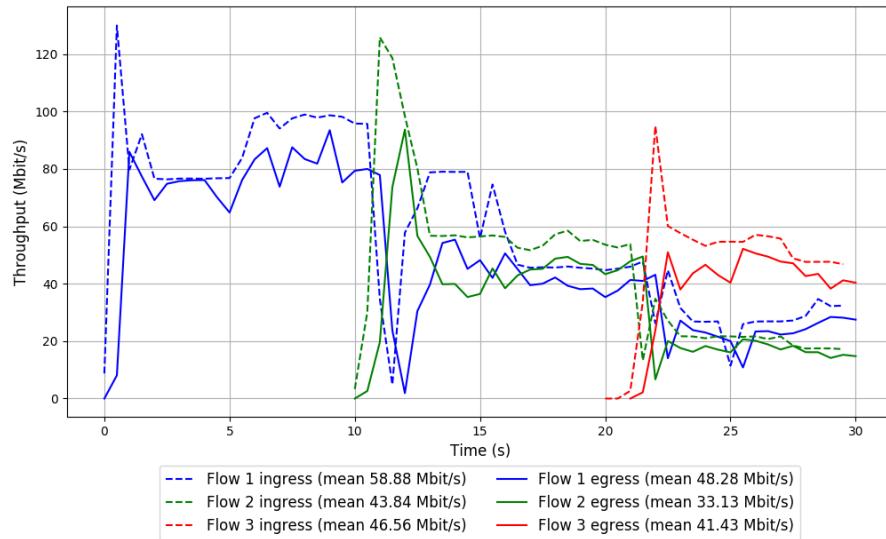
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 64.33 Mbit/s) --- Flow 1 egress (mean 54.24 Mbit/s)
Flow 2 ingress (mean 46.54 Mbit/s) --- Flow 2 egress (mean 37.50 Mbit/s)
Flow 3 ingress (mean 26.82 Mbit/s) --- Flow 3 egress (mean 24.21 Mbit/s)

Flow 1 (95th percentile 29.79 ms)   Flow 2 (95th percentile 40.02 ms)   Flow 3 (95th percentile 13.94 ms)

10

```
Run 4: Statistics of TCP BBR

Start at: 2019-01-19 01:23:28
End at: 2019-01-19 01:23:58
Local clock offset: 1.128 ms
Remote clock offset: -3.128 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.91 Mbit/s
95th percentile per-packet one-way delay: 18.076 ms
Loss rate: 19.08%
-- Flow 1:
Average throughput: 51.53 Mbit/s
95th percentile per-packet one-way delay: 17.700 ms
Loss rate: 16.81%
-- Flow 2:
Average throughput: 35.21 Mbit/s
95th percentile per-packet one-way delay: 22.330 ms
Loss rate: 21.54%
-- Flow 3:
Average throughput: 32.87 Mbit/s
95th percentile per-packet one-way delay: 13.231 ms
Loss rate: 23.75%
```
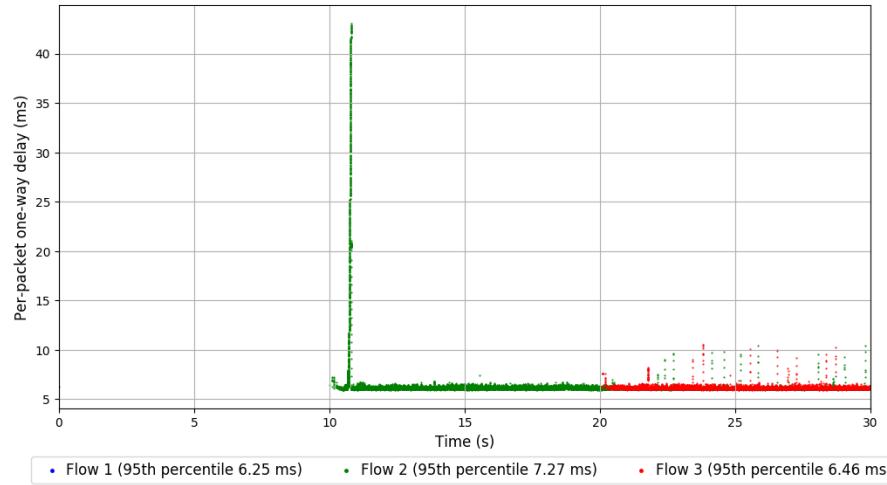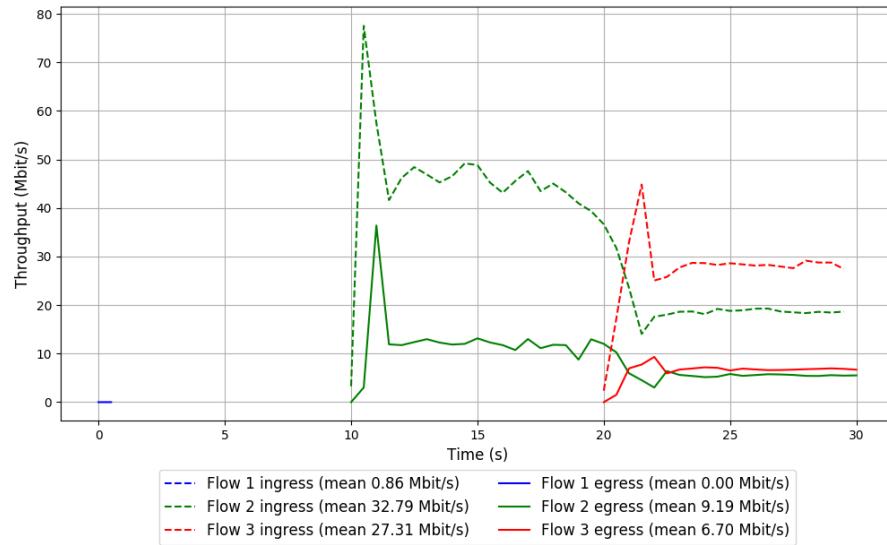
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 61.94 Mbit/s)   Flow 1 egress (mean 51.53 Mbit/s)
Flow 2 ingress (mean 44.88 Mbit/s)   Flow 2 egress (mean 35.21 Mbit/s)
Flow 3 ingress (mean 43.11 Mbit/s)   Flow 3 egress (mean 32.87 Mbit/s)

Flow 1 (95th percentile 17.70 ms)   Flow 2 (95th percentile 22.33 ms)   Flow 3 (95th percentile 13.23 ms)
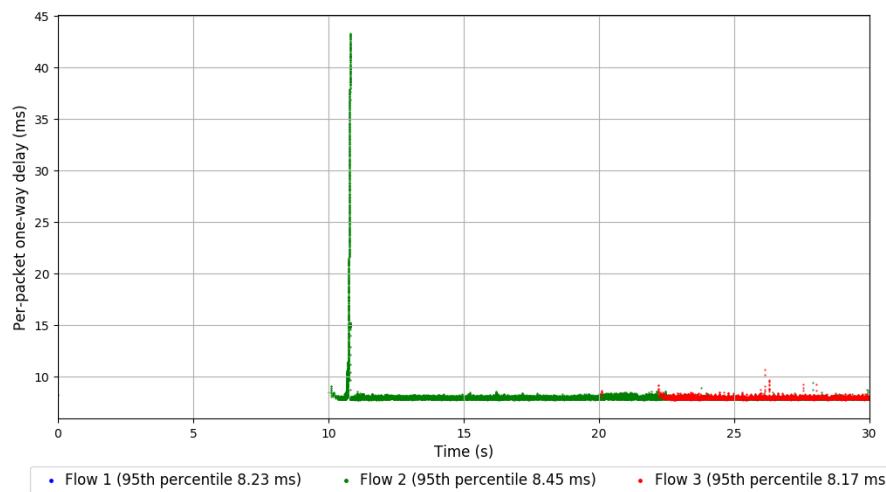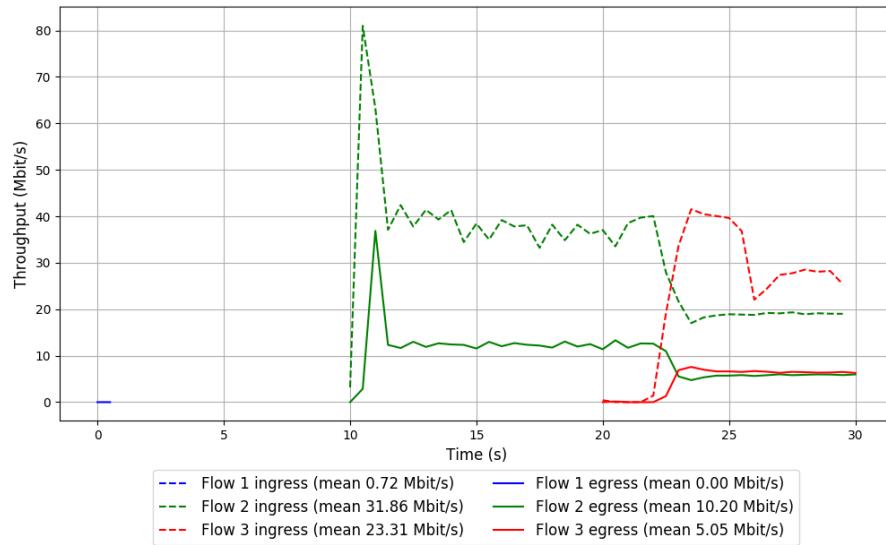
12

```
Run 5: Statistics of TCP BBR

Start at: 2019-01-19 01:49:42
End at: 2019-01-19 01:50:12
Local clock offset: 0.031 ms
Remote clock offset: -3.678 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.71 Mbit/s
95th percentile per-packet one-way delay: 21.498 ms
Loss rate: 20.15%
-- Flow 1:
Average throughput: 48.28 Mbit/s
95th percentile per-packet one-way delay: 19.145 ms
Loss rate: 18.01%
-- Flow 2:
Average throughput: 33.13 Mbit/s
95th percentile per-packet one-way delay: 33.802 ms
Loss rate: 24.42%
-- Flow 3:
Average throughput: 41.43 Mbit/s
95th percentile per-packet one-way delay: 13.628 ms
Loss rate: 20.22%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 58.88 Mbit/s) --- Flow 1 egress (mean 48.28 Mbit/s)
Flow 2 ingress (mean 43.84 Mbit/s) --- Flow 2 egress (mean 33.13 Mbit/s)
Flow 3 ingress (mean 46.56 Mbit/s) --- Flow 3 egress (mean 41.43 Mbit/s)

Flow 1 (95th percentile 19.14 ms)   Flow 2 (95th percentile 33.80 ms)   Flow 3 (95th percentile 13.63 ms)

14

```
Run 1: Statistics of Copa

Start at: 2019-01-19 00:28:44
End at: 2019-01-19 00:29:14
Local clock offset: 2.248 ms
Remote clock offset: -3.359 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 6.602 ms
Loss rate: 73.01%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 6.249 ms
Loss rate: 98.60%
-- Flow 2:
Average throughput: 9.19 Mbit/s
95th percentile per-packet one-way delay: 7.272 ms
Loss rate: 71.98%
-- Flow 3:
Average throughput: 6.70 Mbit/s
95th percentile per-packet one-way delay: 6.460 ms
Loss rate: 75.48%
```
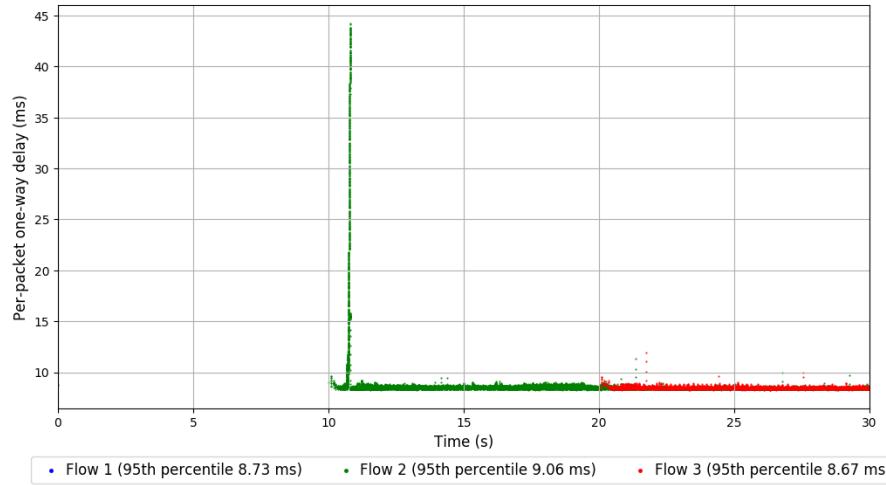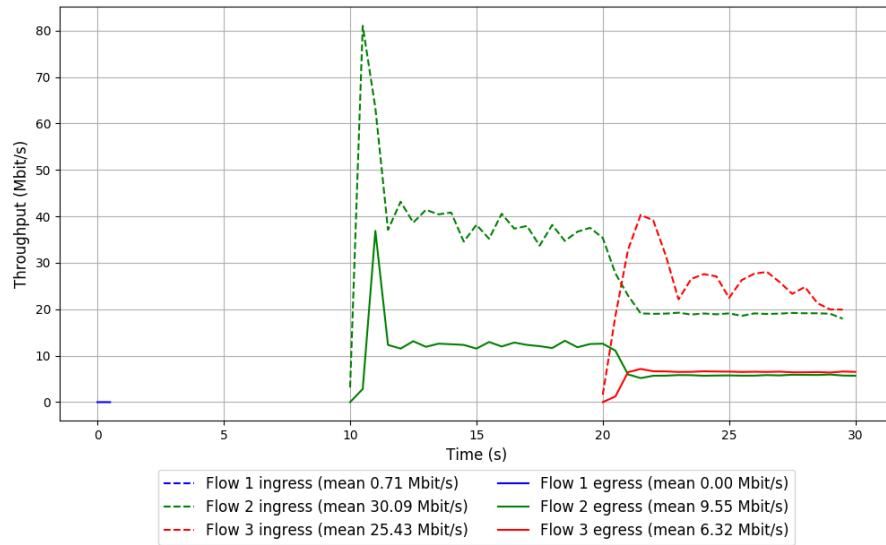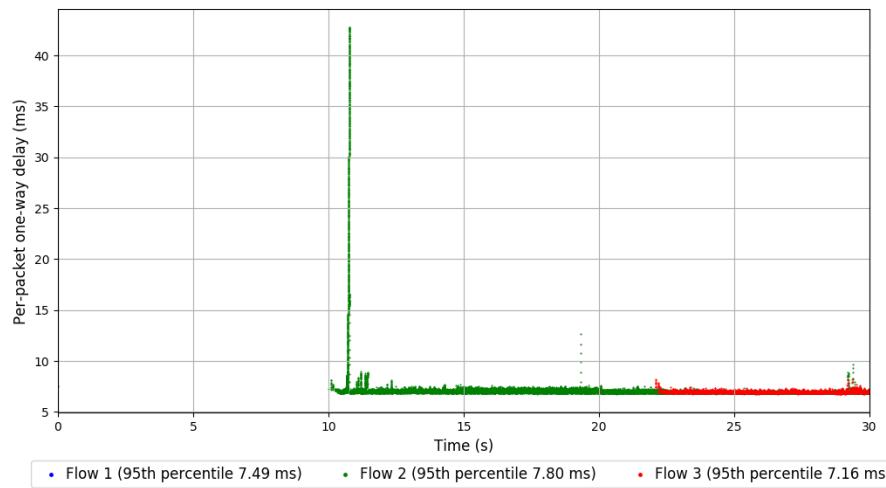
Run 1: Report of Copa — Data Link

- - - Flow 1 ingress (mean 0.86 Mbit/s) ——— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 32.79 Mbit/s) ——— Flow 2 egress (mean 9.19 Mbit/s)
- - - Flow 3 ingress (mean 27.31 Mbit/s) ——— Flow 3 egress (mean 6.70 Mbit/s)

· Flow 1 (95th percentile 6.25 ms)   · Flow 2 (95th percentile 7.27 ms)   · Flow 3 (95th percentile 6.46 ms)

16

```
Run 2: Statistics of Copa

Start at: 2019-01-19 00:55:02
End at: 2019-01-19 00:55:32
Local clock offset: 0.353 ms
Remote clock offset: -3.757 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 8.317 ms
Loss rate: 70.77%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 8.234 ms
Loss rate: 98.33%
-- Flow 2:
Average throughput: 10.20 Mbit/s
95th percentile per-packet one-way delay: 8.449 ms
Loss rate: 68.01%
-- Flow 3:
Average throughput: 5.05 Mbit/s
95th percentile per-packet one-way delay: 8.174 ms
Loss rate: 78.35%
```
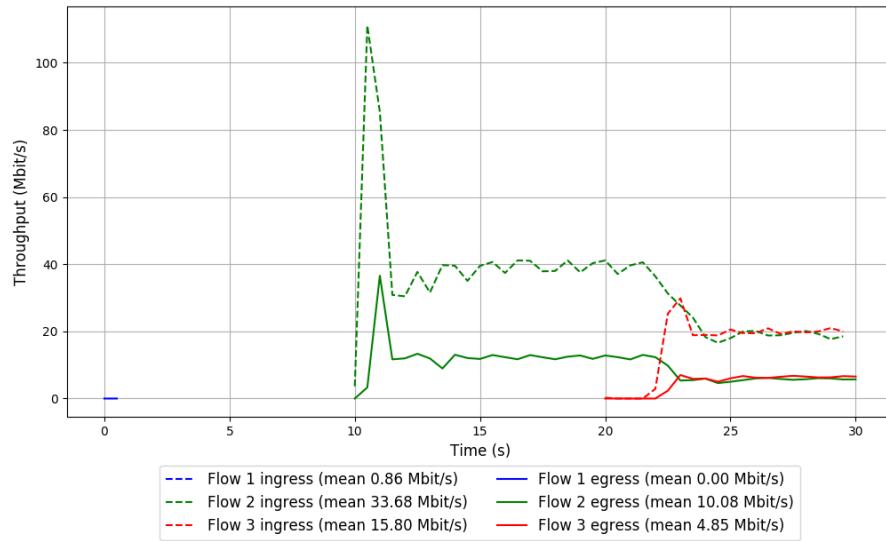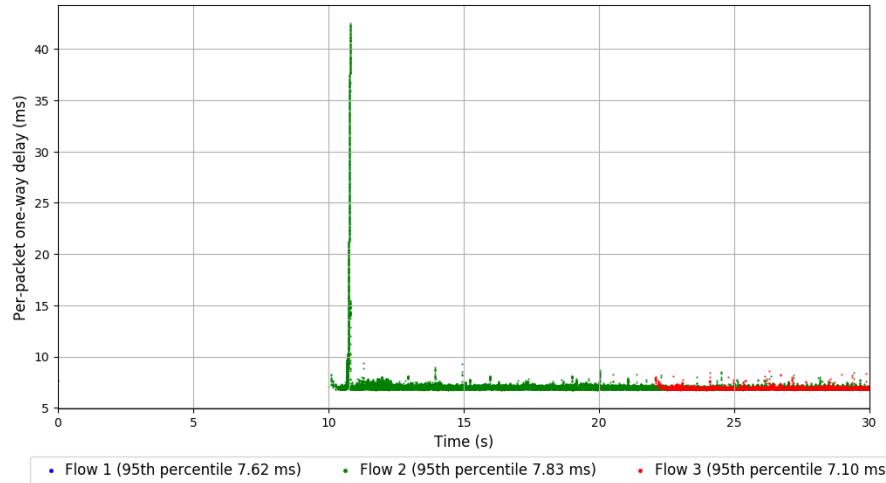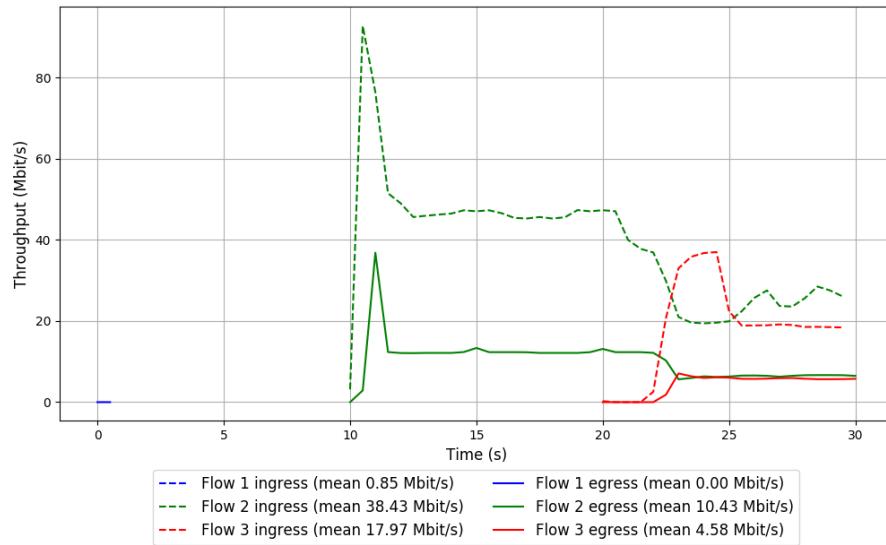
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 0.72 Mbit/s) — — — Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 31.86 Mbit/s) — — — Flow 2 egress (mean 10.20 Mbit/s)
Flow 3 ingress (mean 23.31 Mbit/s) — — — Flow 3 egress (mean 5.05 Mbit/s)

• Flow 1 (95th percentile 8.23 ms)   • Flow 2 (95th percentile 8.45 ms)   • Flow 3 (95th percentile 8.17 ms)

```
Run 3: Statistics of Copa

Start at: 2019-01-19 01:21:03
End at: 2019-01-19 01:21:33
Local clock offset: -0.105 ms
Remote clock offset: -3.662 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.46 Mbit/s
95th percentile per-packet one-way delay: 8.848 ms
Loss rate: 70.30%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 8.732 ms
Loss rate: 98.33%
-- Flow 2:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 9.060 ms
Loss rate: 68.24%
-- Flow 3:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 8.673 ms
Loss rate: 75.16%
```
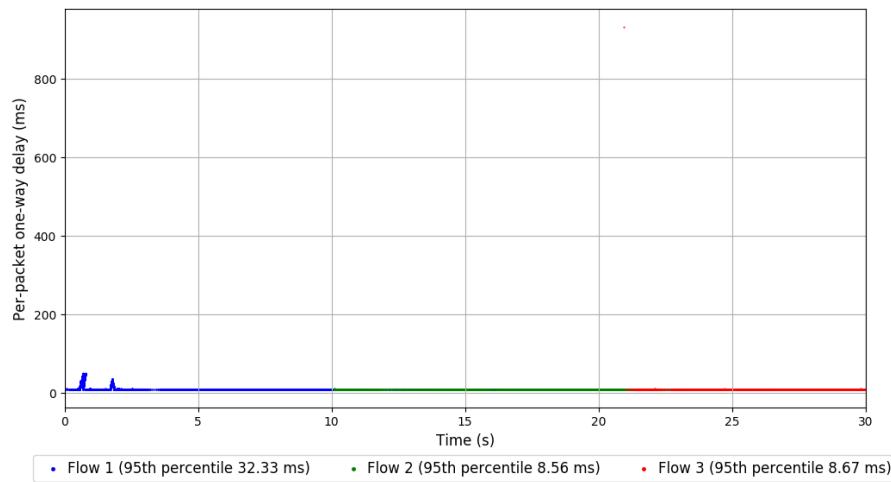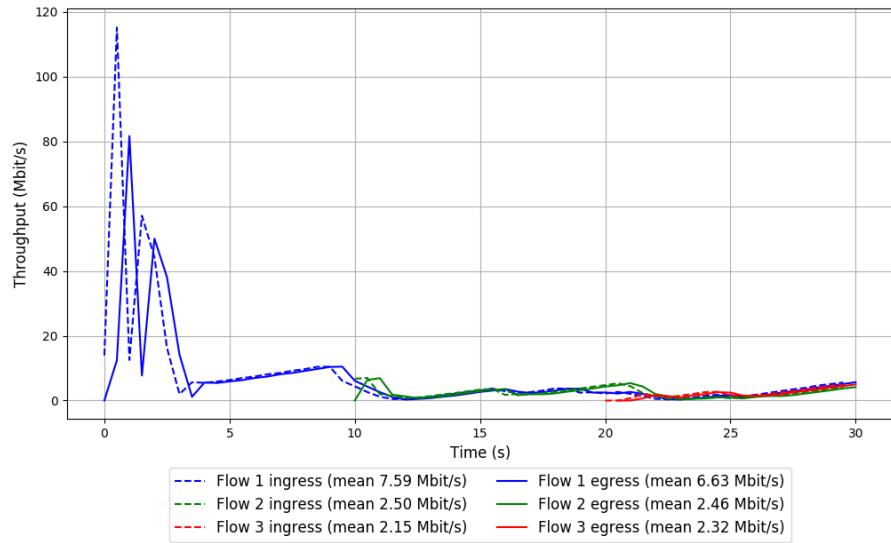
Run 3: Report of Copa — Data Link

Legend:
- Flow 1 ingress (mean 0.71 Mbit/s)
- Flow 1 egress (mean 0.00 Mbit/s)
- Flow 2 ingress (mean 30.09 Mbit/s)
- Flow 2 egress (mean 9.55 Mbit/s)
- Flow 3 ingress (mean 25.43 Mbit/s)
- Flow 3 egress (mean 6.32 Mbit/s)

Legend:
- Flow 1 (95th percentile 8.73 ms)
- Flow 2 (95th percentile 9.06 ms)
- Flow 3 (95th percentile 8.67 ms)

```
Run 4: Statistics of Copa

Start at: 2019-01-19 01:47:17
End at: 2019-01-19 01:47:47
Local clock offset: 0.925 ms
Remote clock offset: -3.822 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.32 Mbit/s
95th percentile per-packet one-way delay: 7.454 ms
Loss rate: 69.91%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 7.494 ms
Loss rate: 98.60%
-- Flow 2:
Average throughput: 10.08 Mbit/s
95th percentile per-packet one-way delay: 7.801 ms
Loss rate: 70.06%
-- Flow 3:
Average throughput: 4.85 Mbit/s
95th percentile per-packet one-way delay: 7.161 ms
Loss rate: 69.29%
```
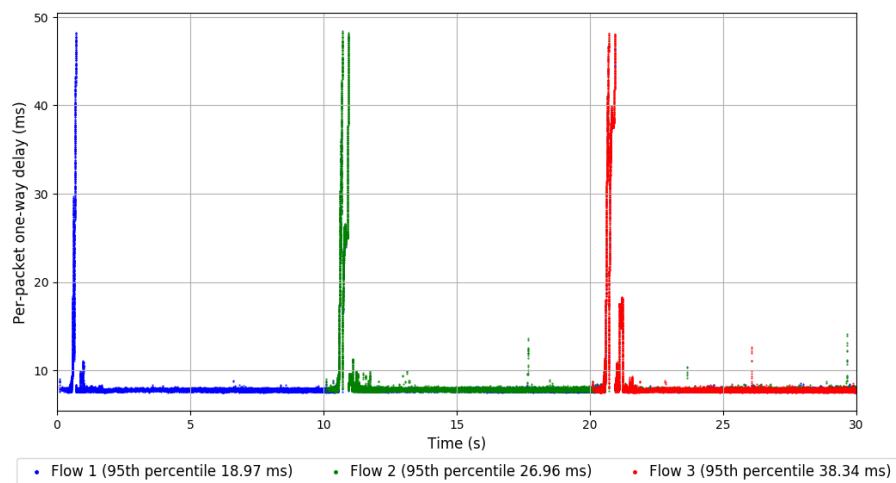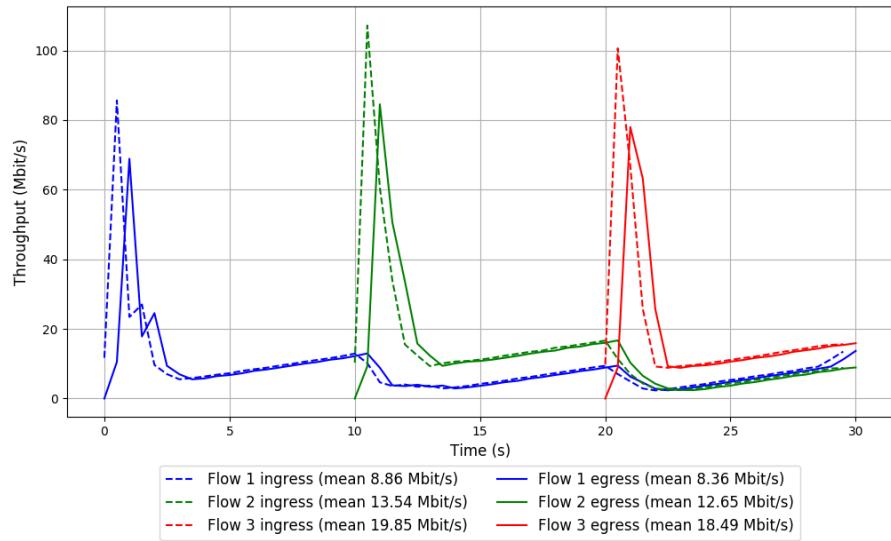
Run 4: Report of Copa — Data Link

- - - Flow 1 ingress (mean 0.86 Mbit/s)   —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 33.68 Mbit/s)   —— Flow 2 egress (mean 10.08 Mbit/s)
- - - Flow 3 ingress (mean 15.80 Mbit/s)   —— Flow 3 egress (mean 4.85 Mbit/s)

- Flow 1 (95th percentile 7.49 ms)   - Flow 2 (95th percentile 7.80 ms)   - Flow 3 (95th percentile 7.16 ms)

```
Run 5: Statistics of Copa

Start at: 2019-01-19 02:13:06
End at: 2019-01-19 02:13:36
Local clock offset: -1.037 ms
Remote clock offset: -4.638 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 7.612 ms
Loss rate: 73.17%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 7.618 ms
Loss rate: 98.60%
-- Flow 2:
Average throughput: 10.43 Mbit/s
95th percentile per-packet one-way delay: 7.827 ms
Loss rate: 72.86%
-- Flow 3:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 7.096 ms
Loss rate: 74.51%
```
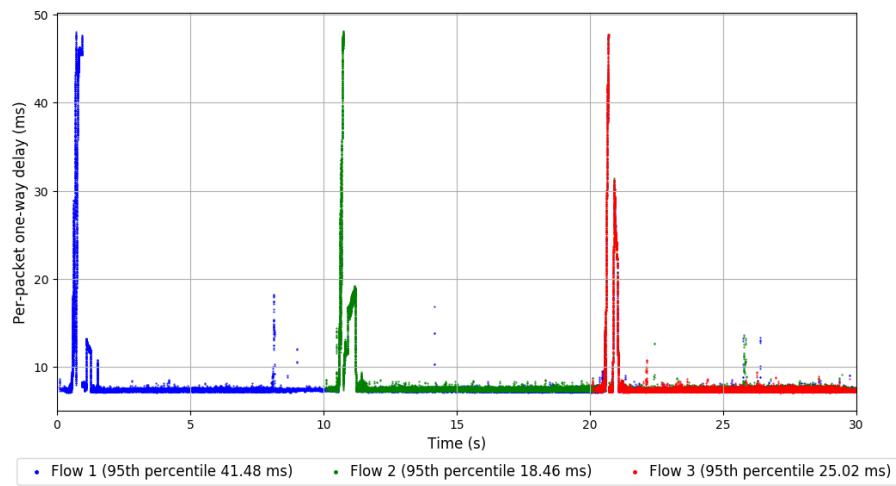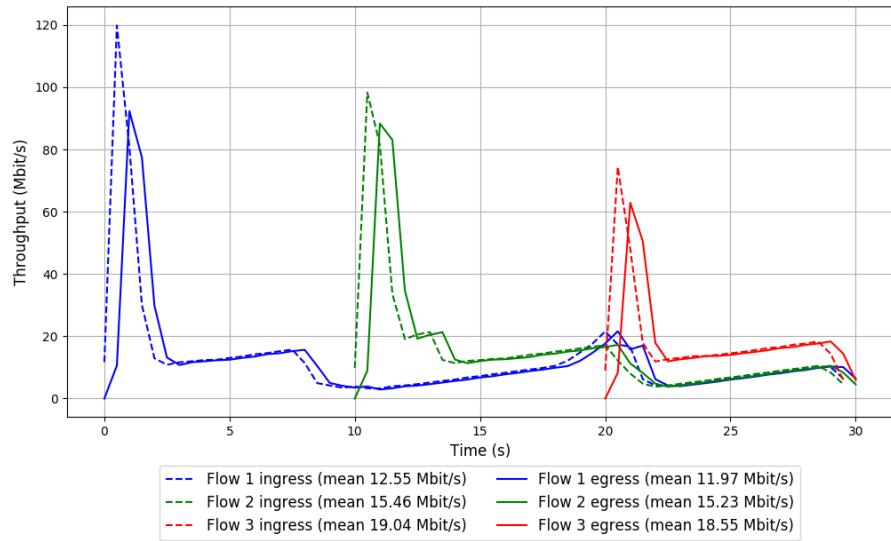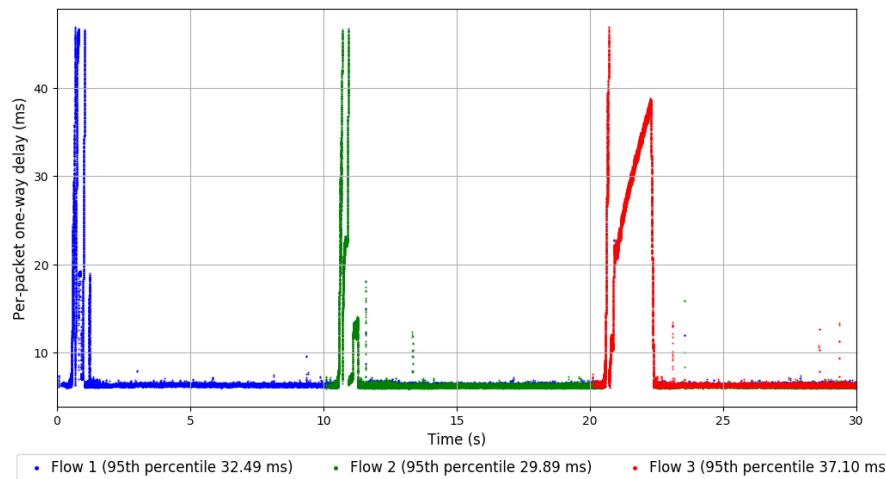
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-01-19 00:09:18
End at: 2019-01-19 00:09:48
Local clock offset: -0.85 ms
Remote clock offset: -3.749 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.97 Mbit/s
95th percentile per-packet one-way delay: 28.847 ms
Loss rate: 10.05%
-- Flow 1:
Average throughput: 6.63 Mbit/s
95th percentile per-packet one-way delay: 32.325 ms
Loss rate: 12.63%
-- Flow 2:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 8.560 ms
Loss rate: 1.80%
-- Flow 3:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 8.672 ms
Loss rate: 2.01%
```
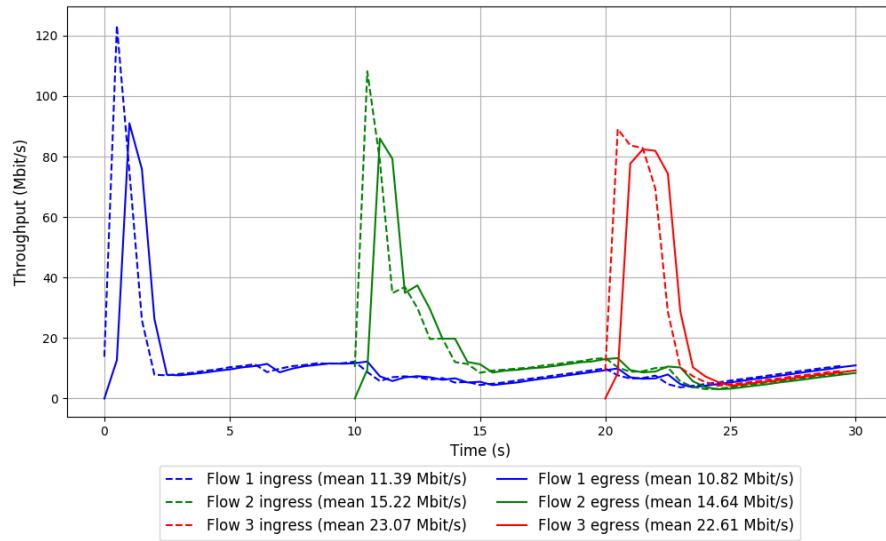
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-01-19 00:35:13
End at: 2019-01-19 00:35:43
Local clock offset: 0.703 ms
Remote clock offset: -3.292 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.94 Mbit/s
95th percentile per-packet one-way delay: 32.095 ms
Loss rate: 6.29%
-- Flow 1:
Average throughput: 8.36 Mbit/s
95th percentile per-packet one-way delay: 18.973 ms
Loss rate: 5.62%
-- Flow 2:
Average throughput: 12.65 Mbit/s
95th percentile per-packet one-way delay: 26.961 ms
Loss rate: 6.54%
-- Flow 3:
Average throughput: 18.49 Mbit/s
95th percentile per-packet one-way delay: 38.335 ms
Loss rate: 6.86%
```
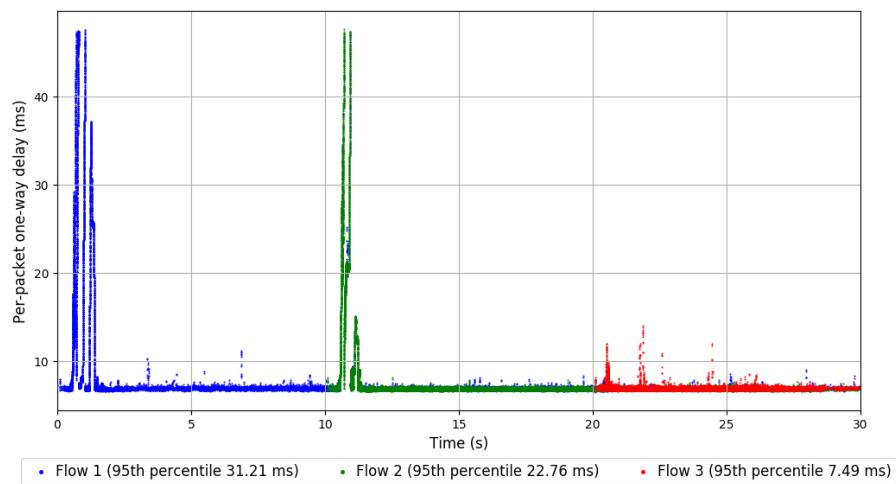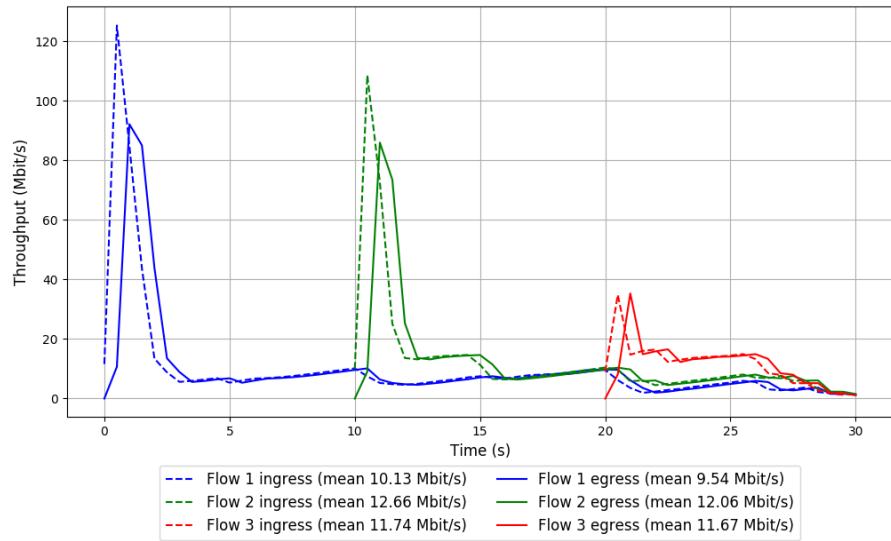
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 8.86 Mbit/s)   Flow 1 egress (mean 8.36 Mbit/s)
Flow 2 ingress (mean 13.54 Mbit/s)   Flow 2 egress (mean 12.65 Mbit/s)
Flow 3 ingress (mean 19.85 Mbit/s)   Flow 3 egress (mean 18.49 Mbit/s)

Flow 1 (95th percentile 18.97 ms)   Flow 2 (95th percentile 26.96 ms)   Flow 3 (95th percentile 38.34 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2019-01-19 01:01:22
End at: 2019-01-19 01:01:52
Local clock offset: 0.868 ms
Remote clock offset: -3.829 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 28.29 Mbit/s
95th percentile per-packet one-way delay: 26.193 ms
Loss rate: 3.07%
-- Flow 1:
Average throughput: 11.97 Mbit/s
95th percentile per-packet one-way delay: 41.480 ms
Loss rate: 4.62%
-- Flow 2:
Average throughput: 15.23 Mbit/s
95th percentile per-packet one-way delay: 18.462 ms
Loss rate: 1.50%
-- Flow 3:
Average throughput: 18.55 Mbit/s
95th percentile per-packet one-way delay: 25.020 ms
Loss rate: 2.56%
```
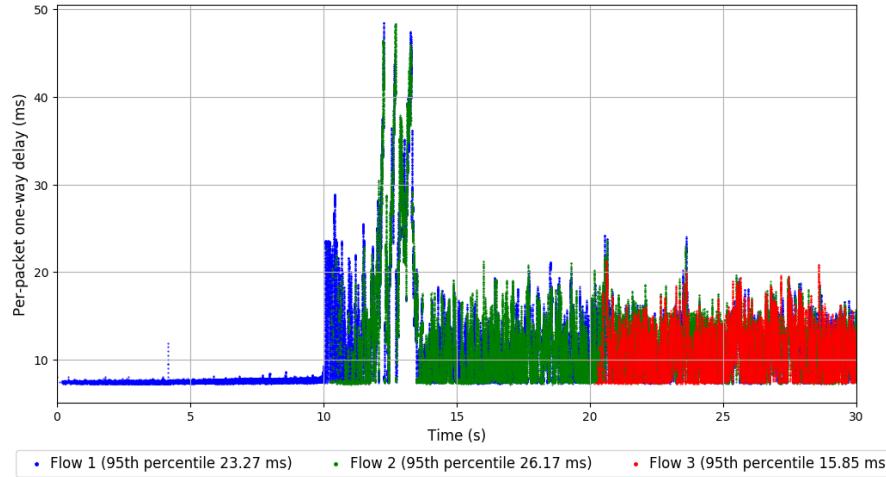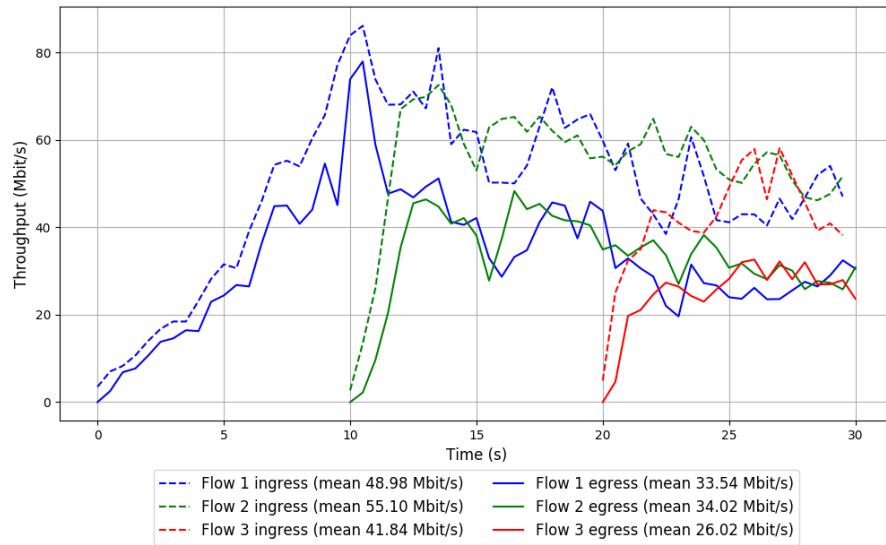
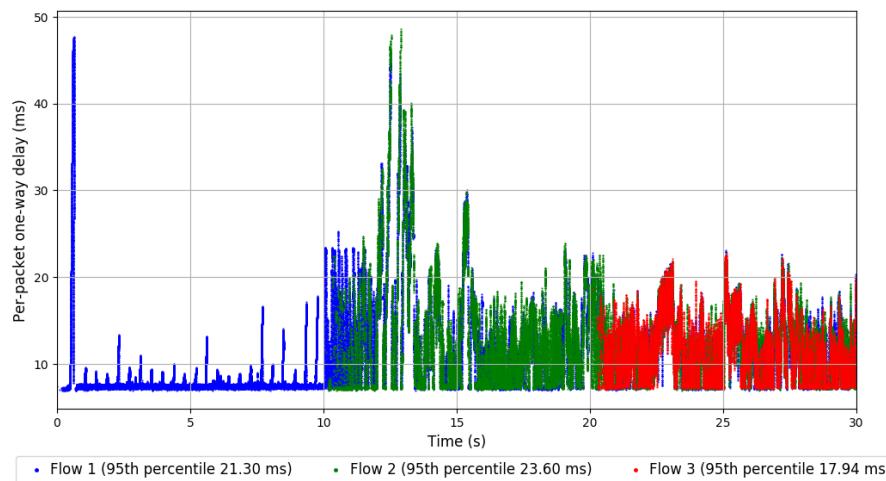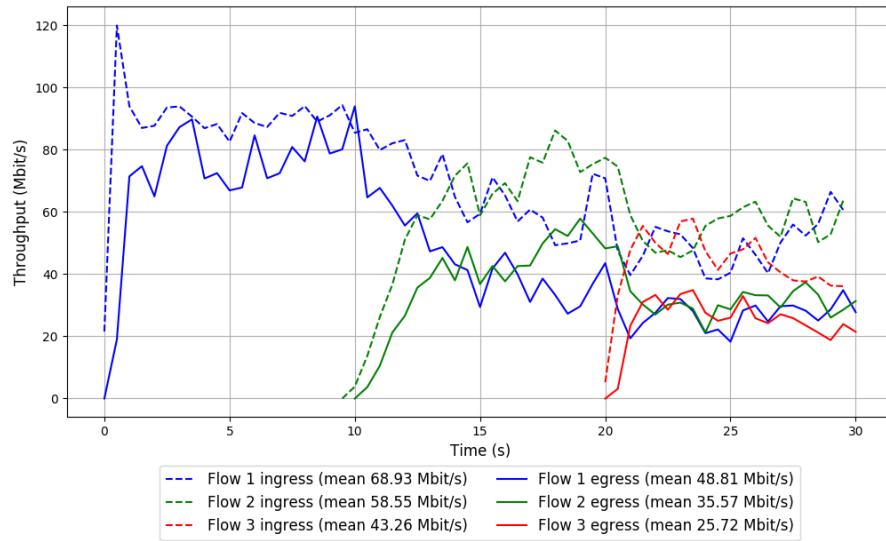Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2019-01-19 01:27:14
End at: 2019-01-19 01:27:44
Local clock offset: 1.722 ms
Remote clock offset: -3.922 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 28.09 Mbit/s
95th percentile per-packet one-way delay: 35.697 ms
Loss rate: 3.80%
-- Flow 1:
Average throughput: 10.82 Mbit/s
95th percentile per-packet one-way delay: 32.492 ms
Loss rate: 5.03%
-- Flow 2:
Average throughput: 14.64 Mbit/s
95th percentile per-packet one-way delay: 29.892 ms
Loss rate: 3.77%
-- Flow 3:
Average throughput: 22.61 Mbit/s
95th percentile per-packet one-way delay: 37.103 ms
Loss rate: 2.00%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 11.39 Mbit/s) — Flow 1 egress (mean 10.82 Mbit/s)
Flow 2 ingress (mean 15.22 Mbit/s) — Flow 2 egress (mean 14.64 Mbit/s)
Flow 3 ingress (mean 23.07 Mbit/s) — Flow 3 egress (mean 22.61 Mbit/s)

Flow 1 (95th percentile 32.49 ms) • Flow 2 (95th percentile 29.89 ms) • Flow 3 (95th percentile 37.10 ms)
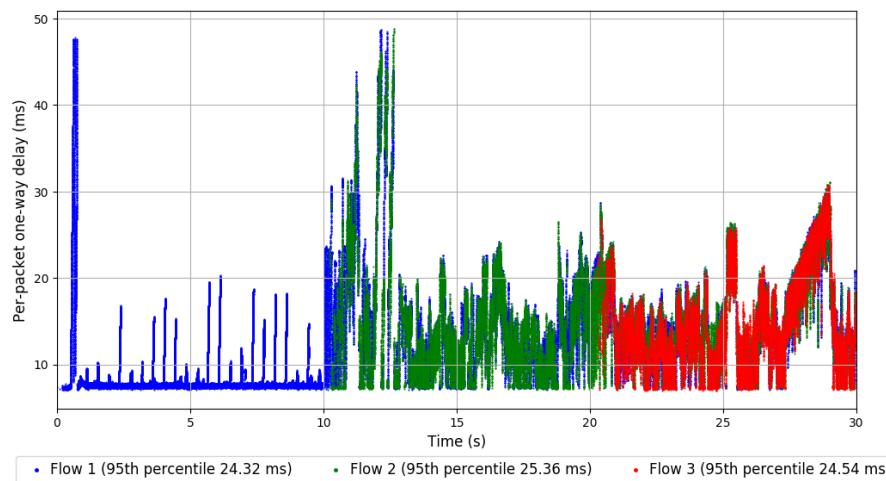
```
Run 5: Statistics of TCP Cubic

Start at: 2019-01-19 01:53:21
End at: 2019-01-19 01:53:51
Local clock offset: 0.008 ms
Remote clock offset: -4.216 ms


# Below is generated by plot.py at 2019-01-19 02:17:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.44 Mbit/s
95th percentile per-packet one-way delay: 25.739 ms
Loss rate: 4.52%
-- Flow 1:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 31.214 ms
Loss rate: 5.89%
-- Flow 2:
Average throughput: 12.06 Mbit/s
95th percentile per-packet one-way delay: 22.763 ms
Loss rate: 4.69%
-- Flow 3:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 7.493 ms
Loss rate: 0.57%
```
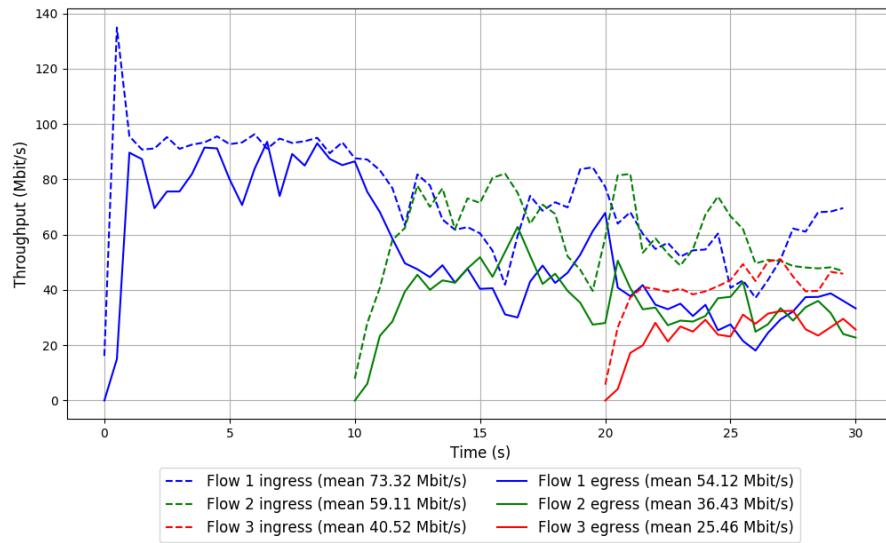
Run 5: Report of TCP Cubic — Data Link

- Flow 1 ingress (mean 10.13 Mbit/s) — Flow 1 egress (mean 9.54 Mbit/s)
- Flow 2 ingress (mean 12.66 Mbit/s) — Flow 2 egress (mean 12.06 Mbit/s)
- Flow 3 ingress (mean 11.74 Mbit/s) — Flow 3 egress (mean 11.67 Mbit/s)

- Flow 1 (95th percentile 31.21 ms) • Flow 2 (95th percentile 22.76 ms) • Flow 3 (95th percentile 7.49 ms)
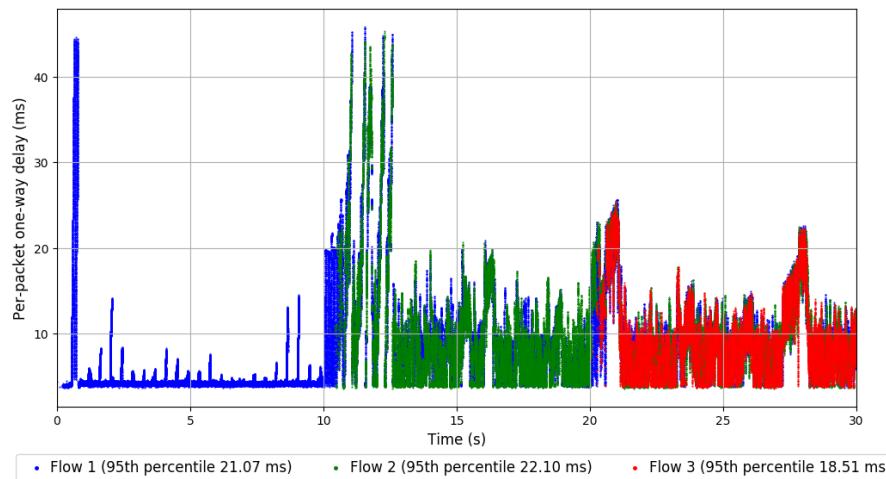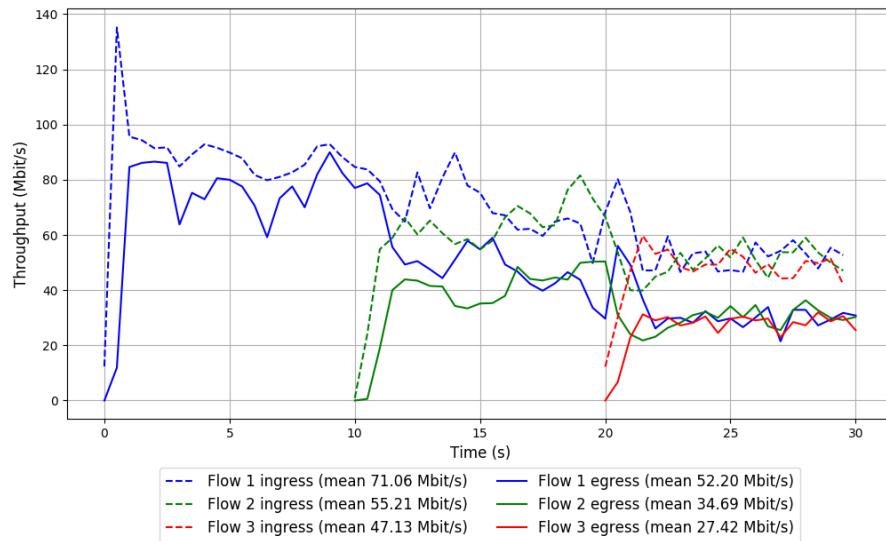
```
Run 1: Statistics of FillP

Start at: 2019-01-19 00:15:26
End at: 2019-01-19 00:15:56
Local clock offset: -0.086 ms
Remote clock offset: -3.459 ms


# Below is generated by plot.py at 2019-01-19 02:17:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.79 Mbit/s
95th percentile per-packet one-way delay: 22.923 ms
Loss rate: 34.87%
-- Flow 1:
Average throughput: 33.54 Mbit/s
95th percentile per-packet one-way delay: 23.272 ms
Loss rate: 31.52%
-- Flow 2:
Average throughput: 34.02 Mbit/s
95th percentile per-packet one-way delay: 26.174 ms
Loss rate: 38.25%
-- Flow 3:
Average throughput: 26.02 Mbit/s
95th percentile per-packet one-way delay: 15.854 ms
Loss rate: 37.81%
```
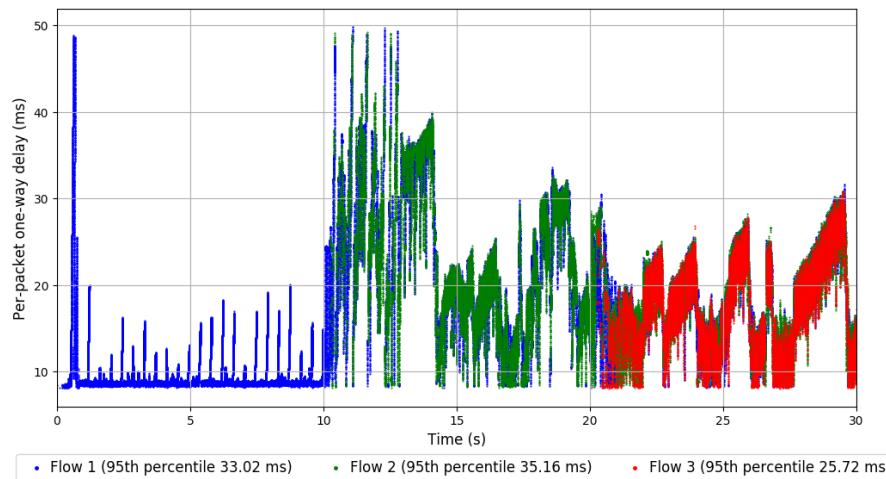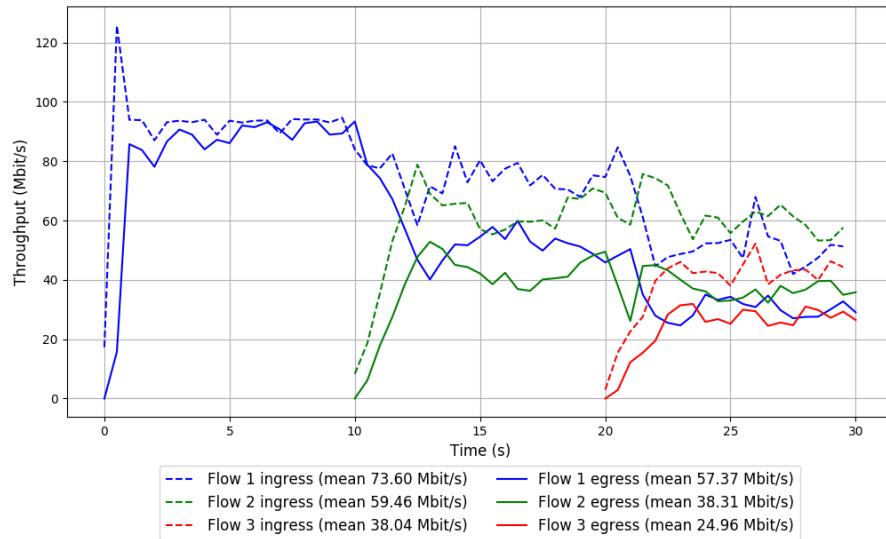
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2019-01-19 00:41:17
End at: 2019-01-19 00:41:47
Local clock offset: 1.57 ms
Remote clock offset: -2.779 ms


# Below is generated by plot.py at 2019-01-19 02:18:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.00 Mbit/s
95th percentile per-packet one-way delay: 21.436 ms
Loss rate: 33.72%
-- Flow 1:
Average throughput: 48.81 Mbit/s
95th percentile per-packet one-way delay: 21.299 ms
Loss rate: 29.17%
-- Flow 2:
Average throughput: 35.57 Mbit/s
95th percentile per-packet one-way delay: 23.601 ms
Loss rate: 39.26%
-- Flow 3:
Average throughput: 25.72 Mbit/s
95th percentile per-packet one-way delay: 17.940 ms
Loss rate: 40.53%
```
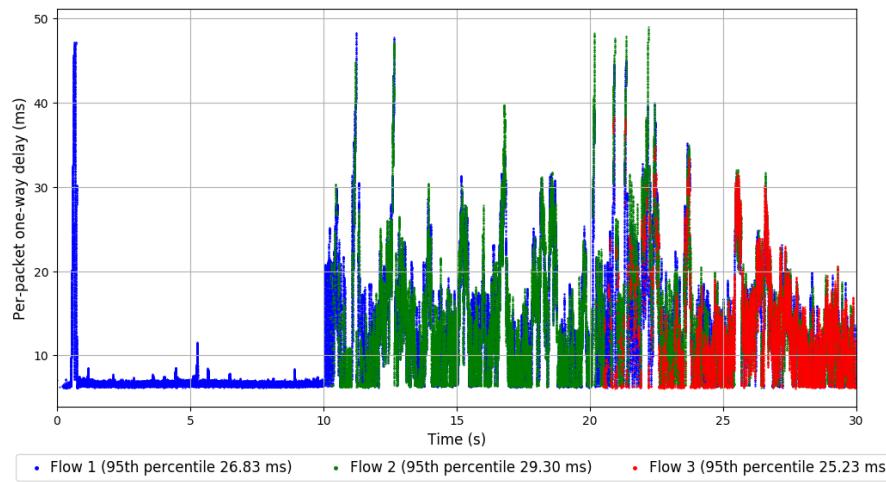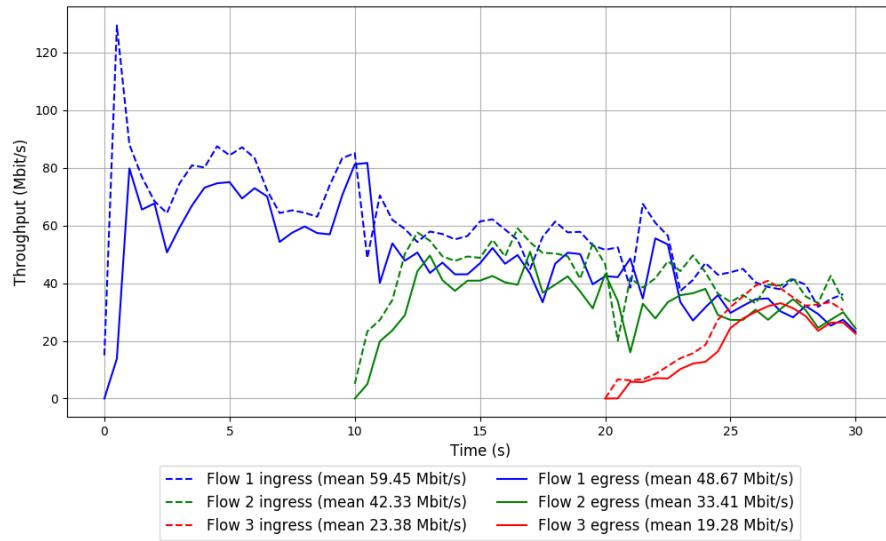
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2019-01-19 01:07:31
End at: 2019-01-19 01:08:01
Local clock offset: 1.784 ms
Remote clock offset: -2.931 ms


# Below is generated by plot.py at 2019-01-19 02:18:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.79 Mbit/s
95th percentile per-packet one-way delay: 24.697 ms
Loss rate: 31.15%
-- Flow 1:
Average throughput: 54.12 Mbit/s
95th percentile per-packet one-way delay: 24.318 ms
Loss rate: 26.18%
-- Flow 2:
Average throughput: 36.43 Mbit/s
95th percentile per-packet one-way delay: 25.361 ms
Loss rate: 38.34%
-- Flow 3:
Average throughput: 25.46 Mbit/s
95th percentile per-packet one-way delay: 24.540 ms
Loss rate: 37.20%
```
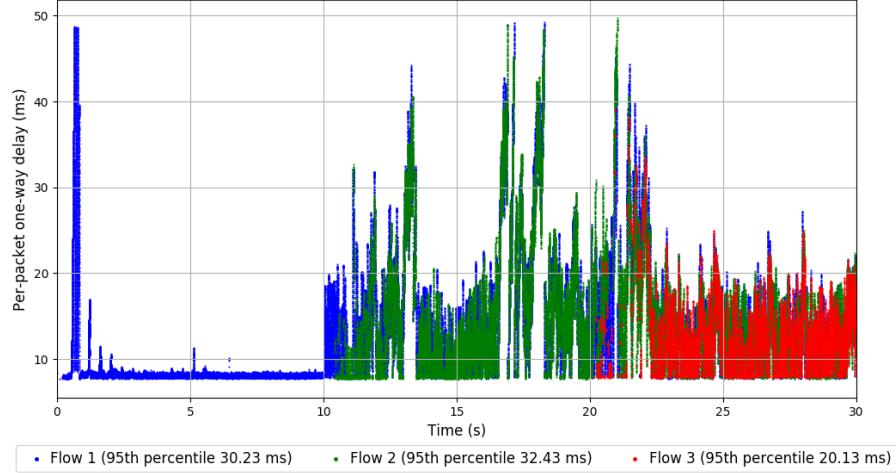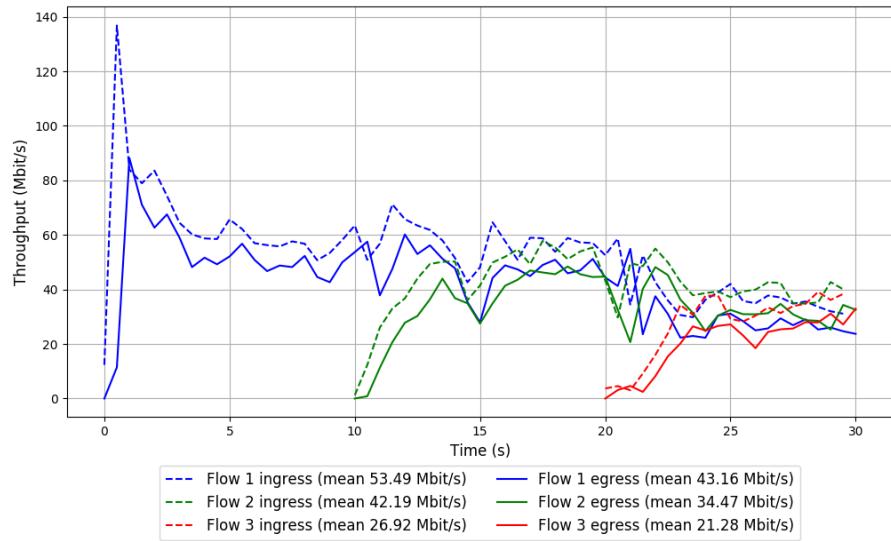
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 73.32 Mbit/s) --- Flow 1 egress (mean 54.12 Mbit/s)
Flow 2 ingress (mean 59.11 Mbit/s) --- Flow 2 egress (mean 36.43 Mbit/s)
Flow 3 ingress (mean 40.52 Mbit/s) --- Flow 3 egress (mean 25.46 Mbit/s)

Flow 1 (95th percentile 24.32 ms) Flow 2 (95th percentile 25.36 ms) Flow 3 (95th percentile 24.54 ms)

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```
Run 4: Statistics of FillP

Start at: 2019-01-19 01:33:22
End at: 2019-01-19 01:33:52
Local clock offset: 0.71 ms
Remote clock offset: -6.953 ms


# Below is generated by plot.py at 2019-01-19 02:18:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.12 Mbit/s
95th percentile per-packet one-way delay: 20.933 ms
Loss rate: 31.83%
-- Flow 1:
Average throughput: 52.20 Mbit/s
95th percentile per-packet one-way delay: 21.075 ms
Loss rate: 26.53%
-- Flow 2:
Average throughput: 34.69 Mbit/s
95th percentile per-packet one-way delay: 22.096 ms
Loss rate: 37.82%
-- Flow 3:
Average throughput: 27.42 Mbit/s
95th percentile per-packet one-way delay: 18.514 ms
Loss rate: 41.82%
```

Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-01-19 01:59:23
End at: 2019-01-19 01:59:53
Local clock offset: -1.843 ms
Remote clock offset: -4.01 ms


# Below is generated by plot.py at 2019-01-19 02:18:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.15 Mbit/s
95th percentile per-packet one-way delay: 33.704 ms
Loss rate: 27.54%
-- Flow 1:
Average throughput: 57.37 Mbit/s
95th percentile per-packet one-way delay: 33.019 ms
Loss rate: 22.05%
-- Flow 2:
Average throughput: 38.31 Mbit/s
95th percentile per-packet one-way delay: 35.158 ms
Loss rate: 35.54%
-- Flow 3:
Average throughput: 24.96 Mbit/s
95th percentile per-packet one-way delay: 25.721 ms
Loss rate: 34.41%
```
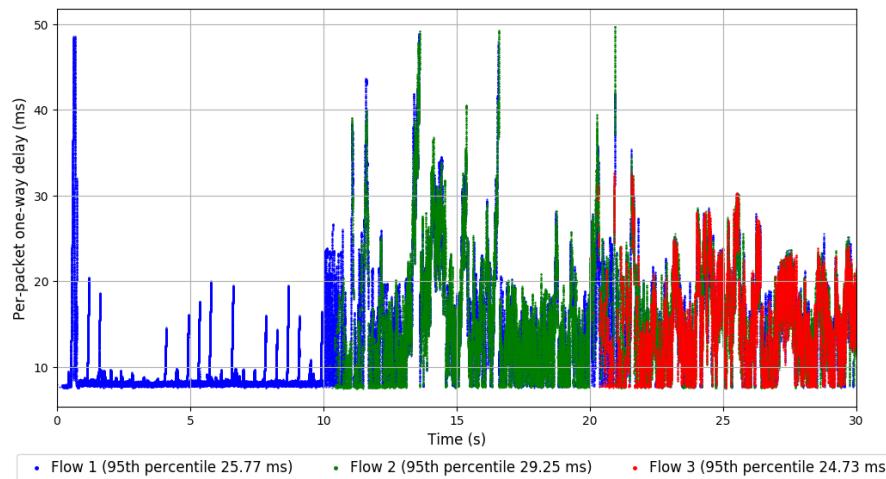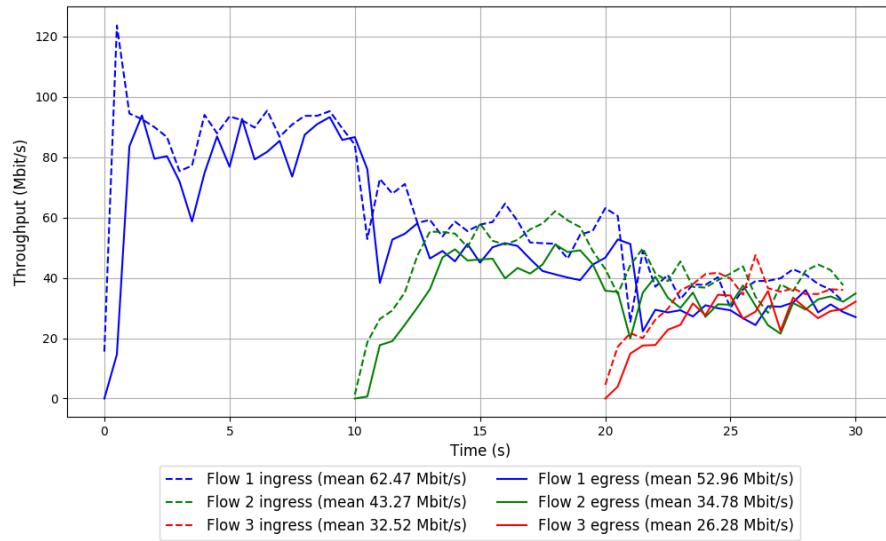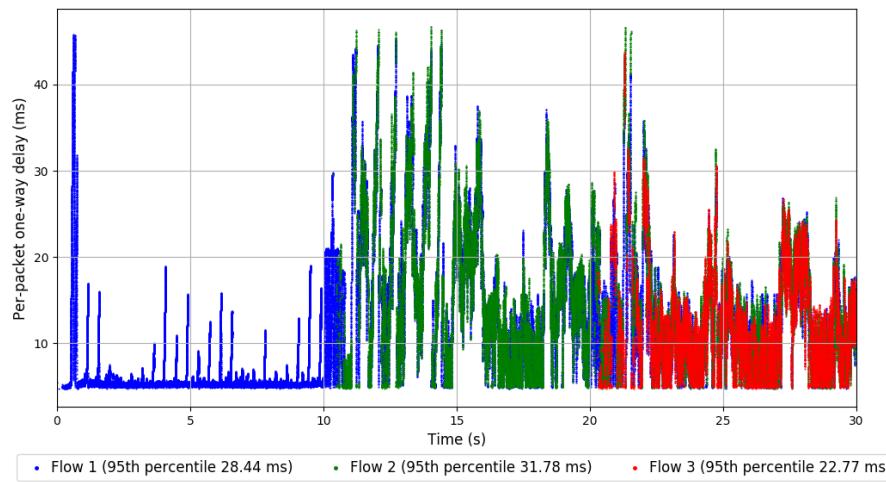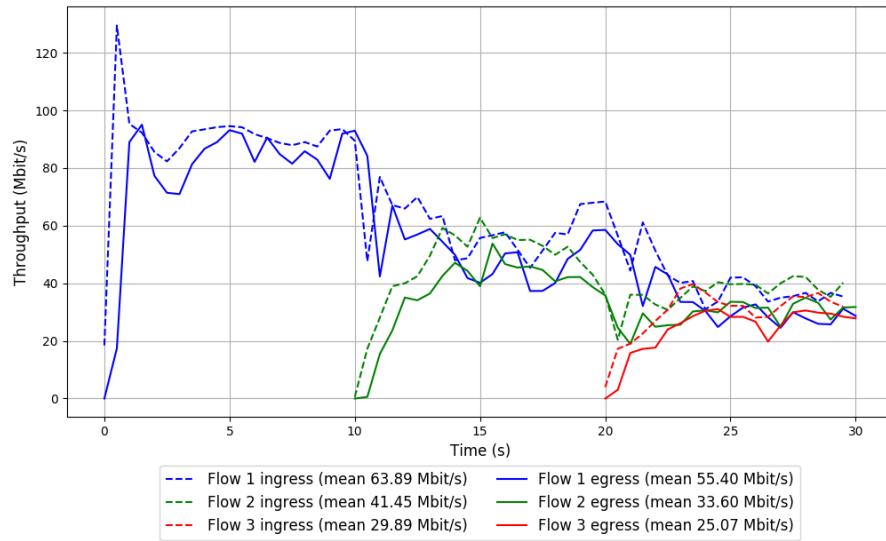
Run 5: Report of FillP — Data Link

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```
Run 1: Statistics of FillP-Sheep

Start at: 2019-01-19 00:22:30
End at: 2019-01-19 00:23:00
Local clock offset: 1.12 ms
Remote clock offset: -3.769 ms


# Below is generated by plot.py at 2019-01-19 02:18:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.28 Mbit/s
95th percentile per-packet one-way delay: 27.383 ms
Loss rate: 18.96%
-- Flow 1:
Average throughput: 48.67 Mbit/s
95th percentile per-packet one-way delay: 26.831 ms
Loss rate: 18.15%
-- Flow 2:
Average throughput: 33.41 Mbit/s
95th percentile per-packet one-way delay: 29.303 ms
Loss rate: 21.07%
-- Flow 3:
Average throughput: 19.28 Mbit/s
95th percentile per-packet one-way delay: 25.234 ms
Loss rate: 17.54%
```
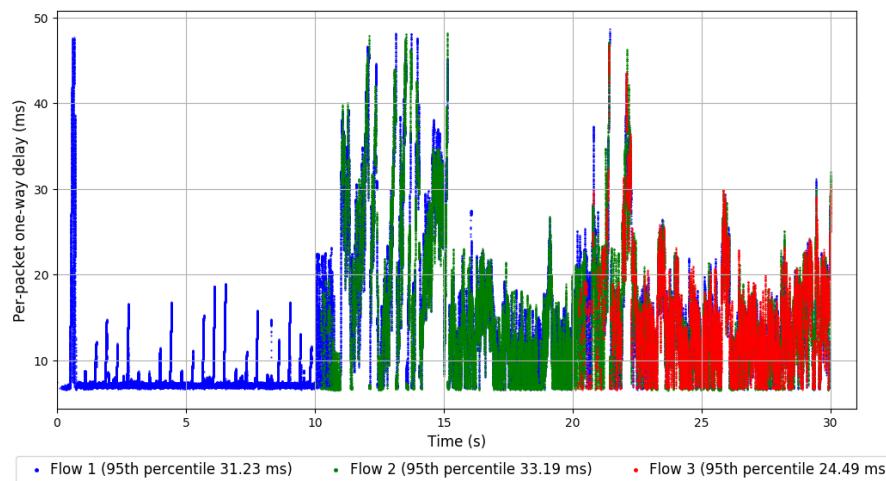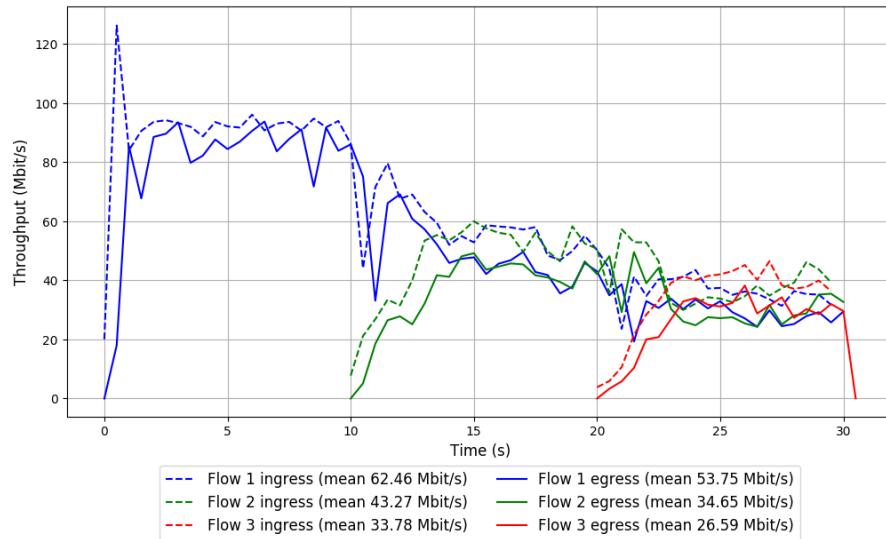
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.45 Mbit/s) --- Flow 1 egress (mean 48.67 Mbit/s)
Flow 2 ingress (mean 42.33 Mbit/s) --- Flow 2 egress (mean 33.41 Mbit/s)
Flow 3 ingress (mean 23.38 Mbit/s) --- Flow 3 egress (mean 19.28 Mbit/s)

Flow 1 (95th percentile 26.83 ms)   Flow 2 (95th percentile 29.30 ms)   Flow 3 (95th percentile 25.23 ms)

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```
Run 2: Statistics of FillP-Sheep

Start at: 2019-01-19 00:48:40
End at: 2019-01-19 00:49:10
Local clock offset: 0.335 ms
Remote clock offset: -3.437 ms


# Below is generated by plot.py at 2019-01-19 02:18:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.92 Mbit/s
95th percentile per-packet one-way delay: 30.460 ms
Loss rate: 19.40%
-- Flow 1:
Average throughput: 43.16 Mbit/s
95th percentile per-packet one-way delay: 30.230 ms
Loss rate: 19.30%
-- Flow 2:
Average throughput: 34.47 Mbit/s
95th percentile per-packet one-way delay: 32.429 ms
Loss rate: 19.09%
-- Flow 3:
Average throughput: 21.28 Mbit/s
95th percentile per-packet one-way delay: 20.133 ms
Loss rate: 20.94%
```

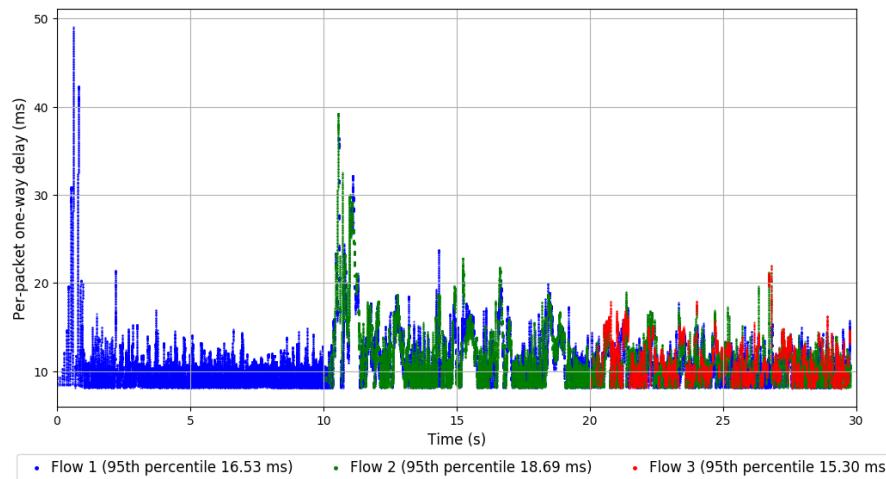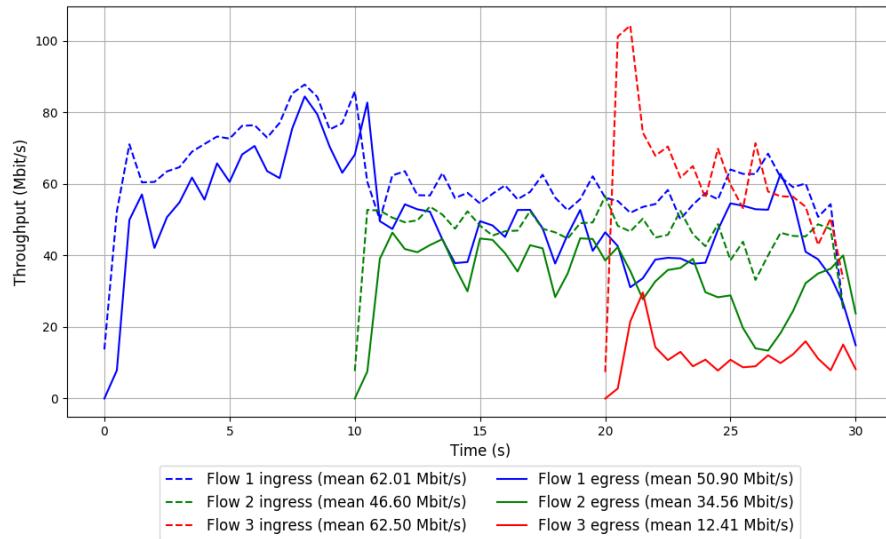Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-01-19 01:14:50
End at: 2019-01-19 01:15:20
Local clock offset: 0.935 ms
Remote clock offset: -3.344 ms


# Below is generated by plot.py at 2019-01-19 02:18:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.80 Mbit/s
95th percentile per-packet one-way delay: 26.826 ms
Loss rate: 16.87%
-- Flow 1:
Average throughput: 52.96 Mbit/s
95th percentile per-packet one-way delay: 25.768 ms
Loss rate: 15.20%
-- Flow 2:
Average throughput: 34.78 Mbit/s
95th percentile per-packet one-way delay: 29.255 ms
Loss rate: 19.60%
-- Flow 3:
Average throughput: 26.28 Mbit/s
95th percentile per-packet one-way delay: 24.733 ms
Loss rate: 19.22%
```

Run 3: Report of FillP-Sheep — Data Link
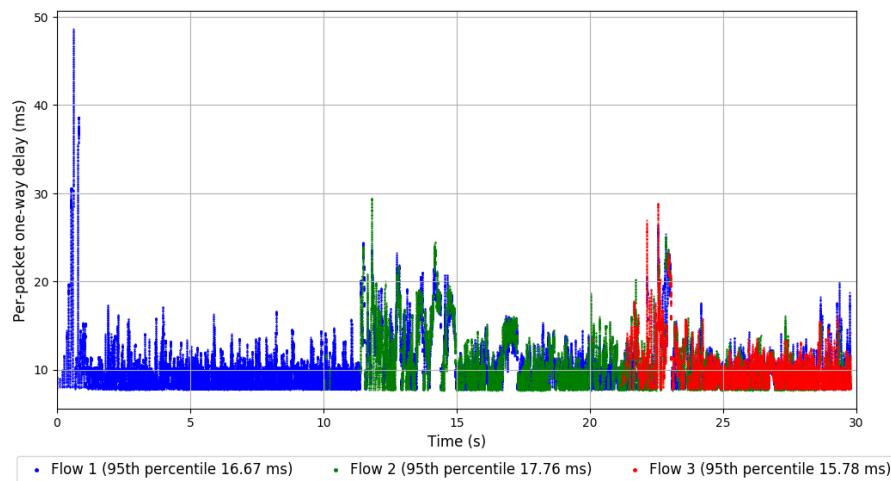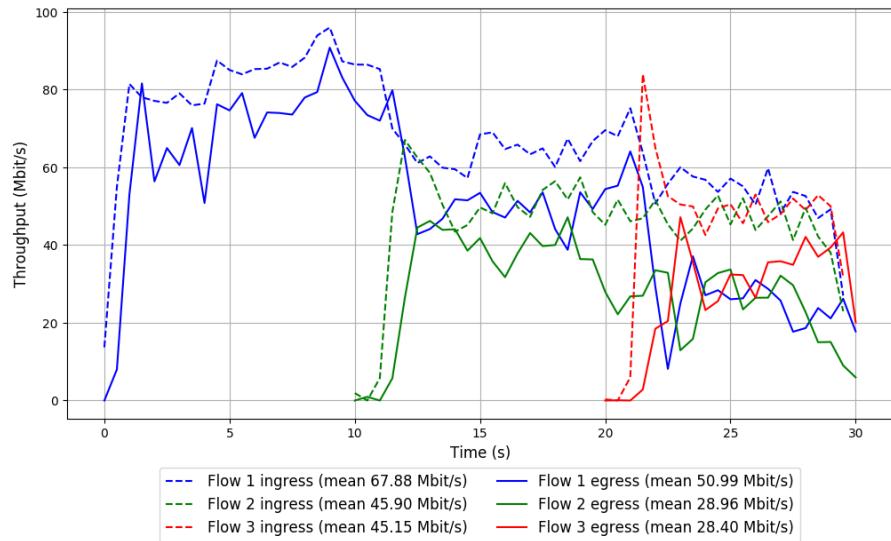
```
Run 4: Statistics of FillP-Sheep

Start at: 2019-01-19 01:40:56
End at: 2019-01-19 01:41:26
Local clock offset: 2.754 ms
Remote clock offset: -3.825 ms

# Below is generated by plot.py at 2019-01-19 02:19:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.07 Mbit/s
95th percentile per-packet one-way delay: 29.182 ms
Loss rate: 15.09%
-- Flow 1:
Average throughput: 55.40 Mbit/s
95th percentile per-packet one-way delay: 28.442 ms
Loss rate: 13.27%
-- Flow 2:
Average throughput: 33.60 Mbit/s
95th percentile per-packet one-way delay: 31.780 ms
Loss rate: 18.93%
-- Flow 3:
Average throughput: 25.07 Mbit/s
95th percentile per-packet one-way delay: 22.773 ms
Loss rate: 16.16%
```
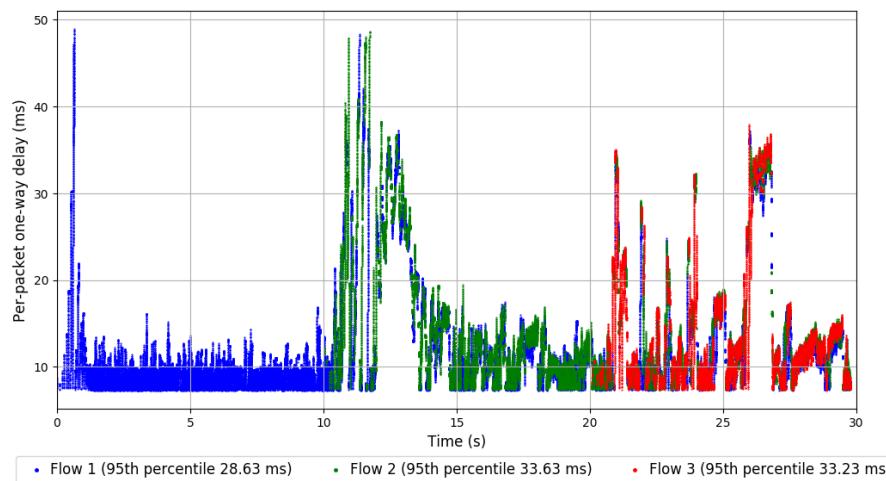
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-01-19 02:06:51
End at: 2019-01-19 02:07:21
Local clock offset: -0.28 ms
Remote clock offset: -3.884 ms


# Below is generated by plot.py at 2019-01-19 02:19:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.62 Mbit/s
95th percentile per-packet one-way delay: 31.363 ms
Loss rate: 16.37%
-- Flow 1:
Average throughput: 53.75 Mbit/s
95th percentile per-packet one-way delay: 31.226 ms
Loss rate: 13.90%
-- Flow 2:
Average throughput: 34.65 Mbit/s
95th percentile per-packet one-way delay: 33.187 ms
Loss rate: 19.86%
-- Flow 3:
Average throughput: 26.59 Mbit/s
95th percentile per-packet one-way delay: 24.491 ms
Loss rate: 21.14%
```
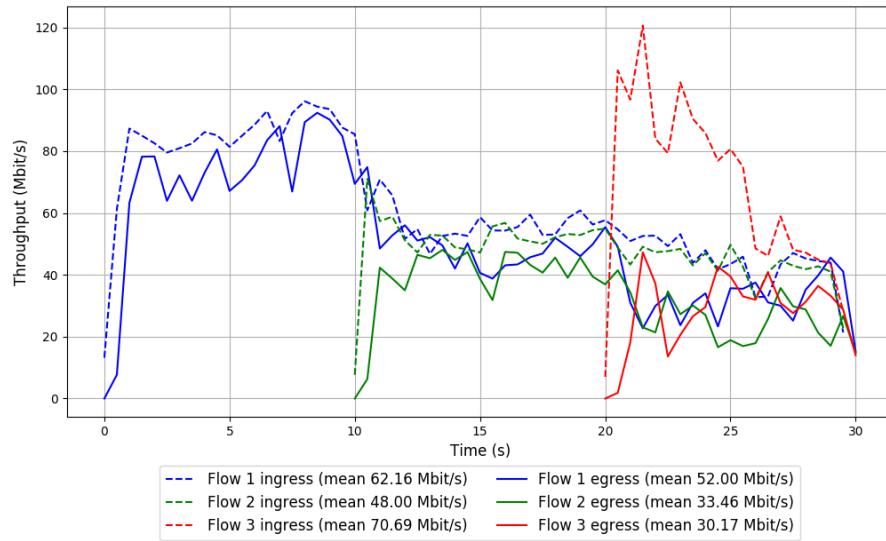
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-01-19 00:12:47
End at: 2019-01-19 00:13:17
Local clock offset: -0.987 ms
Remote clock offset: -3.781 ms


# Below is generated by plot.py at 2019-01-19 02:19:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.85 Mbit/s
95th percentile per-packet one-way delay: 17.203 ms
Loss rate: 31.28%
-- Flow 1:
Average throughput: 50.90 Mbit/s
95th percentile per-packet one-way delay: 16.530 ms
Loss rate: 17.93%
-- Flow 2:
Average throughput: 34.56 Mbit/s
95th percentile per-packet one-way delay: 18.686 ms
Loss rate: 25.82%
-- Flow 3:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 15.303 ms
Loss rate: 80.13%
```
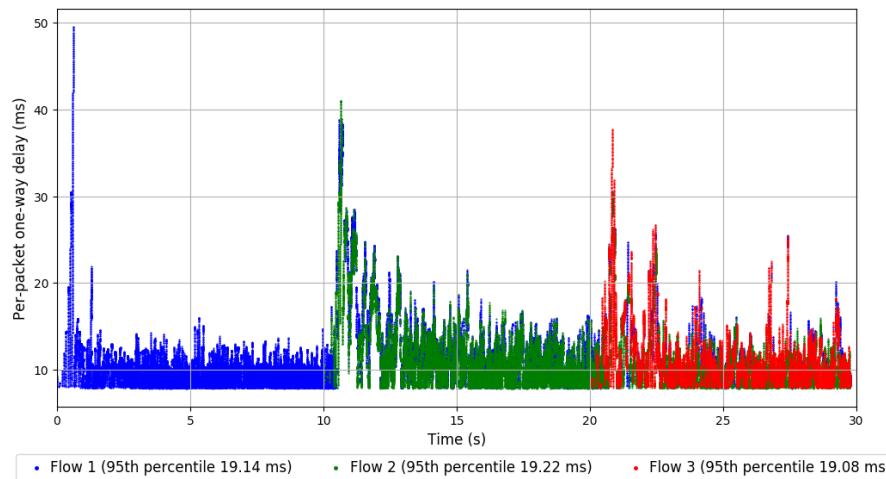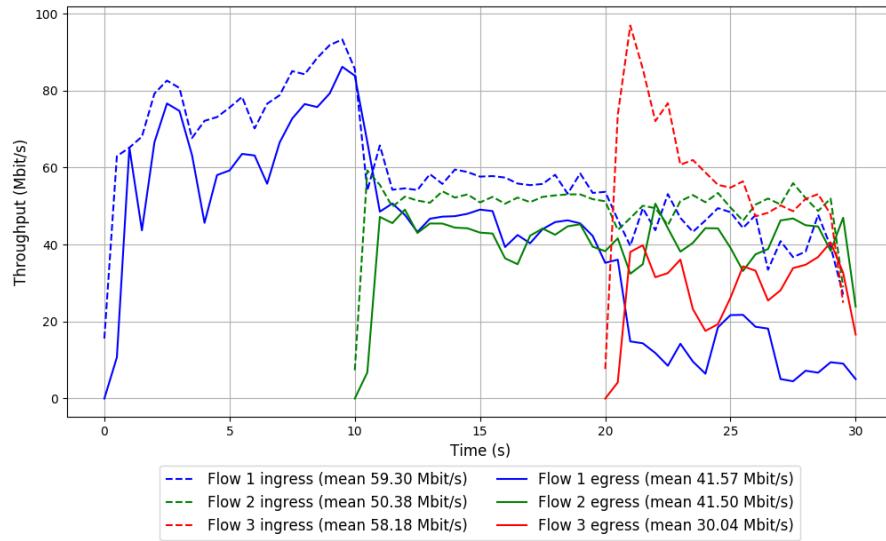
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-01-19 00:38:46
End at: 2019-01-19 00:39:16
Local clock offset: 0.554 ms
Remote clock offset: -3.316 ms


# Below is generated by plot.py at 2019-01-19 02:19:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.39 Mbit/s
95th percentile per-packet one-way delay: 17.073 ms
Loss rate: 29.70%
-- Flow 1:
Average throughput: 50.99 Mbit/s
95th percentile per-packet one-way delay: 16.670 ms
Loss rate: 24.86%
-- Flow 2:
Average throughput: 28.96 Mbit/s
95th percentile per-packet one-way delay: 17.758 ms
Loss rate: 36.90%
-- Flow 3:
Average throughput: 28.40 Mbit/s
95th percentile per-packet one-way delay: 15.775 ms
Loss rate: 37.10%
```
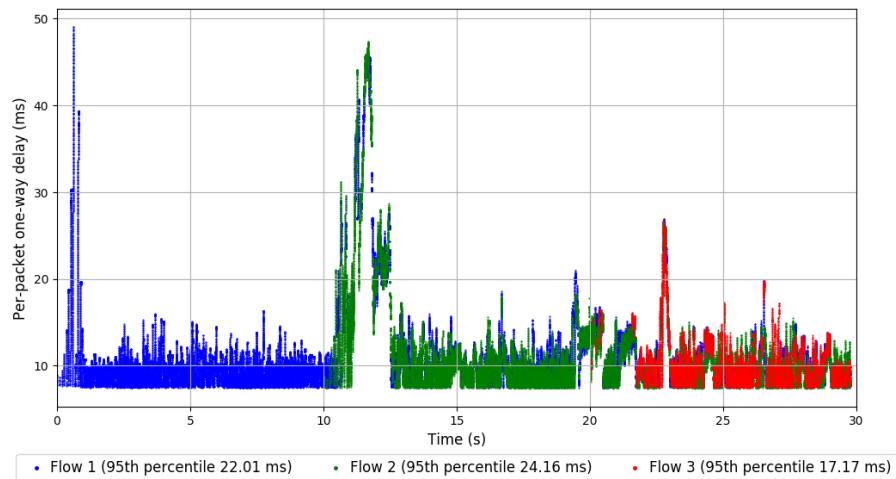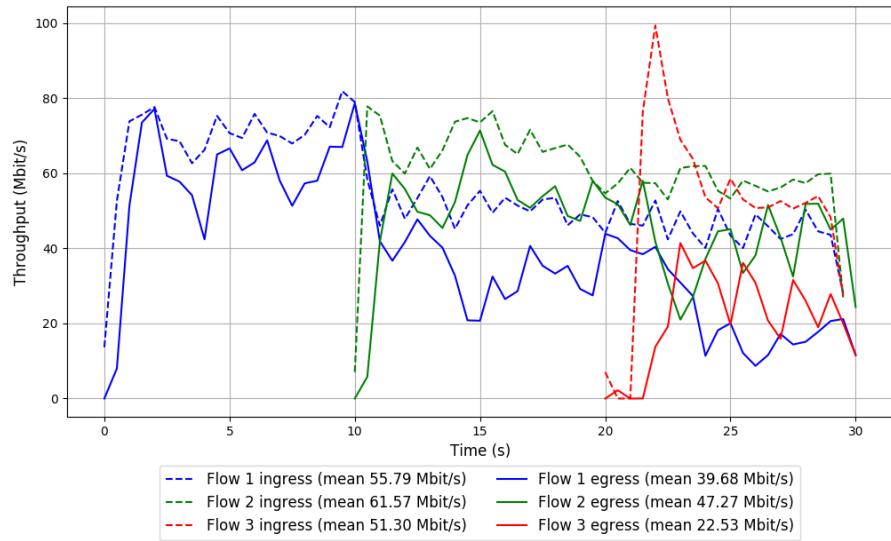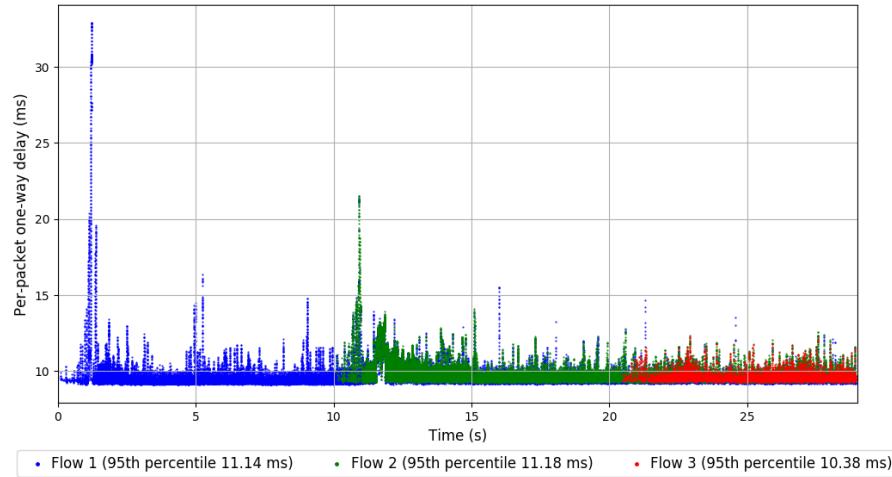
Run 2: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 67.88 Mbit/s) ——— Flow 1 egress (mean 50.99 Mbit/s)
- - - - Flow 2 ingress (mean 45.90 Mbit/s) ——— Flow 2 egress (mean 28.96 Mbit/s)
- - - - Flow 3 ingress (mean 45.15 Mbit/s) ——— Flow 3 egress (mean 28.40 Mbit/s)

• Flow 1 (95th percentile 16.67 ms)   • Flow 2 (95th percentile 17.76 ms)   • Flow 3 (95th percentile 15.78 ms)

```
Run 3: Statistics of Indigo

Start at: 2019-01-19 01:04:58
End at: 2019-01-19 01:05:28
Local clock offset: 1.3 ms
Remote clock offset: -3.313 ms


# Below is generated by plot.py at 2019-01-19 02:19:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.98 Mbit/s
95th percentile per-packet one-way delay: 32.169 ms
Loss rate: 28.21%
-- Flow 1:
Average throughput: 52.00 Mbit/s
95th percentile per-packet one-way delay: 28.634 ms
Loss rate: 16.35%
-- Flow 2:
Average throughput: 33.46 Mbit/s
95th percentile per-packet one-way delay: 33.631 ms
Loss rate: 30.31%
-- Flow 3:
Average throughput: 30.17 Mbit/s
95th percentile per-packet one-way delay: 33.232 ms
Loss rate: 57.33%
```
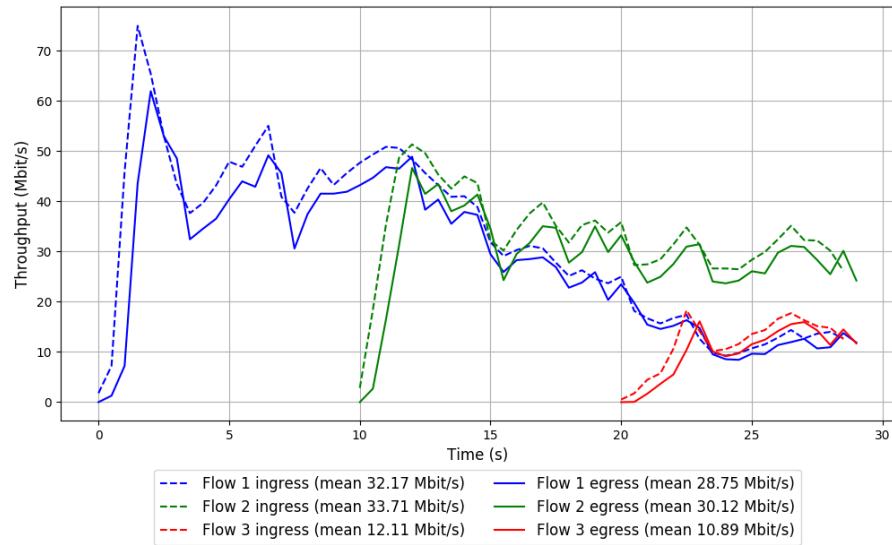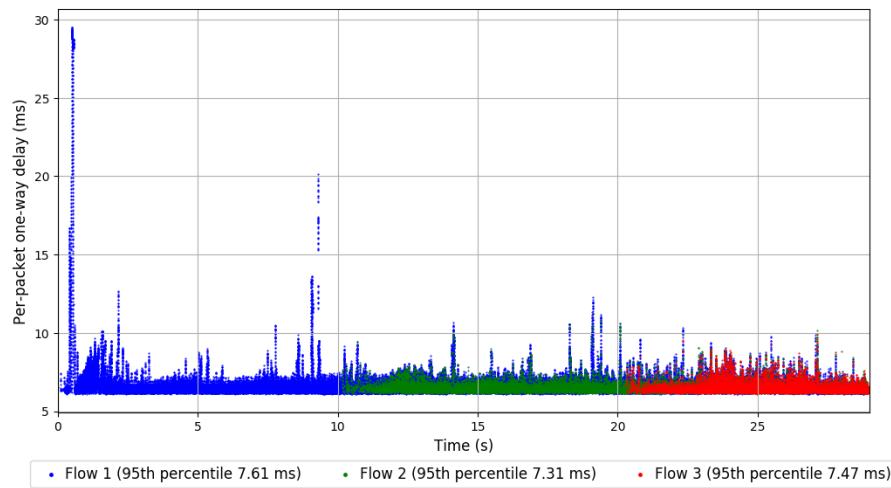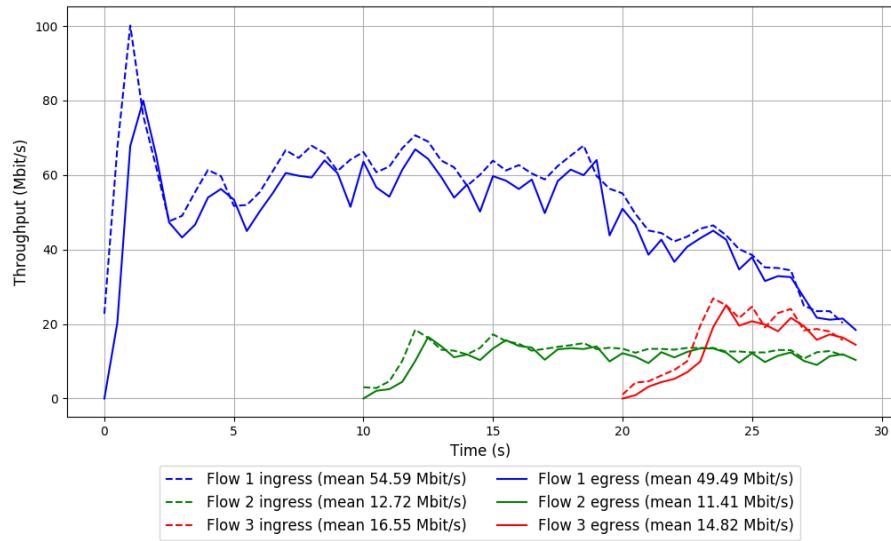
Run 3: Report of Indigo — Data Link

- - - Flow 1 ingress (mean 62.16 Mbit/s) ——— Flow 1 egress (mean 52.00 Mbit/s)
- - - Flow 2 ingress (mean 48.00 Mbit/s) ——— Flow 2 egress (mean 33.46 Mbit/s)
- - - Flow 3 ingress (mean 70.69 Mbit/s) ——— Flow 3 egress (mean 30.17 Mbit/s)

- Flow 1 (95th percentile 28.63 ms)   · Flow 2 (95th percentile 33.63 ms)   · Flow 3 (95th percentile 33.23 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-01-19 01:30:54
End at: 2019-01-19 01:31:24
Local clock offset: 0.318 ms
Remote clock offset: -3.35 ms


# Below is generated by plot.py at 2019-01-19 02:19:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.87 Mbit/s
95th percentile per-packet one-way delay: 19.161 ms
Loss rate: 29.38%
-- Flow 1:
Average throughput: 41.57 Mbit/s
95th percentile per-packet one-way delay: 19.142 ms
Loss rate: 29.90%
-- Flow 2:
Average throughput: 41.50 Mbit/s
95th percentile per-packet one-way delay: 19.220 ms
Loss rate: 17.64%
-- Flow 3:
Average throughput: 30.04 Mbit/s
95th percentile per-packet one-way delay: 19.084 ms
Loss rate: 48.36%
```
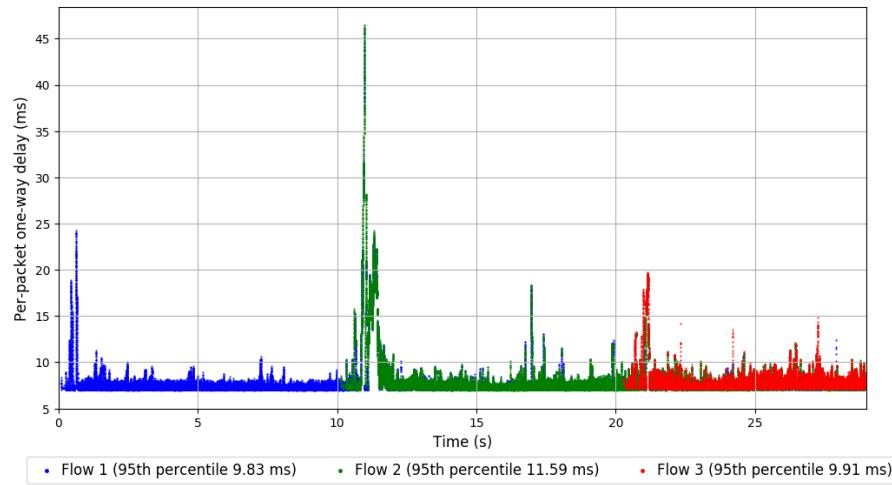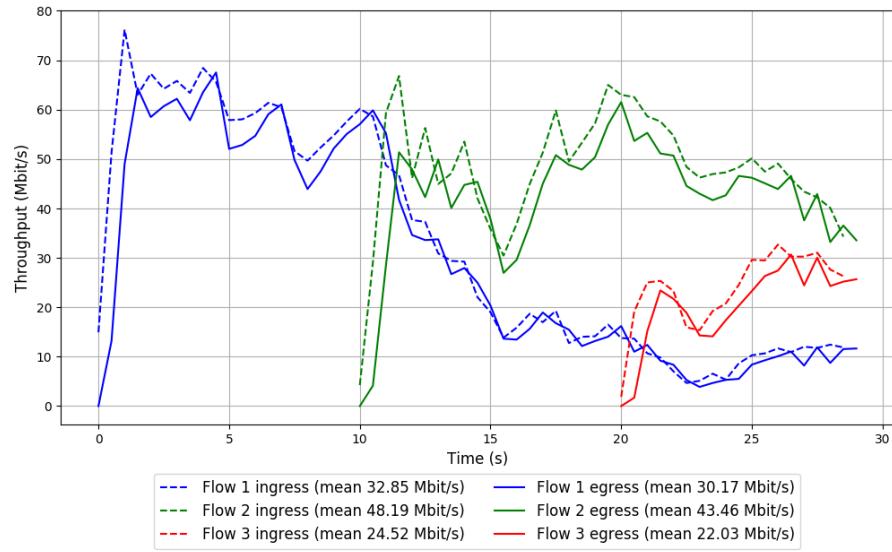
Run 4: Report of Indigo — Data Link

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```
Run 5: Statistics of Indigo

Start at: 2019-01-19 01:56:56
End at: 2019-01-19 01:57:26
Local clock offset: -0.801 ms
Remote clock offset: -4.053 ms


# Below is generated by plot.py at 2019-01-19 02:19:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.33 Mbit/s
95th percentile per-packet one-way delay: 22.335 ms
Loss rate: 30.86%
-- Flow 1:
Average throughput: 39.68 Mbit/s
95th percentile per-packet one-way delay: 22.008 ms
Loss rate: 28.87%
-- Flow 2:
Average throughput: 47.27 Mbit/s
95th percentile per-packet one-way delay: 24.162 ms
Loss rate: 23.21%
-- Flow 3:
Average throughput: 22.53 Mbit/s
95th percentile per-packet one-way delay: 17.172 ms
Loss rate: 56.10%
```
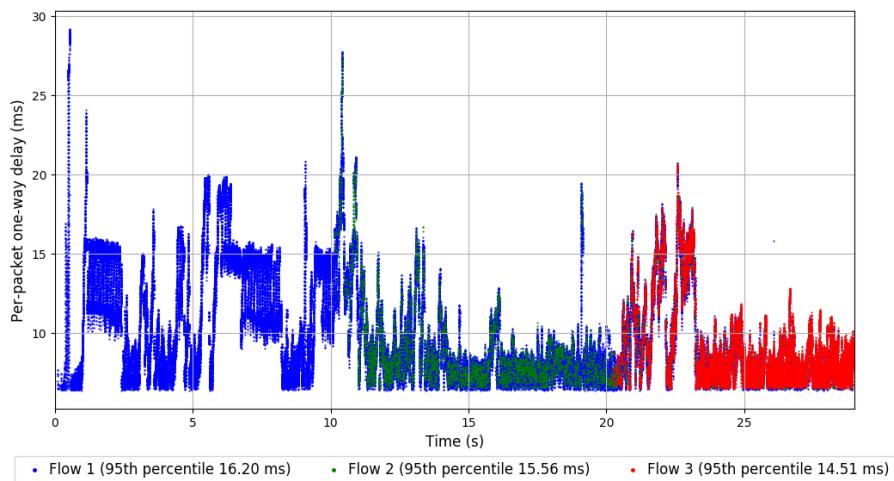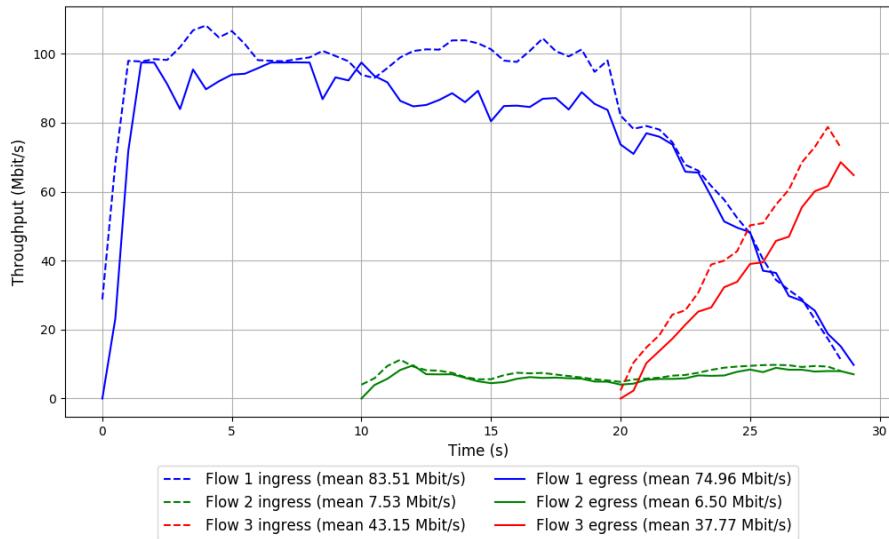
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-19 00:20:09
End at: 2019-01-19 00:20:39
Local clock offset: -1.972 ms
Remote clock offset: -3.906 ms


# Below is generated by plot.py at 2019-01-19 02:19:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 51.65 Mbit/s
95th percentile per-packet one-way delay: 11.109 ms
Loss rate: 10.60%
-- Flow 1:
Average throughput: 28.75 Mbit/s
95th percentile per-packet one-way delay: 11.143 ms
Loss rate: 10.61%
-- Flow 2:
Average throughput: 30.12 Mbit/s
95th percentile per-packet one-way delay: 11.182 ms
Loss rate: 10.66%
-- Flow 3:
Average throughput: 10.89 Mbit/s
95th percentile per-packet one-way delay: 10.382 ms
Loss rate: 10.13%
```

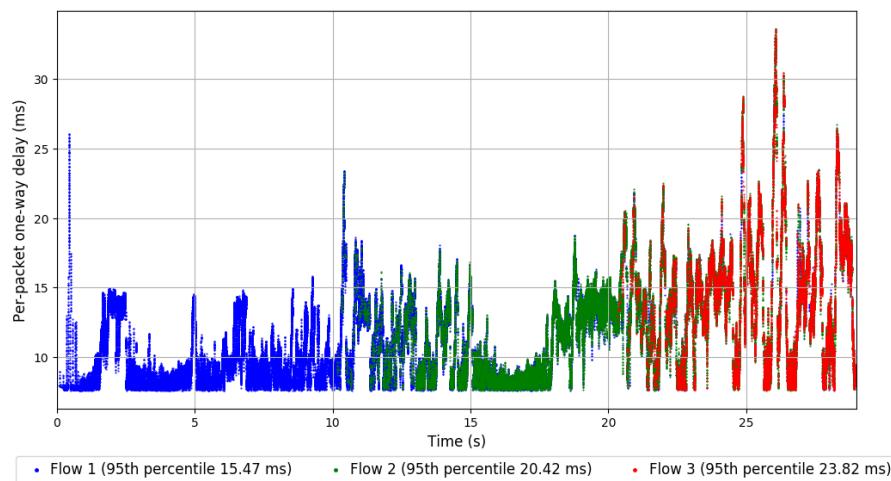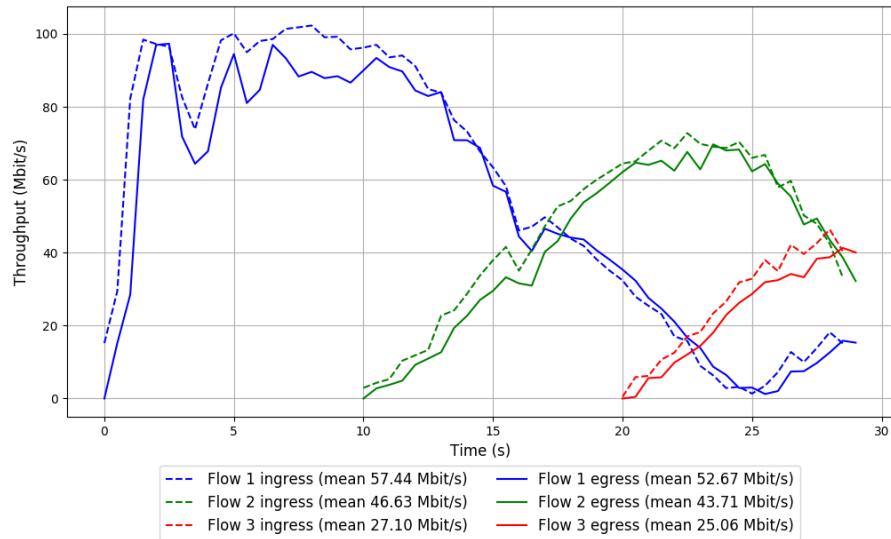Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-19 00:46:09
End at: 2019-01-19 00:46:39
Local clock offset: 1.66 ms
Remote clock offset: -3.793 ms


# Below is generated by plot.py at 2019-01-19 02:19:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.39 Mbit/s
95th percentile per-packet one-way delay: 7.555 ms
Loss rate: 9.54%
-- Flow 1:
Average throughput: 49.49 Mbit/s
95th percentile per-packet one-way delay: 7.614 ms
Loss rate: 9.34%
-- Flow 2:
Average throughput: 11.41 Mbit/s
95th percentile per-packet one-way delay: 7.312 ms
Loss rate: 10.28%
-- Flow 3:
Average throughput: 14.82 Mbit/s
95th percentile per-packet one-way delay: 7.472 ms
Loss rate: 10.47%
```
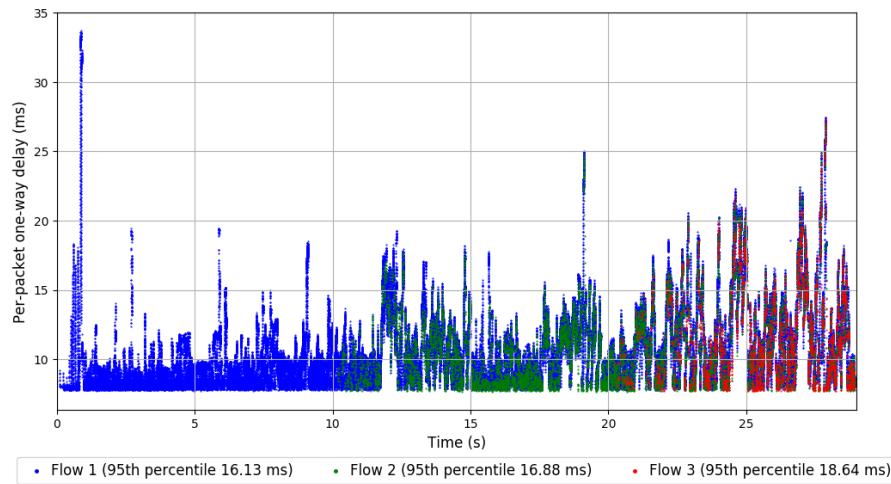
Run 2: Report of Indigo-MusesC3 — Data Link

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```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-19 01:12:24
End at: 2019-01-19 01:12:54
Local clock offset: 0.827 ms
Remote clock offset: -4.169 ms


# Below is generated by plot.py at 2019-01-19 02:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.16 Mbit/s
95th percentile per-packet one-way delay: 10.504 ms
Loss rate: 9.09%
-- Flow 1:
Average throughput: 30.17 Mbit/s
95th percentile per-packet one-way delay: 9.830 ms
Loss rate: 8.17%
-- Flow 2:
Average throughput: 43.46 Mbit/s
95th percentile per-packet one-way delay: 11.588 ms
Loss rate: 9.81%
-- Flow 3:
Average throughput: 22.03 Mbit/s
95th percentile per-packet one-way delay: 9.912 ms
Loss rate: 10.15%
```

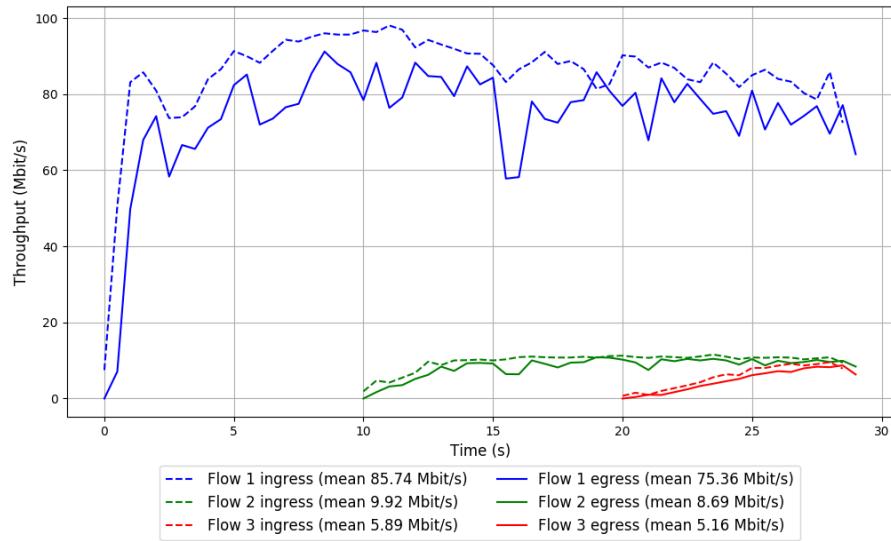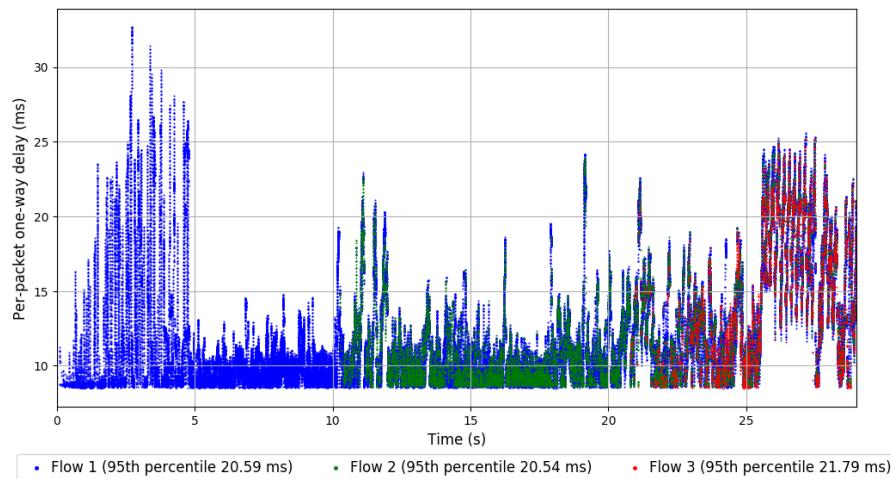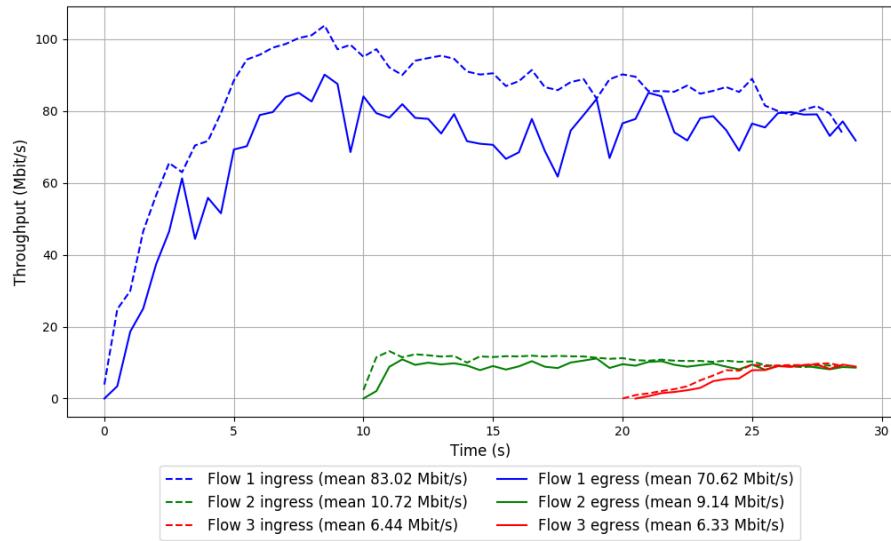Run 3: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 32.85 Mbit/s)   —— Flow 1 egress (mean 30.17 Mbit/s)
- - - Flow 2 ingress (mean 48.19 Mbit/s)   —— Flow 2 egress (mean 43.46 Mbit/s)
- - - Flow 3 ingress (mean 24.52 Mbit/s)   —— Flow 3 egress (mean 22.03 Mbit/s)

• Flow 1 (95th percentile 9.83 ms)   • Flow 2 (95th percentile 11.59 ms)   • Flow 3 (95th percentile 9.91 ms)

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```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-01-19 01:38:22
End at: 2019-01-19 01:38:52
Local clock offset: 0.869 ms
Remote clock offset: -4.216 ms


# Below is generated by plot.py at 2019-01-19 02:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.68 Mbit/s
95th percentile per-packet one-way delay: 15.963 ms
Loss rate: 10.68%
-- Flow 1:
Average throughput: 74.96 Mbit/s
95th percentile per-packet one-way delay: 16.199 ms
Loss rate: 10.23%
-- Flow 2:
Average throughput: 6.50 Mbit/s
95th percentile per-packet one-way delay: 15.557 ms
Loss rate: 13.70%
-- Flow 3:
Average throughput: 37.77 Mbit/s
95th percentile per-packet one-way delay: 14.511 ms
Loss rate: 12.45%
```
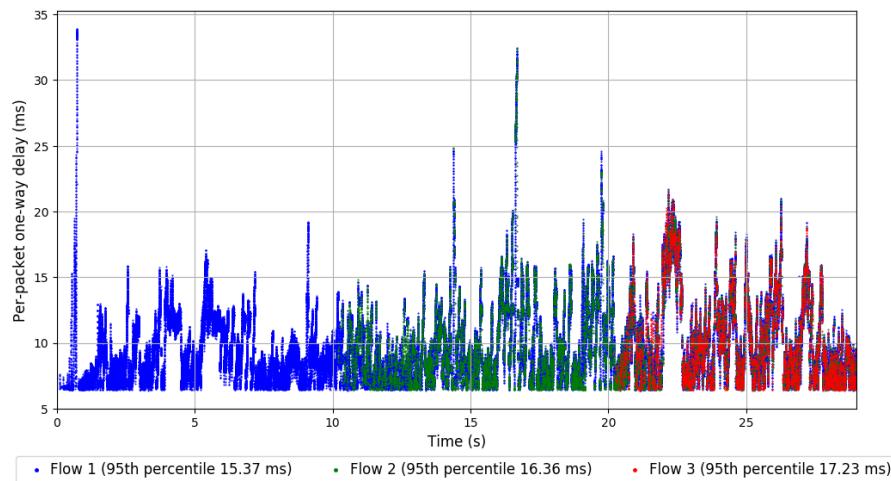
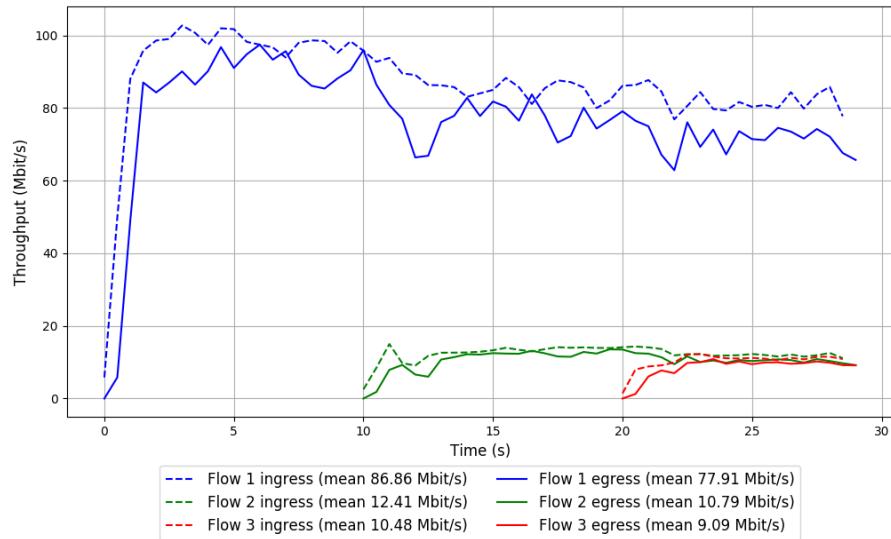Run 4: Report of Indigo-MusesC3 — Data Link

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-01-19 02:04:21
End at: 2019-01-19 02:04:51
Local clock offset: -1.478 ms
Remote clock offset: -4.263 ms


# Below is generated by plot.py at 2019-01-19 02:20:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.64 Mbit/s
95th percentile per-packet one-way delay: 18.822 ms
Loss rate: 7.60%
-- Flow 1:
Average throughput: 52.67 Mbit/s
95th percentile per-packet one-way delay: 15.474 ms
Loss rate: 8.30%
-- Flow 2:
Average throughput: 43.71 Mbit/s
95th percentile per-packet one-way delay: 20.420 ms
Loss rate: 6.27%
-- Flow 3:
Average throughput: 25.06 Mbit/s
95th percentile per-packet one-way delay: 23.818 ms
Loss rate: 7.56%
```

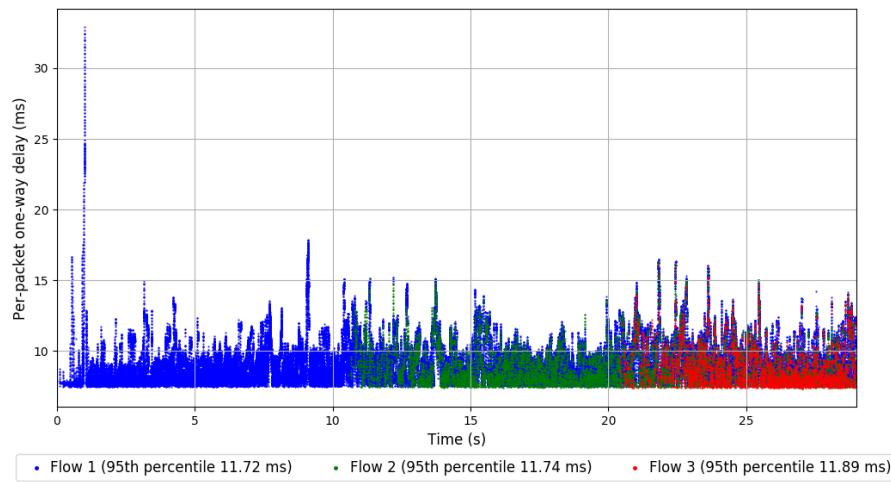Run 5: Report of Indigo-MusesC3 — Data Link

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-19 00:27:26
End at: 2019-01-19 00:27:56
Local clock offset: 0.014 ms
Remote clock offset: -3.715 ms


# Below is generated by plot.py at 2019-01-19 02:20:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.57 Mbit/s
95th percentile per-packet one-way delay: 16.277 ms
Loss rate: 12.13%
-- Flow 1:
Average throughput: 75.36 Mbit/s
95th percentile per-packet one-way delay: 16.134 ms
Loss rate: 12.11%
-- Flow 2:
Average throughput: 8.69 Mbit/s
95th percentile per-packet one-way delay: 16.878 ms
Loss rate: 12.34%
-- Flow 3:
Average throughput: 5.16 Mbit/s
95th percentile per-packet one-way delay: 18.639 ms
Loss rate: 12.56%
```

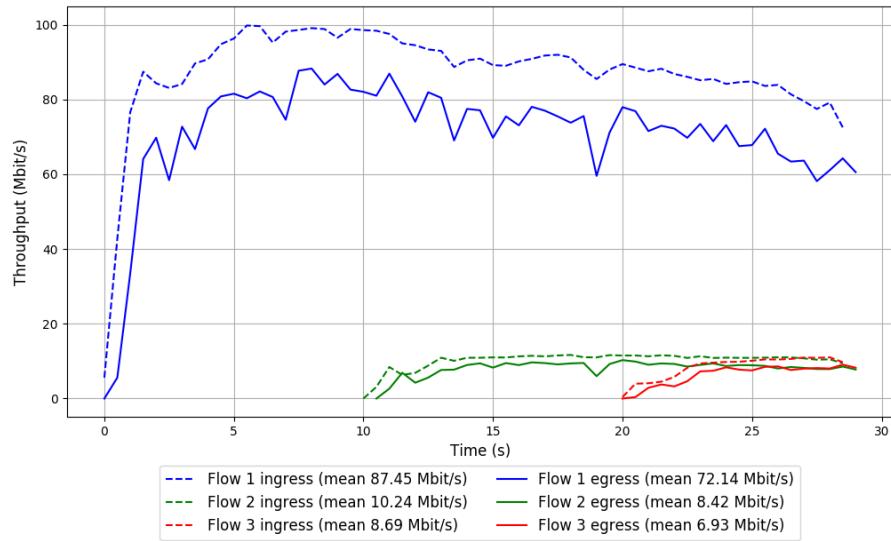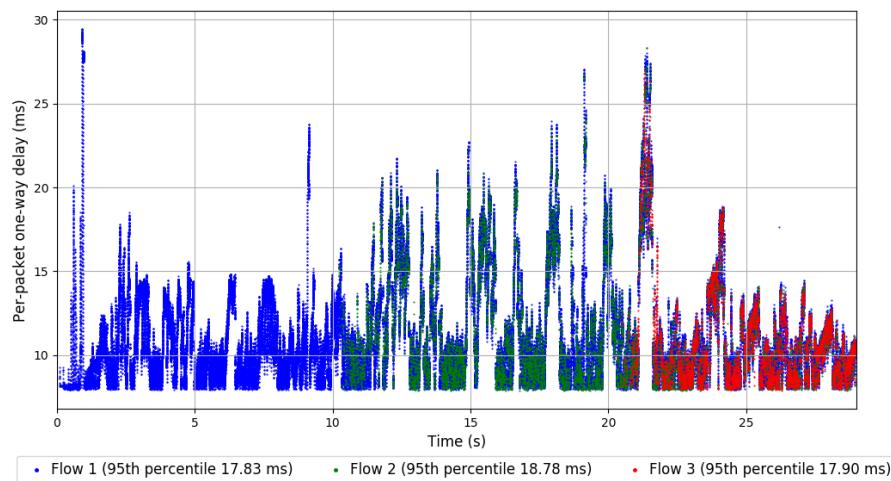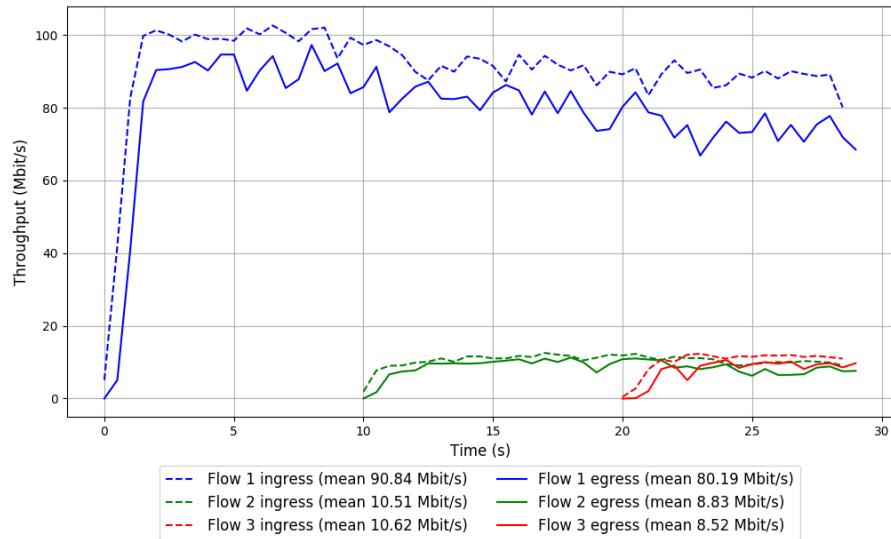Run 1: Report of Indigo-MusesC5 — Data Link

- - - Flow 1 ingress (mean 85.74 Mbit/s) —— Flow 1 egress (mean 75.36 Mbit/s)
- - - Flow 2 ingress (mean 9.92 Mbit/s) —— Flow 2 egress (mean 8.69 Mbit/s)
- - - Flow 3 ingress (mean 5.89 Mbit/s) —— Flow 3 egress (mean 5.16 Mbit/s)

• Flow 1 (95th percentile 16.13 ms)   • Flow 2 (95th percentile 16.88 ms)   • Flow 3 (95th percentile 18.64 ms)

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-19 00:53:46
End at: 2019-01-19 00:54:16
Local clock offset: 0.025 ms
Remote clock offset: -3.194 ms


# Below is generated by plot.py at 2019-01-19 02:20:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.35 Mbit/s
95th percentile per-packet one-way delay: 20.669 ms
Loss rate: 14.73%
-- Flow 1:
Average throughput: 70.62 Mbit/s
95th percentile per-packet one-way delay: 20.587 ms
Loss rate: 14.90%
-- Flow 2:
Average throughput: 9.14 Mbit/s
95th percentile per-packet one-way delay: 20.540 ms
Loss rate: 14.79%
-- Flow 3:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 21.793 ms
Loss rate: 7.30%
```
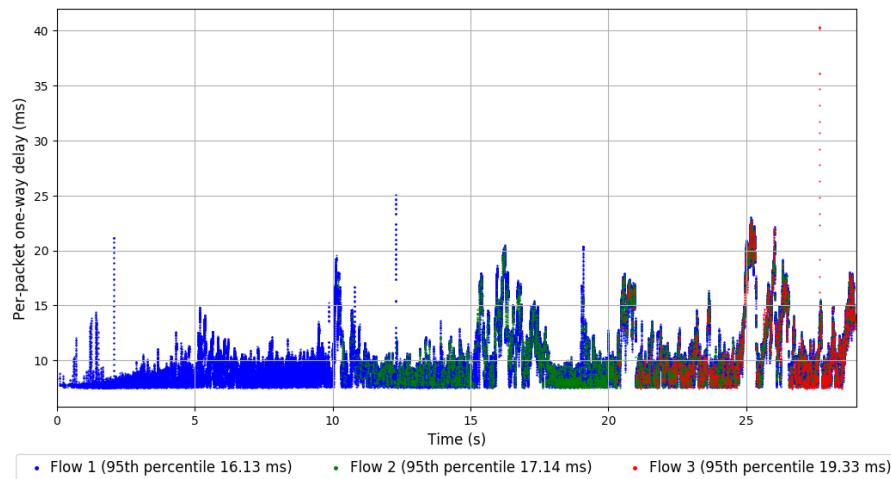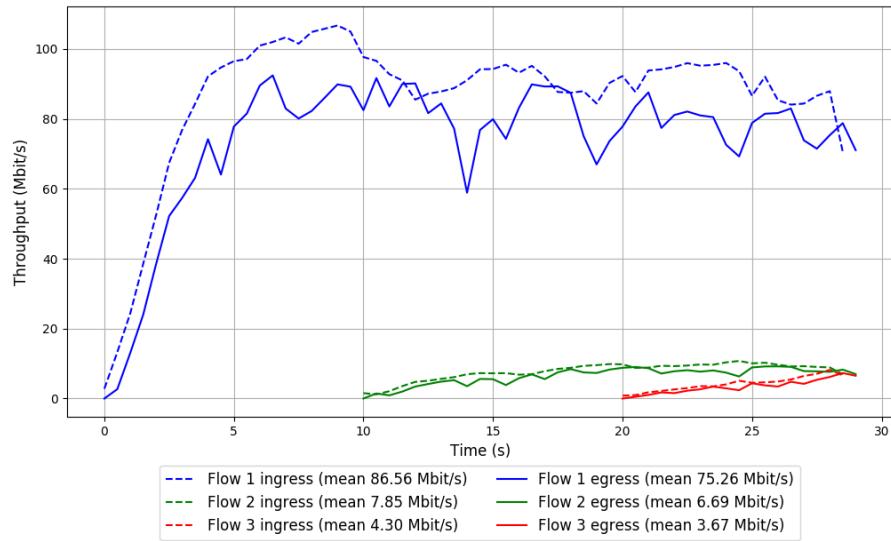
Run 2: Report of Indigo-MusesC5 — Data Link

- - - - Flow 1 ingress (mean 83.02 Mbit/s)   —— Flow 1 egress (mean 70.62 Mbit/s)
- - - - Flow 2 ingress (mean 10.72 Mbit/s)   —— Flow 2 egress (mean 9.14 Mbit/s)
- - - - Flow 3 ingress (mean 6.44 Mbit/s)   —— Flow 3 egress (mean 6.33 Mbit/s)

• Flow 1 (95th percentile 20.59 ms)   • Flow 2 (95th percentile 20.54 ms)   • Flow 3 (95th percentile 21.79 ms)

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-19 01:19:49
End at: 2019-01-19 01:20:19
Local clock offset: 1.327 ms
Remote clock offset: -4.109 ms


# Below is generated by plot.py at 2019-01-19 02:20:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.69 Mbit/s
95th percentile per-packet one-way delay: 15.532 ms
Loss rate: 10.62%
-- Flow 1:
Average throughput: 77.91 Mbit/s
95th percentile per-packet one-way delay: 15.366 ms
Loss rate: 10.30%
-- Flow 2:
Average throughput: 10.79 Mbit/s
95th percentile per-packet one-way delay: 16.361 ms
Loss rate: 13.07%
-- Flow 3:
Average throughput: 9.09 Mbit/s
95th percentile per-packet one-way delay: 17.232 ms
Loss rate: 13.21%
```

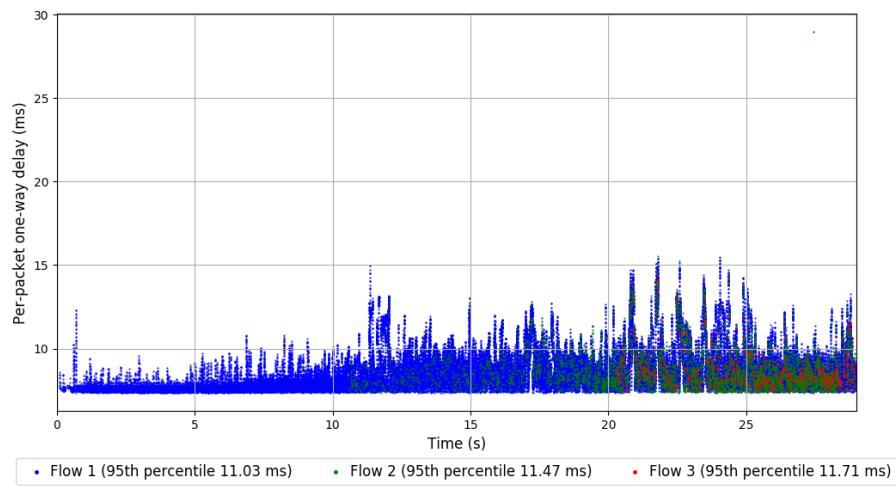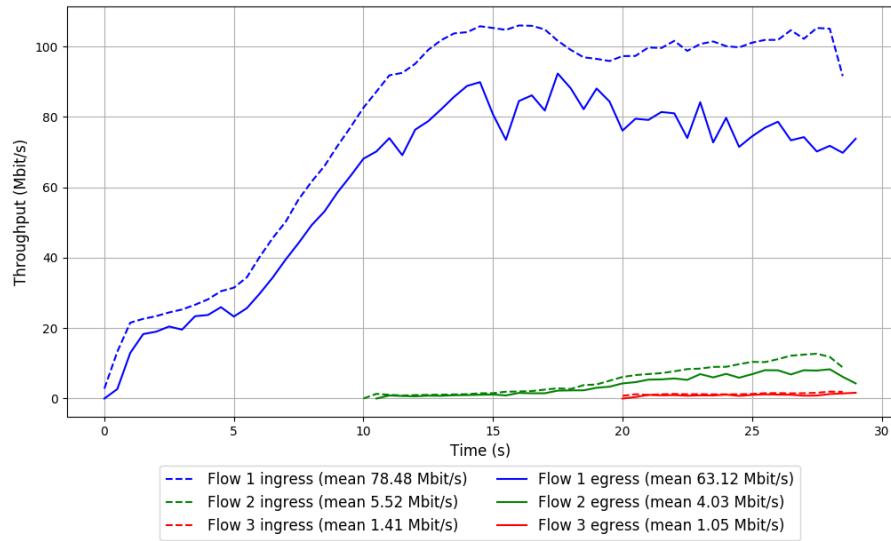# Run 3: Report of Indigo-MusesC5 — Data Link

- - - Flow 1 ingress (mean 86.86 Mbit/s) —— Flow 1 egress (mean 77.91 Mbit/s)
- - - Flow 2 ingress (mean 12.41 Mbit/s) —— Flow 2 egress (mean 10.79 Mbit/s)
- - - Flow 3 ingress (mean 10.48 Mbit/s) —— Flow 3 egress (mean 9.09 Mbit/s)

- Flow 1 (95th percentile 15.37 ms)   • Flow 2 (95th percentile 16.36 ms)   • Flow 3 (95th percentile 17.23 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-01-19 01:45:56
End at: 2019-01-19 01:46:26
Local clock offset: -0.16 ms
Remote clock offset: -4.364 ms


# Below is generated by plot.py at 2019-01-19 02:20:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.54 Mbit/s
95th percentile per-packet one-way delay: 11.730 ms
Loss rate: 17.74%
-- Flow 1:
Average throughput: 72.14 Mbit/s
95th percentile per-packet one-way delay: 11.724 ms
Loss rate: 17.50%
-- Flow 2:
Average throughput: 8.42 Mbit/s
95th percentile per-packet one-way delay: 11.745 ms
Loss rate: 19.99%
-- Flow 3:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 11.893 ms
Loss rate: 20.29%
```

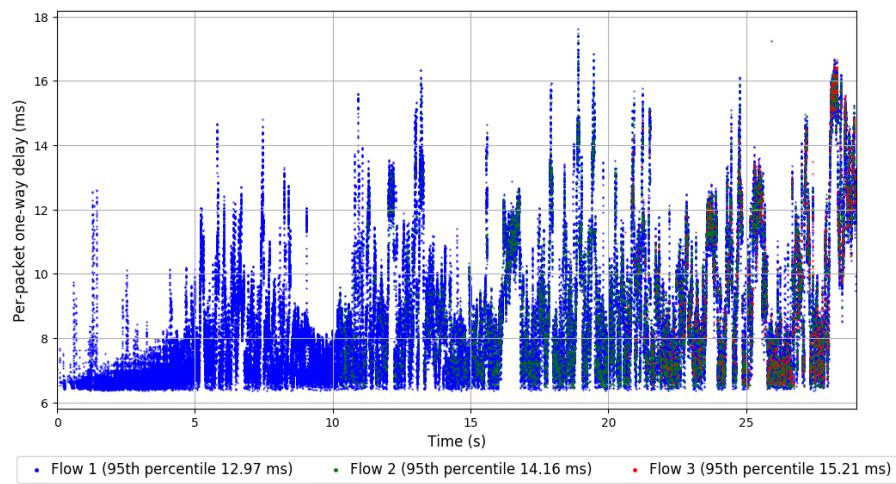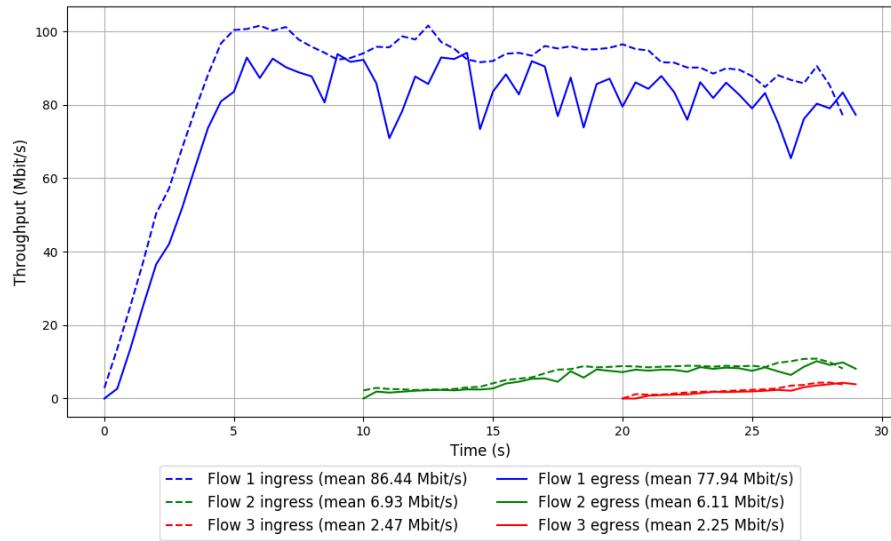Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-01-19 02:11:49
End at: 2019-01-19 02:12:19
Local clock offset: -1.723 ms
Remote clock offset: -4.113 ms


# Below is generated by plot.py at 2019-01-19 02:21:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.46 Mbit/s
95th percentile per-packet one-way delay: 17.911 ms
Loss rate: 12.26%
-- Flow 1:
Average throughput: 80.19 Mbit/s
95th percentile per-packet one-way delay: 17.830 ms
Loss rate: 11.72%
-- Flow 2:
Average throughput: 8.83 Mbit/s
95th percentile per-packet one-way delay: 18.779 ms
Loss rate: 15.94%
-- Flow 3:
Average throughput: 8.52 Mbit/s
95th percentile per-packet one-way delay: 17.896 ms
Loss rate: 19.81%
```

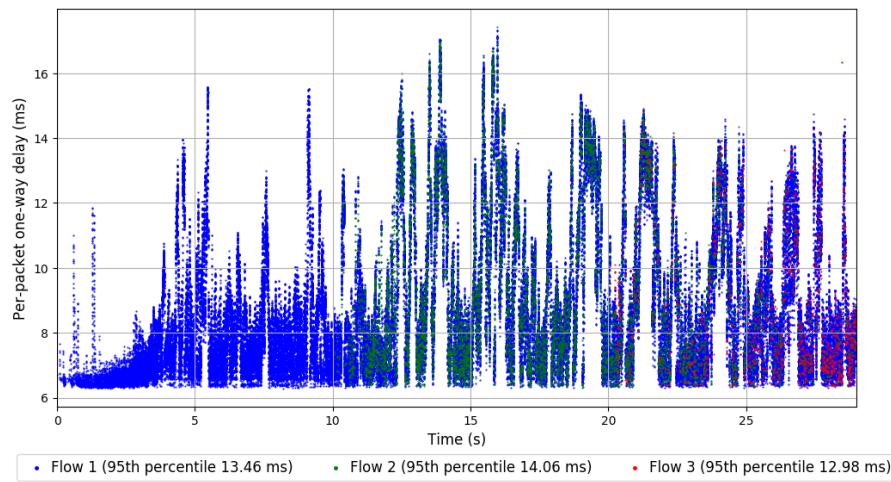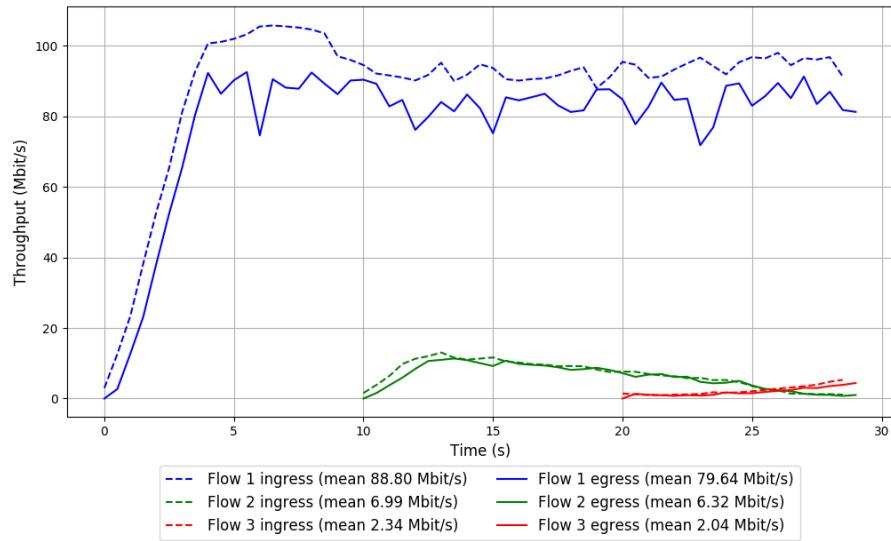Run 5: Report of Indigo-MusesC5 — Data Link

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```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-19 00:23:43
End at: 2019-01-19 00:24:13
Local clock offset: -0.263 ms
Remote clock offset: -4.078 ms


# Below is generated by plot.py at 2019-01-19 02:21:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.72 Mbit/s
95th percentile per-packet one-way delay: 16.211 ms
Loss rate: 13.16%
-- Flow 1:
Average throughput: 75.26 Mbit/s
95th percentile per-packet one-way delay: 16.133 ms
Loss rate: 13.04%
-- Flow 2:
Average throughput: 6.69 Mbit/s
95th percentile per-packet one-way delay: 17.137 ms
Loss rate: 14.86%
-- Flow 3:
Average throughput: 3.67 Mbit/s
95th percentile per-packet one-way delay: 19.330 ms
Loss rate: 14.64%
```

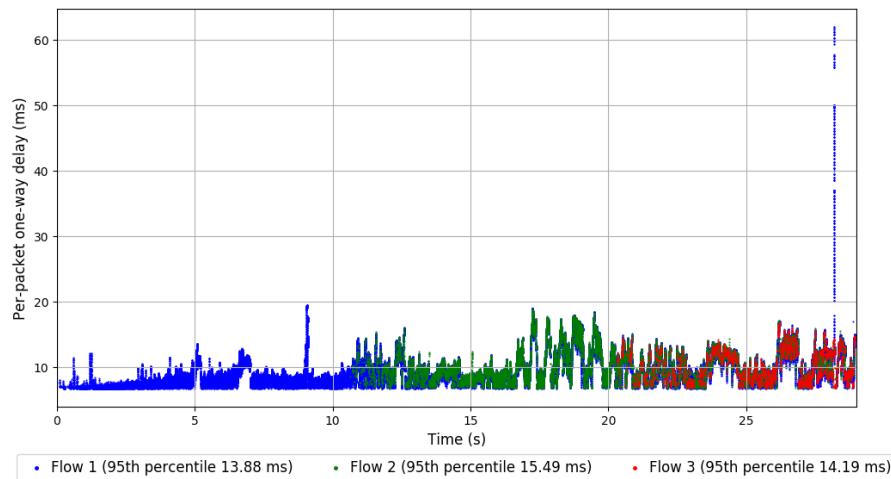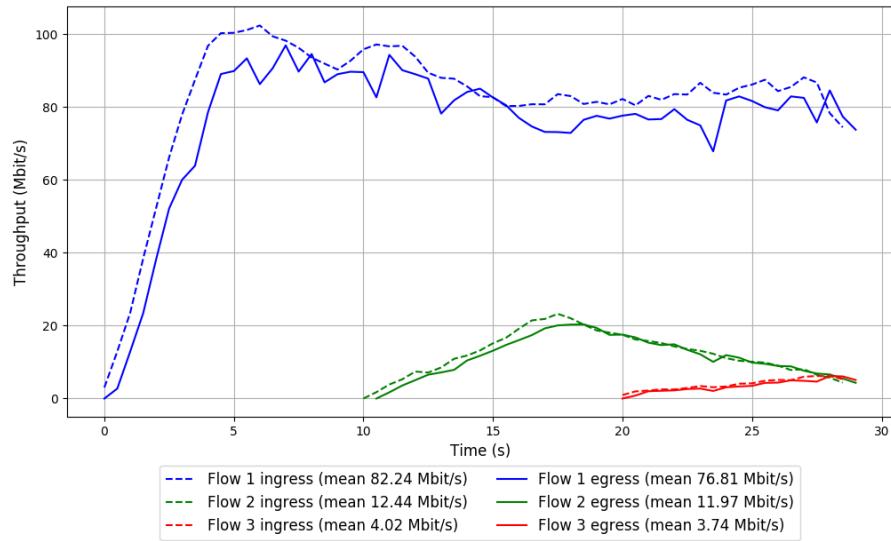Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-19 00:49:58
End at: 2019-01-19 00:50:28
Local clock offset: 0.83 ms
Remote clock offset: -3.413 ms


# Below is generated by plot.py at 2019-01-19 02:21:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.99 Mbit/s
95th percentile per-packet one-way delay: 11.049 ms
Loss rate: 20.01%
-- Flow 1:
Average throughput: 63.12 Mbit/s
95th percentile per-packet one-way delay: 11.026 ms
Loss rate: 19.57%
-- Flow 2:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 11.466 ms
Loss rate: 28.95%
-- Flow 3:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 11.712 ms
Loss rate: 25.50%
```

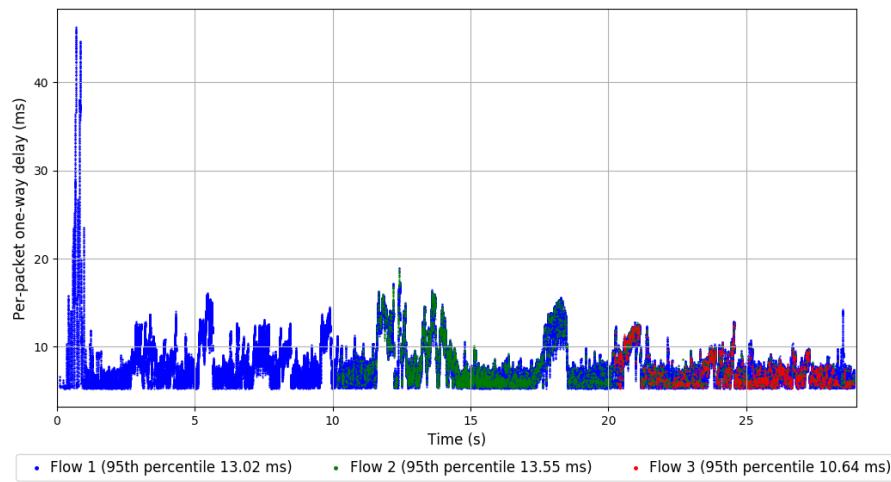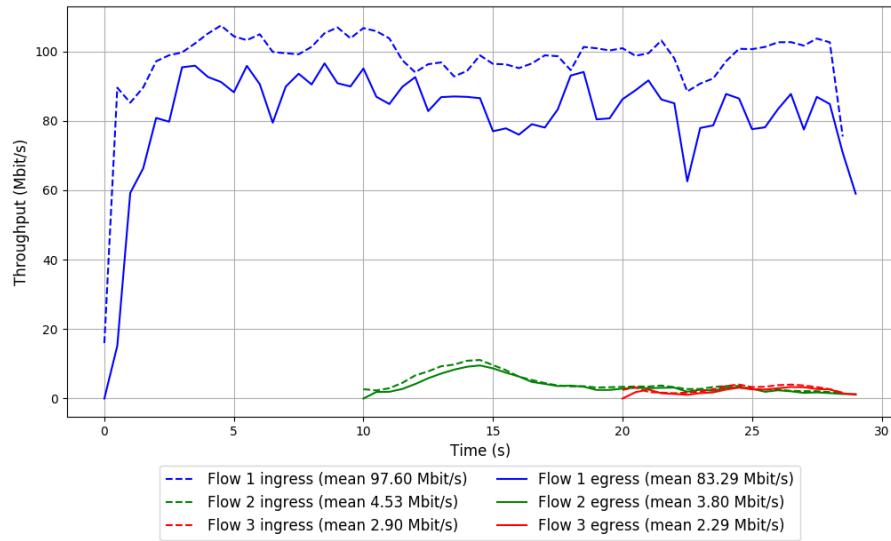Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-19 01:16:04
End at: 2019-01-19 01:16:34
Local clock offset: 1.303 ms
Remote clock offset: -4.333 ms


# Below is generated by plot.py at 2019-01-19 02:21:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.56 Mbit/s
95th percentile per-packet one-way delay: 13.053 ms
Loss rate: 9.92%
-- Flow 1:
Average throughput: 77.94 Mbit/s
95th percentile per-packet one-way delay: 12.975 ms
Loss rate: 9.83%
-- Flow 2:
Average throughput: 6.11 Mbit/s
95th percentile per-packet one-way delay: 14.156 ms
Loss rate: 11.83%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 15.212 ms
Loss rate: 8.94%
```
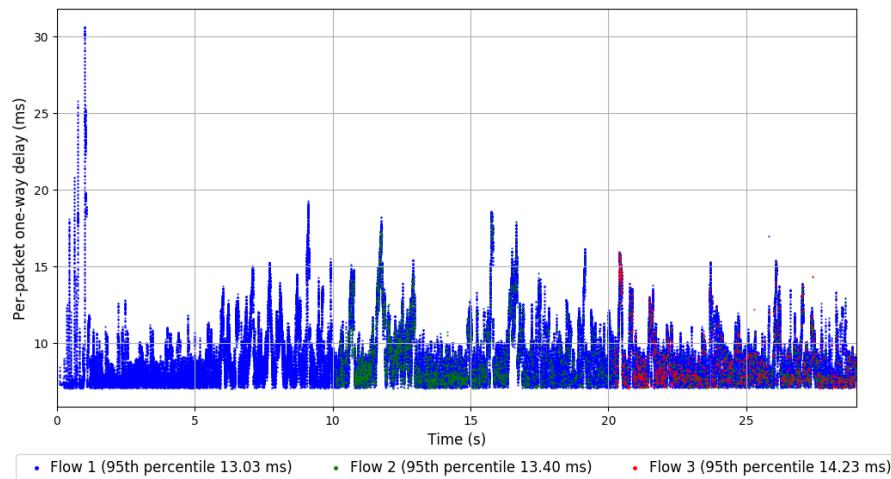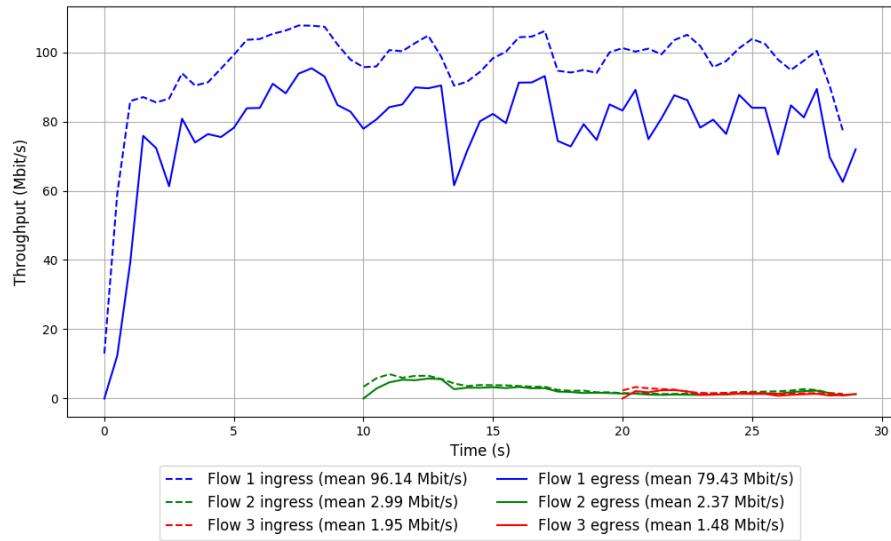
Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-01-19 01:42:10
End at: 2019-01-19 01:42:40
Local clock offset: 1.614 ms
Remote clock offset: -3.585 ms


# Below is generated by plot.py at 2019-01-19 02:21:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.38 Mbit/s
95th percentile per-packet one-way delay: 13.497 ms
Loss rate: 10.30%
-- Flow 1:
Average throughput: 79.64 Mbit/s
95th percentile per-packet one-way delay: 13.463 ms
Loss rate: 10.31%
-- Flow 2:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 14.065 ms
Loss rate: 9.57%
-- Flow 3:
Average throughput: 2.04 Mbit/s
95th percentile per-packet one-way delay: 12.984 ms
Loss rate: 12.85%
```

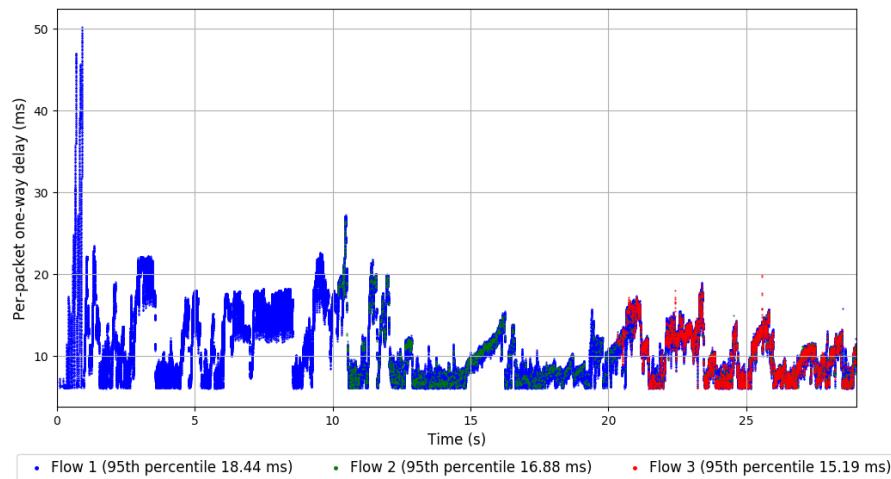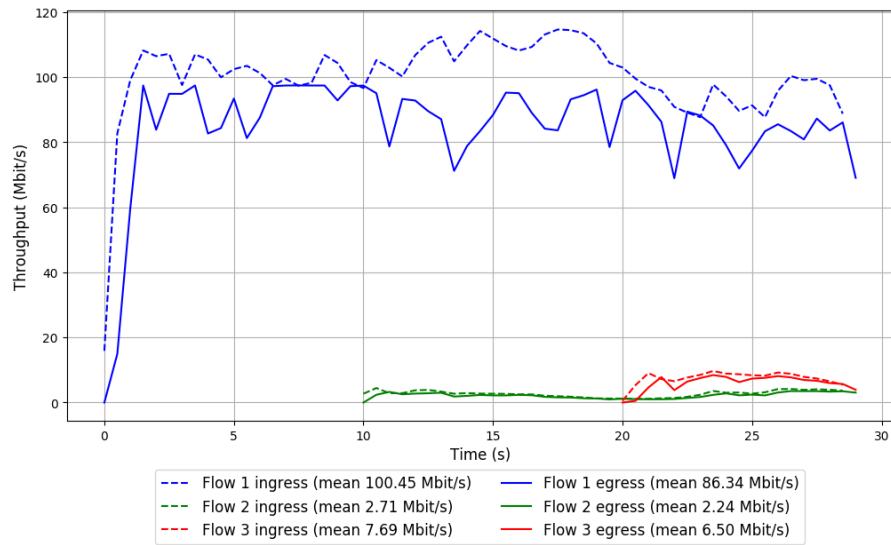Run 4: Report of Indigo-MusesD — Data Link

- - - - Flow 1 ingress (mean 88.80 Mbit/s) ———— Flow 1 egress (mean 79.64 Mbit/s)
- - - - Flow 2 ingress (mean 6.99 Mbit/s) ———— Flow 2 egress (mean 6.32 Mbit/s)
- - - - Flow 3 ingress (mean 2.34 Mbit/s) ———— Flow 3 egress (mean 2.04 Mbit/s)

• Flow 1 (95th percentile 13.46 ms)   • Flow 2 (95th percentile 14.06 ms)   • Flow 3 (95th percentile 12.98 ms)

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-01-19 02:08:06
End at: 2019-01-19 02:08:36
Local clock offset: -0.816 ms
Remote clock offset: -4.355 ms


# Below is generated by plot.py at 2019-01-19 02:21:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.50 Mbit/s
95th percentile per-packet one-way delay: 14.064 ms
Loss rate: 6.56%
-- Flow 1:
Average throughput: 76.81 Mbit/s
95th percentile per-packet one-way delay: 13.882 ms
Loss rate: 6.58%
-- Flow 2:
Average throughput: 11.97 Mbit/s
95th percentile per-packet one-way delay: 15.493 ms
Loss rate: 6.26%
-- Flow 3:
Average throughput: 3.74 Mbit/s
95th percentile per-packet one-way delay: 14.185 ms
Loss rate: 6.92%
```
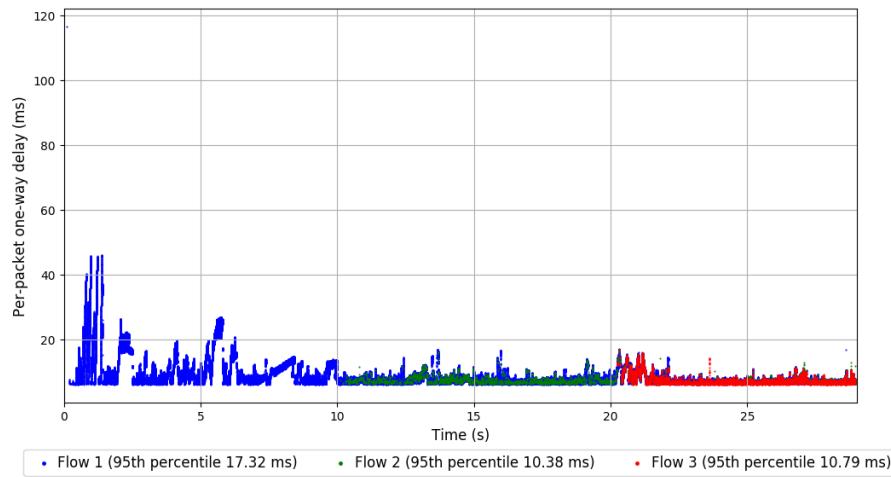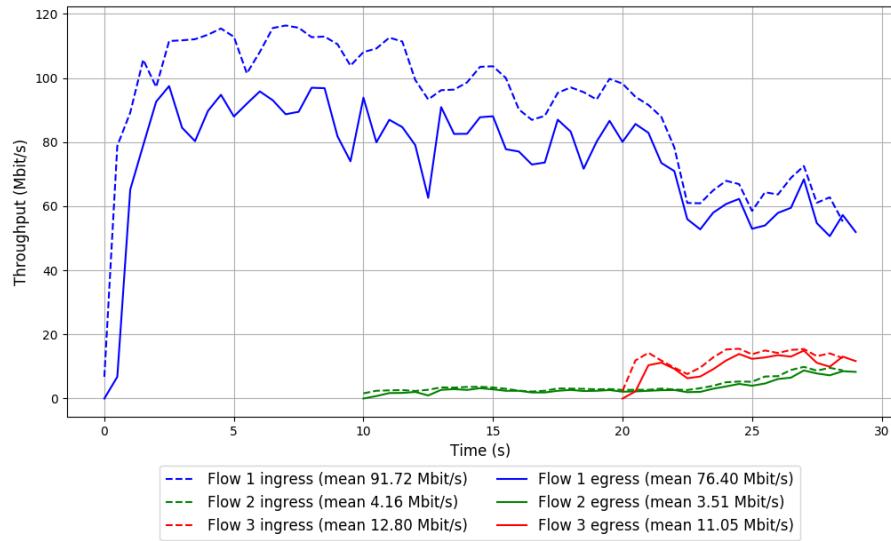
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-19 00:26:12
End at: 2019-01-19 00:26:42
Local clock offset: 2.268 ms
Remote clock offset: -3.89 ms


# Below is generated by plot.py at 2019-01-19 02:21:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.45 Mbit/s
95th percentile per-packet one-way delay: 13.019 ms
Loss rate: 14.76%
-- Flow 1:
Average throughput: 83.29 Mbit/s
95th percentile per-packet one-way delay: 13.015 ms
Loss rate: 14.66%
-- Flow 2:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 13.552 ms
Loss rate: 16.15%
-- Flow 3:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 10.641 ms
Loss rate: 20.87%
```
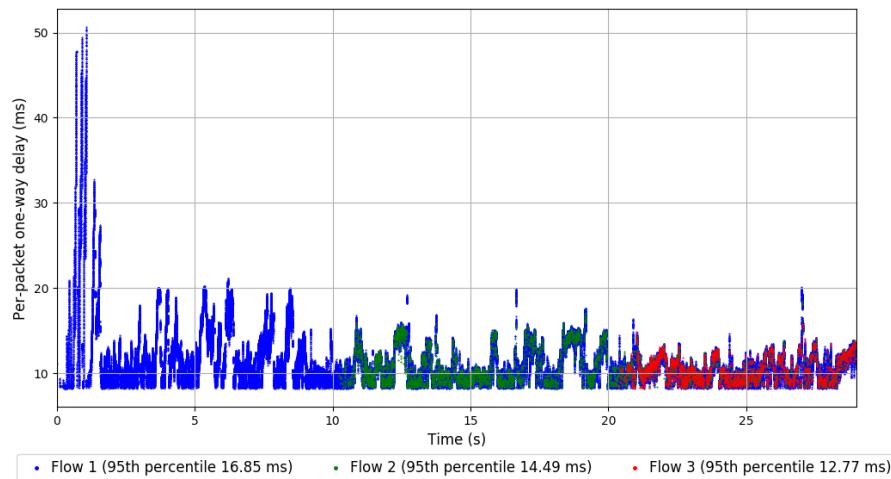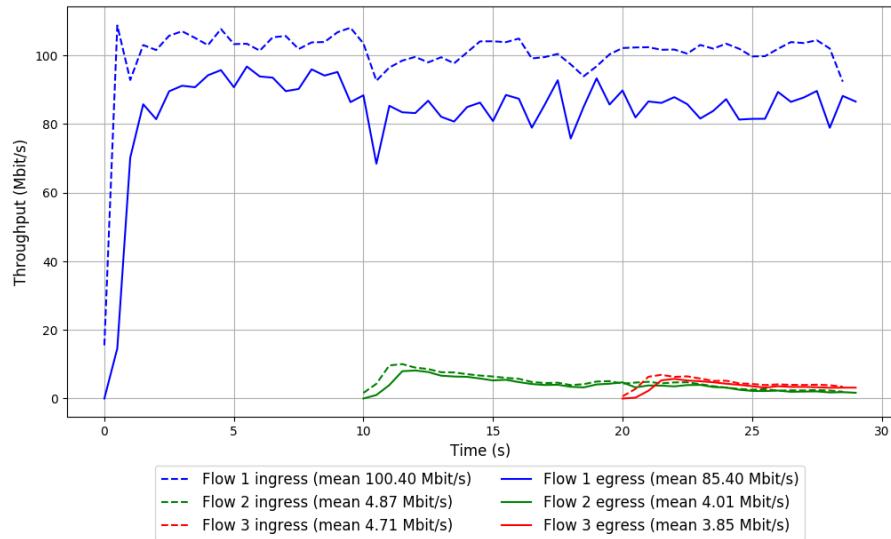
Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-19 00:52:28
End at: 2019-01-19 00:52:58
Local clock offset: 1.789 ms
Remote clock offset: -2.904 ms


# Below is generated by plot.py at 2019-01-19 02:21:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.42 Mbit/s
95th percentile per-packet one-way delay: 13.041 ms
Loss rate: 17.49%
-- Flow 1:
Average throughput: 79.43 Mbit/s
95th percentile per-packet one-way delay: 13.030 ms
Loss rate: 17.38%
-- Flow 2:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 13.401 ms
Loss rate: 20.92%
-- Flow 3:
Average throughput: 1.48 Mbit/s
95th percentile per-packet one-way delay: 14.235 ms
Loss rate: 24.05%
```

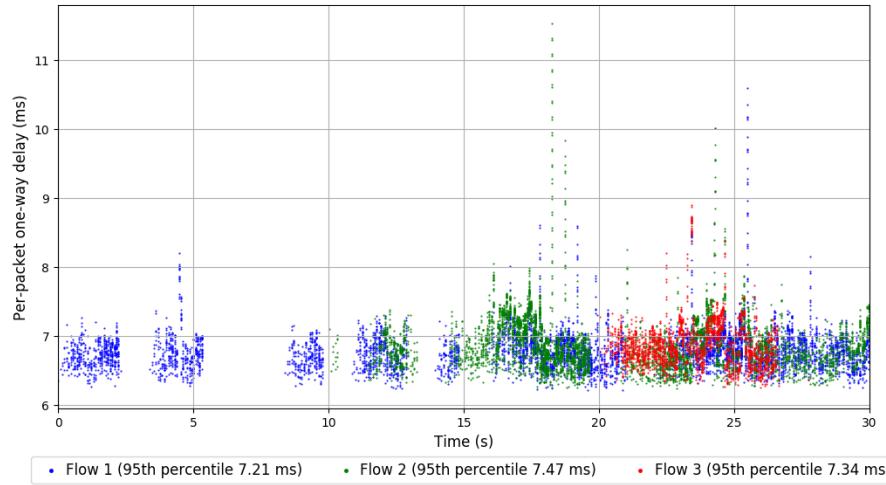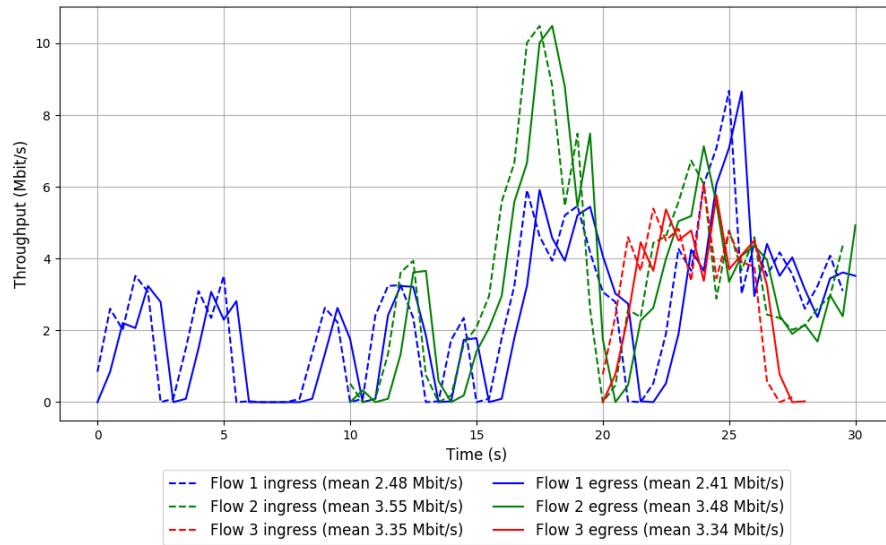Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-19 01:18:30
End at: 2019-01-19 01:19:00
Local clock offset: 2.529 ms
Remote clock offset: -3.363 ms


# Below is generated by plot.py at 2019-01-19 02:22:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.75 Mbit/s
95th percentile per-packet one-way delay: 18.341 ms
Loss rate: 14.13%
-- Flow 1:
Average throughput: 86.34 Mbit/s
95th percentile per-packet one-way delay: 18.437 ms
Loss rate: 14.03%
-- Flow 2:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 16.877 ms
Loss rate: 17.57%
-- Flow 3:
Average throughput: 6.50 Mbit/s
95th percentile per-packet one-way delay: 15.191 ms
Loss rate: 15.50%
```
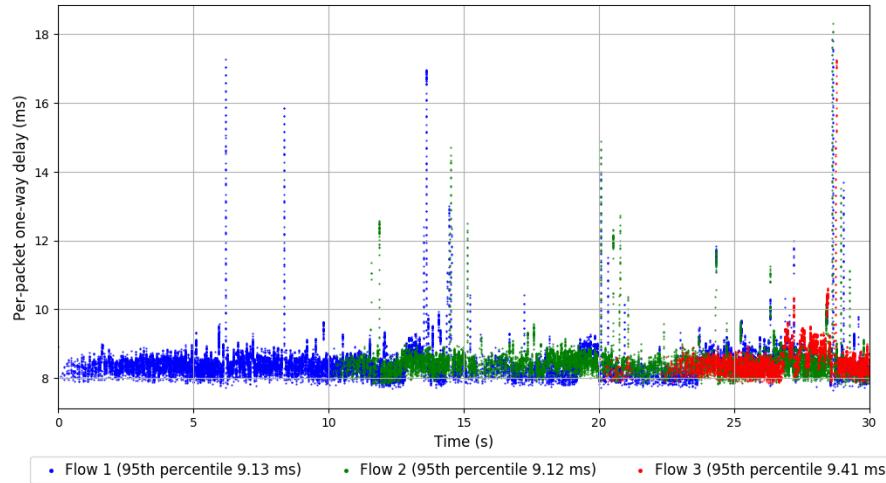
Run 3: Report of Indigo-MusesT — Data Link
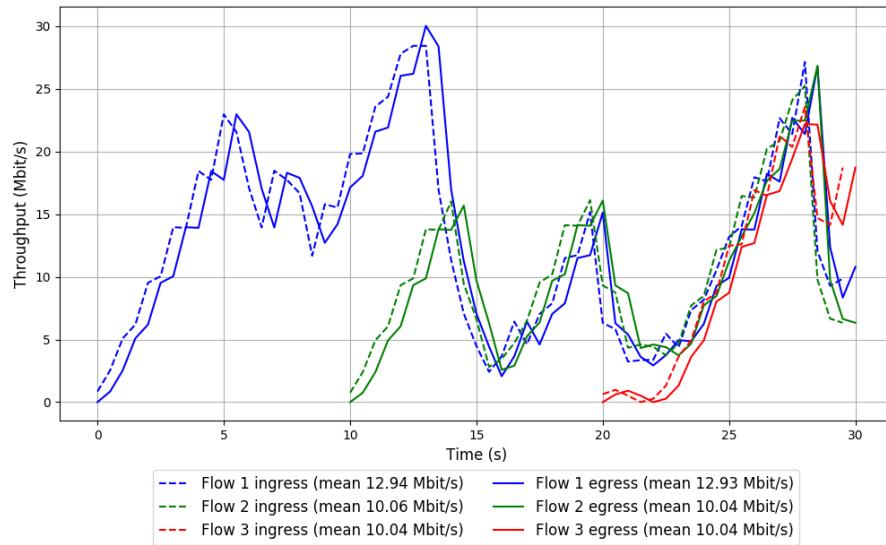
```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-01-19 01:44:38
End at: 2019-01-19 01:45:08
Local clock offset: 1.068 ms
Remote clock offset: -4.319 ms


# Below is generated by plot.py at 2019-01-19 02:22:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.04 Mbit/s
95th percentile per-packet one-way delay: 17.099 ms
Loss rate: 16.84%
-- Flow 1:
Average throughput: 76.40 Mbit/s
95th percentile per-packet one-way delay: 17.317 ms
Loss rate: 17.01%
-- Flow 2:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 10.377 ms
Loss rate: 15.52%
-- Flow 3:
Average throughput: 11.05 Mbit/s
95th percentile per-packet one-way delay: 10.789 ms
Loss rate: 13.65%
```
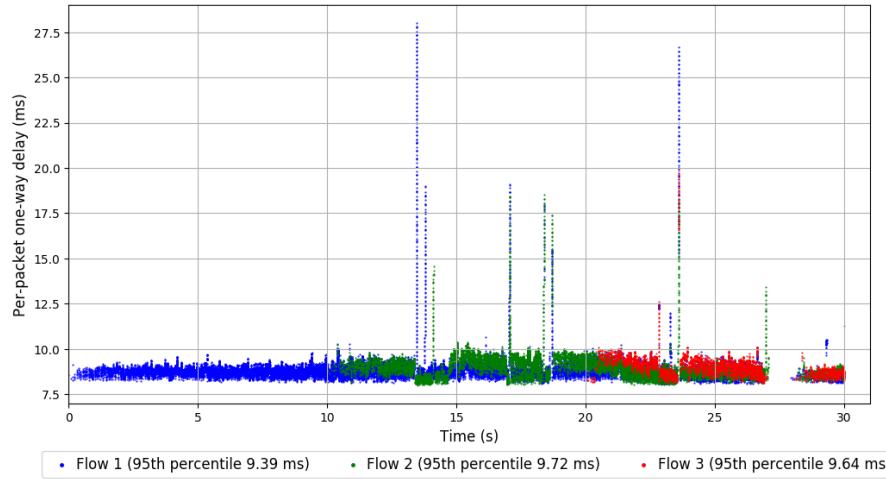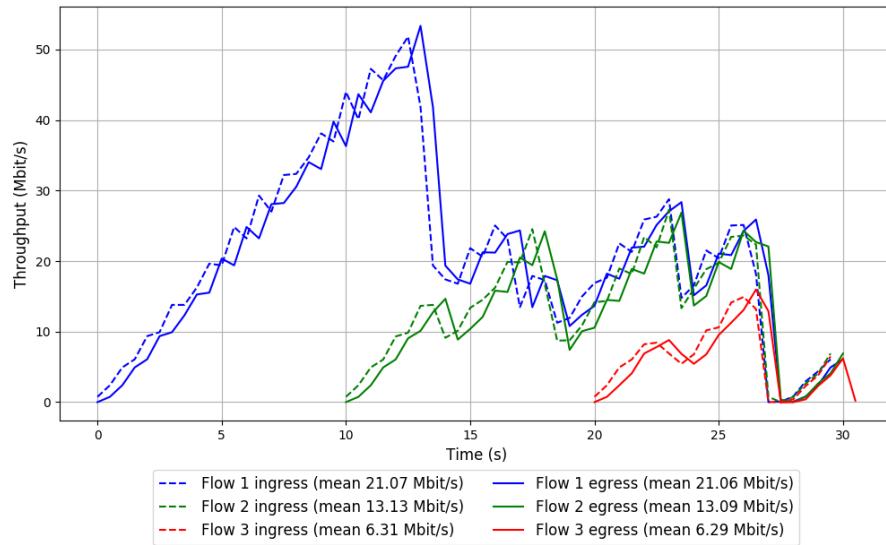
Run 4: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 91.72 Mbit/s)   Flow 1 egress (mean 76.40 Mbit/s)
Flow 2 ingress (mean 4.16 Mbit/s)   Flow 2 egress (mean 3.51 Mbit/s)
Flow 3 ingress (mean 12.80 Mbit/s)   Flow 3 egress (mean 11.05 Mbit/s)

Flow 1 (95th percentile 17.32 ms)   Flow 2 (95th percentile 10.38 ms)   Flow 3 (95th percentile 10.79 ms)

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```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-01-19 02:10:33
End at: 2019-01-19 02:11:03
Local clock offset: -1.843 ms
Remote clock offset: -3.916 ms


# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.17 Mbit/s
95th percentile per-packet one-way delay: 16.705 ms
Loss rate: 15.06%
-- Flow 1:
Average throughput: 85.40 Mbit/s
95th percentile per-packet one-way delay: 16.851 ms
Loss rate: 14.94%
-- Flow 2:
Average throughput: 4.01 Mbit/s
95th percentile per-packet one-way delay: 14.490 ms
Loss rate: 17.53%
-- Flow 3:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 12.773 ms
Loss rate: 18.18%
```
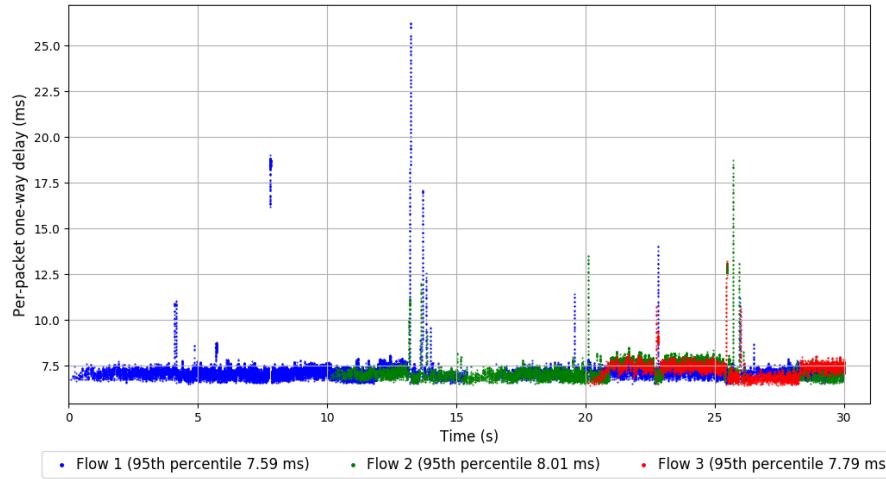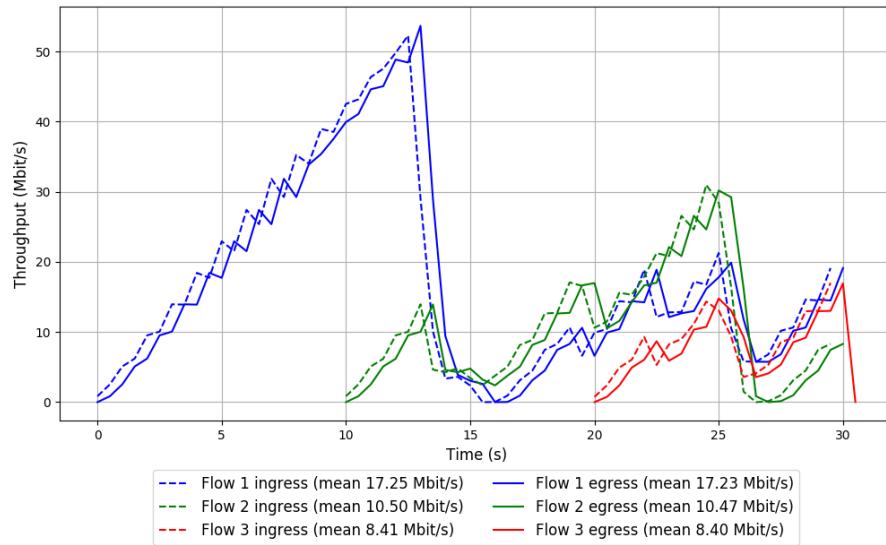
Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-01-19 00:10:28
End at: 2019-01-19 00:10:58
Local clock offset: 1.121 ms
Remote clock offset: -3.584 ms


# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.58 Mbit/s
95th percentile per-packet one-way delay: 7.374 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 2.41 Mbit/s
95th percentile per-packet one-way delay: 7.213 ms
Loss rate: 2.92%
-- Flow 2:
Average throughput: 3.48 Mbit/s
95th percentile per-packet one-way delay: 7.474 ms
Loss rate: 2.07%
-- Flow 3:
Average throughput: 3.34 Mbit/s
95th percentile per-packet one-way delay: 7.344 ms
Loss rate: 1.44%
```
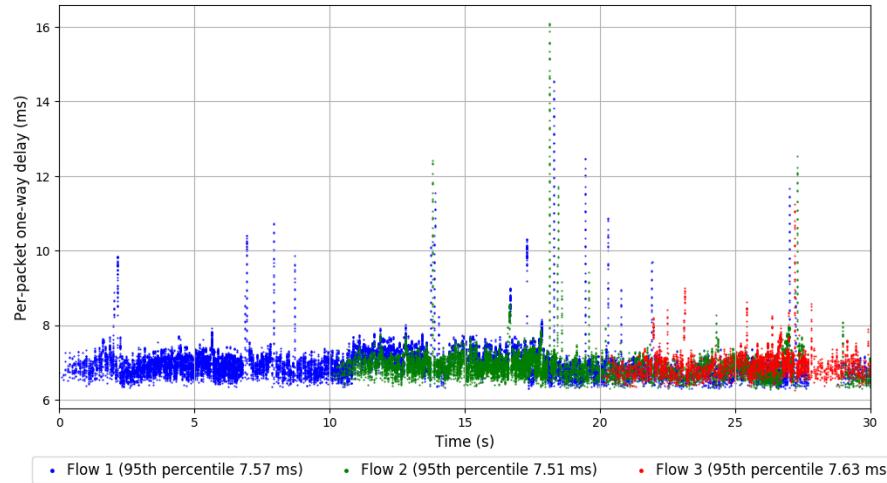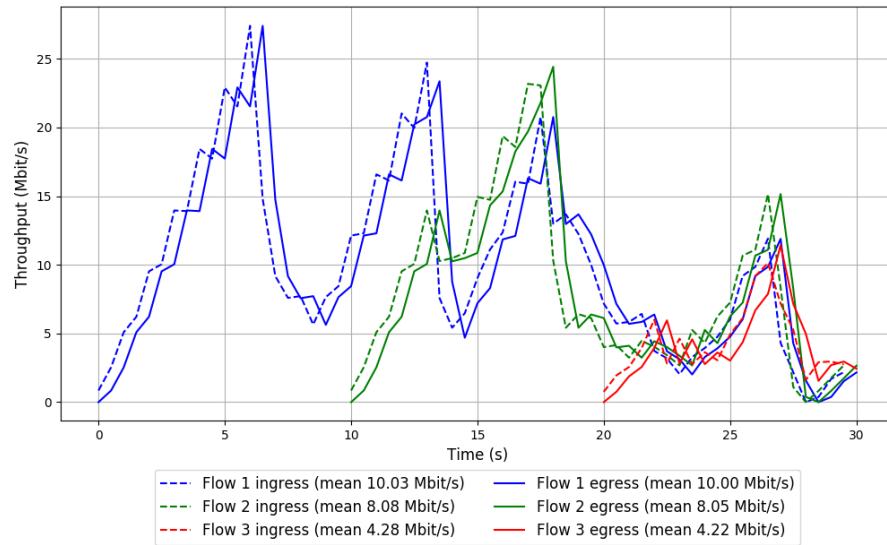
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-01-19 00:36:24
End at: 2019-01-19 00:36:54
Local clock offset: 0.104 ms
Remote clock offset: -3.699 ms


# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.92 Mbit/s
95th percentile per-packet one-way delay: 9.200 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 12.93 Mbit/s
95th percentile per-packet one-way delay: 9.128 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 10.04 Mbit/s
95th percentile per-packet one-way delay: 9.124 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 10.04 Mbit/s
95th percentile per-packet one-way delay: 9.415 ms
Loss rate: 0.07%
```
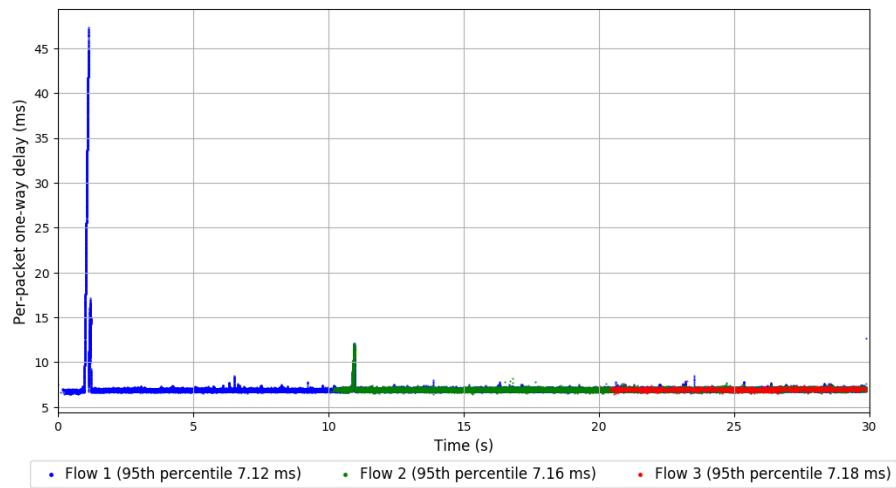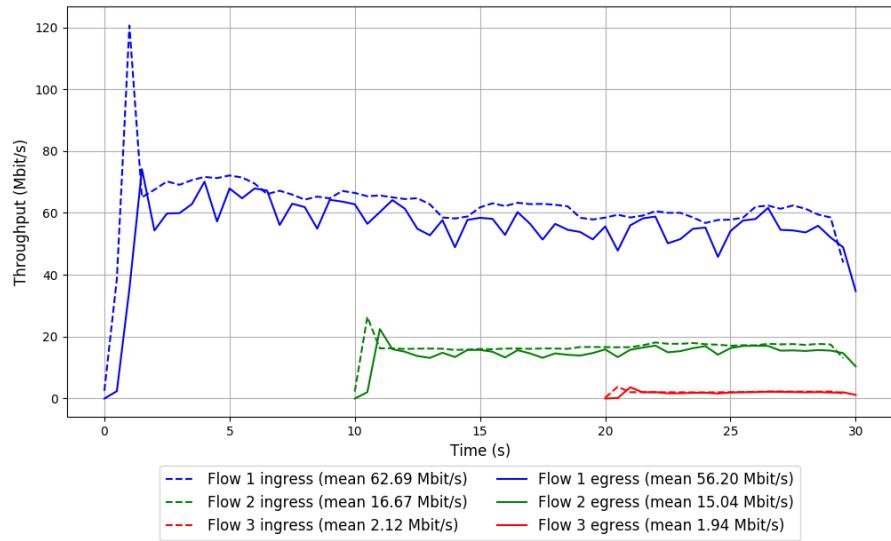
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-01-19 01:02:33
End at: 2019-01-19 01:03:03
Local clock offset: 0.82 ms
Remote clock offset: -2.987 ms


# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 9.559 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 21.06 Mbit/s
95th percentile per-packet one-way delay: 9.395 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 13.09 Mbit/s
95th percentile per-packet one-way delay: 9.722 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 6.29 Mbit/s
95th percentile per-packet one-way delay: 9.636 ms
Loss rate: 0.35%
```
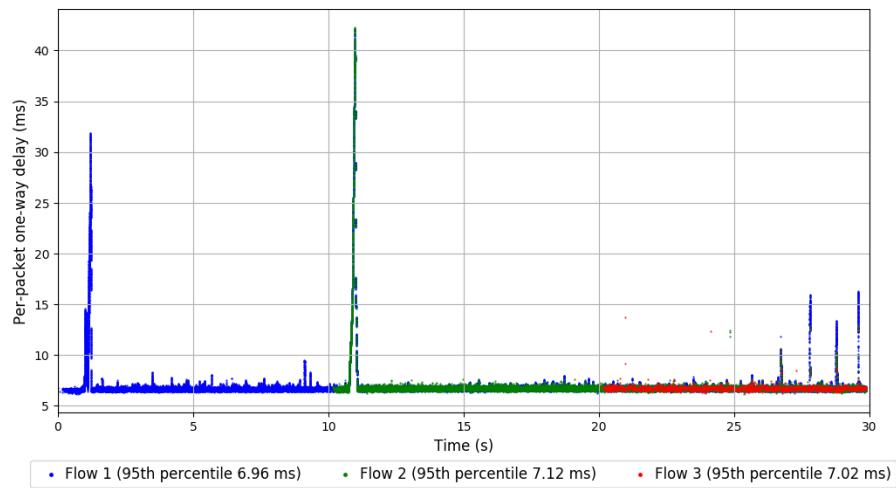
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-01-19 01:28:26
End at: 2019-01-19 01:28:56
Local clock offset: 1.416 ms
Remote clock offset: -3.739 ms


# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.98 Mbit/s
95th percentile per-packet one-way delay: 7.850 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 17.23 Mbit/s
95th percentile per-packet one-way delay: 7.590 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 10.47 Mbit/s
95th percentile per-packet one-way delay: 8.012 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 8.40 Mbit/s
95th percentile per-packet one-way delay: 7.790 ms
Loss rate: 0.10%
```
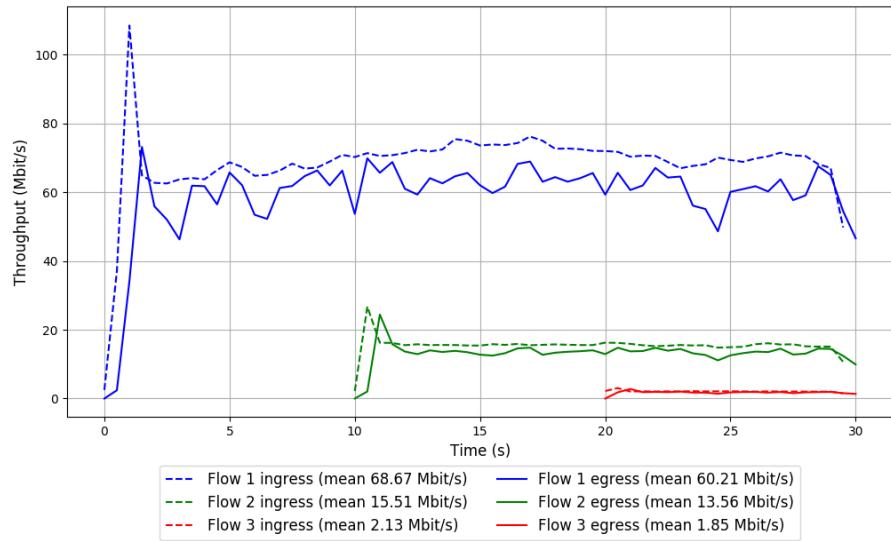
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-01-19 01:54:33
End at: 2019-01-19 01:55:03
Local clock offset: -0.112 ms
Remote clock offset: -4.603 ms

# Below is generated by plot.py at 2019-01-19 02:22:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.76 Mbit/s
95th percentile per-packet one-way delay: 7.557 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 10.00 Mbit/s
95th percentile per-packet one-way delay: 7.565 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 8.05 Mbit/s
95th percentile per-packet one-way delay: 7.509 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 4.22 Mbit/s
95th percentile per-packet one-way delay: 7.632 ms
Loss rate: 1.32%
```
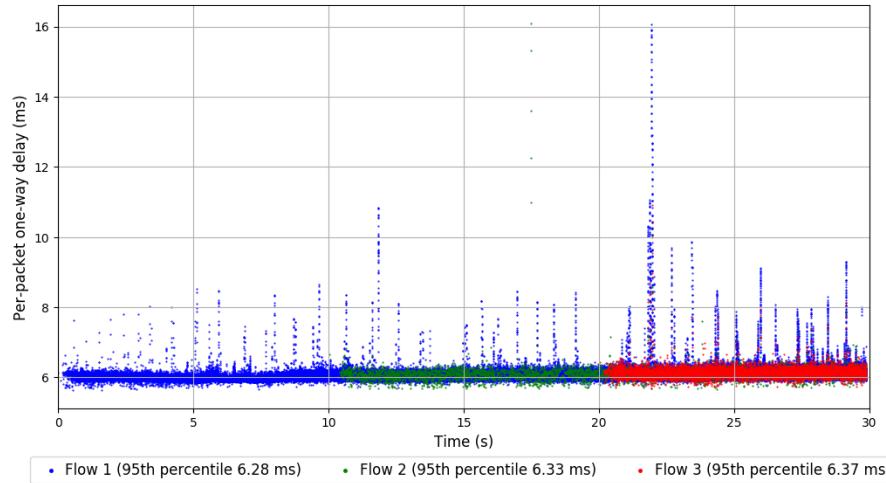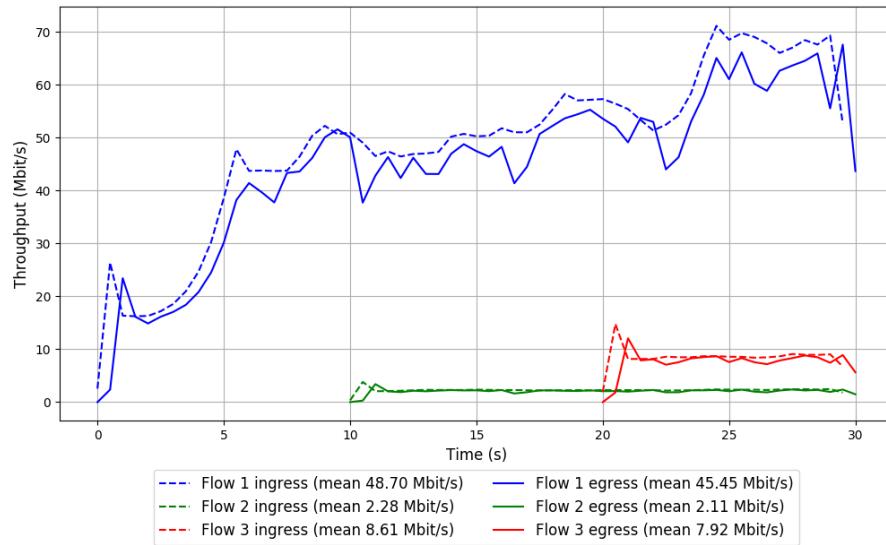
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-01-19 00:17:49
End at: 2019-01-19 00:18:19
Local clock offset: 0.369 ms
Remote clock offset: -3.866 ms

# Below is generated by plot.py at 2019-01-19 02:22:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.84 Mbit/s
95th percentile per-packet one-way delay: 7.130 ms
Loss rate: 10.23%
-- Flow 1:
Average throughput: 56.20 Mbit/s
95th percentile per-packet one-way delay: 7.118 ms
Loss rate: 10.33%
-- Flow 2:
Average throughput: 15.04 Mbit/s
95th percentile per-packet one-way delay: 7.164 ms
Loss rate: 9.79%
-- Flow 3:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 7.184 ms
Loss rate: 8.66%
```
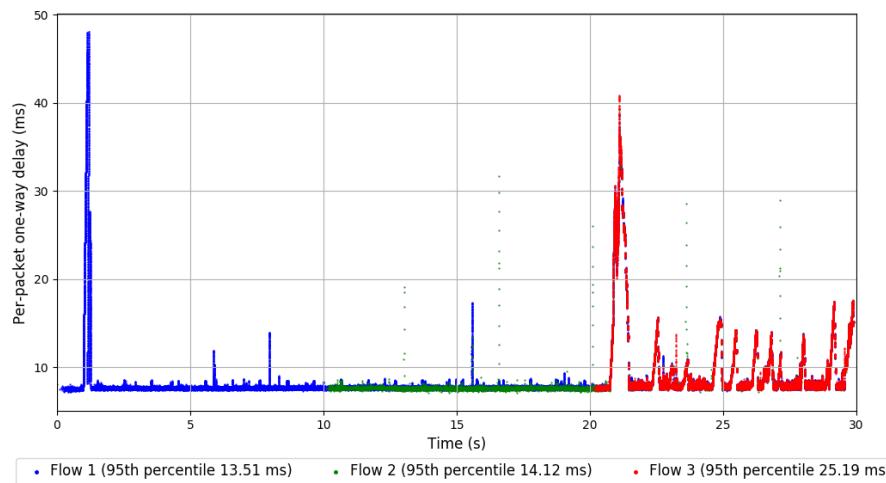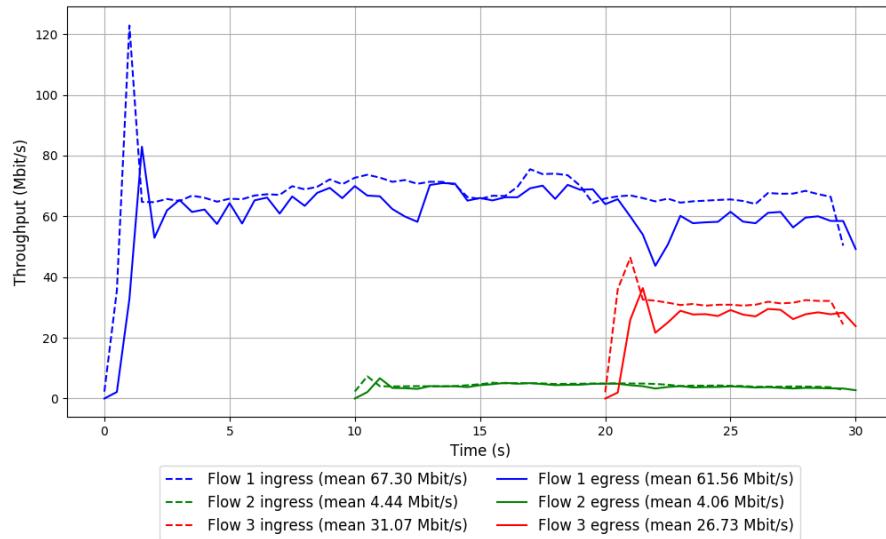
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-01-19 00:43:46
End at: 2019-01-19 00:44:16
Local clock offset: 2.331 ms
Remote clock offset: -2.932 ms


# Below is generated by plot.py at 2019-01-19 02:22:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.84 Mbit/s
95th percentile per-packet one-way delay: 6.981 ms
Loss rate: 12.36%
-- Flow 1:
Average throughput: 60.21 Mbit/s
95th percentile per-packet one-way delay: 6.959 ms
Loss rate: 12.32%
-- Flow 2:
Average throughput: 13.56 Mbit/s
95th percentile per-packet one-way delay: 7.124 ms
Loss rate: 12.58%
-- Flow 3:
Average throughput: 1.85 Mbit/s
95th percentile per-packet one-way delay: 7.018 ms
Loss rate: 13.12%
```
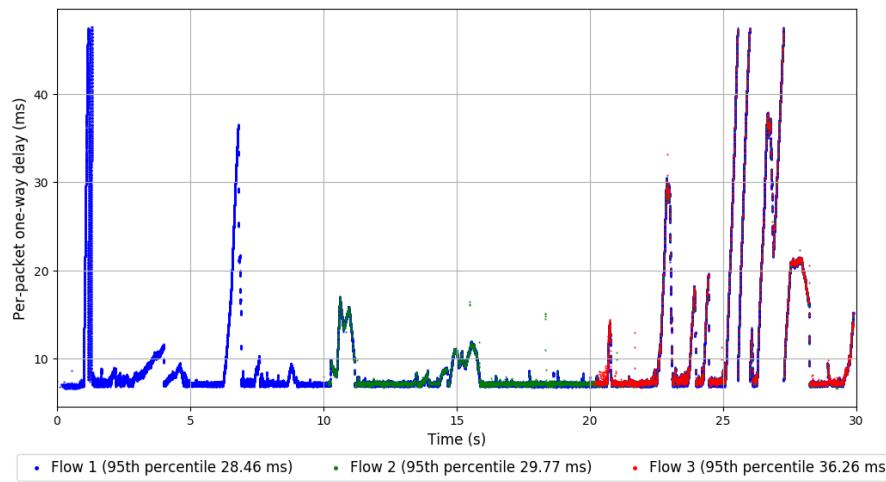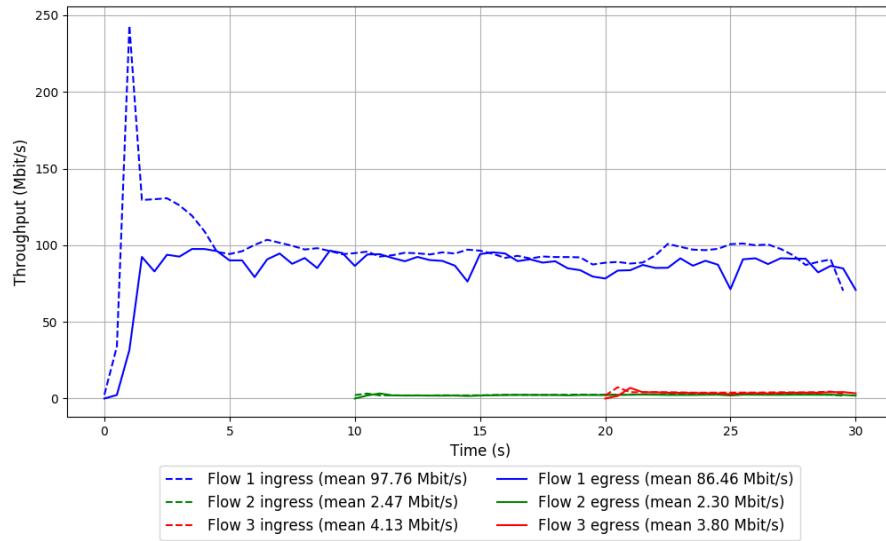
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-01-19 01:10:01
End at: 2019-01-19 01:10:31
Local clock offset: 2.412 ms
Remote clock offset: -3.727 ms


# Below is generated by plot.py at 2019-01-19 02:22:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.47 Mbit/s
95th percentile per-packet one-way delay: 6.293 ms
Loss rate: 6.77%
-- Flow 1:
Average throughput: 45.45 Mbit/s
95th percentile per-packet one-way delay: 6.280 ms
Loss rate: 6.67%
-- Flow 2:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 6.334 ms
Loss rate: 7.65%
-- Flow 3:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 6.372 ms
Loss rate: 8.00%
```
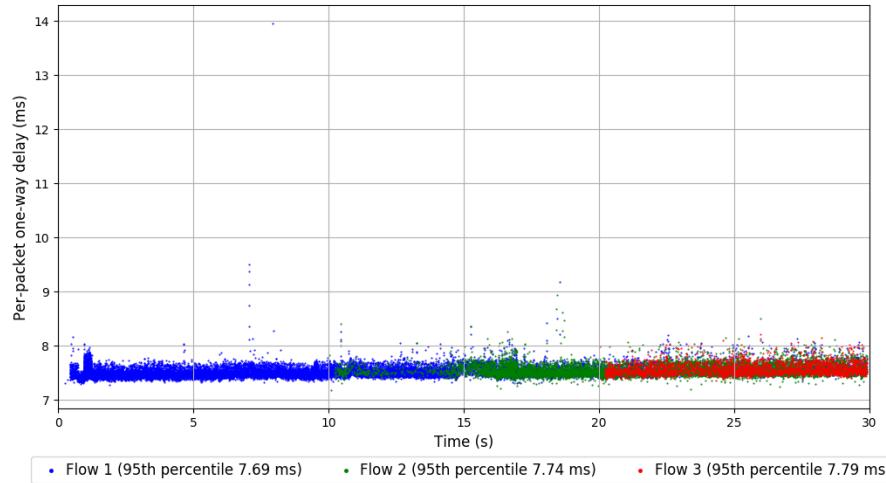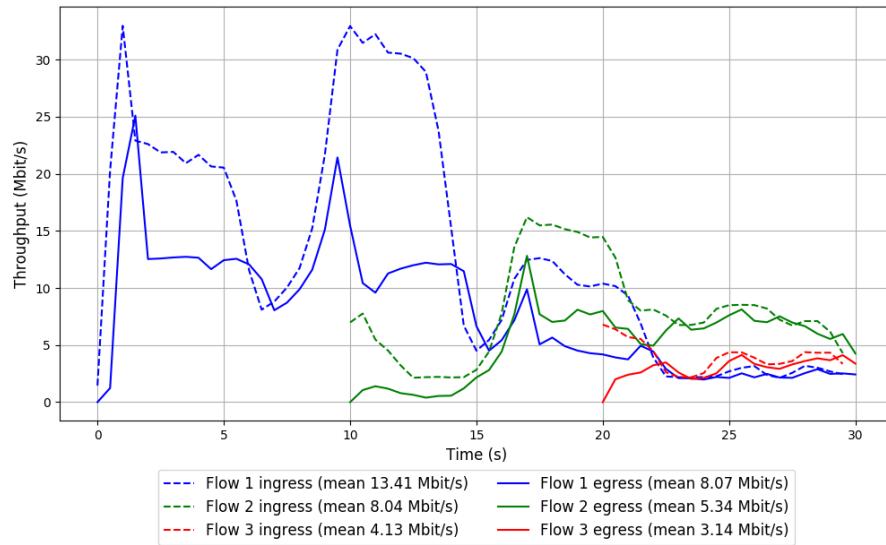
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-01-19 01:35:57
End at: 2019-01-19 01:36:27
Local clock offset: 0.292 ms
Remote clock offset: -3.876 ms


# Below is generated by plot.py at 2019-01-19 02:22:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 73.08 Mbit/s
95th percentile per-packet one-way delay: 14.574 ms
Loss rate: 9.20%
-- Flow 1:
Average throughput: 61.56 Mbit/s
95th percentile per-packet one-way delay: 13.507 ms
Loss rate: 8.51%
-- Flow 2:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 14.115 ms
Loss rate: 8.60%
-- Flow 3:
Average throughput: 26.73 Mbit/s
95th percentile per-packet one-way delay: 25.189 ms
Loss rate: 13.91%
```
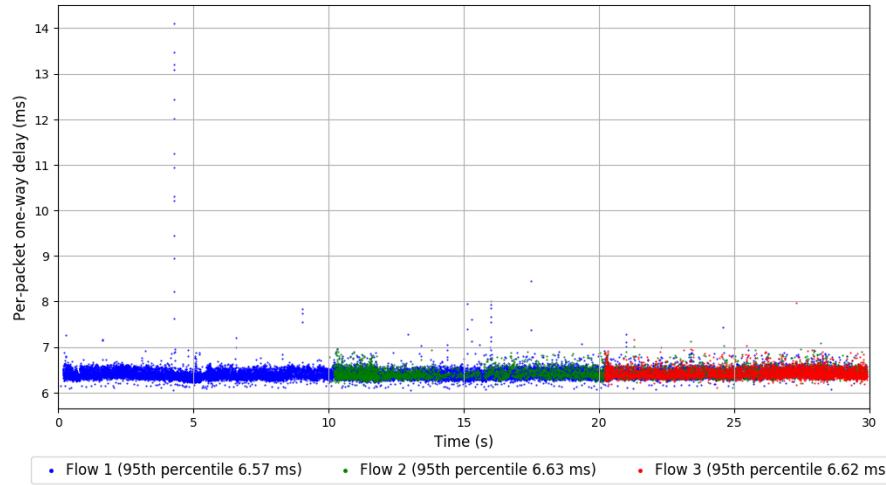
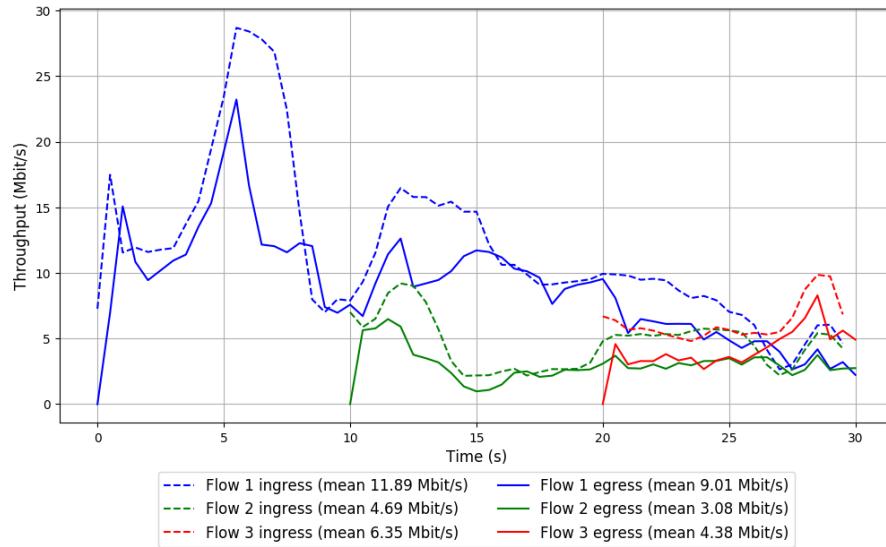Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-01-19 02:01:56
End at: 2019-01-19 02:02:26
Local clock offset: -0.917 ms
Remote clock offset: -4.49 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.24 Mbit/s
95th percentile per-packet one-way delay: 28.629 ms
Loss rate: 11.41%
-- Flow 1:
Average throughput: 86.46 Mbit/s
95th percentile per-packet one-way delay: 28.461 ms
Loss rate: 11.53%
-- Flow 2:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 29.775 ms
Loss rate: 6.75%
-- Flow 3:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 36.260 ms
Loss rate: 7.88%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 97.76 Mbit/s) --- Flow 1 egress (mean 86.46 Mbit/s)
Flow 2 ingress (mean 2.47 Mbit/s) --- Flow 2 egress (mean 2.30 Mbit/s)
Flow 3 ingress (mean 4.13 Mbit/s) --- Flow 3 egress (mean 3.80 Mbit/s)

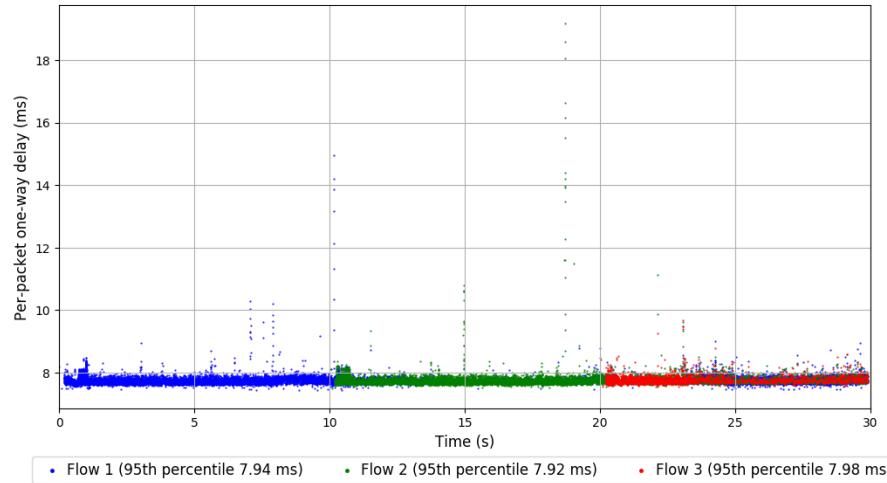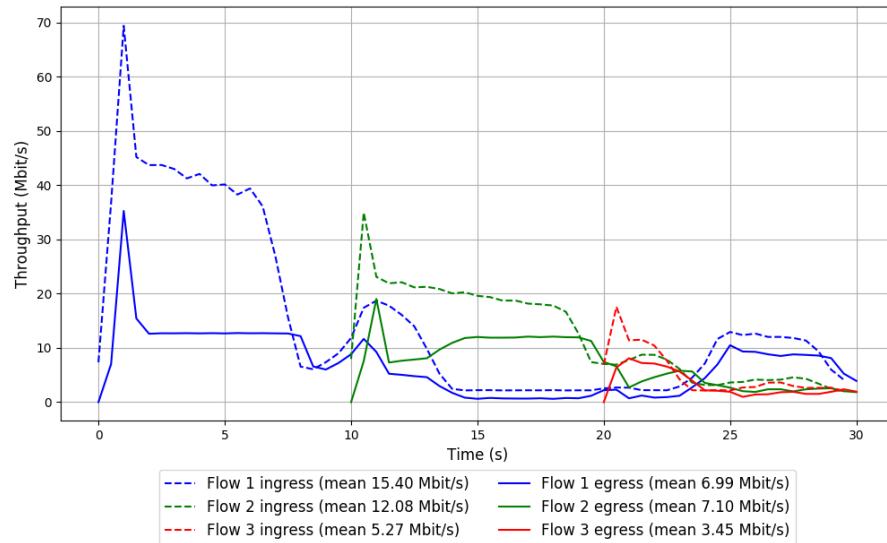Flow 1 (95th percentile 28.46 ms)   Flow 2 (95th percentile 29.77 ms)   Flow 3 (95th percentile 36.26 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2019-01-19 00:16:39
End at: 2019-01-19 00:17:09
Local clock offset: -0.43 ms
Remote clock offset: -3.959 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 7.717 ms
Loss rate: 37.43%
-- Flow 1:
Average throughput: 8.07 Mbit/s
95th percentile per-packet one-way delay: 7.693 ms
Loss rate: 40.32%
-- Flow 2:
Average throughput: 5.34 Mbit/s
95th percentile per-packet one-way delay: 7.736 ms
Loss rate: 33.60%
-- Flow 3:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 7.787 ms
Loss rate: 24.05%
```
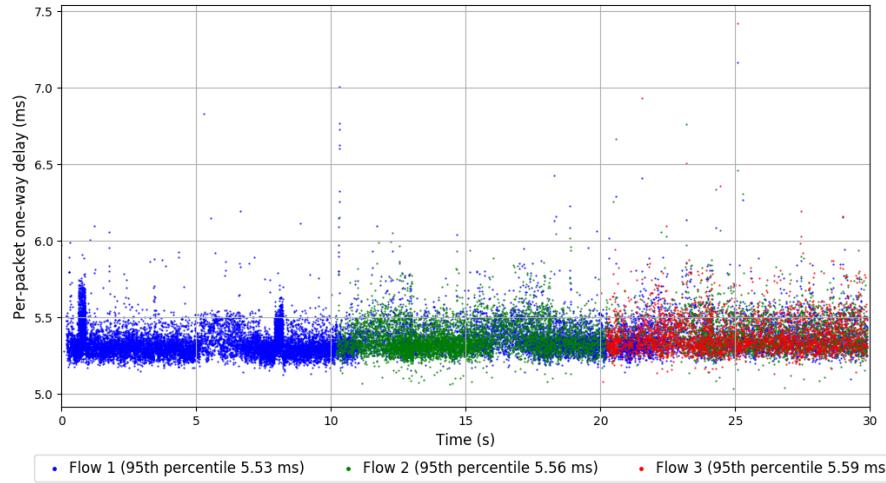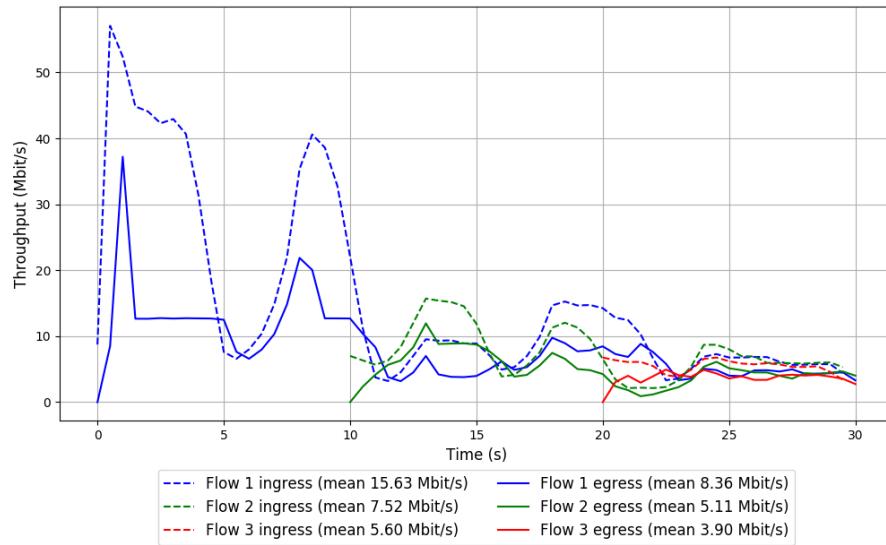
Run 1: Report of PCC-Expr — Data Link

- Flow 1 ingress (mean 13.41 Mbit/s)
- Flow 1 egress (mean 8.07 Mbit/s)
- Flow 2 ingress (mean 8.04 Mbit/s)
- Flow 2 egress (mean 5.34 Mbit/s)
- Flow 3 ingress (mean 4.13 Mbit/s)
- Flow 3 egress (mean 3.14 Mbit/s)

- Flow 1 (95th percentile 7.69 ms)
- Flow 2 (95th percentile 7.74 ms)
- Flow 3 (95th percentile 7.79 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-01-19 00:42:34
End at: 2019-01-19 00:43:04
Local clock offset: 2.34 ms
Remote clock offset: -3.062 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 6.581 ms
Loss rate: 26.89%
-- Flow 1:
Average throughput: 9.01 Mbit/s
95th percentile per-packet one-way delay: 6.565 ms
Loss rate: 24.23%
-- Flow 2:
Average throughput: 3.08 Mbit/s
95th percentile per-packet one-way delay: 6.631 ms
Loss rate: 34.32%
-- Flow 3:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 6.622 ms
Loss rate: 30.97%
```
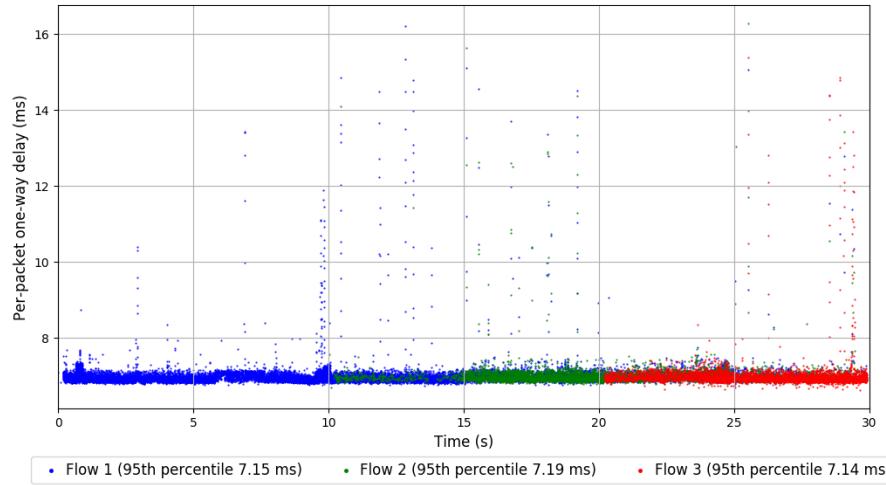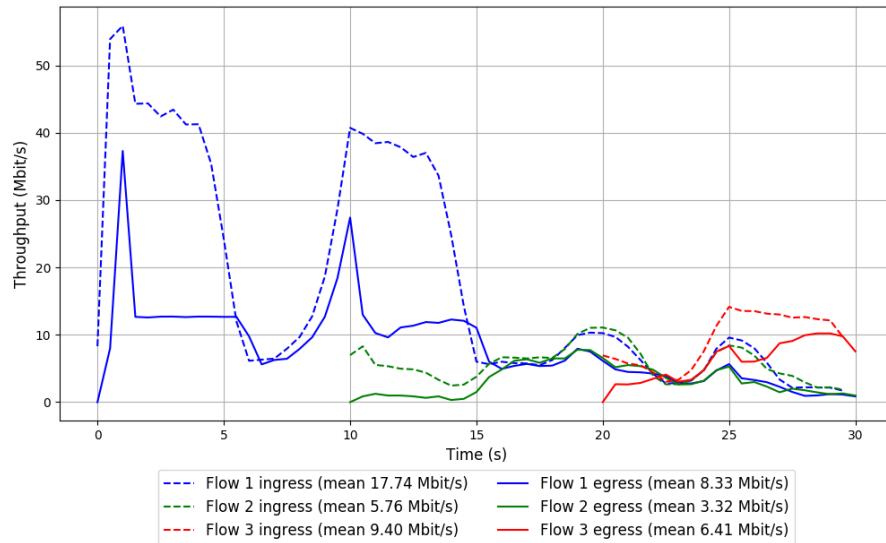
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-01-19 01:08:50
End at: 2019-01-19 01:09:20
Local clock offset: 0.79 ms
Remote clock offset: -3.654 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.85 Mbit/s
95th percentile per-packet one-way delay: 7.937 ms
Loss rate: 48.98%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 7.940 ms
Loss rate: 54.64%
-- Flow 2:
Average throughput: 7.10 Mbit/s
95th percentile per-packet one-way delay: 7.924 ms
Loss rate: 41.25%
-- Flow 3:
Average throughput: 3.45 Mbit/s
95th percentile per-packet one-way delay: 7.980 ms
Loss rate: 34.67%
```
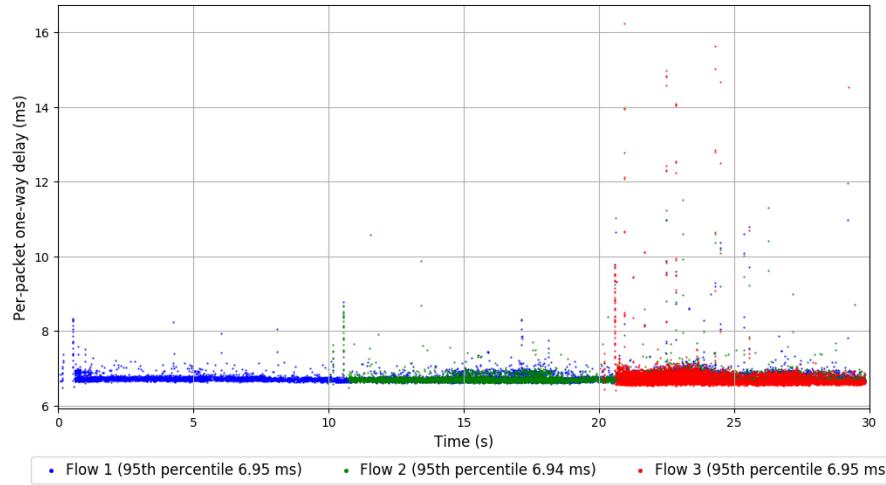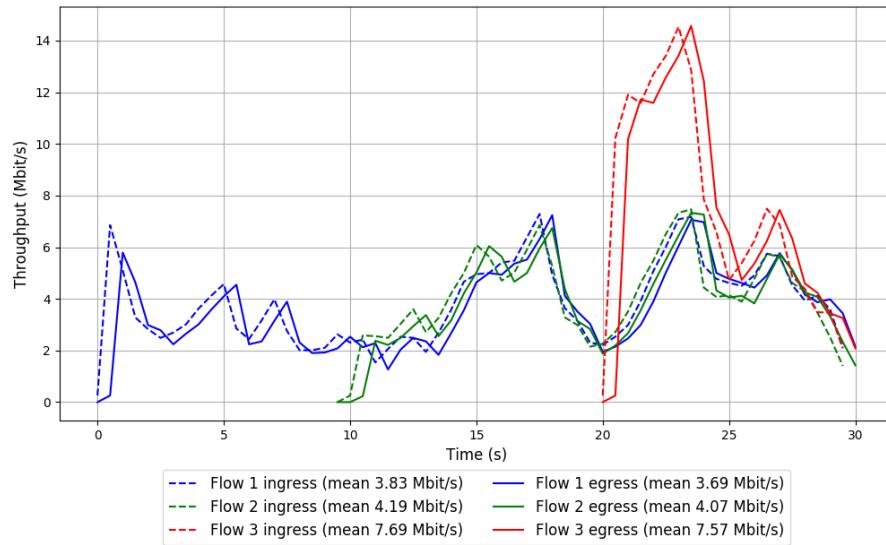
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-01-19 01:34:46
End at: 2019-01-19 01:35:16
Local clock offset: 2.956 ms
Remote clock offset: -3.461 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.04 Mbit/s
95th percentile per-packet one-way delay: 5.546 ms
Loss rate: 41.96%
-- Flow 1:
Average throughput: 8.36 Mbit/s
95th percentile per-packet one-way delay: 5.530 ms
Loss rate: 46.50%
-- Flow 2:
Average throughput: 5.11 Mbit/s
95th percentile per-packet one-way delay: 5.562 ms
Loss rate: 32.05%
-- Flow 3:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 5.589 ms
Loss rate: 30.39%
```
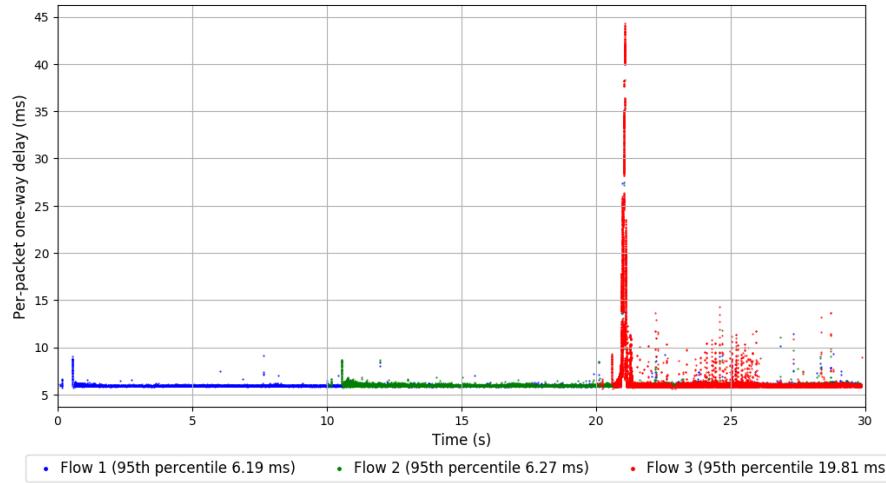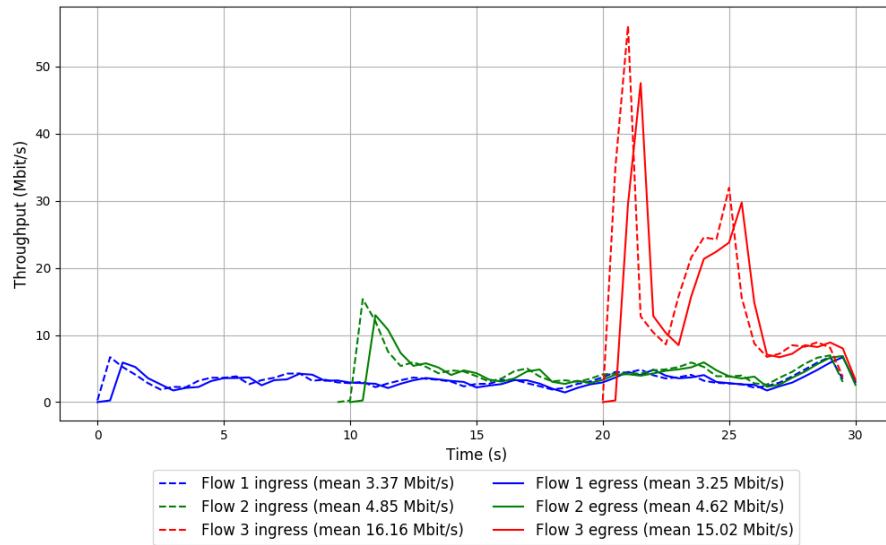
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-01-19 02:00:45
End at: 2019-01-19 02:01:15
Local clock offset: -0.904 ms
Remote clock offset: -4.63 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.65 Mbit/s
95th percentile per-packet one-way delay: 7.157 ms
Loss rate: 48.72%
-- Flow 1:
Average throughput: 8.33 Mbit/s
95th percentile per-packet one-way delay: 7.151 ms
Loss rate: 53.05%
-- Flow 2:
Average throughput: 3.32 Mbit/s
95th percentile per-packet one-way delay: 7.191 ms
Loss rate: 42.44%
-- Flow 3:
Average throughput: 6.41 Mbit/s
95th percentile per-packet one-way delay: 7.144 ms
Loss rate: 31.74%
```

Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-01-19 00:11:37
End at: 2019-01-19 00:12:07
Local clock offset: 0.006 ms
Remote clock offset: -4.283 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 6.944 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 6.946 ms
Loss rate: 3.65%
-- Flow 2:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 6.936 ms
Loss rate: 2.81%
-- Flow 3:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 6.951 ms
Loss rate: 1.59%
```
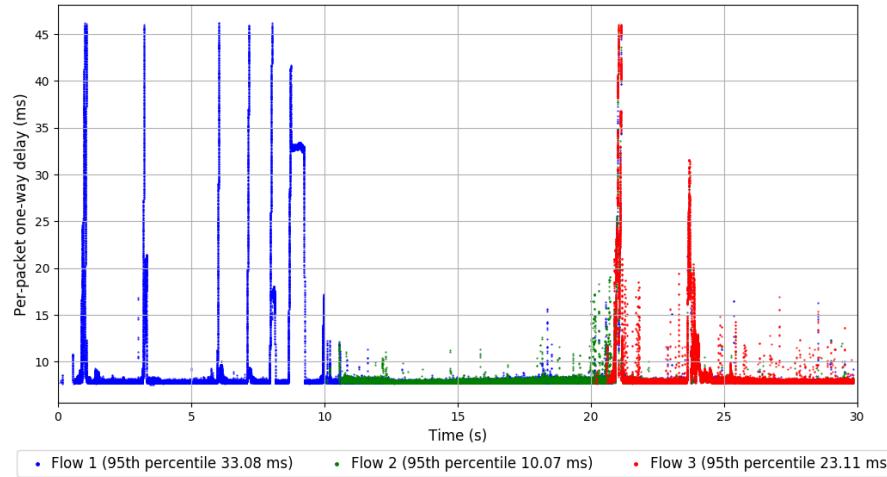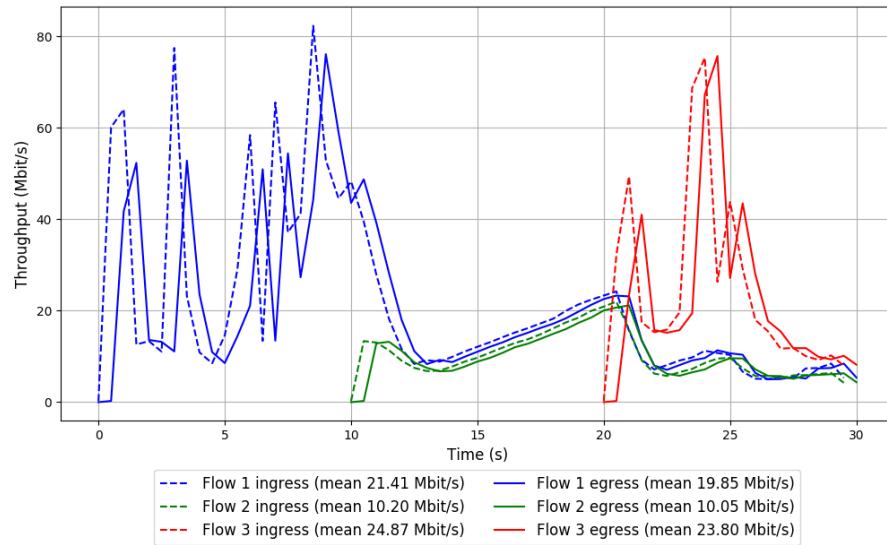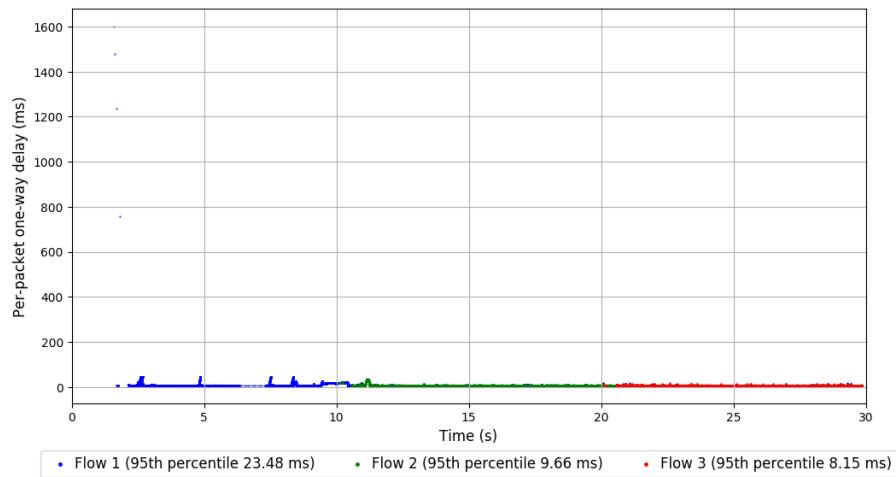
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-01-19 00:37:36
End at: 2019-01-19 00:38:06
Local clock offset: 2.483 ms
Remote clock offset: -3.202 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.25 Mbit/s
95th percentile per-packet one-way delay: 10.455 ms
Loss rate: 5.47%
-- Flow 1:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 6.190 ms
Loss rate: 3.56%
-- Flow 2:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 6.272 ms
Loss rate: 4.94%
-- Flow 3:
Average throughput: 15.02 Mbit/s
95th percentile per-packet one-way delay: 19.811 ms
Loss rate: 7.02%
```
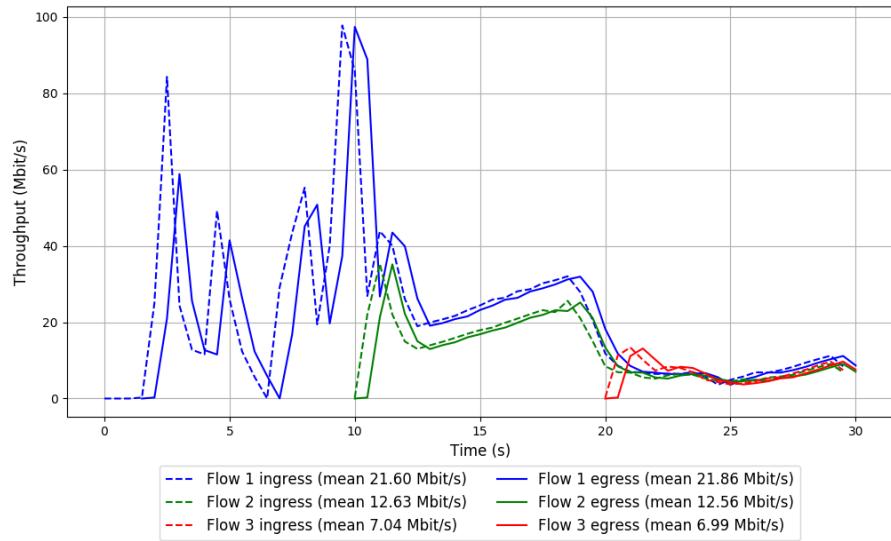
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-01-19 01:03:44
End at: 2019-01-19 01:04:14
Local clock offset: 0.257 ms
Remote clock offset: -3.88 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 34.35 Mbit/s
95th percentile per-packet one-way delay: 32.886 ms
Loss rate: 5.54%
-- Flow 1:
Average throughput: 19.85 Mbit/s
95th percentile per-packet one-way delay: 33.077 ms
Loss rate: 7.28%
-- Flow 2:
Average throughput: 10.05 Mbit/s
95th percentile per-packet one-way delay: 10.066 ms
Loss rate: 1.50%
-- Flow 3:
Average throughput: 23.80 Mbit/s
95th percentile per-packet one-way delay: 23.109 ms
Loss rate: 4.32%
```
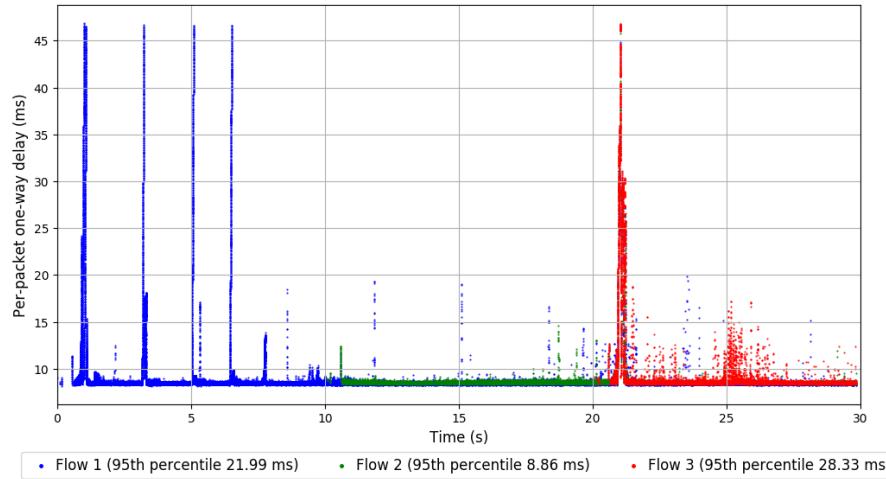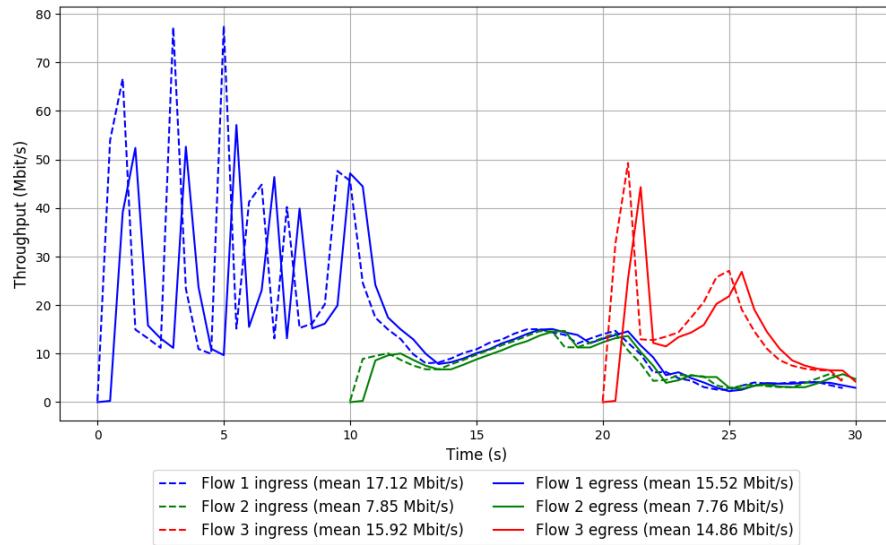
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-01-19 01:29:37
End at: 2019-01-19 01:30:07
Local clock offset: 0.113 ms
Remote clock offset: -3.99 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 33.09 Mbit/s
95th percentile per-packet one-way delay: 20.776 ms
Loss rate: 3.01%
-- Flow 1:
Average throughput: 21.86 Mbit/s
95th percentile per-packet one-way delay: 23.478 ms
Loss rate: 4.19%
-- Flow 2:
Average throughput: 12.56 Mbit/s
95th percentile per-packet one-way delay: 9.664 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 8.152 ms
Loss rate: 0.66%
```
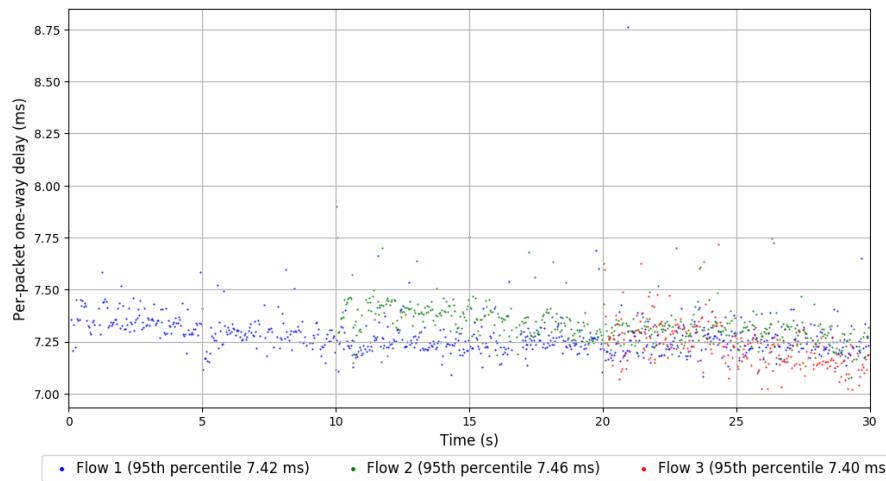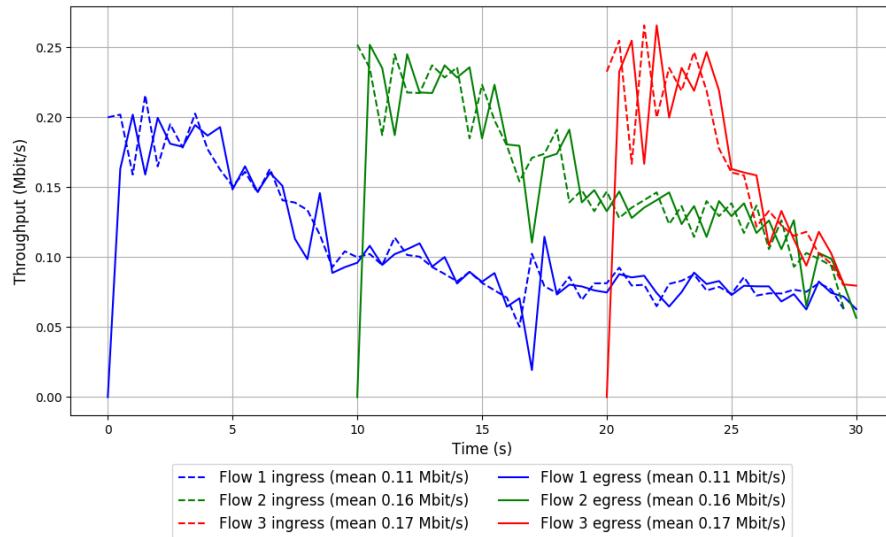
Run 4: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 21.60 Mbit/s) —— Flow 1 egress (mean 21.86 Mbit/s)
- - - Flow 2 ingress (mean 12.63 Mbit/s) —— Flow 2 egress (mean 12.56 Mbit/s)
- - - Flow 3 ingress (mean 7.04 Mbit/s) —— Flow 3 egress (mean 6.99 Mbit/s)

• Flow 1 (95th percentile 23.48 ms)   • Flow 2 (95th percentile 9.66 ms)   • Flow 3 (95th percentile 8.15 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-01-19 01:55:45
End at: 2019-01-19 01:56:15
Local clock offset: -1.605 ms
Remote clock offset: -3.985 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 22.298 ms
Loss rate: 7.27%
-- Flow 1:
Average throughput: 15.52 Mbit/s
95th percentile per-packet one-way delay: 21.989 ms
Loss rate: 9.36%
-- Flow 2:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 8.862 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 14.86 Mbit/s
95th percentile per-packet one-way delay: 28.330 ms
Loss rate: 6.61%
```
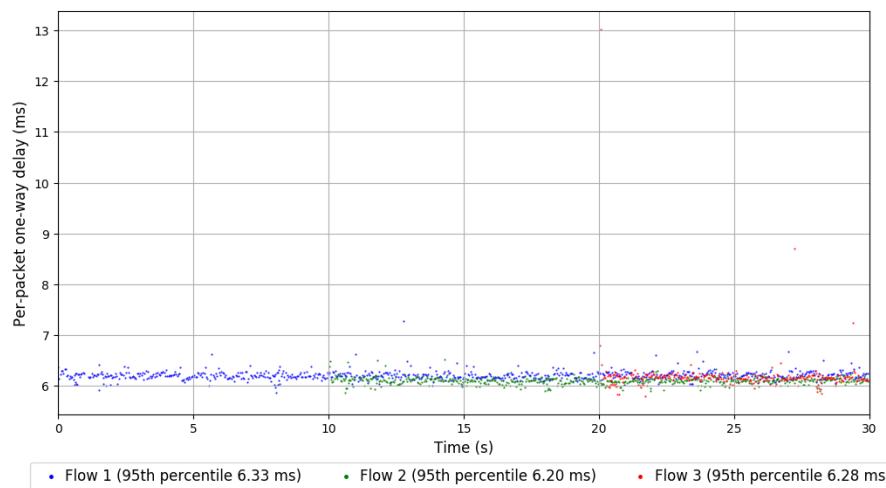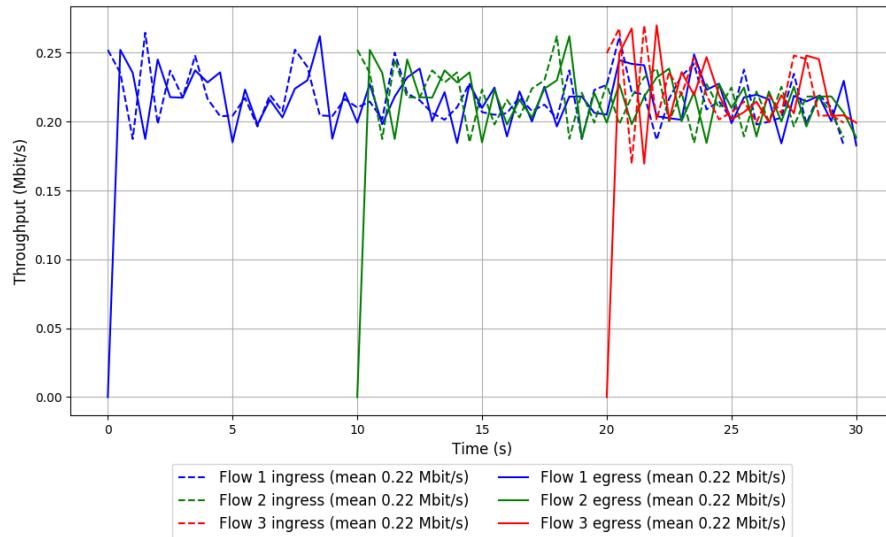
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-01-19 00:08:09
End at: 2019-01-19 00:08:39
Local clock offset: 0.384 ms
Remote clock offset: -3.525 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 7.444 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 7.419 ms
Loss rate: 2.99%
-- Flow 2:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 7.459 ms
Loss rate: 1.88%
-- Flow 3:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 7.396 ms
Loss rate: 2.17%
```
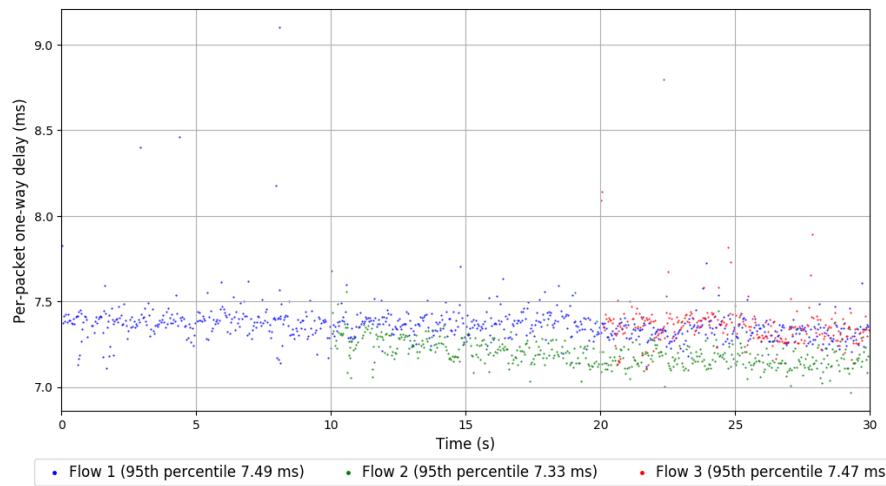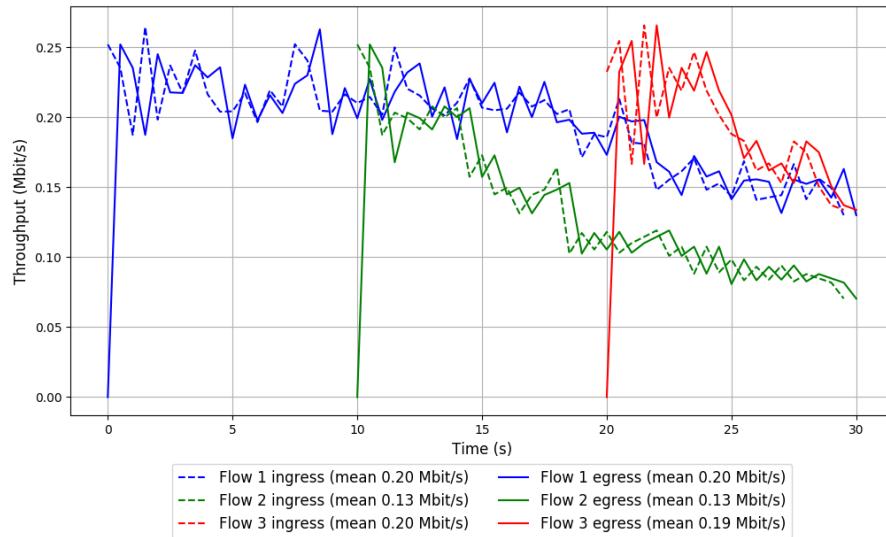
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-01-19 00:34:05
End at: 2019-01-19 00:34:35
Local clock offset: 1.428 ms
Remote clock offset: -4.155 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 6.299 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.333 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.202 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.276 ms
Loss rate: 0.00%
```
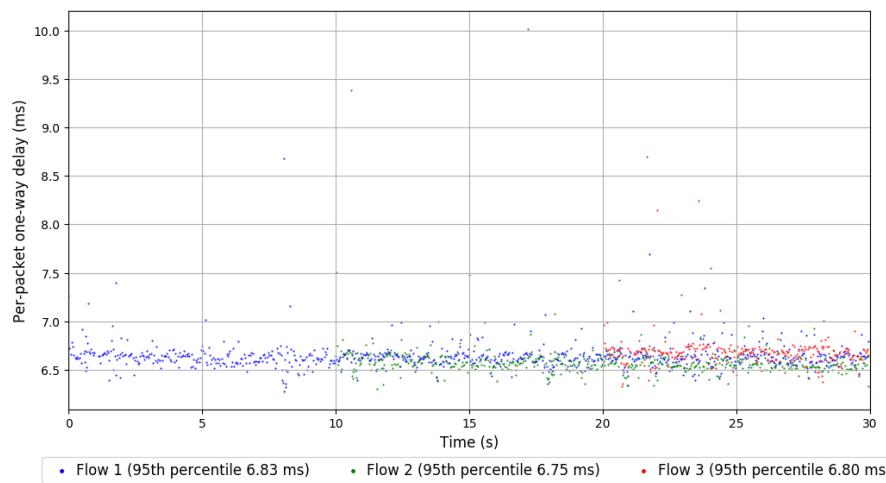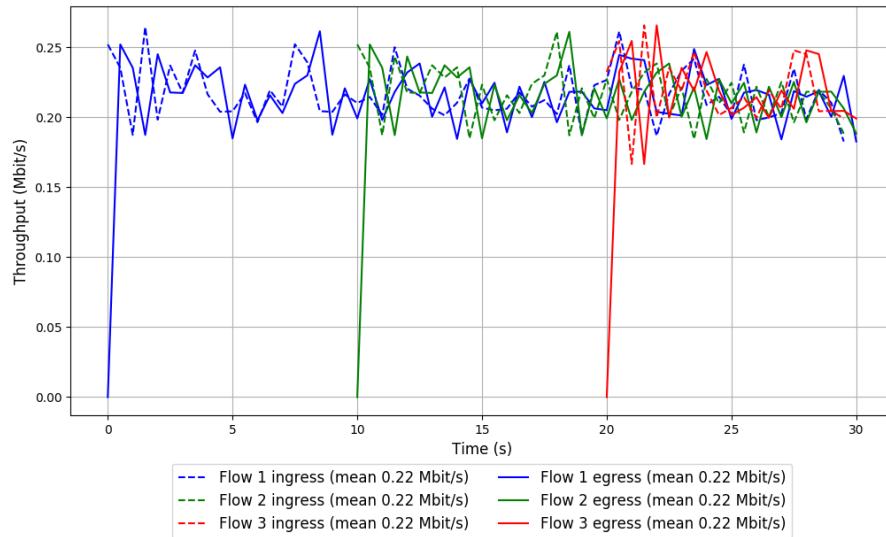
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-01-19 01:00:13
End at: 2019-01-19 01:00:43
Local clock offset: 0.9 ms
Remote clock offset: -3.827 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 7.458 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 7.489 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 7.328 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 7.469 ms
Loss rate: 0.45%
```
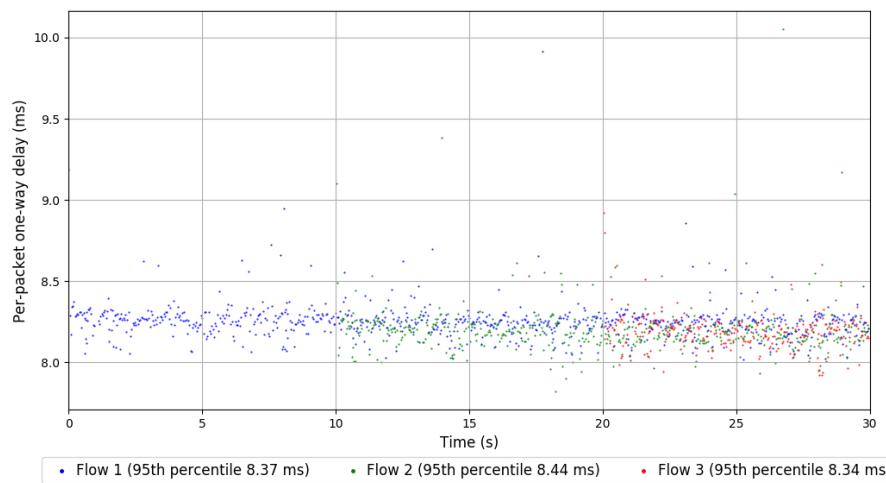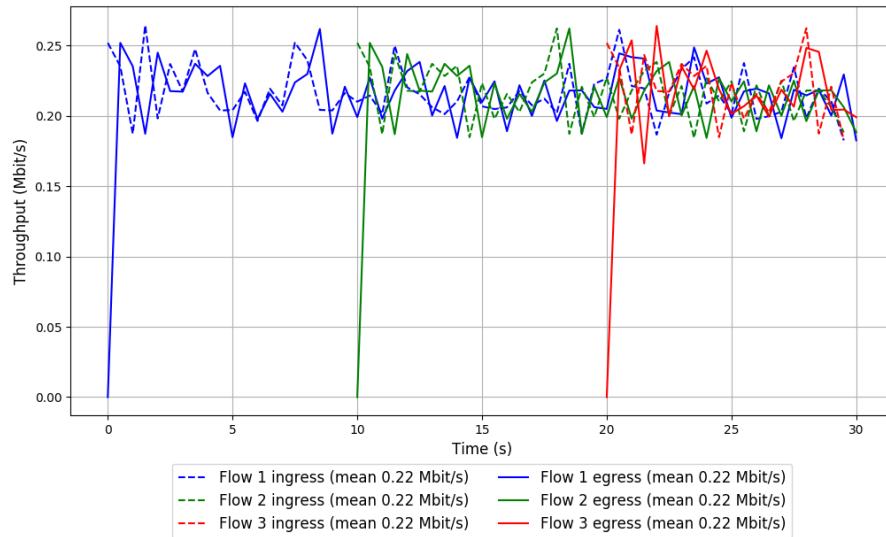
Run 3: Report of SCReAM — Data Link

150

```
Run 4: Statistics of SCReAM

Start at: 2019-01-19 01:26:06
End at: 2019-01-19 01:26:36
Local clock offset: 1.986 ms
Remote clock offset: -3.222 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 6.810 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.829 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.754 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 6.802 ms
Loss rate: 0.00%
```
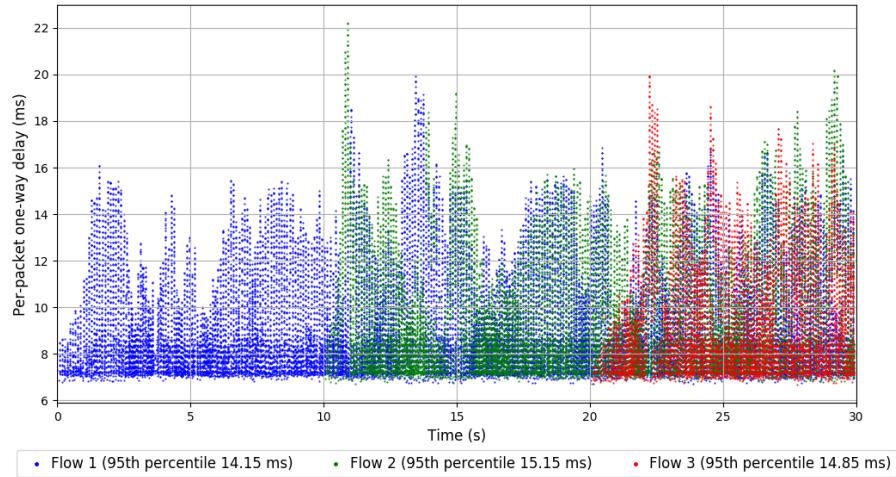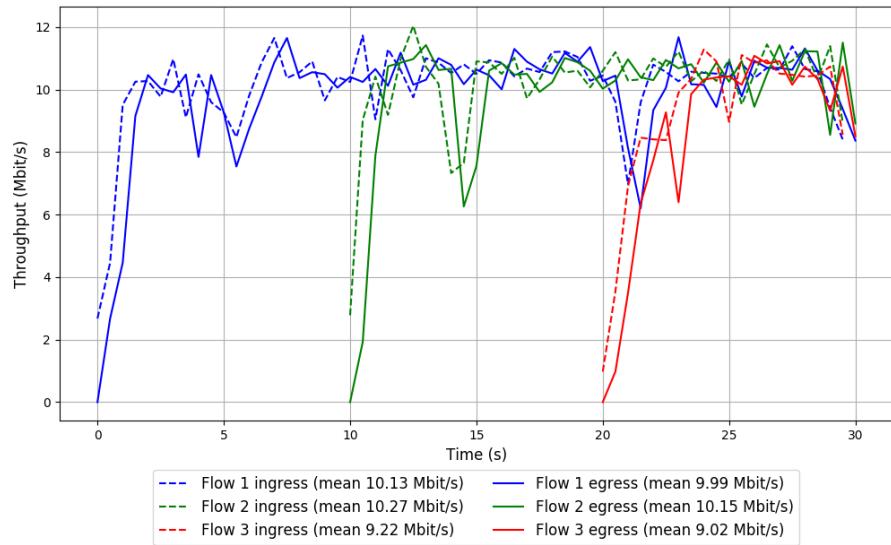
Run 4: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) Flow 1 egress (mean 0.22 Mbit/s)
Flow 2 ingress (mean 0.22 Mbit/s) Flow 2 egress (mean 0.22 Mbit/s)
Flow 3 ingress (mean 0.22 Mbit/s) Flow 3 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 6.83 ms) Flow 2 (95th percentile 6.75 ms) Flow 3 (95th percentile 6.80 ms)

```
Run 5: Statistics of SCReAM

Start at: 2019-01-19 01:52:13
End at: 2019-01-19 01:52:43
Local clock offset: -0.911 ms
Remote clock offset: -3.865 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 8.370 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 8.370 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 8.439 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 8.337 ms
Loss rate: 0.00%
```
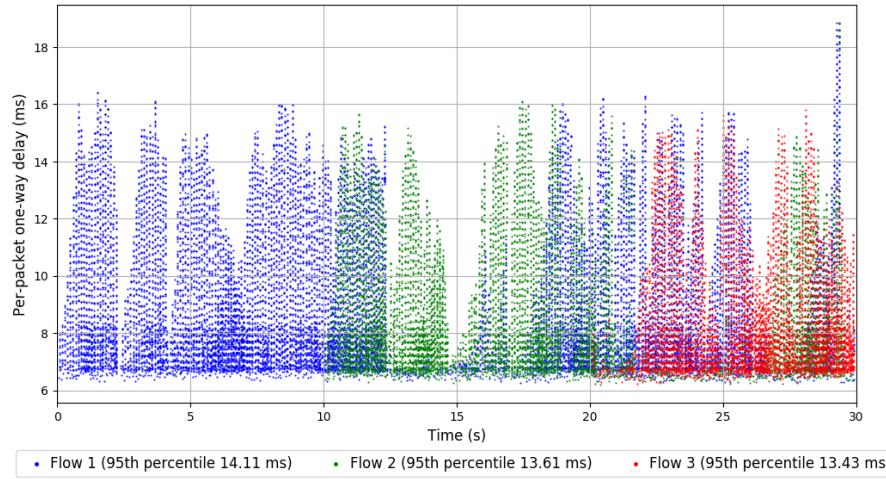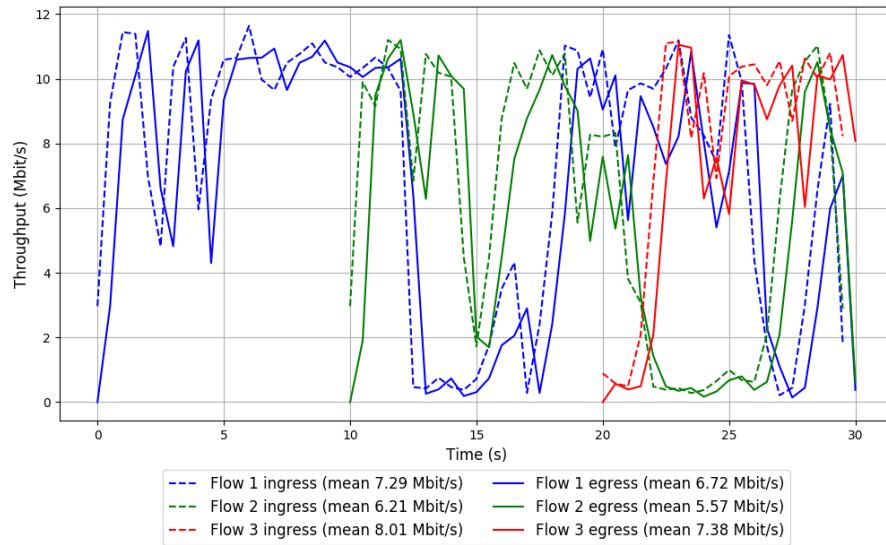
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-01-19 00:21:20
End at: 2019-01-19 00:21:50
Local clock offset: 0.584 ms
Remote clock offset: -3.728 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.72 Mbit/s
95th percentile per-packet one-way delay: 14.594 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 9.99 Mbit/s
95th percentile per-packet one-way delay: 14.146 ms
Loss rate: 1.42%
-- Flow 2:
Average throughput: 10.15 Mbit/s
95th percentile per-packet one-way delay: 15.147 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 9.02 Mbit/s
95th percentile per-packet one-way delay: 14.852 ms
Loss rate: 2.26%
```
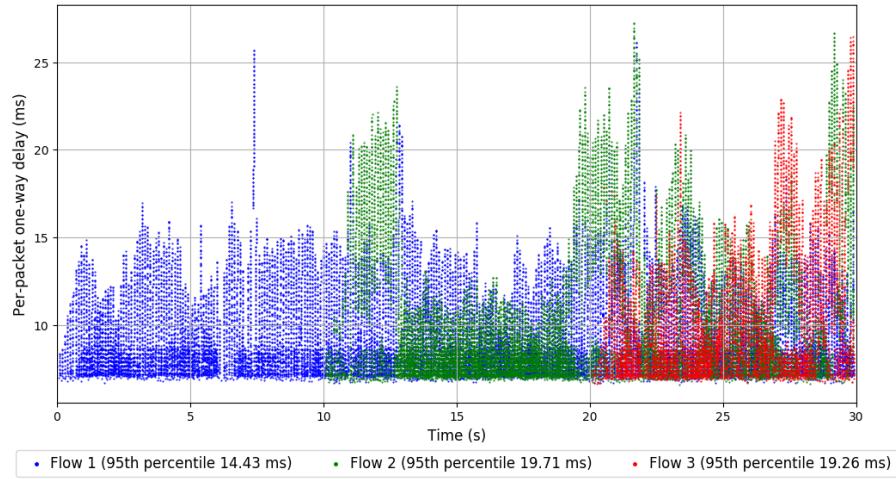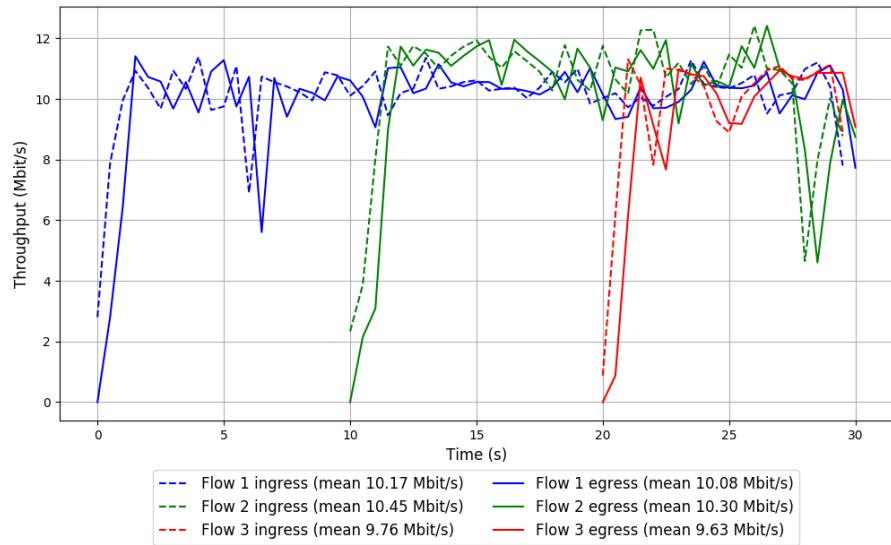
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-01-19 00:47:30
End at: 2019-01-19 00:48:00
Local clock offset: 1.513 ms
Remote clock offset: -3.652 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.85 Mbit/s
95th percentile per-packet one-way delay: 13.885 ms
Loss rate: 8.52%
-- Flow 1:
Average throughput: 6.72 Mbit/s
95th percentile per-packet one-way delay: 14.111 ms
Loss rate: 7.80%
-- Flow 2:
Average throughput: 5.57 Mbit/s
95th percentile per-packet one-way delay: 13.611 ms
Loss rate: 10.28%
-- Flow 3:
Average throughput: 7.38 Mbit/s
95th percentile per-packet one-way delay: 13.428 ms
Loss rate: 7.79%
```
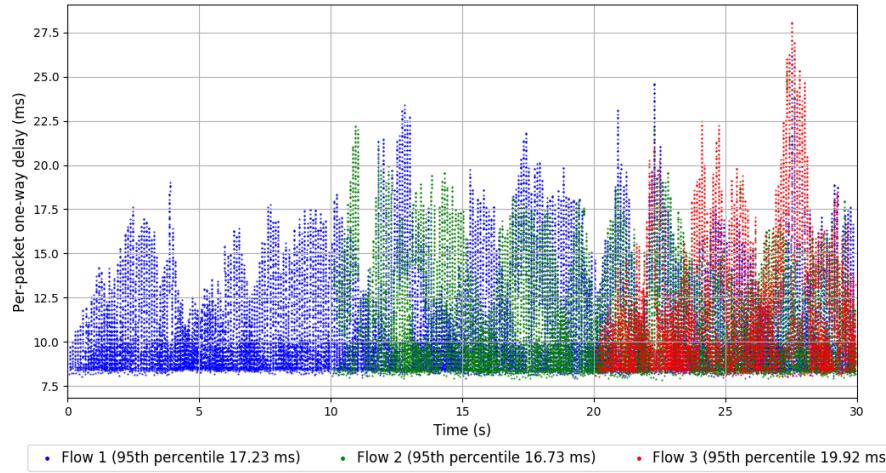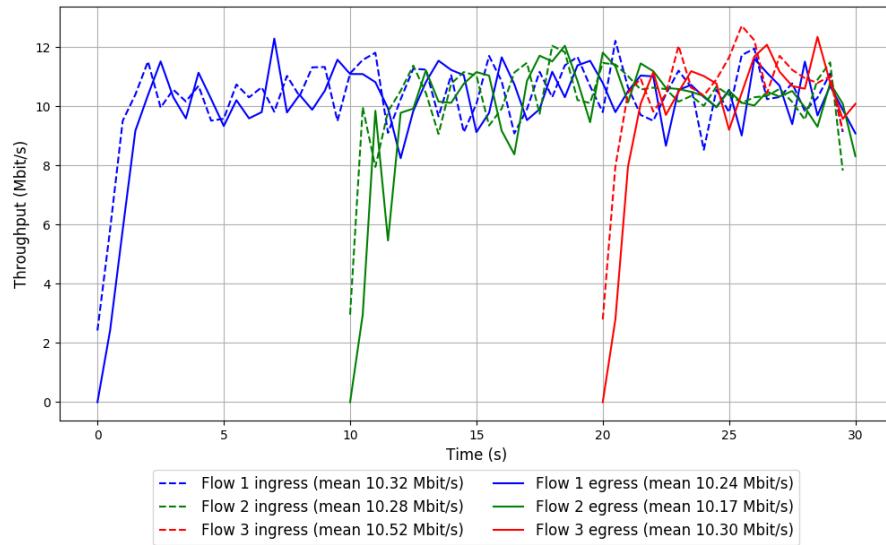
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-01-19 01:13:41
End at: 2019-01-19 01:14:11
Local clock offset: 1.215 ms
Remote clock offset: -4.028 ms


# Below is generated by plot.py at 2019-01-19 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.10 Mbit/s
95th percentile per-packet one-way delay: 17.795 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 10.08 Mbit/s
95th percentile per-packet one-way delay: 14.434 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 10.30 Mbit/s
95th percentile per-packet one-way delay: 19.715 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 9.63 Mbit/s
95th percentile per-packet one-way delay: 19.259 ms
Loss rate: 1.32%
```
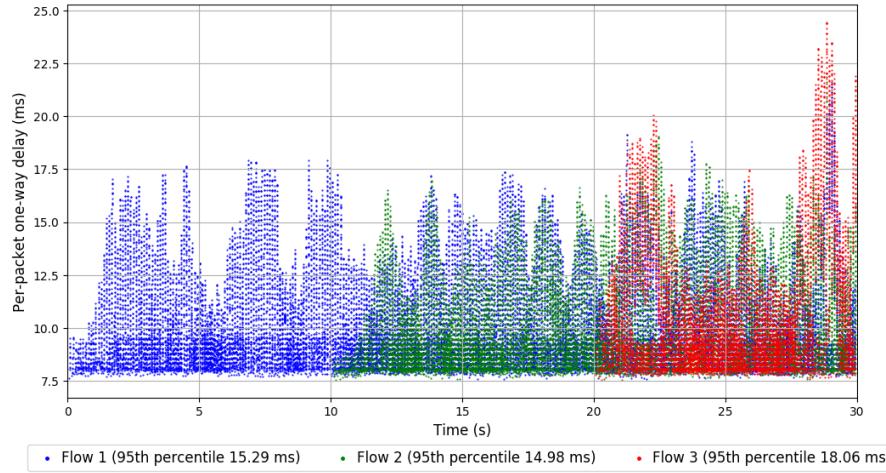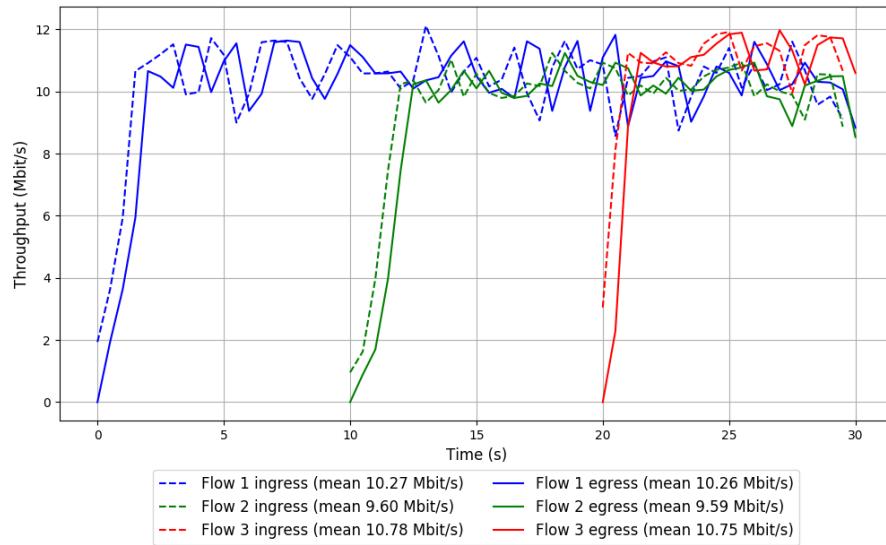
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-01-19 01:39:46
End at: 2019-01-19 01:40:16
Local clock offset: -0.675 ms
Remote clock offset: -4.047 ms


# Below is generated by plot.py at 2019-01-19 02:23:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.39 Mbit/s
95th percentile per-packet one-way delay: 17.481 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 10.24 Mbit/s
95th percentile per-packet one-way delay: 17.225 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 10.17 Mbit/s
95th percentile per-packet one-way delay: 16.732 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 10.30 Mbit/s
95th percentile per-packet one-way delay: 19.923 ms
Loss rate: 2.12%
```
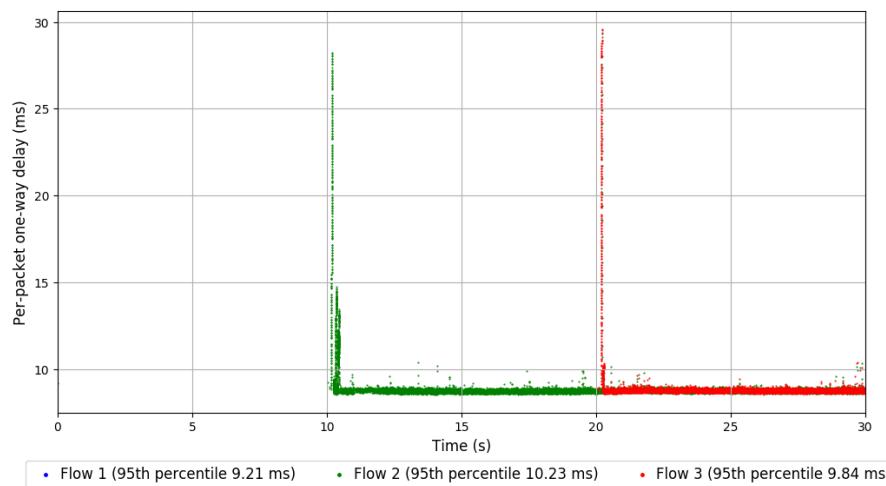
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-01-19 02:05:41
End at: 2019-01-19 02:06:11
Local clock offset: -1.46 ms
Remote clock offset: -4.036 ms


# Below is generated by plot.py at 2019-01-19 02:23:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.19 Mbit/s
95th percentile per-packet one-way delay: 15.580 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 10.26 Mbit/s
95th percentile per-packet one-way delay: 15.291 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 9.59 Mbit/s
95th percentile per-packet one-way delay: 14.981 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 10.75 Mbit/s
95th percentile per-packet one-way delay: 18.063 ms
Loss rate: 0.11%
```
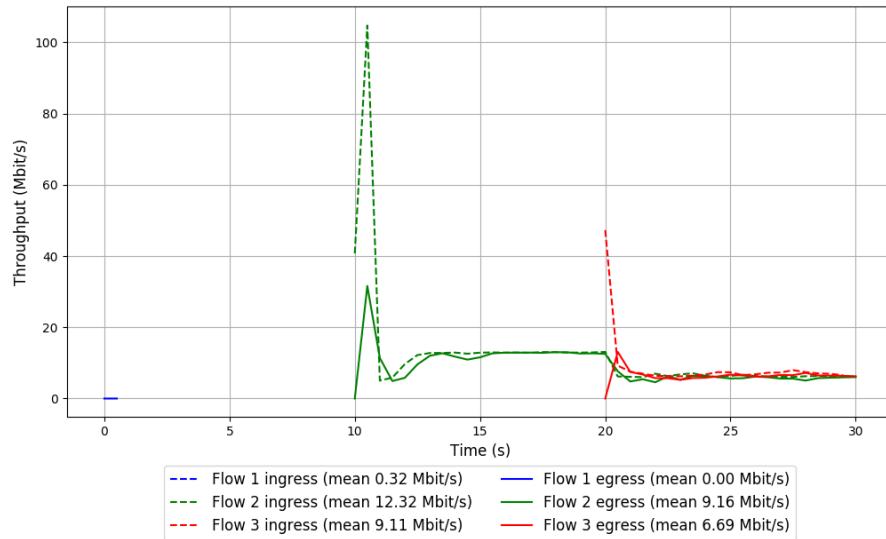
Run 5: Report of Sprout — Data Link

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

Start at: 2019-01-19 00:14:16
End at: 2019-01-19 00:14:46
Local clock offset: -0.716 ms
Remote clock offset: -3.072 ms

# Below is generated by plot.py at 2019-01-19 02:23:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.33 Mbit/s
95th percentile per-packet one-way delay: 10.016 ms
Loss rate: 25.89%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 9.208 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.16 Mbit/s
95th percentile per-packet one-way delay: 10.235 ms
Loss rate: 25.60%
-- Flow 3:
Average throughput: 6.69 Mbit/s
95th percentile per-packet one-way delay: 9.840 ms
Loss rate: 26.64%
```
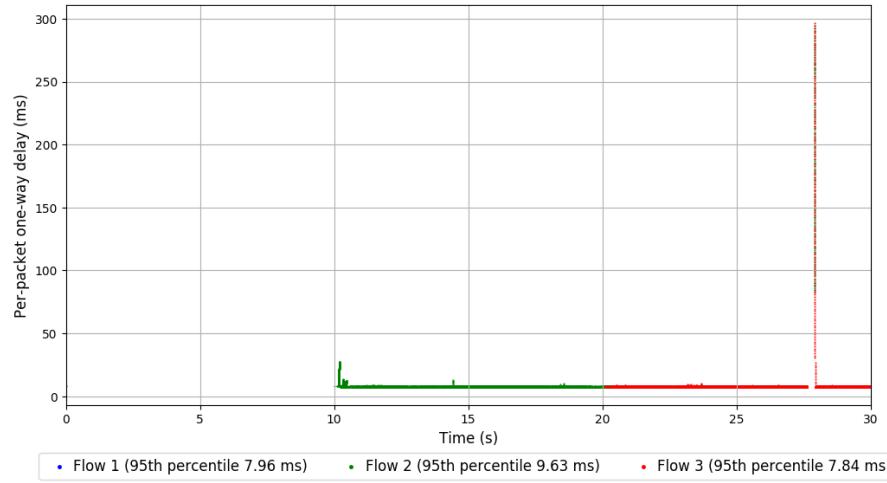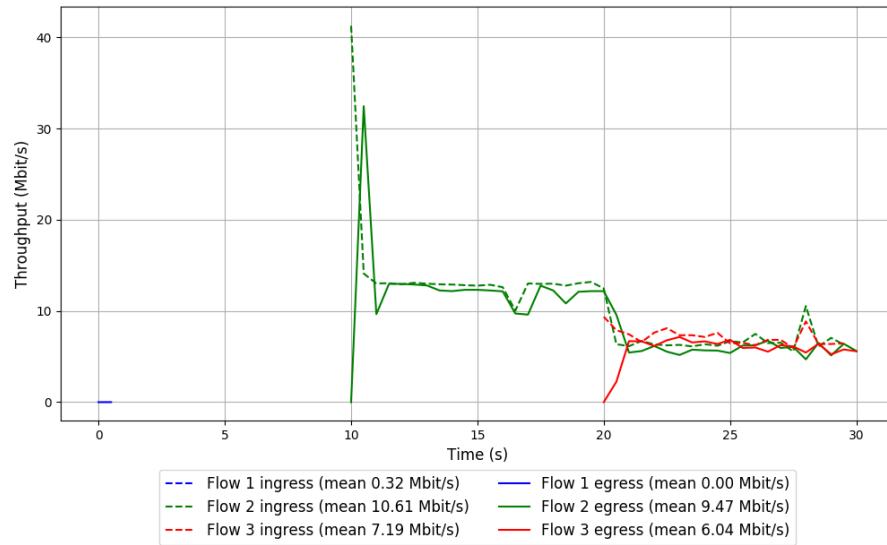
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-01-19 00:40:06
End at: 2019-01-19 00:40:36
Local clock offset: 1.641 ms
Remote clock offset: -2.541 ms

# Below is generated by plot.py at 2019-01-19 02:23:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.32 Mbit/s
95th percentile per-packet one-way delay: 8.951 ms
Loss rate: 12.07%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 7.963 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.47 Mbit/s
95th percentile per-packet one-way delay: 9.626 ms
Loss rate: 10.73%
-- Flow 3:
Average throughput: 6.04 Mbit/s
95th percentile per-packet one-way delay: 7.844 ms
Loss rate: 16.00%
```
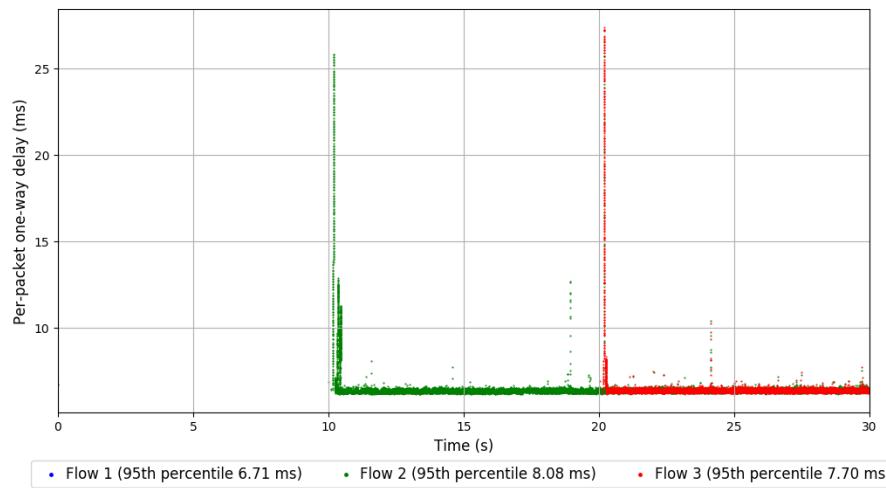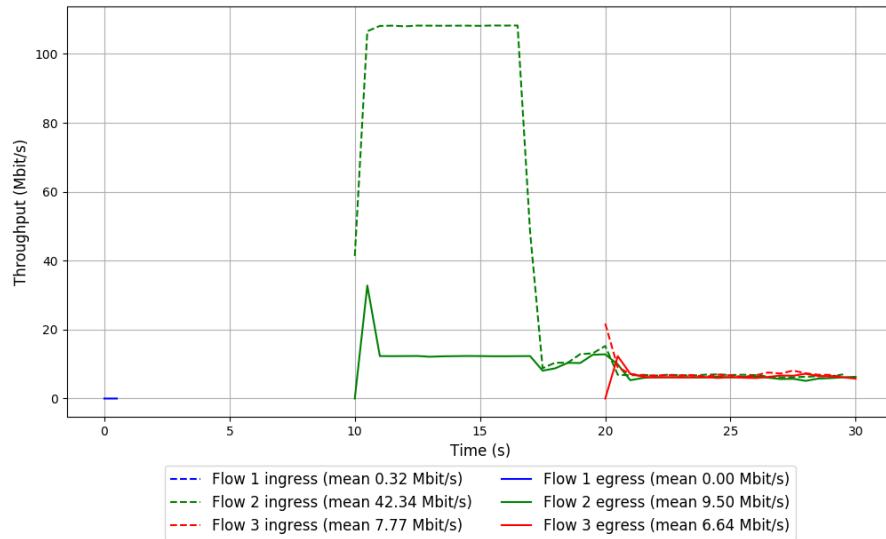
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-01-19 01:06:20
End at: 2019-01-19 01:06:50
Local clock offset: 1.686 ms
Remote clock offset: -4.131 ms


# Below is generated by plot.py at 2019-01-19 02:23:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.53 Mbit/s
95th percentile per-packet one-way delay: 7.926 ms
Loss rate: 72.28%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 6.715 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.50 Mbit/s
95th percentile per-packet one-way delay: 8.076 ms
Loss rate: 77.57%
-- Flow 3:
Average throughput: 6.64 Mbit/s
95th percentile per-packet one-way delay: 7.697 ms
Loss rate: 14.51%
```
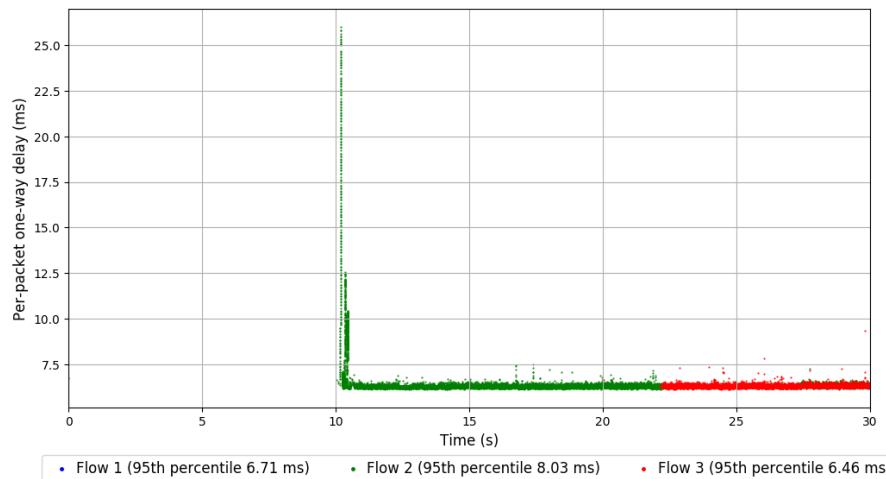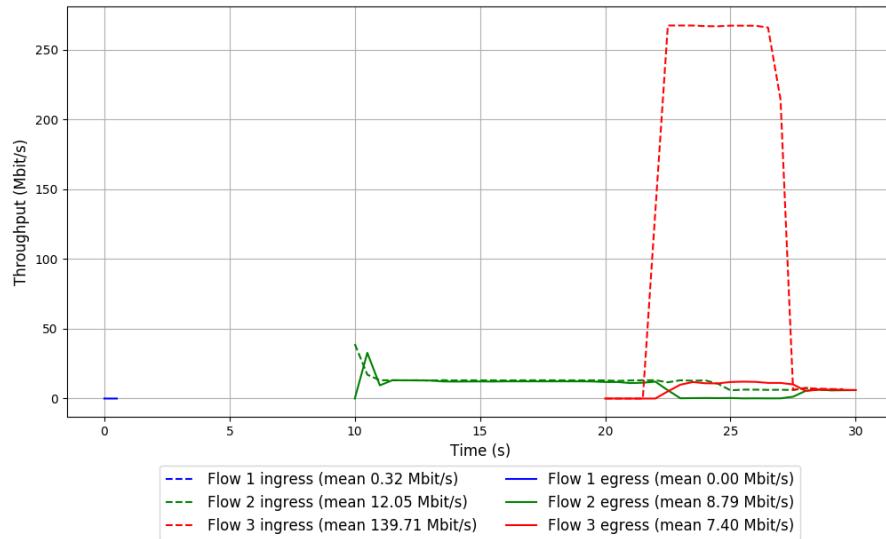
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.32 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 42.34 Mbit/s)   Flow 2 egress (mean 9.50 Mbit/s)
Flow 3 ingress (mean 7.77 Mbit/s)   Flow 3 egress (mean 6.64 Mbit/s)

Flow 1 (95th percentile 6.71 ms)   Flow 2 (95th percentile 8.08 ms)   Flow 3 (95th percentile 7.70 ms)

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

Start at: 2019-01-19 01:32:12
End at: 2019-01-19 01:32:42
Local clock offset: 1.689 ms
Remote clock offset: -3.78 ms

# Below is generated by plot.py at 2019-01-19 02:23:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.32 Mbit/s
95th percentile per-packet one-way delay: 6.620 ms
Loss rate: 84.74%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 6.715 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.79 Mbit/s
95th percentile per-packet one-way delay: 8.027 ms
Loss rate: 27.07%
-- Flow 3:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 6.456 ms
Loss rate: 94.70%
```
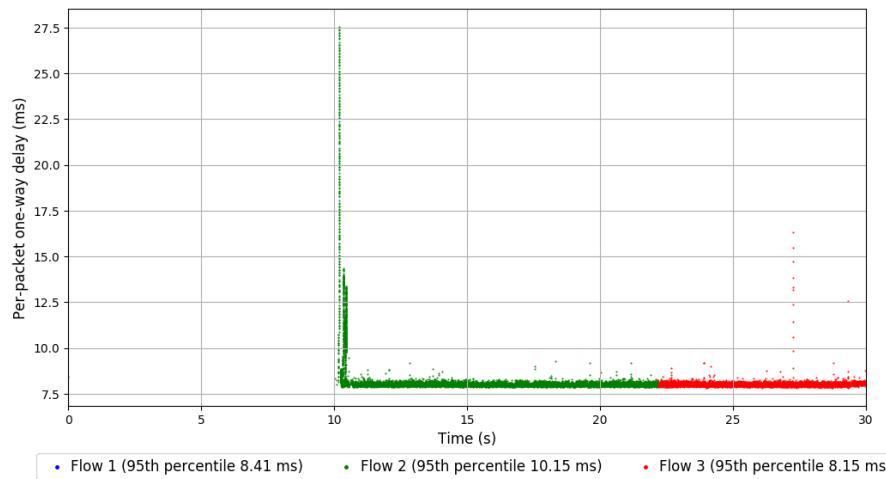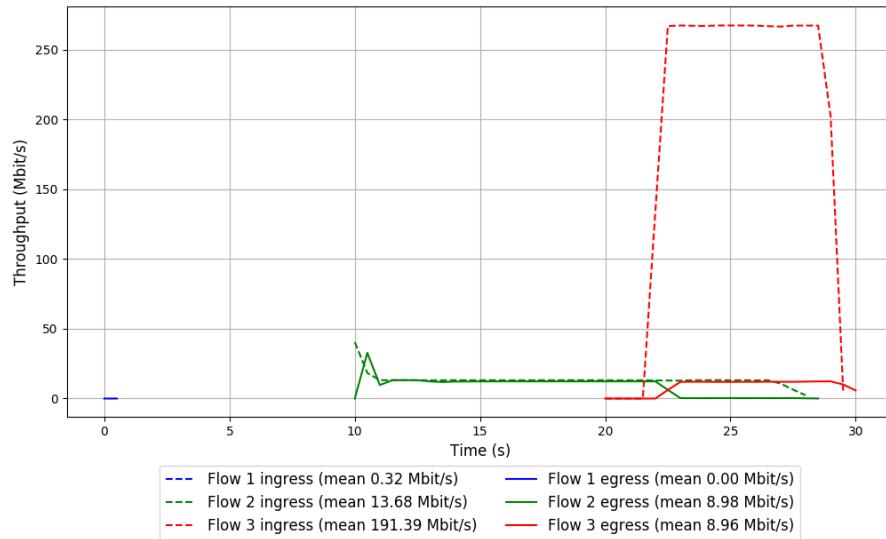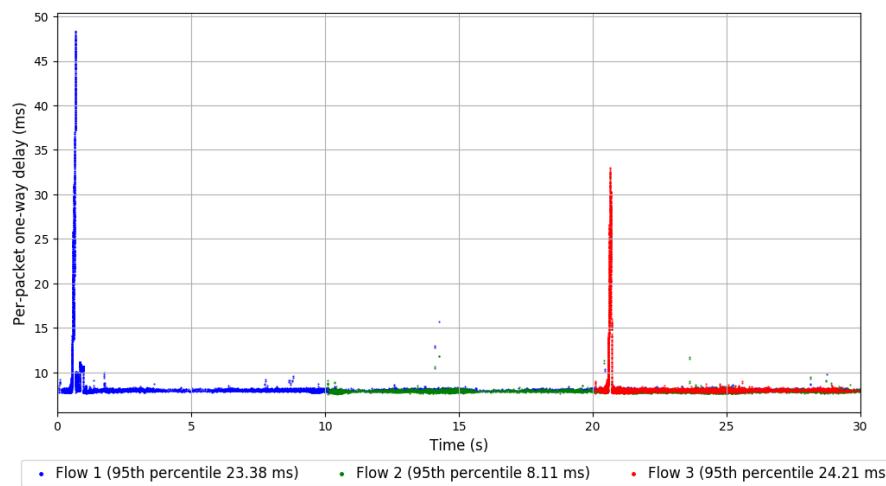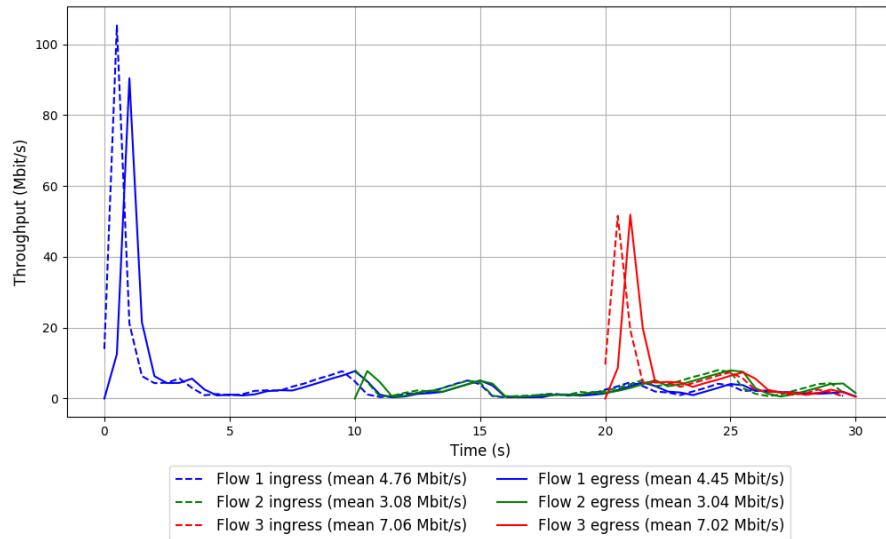
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.32 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 12.05 Mbit/s) --- Flow 2 egress (mean 8.79 Mbit/s)
Flow 3 ingress (mean 139.71 Mbit/s) --- Flow 3 egress (mean 7.40 Mbit/s)

Flow 1 (95th percentile 6.71 ms)   Flow 2 (95th percentile 8.03 ms)   Flow 3 (95th percentile 6.46 ms)

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

Start at: 2019-01-19 01:58:12
End at: 2019-01-19 01:58:42
Local clock offset: -1.475 ms
Remote clock offset: -4.236 ms


# Below is generated by plot.py at 2019-01-19 02:23:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.39 Mbit/s
95th percentile per-packet one-way delay: 8.346 ms
Loss rate: 88.33%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 8.415 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.98 Mbit/s
95th percentile per-packet one-way delay: 10.150 ms
Loss rate: 34.79%
-- Flow 3:
Average throughput: 8.96 Mbit/s
95th percentile per-packet one-way delay: 8.148 ms
Loss rate: 95.32%
```

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

Flow 1 ingress (mean 0.32 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 13.68 Mbit/s)   Flow 2 egress (mean 8.98 Mbit/s)
Flow 3 ingress (mean 191.39 Mbit/s)   Flow 3 egress (mean 8.96 Mbit/s)

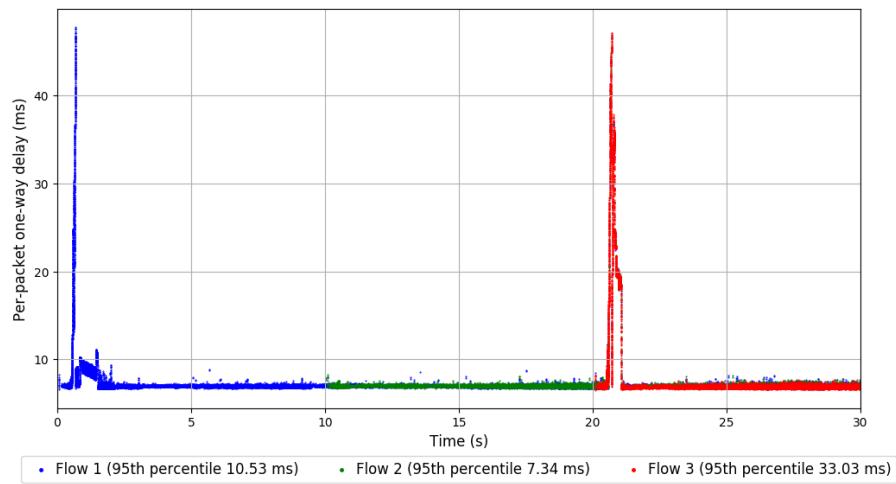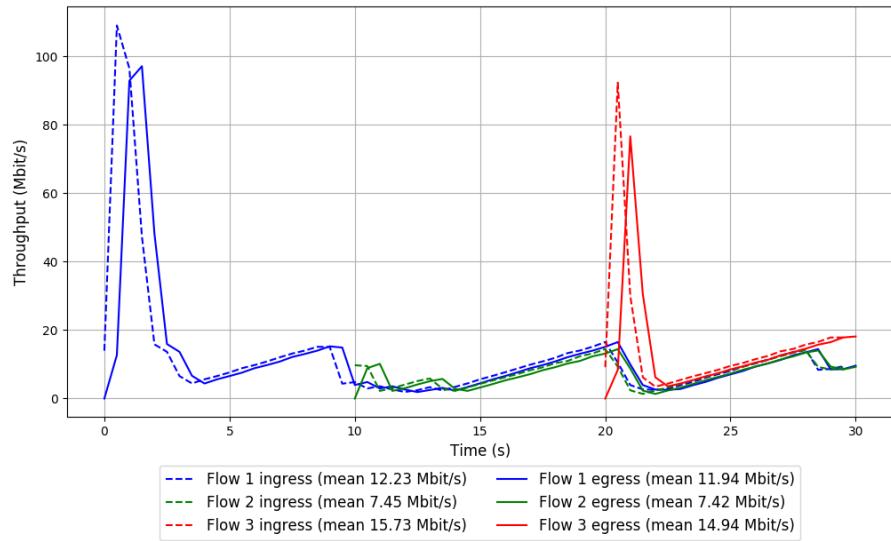Flow 1 (95th percentile 8.41 ms)   Flow 2 (95th percentile 10.15 ms)   Flow 3 (95th percentile 8.15 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2019-01-19 00:24:58
End at: 2019-01-19 00:25:28
Local clock offset: 0.364 ms
Remote clock offset: -3.356 ms


# Below is generated by plot.py at 2019-01-19 02:23:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 20.601 ms
Loss rate: 3.81%
-- Flow 1:
Average throughput: 4.45 Mbit/s
95th percentile per-packet one-way delay: 23.383 ms
Loss rate: 6.50%
-- Flow 2:
Average throughput: 3.04 Mbit/s
95th percentile per-packet one-way delay: 8.110 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 7.02 Mbit/s
95th percentile per-packet one-way delay: 24.212 ms
Loss rate: 0.50%
```
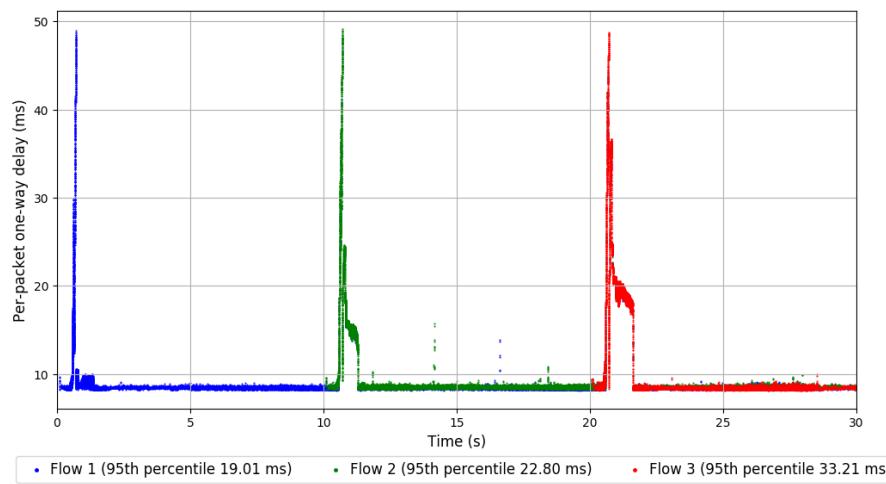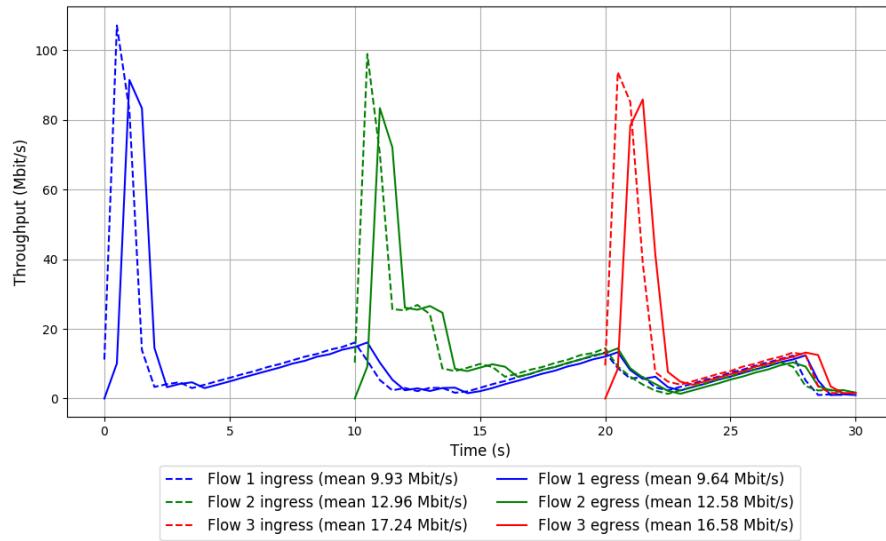
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-01-19 00:51:16
End at: 2019-01-19 00:51:46
Local clock offset: 1.59 ms
Remote clock offset: -3.469 ms


# Below is generated by plot.py at 2019-01-19 02:23:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.85 Mbit/s
95th percentile per-packet one-way delay: 19.913 ms
Loss rate: 2.56%
-- Flow 1:
Average throughput: 11.94 Mbit/s
95th percentile per-packet one-way delay: 10.528 ms
Loss rate: 2.37%
-- Flow 2:
Average throughput: 7.42 Mbit/s
95th percentile per-packet one-way delay: 7.343 ms
Loss rate: 0.41%
-- Flow 3:
Average throughput: 14.94 Mbit/s
95th percentile per-packet one-way delay: 33.031 ms
Loss rate: 5.03%
```
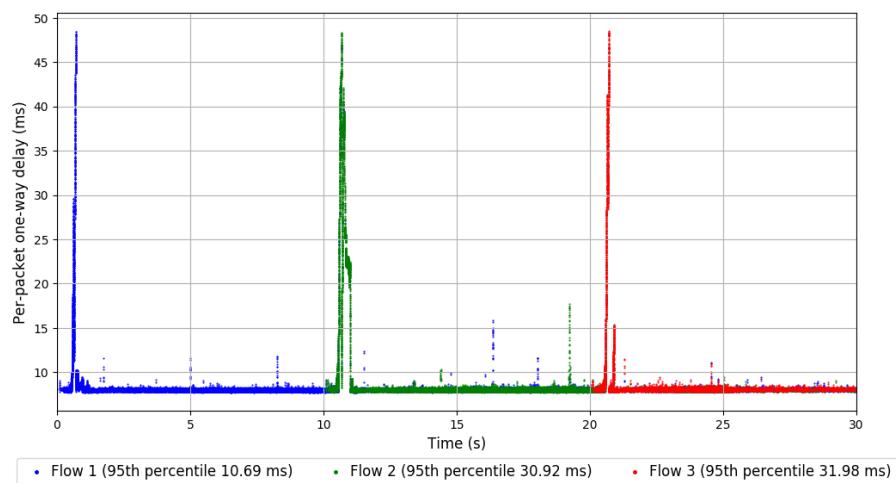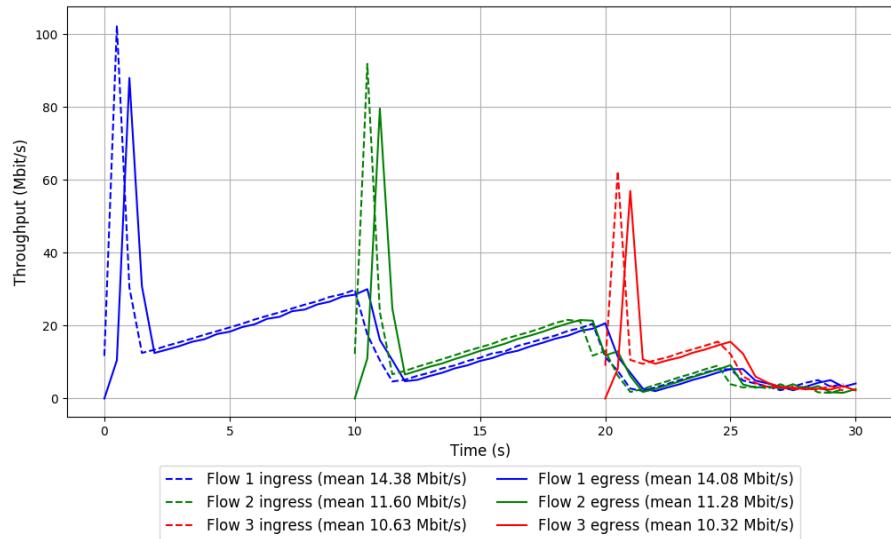
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-01-19 01:17:20
End at: 2019-01-19 01:17:50
Local clock offset: 0.269 ms
Remote clock offset: -3.546 ms


# Below is generated by plot.py at 2019-01-19 02:23:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.53 Mbit/s
95th percentile per-packet one-way delay: 23.784 ms
Loss rate: 3.13%
-- Flow 1:
Average throughput: 9.64 Mbit/s
95th percentile per-packet one-way delay: 19.012 ms
Loss rate: 2.88%
-- Flow 2:
Average throughput: 12.58 Mbit/s
95th percentile per-packet one-way delay: 22.798 ms
Loss rate: 2.94%
-- Flow 3:
Average throughput: 16.58 Mbit/s
95th percentile per-packet one-way delay: 33.209 ms
Loss rate: 3.84%
```
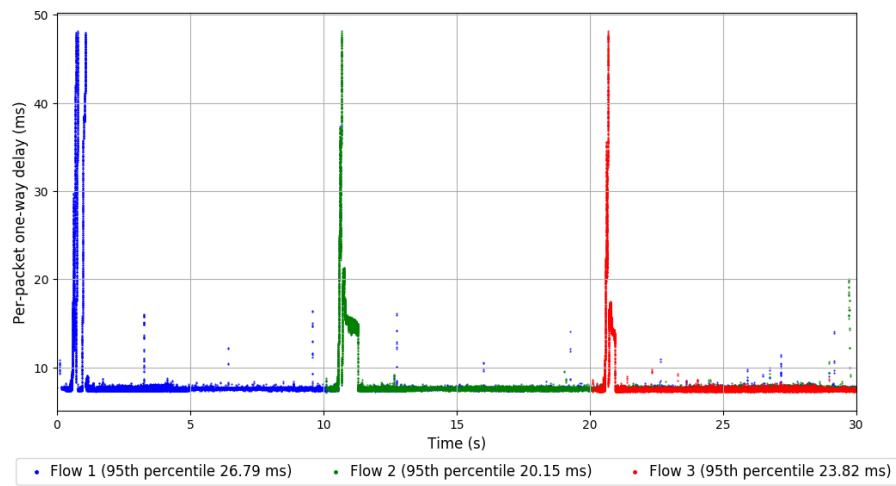
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-01-19 01:43:27
End at: 2019-01-19 01:43:57
Local clock offset: 0.035 ms
Remote clock offset: -3.784 ms


# Below is generated by plot.py at 2019-01-19 02:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.02 Mbit/s
95th percentile per-packet one-way delay: 23.029 ms
Loss rate: 2.37%
-- Flow 1:
Average throughput: 14.08 Mbit/s
95th percentile per-packet one-way delay: 10.686 ms
Loss rate: 2.02%
-- Flow 2:
Average throughput: 11.28 Mbit/s
95th percentile per-packet one-way delay: 30.922 ms
Loss rate: 2.80%
-- Flow 3:
Average throughput: 10.32 Mbit/s
95th percentile per-packet one-way delay: 31.978 ms
Loss rate: 2.84%
```
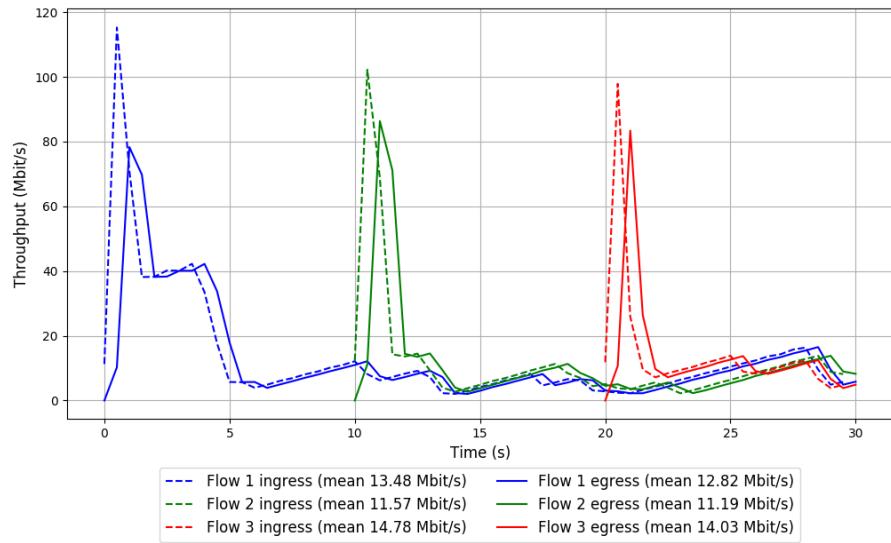
Run 4: Report of TCP Vegas — Data Link

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```
Run 5: Statistics of TCP Vegas

Start at: 2019-01-19 02:09:23
End at: 2019-01-19 02:09:53
Local clock offset: -1.698 ms
Remote clock offset: -4.766 ms


# Below is generated by plot.py at 2019-01-19 02:23:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 24.94 Mbit/s
95th percentile per-packet one-way delay: 23.429 ms
Loss rate: 4.45%
-- Flow 1:
Average throughput: 12.82 Mbit/s
95th percentile per-packet one-way delay: 26.789 ms
Loss rate: 4.90%
-- Flow 2:
Average throughput: 11.19 Mbit/s
95th percentile per-packet one-way delay: 20.150 ms
Loss rate: 3.26%
-- Flow 3:
Average throughput: 14.03 Mbit/s
95th percentile per-packet one-way delay: 23.819 ms
Loss rate: 5.08%
```
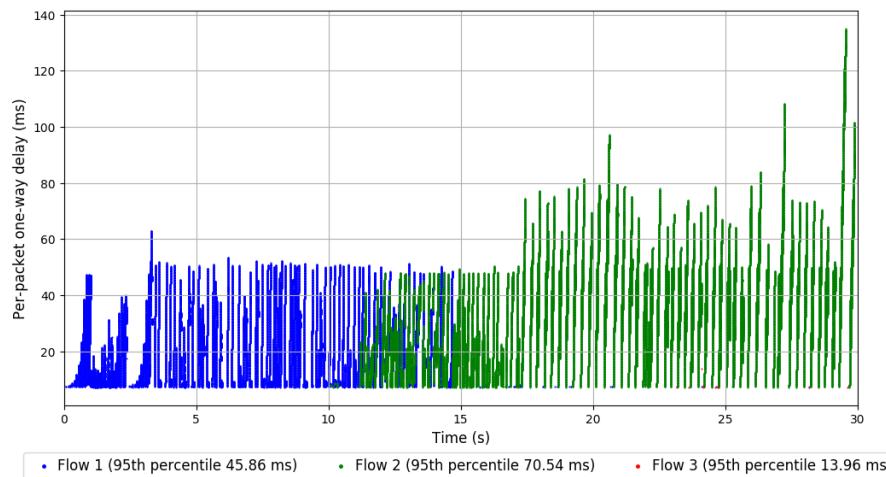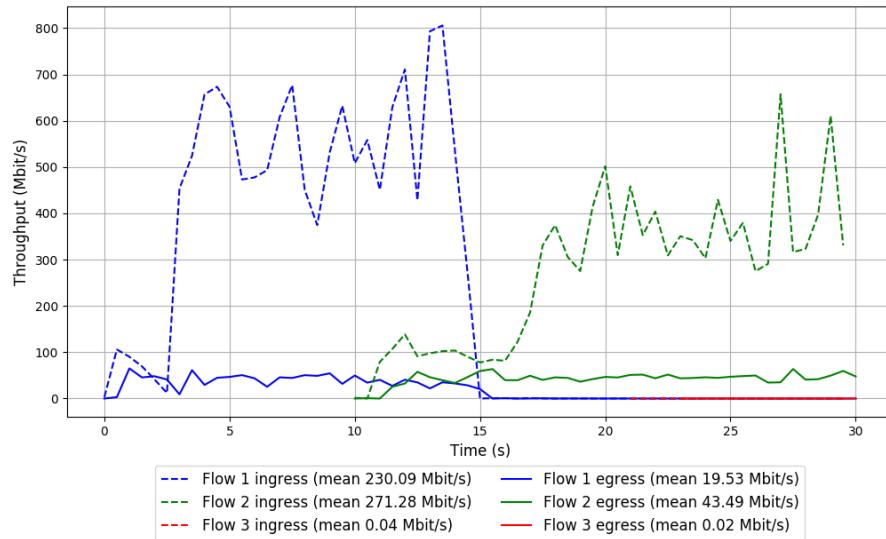
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-01-19 00:06:51
End at: 2019-01-19 00:07:21
Local clock offset: -0.427 ms
Remote clock offset: -4.312 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 65.045 ms
Loss rate: 88.18%
-- Flow 1:
Average throughput: 19.53 Mbit/s
95th percentile per-packet one-way delay: 45.857 ms
Loss rate: 91.54%
-- Flow 2:
Average throughput: 43.49 Mbit/s
95th percentile per-packet one-way delay: 70.540 ms
Loss rate: 83.91%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 13.960 ms
Loss rate: 68.75%
```
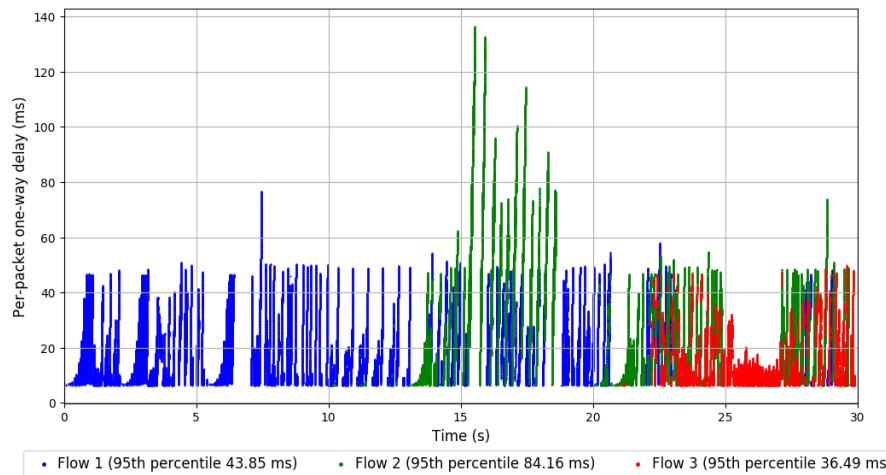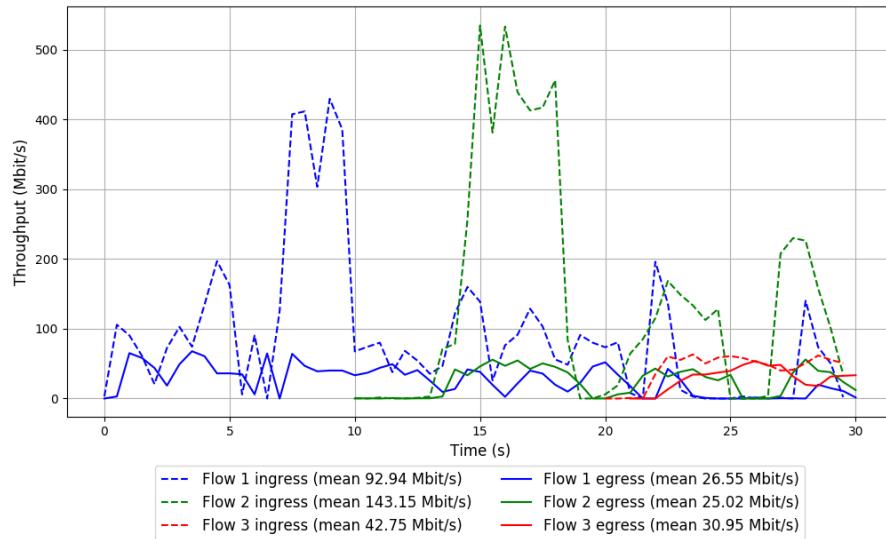
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-01-19 00:32:48
End at: 2019-01-19 00:33:18
Local clock offset: 1.055 ms
Remote clock offset: -4.123 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.19 Mbit/s
95th percentile per-packet one-way delay: 57.890 ms
Loss rate: 74.03%
-- Flow 1:
Average throughput: 26.55 Mbit/s
95th percentile per-packet one-way delay: 43.851 ms
Loss rate: 71.43%
-- Flow 2:
Average throughput: 25.02 Mbit/s
95th percentile per-packet one-way delay: 84.156 ms
Loss rate: 82.49%
-- Flow 3:
Average throughput: 30.95 Mbit/s
95th percentile per-packet one-way delay: 36.492 ms
Loss rate: 34.91%
```
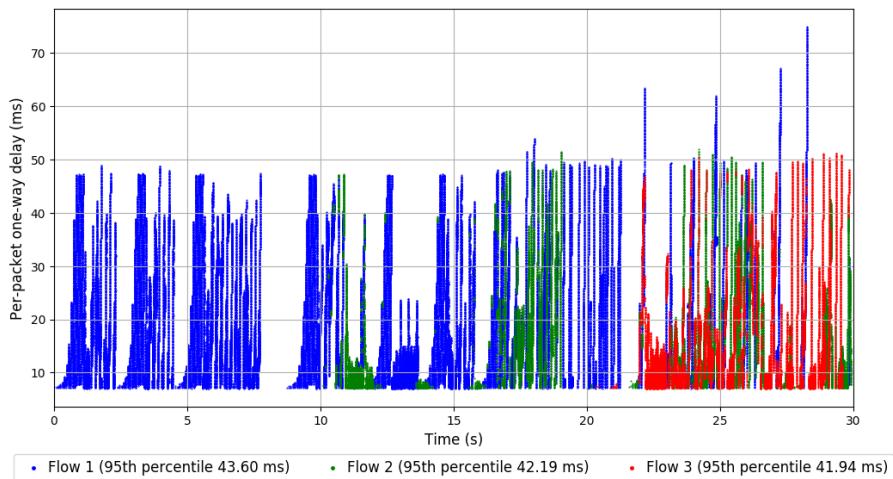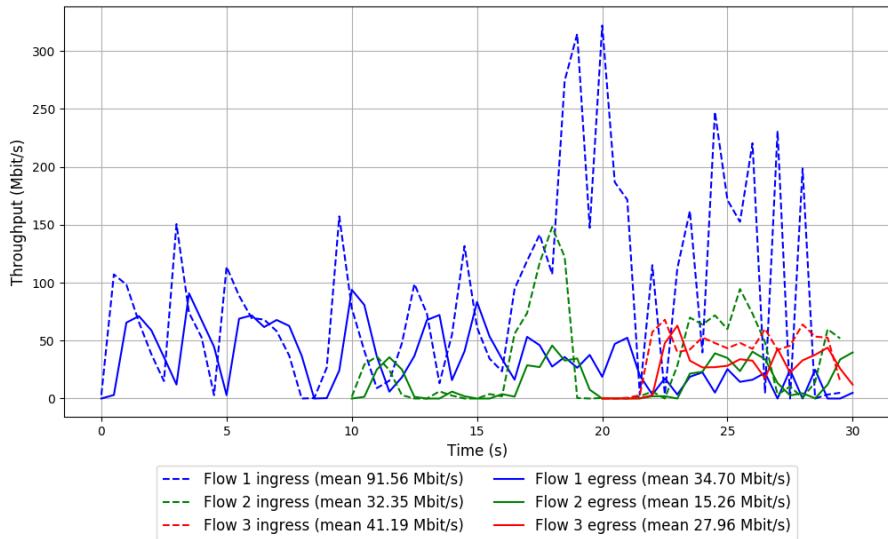
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-01-19 00:58:56
End at: 2019-01-19 00:59:26
Local clock offset: 1.481 ms
Remote clock offset: -3.3 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.67 Mbit/s
95th percentile per-packet one-way delay: 43.125 ms
Loss rate: 57.37%
-- Flow 1:
Average throughput: 34.70 Mbit/s
95th percentile per-packet one-way delay: 43.601 ms
Loss rate: 62.07%
-- Flow 2:
Average throughput: 15.26 Mbit/s
95th percentile per-packet one-way delay: 42.190 ms
Loss rate: 52.86%
-- Flow 3:
Average throughput: 27.96 Mbit/s
95th percentile per-packet one-way delay: 41.940 ms
Loss rate: 31.86%
```
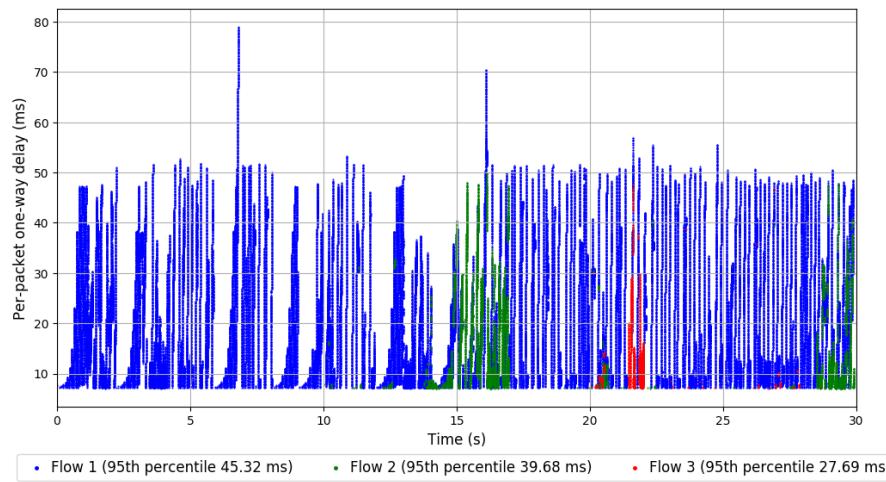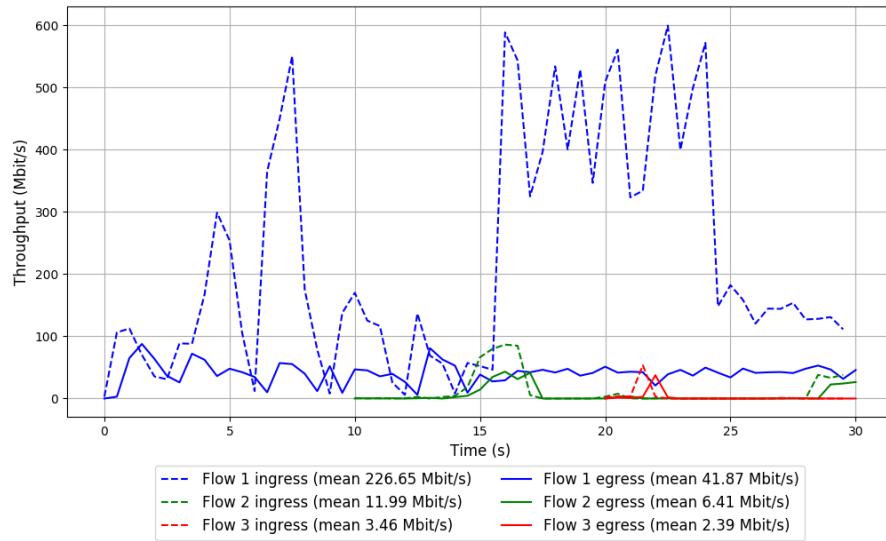
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-01-19 01:24:45
End at: 2019-01-19 01:25:15
Local clock offset: 0.537 ms
Remote clock offset: -4.064 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.88 Mbit/s
95th percentile per-packet one-way delay: 44.939 ms
Loss rate: 80.10%
-- Flow 1:
Average throughput: 41.87 Mbit/s
95th percentile per-packet one-way delay: 45.317 ms
Loss rate: 81.52%
-- Flow 2:
Average throughput: 6.41 Mbit/s
95th percentile per-packet one-way delay: 39.681 ms
Loss rate: 46.53%
-- Flow 3:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 27.689 ms
Loss rate: 31.51%
```
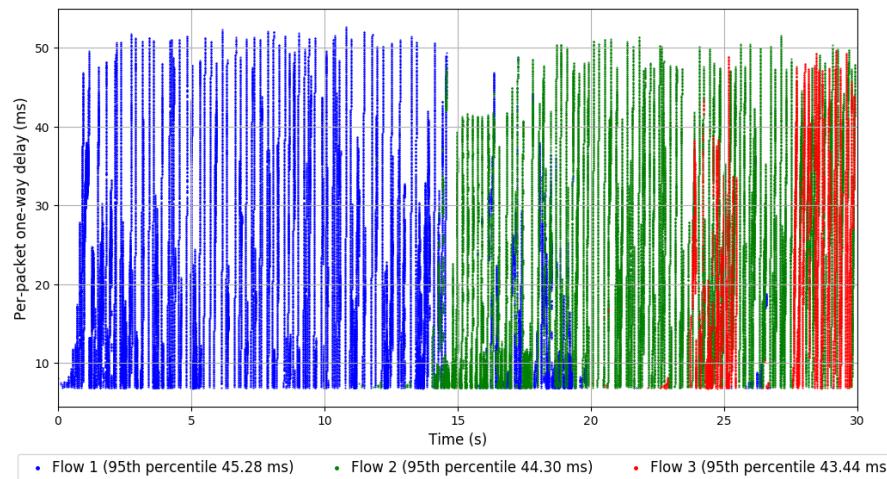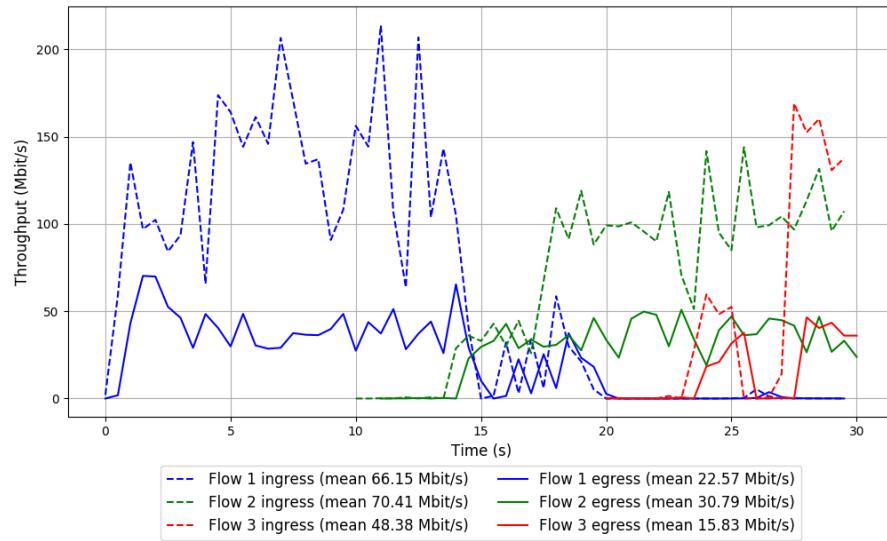
Run 4: Report of Verus — Data Link

- Flow 1 ingress (mean 226.65 Mbit/s)
- Flow 1 egress (mean 41.87 Mbit/s)
- Flow 2 ingress (mean 11.99 Mbit/s)
- Flow 2 egress (mean 6.41 Mbit/s)
- Flow 3 ingress (mean 3.46 Mbit/s)
- Flow 3 egress (mean 2.39 Mbit/s)

- Flow 1 (95th percentile 45.32 ms)
- Flow 2 (95th percentile 39.68 ms)
- Flow 3 (95th percentile 27.69 ms)

```
Run 5: Statistics of Verus

Start at: 2019-01-19 01:50:57
End at: 2019-01-19 01:51:27
Local clock offset: 0.287 ms
Remote clock offset: -3.945 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.34 Mbit/s
95th percentile per-packet one-way delay: 44.622 ms
Loss rate: 63.64%
-- Flow 1:
Average throughput: 22.57 Mbit/s
95th percentile per-packet one-way delay: 45.285 ms
Loss rate: 66.41%
-- Flow 2:
Average throughput: 30.79 Mbit/s
95th percentile per-packet one-way delay: 44.299 ms
Loss rate: 58.43%
-- Flow 3:
Average throughput: 15.83 Mbit/s
95th percentile per-packet one-way delay: 43.438 ms
Loss rate: 67.30%
```
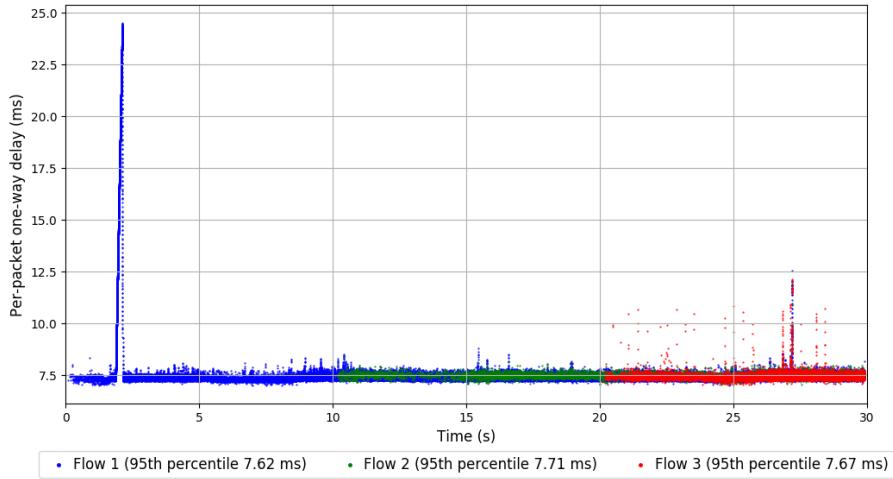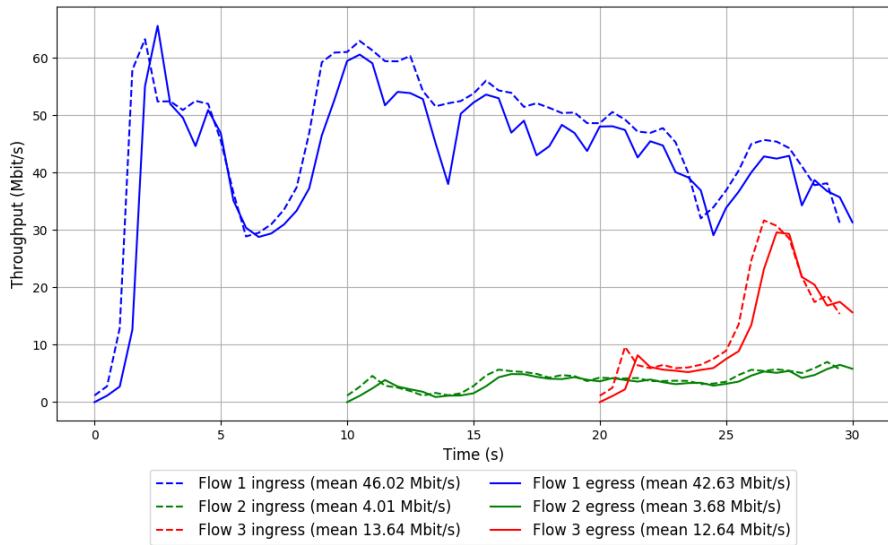
Run 5: Report of Verus — Data Link

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```
Run 1: Statistics of PCC-Vivace

Start at: 2019-01-19 00:29:56
End at: 2019-01-19 00:30:26
Local clock offset: 0.832 ms
Remote clock offset: -3.442 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.25 Mbit/s
95th percentile per-packet one-way delay: 7.636 ms
Loss rate: 7.42%
-- Flow 1:
Average throughput: 42.63 Mbit/s
95th percentile per-packet one-way delay: 7.615 ms
Loss rate: 7.38%
-- Flow 2:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 7.708 ms
Loss rate: 8.28%
-- Flow 3:
Average throughput: 12.64 Mbit/s
95th percentile per-packet one-way delay: 7.668 ms
Loss rate: 7.34%
```
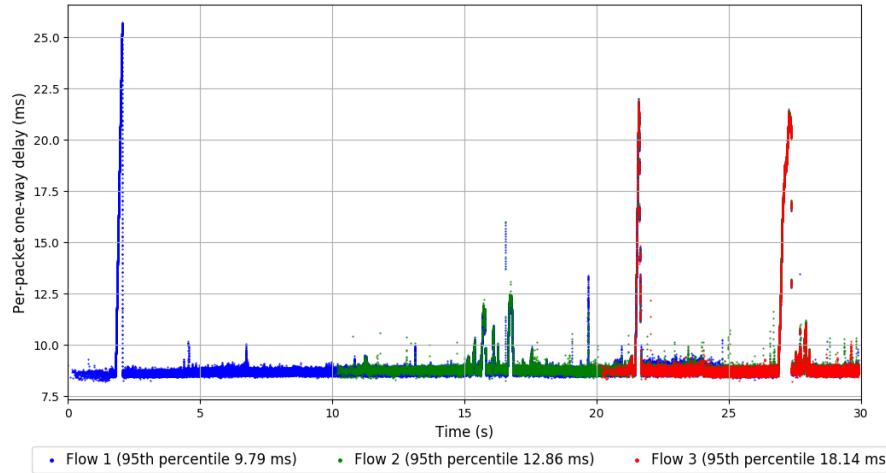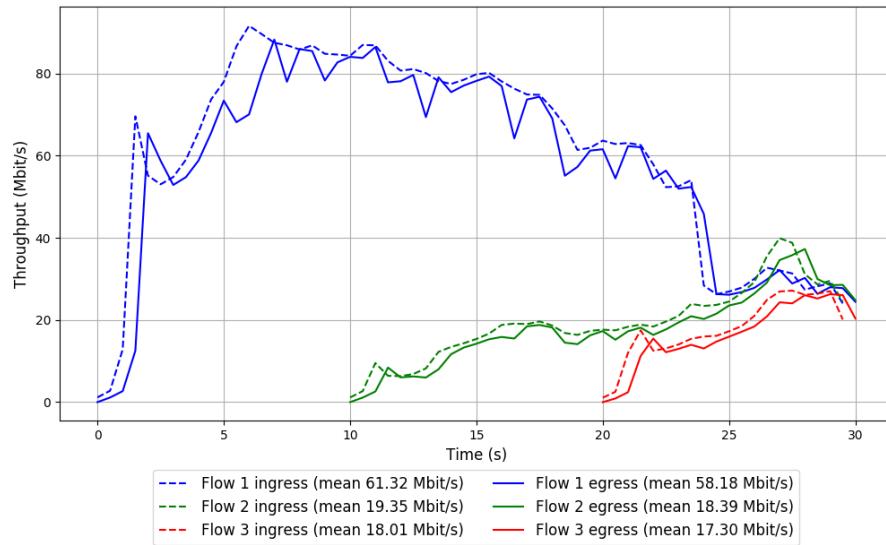
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 46.02 Mbit/s) --- Flow 1 egress (mean 42.63 Mbit/s)
Flow 2 ingress (mean 4.01 Mbit/s) --- Flow 2 egress (mean 3.68 Mbit/s)
Flow 3 ingress (mean 13.64 Mbit/s) --- Flow 3 egress (mean 12.64 Mbit/s)

Flow 1 (95th percentile 7.62 ms) • Flow 2 (95th percentile 7.71 ms) • Flow 3 (95th percentile 7.67 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-01-19 00:56:12
End at: 2019-01-19 00:56:42
Local clock offset: 0.142 ms
Remote clock offset: -3.223 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.13 Mbit/s
95th percentile per-packet one-way delay: 10.682 ms
Loss rate: 5.01%
-- Flow 1:
Average throughput: 58.18 Mbit/s
95th percentile per-packet one-way delay: 9.789 ms
Loss rate: 5.11%
-- Flow 2:
Average throughput: 18.39 Mbit/s
95th percentile per-packet one-way delay: 12.859 ms
Loss rate: 4.97%
-- Flow 3:
Average throughput: 17.30 Mbit/s
95th percentile per-packet one-way delay: 18.139 ms
Loss rate: 3.97%
```
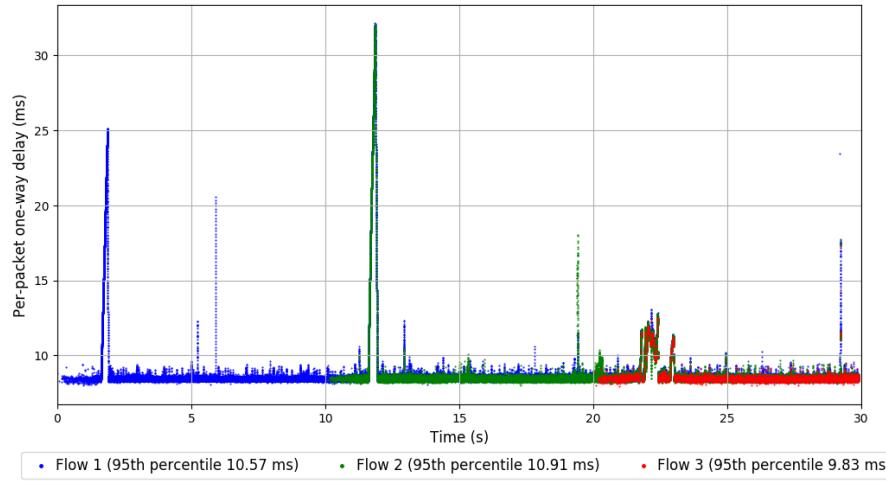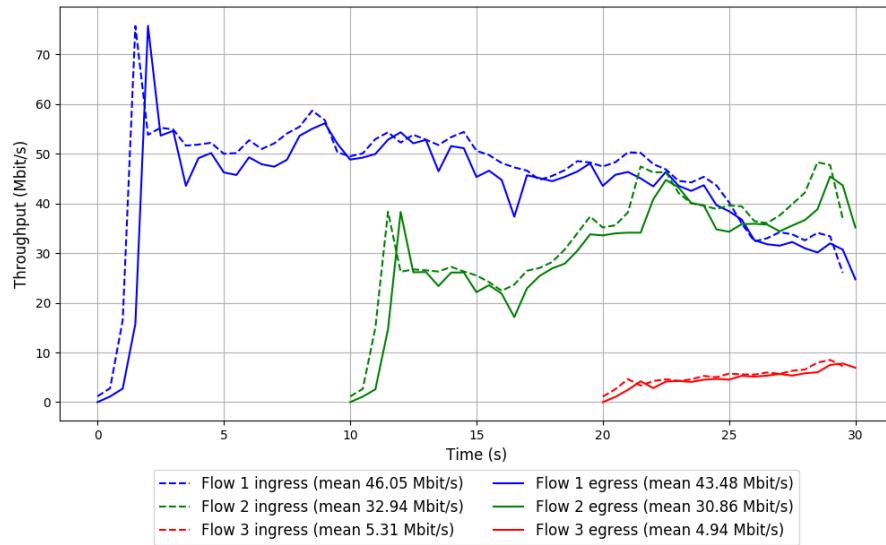
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-01-19 01:22:13
End at: 2019-01-19 01:22:43
Local clock offset: 0.028 ms
Remote clock offset: -3.536 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.64 Mbit/s
95th percentile per-packet one-way delay: 10.744 ms
Loss rate: 5.86%
-- Flow 1:
Average throughput: 43.48 Mbit/s
95th percentile per-packet one-way delay: 10.572 ms
Loss rate: 5.60%
-- Flow 2:
Average throughput: 30.86 Mbit/s
95th percentile per-packet one-way delay: 10.910 ms
Loss rate: 6.31%
-- Flow 3:
Average throughput: 4.94 Mbit/s
95th percentile per-packet one-way delay: 9.828 ms
Loss rate: 6.94%
```
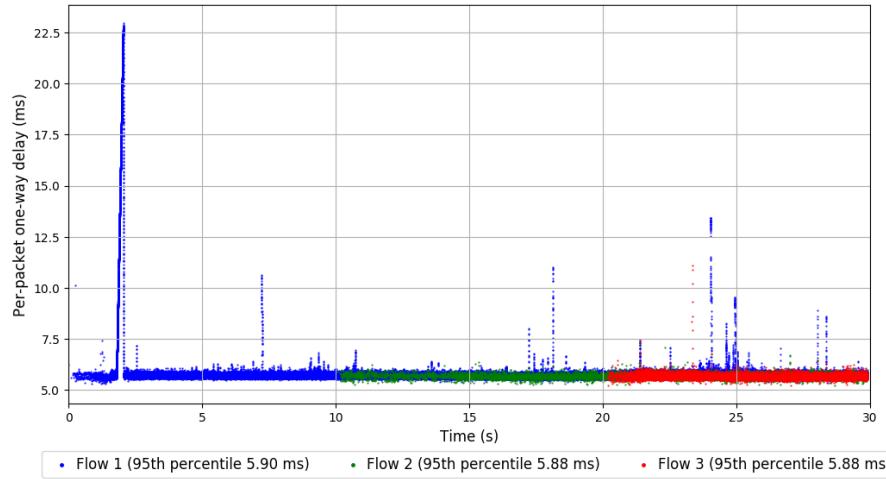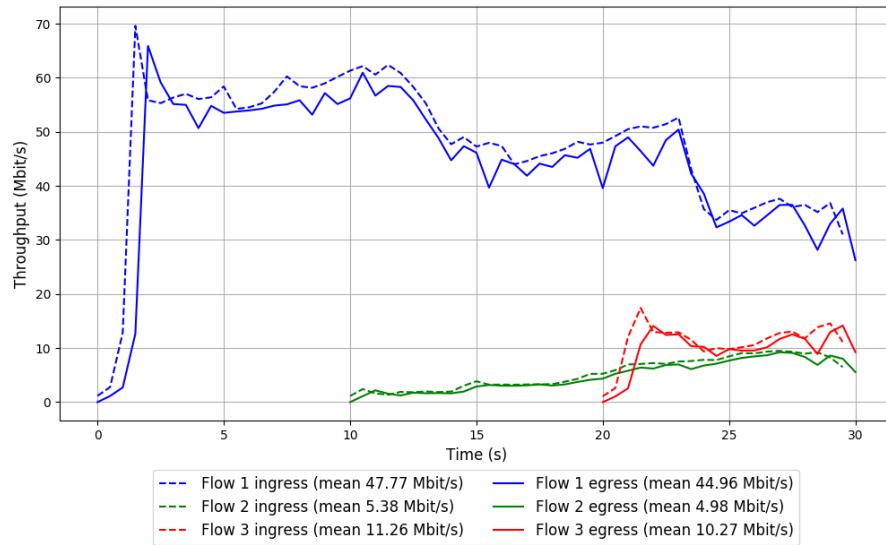
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-01-19 01:48:27
End at: 2019-01-19 01:48:57
Local clock offset: 1.728 ms
Remote clock offset: -4.151 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 51.67 Mbit/s
95th percentile per-packet one-way delay: 5.899 ms
Loss rate: 6.17%
-- Flow 1:
Average throughput: 44.96 Mbit/s
95th percentile per-packet one-way delay: 5.902 ms
Loss rate: 5.88%
-- Flow 2:
Average throughput: 4.98 Mbit/s
95th percentile per-packet one-way delay: 5.885 ms
Loss rate: 7.30%
-- Flow 3:
Average throughput: 10.27 Mbit/s
95th percentile per-packet one-way delay: 5.883 ms
Loss rate: 8.81%
```
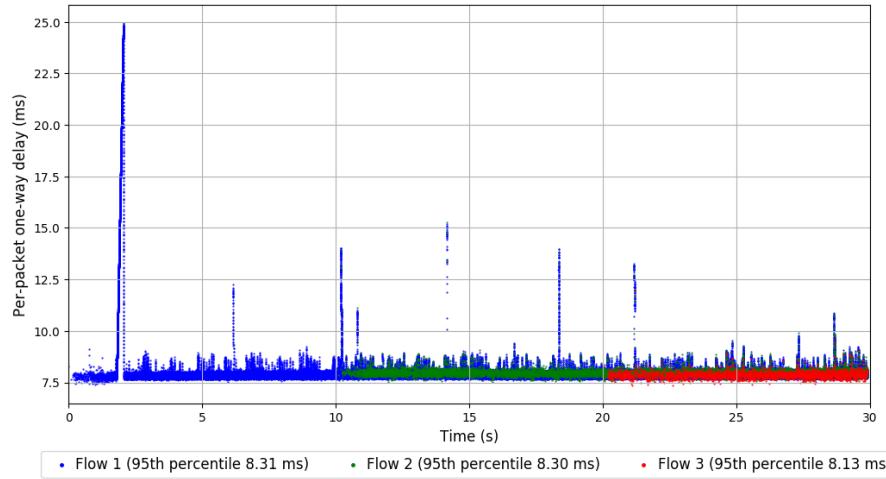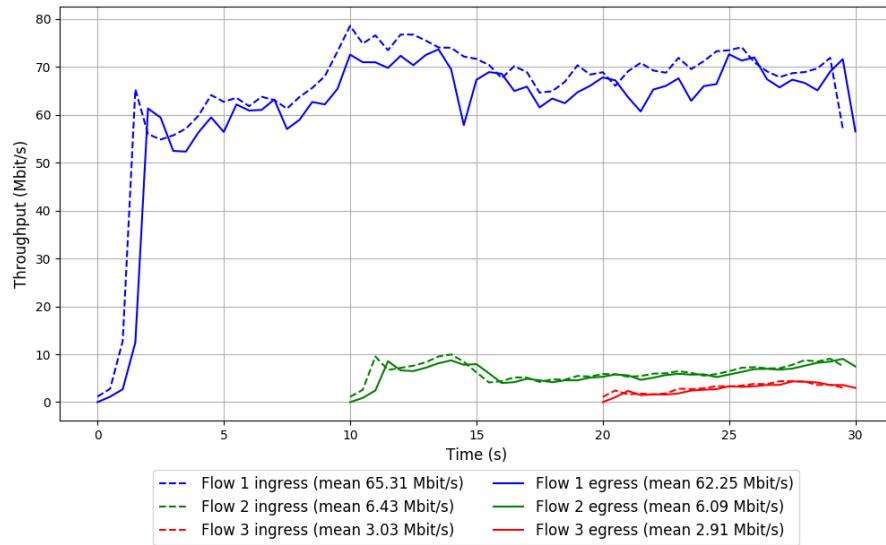
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-01-19 02:14:16
End at: 2019-01-19 02:14:46
Local clock offset: -1.554 ms
Remote clock offset: -4.228 ms

# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.26 Mbit/s
95th percentile per-packet one-way delay: 8.306 ms
Loss rate: 4.71%
-- Flow 1:
Average throughput: 62.25 Mbit/s
95th percentile per-packet one-way delay: 8.312 ms
Loss rate: 4.69%
-- Flow 2:
Average throughput: 6.09 Mbit/s
95th percentile per-packet one-way delay: 8.303 ms
Loss rate: 5.29%
-- Flow 3:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 8.131 ms
Loss rate: 3.78%
```
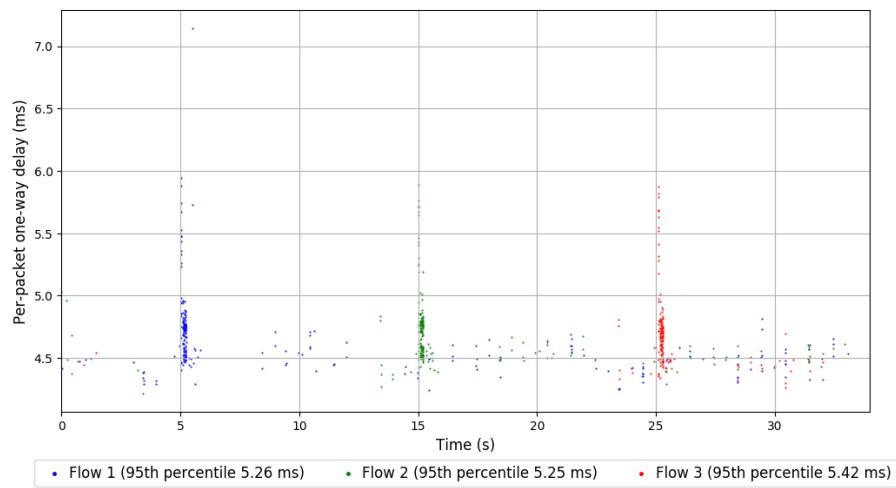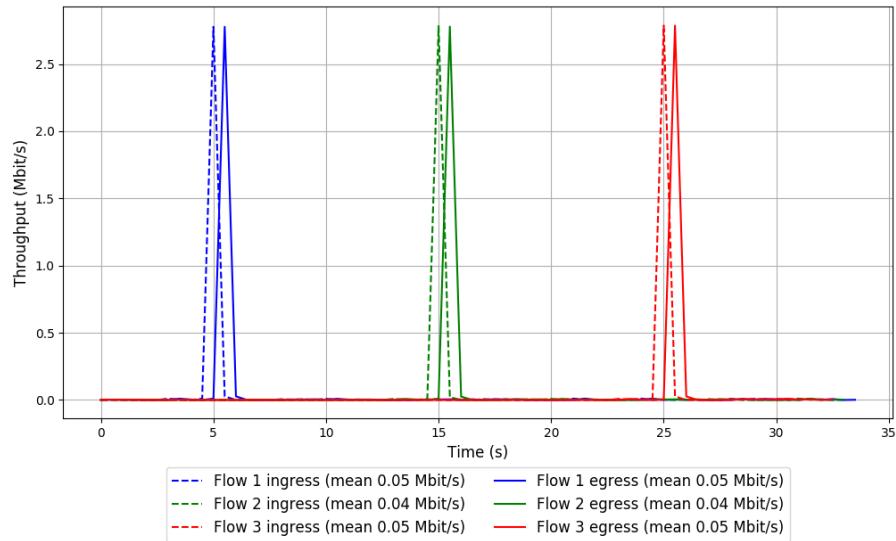
Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2019-01-19 00:19:00
End at: 2019-01-19 00:19:30
Local clock offset: -0.084 ms
Remote clock offset: -6.675 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 5.316 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 5.262 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 5.251 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 5.417 ms
Loss rate: 0.00%
```
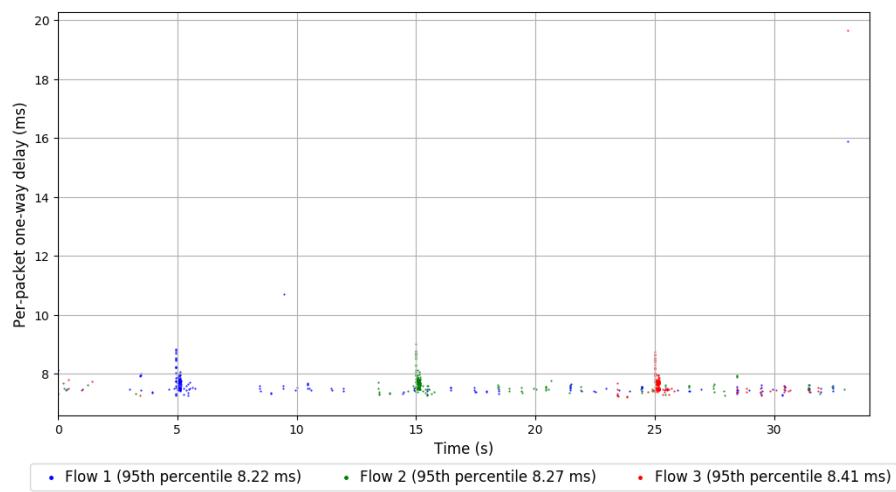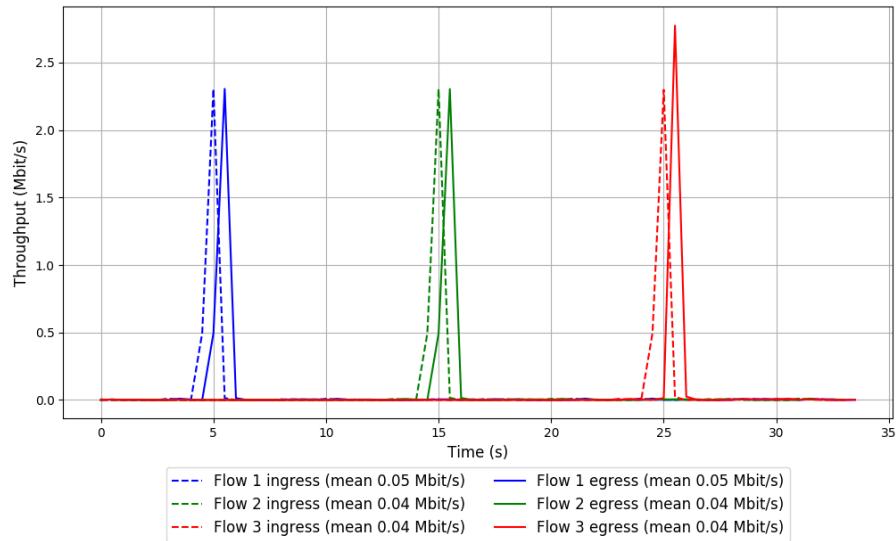
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-01-19 00:45:00
End at: 2019-01-19 00:45:30
Local clock offset: 0.149 ms
Remote clock offset: -4.038 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 8.273 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 8.222 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 8.273 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 8.406 ms
Loss rate: 0.00%
```
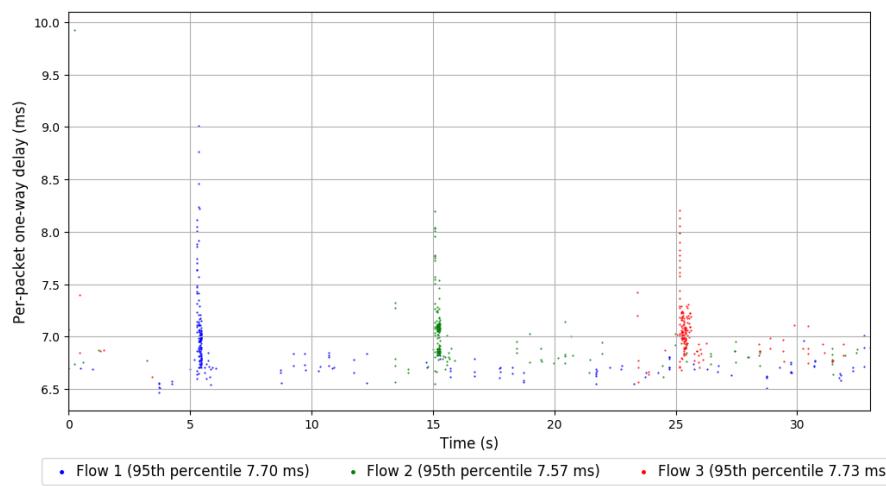
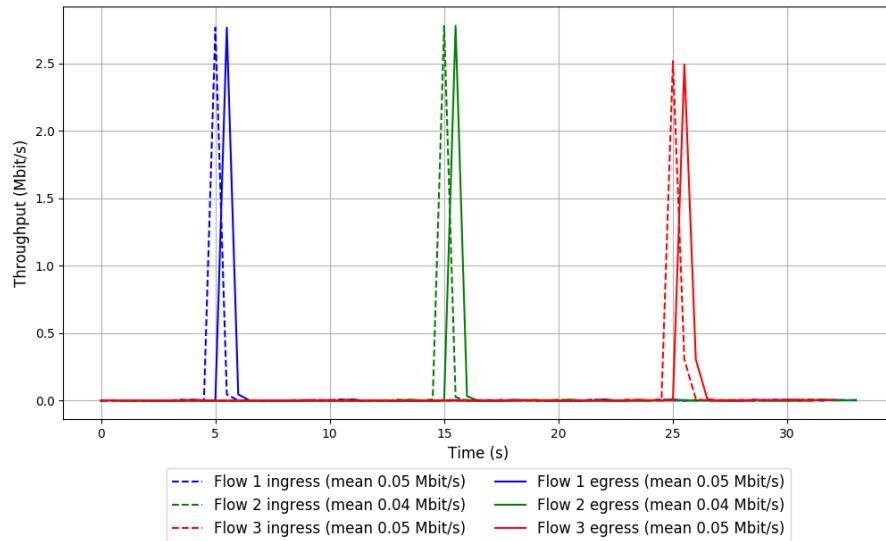Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-01-19 01:11:15
End at: 2019-01-19 01:11:45
Local clock offset: 2.078 ms
Remote clock offset: -3.214 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 7.728 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 7.701 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 7.569 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 7.728 ms
Loss rate: 1.13%
```

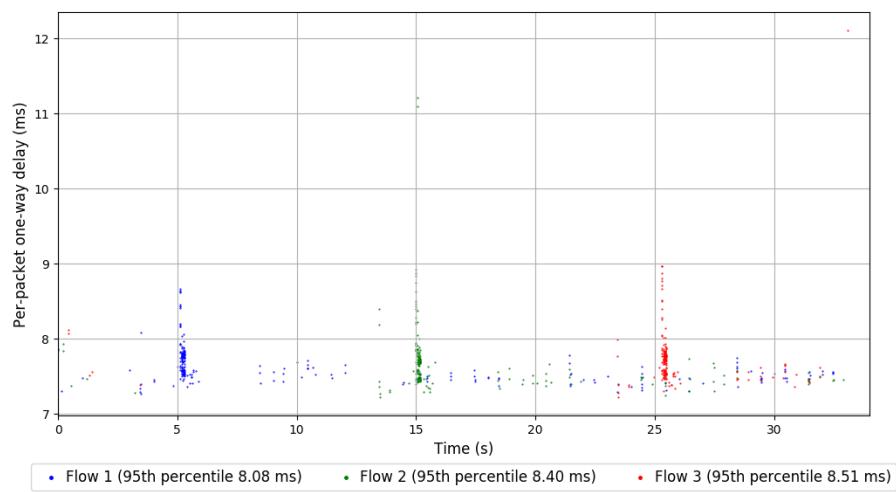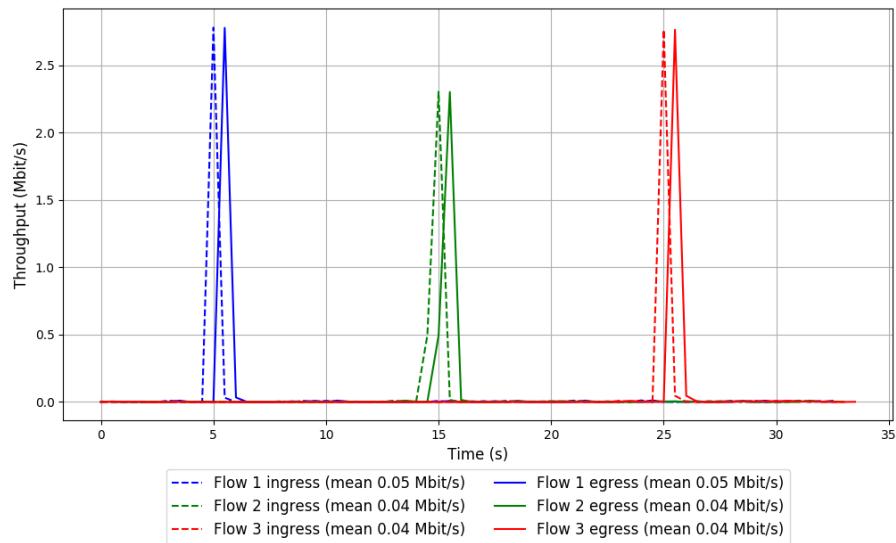Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-01-19 01:37:13
End at: 2019-01-19 01:37:43
Local clock offset: 0.623 ms
Remote clock offset: -3.47 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 8.395 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 8.076 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 8.401 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 8.507 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-01-19 02:03:13
End at: 2019-01-19 02:03:43
Local clock offset: -1.082 ms
Remote clock offset: -4.496 ms


# Below is generated by plot.py at 2019-01-19 02:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 7.910 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 7.745 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 7.910 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 8.040 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link