Pantheon Report

Generated at 2019-09-19 01:16:31 (UTC).

Data path: Brazil on `p4p1` (*remote*) →AWS Brazil 1 on `ens5` (*local*).

Repeated the test of 24 congestion control schemes 5 times.

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

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

```
System info:
Linux 4.15.0-1045-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 @ de42328552b3776a75a932a94dfafd722537b0ec
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/muses_dtree @ 387225f7b5f61ddbe92d708a8869ffbb84eb3200
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 Brazil to AWS Brazil 1, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from Brazil to AWS Brazil 1, 5 runs of 30s each per scheme
3 flows with 10s interval between flows
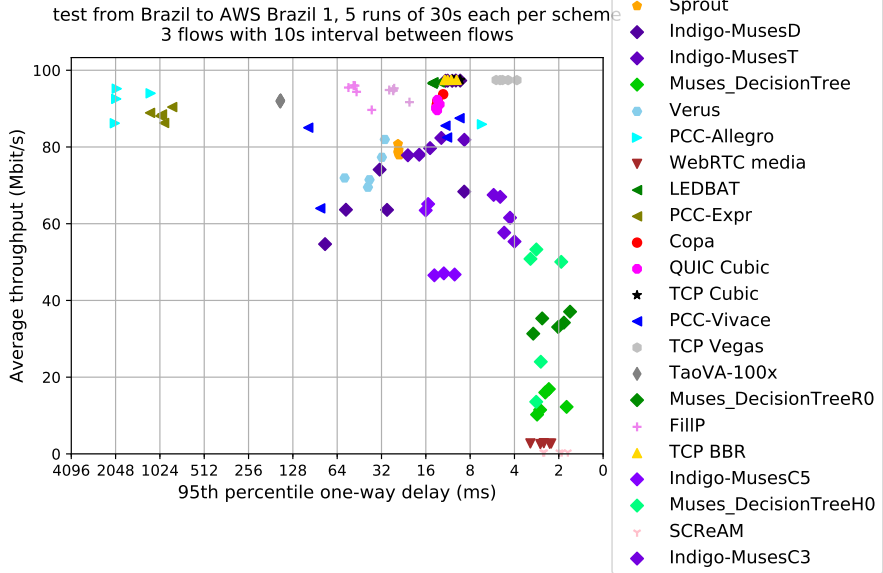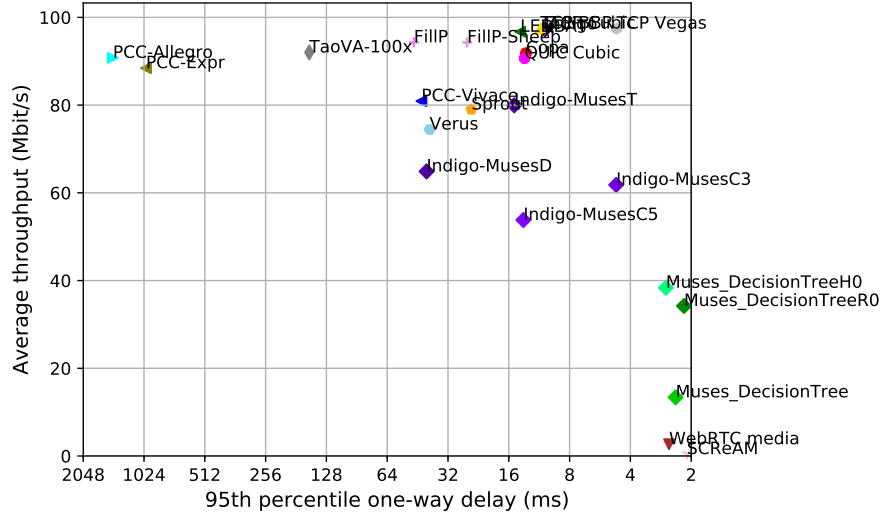
| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	59.27	40.92	32.98	10.64	11.69	12.10	0.47	0.97	1.30
Copa	5	54.88	39.55	31.94	12.13	14.43	14.09	0.04	0.09	0.14
TCP Cubic	5	59.61	40.65	32.49	9.81	10.08	10.24	0.08	0.14	0.24
FillP	5	55.31	42.76	31.71	31.32	51.48	49.70	0.15	1.96	1.75
FillP-Sheep	5	58.56	37.64	32.13	23.61	24.35	34.62	0.03	0.03	0.15
Indigo	5	59.65	40.63	32.31	9.47	10.83	8.36	0.03	0.52	0.11
Indigo-MusesC3	5	40.62	25.77	18.61	4.17	4.97	5.00	0.01	0.02	0.10
Indigo-MusesC5	5	28.84	26.30	32.72	11.56	13.19	16.17	0.04	0.07	0.20
Indigo-MusesD	5	39.22	27.07	34.60	15.07	17.34	50.69	0.12	0.15	2.21
Indigo-MusesT	5	51.47	36.20	23.75	13.30	17.07	15.60	0.04	0.11	0.12
LEDBAT	5	58.99	40.53	32.34	13.53	14.39	13.72	0.13	0.23	0.38
Muses_DecisionTree	5	5.19	7.98	9.10	2.39	2.38	2.39	0.02	0.02	0.03
Muses_DecisionTreeH0	5	28.68	7.99	13.72	2.64	2.68	2.78	0.01	0.02	0.03
Muses_DecisionTreeR0	5	25.62	8.86	8.55	2.16	2.20	2.28	0.01	0.02	0.05
PCC-Allegro	5	66.55	25.11	22.86	1560.08	251.74	16.01	7.07	2.98	0.17
PCC-Expr	5	53.70	38.06	28.54	659.97	691.32	152.11	10.62	9.37	1.67
QUIC Cubic	5	53.72	40.07	31.07	13.16	13.09	14.08	0.16	0.32	0.46
SCReAM	5	0.22	0.22	0.22	2.10	2.09	2.09	0.00	0.04	0.14
Sprout	5	42.94	38.22	32.18	23.39	24.43	25.78	0.12	0.13	0.29
TaoVA-100x	5	55.32	39.22	31.82	155.37	155.37	155.60	0.54	1.08	2.74
TCP Vegas	5	52.80	47.45	39.25	3.69	4.22	5.16	0.01	0.02	0.06
Verus	5	38.42	37.59	33.06	35.19	25.33	144.07	0.04	0.25	0.14
PCC-Vivace	5	50.44	32.03	27.78	52.12	37.66	35.86	0.09	0.07	1.80
WebRTC media	5	1.49	0.83	0.37	2.53	2.55	2.78	0.00	0.00	0.07

```
Run 1: Statistics of TCP BBR

Start at: 2019-09-18 23:02:15
End at: 2019-09-18 23:02:45
Local clock offset: -0.092 ms
Remote clock offset: -2.476 ms


# Below is generated by plot.py at 2019-09-19 01:03:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 11.384 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 59.27 Mbit/s
95th percentile per-packet one-way delay: 10.989 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 12.198 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 32.99 Mbit/s
95th percentile per-packet one-way delay: 12.214 ms
Loss rate: 1.36%
```
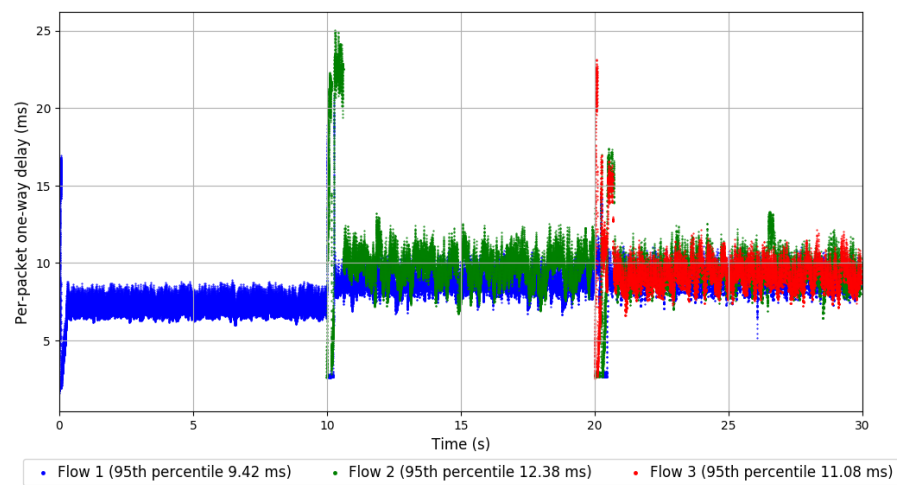
Run 1: Report of TCP BBR — Data Link
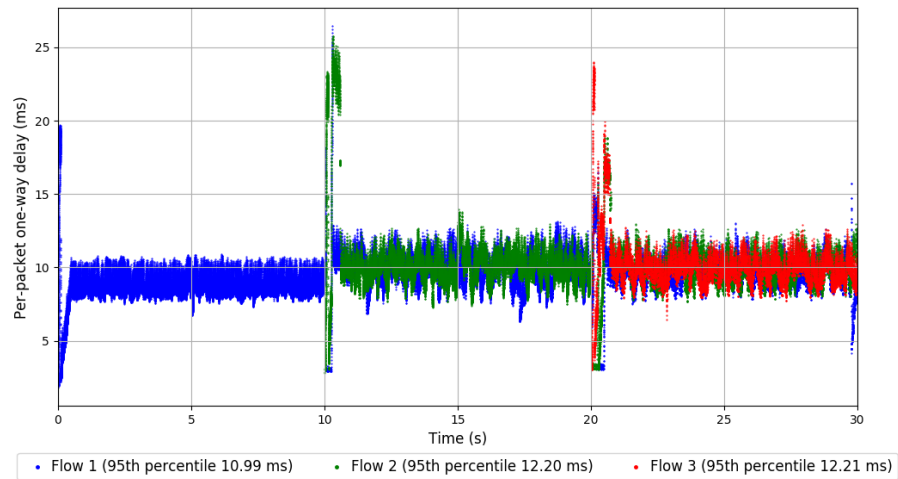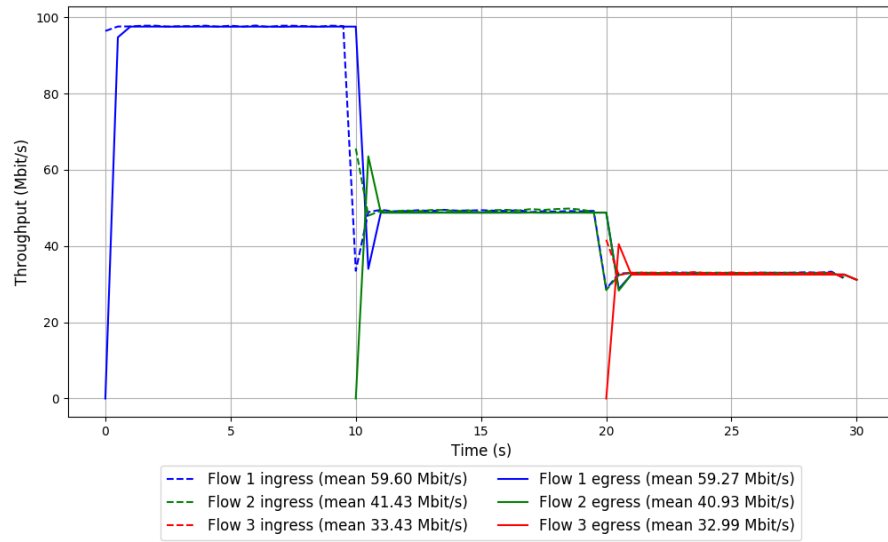
```
Run 2: Statistics of TCP BBR

Start at: 2019-09-18 23:29:47
End at: 2019-09-18 23:30:17
Local clock offset: -8.074 ms
Remote clock offset: -2.203 ms


# Below is generated by plot.py at 2019-09-19 01:03:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 11.917 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 11.319 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 12.484 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 33.00 Mbit/s
95th percentile per-packet one-way delay: 13.913 ms
Loss rate: 1.63%
```

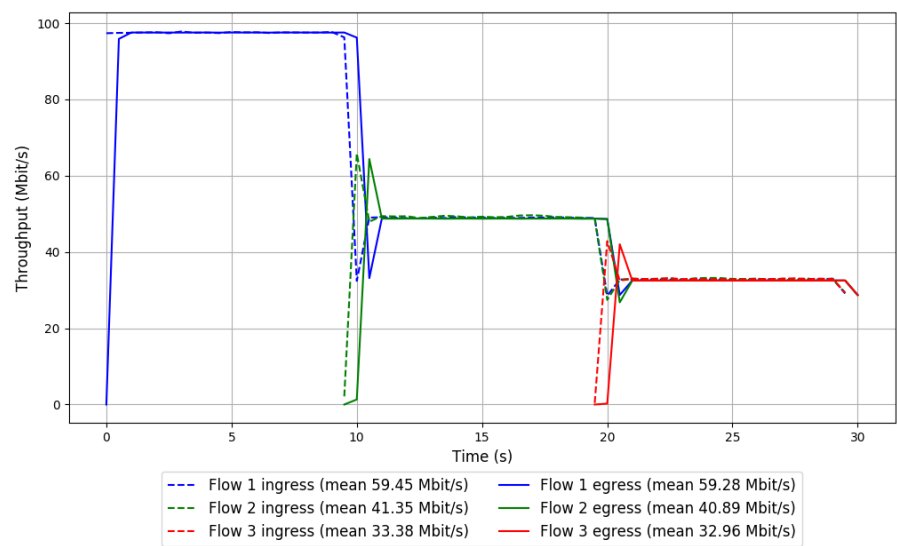Run 2: Report of TCP BBR — Data Link
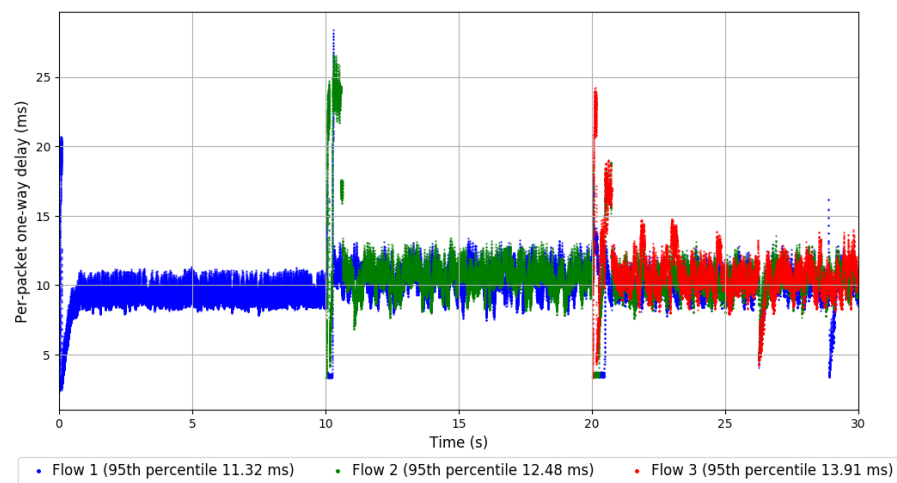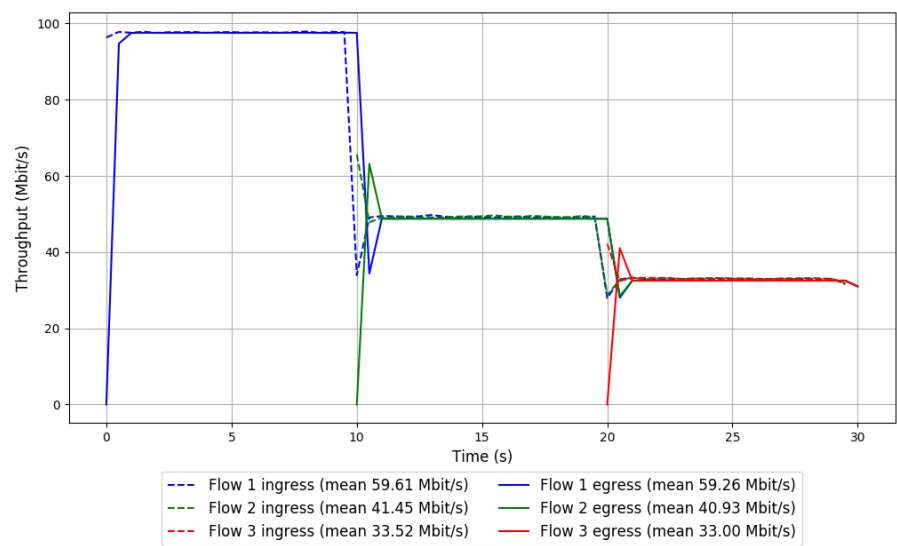
```
Run 3: Statistics of TCP BBR

Start at: 2019-09-18 23:57:19
End at: 2019-09-18 23:57:49
Local clock offset: -12.067 ms
Remote clock offset: -0.897 ms


# Below is generated by plot.py at 2019-09-19 01:03:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 10.757 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 59.28 Mbit/s
95th percentile per-packet one-way delay: 9.417 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 12.383 ms
Loss rate: 1.16%
-- Flow 3:
Average throughput: 32.96 Mbit/s
95th percentile per-packet one-way delay: 11.078 ms
Loss rate: 1.31%
```
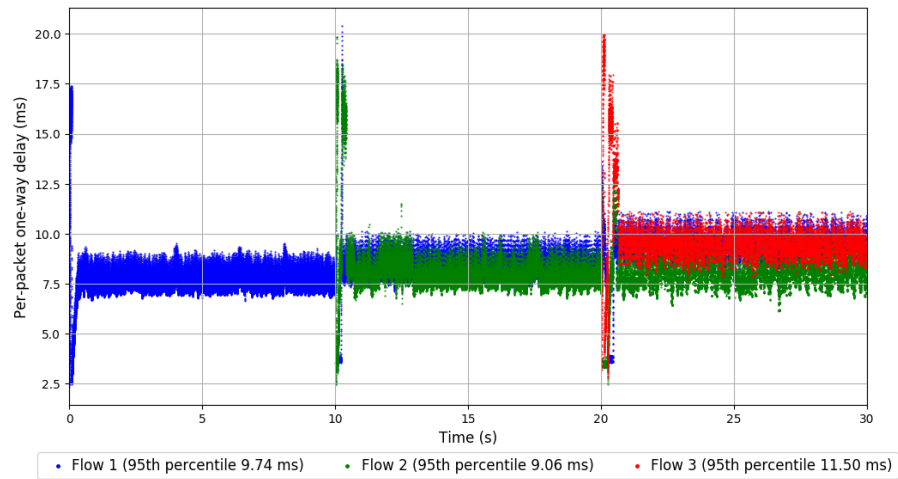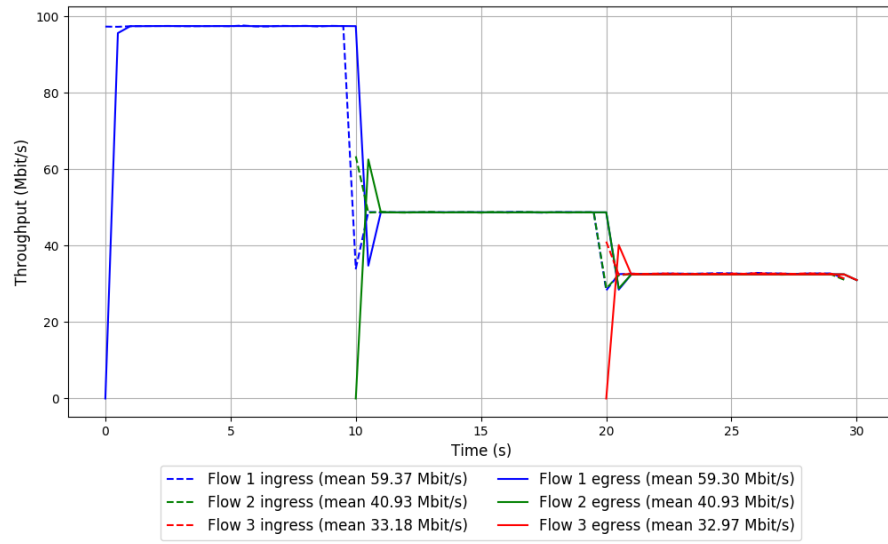
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.45 Mbit/s) --- Flow 1 egress (mean 59.28 Mbit/s) ——
Flow 2 ingress (mean 41.35 Mbit/s) --- Flow 2 egress (mean 40.89 Mbit/s) ——
Flow 3 ingress (mean 33.38 Mbit/s) --- Flow 3 egress (mean 32.96 Mbit/s) ——

Flow 1 (95th percentile 9.42 ms)   Flow 2 (95th percentile 12.38 ms)   Flow 3 (95th percentile 11.08 ms)

10

```
Run 4: Statistics of TCP BBR

Start at: 2019-09-19 00:24:53
End at: 2019-09-19 00:25:23
Local clock offset: -7.005 ms
Remote clock offset: -0.279 ms


# Below is generated by plot.py at 2019-09-19 01:03:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 9.881 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 59.30 Mbit/s
95th percentile per-packet one-way delay: 9.739 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 9.062 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 32.97 Mbit/s
95th percentile per-packet one-way delay: 11.497 ms
Loss rate: 0.68%
```
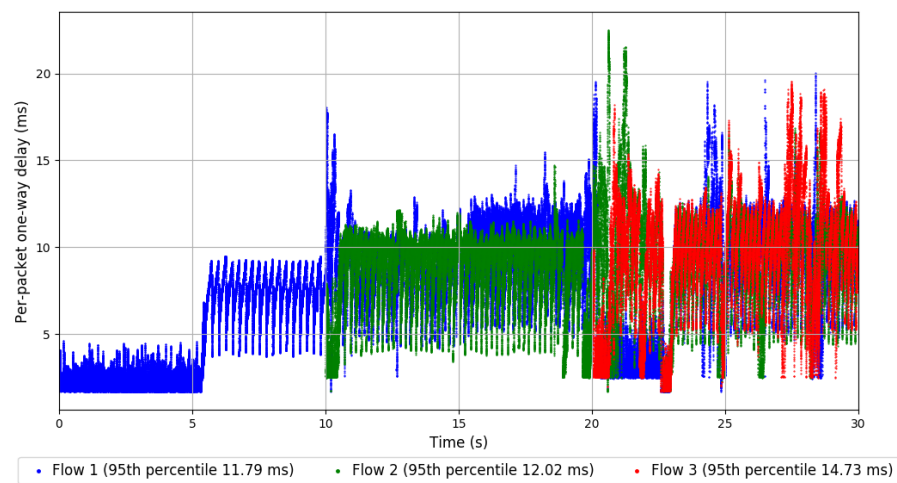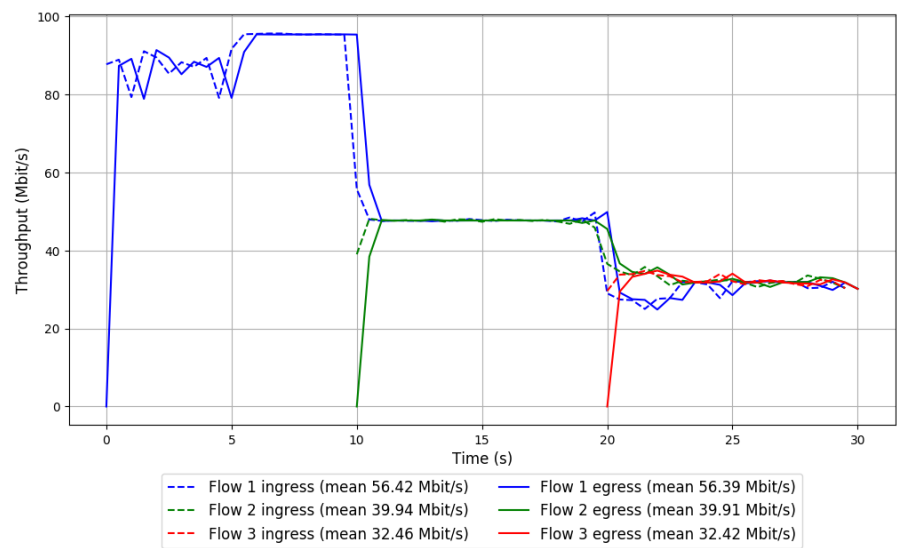
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.37 Mbit/s) --- Flow 1 egress (mean 59.30 Mbit/s)
Flow 2 ingress (mean 40.93 Mbit/s) --- Flow 2 egress (mean 40.93 Mbit/s)
Flow 3 ingress (mean 33.18 Mbit/s) --- Flow 3 egress (mean 32.97 Mbit/s)

Flow 1 (95th percentile 9.74 ms)   Flow 2 (95th percentile 9.06 ms)   Flow 3 (95th percentile 11.50 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2019-09-19 00:52:25
End at: 2019-09-19 00:52:55
Local clock offset: -3.036 ms
Remote clock offset: -0.399 ms


# Below is generated by plot.py at 2019-09-19 01:03:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 11.896 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 11.760 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 40.94 Mbit/s
95th percentile per-packet one-way delay: 12.334 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 33.00 Mbit/s
95th percentile per-packet one-way delay: 11.817 ms
Loss rate: 1.51%
```

Run 5: Report of TCP BBR — Data Link
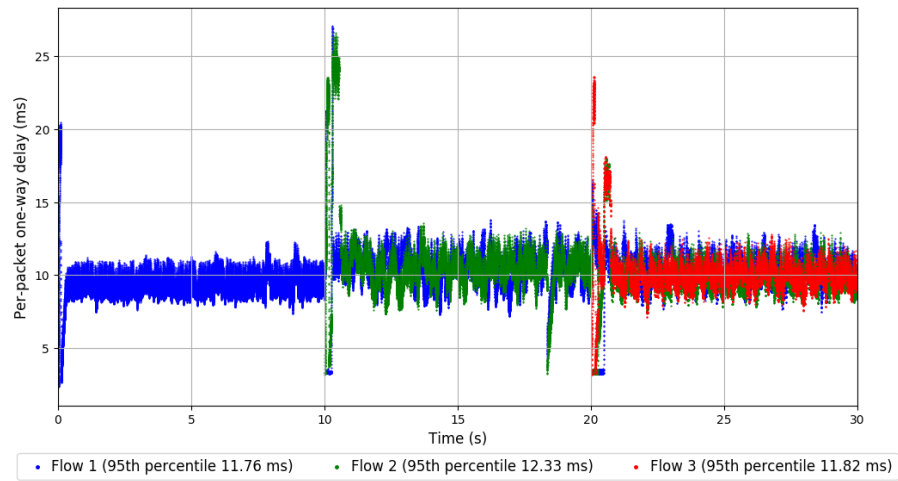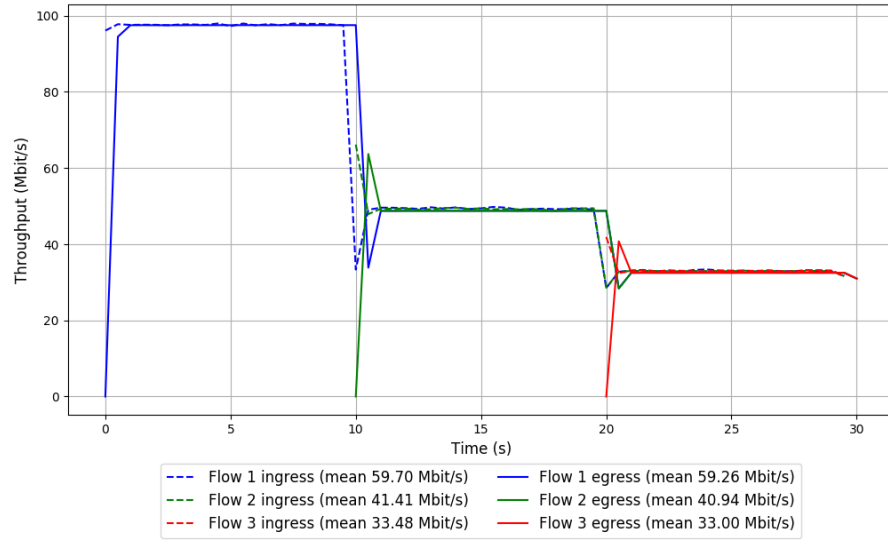
```
Run 1: Statistics of Copa

Start at: 2019-09-18 22:56:23
End at: 2019-09-18 22:56:53
Local clock offset: 1.53 ms
Remote clock offset: -2.328 ms


# Below is generated by plot.py at 2019-09-19 01:04:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.74 Mbit/s
95th percentile per-packet one-way delay: 12.197 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 56.39 Mbit/s
95th percentile per-packet one-way delay: 11.792 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 39.91 Mbit/s
95th percentile per-packet one-way delay: 12.017 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.42 Mbit/s
95th percentile per-packet one-way delay: 14.733 ms
Loss rate: 0.16%
```
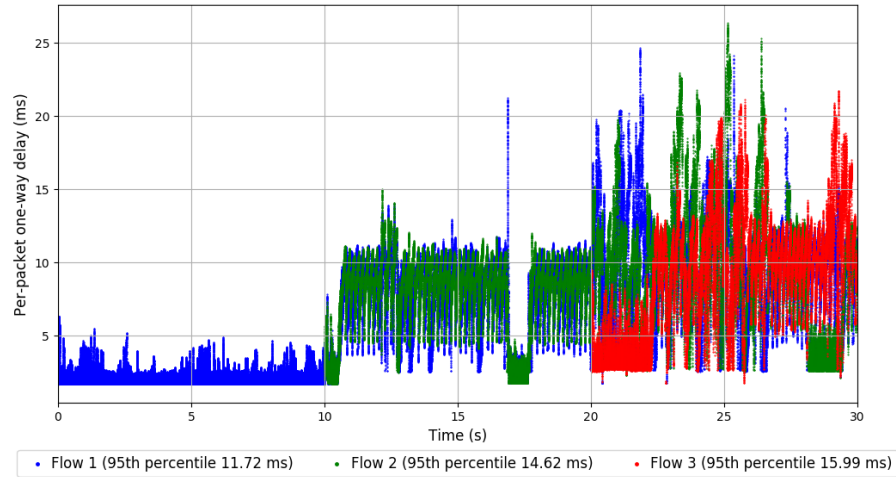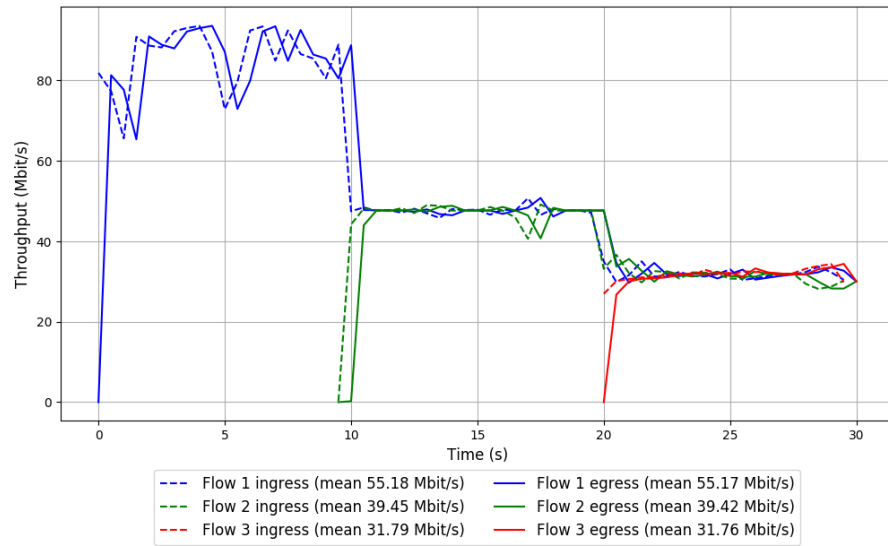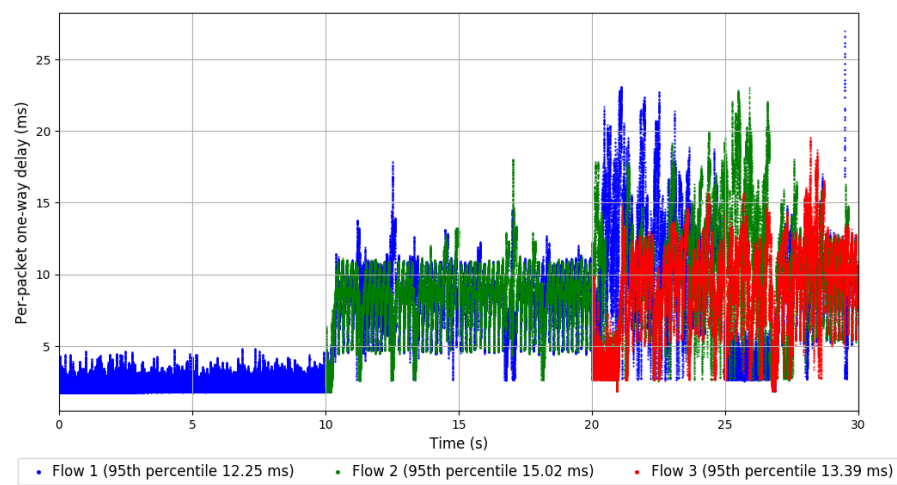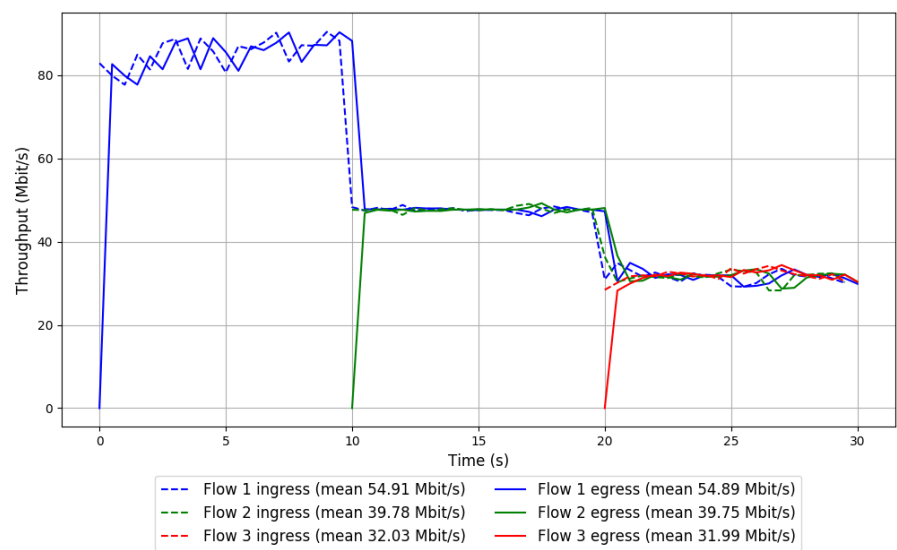
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 56.42 Mbit/s)   Flow 1 egress (mean 56.39 Mbit/s)
Flow 2 ingress (mean 39.94 Mbit/s)   Flow 2 egress (mean 39.91 Mbit/s)
Flow 3 ingress (mean 32.46 Mbit/s)   Flow 3 egress (mean 32.42 Mbit/s)

Flow 1 (95th percentile 11.79 ms)   Flow 2 (95th percentile 12.02 ms)   Flow 3 (95th percentile 14.73 ms)

```
Run 2: Statistics of Copa

Start at: 2019-09-18 23:23:56
End at: 2019-09-18 23:24:26
Local clock offset: -7.956 ms
Remote clock offset: -2.609 ms


# Below is generated by plot.py at 2019-09-19 01:04:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.99 Mbit/s
95th percentile per-packet one-way delay: 13.351 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 55.17 Mbit/s
95th percentile per-packet one-way delay: 11.724 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.42 Mbit/s
95th percentile per-packet one-way delay: 14.619 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 31.76 Mbit/s
95th percentile per-packet one-way delay: 15.995 ms
Loss rate: 0.15%
```
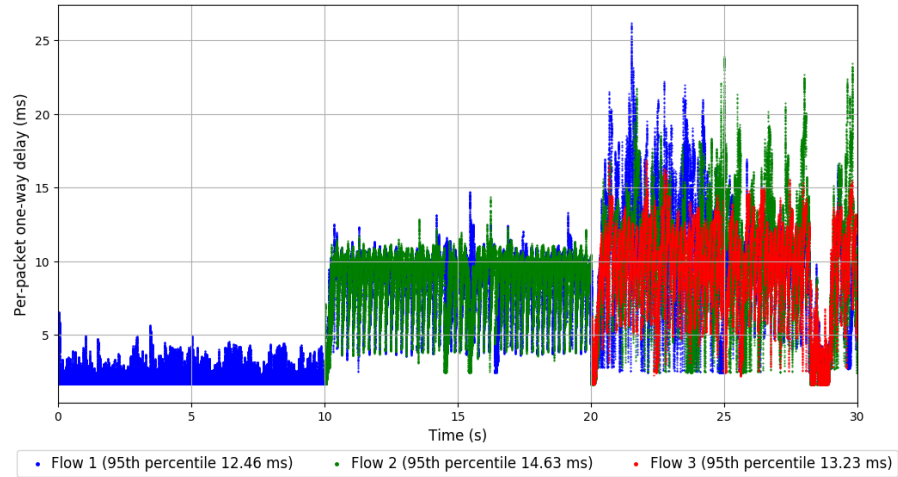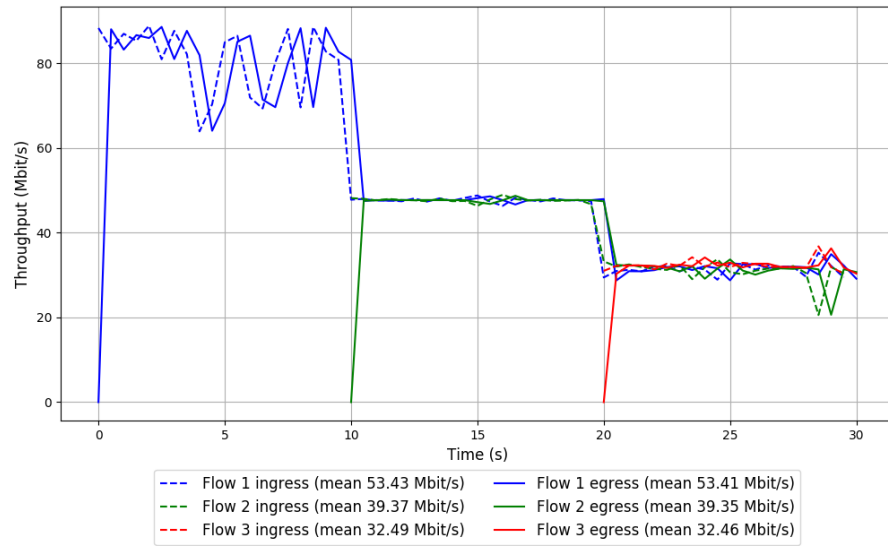
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 55.18 Mbit/s)   Flow 1 egress (mean 55.17 Mbit/s)
Flow 2 ingress (mean 39.45 Mbit/s)   Flow 2 egress (mean 39.42 Mbit/s)
Flow 3 ingress (mean 31.79 Mbit/s)   Flow 3 egress (mean 31.76 Mbit/s)

Flow 1 (95th percentile 11.72 ms)   Flow 2 (95th percentile 14.62 ms)   Flow 3 (95th percentile 15.99 ms)

```
Run 3: Statistics of Copa

Start at: 2019-09-18 23:51:27
End at: 2019-09-18 23:51:57
Local clock offset: -11.504 ms
Remote clock offset: -1.654 ms


# Below is generated by plot.py at 2019-09-19 01:04:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.99 Mbit/s
95th percentile per-packet one-way delay: 13.317 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 54.89 Mbit/s
95th percentile per-packet one-way delay: 12.253 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.75 Mbit/s
95th percentile per-packet one-way delay: 15.017 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 31.99 Mbit/s
95th percentile per-packet one-way delay: 13.394 ms
Loss rate: 0.15%
```

Run 3: Report of Copa — Data Link

- - - Flow 1 ingress (mean 54.91 Mbit/s) —— Flow 1 egress (mean 54.89 Mbit/s)
- - - Flow 2 ingress (mean 39.78 Mbit/s) —— Flow 2 egress (mean 39.75 Mbit/s)
- - - Flow 3 ingress (mean 32.03 Mbit/s) —— Flow 3 egress (mean 31.99 Mbit/s)

- Flow 1 (95th percentile 12.25 ms)   • Flow 2 (95th percentile 15.02 ms)   • Flow 3 (95th percentile 13.39 ms)

```
Run 4: Statistics of Copa

Start at: 2019-09-19 00:19:02
End at: 2019-09-19 00:19:32
Local clock offset: -7.977 ms
Remote clock offset: -0.264 ms


# Below is generated by plot.py at 2019-09-19 01:04:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.40 Mbit/s
95th percentile per-packet one-way delay: 13.432 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 53.41 Mbit/s
95th percentile per-packet one-way delay: 12.463 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.35 Mbit/s
95th percentile per-packet one-way delay: 14.626 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 32.46 Mbit/s
95th percentile per-packet one-way delay: 13.235 ms
Loss rate: 0.14%
```
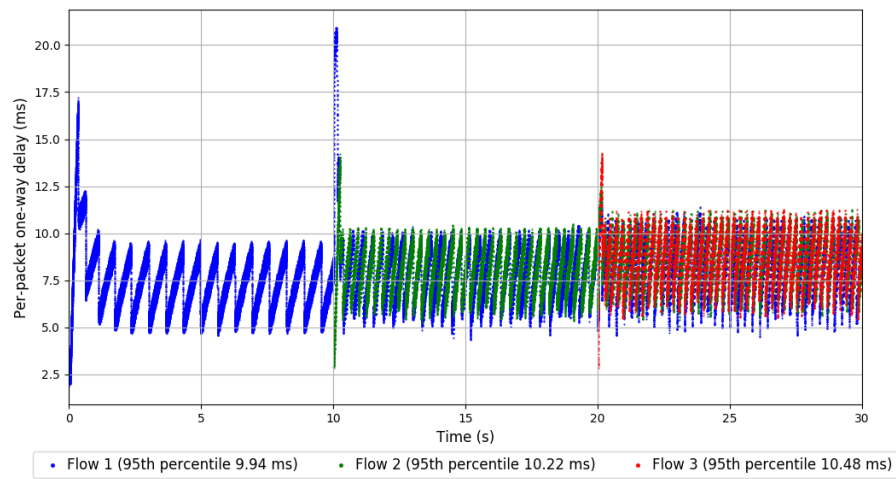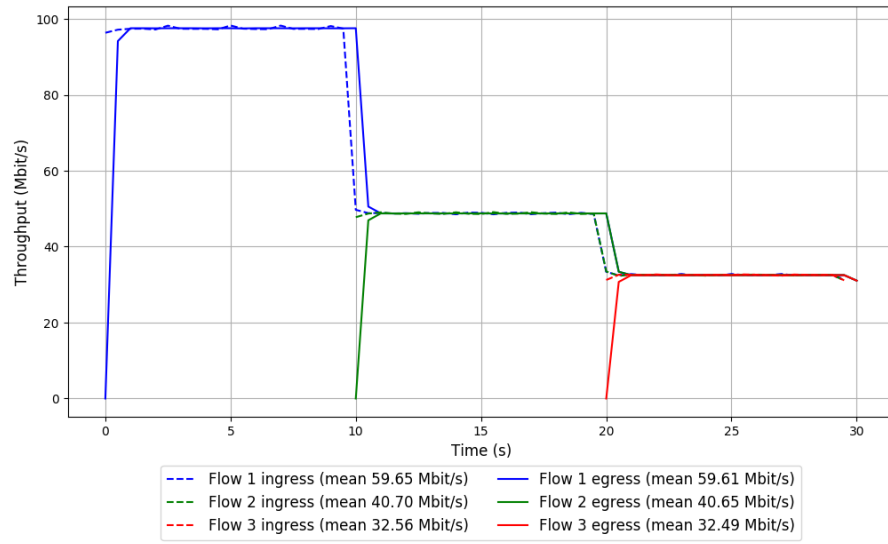
Run 4: Report of Copa — Data Link

- - - Flow 1 ingress (mean 53.43 Mbit/s) —— Flow 1 egress (mean 53.41 Mbit/s)
- - - Flow 2 ingress (mean 39.37 Mbit/s) —— Flow 2 egress (mean 39.35 Mbit/s)
- - - Flow 3 ingress (mean 32.49 Mbit/s) —— Flow 3 egress (mean 32.46 Mbit/s)

- Flow 1 (95th percentile 12.46 ms)   · Flow 2 (95th percentile 14.63 ms)   · Flow 3 (95th percentile 13.23 ms)

```
Run 5: Statistics of Copa

Start at: 2019-09-19 00:46:34
End at: 2019-09-19 00:47:04
Local clock offset: -3.457 ms
Remote clock offset: -0.3 ms


# Below is generated by plot.py at 2019-09-19 01:05:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.06 Mbit/s
95th percentile per-packet one-way delay: 13.478 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 54.55 Mbit/s
95th percentile per-packet one-way delay: 12.409 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 39.34 Mbit/s
95th percentile per-packet one-way delay: 15.860 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 31.07 Mbit/s
95th percentile per-packet one-way delay: 13.084 ms
Loss rate: 0.09%
```

Run 5: Report of Copa — Data Link
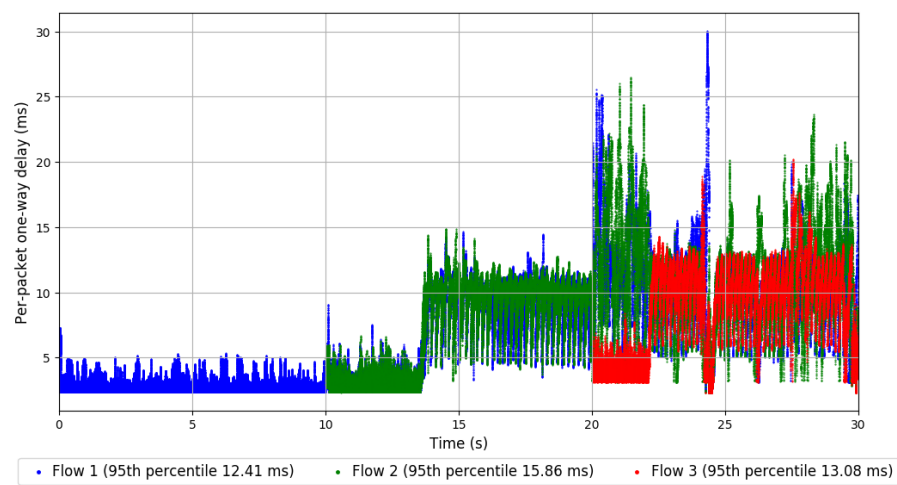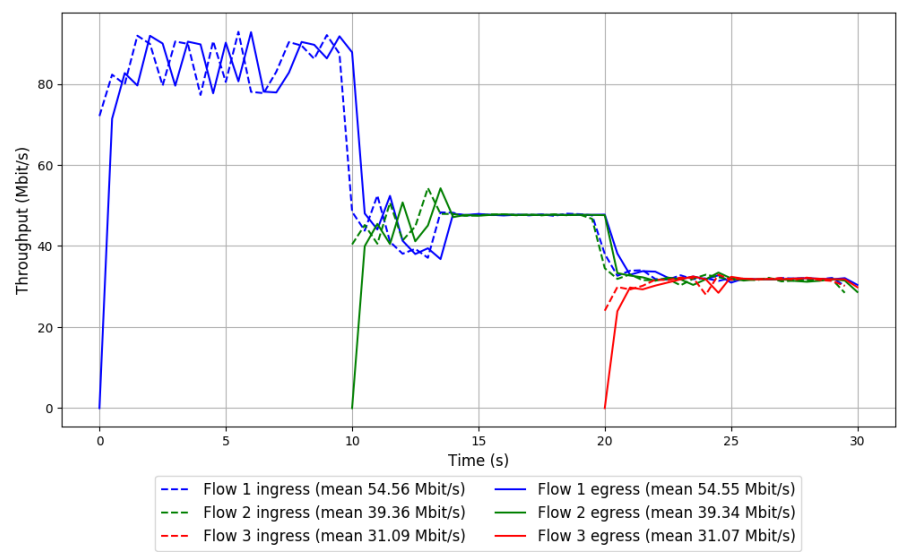
```
Run 1: Statistics of TCP Cubic

Start at: 2019-09-18 23:09:04
End at: 2019-09-18 23:09:34
Local clock offset: -4.006 ms
Remote clock offset: -2.765 ms


# Below is generated by plot.py at 2019-09-19 01:05:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.236 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 9.944 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.223 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.484 ms
Loss rate: 0.26%
```

Run 1: Report of TCP Cubic — Data Link

- - - - Flow 1 ingress (mean 59.65 Mbit/s)   —— Flow 1 egress (mean 59.61 Mbit/s)
- - - - Flow 2 ingress (mean 40.70 Mbit/s)   —— Flow 2 egress (mean 40.65 Mbit/s)
- - - - Flow 3 ingress (mean 32.56 Mbit/s)   —— Flow 3 egress (mean 32.49 Mbit/s)

• Flow 1 (95th percentile 9.94 ms)   • Flow 2 (95th percentile 10.22 ms)   • Flow 3 (95th percentile 10.48 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2019-09-18 23:36:35
End at: 2019-09-18 23:37:05
Local clock offset: -8.884 ms
Remote clock offset: -1.919 ms


# Below is generated by plot.py at 2019-09-19 01:05:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.601 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 10.407 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.791 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 10.742 ms
Loss rate: 0.25%
```

Run 2: Report of TCP Cubic — Data Link
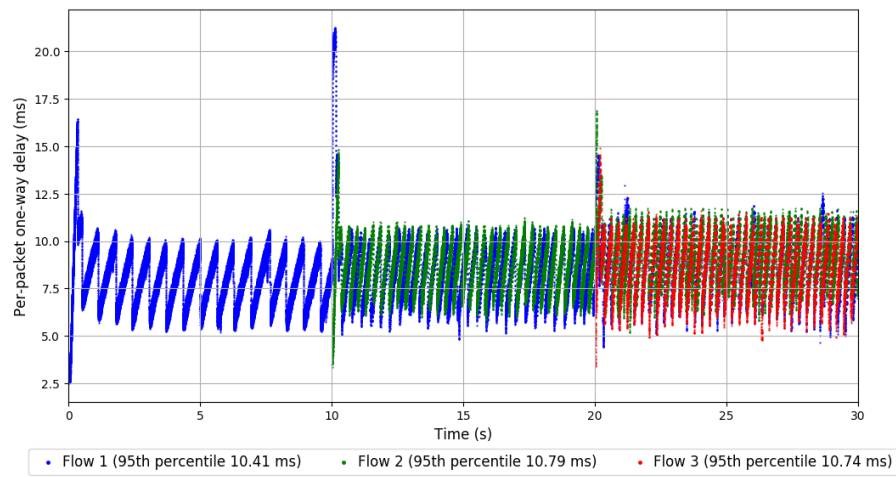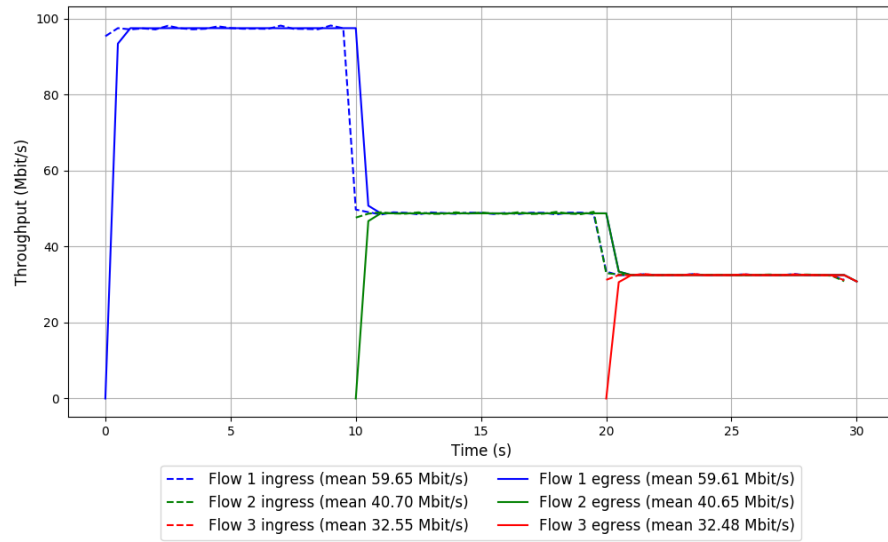
```
Run 3: Statistics of TCP Cubic

Start at: 2019-09-19 00:04:09
End at: 2019-09-19 00:04:39
Local clock offset: -10.649 ms
Remote clock offset: -0.582 ms


# Below is generated by plot.py at 2019-09-19 01:05:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.339 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 9.183 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.514 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 9.524 ms
Loss rate: 0.20%
```

Run 3: Report of TCP Cubic — Data Link
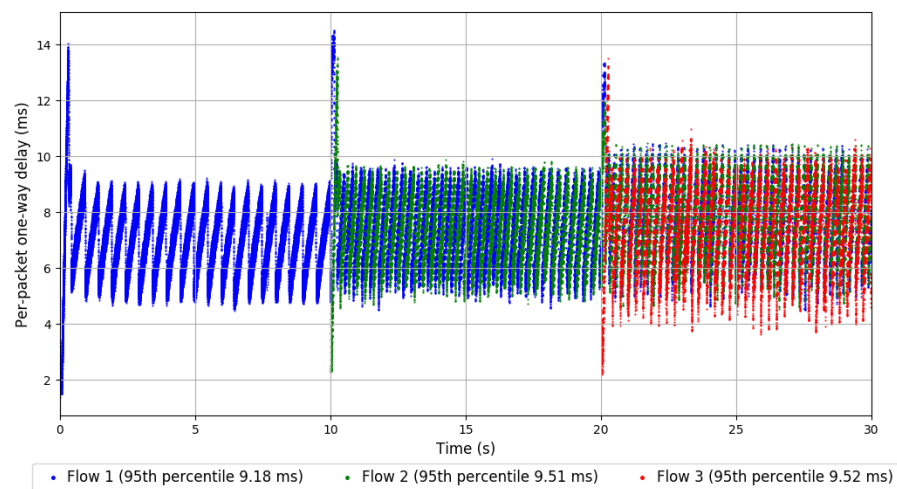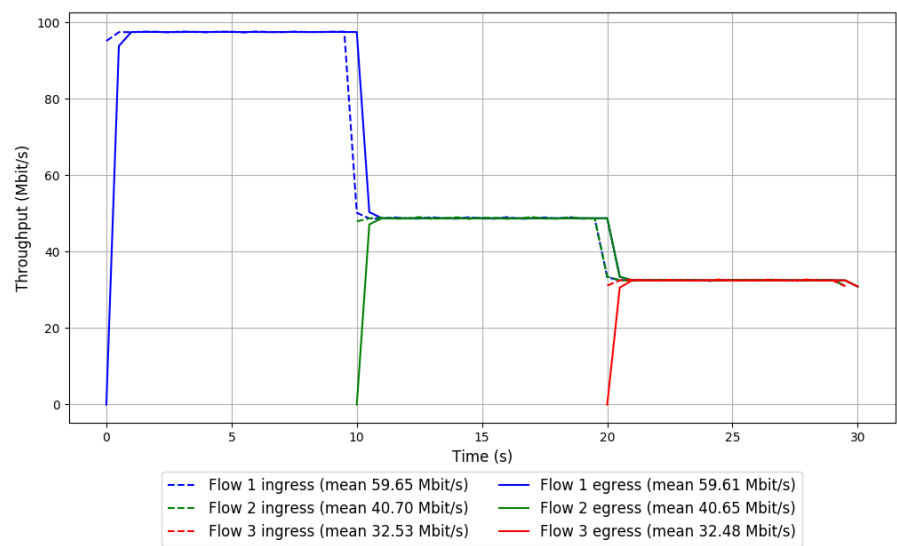
```
Run 4: Statistics of TCP Cubic

Start at: 2019-09-19 00:31:42
End at: 2019-09-19 00:32:12
Local clock offset: -7.205 ms
Remote clock offset: -0.296 ms


# Below is generated by plot.py at 2019-09-19 01:05:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 9.347 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.60 Mbit/s
95th percentile per-packet one-way delay: 9.024 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.562 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 9.700 ms
Loss rate: 0.24%
```

Run 4: Report of TCP Cubic — Data Link
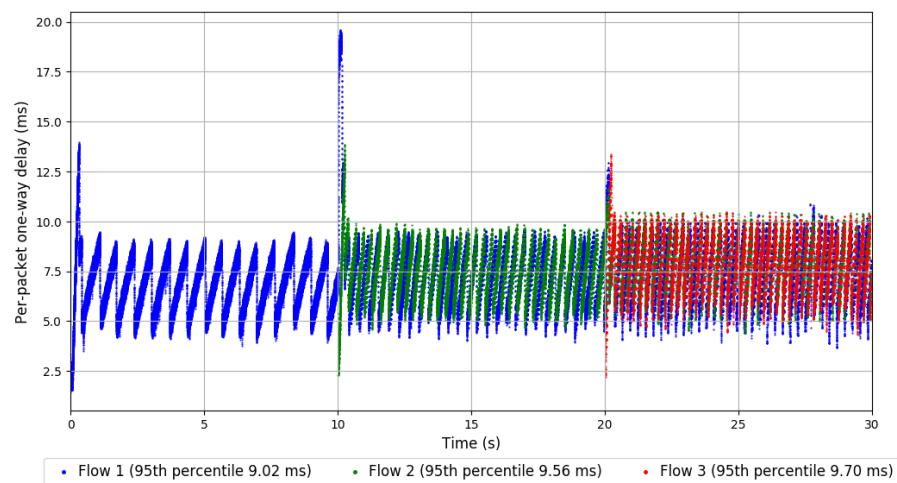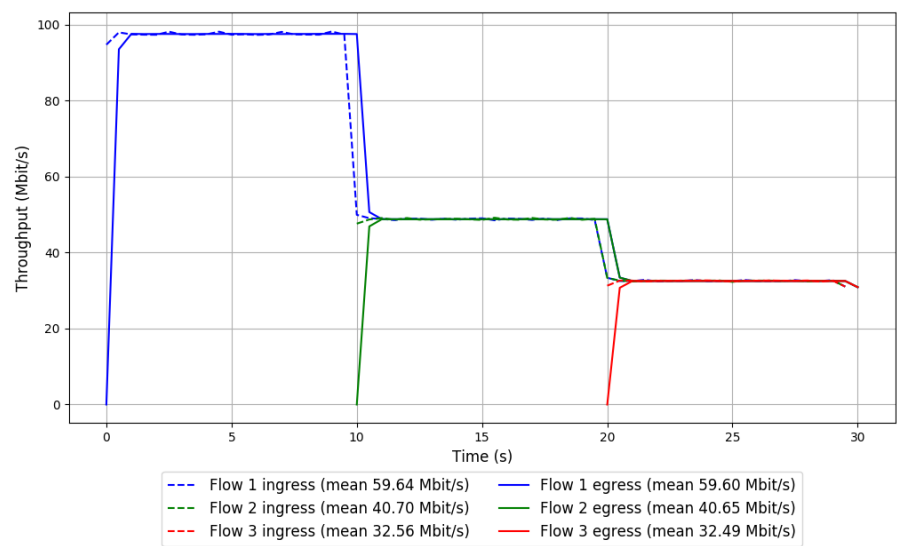
```
Run 5: Statistics of TCP Cubic

Start at: 2019-09-19 00:59:14
End at: 2019-09-19 00:59:44
Local clock offset: -2.64 ms
Remote clock offset: -0.474 ms


# Below is generated by plot.py at 2019-09-19 01:05:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 10.520 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 10.506 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 10.295 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 10.726 ms
Loss rate: 0.24%
```
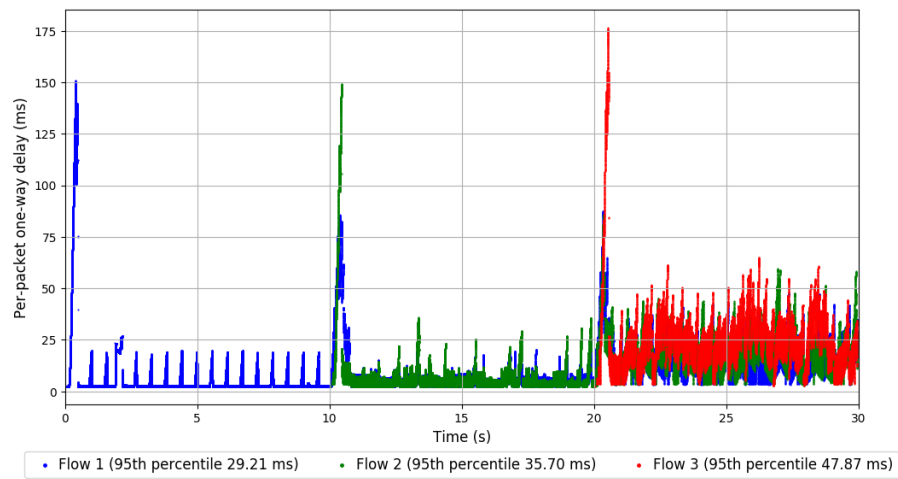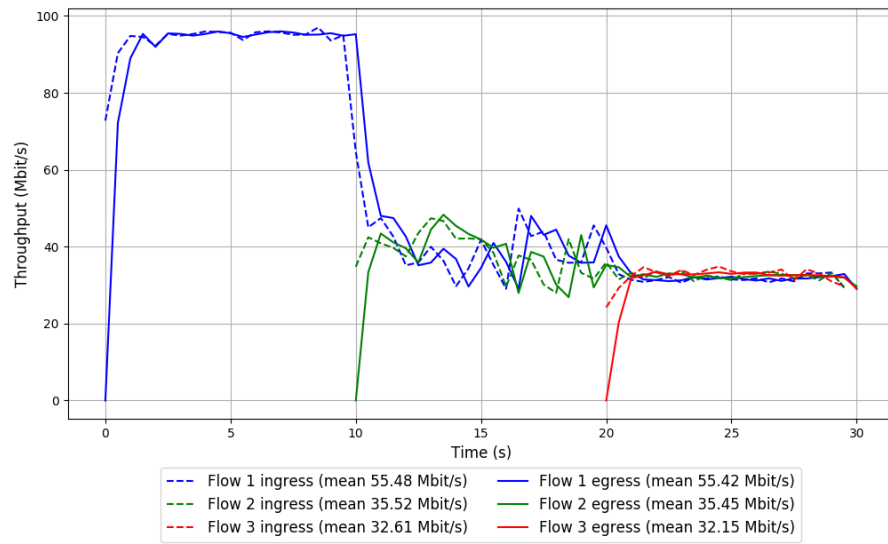
Run 5: Report of TCP Cubic — Data Link
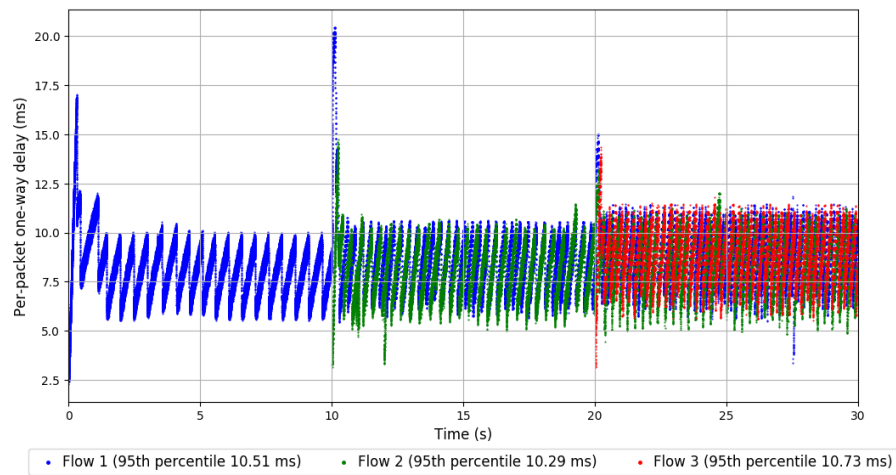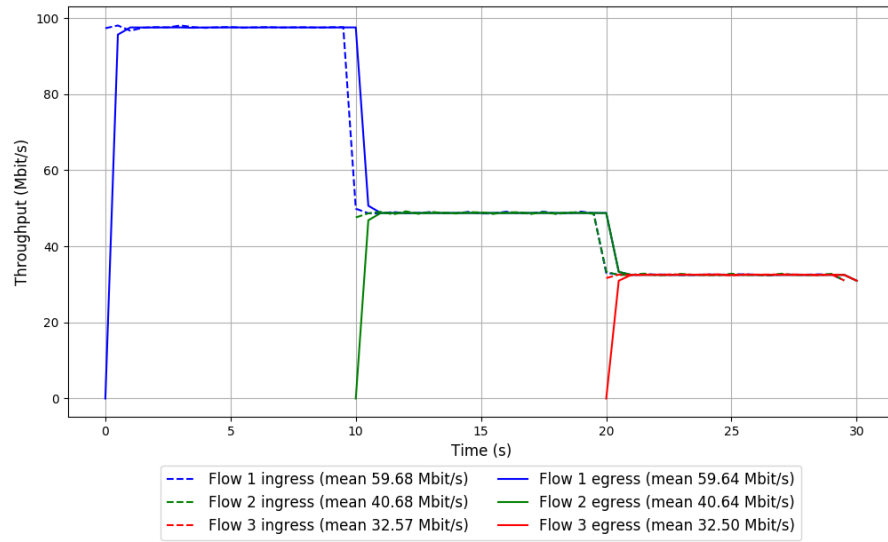
```
Run 1: Statistics of FillP

Start at: 2019-09-18 22:49:31
End at: 2019-09-18 22:50:01
Local clock offset: 1.498 ms
Remote clock offset: -2.295 ms


# Below is generated by plot.py at 2019-09-19 01:05:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.04 Mbit/s
95th percentile per-packet one-way delay: 49.479 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 56.72 Mbit/s
95th percentile per-packet one-way delay: 32.636 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 43.12 Mbit/s
95th percentile per-packet one-way delay: 58.117 ms
Loss rate: 2.95%
-- Flow 3:
Average throughput: 31.93 Mbit/s
95th percentile per-packet one-way delay: 49.060 ms
Loss rate: 1.91%
```

Run 1: Report of FillP — Data Link
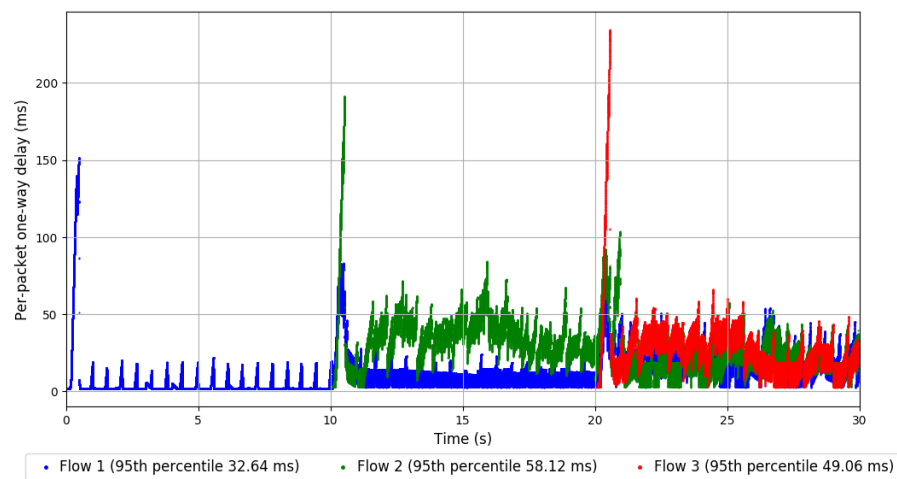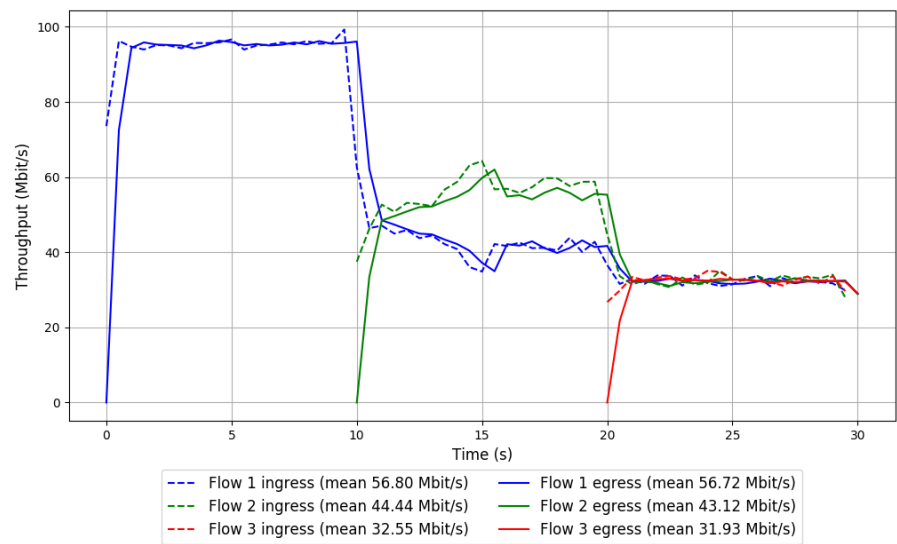
```
Run 2: Statistics of FillP

Start at: 2019-09-18 23:17:04
End at: 2019-09-18 23:17:34
Local clock offset: -5.799 ms
Remote clock offset: -2.678 ms


# Below is generated by plot.py at 2019-09-19 01:05:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.66 Mbit/s
95th percentile per-packet one-way delay: 37.280 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 55.42 Mbit/s
95th percentile per-packet one-way delay: 29.211 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 35.45 Mbit/s
95th percentile per-packet one-way delay: 35.703 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.15 Mbit/s
95th percentile per-packet one-way delay: 47.869 ms
Loss rate: 1.34%
```
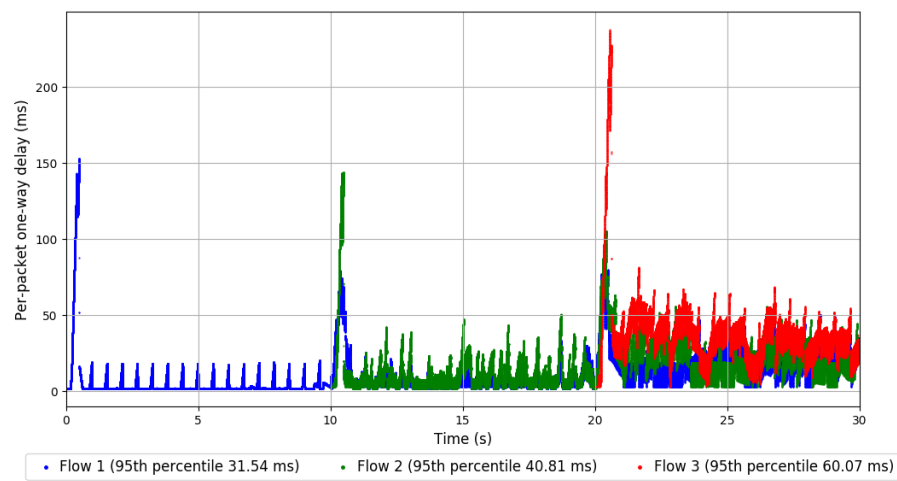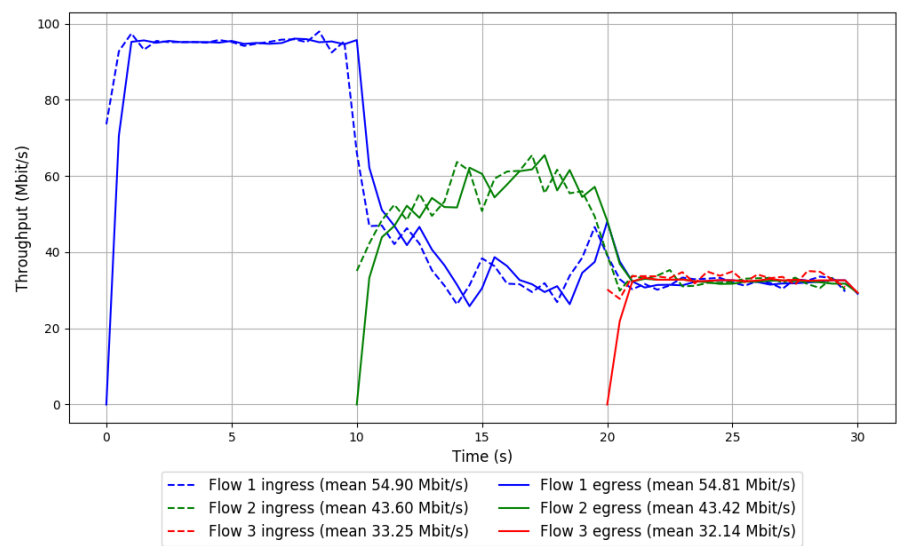
Run 2: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 55.48 Mbit/s) ——— Flow 1 egress (mean 55.42 Mbit/s)
- - - - Flow 2 ingress (mean 35.52 Mbit/s) ——— Flow 2 egress (mean 35.45 Mbit/s)
- - - - Flow 3 ingress (mean 32.61 Mbit/s) ——— Flow 3 egress (mean 32.15 Mbit/s)

• Flow 1 (95th percentile 29.21 ms)   • Flow 2 (95th percentile 35.70 ms)   • Flow 3 (95th percentile 47.87 ms)

```
Run 3: Statistics of FillP

Start at: 2019-09-18 23:44:35
End at: 2019-09-18 23:45:05
Local clock offset: -10.616 ms
Remote clock offset: -1.684 ms


# Below is generated by plot.py at 2019-09-19 01:05:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.38 Mbit/s
95th percentile per-packet one-way delay: 47.263 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 54.81 Mbit/s
95th percentile per-packet one-way delay: 31.544 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 43.42 Mbit/s
95th percentile per-packet one-way delay: 40.815 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 32.14 Mbit/s
95th percentile per-packet one-way delay: 60.073 ms
Loss rate: 3.27%
```
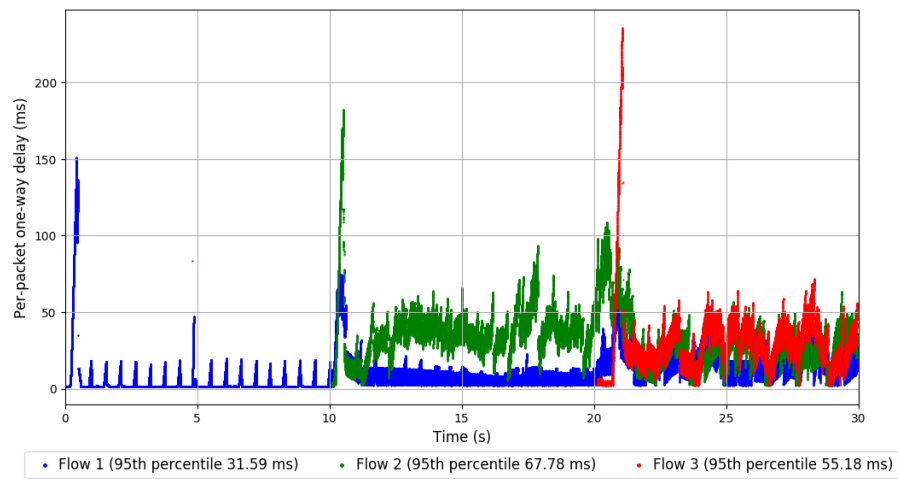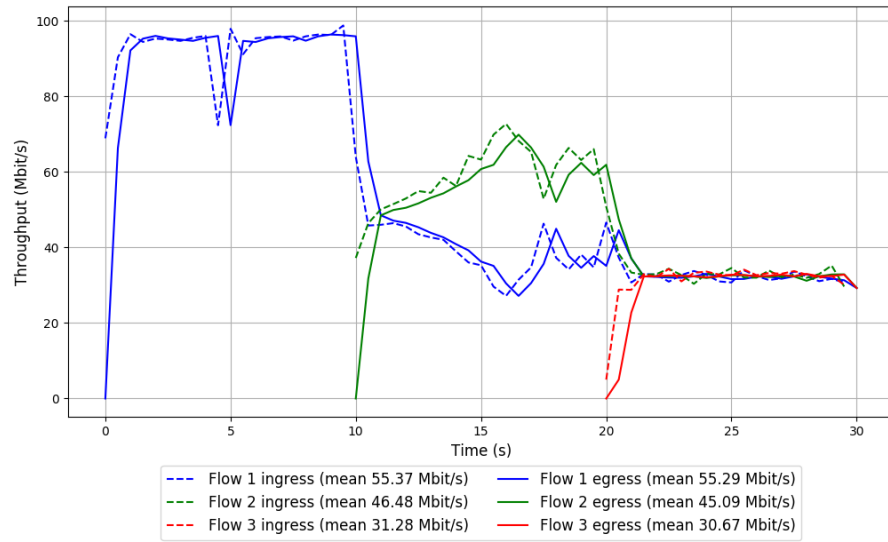
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 54.90 Mbit/s)   Flow 1 egress (mean 54.81 Mbit/s)
Flow 2 ingress (mean 43.60 Mbit/s)   Flow 2 egress (mean 43.42 Mbit/s)
Flow 3 ingress (mean 33.25 Mbit/s)   Flow 3 egress (mean 32.14 Mbit/s)

Flow 1 (95th percentile 31.54 ms)   Flow 2 (95th percentile 40.81 ms)   Flow 3 (95th percentile 60.07 ms)

```
Run 4: Statistics of FillP

Start at: 2019-09-19 00:12:09
End at: 2019-09-19 00:12:39
Local clock offset: -7.864 ms
Remote clock offset: -0.515 ms


# Below is generated by plot.py at 2019-09-19 01:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.99 Mbit/s
95th percentile per-packet one-way delay: 48.483 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 54.33 Mbit/s
95th percentile per-packet one-way delay: 31.596 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 46.74 Mbit/s
95th percentile per-packet one-way delay: 54.981 ms
Loss rate: 3.17%
-- Flow 3:
Average throughput: 31.67 Mbit/s
95th percentile per-packet one-way delay: 36.295 ms
Loss rate: 0.62%
```
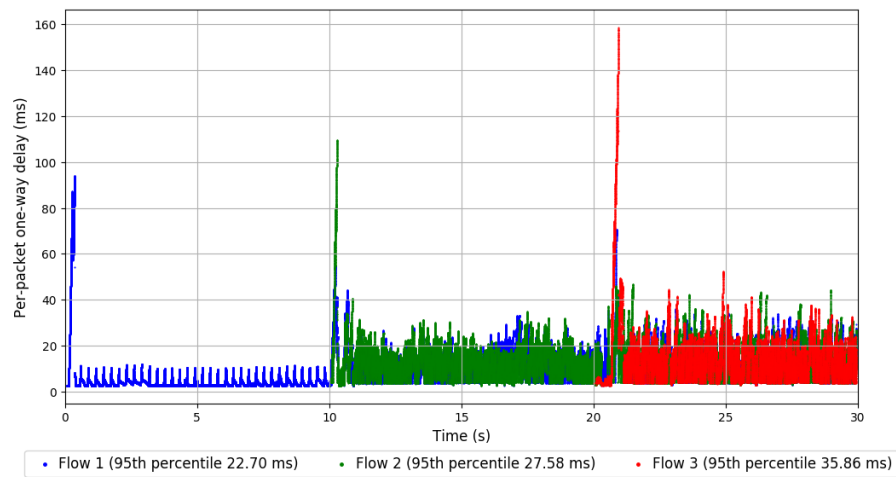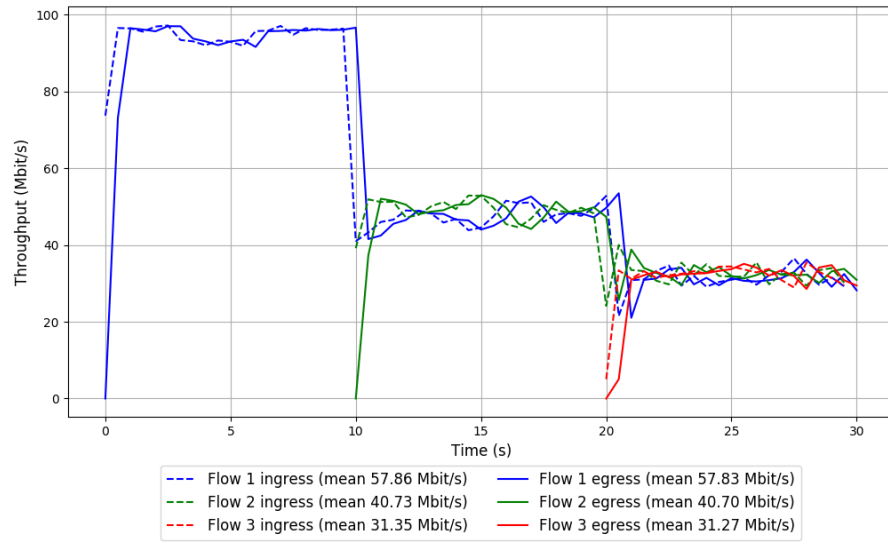
Run 4: Report of FillP — Data Link
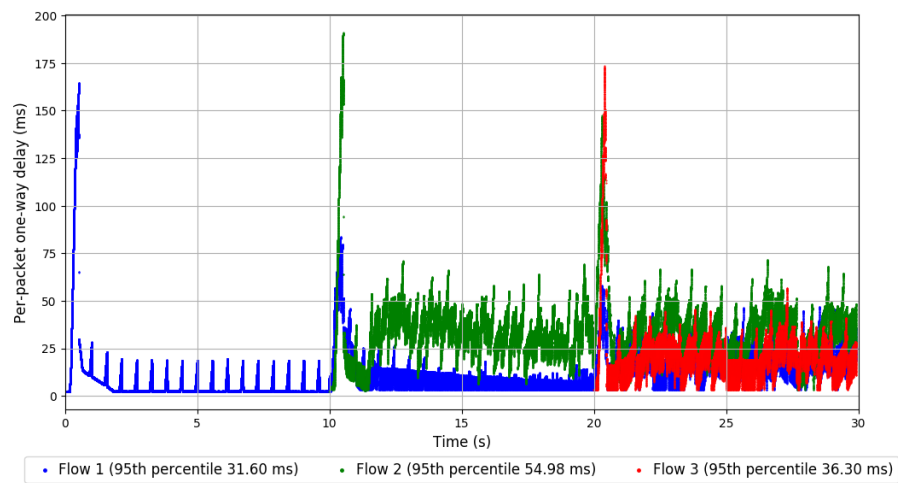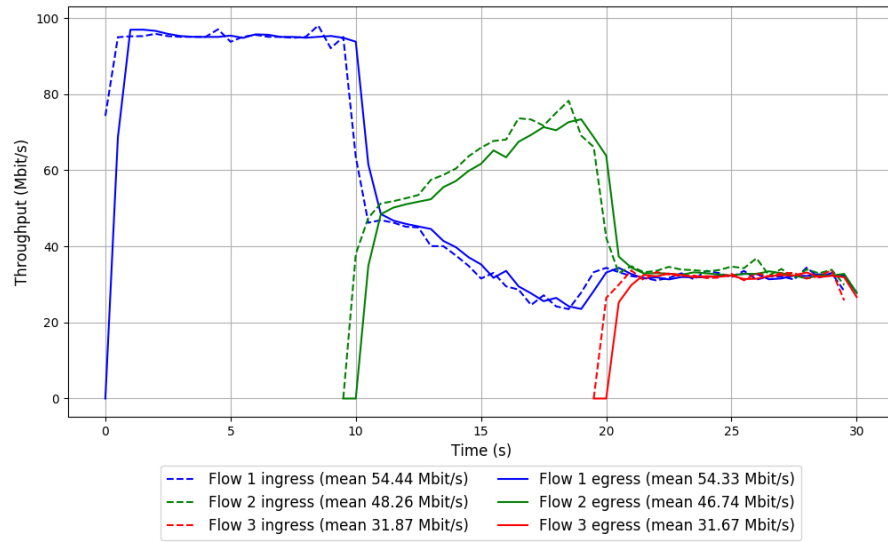
```
Run 5: Statistics of FillP

Start at: 2019-09-19 00:39:43
End at: 2019-09-19 00:40:13
Local clock offset: -5.148 ms
Remote clock offset: -0.246 ms


# Below is generated by plot.py at 2019-09-19 01:06:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.49 Mbit/s
95th percentile per-packet one-way delay: 53.668 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 55.29 Mbit/s
95th percentile per-packet one-way delay: 31.595 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 45.09 Mbit/s
95th percentile per-packet one-way delay: 67.784 ms
Loss rate: 2.99%
-- Flow 3:
Average throughput: 30.67 Mbit/s
95th percentile per-packet one-way delay: 55.182 ms
Loss rate: 1.60%
```

Run 5: Report of FillP — Data Link

- - - Flow 1 ingress (mean 55.37 Mbit/s) ── Flow 1 egress (mean 55.29 Mbit/s)
- - - Flow 2 ingress (mean 46.48 Mbit/s) ── Flow 2 egress (mean 45.09 Mbit/s)
- - - Flow 3 ingress (mean 31.28 Mbit/s) ── Flow 3 egress (mean 30.67 Mbit/s)

• Flow 1 (95th percentile 31.59 ms) • Flow 2 (95th percentile 67.78 ms) • Flow 3 (95th percentile 55.18 ms)
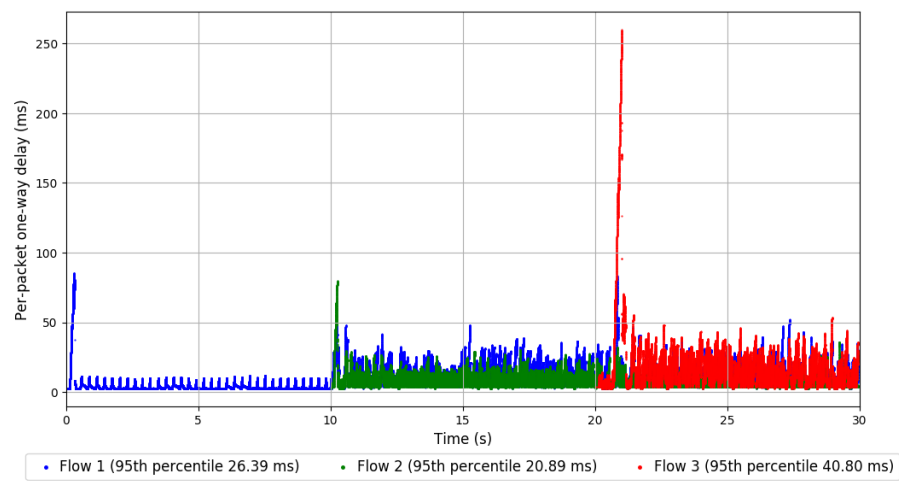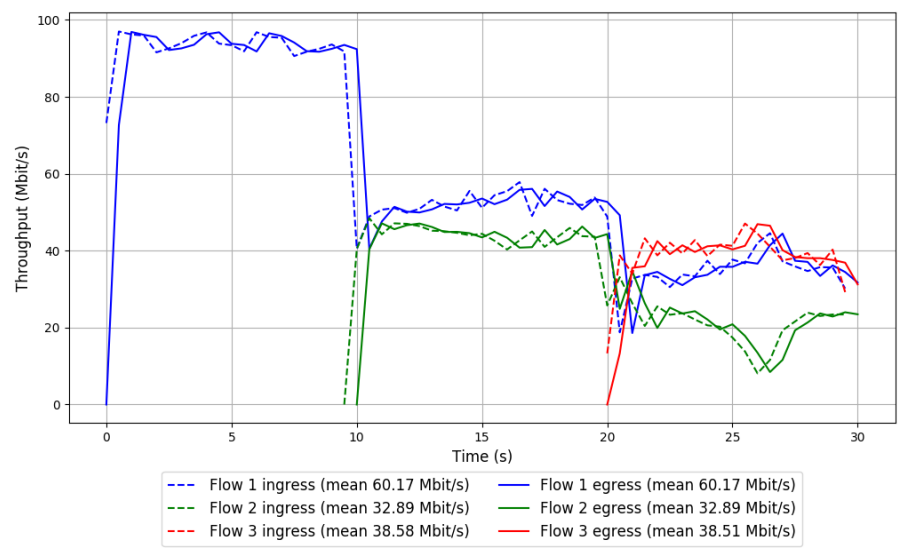
44

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-09-18 23:04:32
End at: 2019-09-18 23:05:02
Local clock offset: -0.944 ms
Remote clock offset: -2.556 ms


# Below is generated by plot.py at 2019-09-19 01:06:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.30 Mbit/s
95th percentile per-packet one-way delay: 26.240 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 57.83 Mbit/s
95th percentile per-packet one-way delay: 22.705 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 40.70 Mbit/s
95th percentile per-packet one-way delay: 27.576 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 31.27 Mbit/s
95th percentile per-packet one-way delay: 35.863 ms
Loss rate: 0.22%
```

Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 57.86 Mbit/s) --- Flow 1 egress (mean 57.83 Mbit/s)
Flow 2 ingress (mean 40.73 Mbit/s) --- Flow 2 egress (mean 40.70 Mbit/s)
Flow 3 ingress (mean 31.35 Mbit/s) --- Flow 3 egress (mean 31.27 Mbit/s)

Flow 1 (95th percentile 22.70 ms)   Flow 2 (95th percentile 27.58 ms)   Flow 3 (95th percentile 35.86 ms)

46

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-09-18 23:32:03
End at: 2019-09-18 23:32:33
Local clock offset: -8.346 ms
Remote clock offset: -2.173 ms


# Below is generated by plot.py at 2019-09-19 01:06:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.85 Mbit/s
95th percentile per-packet one-way delay: 28.364 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 60.17 Mbit/s
95th percentile per-packet one-way delay: 26.386 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 32.89 Mbit/s
95th percentile per-packet one-way delay: 20.893 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.51 Mbit/s
95th percentile per-packet one-way delay: 40.799 ms
Loss rate: 0.22%
```
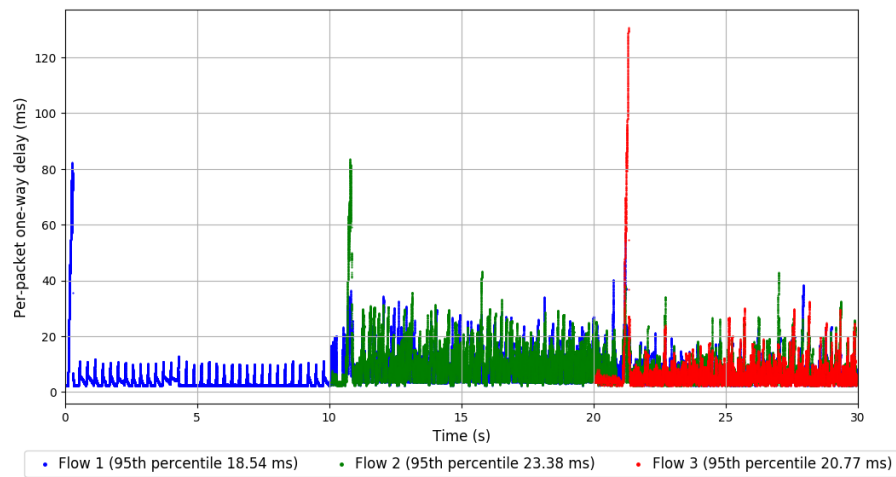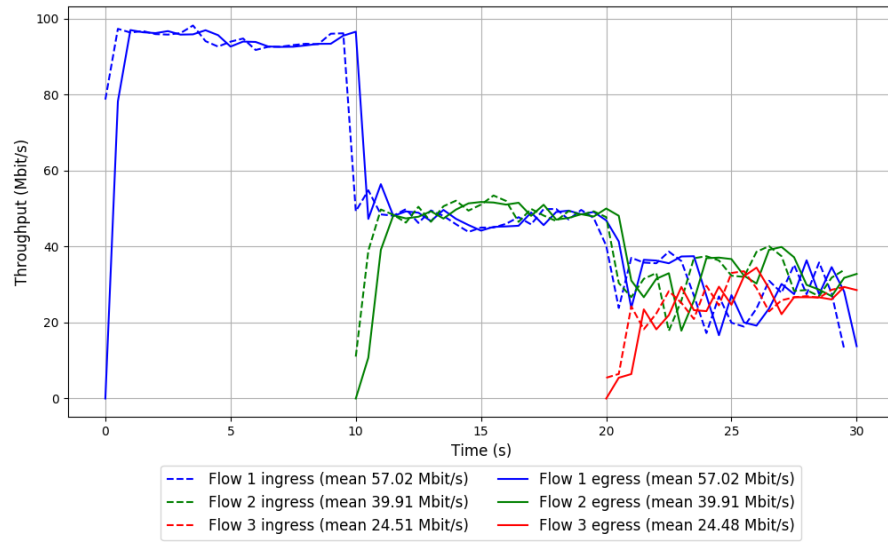
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 60.17 Mbit/s) --- Flow 1 egress (mean 60.17 Mbit/s)
Flow 2 ingress (mean 32.89 Mbit/s) --- Flow 2 egress (mean 32.89 Mbit/s)
Flow 3 ingress (mean 38.58 Mbit/s) --- Flow 3 egress (mean 38.51 Mbit/s)

Flow 1 (95th percentile 26.39 ms)   Flow 2 (95th percentile 20.89 ms)   Flow 3 (95th percentile 40.80 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-09-18 23:59:36
End at: 2019-09-19 00:00:06
Local clock offset: -12.297 ms
Remote clock offset: -0.832 ms

# Below is generated by plot.py at 2019-09-19 01:06:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.95 Mbit/s
95th percentile per-packet one-way delay: 26.719 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 57.55 Mbit/s
95th percentile per-packet one-way delay: 23.524 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.54 Mbit/s
95th percentile per-packet one-way delay: 28.813 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 31.26 Mbit/s
95th percentile per-packet one-way delay: 42.779 ms
Loss rate: 0.03%
```

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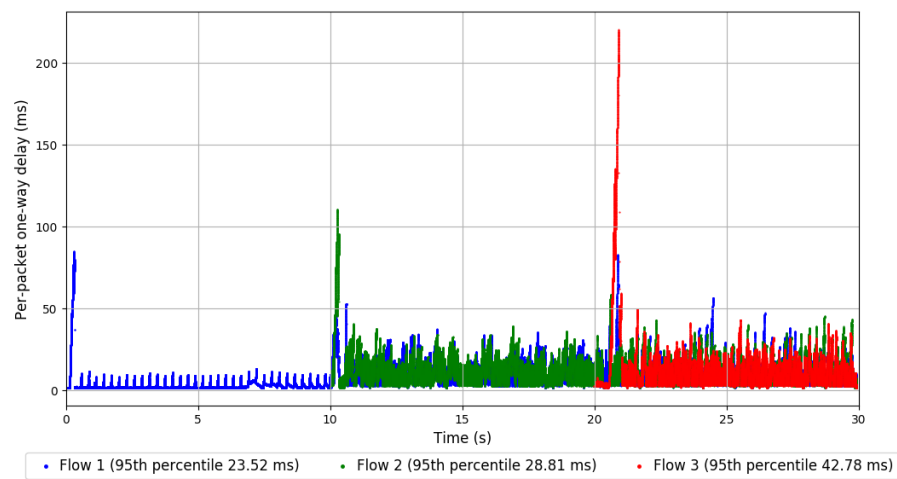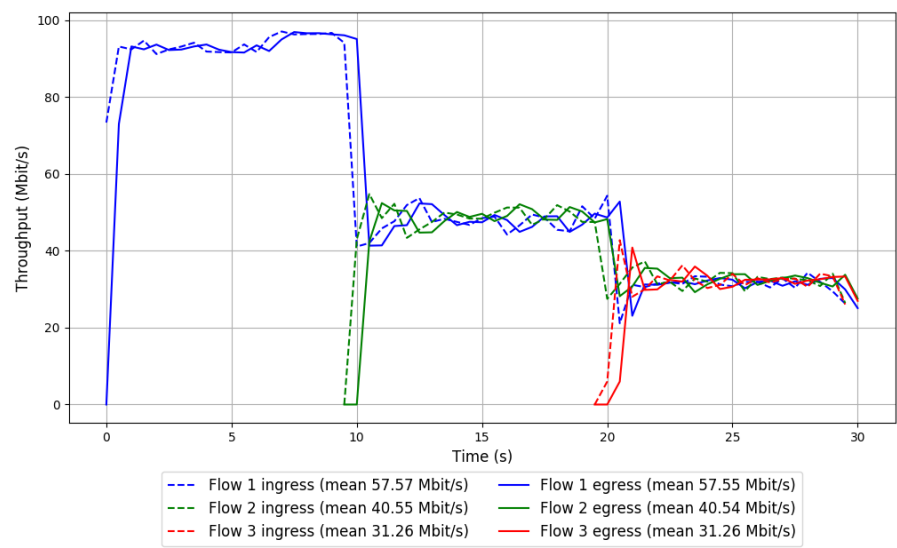
```
Run 4: Statistics of FillP-Sheep

Start at: 2019-09-19 00:27:10
End at: 2019-09-19 00:27:40
Local clock offset: -6.995 ms
Remote clock offset: -0.269 ms

# Below is generated by plot.py at 2019-09-19 01:06:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.69 Mbit/s
95th percentile per-packet one-way delay: 20.665 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 57.02 Mbit/s
95th percentile per-packet one-way delay: 18.540 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.91 Mbit/s
95th percentile per-packet one-way delay: 23.375 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 24.48 Mbit/s
95th percentile per-packet one-way delay: 20.769 ms
Loss rate: 0.17%
```

# Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 57.02 Mbit/s) --- Flow 1 egress (mean 57.02 Mbit/s)
Flow 2 ingress (mean 39.91 Mbit/s) --- Flow 2 egress (mean 39.91 Mbit/s)
Flow 3 ingress (mean 24.51 Mbit/s) --- Flow 3 egress (mean 24.48 Mbit/s)

Flow 1 (95th percentile 18.54 ms) • Flow 2 (95th percentile 23.38 ms) • Flow 3 (95th percentile 20.77 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-09-19 00:54:42
End at: 2019-09-19 00:55:12
Local clock offset: -2.831 ms
Remote clock offset: -0.428 ms


# Below is generated by plot.py at 2019-09-19 01:06:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.65 Mbit/s
95th percentile per-packet one-way delay: 26.625 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 60.24 Mbit/s
95th percentile per-packet one-way delay: 26.910 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.17 Mbit/s
95th percentile per-packet one-way delay: 21.092 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 35.15 Mbit/s
95th percentile per-packet one-way delay: 32.868 ms
Loss rate: 0.11%
```
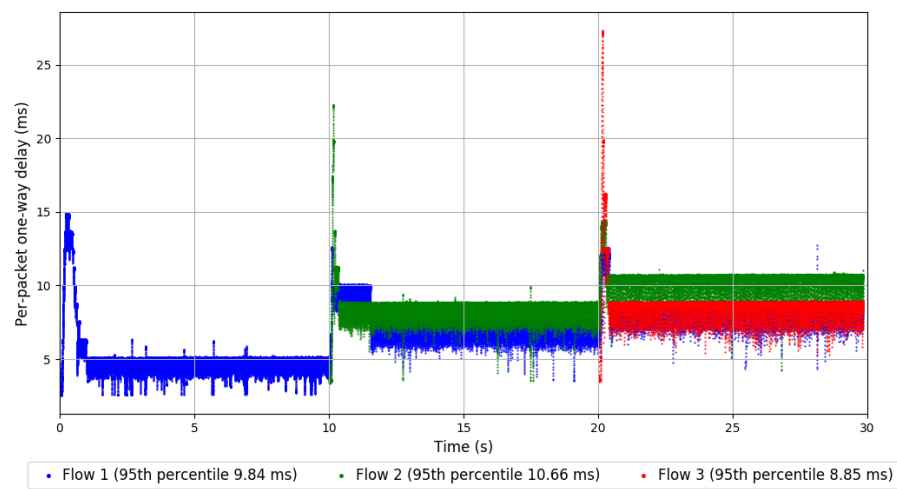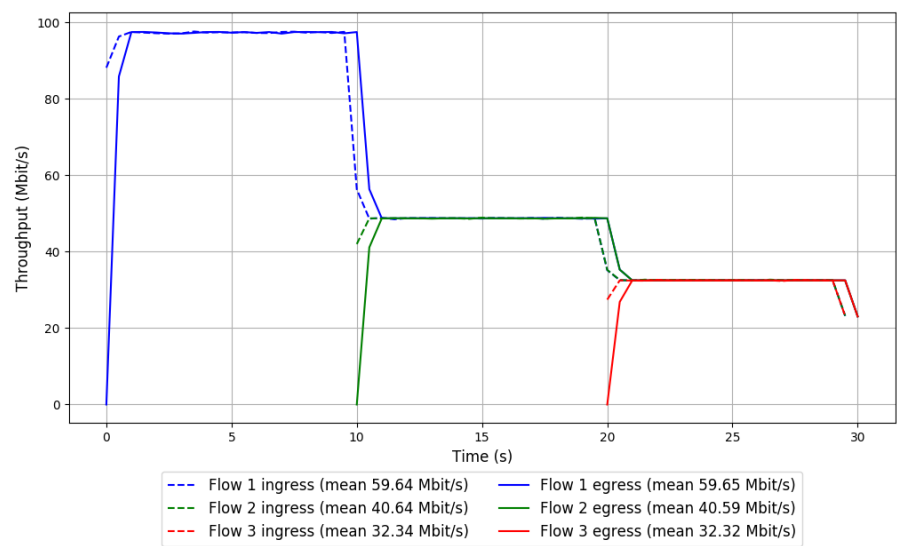
Run 5: Report of FillP-Sheep — Data Link
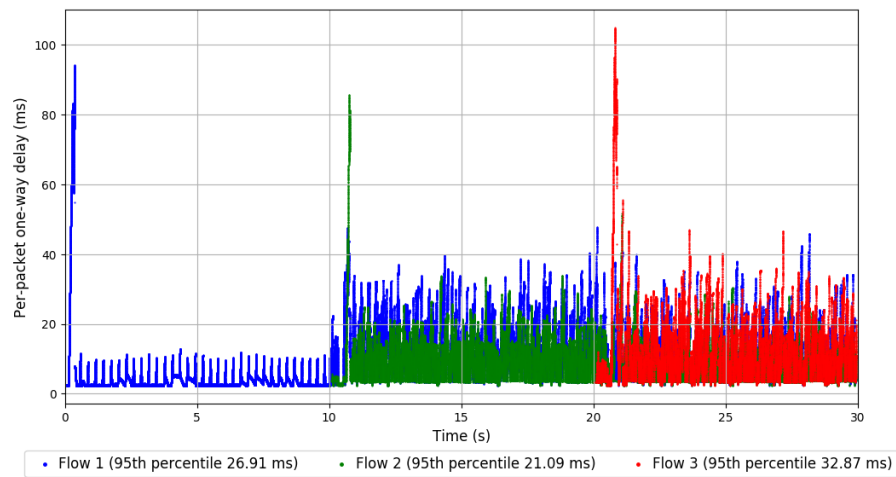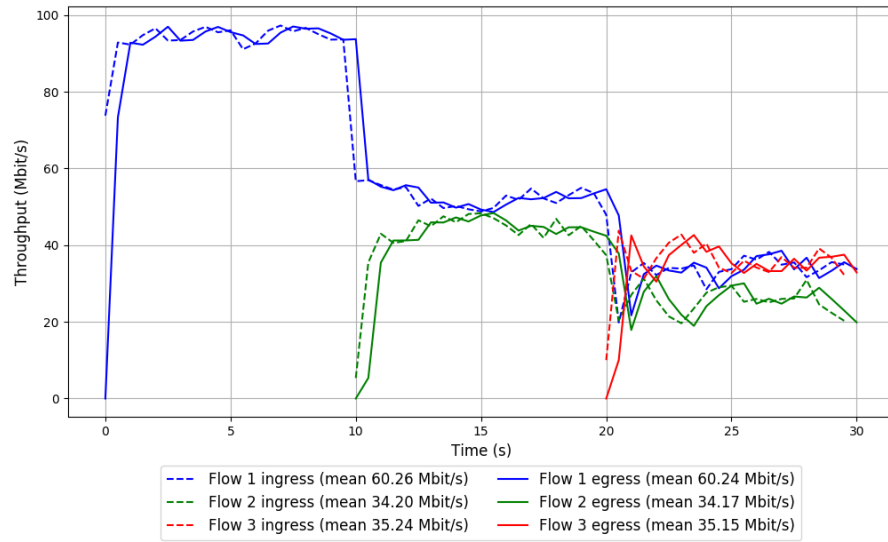
```
Run 1: Statistics of Indigo

Start at: 2019-09-18 22:48:20
End at: 2019-09-18 22:48:50
Local clock offset: 1.507 ms
Remote clock offset: -2.162 ms


# Below is generated by plot.py at 2019-09-19 01:06:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 9.343 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.65 Mbit/s
95th percentile per-packet one-way delay: 8.850 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 9.491 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.29 Mbit/s
95th percentile per-packet one-way delay: 7.839 ms
Loss rate: 0.12%
```
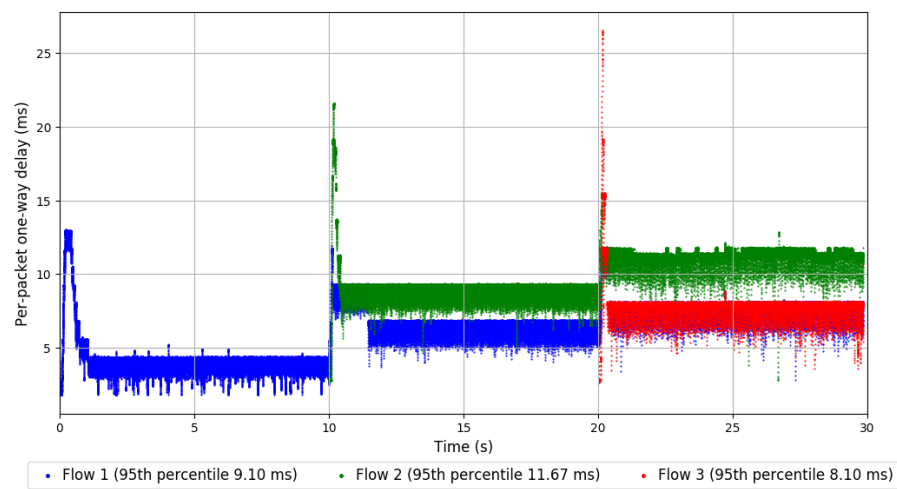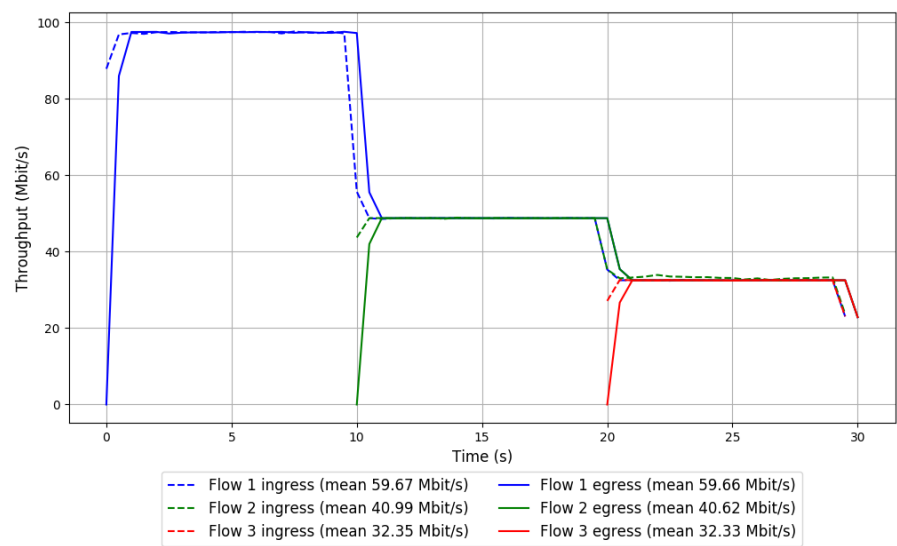
Run 1: Report of Indigo — Data Link
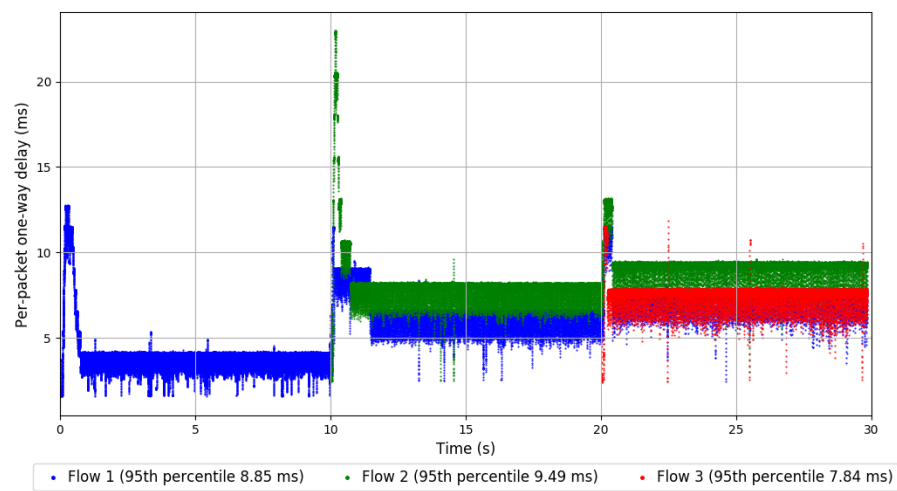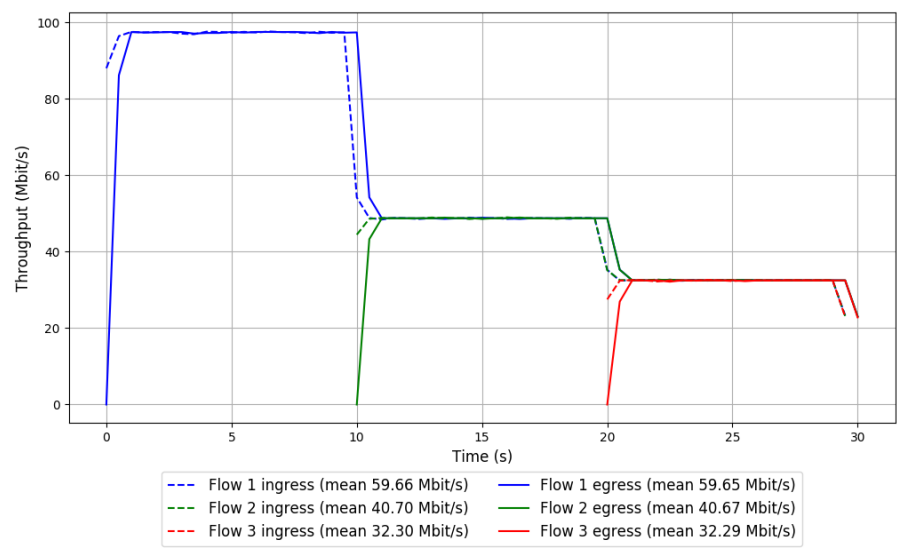
```
Run 2: Statistics of Indigo

Start at: 2019-09-18 23:15:53
End at: 2019-09-18 23:16:23
Local clock offset: -5.517 ms
Remote clock offset: -2.619 ms


# Below is generated by plot.py at 2019-09-19 01:06:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.26 Mbit/s
95th percentile per-packet one-way delay: 10.596 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 59.65 Mbit/s
95th percentile per-packet one-way delay: 9.844 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.59 Mbit/s
95th percentile per-packet one-way delay: 10.663 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 8.852 ms
Loss rate: 0.11%
```
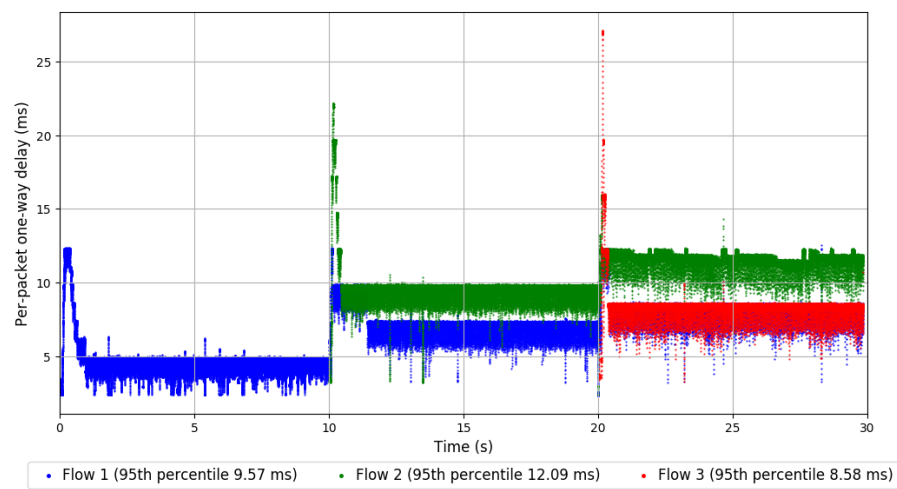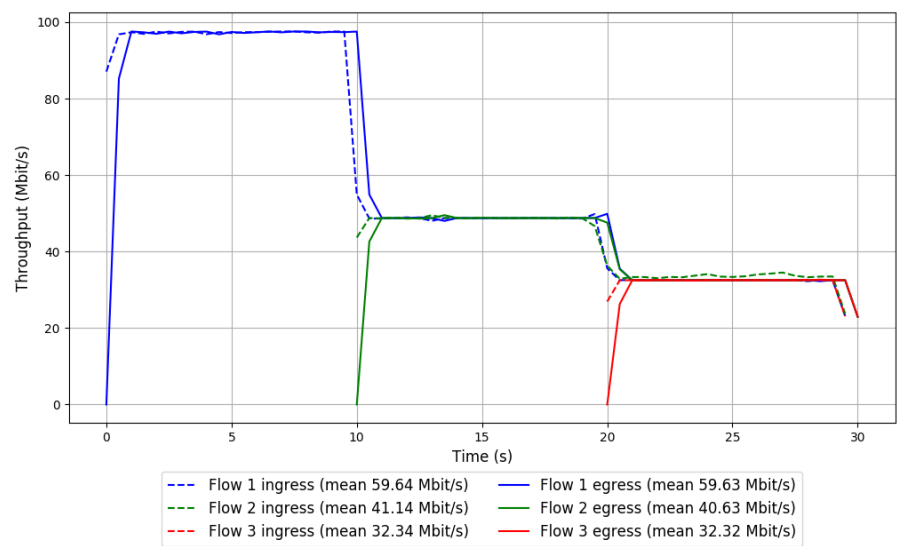
Run 2: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 59.64 Mbit/s) ——— Flow 1 egress (mean 59.65 Mbit/s)
- - - - Flow 2 ingress (mean 40.64 Mbit/s) ——— Flow 2 egress (mean 40.59 Mbit/s)
- - - - Flow 3 ingress (mean 32.34 Mbit/s) ——— Flow 3 egress (mean 32.32 Mbit/s)

- Flow 1 (95th percentile 9.84 ms) • Flow 2 (95th percentile 10.66 ms) • Flow 3 (95th percentile 8.85 ms)

```
Run 3: Statistics of Indigo

Start at: 2019-09-18 23:43:24
End at: 2019-09-18 23:43:54
Local clock offset: -10.462 ms
Remote clock offset: -1.691 ms


# Below is generated by plot.py at 2019-09-19 01:07:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.29 Mbit/s
95th percentile per-packet one-way delay: 11.375 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 9.099 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.62 Mbit/s
95th percentile per-packet one-way delay: 11.668 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 32.33 Mbit/s
95th percentile per-packet one-way delay: 8.096 ms
Loss rate: 0.11%
```
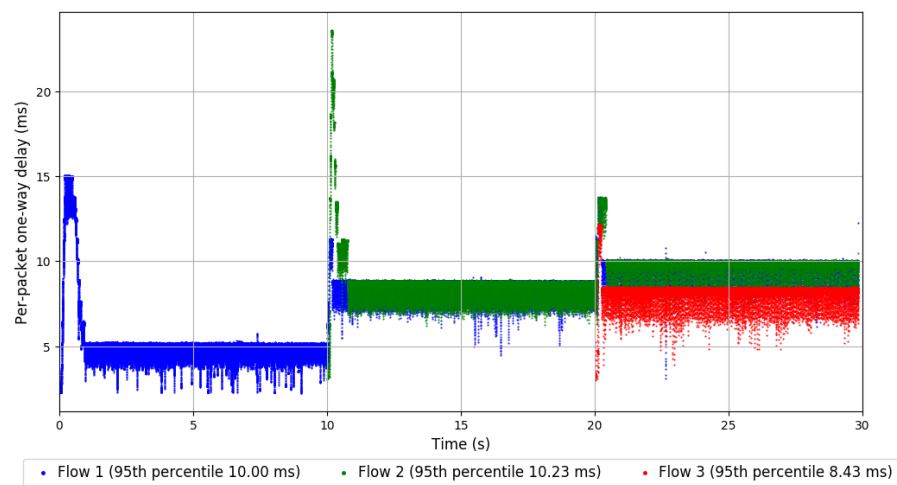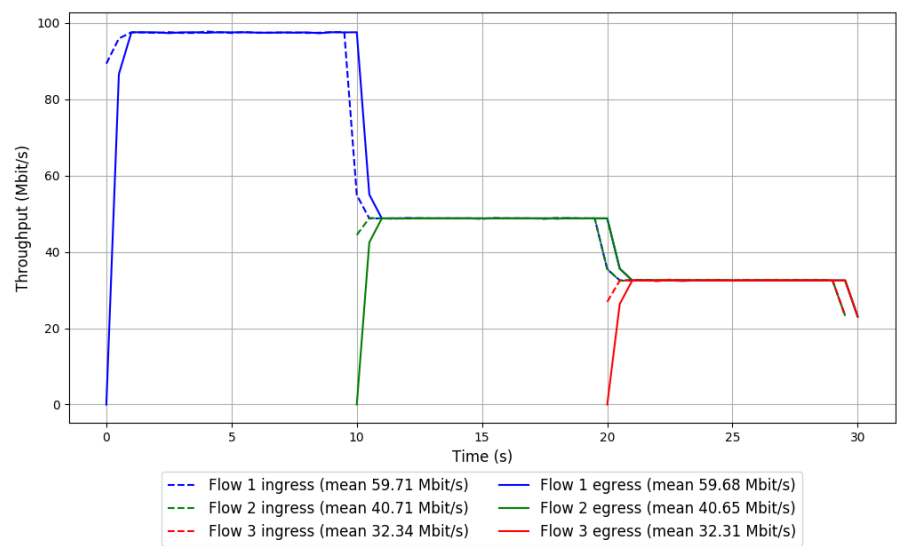
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 59.67 Mbit/s) --- Flow 1 egress (mean 59.66 Mbit/s)
Flow 2 ingress (mean 40.99 Mbit/s) --- Flow 2 egress (mean 40.62 Mbit/s)
Flow 3 ingress (mean 32.35 Mbit/s) --- Flow 3 egress (mean 32.33 Mbit/s)

Flow 1 (95th percentile 9.10 ms)   Flow 2 (95th percentile 11.67 ms)   Flow 3 (95th percentile 8.10 ms)

60

```
Run 4: Statistics of Indigo

Start at: 2019-09-19 00:10:59
End at: 2019-09-19 00:11:29
Local clock offset: -8.053 ms
Remote clock offset: -0.495 ms


# Below is generated by plot.py at 2019-09-19 01:07:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.25 Mbit/s
95th percentile per-packet one-way delay: 11.765 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 59.63 Mbit/s
95th percentile per-packet one-way delay: 9.566 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.63 Mbit/s
95th percentile per-packet one-way delay: 12.094 ms
Loss rate: 1.26%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 8.584 ms
Loss rate: 0.12%
```
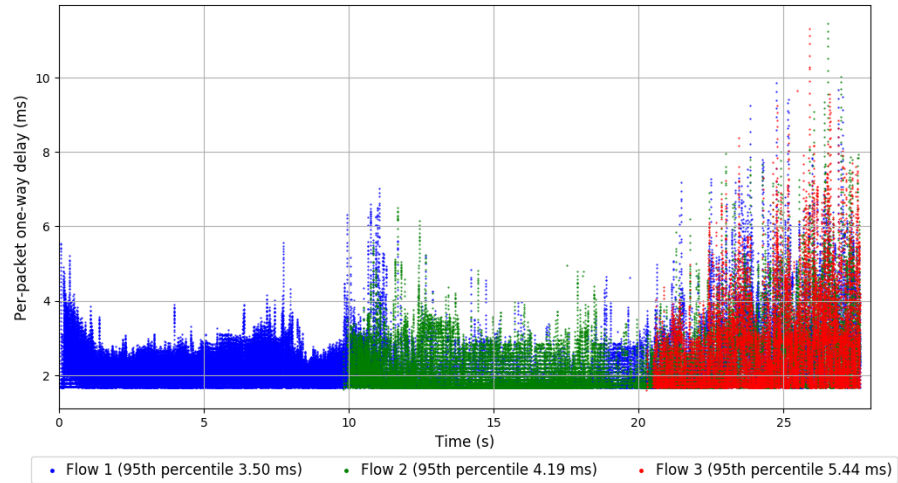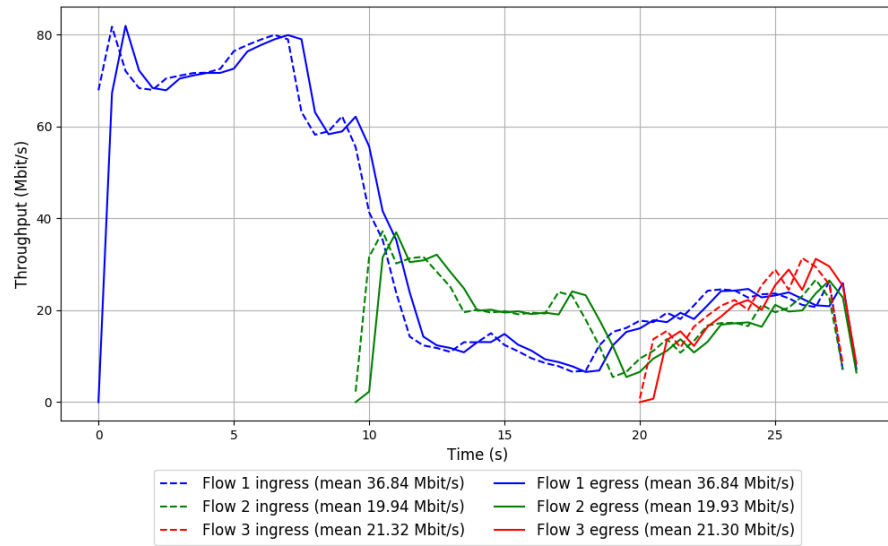
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 59.64 Mbit/s)
Flow 1 egress (mean 59.63 Mbit/s)
Flow 2 ingress (mean 41.14 Mbit/s)
Flow 2 egress (mean 40.63 Mbit/s)
Flow 3 ingress (mean 32.34 Mbit/s)
Flow 3 egress (mean 32.32 Mbit/s)

Flow 1 (95th percentile 9.57 ms)
Flow 2 (95th percentile 12.09 ms)
Flow 3 (95th percentile 8.58 ms)

```
Run 5: Statistics of Indigo

Start at: 2019-09-19 00:38:32
End at: 2019-09-19 00:39:02
Local clock offset: -4.644 ms
Remote clock offset: -0.261 ms


# Below is generated by plot.py at 2019-09-19 01:07:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 10.002 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 9.997 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.233 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 8.425 ms
Loss rate: 0.11%
```

Run 5: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 59.71 Mbit/s)   ——— Flow 1 egress (mean 59.68 Mbit/s)
- - - - Flow 2 ingress (mean 40.71 Mbit/s)   ——— Flow 2 egress (mean 40.65 Mbit/s)
- - - - Flow 3 ingress (mean 32.34 Mbit/s)   ——— Flow 3 egress (mean 32.31 Mbit/s)

- Flow 1 (95th percentile 10.00 ms)   • Flow 2 (95th percentile 10.23 ms)   • Flow 3 (95th percentile 8.43 ms)
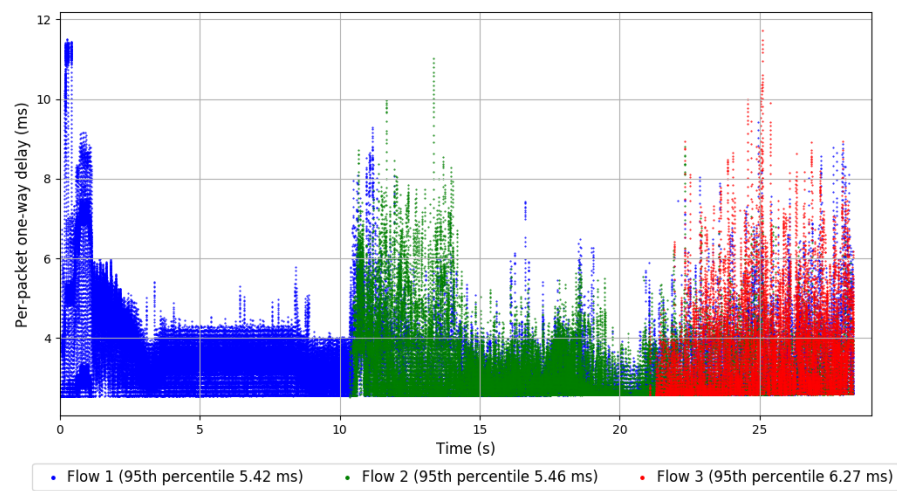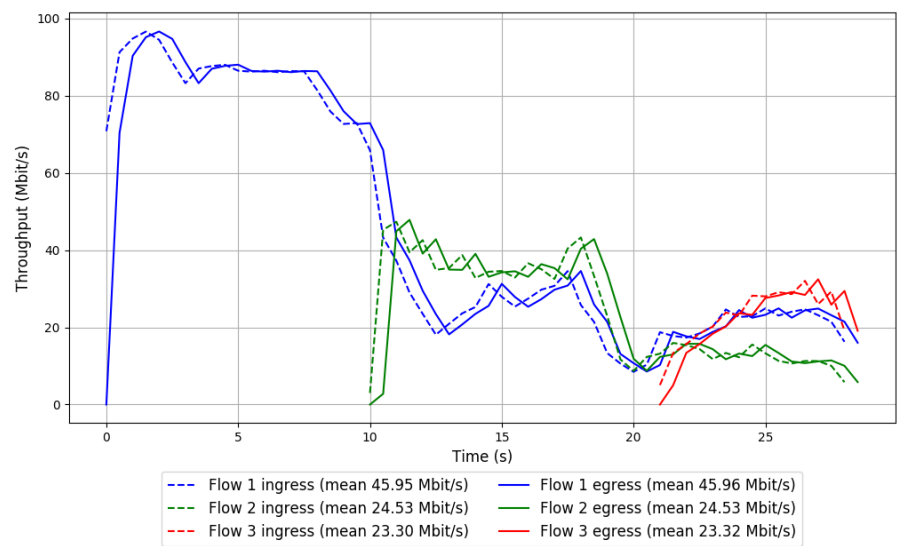
```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-09-18 22:54:06
End at: 2019-09-18 22:54:36
Local clock offset: 1.529 ms
Remote clock offset: -2.259 ms


# Below is generated by plot.py at 2019-09-19 01:07:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.35 Mbit/s
95th percentile per-packet one-way delay: 3.997 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 36.84 Mbit/s
95th percentile per-packet one-way delay: 3.501 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 19.93 Mbit/s
95th percentile per-packet one-way delay: 4.186 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 21.30 Mbit/s
95th percentile per-packet one-way delay: 5.439 ms
Loss rate: 0.08%
```
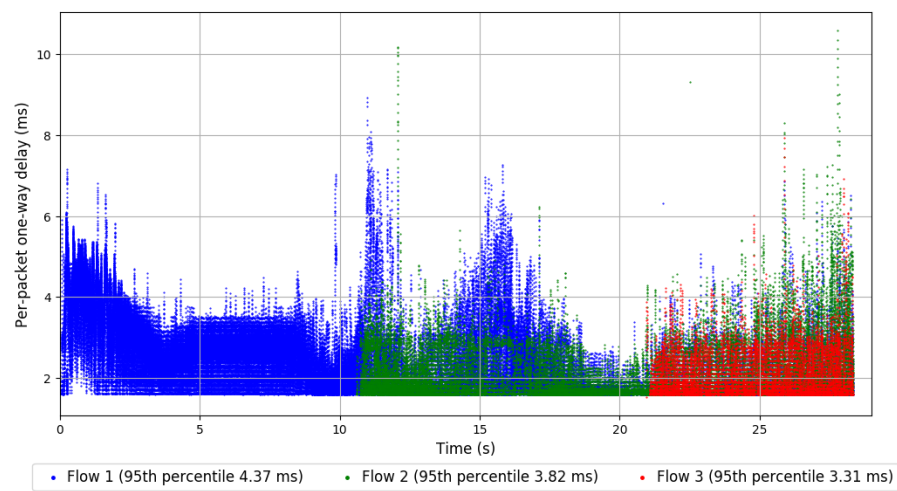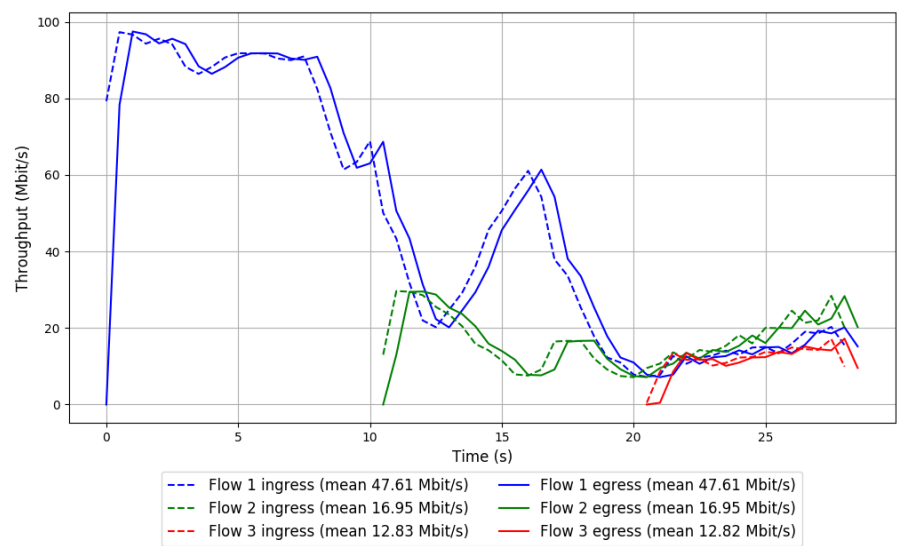
Run 1: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 36.84 Mbit/s)   Flow 1 egress (mean 36.84 Mbit/s)
Flow 2 ingress (mean 19.94 Mbit/s)   Flow 2 egress (mean 19.93 Mbit/s)
Flow 3 ingress (mean 21.32 Mbit/s)   Flow 3 egress (mean 21.30 Mbit/s)

Flow 1 (95th percentile 3.50 ms)   Flow 2 (95th percentile 4.19 ms)   Flow 3 (95th percentile 5.44 ms)

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-09-18 23:21:40
End at: 2019-09-18 23:22:10
Local clock offset: -6.792 ms
Remote clock offset: -2.683 ms


# Below is generated by plot.py at 2019-09-19 01:07:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 57.66 Mbit/s
95th percentile per-packet one-way delay: 4.696 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 35.50 Mbit/s
95th percentile per-packet one-way delay: 3.970 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 30.39 Mbit/s
95th percentile per-packet one-way delay: 5.533 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 4.489 ms
Loss rate: 0.04%
```

Run 2: Report of Indigo-MusesC3 — Data Link
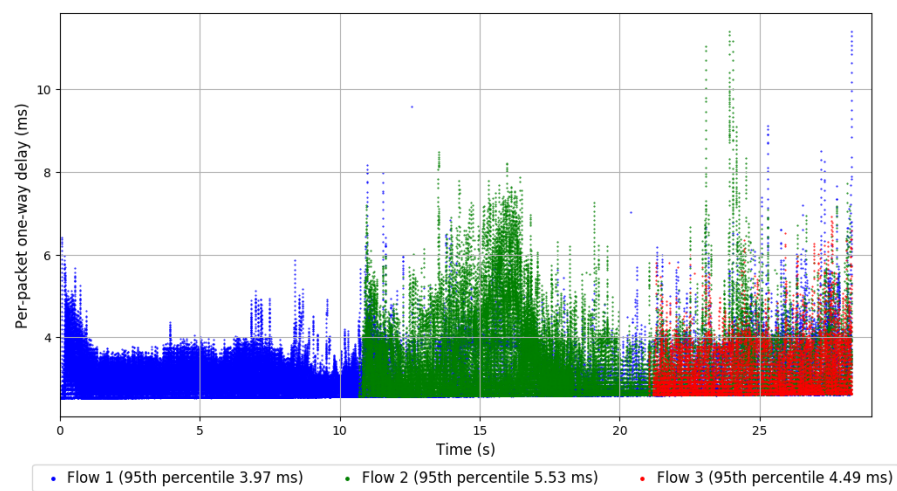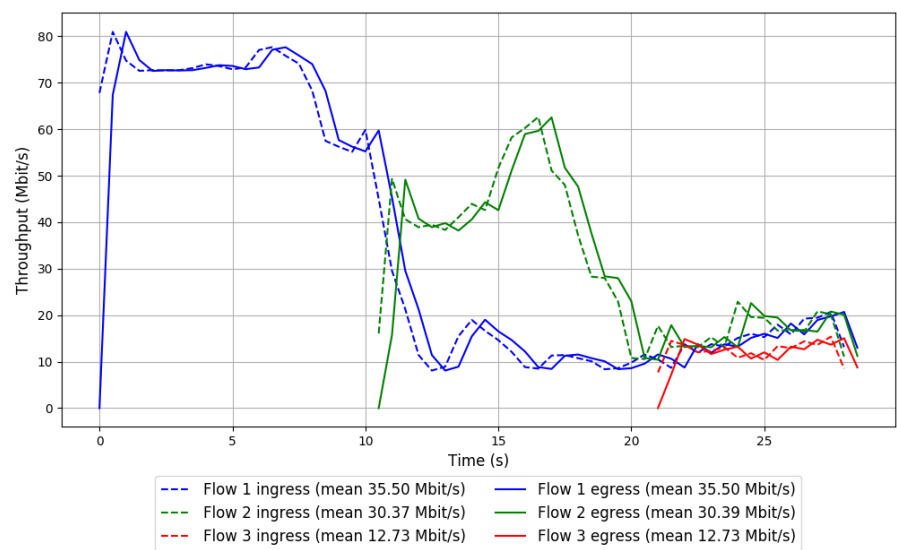
```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-09-18 23:49:11
End at: 2019-09-18 23:49:41
Local clock offset: -10.435 ms
Remote clock offset: -1.667 ms


# Below is generated by plot.py at 2019-09-19 01:07:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.51 Mbit/s
95th percentile per-packet one-way delay: 5.540 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 45.96 Mbit/s
95th percentile per-packet one-way delay: 5.425 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 24.53 Mbit/s
95th percentile per-packet one-way delay: 5.459 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.32 Mbit/s
95th percentile per-packet one-way delay: 6.270 ms
Loss rate: 0.03%
```
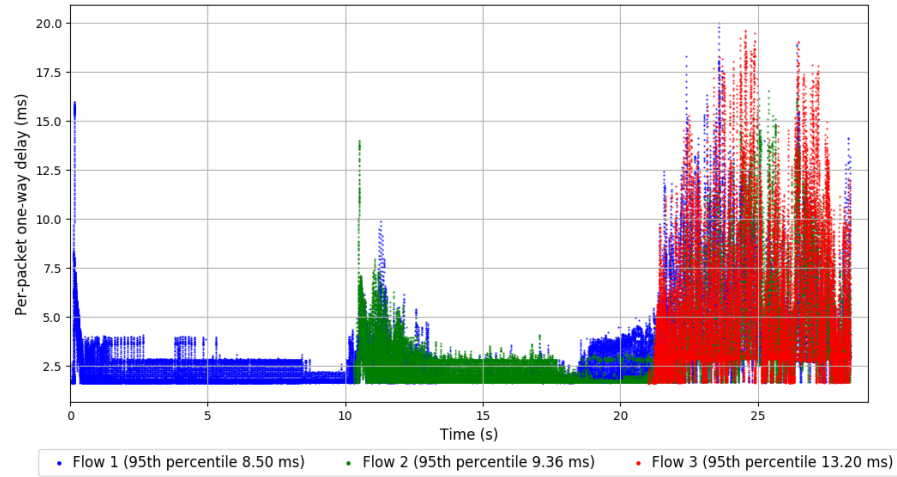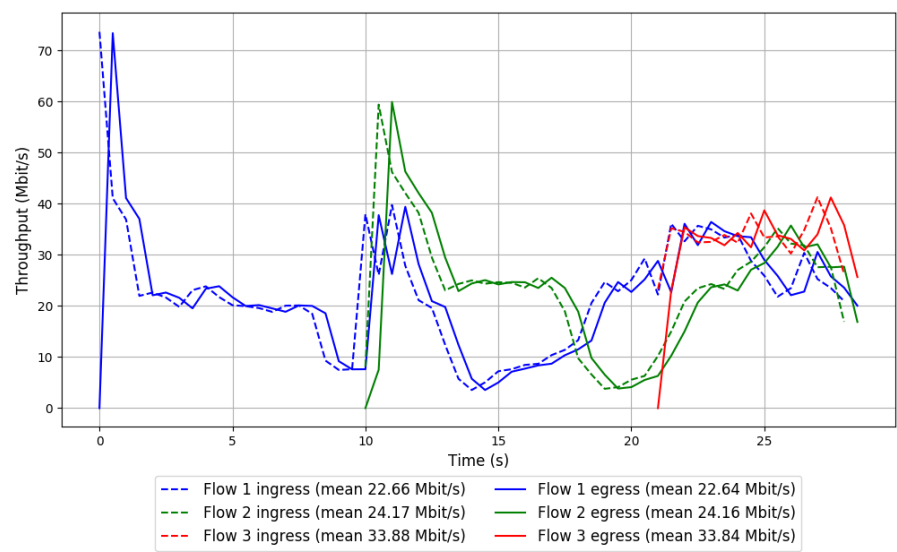
Run 3: Report of Indigo-MusesC3 — Data Link

--- Flow 1 ingress (mean 45.95 Mbit/s)   ── Flow 1 egress (mean 45.96 Mbit/s)
--- Flow 2 ingress (mean 24.53 Mbit/s)   ── Flow 2 egress (mean 24.53 Mbit/s)
--- Flow 3 ingress (mean 23.30 Mbit/s)   ── Flow 3 egress (mean 23.32 Mbit/s)

• Flow 1 (95th percentile 5.42 ms)   • Flow 2 (95th percentile 5.46 ms)   • Flow 3 (95th percentile 6.27 ms)

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-09-19 00:16:45
End at: 2019-09-19 00:17:15
Local clock offset: -8.141 ms
Remote clock offset: -0.287 ms


# Below is generated by plot.py at 2019-09-19 01:07:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.56 Mbit/s
95th percentile per-packet one-way delay: 4.286 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 47.61 Mbit/s
95th percentile per-packet one-way delay: 4.371 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 16.95 Mbit/s
95th percentile per-packet one-way delay: 3.817 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.82 Mbit/s
95th percentile per-packet one-way delay: 3.313 ms
Loss rate: 0.21%
```

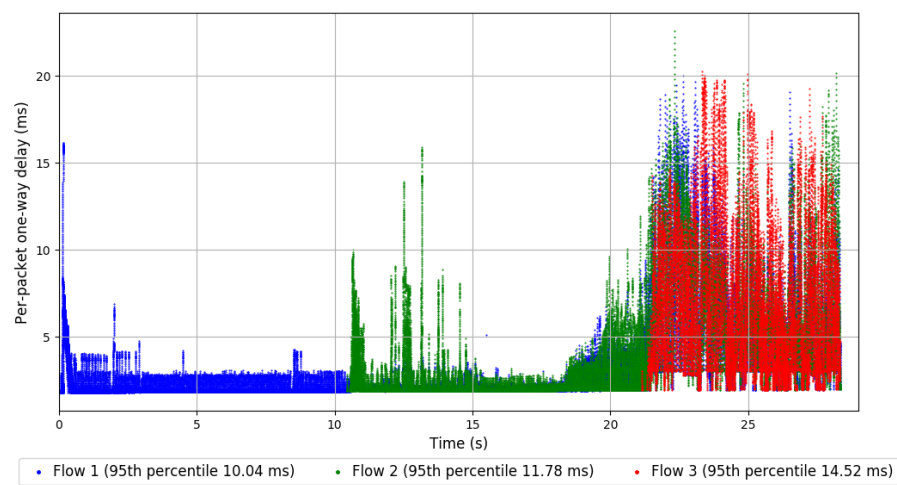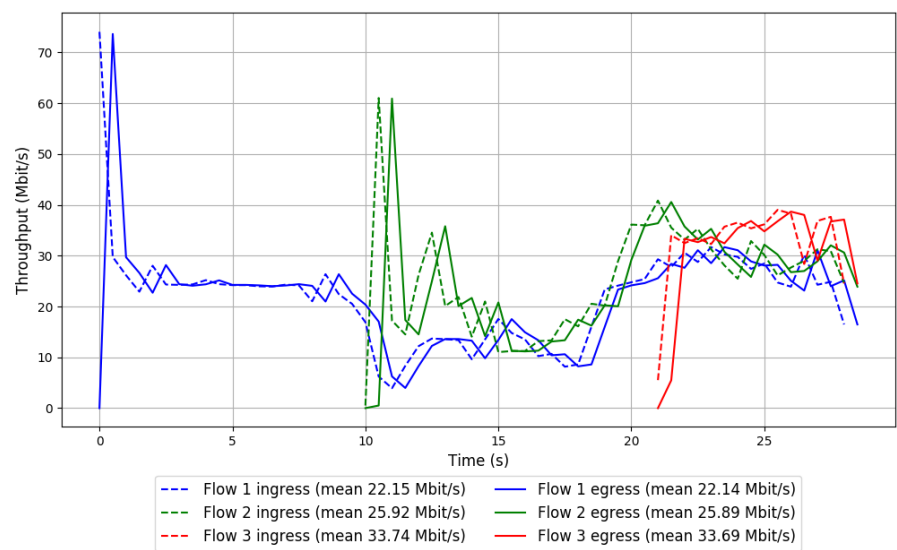Run 4: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 47.61 Mbit/s)   —— Flow 1 egress (mean 47.61 Mbit/s)
- - - Flow 2 ingress (mean 16.95 Mbit/s)   —— Flow 2 egress (mean 16.95 Mbit/s)
- - - Flow 3 ingress (mean 12.83 Mbit/s)   —— Flow 3 egress (mean 12.82 Mbit/s)

• Flow 1 (95th percentile 4.37 ms)   • Flow 2 (95th percentile 3.82 ms)   • Flow 3 (95th percentile 3.31 ms)

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-09-19 00:44:17
End at: 2019-09-19 00:44:47
Local clock offset: -4.45 ms
Remote clock offset: -0.368 ms


# Below is generated by plot.py at 2019-09-19 01:07:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.00 Mbit/s
95th percentile per-packet one-way delay: 4.999 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 37.19 Mbit/s
95th percentile per-packet one-way delay: 3.595 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 37.06 Mbit/s
95th percentile per-packet one-way delay: 5.859 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 22.86 Mbit/s
95th percentile per-packet one-way delay: 5.490 ms
Loss rate: 0.16%
```

Run 5: Report of Indigo-MusesC3 — Data Link
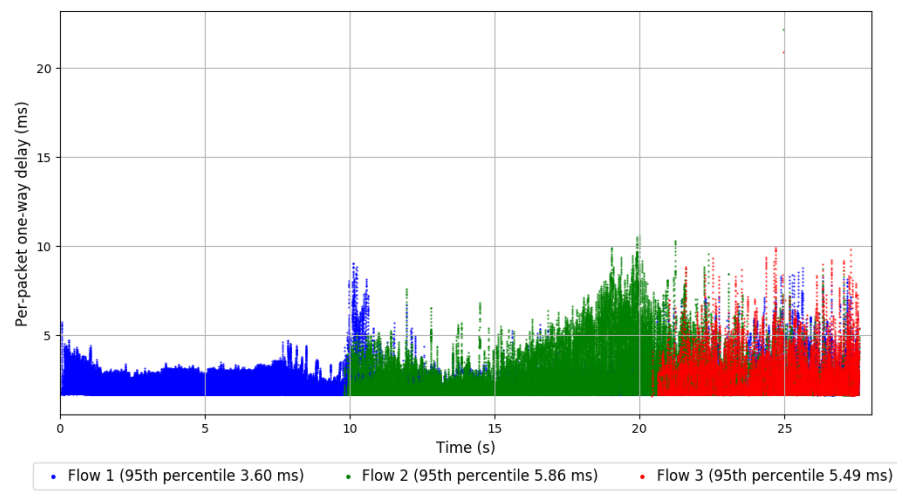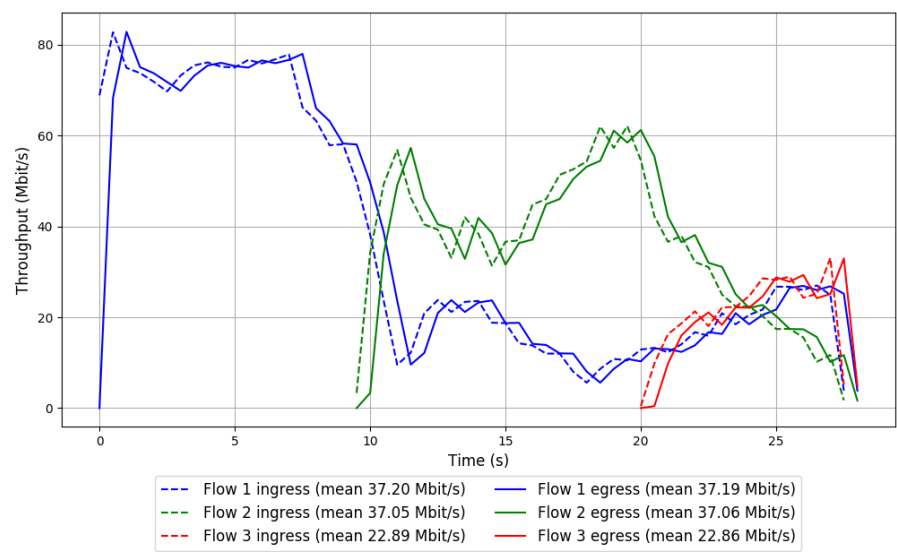
```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-09-18 22:43:49
End at: 2019-09-18 22:44:19
Local clock offset: 1.624 ms
Remote clock offset: -2.133 ms


# Below is generated by plot.py at 2019-09-19 01:07:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.76 Mbit/s
95th percentile per-packet one-way delay: 10.199 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 22.64 Mbit/s
95th percentile per-packet one-way delay: 8.504 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 24.16 Mbit/s
95th percentile per-packet one-way delay: 9.357 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 33.84 Mbit/s
95th percentile per-packet one-way delay: 13.203 ms
Loss rate: 0.18%
```

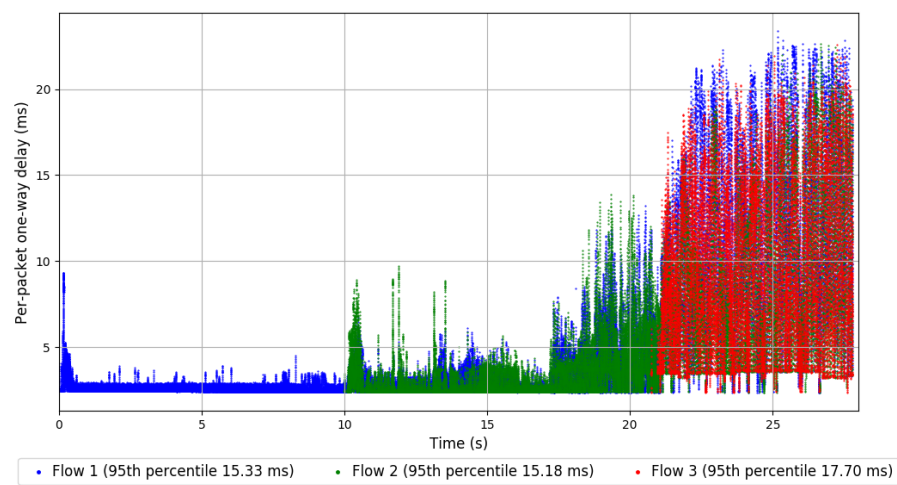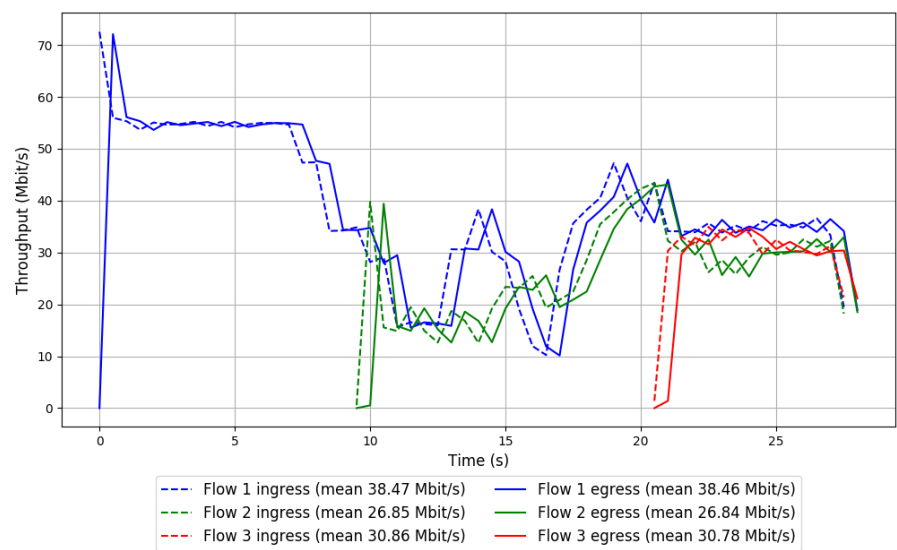Run 1: Report of Indigo-MusesC5 — Data Link

- - - Flow 1 ingress (mean 22.66 Mbit/s)   —— Flow 1 egress (mean 22.64 Mbit/s)
- - - Flow 2 ingress (mean 24.17 Mbit/s)   —— Flow 2 egress (mean 24.16 Mbit/s)
- - - Flow 3 ingress (mean 33.88 Mbit/s)   —— Flow 3 egress (mean 33.84 Mbit/s)

• Flow 1 (95th percentile 8.50 ms)   • Flow 2 (95th percentile 9.36 ms)   • Flow 3 (95th percentile 13.20 ms)

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-09-18 23:11:22
End at: 2019-09-18 23:11:52
Local clock offset: -4.948 ms
Remote clock offset: -2.695 ms


# Below is generated by plot.py at 2019-09-19 01:07:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.06 Mbit/s
95th percentile per-packet one-way delay: 12.075 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 22.14 Mbit/s
95th percentile per-packet one-way delay: 10.040 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 25.89 Mbit/s
95th percentile per-packet one-way delay: 11.780 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 33.69 Mbit/s
95th percentile per-packet one-way delay: 14.519 ms
Loss rate: 0.15%
```

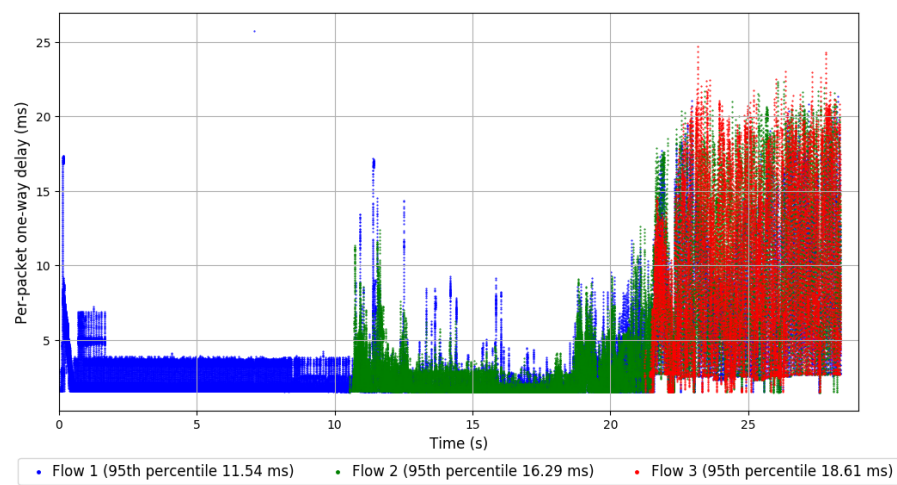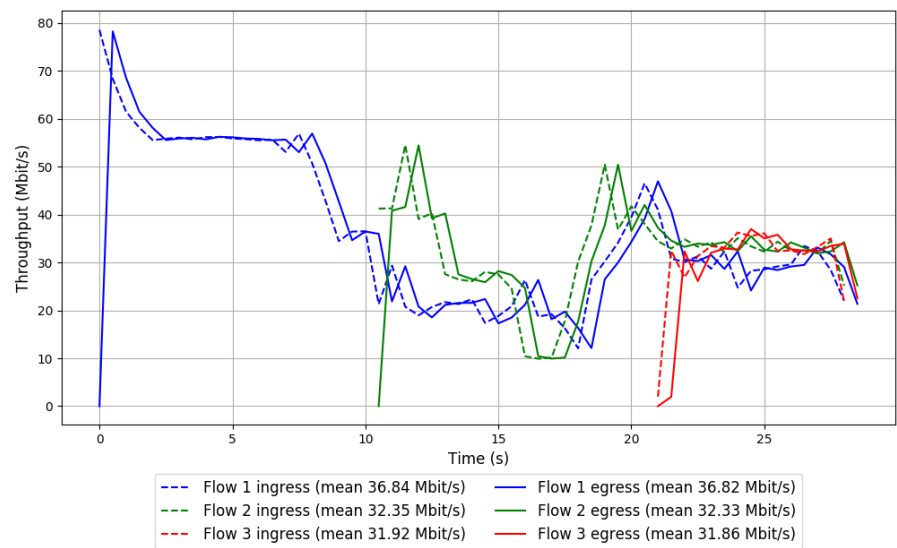Run 2: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 22.15 Mbit/s)   Flow 1 egress (mean 22.14 Mbit/s)
Flow 2 ingress (mean 25.92 Mbit/s)   Flow 2 egress (mean 25.89 Mbit/s)
Flow 3 ingress (mean 33.74 Mbit/s)   Flow 3 egress (mean 33.69 Mbit/s)

Flow 1 (95th percentile 10.04 ms)   Flow 2 (95th percentile 11.78 ms)   Flow 3 (95th percentile 14.52 ms)

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-09-18 23:38:54
End at: 2019-09-18 23:39:24
Local clock offset: -9.197 ms
Remote clock offset: -1.771 ms


# Below is generated by plot.py at 2019-09-19 01:07:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.56 Mbit/s
95th percentile per-packet one-way delay: 13.998 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 24.15 Mbit/s
95th percentile per-packet one-way delay: 12.407 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 22.29 Mbit/s
95th percentile per-packet one-way delay: 13.357 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 33.42 Mbit/s
95th percentile per-packet one-way delay: 16.807 ms
Loss rate: 0.21%
```

Run 3: Report of Indigo-MusesC5 — Data Link

80
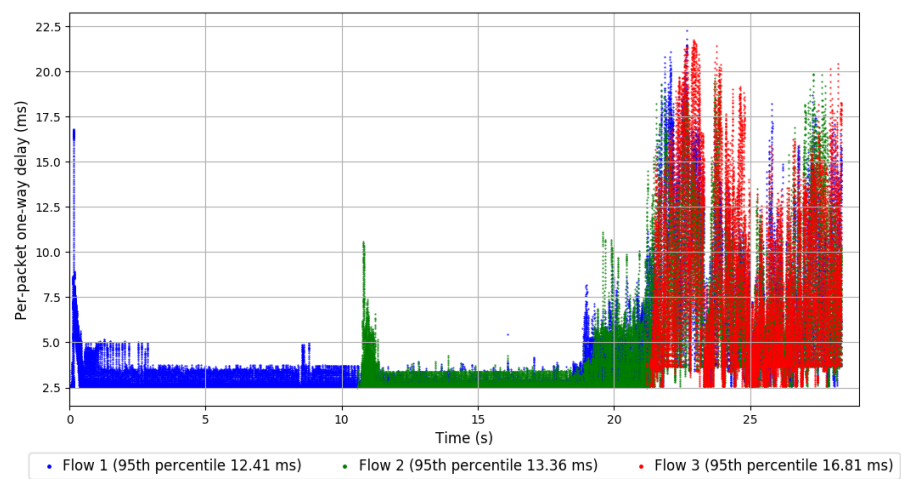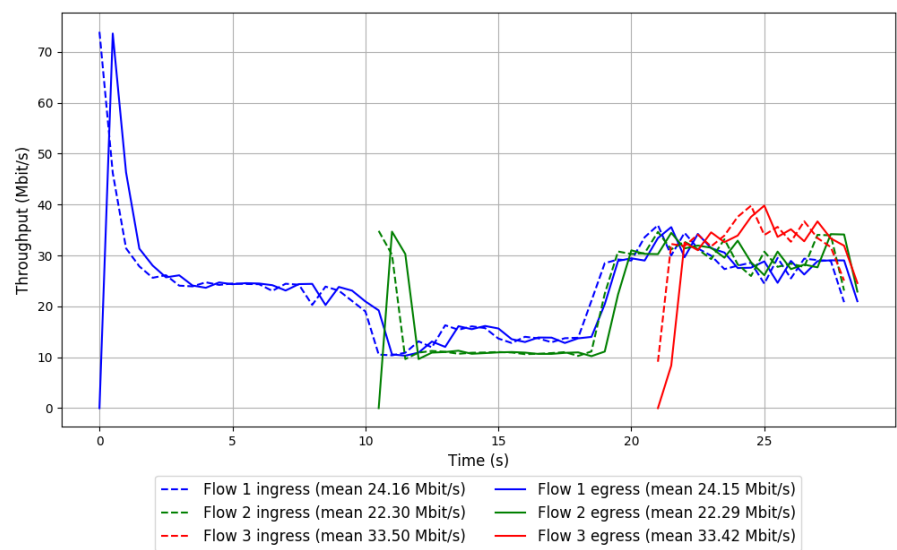
```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-09-19 00:06:26
End at: 2019-09-19 00:06:56
Local clock offset: -9.081 ms
Remote clock offset: -0.615 ms


# Below is generated by plot.py at 2019-09-19 01:08:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.49 Mbit/s
95th percentile per-packet one-way delay: 16.026 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 38.46 Mbit/s
95th percentile per-packet one-way delay: 15.334 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 26.84 Mbit/s
95th percentile per-packet one-way delay: 15.180 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 30.78 Mbit/s
95th percentile per-packet one-way delay: 17.695 ms
Loss rate: 0.31%
```

Run 4: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 38.47 Mbit/s) --- Flow 1 egress (mean 38.46 Mbit/s)
Flow 2 ingress (mean 26.85 Mbit/s) --- Flow 2 egress (mean 26.84 Mbit/s)
Flow 3 ingress (mean 30.86 Mbit/s) --- Flow 3 egress (mean 30.78 Mbit/s)

Flow 1 (95th percentile 15.33 ms)   Flow 2 (95th percentile 15.18 ms)   Flow 3 (95th percentile 17.70 ms)

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-09-19 00:34:00
End at: 2019-09-19 00:34:30
Local clock offset: -6.409 ms
Remote clock offset: -0.301 ms


# Below is generated by plot.py at 2019-09-19 01:08:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.13 Mbit/s
95th percentile per-packet one-way delay: 15.429 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 36.82 Mbit/s
95th percentile per-packet one-way delay: 11.535 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 32.33 Mbit/s
95th percentile per-packet one-way delay: 16.291 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 31.86 Mbit/s
95th percentile per-packet one-way delay: 18.609 ms
Loss rate: 0.14%
```

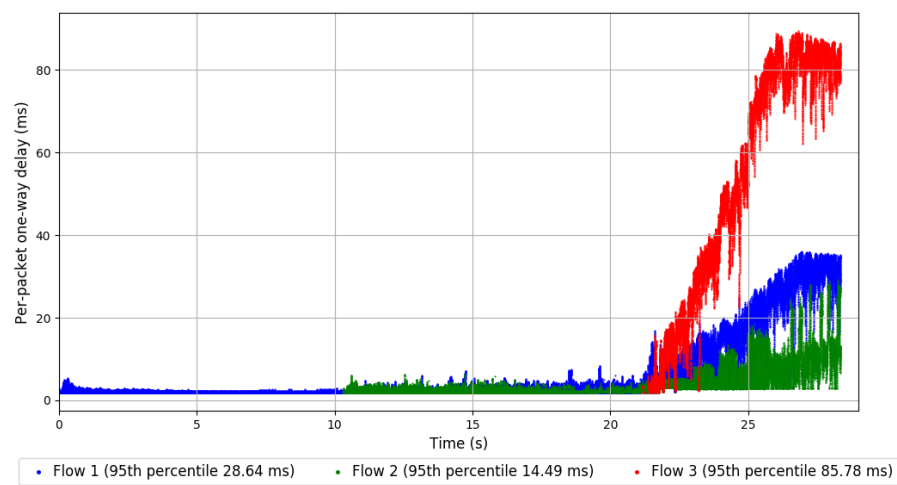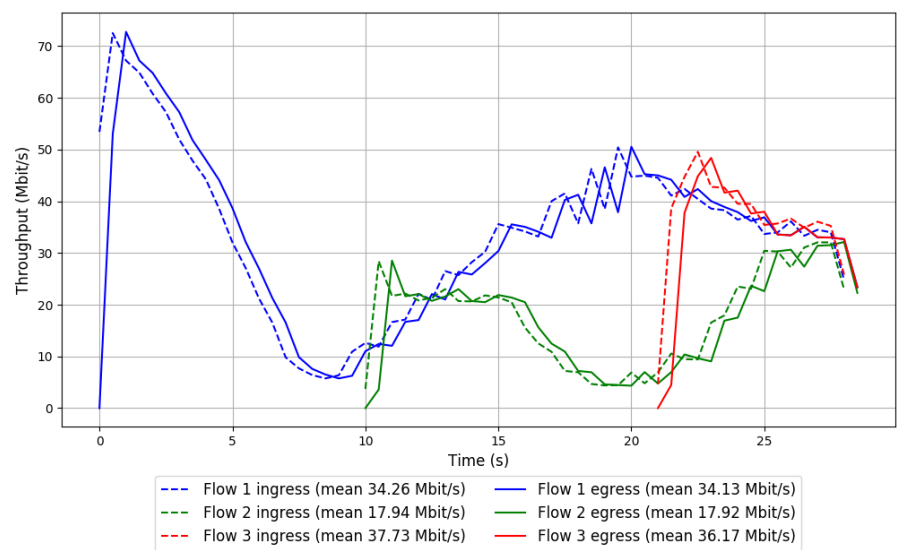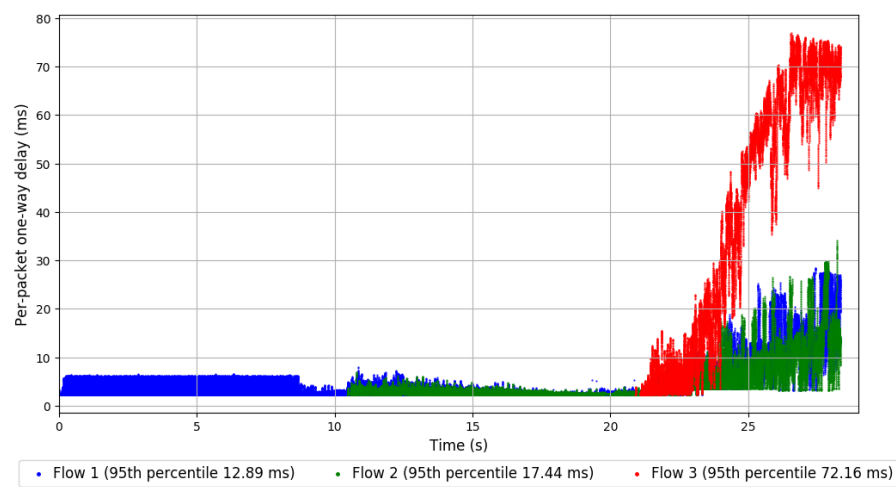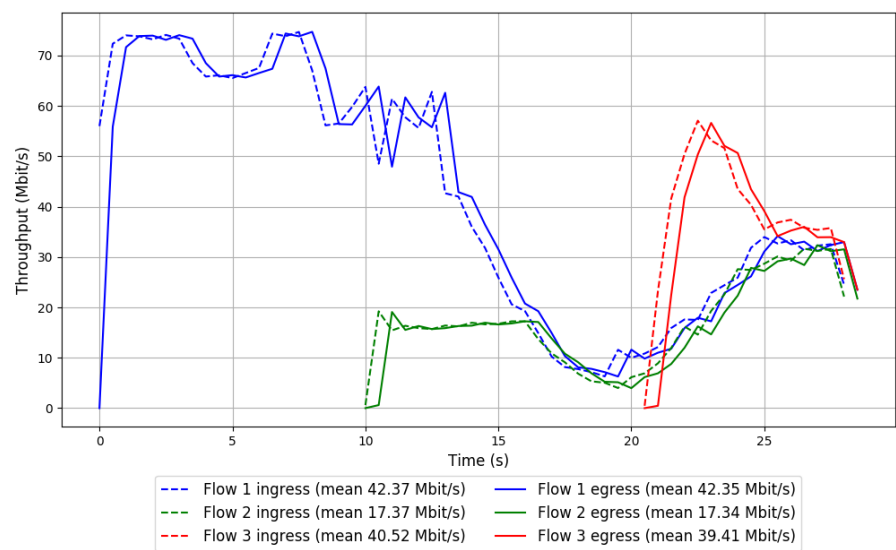Run 5: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 36.84 Mbit/s)	Flow 1 egress (mean 36.82 Mbit/s)
Flow 2 ingress (mean 32.35 Mbit/s)	Flow 2 egress (mean 32.33 Mbit/s)
Flow 3 ingress (mean 31.92 Mbit/s)	Flow 3 egress (mean 31.86 Mbit/s)

Flow 1 (95th percentile 11.54 ms)	Flow 2 (95th percentile 16.29 ms)	Flow 3 (95th percentile 18.61 ms)

84

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-09-18 22:58:44
End at: 2019-09-18 22:59:14
Local clock offset: 2.255 ms
Remote clock offset: -2.401 ms


# Below is generated by plot.py at 2019-09-19 01:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.10 Mbit/s
95th percentile per-packet one-way delay: 32.949 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 44.18 Mbit/s
95th percentile per-packet one-way delay: 9.118 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 31.21 Mbit/s
95th percentile per-packet one-way delay: 31.523 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 42.00 Mbit/s
95th percentile per-packet one-way delay: 48.553 ms
Loss rate: 2.21%
```

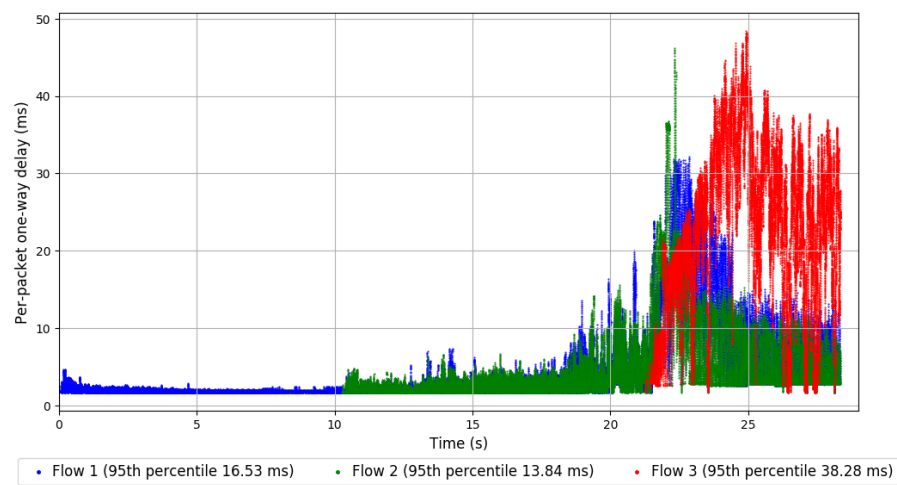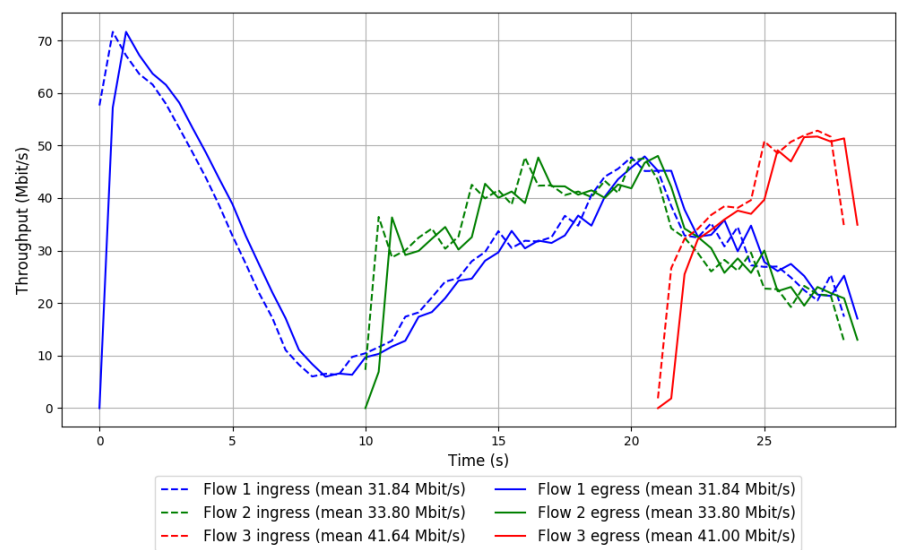Run 1: Report of Indigo-MusesD — Data Link
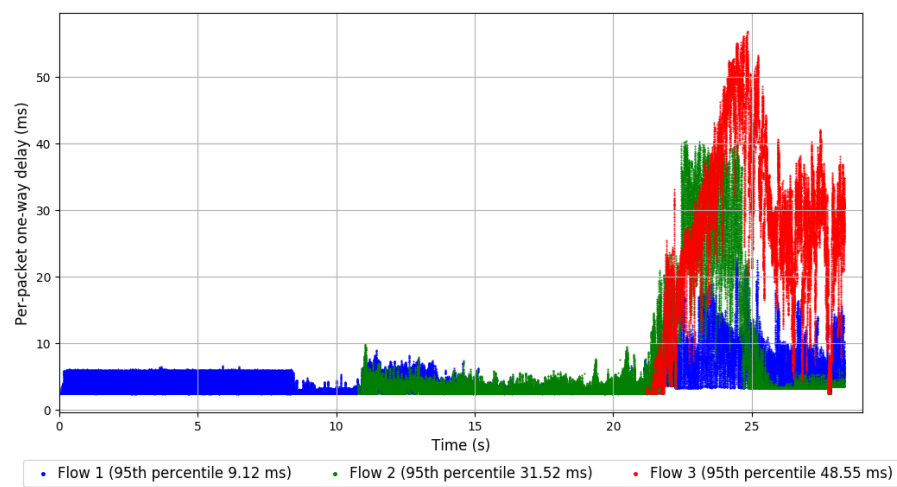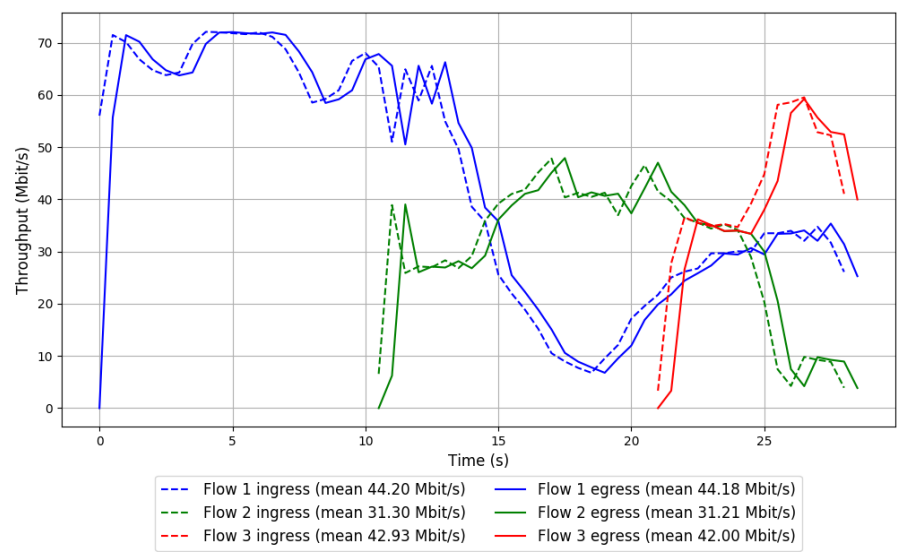
```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-09-18 23:26:18
End at: 2019-09-18 23:26:48
Local clock offset: -7.471 ms
Remote clock offset: -2.537 ms


# Below is generated by plot.py at 2019-09-19 01:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.37 Mbit/s
95th percentile per-packet one-way delay: 8.773 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 43.61 Mbit/s
95th percentile per-packet one-way delay: 8.163 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 35.07 Mbit/s
95th percentile per-packet one-way delay: 9.410 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 14.44 Mbit/s
95th percentile per-packet one-way delay: 8.681 ms
Loss rate: 0.32%
```

Run 2: Report of Indigo-MusesD — Data Link
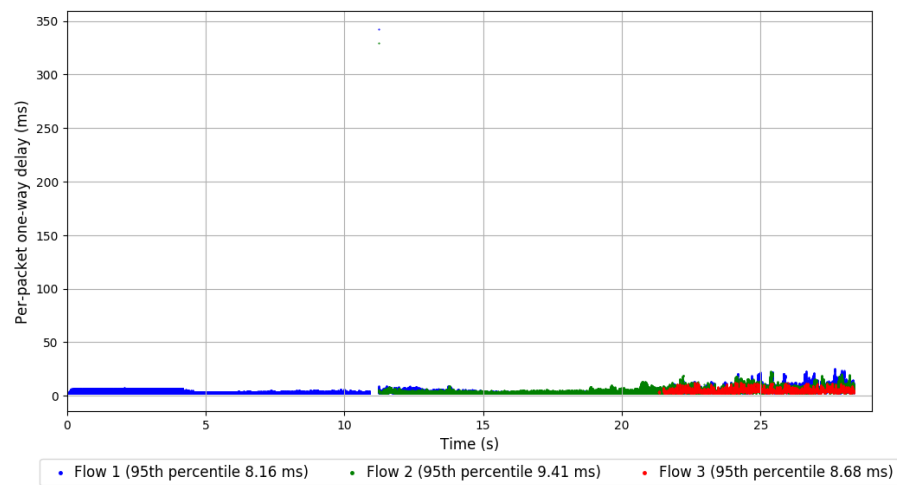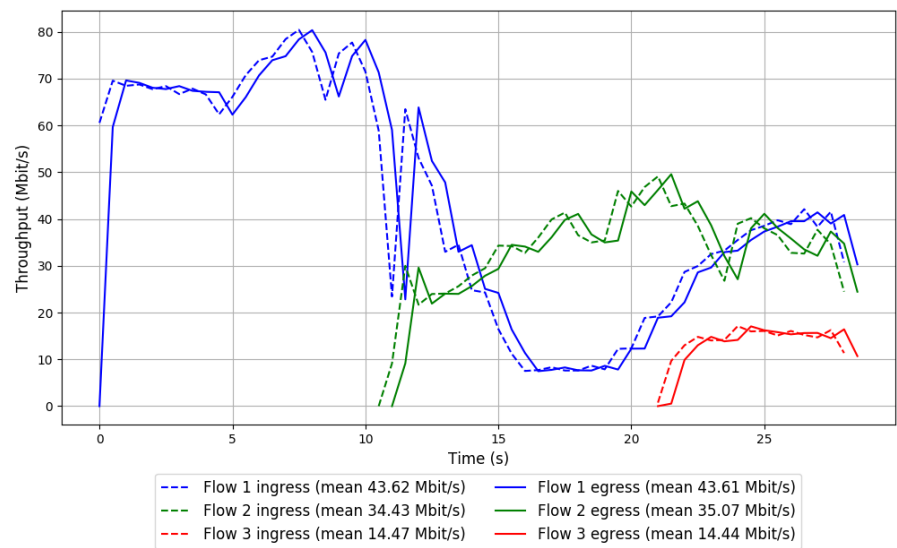
```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-09-18 23:53:49
End at: 2019-09-18 23:54:19
Local clock offset: -11.673 ms
Remote clock offset: -1.269 ms


# Below is generated by plot.py at 2019-09-19 01:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.68 Mbit/s
95th percentile per-packet one-way delay: 77.346 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 34.13 Mbit/s
95th percentile per-packet one-way delay: 28.636 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 17.92 Mbit/s
95th percentile per-packet one-way delay: 14.491 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 36.17 Mbit/s
95th percentile per-packet one-way delay: 85.782 ms
Loss rate: 4.20%
```

Run 3: Report of Indigo-MusesD — Data Link

- - - Flow 1 ingress (mean 34.26 Mbit/s) —— Flow 1 egress (mean 34.13 Mbit/s)
- - - Flow 2 ingress (mean 17.94 Mbit/s) —— Flow 2 egress (mean 17.92 Mbit/s)
- - - Flow 3 ingress (mean 37.73 Mbit/s) —— Flow 3 egress (mean 36.17 Mbit/s)

• Flow 1 (95th percentile 28.64 ms)   • Flow 2 (95th percentile 14.49 ms)   • Flow 3 (95th percentile 85.78 ms)

90

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-09-19 00:21:23
End at: 2019-09-19 00:21:53
Local clock offset: -7.17 ms
Remote clock offset: -0.249 ms


# Below is generated by plot.py at 2019-09-19 01:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.65 Mbit/s
95th percentile per-packet one-way delay: 55.815 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 42.35 Mbit/s
95th percentile per-packet one-way delay: 12.891 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 17.34 Mbit/s
95th percentile per-packet one-way delay: 17.439 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 39.41 Mbit/s
95th percentile per-packet one-way delay: 72.156 ms
Loss rate: 2.81%
```

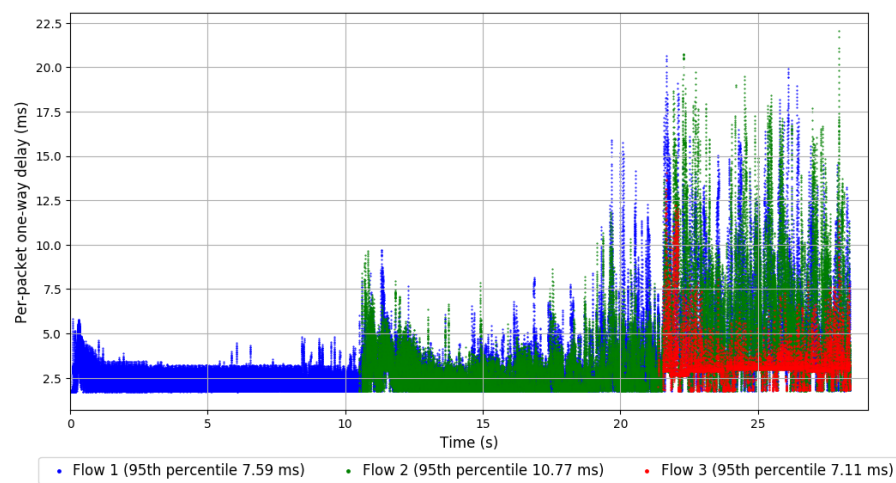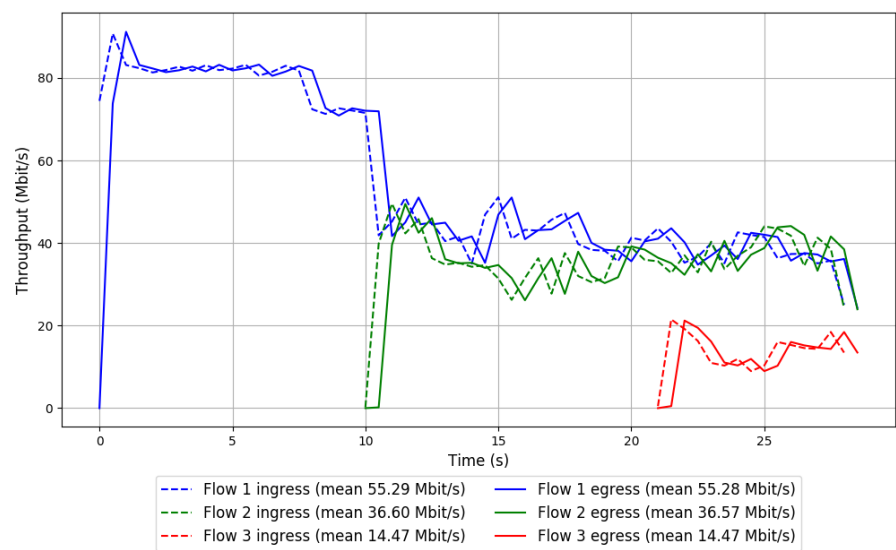Run 4: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 42.37 Mbit/s) --- Flow 1 egress (mean 42.35 Mbit/s)
Flow 2 ingress (mean 17.37 Mbit/s) --- Flow 2 egress (mean 17.34 Mbit/s)
Flow 3 ingress (mean 40.52 Mbit/s) --- Flow 3 egress (mean 39.41 Mbit/s)

Flow 1 (95th percentile 12.89 ms)   Flow 2 (95th percentile 17.44 ms)   Flow 3 (95th percentile 72.16 ms)

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-09-19 00:48:56
End at: 2019-09-19 00:49:26
Local clock offset: -4.024 ms
Remote clock offset: -0.459 ms


# Below is generated by plot.py at 2019-09-19 01:08:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.61 Mbit/s
95th percentile per-packet one-way delay: 29.350 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 31.84 Mbit/s
95th percentile per-packet one-way delay: 16.532 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 33.80 Mbit/s
95th percentile per-packet one-way delay: 13.844 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 41.00 Mbit/s
95th percentile per-packet one-way delay: 38.276 ms
Loss rate: 1.50%
```

Run 5: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 31.84 Mbit/s)   Flow 1 egress (mean 31.84 Mbit/s)
Flow 2 ingress (mean 33.80 Mbit/s)   Flow 2 egress (mean 33.80 Mbit/s)
Flow 3 ingress (mean 41.64 Mbit/s)   Flow 3 egress (mean 41.00 Mbit/s)

Flow 1 (95th percentile 16.53 ms)   Flow 2 (95th percentile 13.84 ms)   Flow 3 (95th percentile 38.28 ms)

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-09-18 22:55:14
End at: 2019-09-18 22:55:44
Local clock offset: 2.241 ms
Remote clock offset: -2.354 ms


# Below is generated by plot.py at 2019-09-19 01:08:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.36 Mbit/s
95th percentile per-packet one-way delay: 12.558 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 55.05 Mbit/s
95th percentile per-packet one-way delay: 11.149 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 35.53 Mbit/s
95th percentile per-packet one-way delay: 14.746 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 19.94 Mbit/s
95th percentile per-packet one-way delay: 12.175 ms
Loss rate: 0.00%
```

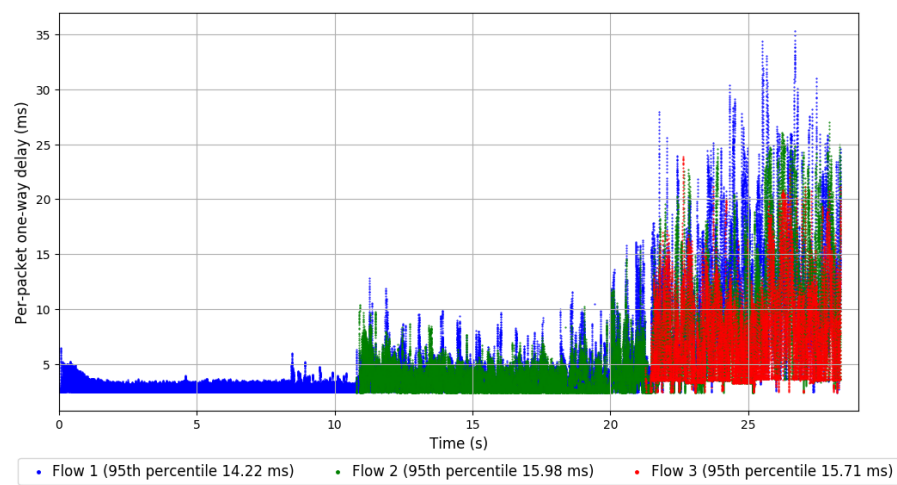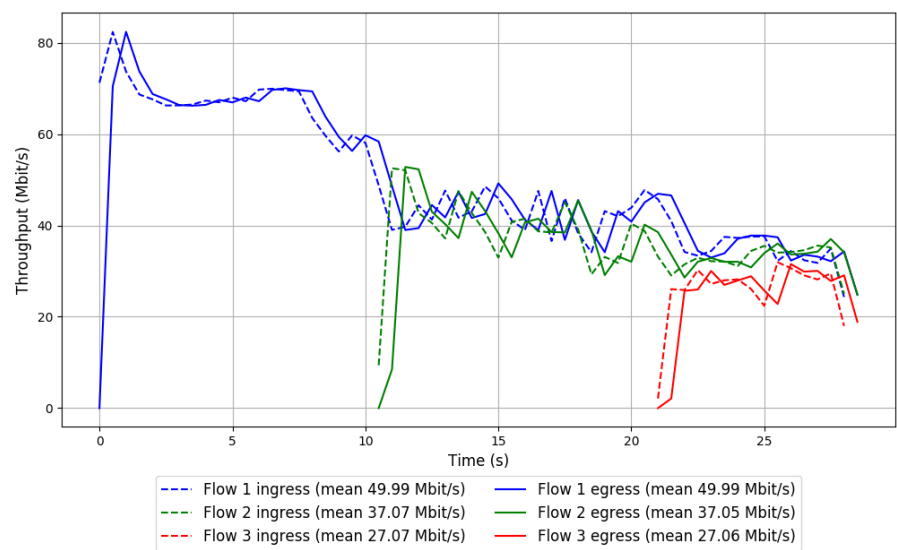Run 1: Report of Indigo-MusesT — Data Link
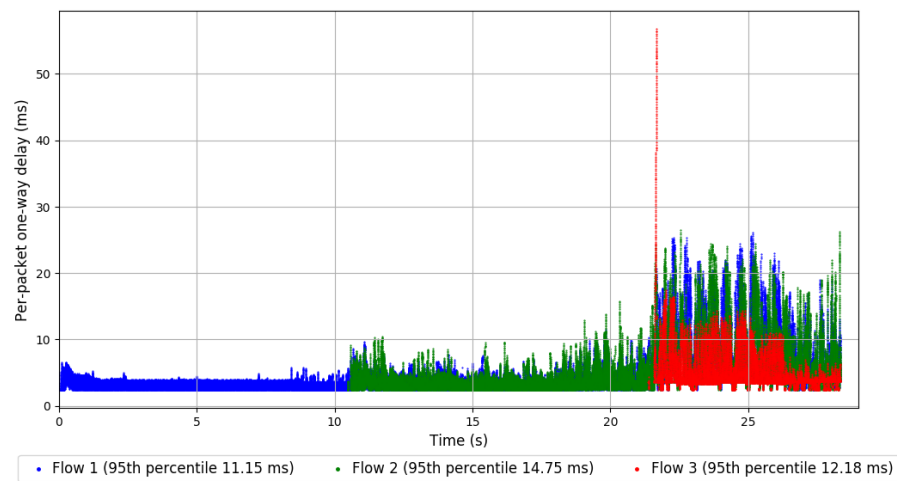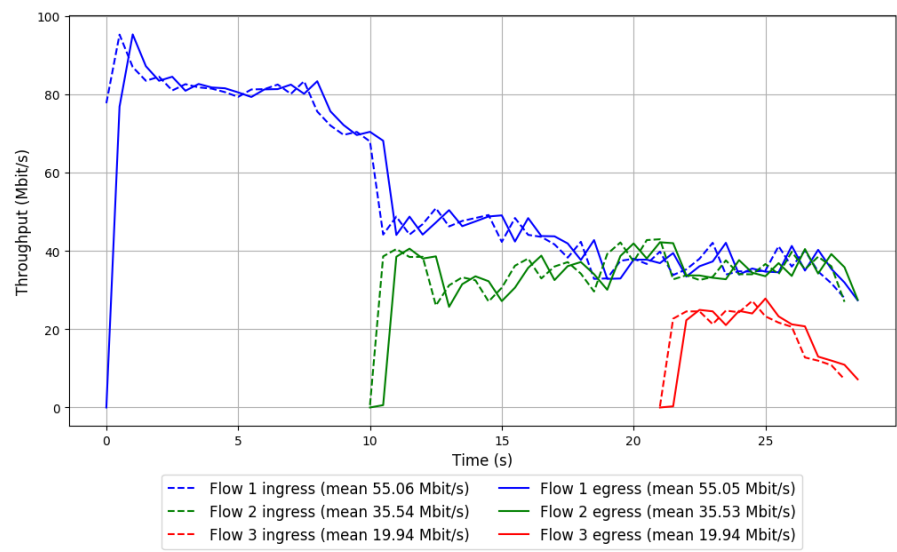
```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-09-18 23:22:47
End at: 2019-09-18 23:23:17
Local clock offset: -7.771 ms
Remote clock offset: -2.576 ms


# Below is generated by plot.py at 2019-09-19 01:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.98 Mbit/s
95th percentile per-packet one-way delay: 17.733 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 48.34 Mbit/s
95th percentile per-packet one-way delay: 16.533 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 36.73 Mbit/s
95th percentile per-packet one-way delay: 19.339 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 27.69 Mbit/s
95th percentile per-packet one-way delay: 17.833 ms
Loss rate: 0.32%
```

Run 2: Report of Indigo-MusesT — Data Link
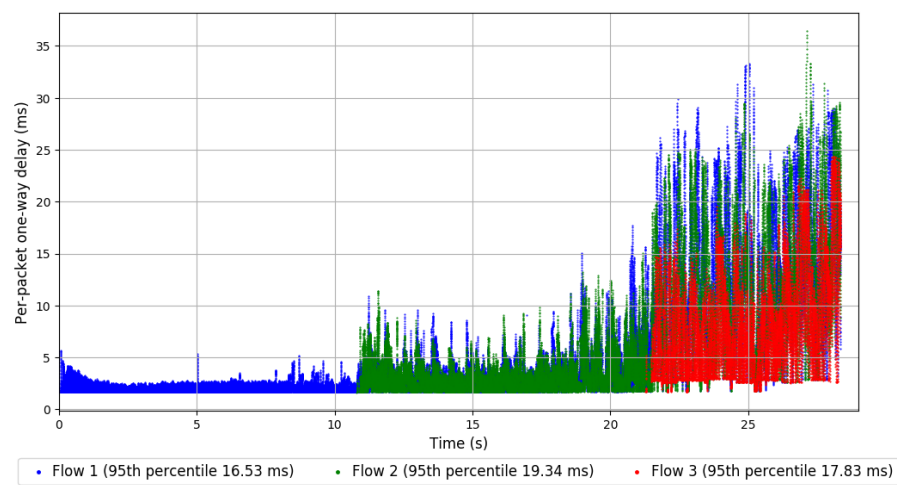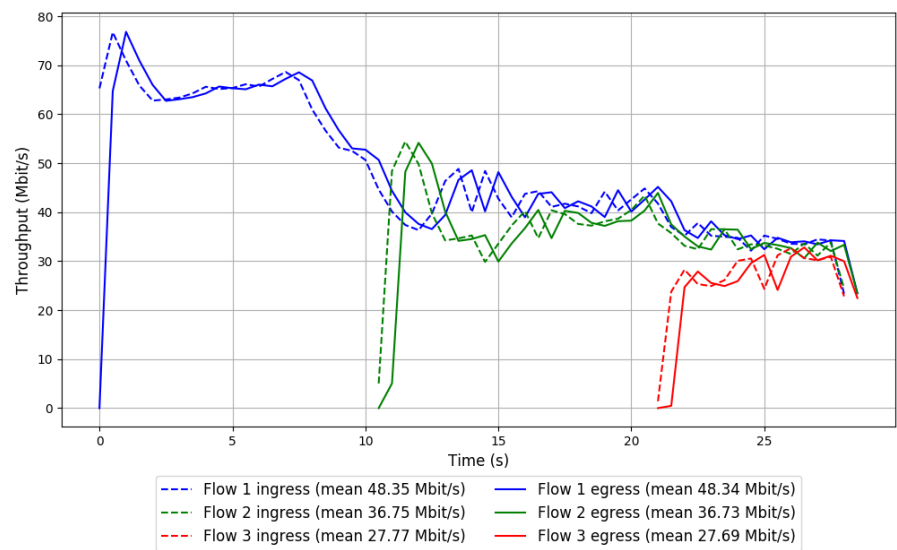
```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-09-18 23:50:19
End at: 2019-09-18 23:50:49
Local clock offset: -11.305 ms
Remote clock offset: -1.616 ms


# Below is generated by plot.py at 2019-09-19 01:08:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.88 Mbit/s
95th percentile per-packet one-way delay: 8.757 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 55.28 Mbit/s
95th percentile per-packet one-way delay: 7.588 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 10.769 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 14.47 Mbit/s
95th percentile per-packet one-way delay: 7.107 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 55.29 Mbit/s) --- Flow 1 egress (mean 55.28 Mbit/s)
Flow 2 ingress (mean 36.60 Mbit/s) --- Flow 2 egress (mean 36.57 Mbit/s)
Flow 3 ingress (mean 14.47 Mbit/s) --- Flow 3 egress (mean 14.47 Mbit/s)

Flow 1 (95th percentile 7.59 ms)   Flow 2 (95th percentile 10.77 ms)   Flow 3 (95th percentile 7.11 ms)

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-09-19 00:17:53
End at: 2019-09-19 00:18:23
Local clock offset: -7.298 ms
Remote clock offset: -0.299 ms


# Below is generated by plot.py at 2019-09-19 01:09:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.83 Mbit/s
95th percentile per-packet one-way delay: 21.187 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 48.69 Mbit/s
95th percentile per-packet one-way delay: 16.984 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 35.11 Mbit/s
95th percentile per-packet one-way delay: 24.518 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 29.60 Mbit/s
95th percentile per-packet one-way delay: 25.172 ms
Loss rate: 0.30%
```

Run 4: Report of Indigo-MusesT — Data Link
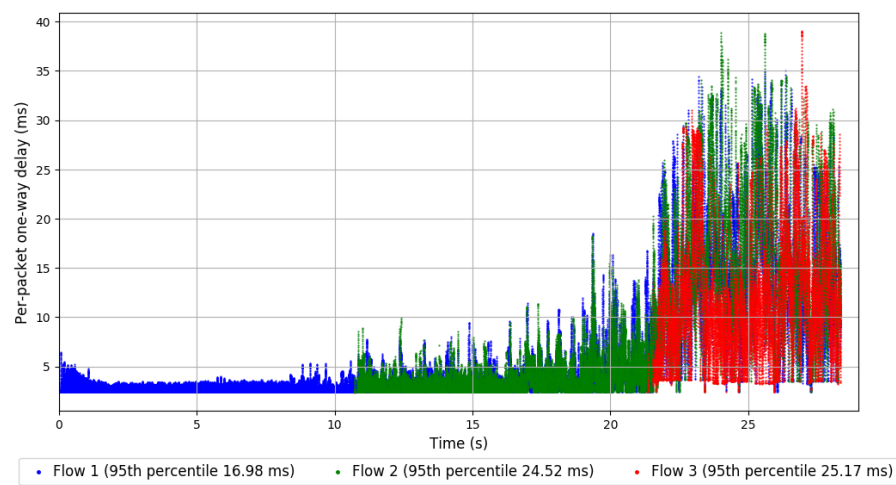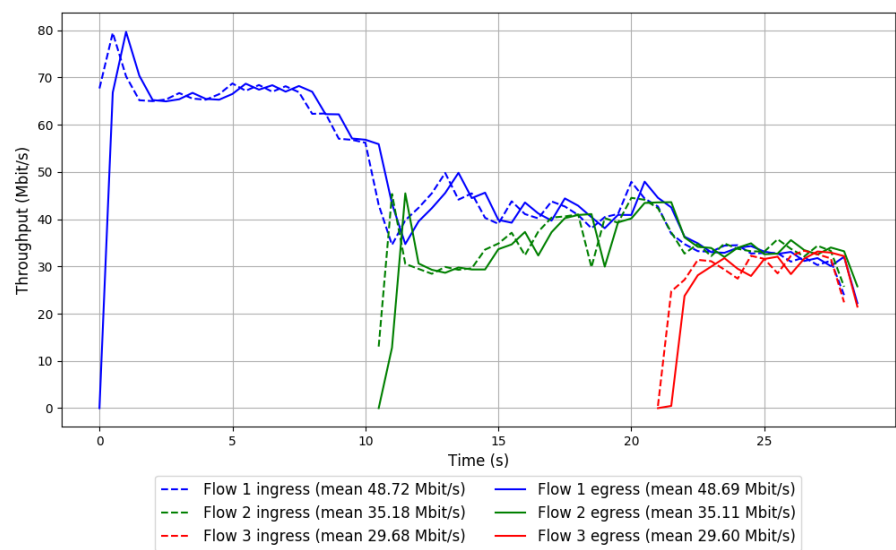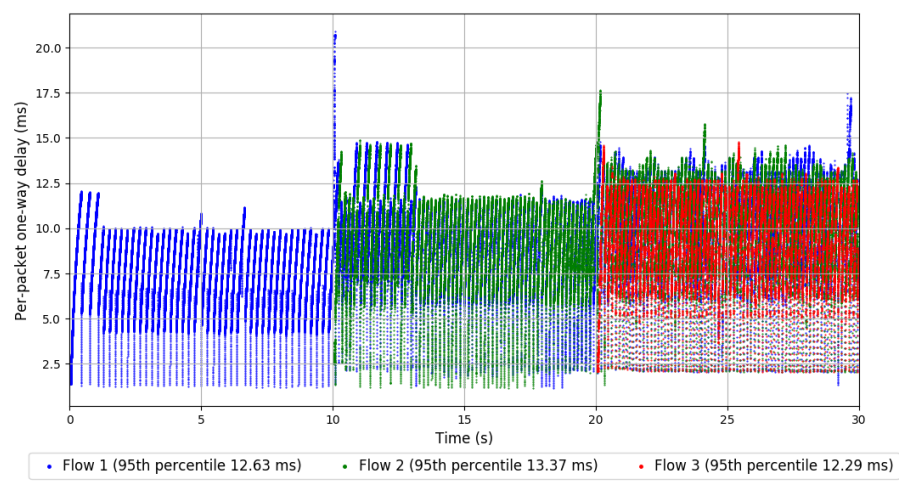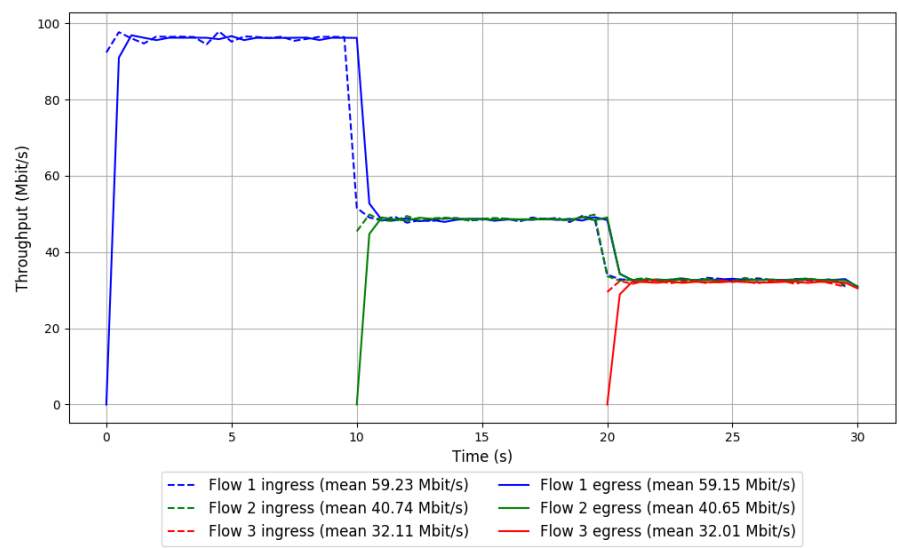
```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-09-19 00:45:25
End at: 2019-09-19 00:45:55
Local clock offset: -3.561 ms
Remote clock offset: -0.352 ms


# Below is generated by plot.py at 2019-09-19 01:09:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.71 Mbit/s
95th percentile per-packet one-way delay: 14.975 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 49.99 Mbit/s
95th percentile per-packet one-way delay: 14.222 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 37.05 Mbit/s
95th percentile per-packet one-way delay: 15.978 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 27.06 Mbit/s
95th percentile per-packet one-way delay: 15.710 ms
Loss rate: 0.00%
```
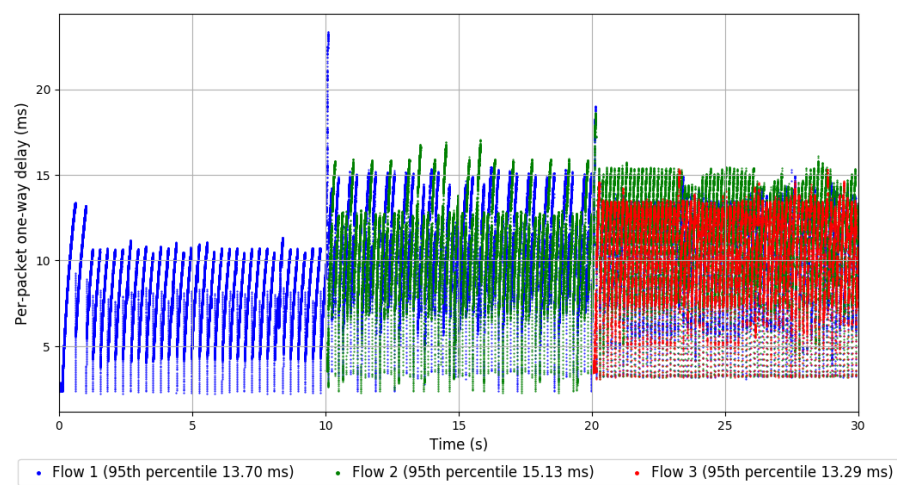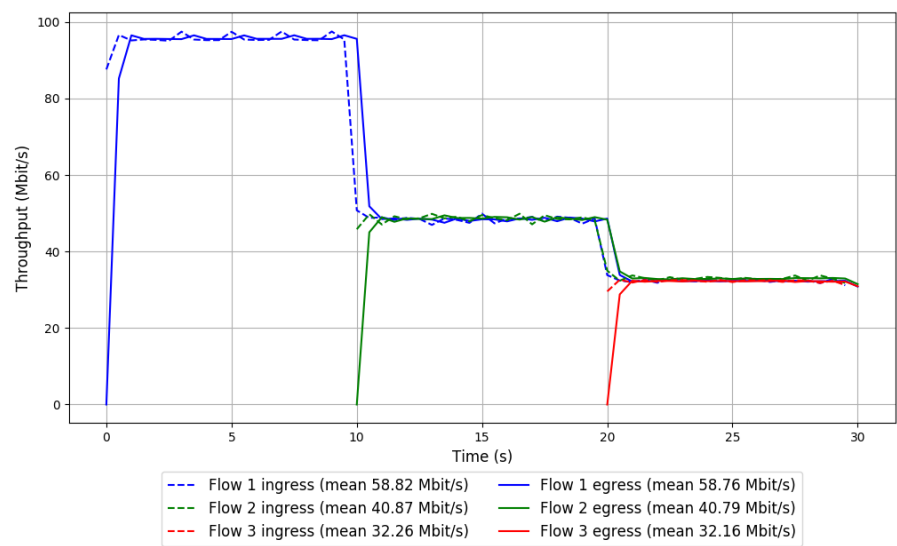
Run 5: Report of Indigo-MusesT — Data Link

- - - Flow 1 ingress (mean 49.99 Mbit/s) —— Flow 1 egress (mean 49.99 Mbit/s)
- - - Flow 2 ingress (mean 37.07 Mbit/s) —— Flow 2 egress (mean 37.05 Mbit/s)
- - - Flow 3 ingress (mean 27.07 Mbit/s) —— Flow 3 egress (mean 27.06 Mbit/s)

• Flow 1 (95th percentile 14.22 ms)   • Flow 2 (95th percentile 15.98 ms)   • Flow 3 (95th percentile 15.71 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2019-09-18 23:06:47
End at: 2019-09-18 23:07:17
Local clock offset: -3.061 ms
Remote clock offset: -2.681 ms


# Below is generated by plot.py at 2019-09-19 01:09:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.86 Mbit/s
95th percentile per-packet one-way delay: 14.186 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 59.14 Mbit/s
95th percentile per-packet one-way delay: 13.936 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.69 Mbit/s
95th percentile per-packet one-way delay: 14.659 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 31.99 Mbit/s
95th percentile per-packet one-way delay: 13.117 ms
Loss rate: 0.40%
```
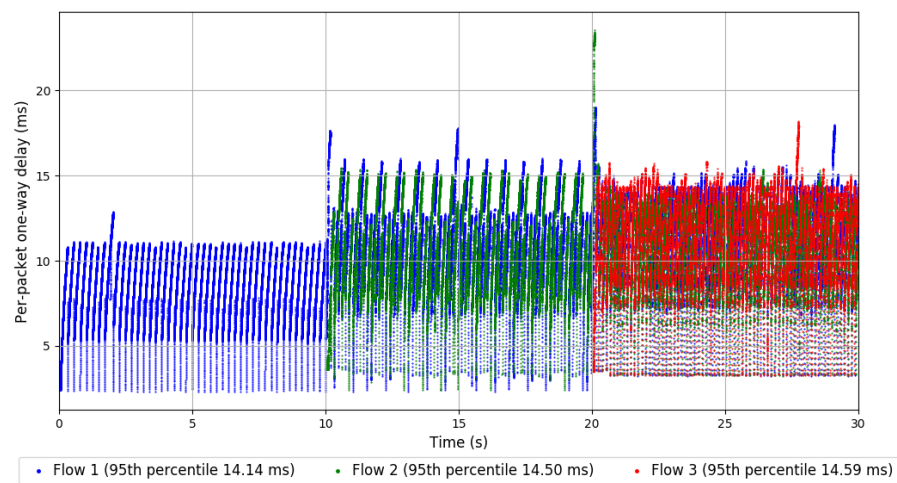
Run 1: Report of LEDBAT — Data Link
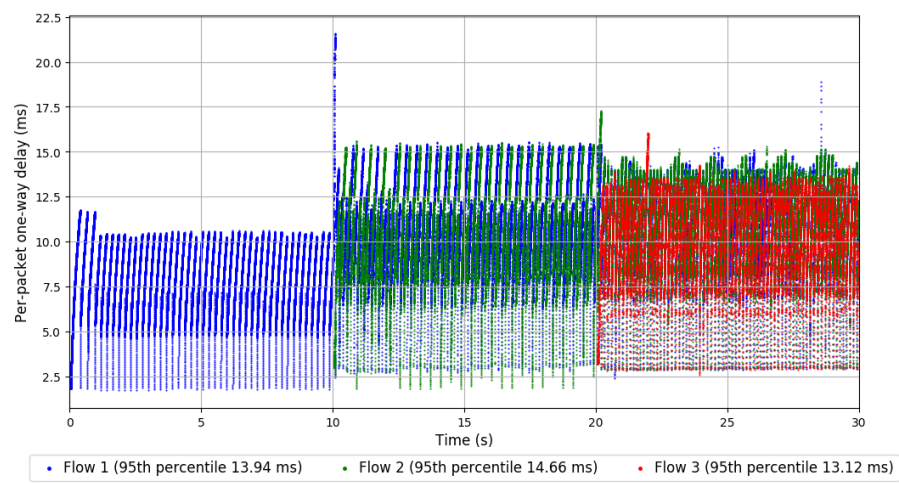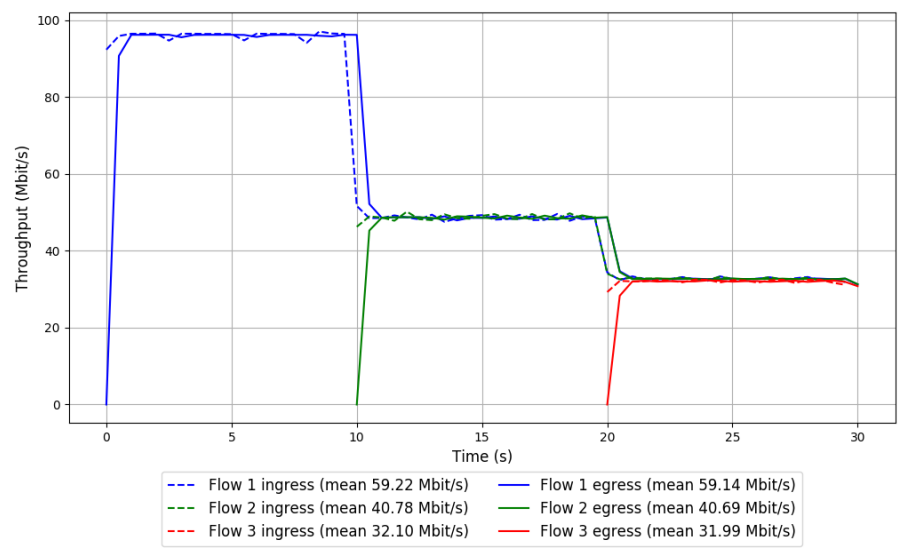
```
Run 2: Statistics of LEDBAT

Start at: 2019-09-18 23:34:18
End at: 2019-09-18 23:34:49
Local clock offset: -8.636 ms
Remote clock offset: -2.008 ms

# Below is generated by plot.py at 2019-09-19 01:09:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.51 Mbit/s
95th percentile per-packet one-way delay: 14.372 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 58.72 Mbit/s
95th percentile per-packet one-way delay: 13.218 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.34 Mbit/s
95th percentile per-packet one-way delay: 14.267 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 32.89 Mbit/s
95th percentile per-packet one-way delay: 15.307 ms
Loss rate: 0.41%
```

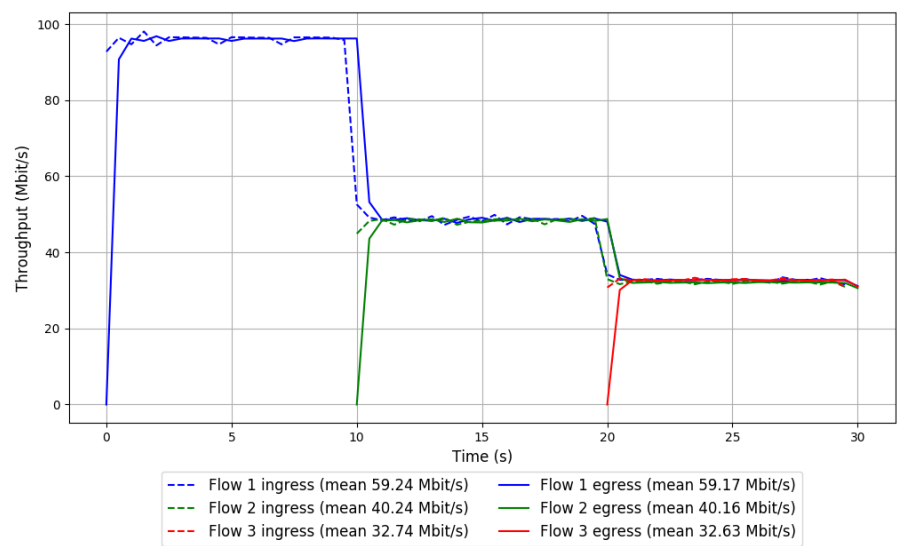Run 2: Report of LEDBAT — Data Link
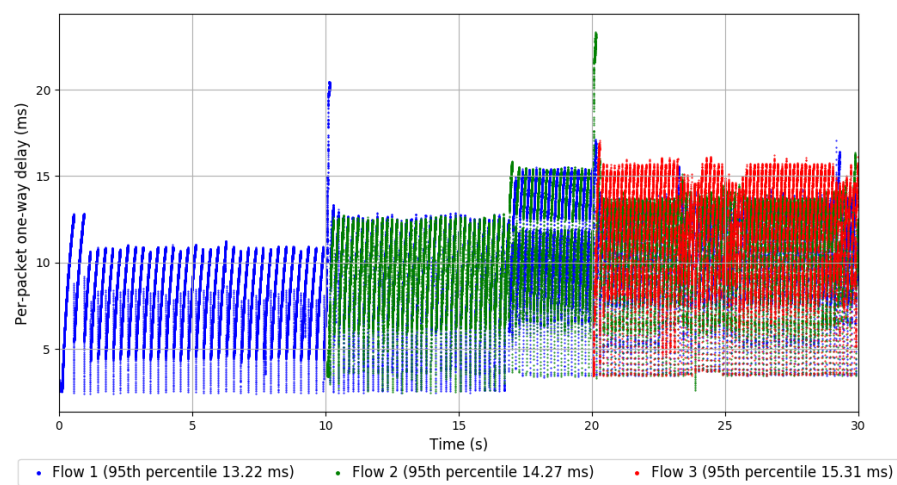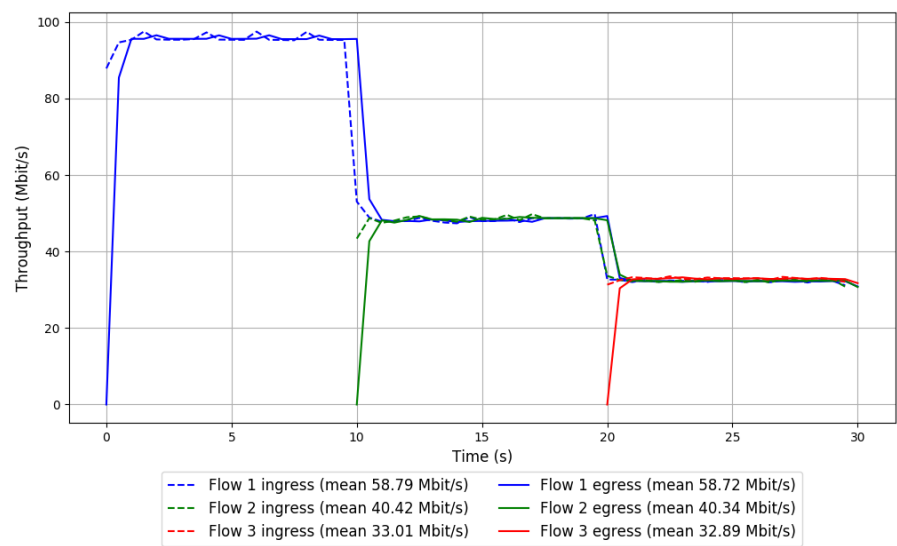
```
Run 3: Statistics of LEDBAT

Start at: 2019-09-19 00:01:52
End at: 2019-09-19 00:02:22
Local clock offset: -11.717 ms
Remote clock offset: -0.643 ms

# Below is generated by plot.py at 2019-09-19 01:09:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.85 Mbit/s
95th percentile per-packet one-way delay: 12.885 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.15 Mbit/s
95th percentile per-packet one-way delay: 12.630 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 13.371 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 12.289 ms
Loss rate: 0.37%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 59.23 Mbit/s)   Flow 1 egress (mean 59.15 Mbit/s)
Flow 2 ingress (mean 40.74 Mbit/s)   Flow 2 egress (mean 40.65 Mbit/s)
Flow 3 ingress (mean 32.11 Mbit/s)   Flow 3 egress (mean 32.01 Mbit/s)

Flow 1 (95th percentile 12.63 ms)   Flow 2 (95th percentile 13.37 ms)   Flow 3 (95th percentile 12.29 ms)

110

```
Run 4: Statistics of LEDBAT

Start at: 2019-09-19 00:29:25
End at: 2019-09-19 00:29:55
Local clock offset: -7.018 ms
Remote clock offset: -0.251 ms


# Below is generated by plot.py at 2019-09-19 01:10:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.60 Mbit/s
95th percentile per-packet one-way delay: 14.406 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 58.76 Mbit/s
95th percentile per-packet one-way delay: 13.701 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 40.79 Mbit/s
95th percentile per-packet one-way delay: 15.126 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.16 Mbit/s
95th percentile per-packet one-way delay: 13.294 ms
Loss rate: 0.37%
```

Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 58.82 Mbit/s) --- Flow 1 egress (mean 58.76 Mbit/s)
Flow 2 ingress (mean 40.87 Mbit/s) --- Flow 2 egress (mean 40.79 Mbit/s)
Flow 3 ingress (mean 32.26 Mbit/s) --- Flow 3 egress (mean 32.16 Mbit/s)

Flow 1 (95th percentile 13.70 ms) • Flow 2 (95th percentile 15.13 ms) • Flow 3 (95th percentile 13.29 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2019-09-19 00:56:57
End at: 2019-09-19 00:57:27
Local clock offset: -2.697 ms
Remote clock offset: -0.379 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.75 Mbit/s
95th percentile per-packet one-way delay: 14.368 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 59.17 Mbit/s
95th percentile per-packet one-way delay: 14.140 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.16 Mbit/s
95th percentile per-packet one-way delay: 14.504 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.63 Mbit/s
95th percentile per-packet one-way delay: 14.593 ms
Loss rate: 0.34%
```

Run 5: Report of LEDBAT — Data Link

- - - Flow 1 ingress (mean 59.24 Mbit/s)   —— Flow 1 egress (mean 59.17 Mbit/s)
- - - Flow 2 ingress (mean 40.24 Mbit/s)   —— Flow 2 egress (mean 40.16 Mbit/s)
- - - Flow 3 ingress (mean 32.74 Mbit/s)   —— Flow 3 egress (mean 32.63 Mbit/s)

• Flow 1 (95th percentile 14.14 ms)   • Flow 2 (95th percentile 14.50 ms)   • Flow 3 (95th percentile 14.59 ms)
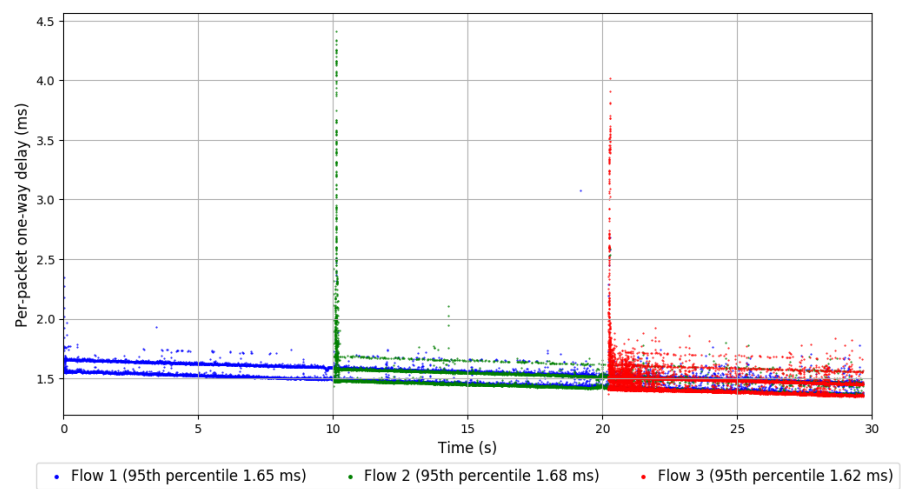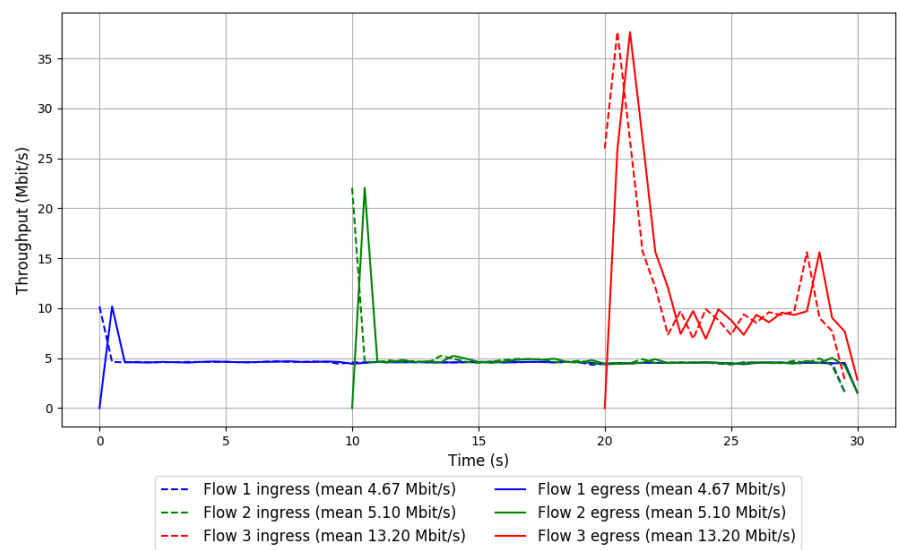
```
Run 1: Statistics of Muses\_DecisionTree

Start at: 2019-09-18 23:07:58
End at: 2019-09-18 23:08:28
Local clock offset: -3.551 ms
Remote clock offset: -2.773 ms

# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.90 Mbit/s
95th percentile per-packet one-way delay: 2.336 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 5.50 Mbit/s
95th percentile per-packet one-way delay: 2.314 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 2.311 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 9.40 Mbit/s
95th percentile per-packet one-way delay: 2.396 ms
Loss rate: 0.03%
```

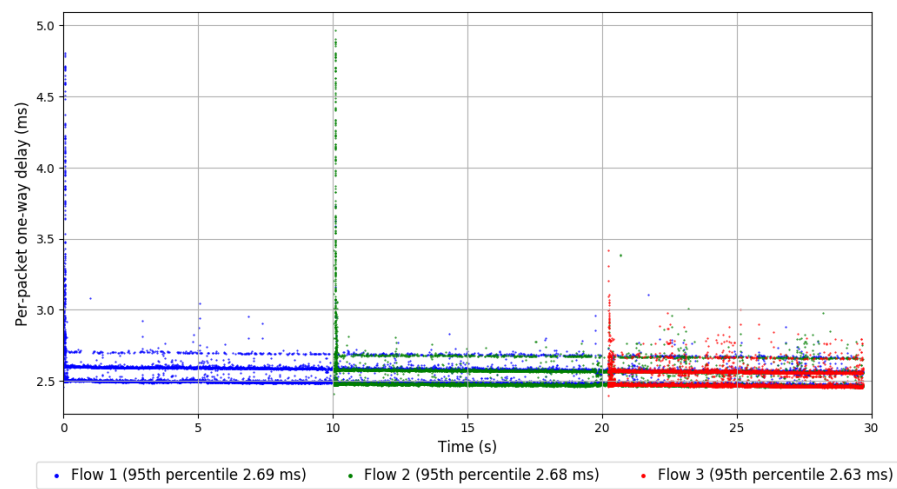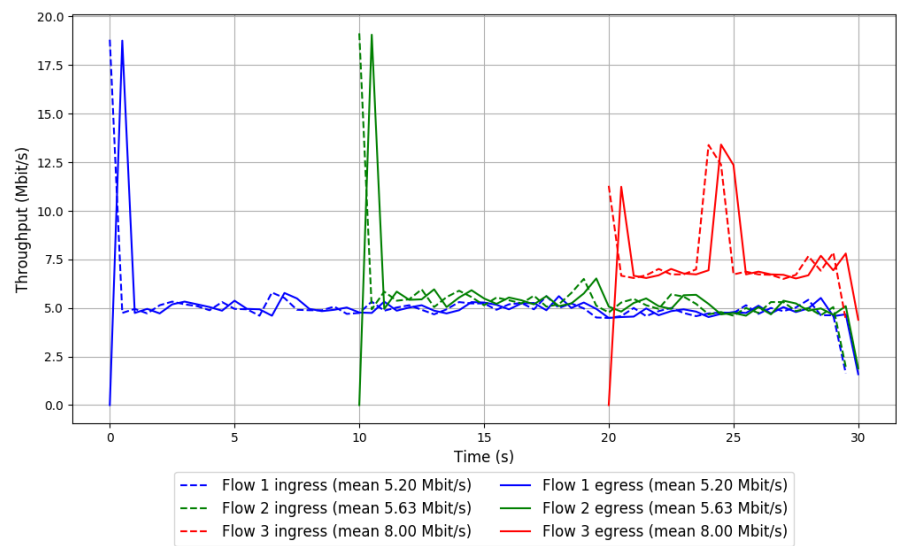Run 1: Report of Muses_DecisionTree — Data Link
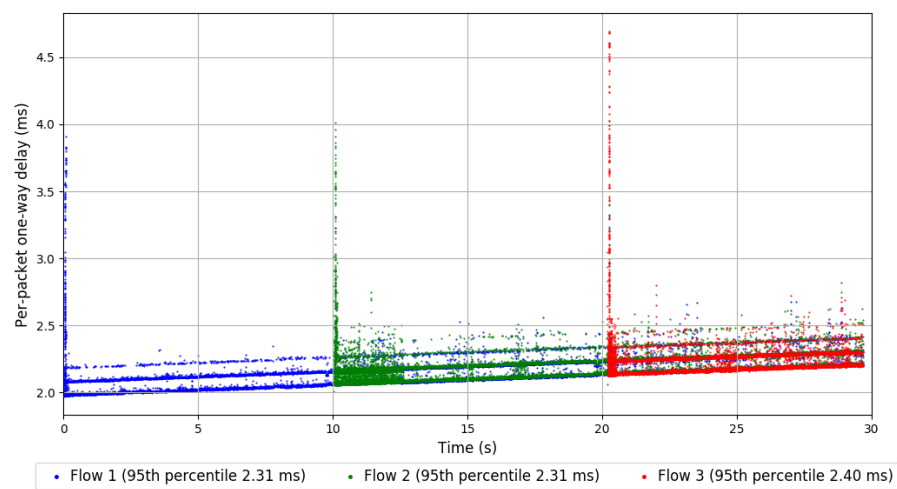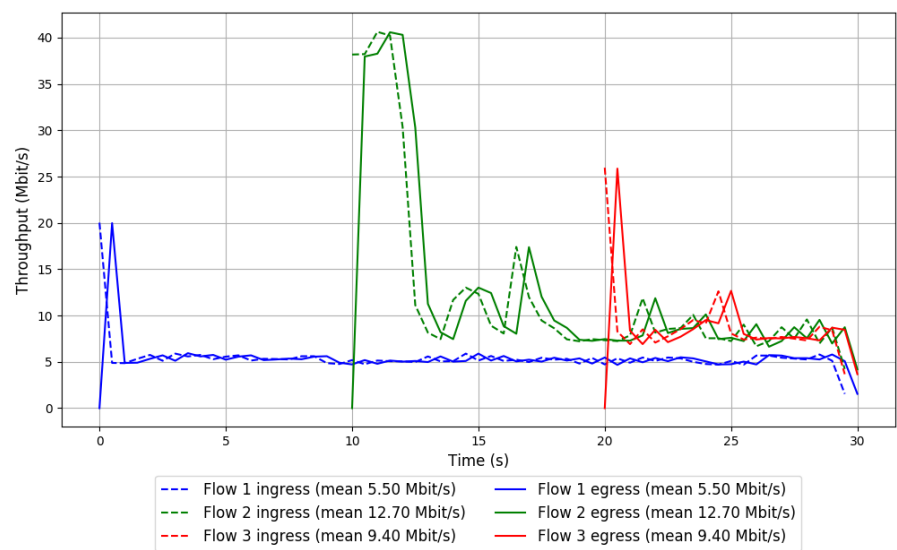
```
Run 2: Statistics of Muses\_DecisionTree

Start at: 2019-09-18 23:35:29
End at: 2019-09-18 23:35:59
Local clock offset: -8.758 ms
Remote clock offset: -1.942 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.24 Mbit/s
95th percentile per-packet one-way delay: 2.808 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 5.33 Mbit/s
95th percentile per-packet one-way delay: 2.794 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 2.808 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 5.06 Mbit/s
95th percentile per-packet one-way delay: 2.847 ms
Loss rate: 0.05%
```

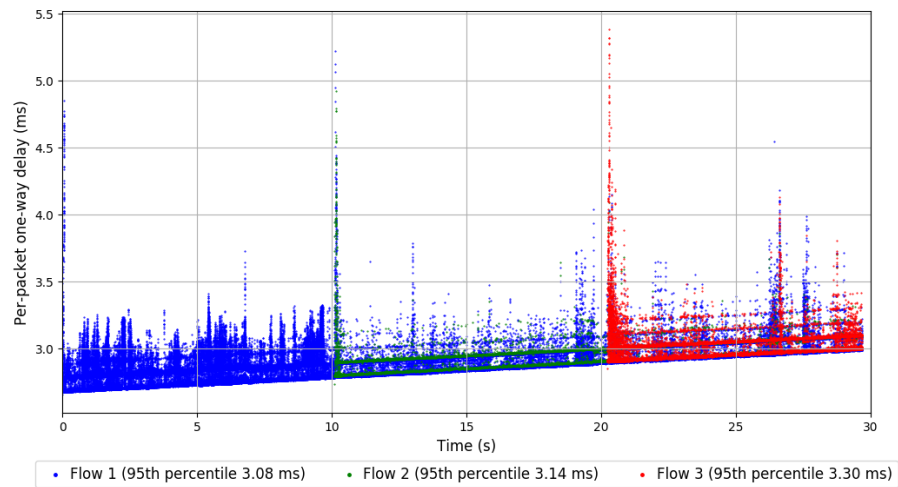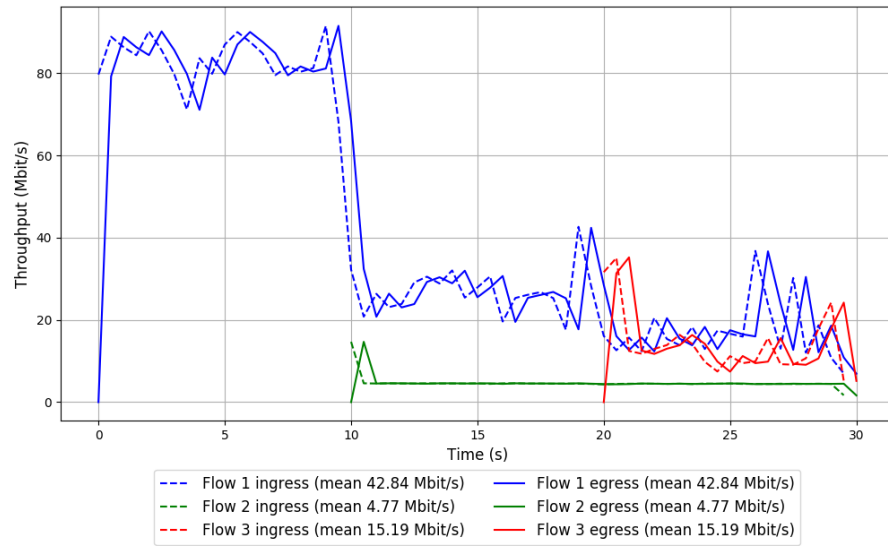Run 2: Report of Muses_DecisionTree — Data Link
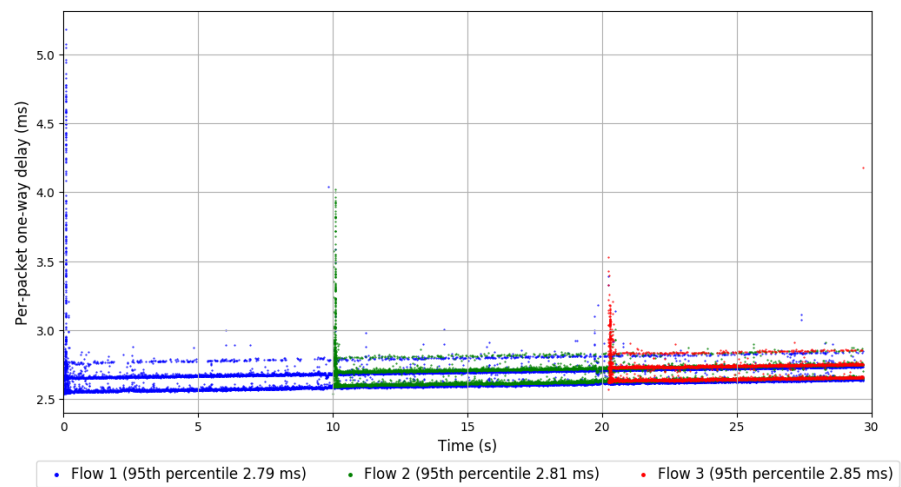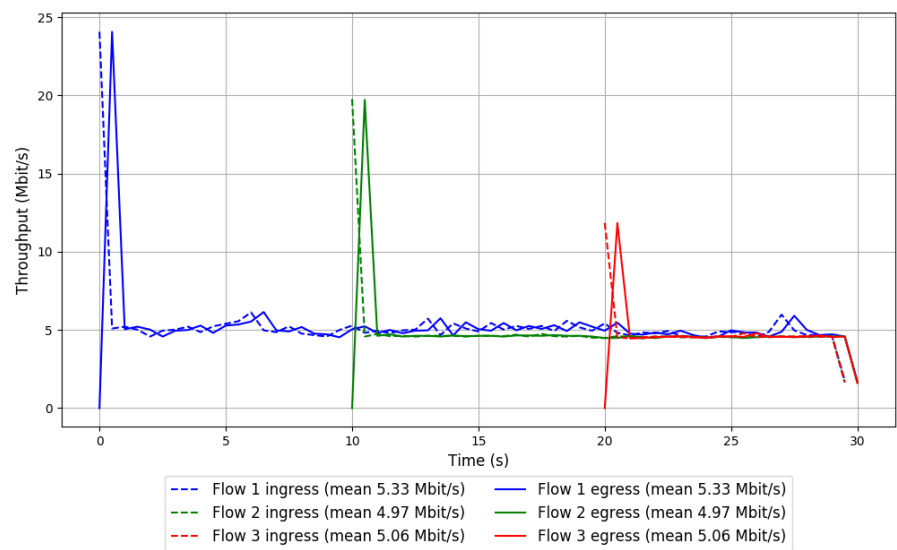
```
Run 3: Statistics of Muses\_DecisionTree

Start at: 2019-09-19 00:03:03
End at: 2019-09-19 00:03:33
Local clock offset: -10.351 ms
Remote clock offset: -0.745 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.01 Mbit/s
95th percentile per-packet one-way delay: 2.471 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 5.23 Mbit/s
95th percentile per-packet one-way delay: 2.496 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 2.444 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 9.82 Mbit/s
95th percentile per-packet one-way delay: 2.484 ms
Loss rate: 0.01%
```
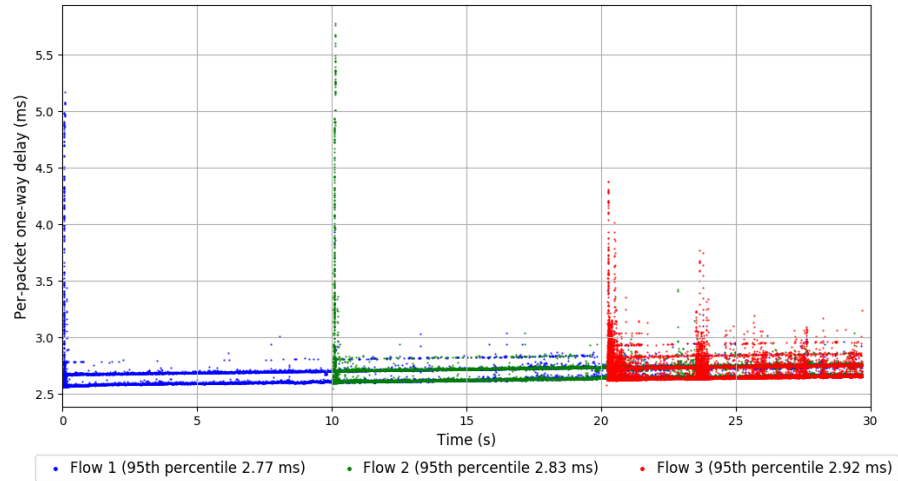
Run 3: Report of Muses_DecisionTree — Data Link
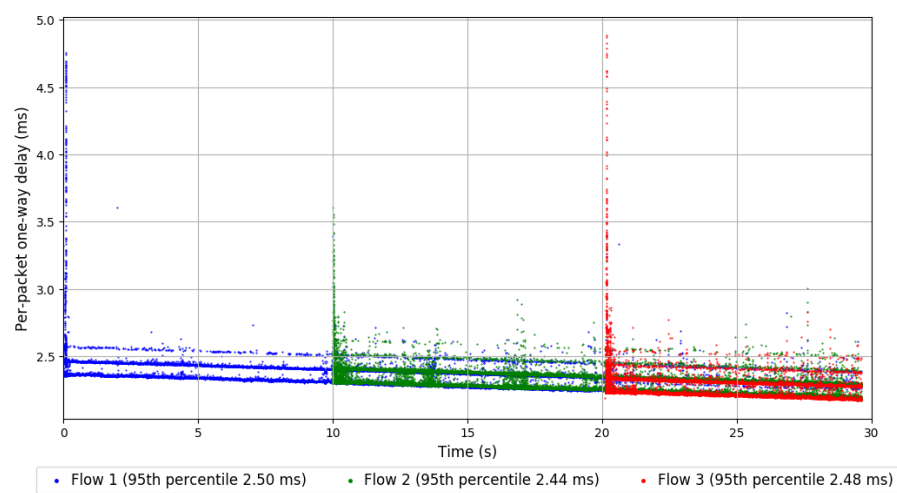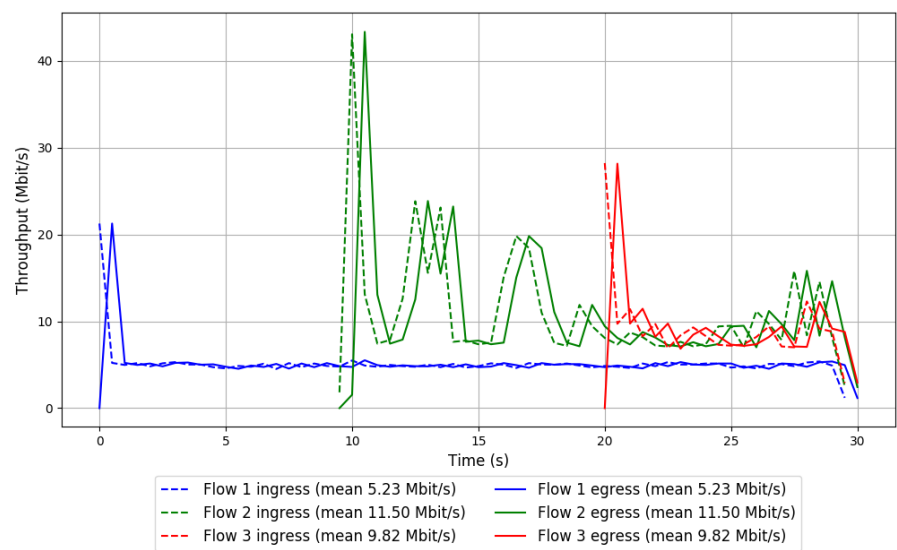
```
Run 4: Statistics of Muses\_DecisionTree

Start at: 2019-09-19 00:30:36
End at: 2019-09-19 00:31:06
Local clock offset: -7.688 ms
Remote clock offset: -0.366 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.25 Mbit/s
95th percentile per-packet one-way delay: 1.647 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 4.67 Mbit/s
95th percentile per-packet one-way delay: 1.645 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 5.10 Mbit/s
95th percentile per-packet one-way delay: 1.681 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 13.20 Mbit/s
95th percentile per-packet one-way delay: 1.618 ms
Loss rate: 0.02%
```
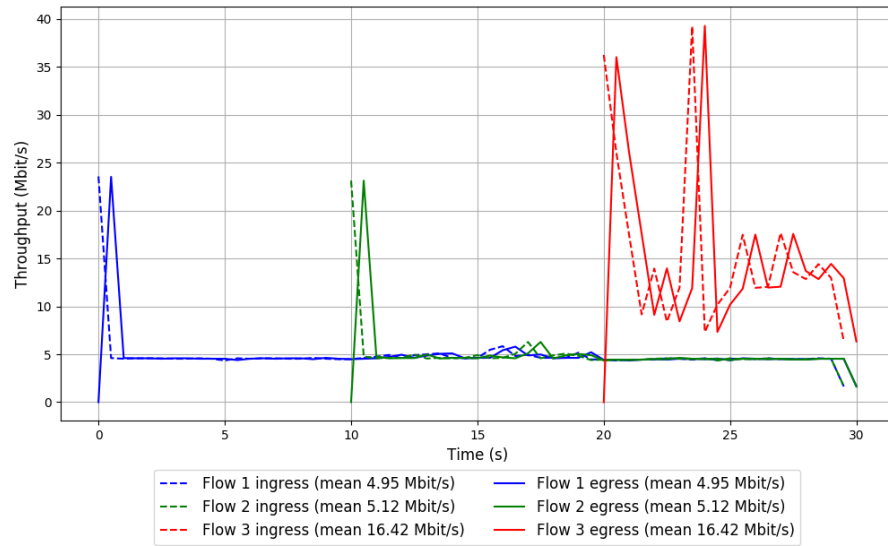
Run 4: Report of Muses_DecisionTree — Data Link

```
Run 5: Statistics of Muses\_DecisionTree

Start at: 2019-09-19 00:58:08
End at: 2019-09-19 00:58:38
Local clock offset: -2.629 ms
Remote clock offset: -0.466 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.47 Mbit/s
95th percentile per-packet one-way delay: 2.678 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 5.20 Mbit/s
95th percentile per-packet one-way delay: 2.686 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 2.679 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 8.00 Mbit/s
95th percentile per-packet one-way delay: 2.628 ms
Loss rate: 0.03%
```
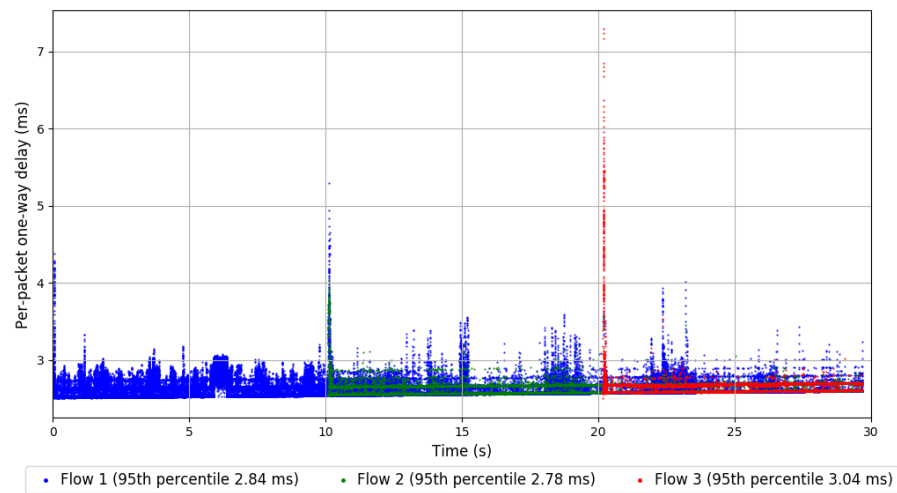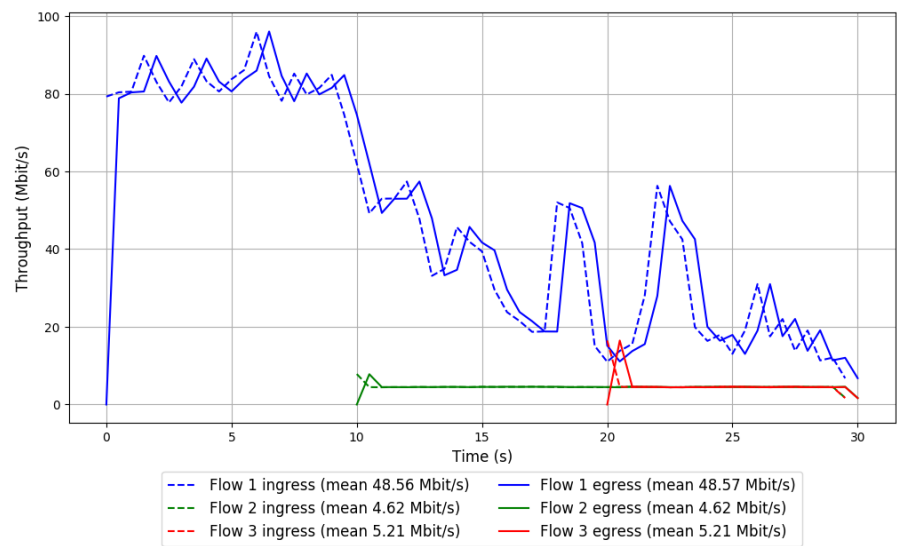
Run 5: Report of Muses_DecisionTree — Data Link

```
Run 1: Statistics of Muses\_DecisionTreeH0

Start at: 2019-09-18 23:03:25
End at: 2019-09-18 23:03:55
Local clock offset: -0.261 ms
Remote clock offset: -2.567 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 50.83 Mbit/s
95th percentile per-packet one-way delay: 3.114 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 42.84 Mbit/s
95th percentile per-packet one-way delay: 3.084 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 4.77 Mbit/s
95th percentile per-packet one-way delay: 3.137 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 15.19 Mbit/s
95th percentile per-packet one-way delay: 3.302 ms
Loss rate: 0.03%
```

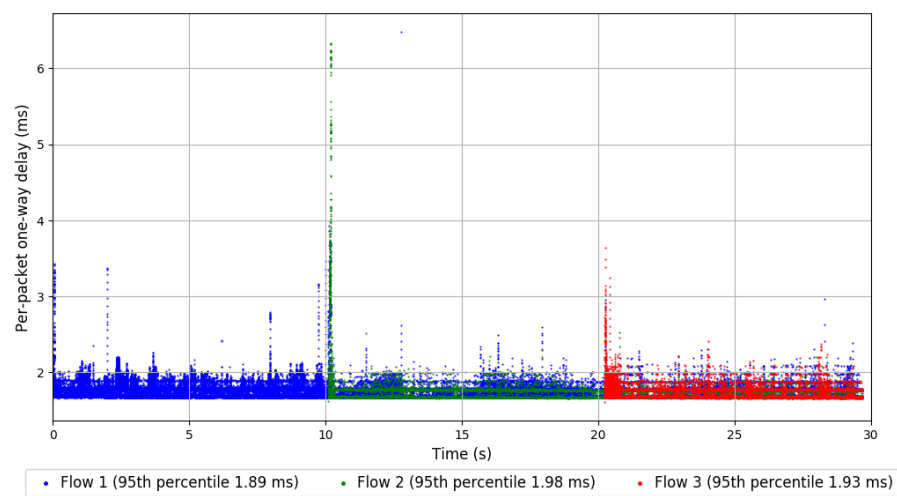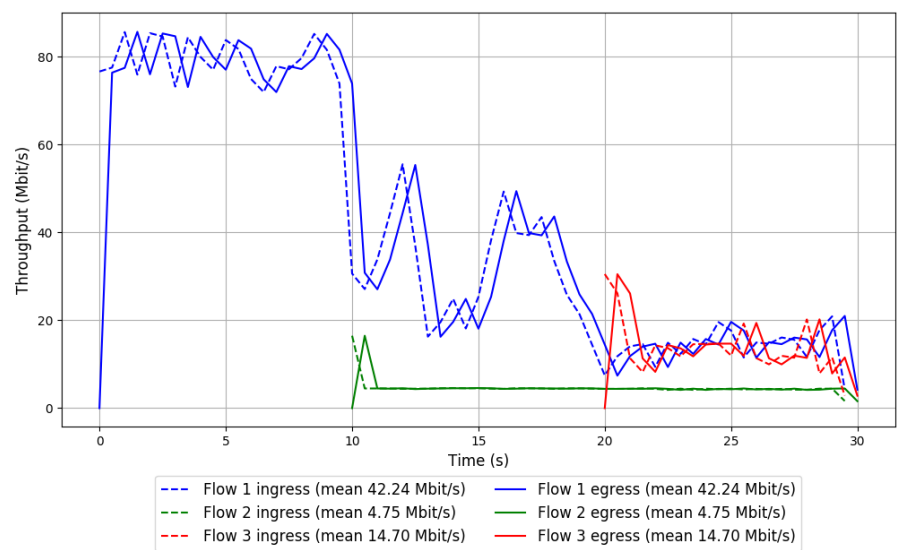Run 1: Report of Muses_DecisionTreeH0 — Data Link

```
Run 2: Statistics of Muses\_DecisionTreeH0

Start at: 2019-09-18 23:30:57
End at: 2019-09-18 23:31:27
Local clock offset: -8.19 ms
Remote clock offset: -2.201 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.58 Mbit/s
95th percentile per-packet one-way delay: 2.846 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 4.95 Mbit/s
95th percentile per-packet one-way delay: 2.767 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 5.12 Mbit/s
95th percentile per-packet one-way delay: 2.834 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 16.42 Mbit/s
95th percentile per-packet one-way delay: 2.925 ms
Loss rate: 0.03%
```

Run 2: Report of Muses_DecisionTreeH0 — Data Link

```
Run 3: Statistics of Muses\_DecisionTreeH0

Start at: 2019-09-18 23:58:29
End at: 2019-09-18 23:58:59
Local clock offset: -11.415 ms
Remote clock offset: -0.835 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.29 Mbit/s
95th percentile per-packet one-way delay: 2.840 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 48.57 Mbit/s
95th percentile per-packet one-way delay: 2.840 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.62 Mbit/s
95th percentile per-packet one-way delay: 2.778 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 5.21 Mbit/s
95th percentile per-packet one-way delay: 3.038 ms
Loss rate: 0.05%
```

Run 3: Report of Muses_DecisionTreeH0 — Data Link

Flow 1 ingress (mean 48.56 Mbit/s)   Flow 1 egress (mean 48.57 Mbit/s)
Flow 2 ingress (mean 4.62 Mbit/s)   Flow 2 egress (mean 4.62 Mbit/s)
Flow 3 ingress (mean 5.21 Mbit/s)   Flow 3 egress (mean 5.21 Mbit/s)

Flow 1 (95th percentile 2.84 ms)   Flow 2 (95th percentile 2.78 ms)   Flow 3 (95th percentile 3.04 ms)

Run 4: Statistics of Muses_DecisionTreeH0

Start at: 2019-09-19 00:26:03
End at: 2019-09-19 00:26:33
Local clock offset: -7.733 ms
Remote clock offset: -0.234 ms

Below is generated by plot.py at 2019-09-19 01:10:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 50.06 Mbit/s
95th percentile per-packet one-way delay: 1.889 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 42.24 Mbit/s
95th percentile per-packet one-way delay: 1.885 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 1.984 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 14.70 Mbit/s
95th percentile per-packet one-way delay: 1.927 ms
Loss rate: 0.04%

Run 4: Report of Muses_DecisionTreeH0 — Data Link

```
Run 5: Statistics of Muses\_DecisionTreeH0

Start at: 2019-09-19 00:53:35
End at: 2019-09-19 00:54:05
Local clock offset: -2.97 ms
Remote clock offset: -0.454 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 24.02 Mbit/s
95th percentile per-packet one-way delay: 2.650 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 4.80 Mbit/s
95th percentile per-packet one-way delay: 2.617 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 20.68 Mbit/s
95th percentile per-packet one-way delay: 2.648 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 17.06 Mbit/s
95th percentile per-packet one-way delay: 2.699 ms
Loss rate: 0.01%
```
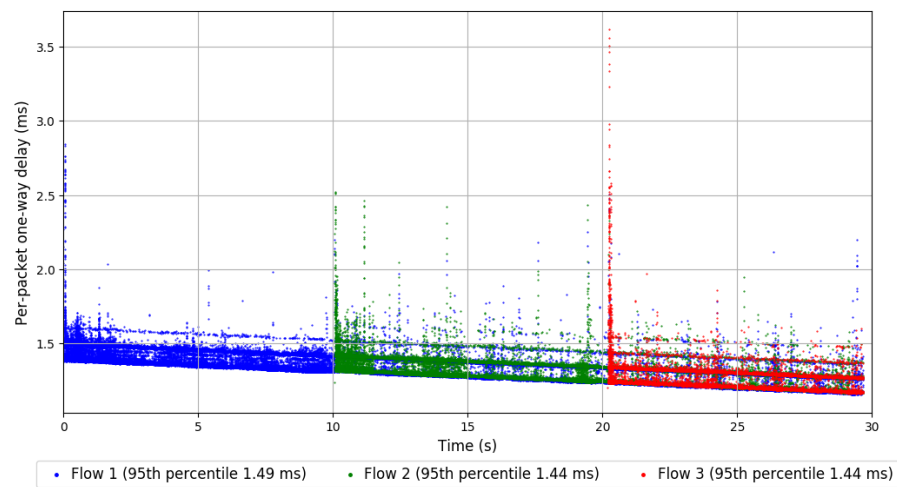
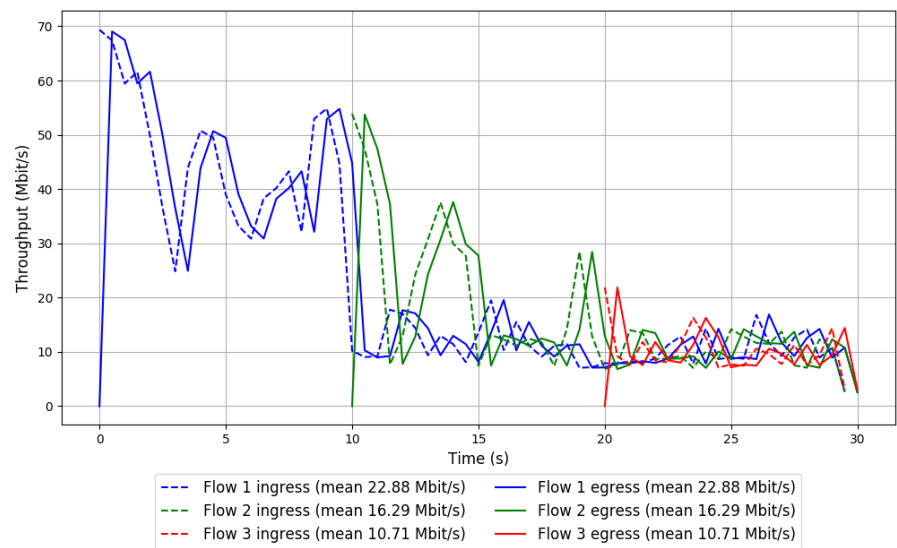Run 5: Report of Muses_DecisionTreeH0 — Data Link
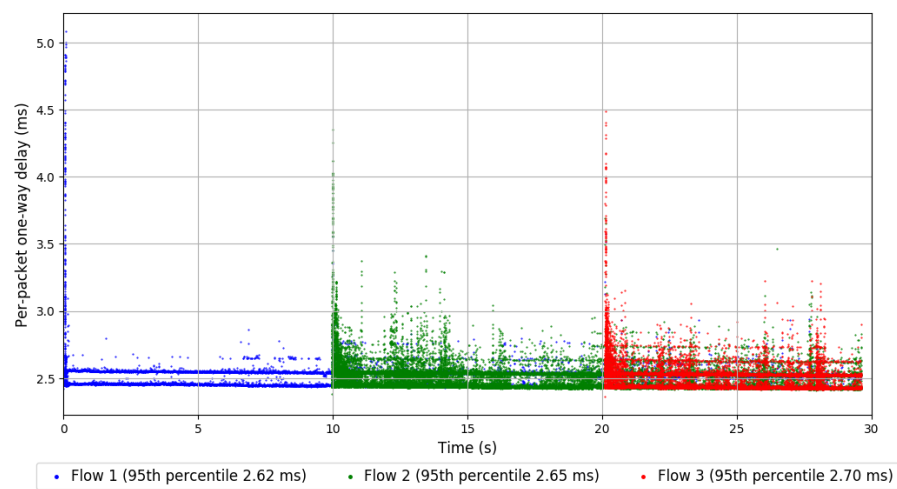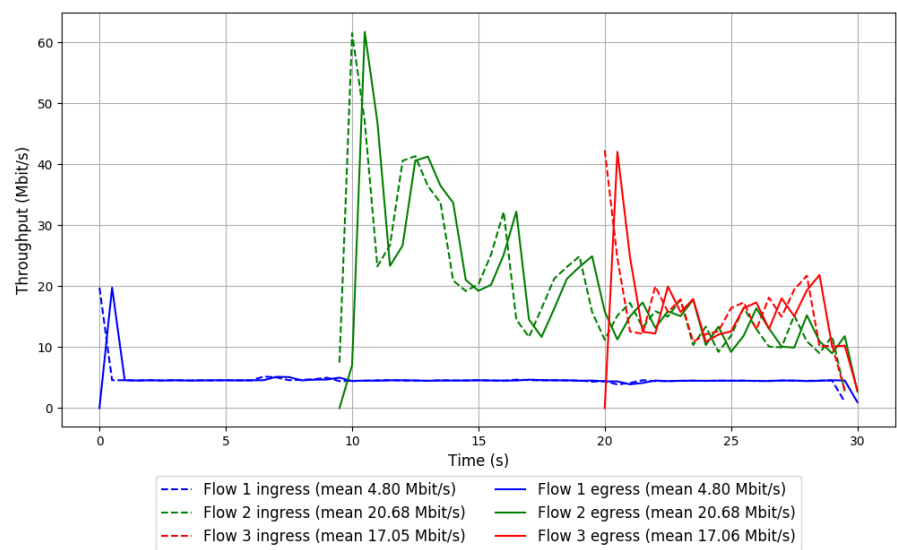
```
Run 1: Statistics of Muses\_DecisionTreeR0

Start at: 2019-09-18 23:05:41
End at: 2019-09-18 23:06:11
Local clock offset: -1.661 ms
Remote clock offset: -2.618 ms


# Below is generated by plot.py at 2019-09-19 01:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.34 Mbit/s
95th percentile per-packet one-way delay: 2.982 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 24.68 Mbit/s
95th percentile per-packet one-way delay: 2.952 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.07 Mbit/s
95th percentile per-packet one-way delay: 3.052 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 10.40 Mbit/s
95th percentile per-packet one-way delay: 3.107 ms
Loss rate: 0.07%
```

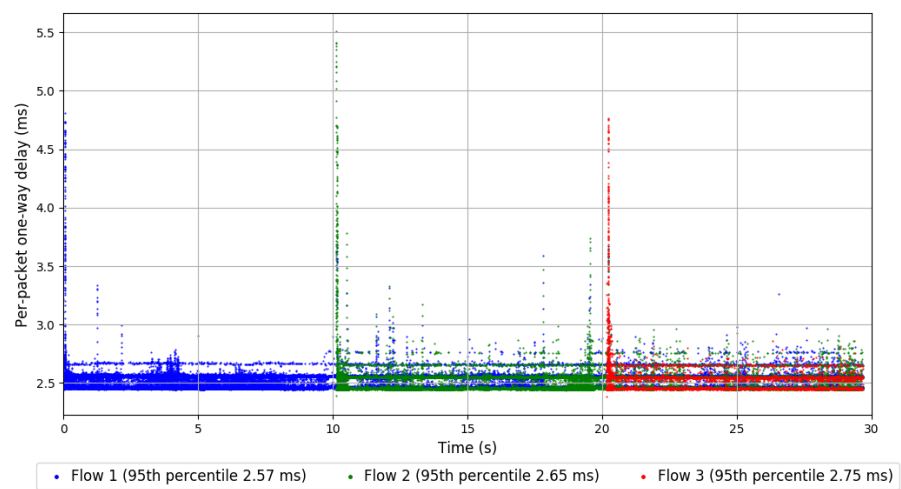Run 1: Report of Muses_DecisionTreeR0 — Data Link
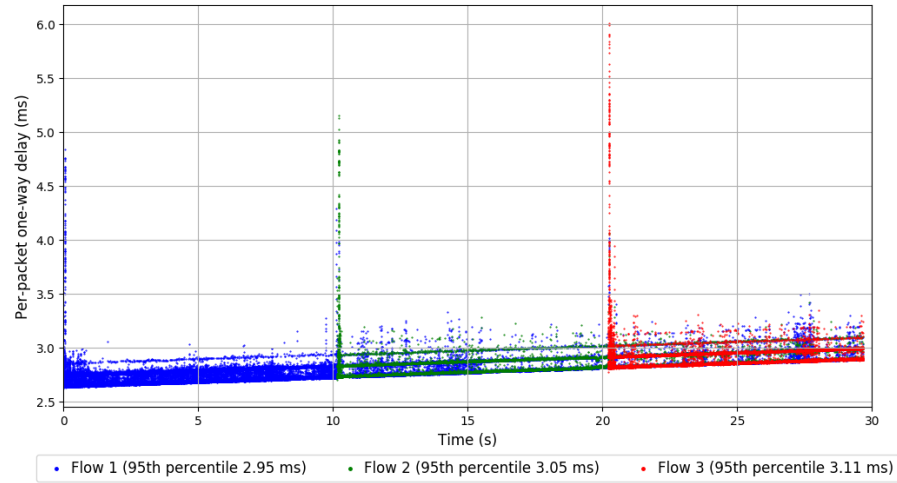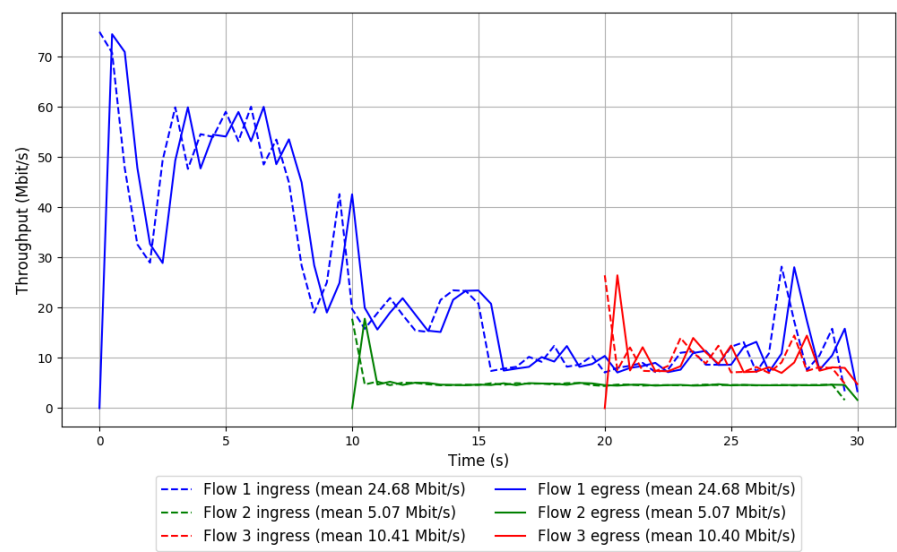
```
Run 2: Statistics of Muses\_DecisionTreeR0

Start at: 2019-09-18 23:33:12
End at: 2019-09-18 23:33:42
Local clock offset: -9.299 ms
Remote clock offset: -2.185 ms

# Below is generated by plot.py at 2019-09-19 01:10:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 33.07 Mbit/s
95th percentile per-packet one-way delay: 2.020 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 28.31 Mbit/s
95th percentile per-packet one-way delay: 2.009 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 2.024 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 5.39 Mbit/s
95th percentile per-packet one-way delay: 2.213 ms
Loss rate: 0.05%
```

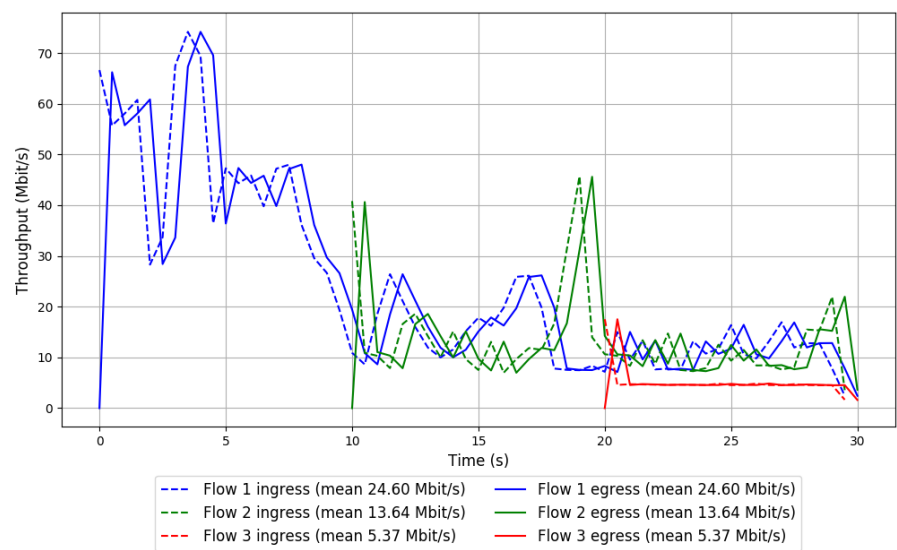Run 2: Report of Muses_DecisionTreeR0 — Data Link
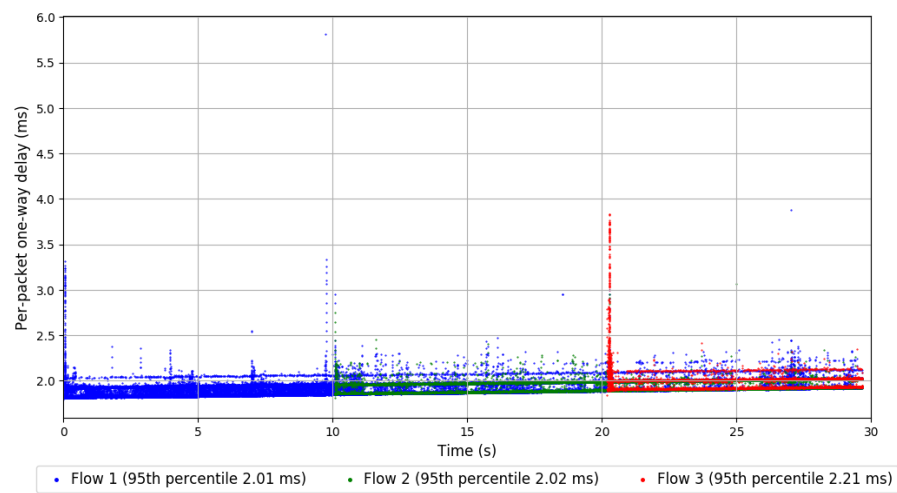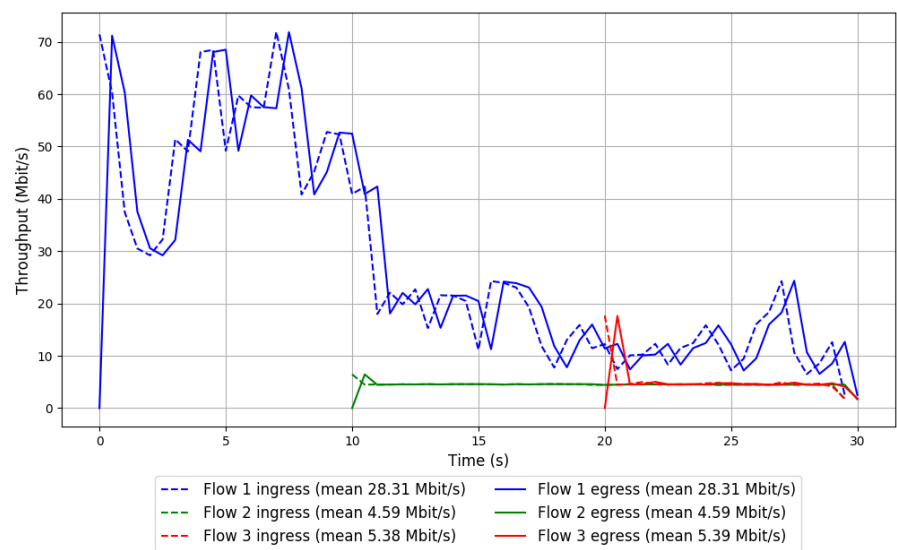
```
Run 3: Statistics of Muses\_DecisionTreeR0

Start at: 2019-09-19 00:00:45
End at: 2019-09-19 00:01:15
Local clock offset: -12.324 ms
Remote clock offset: -0.768 ms


# Below is generated by plot.py at 2019-09-19 01:10:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.07 Mbit/s
95th percentile per-packet one-way delay: 1.491 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 22.88 Mbit/s
95th percentile per-packet one-way delay: 1.494 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 16.29 Mbit/s
95th percentile per-packet one-way delay: 1.442 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 10.71 Mbit/s
95th percentile per-packet one-way delay: 1.441 ms
Loss rate: 0.02%
```

Run 3: Report of Muses_DecisionTreeR0 — Data Link

```
Run 4: Statistics of Muses\_DecisionTreeR0

Start at: 2019-09-19 00:28:19
End at: 2019-09-19 00:28:49
Local clock offset: -6.954 ms
Remote clock offset: -0.259 ms


# Below is generated by plot.py at 2019-09-19 01:10:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 35.31 Mbit/s
95th percentile per-packet one-way delay: 2.592 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 24.60 Mbit/s
95th percentile per-packet one-way delay: 2.567 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 13.64 Mbit/s
95th percentile per-packet one-way delay: 2.647 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 2.746 ms
Loss rate: 0.05%
```

Run 4: Report of Muses_DecisionTreeR0 — Data Link

```
Run 5: Statistics of Muses\_DecisionTreeR0

Start at: 2019-09-19 00:55:50
End at: 2019-09-19 00:56:20
Local clock offset: -3.536 ms
Remote clock offset: -0.367 ms


# Below is generated by plot.py at 2019-09-19 01:10:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 34.21 Mbit/s
95th percentile per-packet one-way delay: 1.770 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 27.62 Mbit/s
95th percentile per-packet one-way delay: 1.754 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 4.72 Mbit/s
95th percentile per-packet one-way delay: 1.821 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 10.86 Mbit/s
95th percentile per-packet one-way delay: 1.876 ms
Loss rate: 0.05%
```

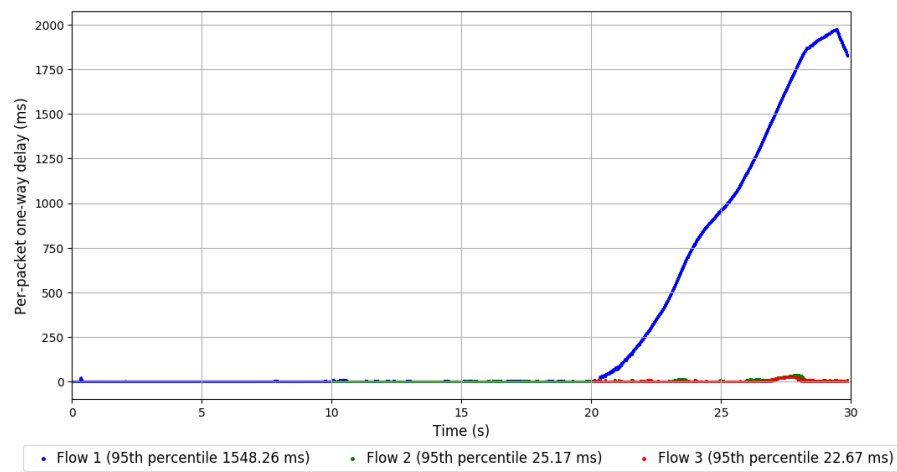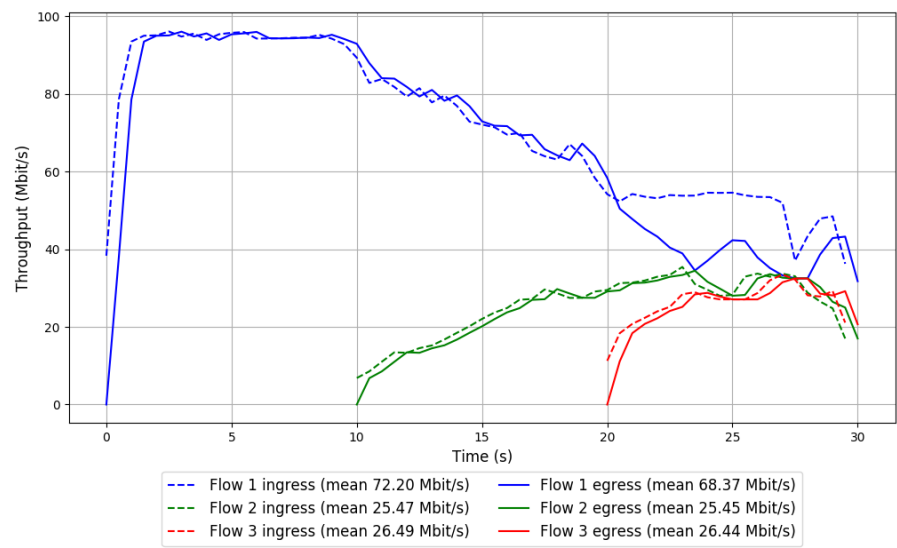Run 5: Report of Muses_DecisionTreeR0 — Data Link

144
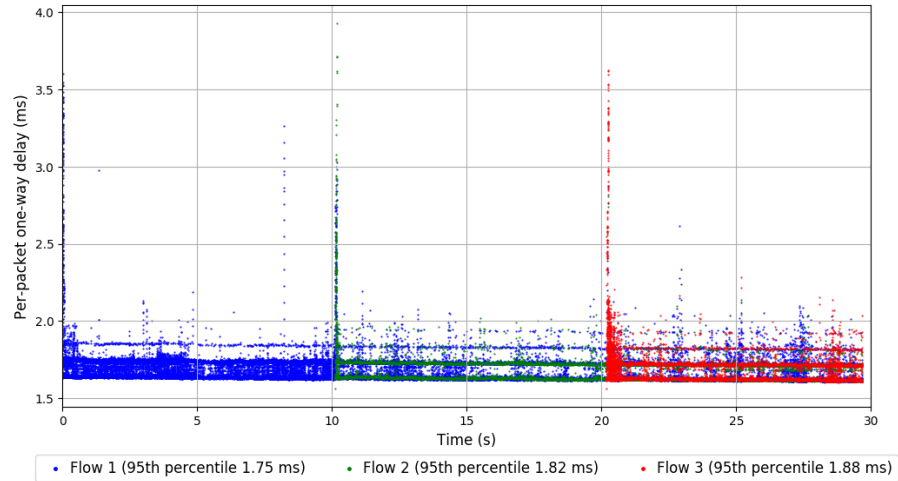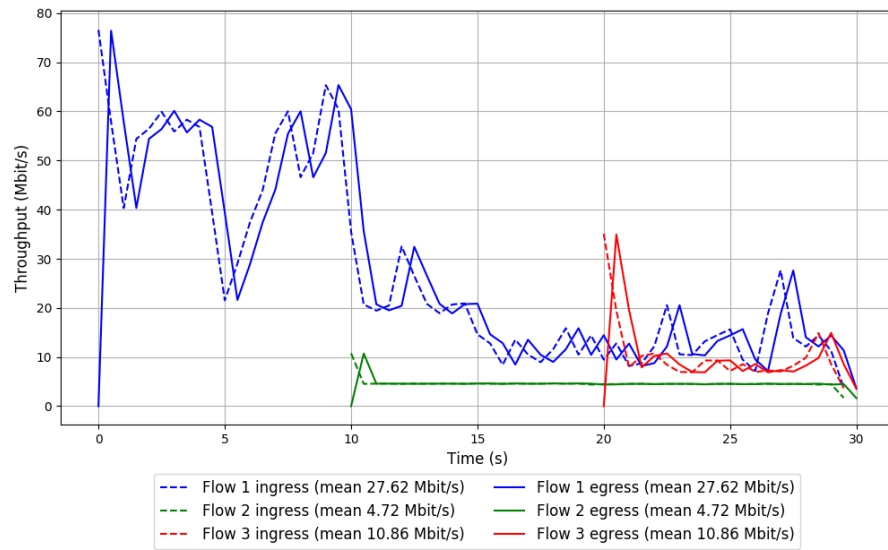
```
Run 1: Statistics of PCC-Allegro

Start at: 2019-09-18 22:42:41
End at: 2019-09-18 22:43:11
Local clock offset: 1.613 ms
Remote clock offset: -2.126 ms


# Below is generated by plot.py at 2019-09-19 01:10:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.92 Mbit/s
95th percentile per-packet one-way delay: 6.650 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 74.50 Mbit/s
95th percentile per-packet one-way delay: 11.737 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 14.99 Mbit/s
95th percentile per-packet one-way delay: 2.803 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 4.40 Mbit/s
95th percentile per-packet one-way delay: 2.859 ms
Loss rate: 0.06%
```
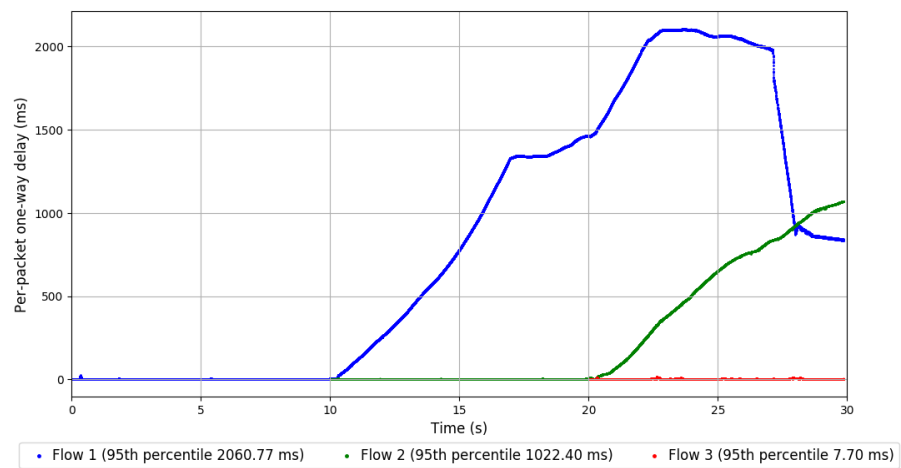
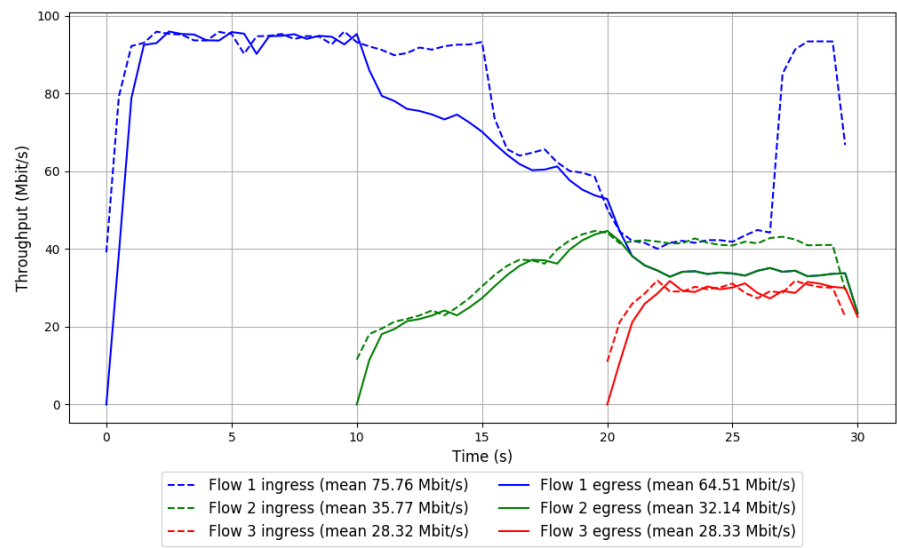Run 1: Report of PCC-Allegro — Data Link
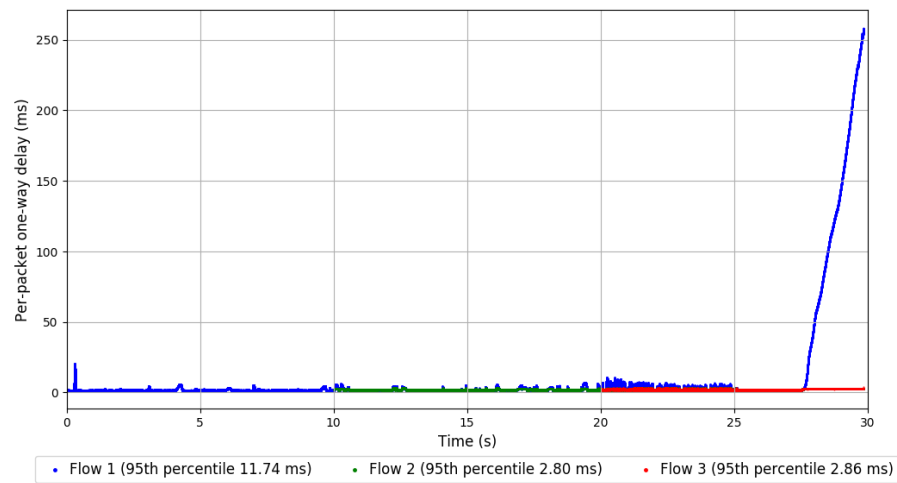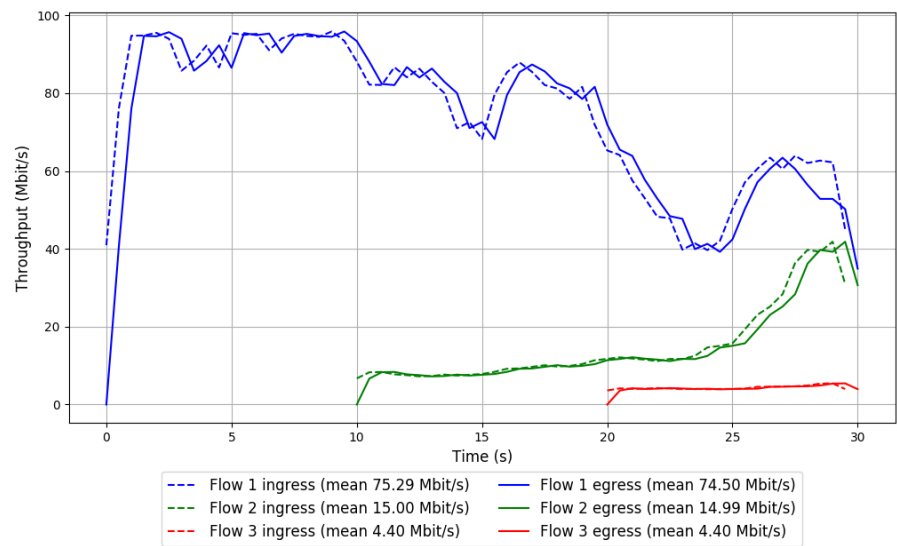
```
Run 2: Statistics of PCC-Allegro

Start at: 2019-09-18 23:10:14
End at: 2019-09-18 23:10:44
Local clock offset: -4.565 ms
Remote clock offset: -2.665 ms


# Below is generated by plot.py at 2019-09-19 01:11:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.99 Mbit/s
95th percentile per-packet one-way delay: 1183.458 ms
Loss rate: 3.96%
-- Flow 1:
Average throughput: 68.37 Mbit/s
95th percentile per-packet one-way delay: 1548.256 ms
Loss rate: 5.31%
-- Flow 2:
Average throughput: 25.45 Mbit/s
95th percentile per-packet one-way delay: 25.166 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 26.44 Mbit/s
95th percentile per-packet one-way delay: 22.673 ms
Loss rate: 0.23%
```
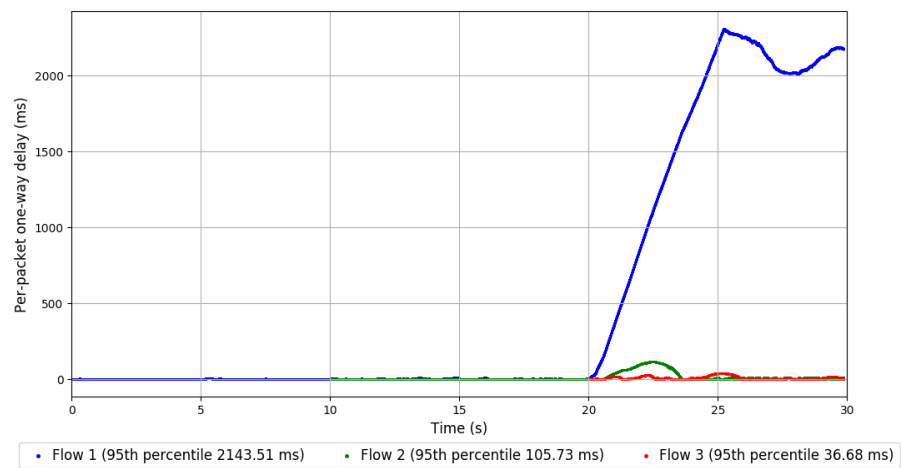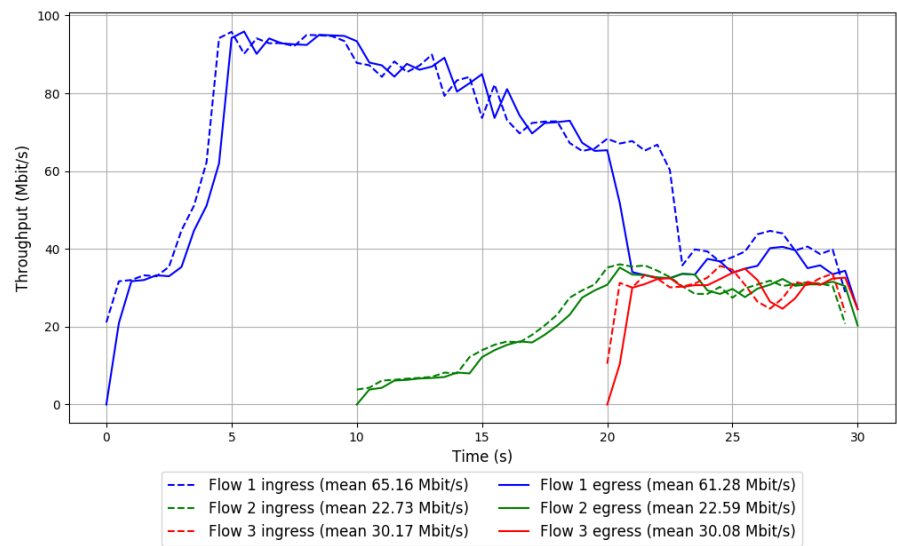
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 72.20 Mbit/s) — Flow 1 egress (mean 68.37 Mbit/s)
Flow 2 ingress (mean 25.47 Mbit/s) — Flow 2 egress (mean 25.45 Mbit/s)
Flow 3 ingress (mean 26.49 Mbit/s) — Flow 3 egress (mean 26.44 Mbit/s)

Flow 1 (95th percentile 1548.26 ms)   Flow 2 (95th percentile 25.17 ms)   Flow 3 (95th percentile 22.67 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-09-18 23:37:44
End at: 2019-09-18 23:38:14
Local clock offset: -9.023 ms
Remote clock offset: -1.776 ms


# Below is generated by plot.py at 2019-09-19 01:11:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.20 Mbit/s
95th percentile per-packet one-way delay: 2010.438 ms
Loss rate: 12.58%
-- Flow 1:
Average throughput: 64.51 Mbit/s
95th percentile per-packet one-way delay: 2060.767 ms
Loss rate: 14.88%
-- Flow 2:
Average throughput: 32.14 Mbit/s
95th percentile per-packet one-way delay: 1022.404 ms
Loss rate: 10.16%
-- Flow 3:
Average throughput: 28.33 Mbit/s
95th percentile per-packet one-way delay: 7.696 ms
Loss rate: 0.06%
```

Run 3: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 75.76 Mbit/s)   —— Flow 1 egress (mean 64.51 Mbit/s)
- - - Flow 2 ingress (mean 35.77 Mbit/s)   —— Flow 2 egress (mean 32.14 Mbit/s)
- - - Flow 3 ingress (mean 28.32 Mbit/s)   —— Flow 3 egress (mean 28.33 Mbit/s)

- Flow 1 (95th percentile 2060.77 ms)   • Flow 2 (95th percentile 1022.40 ms)   • Flow 3 (95th percentile 7.70 ms)
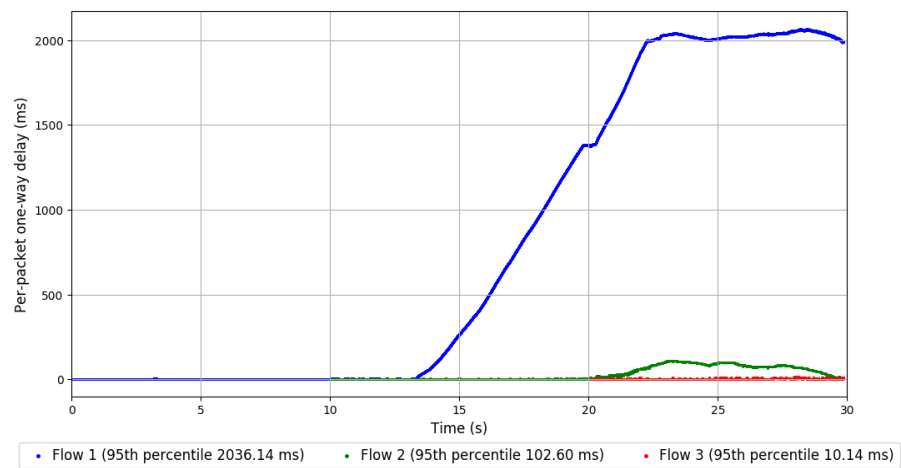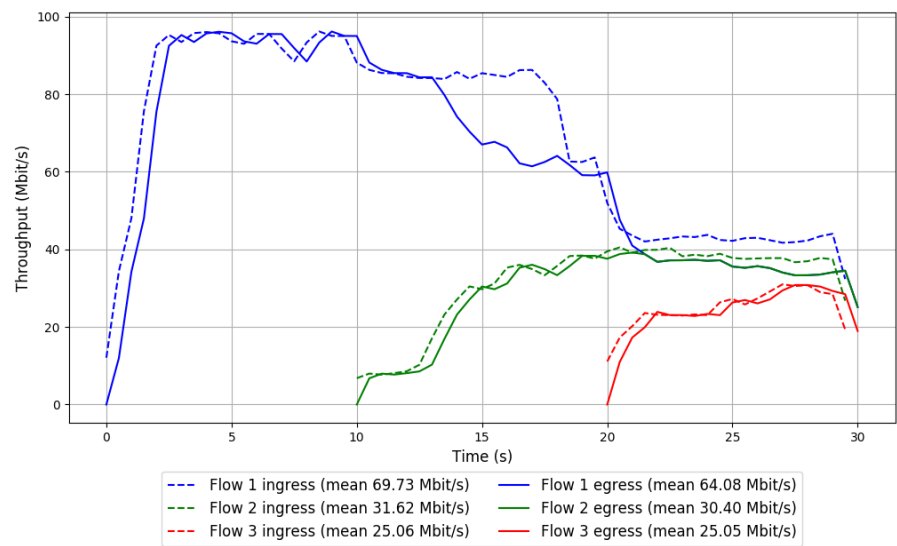
```
Run 4: Statistics of PCC-Allegro

Start at: 2019-09-19 00:05:18
End at: 2019-09-19 00:05:48
Local clock offset: -9.4 ms
Remote clock offset: -0.513 ms


# Below is generated by plot.py at 2019-09-19 01:11:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.19 Mbit/s
95th percentile per-packet one-way delay: 2072.321 ms
Loss rate: 4.46%
-- Flow 1:
Average throughput: 61.28 Mbit/s
95th percentile per-packet one-way delay: 2143.514 ms
Loss rate: 5.95%
-- Flow 2:
Average throughput: 22.59 Mbit/s
95th percentile per-packet one-way delay: 105.735 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 30.08 Mbit/s
95th percentile per-packet one-way delay: 36.679 ms
Loss rate: 0.41%
```

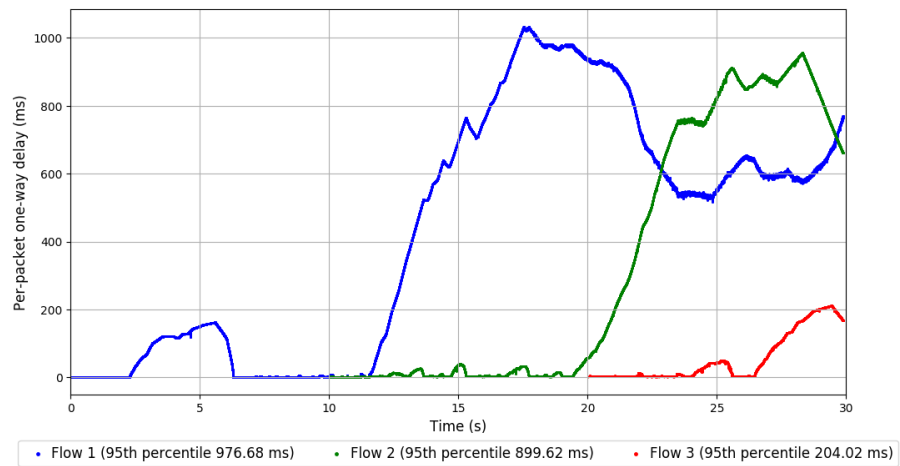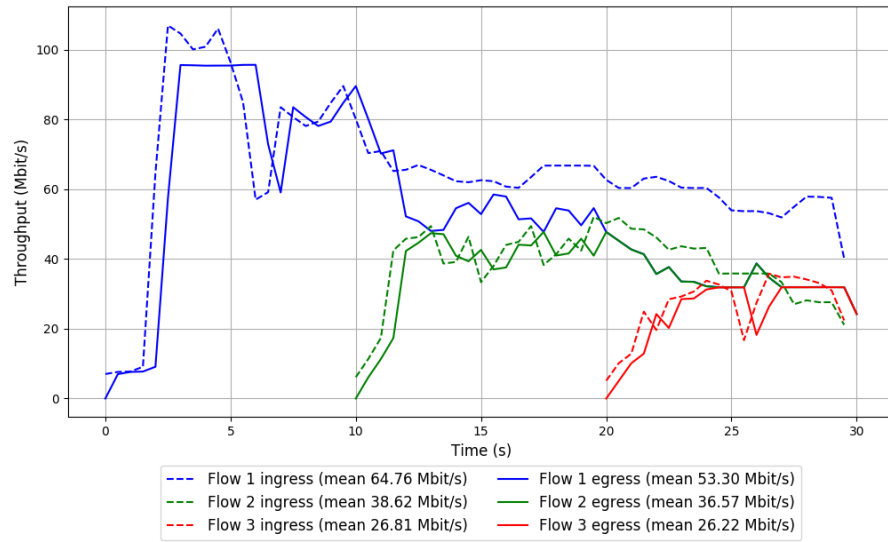Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 65.16 Mbit/s)   Flow 1 egress (mean 61.28 Mbit/s)
Flow 2 ingress (mean 22.73 Mbit/s)   Flow 2 egress (mean 22.59 Mbit/s)
Flow 3 ingress (mean 30.17 Mbit/s)   Flow 3 egress (mean 30.08 Mbit/s)

Flow 1 (95th percentile 2143.51 ms)   Flow 2 (95th percentile 105.73 ms)   Flow 3 (95th percentile 36.68 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-09-19 00:32:51
End at: 2019-09-19 00:33:21
Local clock offset: -6.007 ms
Remote clock offset: -0.332 ms


# Below is generated by plot.py at 2019-09-19 01:11:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.53 Mbit/s
95th percentile per-packet one-way delay: 2027.462 ms
Loss rate: 6.55%
-- Flow 1:
Average throughput: 64.08 Mbit/s
95th percentile per-packet one-way delay: 2036.141 ms
Loss rate: 8.12%
-- Flow 2:
Average throughput: 30.40 Mbit/s
95th percentile per-packet one-way delay: 102.603 ms
Loss rate: 3.88%
-- Flow 3:
Average throughput: 25.05 Mbit/s
95th percentile per-packet one-way delay: 10.138 ms
Loss rate: 0.11%
```
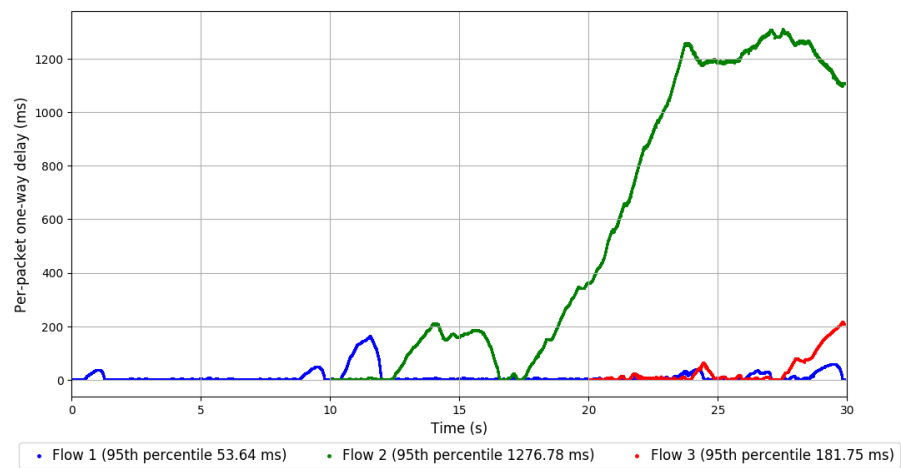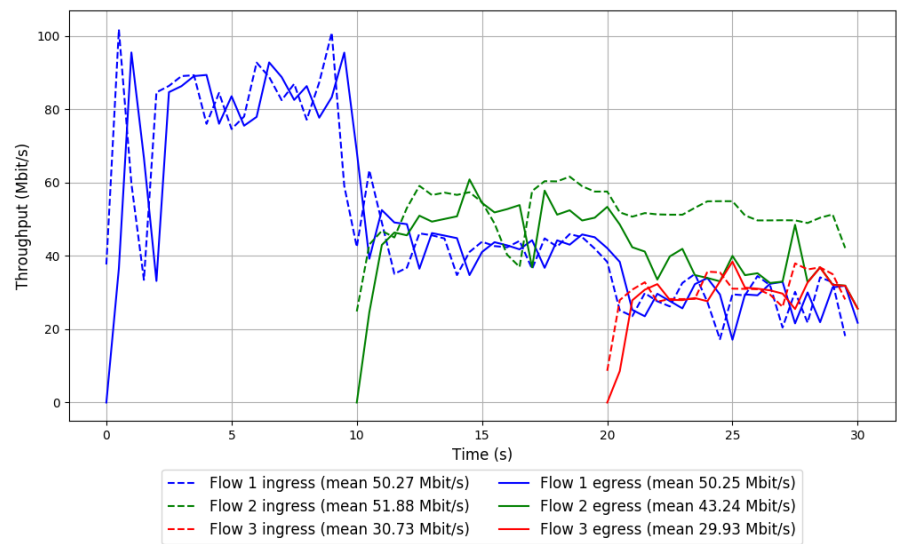
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-09-18 22:46:02
End at: 2019-09-18 22:46:32
Local clock offset: 1.532 ms
Remote clock offset: -2.208 ms


# Below is generated by plot.py at 2019-09-19 01:12:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.26 Mbit/s
95th percentile per-packet one-way delay: 958.678 ms
Loss rate: 13.13%
-- Flow 1:
Average throughput: 53.30 Mbit/s
95th percentile per-packet one-way delay: 976.683 ms
Loss rate: 17.71%
-- Flow 2:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 899.623 ms
Loss rate: 5.32%
-- Flow 3:
Average throughput: 26.22 Mbit/s
95th percentile per-packet one-way delay: 204.019 ms
Loss rate: 2.26%
```

Run 1: Report of PCC-Expr — Data Link

- - - - Flow 1 ingress (mean 64.76 Mbit/s) ——— Flow 1 egress (mean 53.30 Mbit/s)
- - - - Flow 2 ingress (mean 38.62 Mbit/s) ——— Flow 2 egress (mean 36.57 Mbit/s)
- - - - Flow 3 ingress (mean 26.81 Mbit/s) ——— Flow 3 egress (mean 26.22 Mbit/s)

- Flow 1 (95th percentile 976.68 ms)   - Flow 2 (95th percentile 899.62 ms)   - Flow 3 (95th percentile 204.02 ms)

156

```
Run 2: Statistics of PCC-Expr

Start at: 2019-09-18 23:13:35
End at: 2019-09-18 23:14:05
Local clock offset: -4.852 ms
Remote clock offset: -2.686 ms


# Below is generated by plot.py at 2019-09-19 01:12:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.89 Mbit/s
95th percentile per-packet one-way delay: 1194.246 ms
Loss rate: 6.38%
-- Flow 1:
Average throughput: 50.25 Mbit/s
95th percentile per-packet one-way delay: 53.644 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 43.24 Mbit/s
95th percentile per-packet one-way delay: 1276.780 ms
Loss rate: 16.69%
-- Flow 3:
Average throughput: 29.93 Mbit/s
95th percentile per-packet one-way delay: 181.755 ms
Loss rate: 2.65%
```
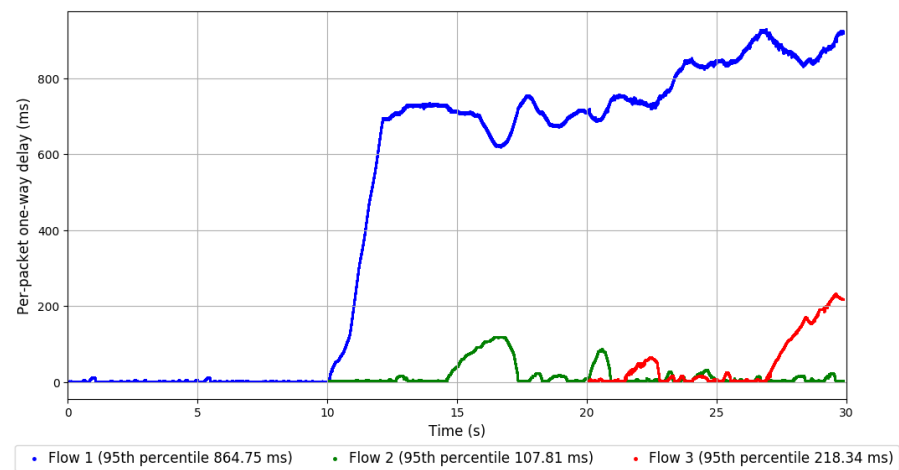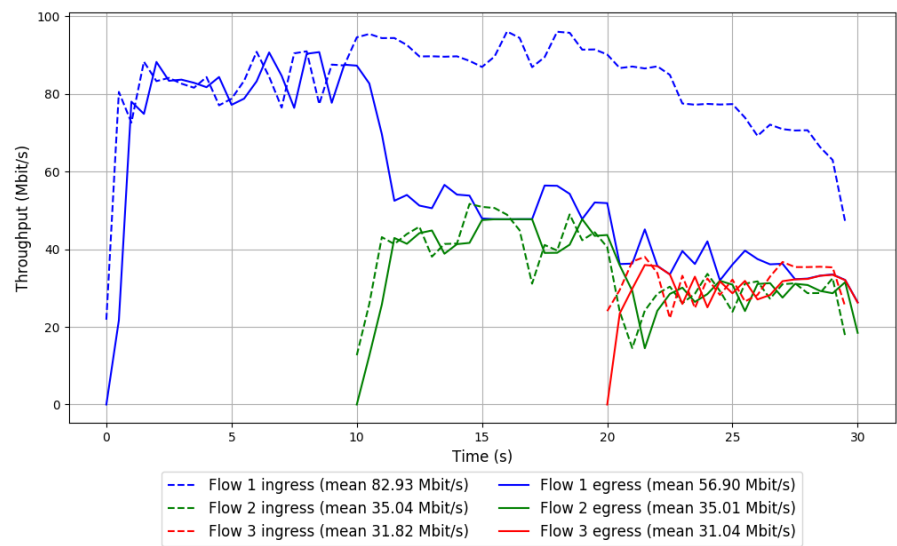
Run 2: Report of PCC-Expr — Data Link

Throughput (Mbit/s) vs Time (s)

- - - Flow 1 ingress (mean 50.27 Mbit/s) —— Flow 1 egress (mean 50.25 Mbit/s)
- - - Flow 2 ingress (mean 51.88 Mbit/s) —— Flow 2 egress (mean 43.24 Mbit/s)
- - - Flow 3 ingress (mean 30.73 Mbit/s) —— Flow 3 egress (mean 29.93 Mbit/s)

Per-packet one-way delay (ms) vs Time (s)

• Flow 1 (95th percentile 53.64 ms)   • Flow 2 (95th percentile 1276.78 ms)   • Flow 3 (95th percentile 181.75 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-09-18 23:41:06
End at: 2019-09-18 23:41:36
Local clock offset: -10.204 ms
Remote clock offset: -1.661 ms


# Below is generated by plot.py at 2019-09-19 01:12:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.49 Mbit/s
95th percentile per-packet one-way delay: 991.235 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 54.24 Mbit/s
95th percentile per-packet one-way delay: 1095.481 ms
Loss rate: 2.52%
-- Flow 2:
Average throughput: 37.95 Mbit/s
95th percentile per-packet one-way delay: 83.823 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 27.31 Mbit/s
95th percentile per-packet one-way delay: 33.973 ms
Loss rate: 0.55%
```
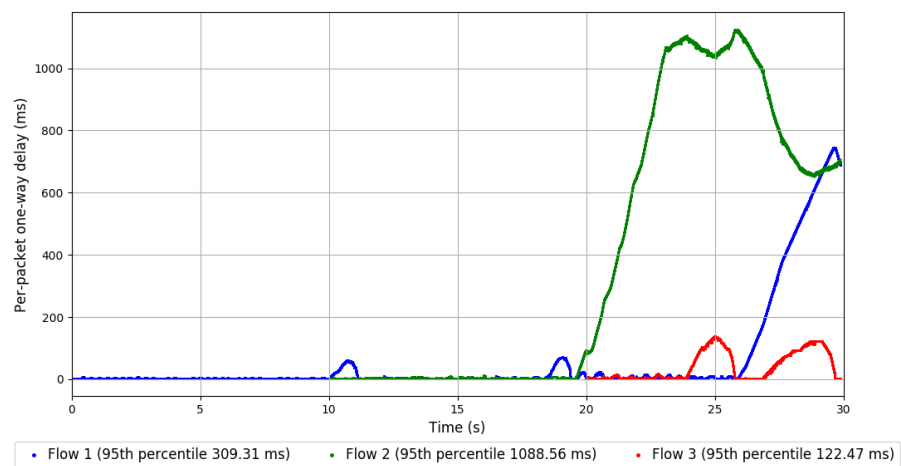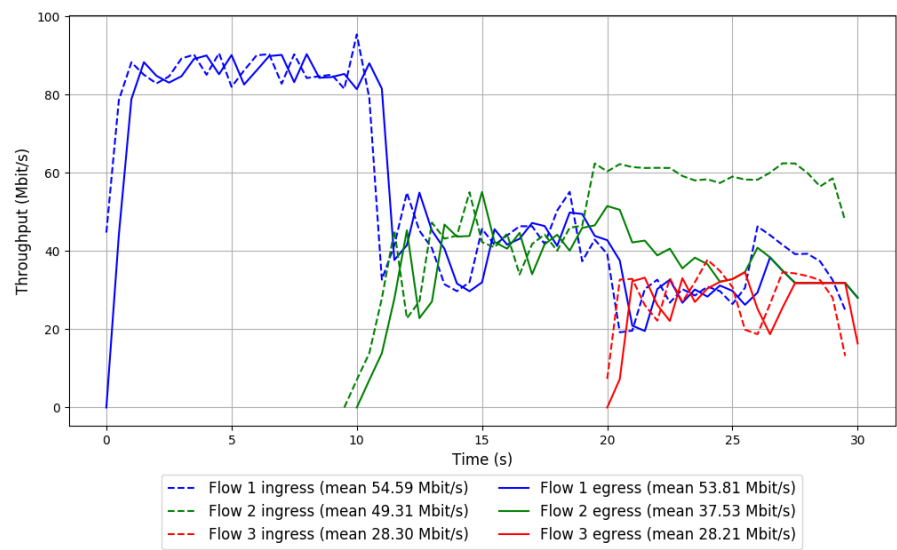
Run 3: Report of PCC-Expr — Data Link
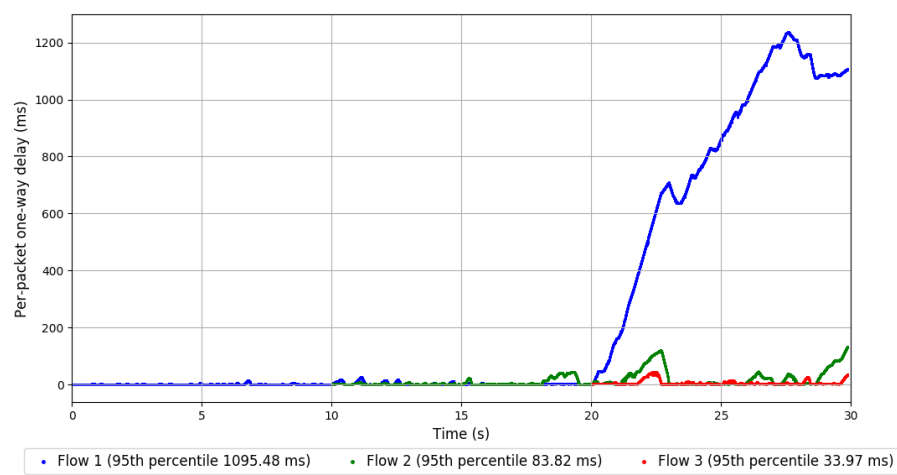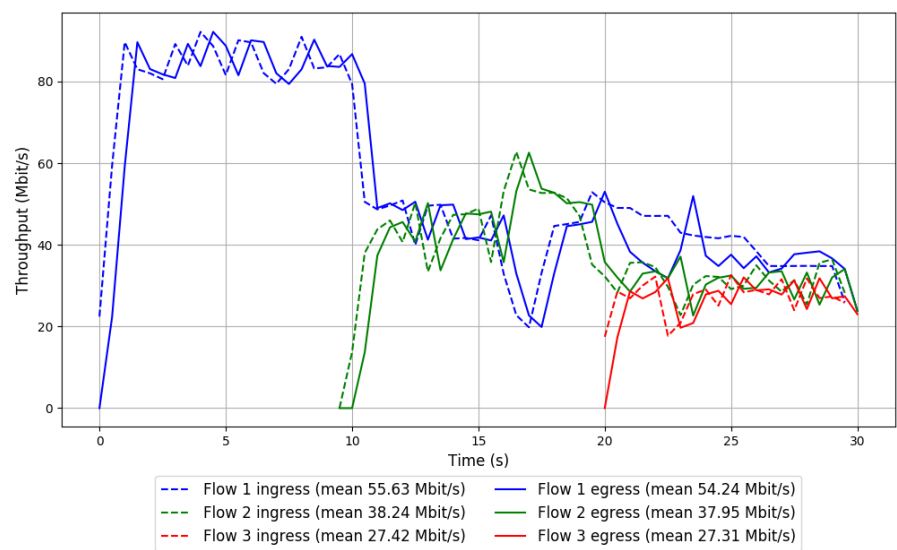
```
Run 4: Statistics of PCC-Expr

Start at: 2019-09-19 00:08:40
End at: 2019-09-19 00:09:10
Local clock offset: -8.525 ms
Remote clock offset: -0.495 ms


# Below is generated by plot.py at 2019-09-19 01:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.41 Mbit/s
95th percentile per-packet one-way delay: 844.700 ms
Loss rate: 22.56%
-- Flow 1:
Average throughput: 56.90 Mbit/s
95th percentile per-packet one-way delay: 864.754 ms
Loss rate: 31.40%
-- Flow 2:
Average throughput: 35.01 Mbit/s
95th percentile per-packet one-way delay: 107.810 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 31.04 Mbit/s
95th percentile per-packet one-way delay: 218.336 ms
Loss rate: 2.52%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 82.93 Mbit/s) Flow 1 egress (mean 56.90 Mbit/s)
Flow 2 ingress (mean 35.04 Mbit/s) Flow 2 egress (mean 35.01 Mbit/s)
Flow 3 ingress (mean 31.82 Mbit/s) Flow 3 egress (mean 31.04 Mbit/s)

Flow 1 (95th percentile 864.75 ms) Flow 2 (95th percentile 107.81 ms) Flow 3 (95th percentile 218.34 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-09-19 00:36:14
End at: 2019-09-19 00:36:44
Local clock offset: -5.798 ms
Remote clock offset: -0.376 ms


# Below is generated by plot.py at 2019-09-19 01:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.09 Mbit/s
95th percentile per-packet one-way delay: 1018.864 ms
Loss rate: 8.95%
-- Flow 1:
Average throughput: 53.81 Mbit/s
95th percentile per-packet one-way delay: 309.312 ms
Loss rate: 1.43%
-- Flow 2:
Average throughput: 37.53 Mbit/s
95th percentile per-packet one-way delay: 1088.563 ms
Loss rate: 23.89%
-- Flow 3:
Average throughput: 28.21 Mbit/s
95th percentile per-packet one-way delay: 122.466 ms
Loss rate: 0.37%
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 54.59 Mbit/s) Flow 1 egress (mean 53.81 Mbit/s)
Flow 2 ingress (mean 49.31 Mbit/s) Flow 2 egress (mean 37.53 Mbit/s)
Flow 3 ingress (mean 28.30 Mbit/s) Flow 3 egress (mean 28.21 Mbit/s)

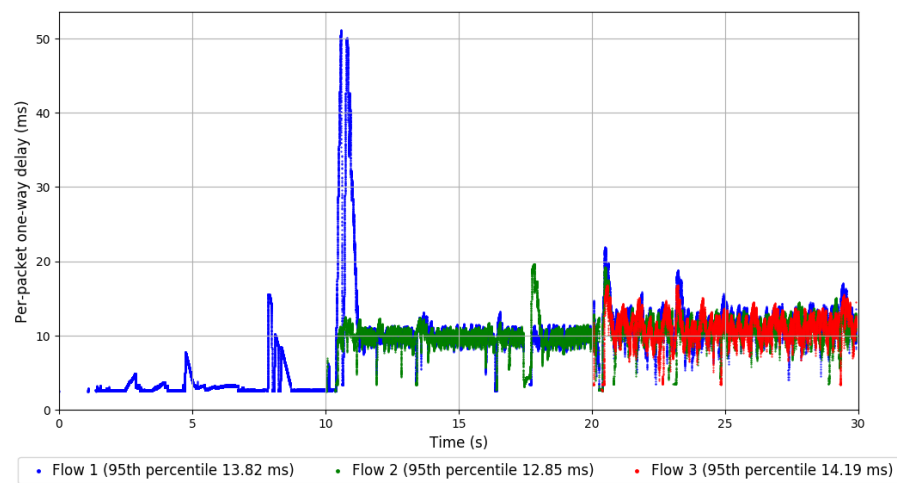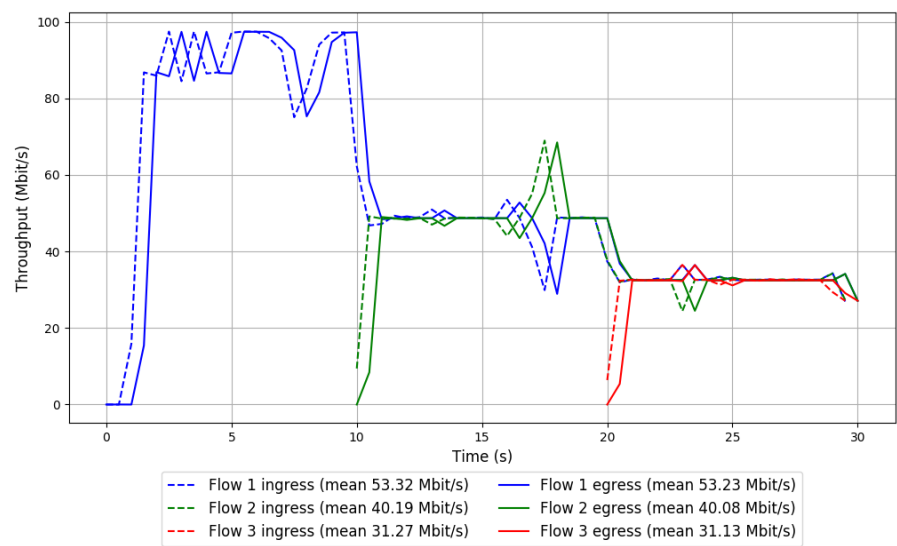Flow 1 (95th percentile 309.31 ms) Flow 2 (95th percentile 1088.56 ms) Flow 3 (95th percentile 122.47 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-09-18 22:51:50
End at: 2019-09-18 22:52:20
Local clock offset: 1.54 ms
Remote clock offset: -2.284 ms


# Below is generated by plot.py at 2019-09-19 01:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.13 Mbit/s
95th percentile per-packet one-way delay: 12.879 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 54.17 Mbit/s
95th percentile per-packet one-way delay: 12.433 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.11 Mbit/s
95th percentile per-packet one-way delay: 12.762 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 31.08 Mbit/s
95th percentile per-packet one-way delay: 13.972 ms
Loss rate: 0.51%
```

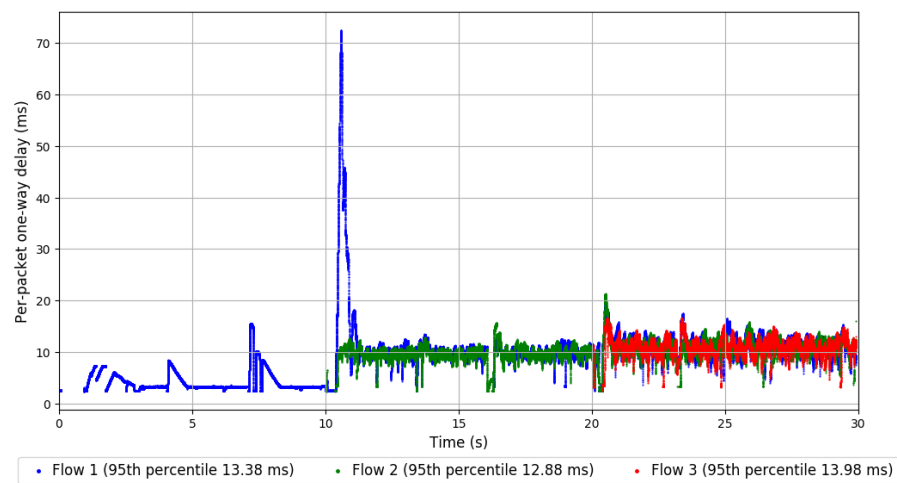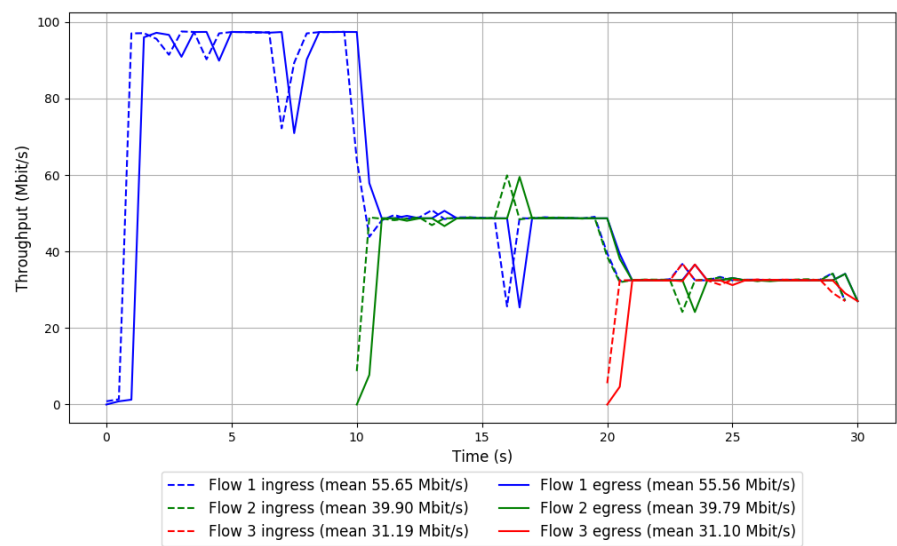Run 1: Report of QUIC Cubic — Data Link
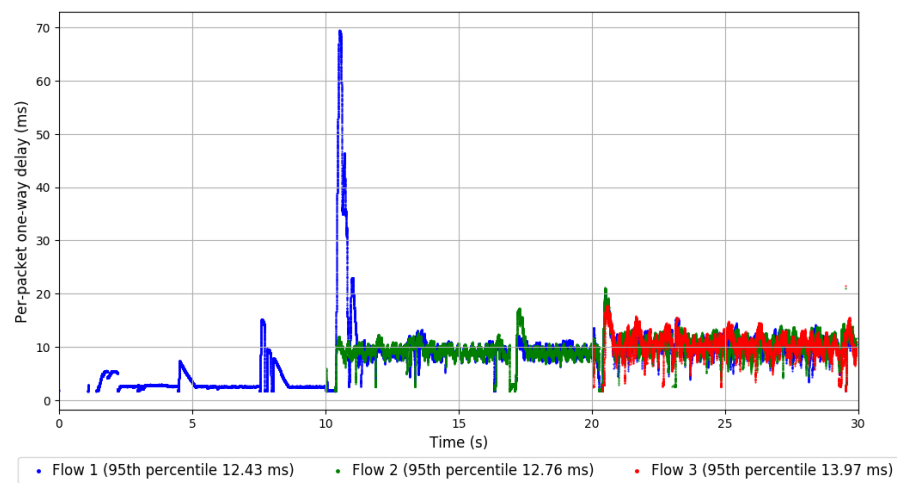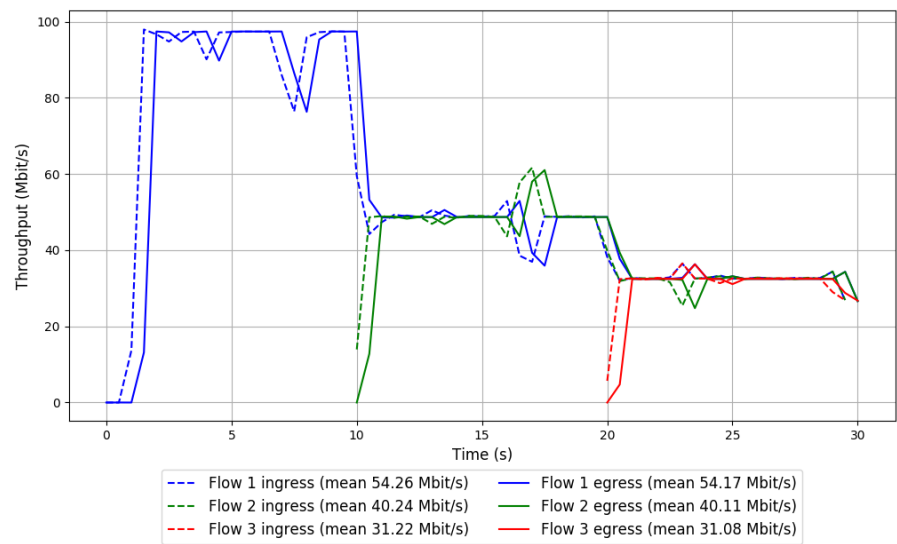
```
Run 2: Statistics of QUIC Cubic

Start at: 2019-09-18 23:19:23
End at: 2019-09-18 23:19:53
Local clock offset: -6.366 ms
Remote clock offset: -2.595 ms


# Below is generated by plot.py at 2019-09-19 01:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.08 Mbit/s
95th percentile per-packet one-way delay: 13.627 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 53.11 Mbit/s
95th percentile per-packet one-way delay: 13.023 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.15 Mbit/s
95th percentile per-packet one-way delay: 13.668 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.03 Mbit/s
95th percentile per-packet one-way delay: 14.404 ms
Loss rate: 0.45%
```
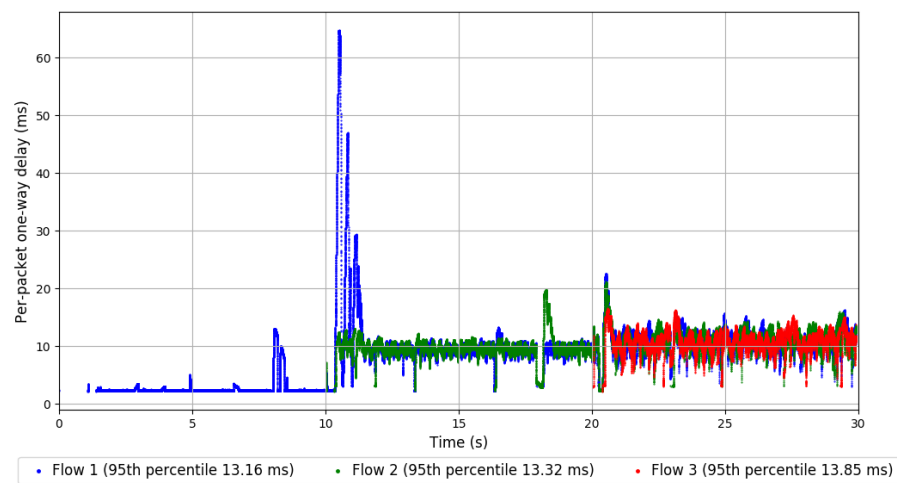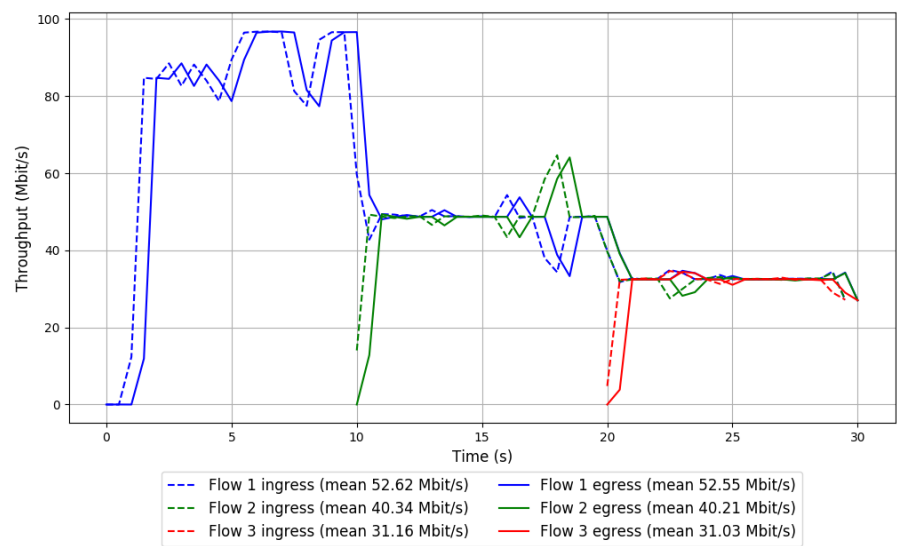
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 53.19 Mbit/s) — — —   Flow 1 egress (mean 53.11 Mbit/s)
Flow 2 ingress (mean 40.26 Mbit/s) — — —   Flow 2 egress (mean 40.15 Mbit/s)
Flow 3 ingress (mean 31.16 Mbit/s) — — —   Flow 3 egress (mean 31.03 Mbit/s)

Flow 1 (95th percentile 13.02 ms)   •   Flow 2 (95th percentile 13.67 ms)   •   Flow 3 (95th percentile 14.40 ms)

168
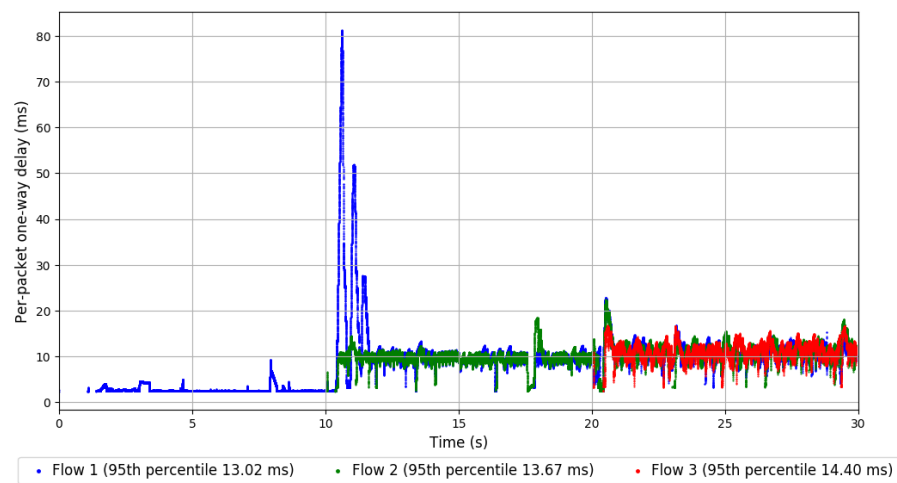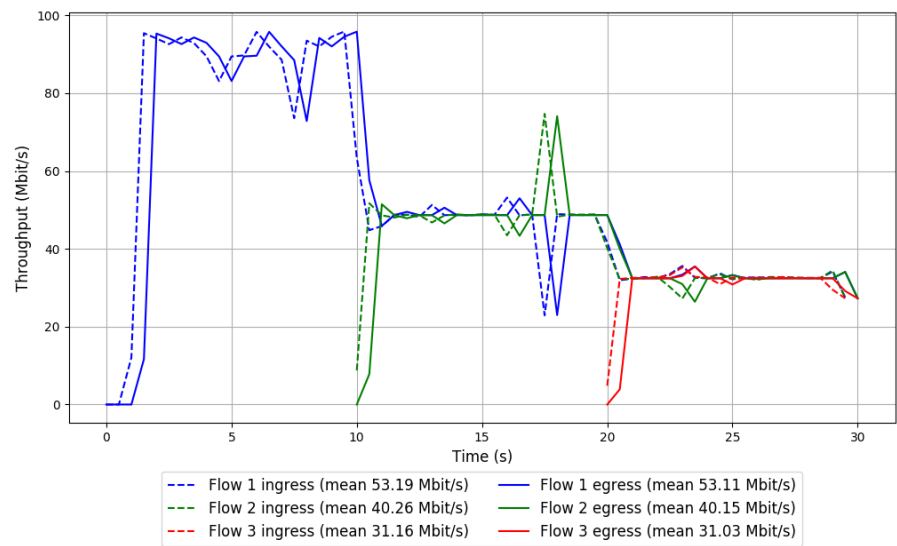
```
Run 3: Statistics of QUIC Cubic

Start at: 2019-09-18 23:46:54
End at: 2019-09-18 23:47:24
Local clock offset: -10.115 ms
Remote clock offset: -1.655 ms


# Below is generated by plot.py at 2019-09-19 01:13:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.19 Mbit/s
95th percentile per-packet one-way delay: 13.628 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 53.23 Mbit/s
95th percentile per-packet one-way delay: 13.825 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.08 Mbit/s
95th percentile per-packet one-way delay: 12.845 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.13 Mbit/s
95th percentile per-packet one-way delay: 14.186 ms
Loss rate: 0.46%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 53.32 Mbit/s) — Flow 1 egress (mean 53.23 Mbit/s)
Flow 2 ingress (mean 40.19 Mbit/s) — Flow 2 egress (mean 40.08 Mbit/s)
Flow 3 ingress (mean 31.27 Mbit/s) — Flow 3 egress (mean 31.13 Mbit/s)

Flow 1 (95th percentile 13.82 ms) Flow 2 (95th percentile 12.85 ms) Flow 3 (95th percentile 14.19 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-09-19 00:14:28
End at: 2019-09-19 00:14:58
Local clock offset: -7.564 ms
Remote clock offset: -0.426 ms


# Below is generated by plot.py at 2019-09-19 01:13:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.32 Mbit/s
95th percentile per-packet one-way delay: 13.345 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 55.56 Mbit/s
95th percentile per-packet one-way delay: 13.376 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 39.79 Mbit/s
95th percentile per-packet one-way delay: 12.878 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.10 Mbit/s
95th percentile per-packet one-way delay: 13.976 ms
Loss rate: 0.44%
```

Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.65 Mbit/s)   Flow 1 egress (mean 55.56 Mbit/s)
Flow 2 ingress (mean 39.90 Mbit/s)   Flow 2 egress (mean 39.79 Mbit/s)
Flow 3 ingress (mean 31.19 Mbit/s)   Flow 3 egress (mean 31.10 Mbit/s)

Flow 1 (95th percentile 13.38 ms)   Flow 2 (95th percentile 12.88 ms)   Flow 3 (95th percentile 13.98 ms)

172

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-09-19 00:42:00
End at: 2019-09-19 00:42:30
Local clock offset: -4.042 ms
Remote clock offset: -0.295 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.56 Mbit/s
95th percentile per-packet one-way delay: 13.392 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 52.55 Mbit/s
95th percentile per-packet one-way delay: 13.163 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.21 Mbit/s
95th percentile per-packet one-way delay: 13.316 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 31.03 Mbit/s
95th percentile per-packet one-way delay: 13.849 ms
Loss rate: 0.46%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 52.62 Mbit/s) — Flow 1 egress (mean 52.55 Mbit/s)
Flow 2 ingress (mean 40.34 Mbit/s) — Flow 2 egress (mean 40.21 Mbit/s)
Flow 3 ingress (mean 31.16 Mbit/s) — Flow 3 egress (mean 31.03 Mbit/s)

Flow 1 (95th percentile 13.16 ms)   •   Flow 2 (95th percentile 13.32 ms)   •   Flow 3 (95th percentile 13.85 ms)
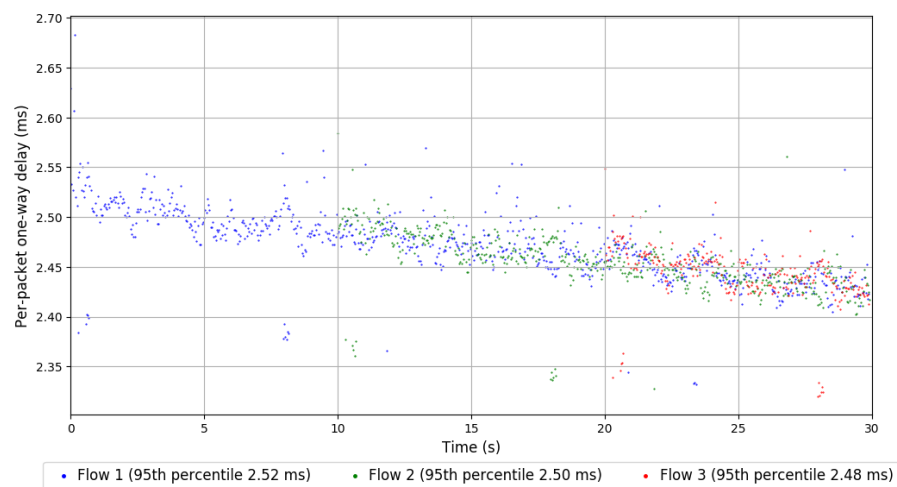
```
Run 1: Statistics of SCReAM

Start at: 2019-09-18 22:47:15
End at: 2019-09-18 22:47:45
Local clock offset: 2.35 ms
Remote clock offset: -2.247 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.553 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.553 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.537 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.561 ms
Loss rate: 0.35%
```

Run 1: Report of SCReAM — Data Link
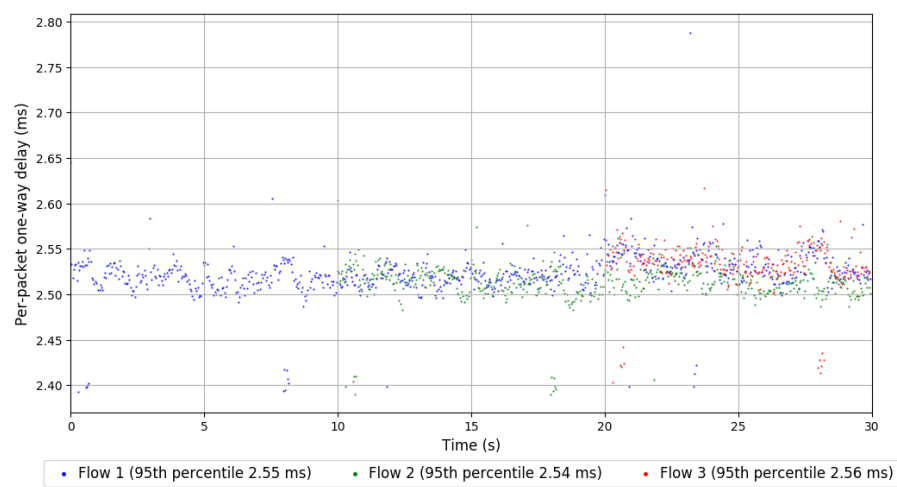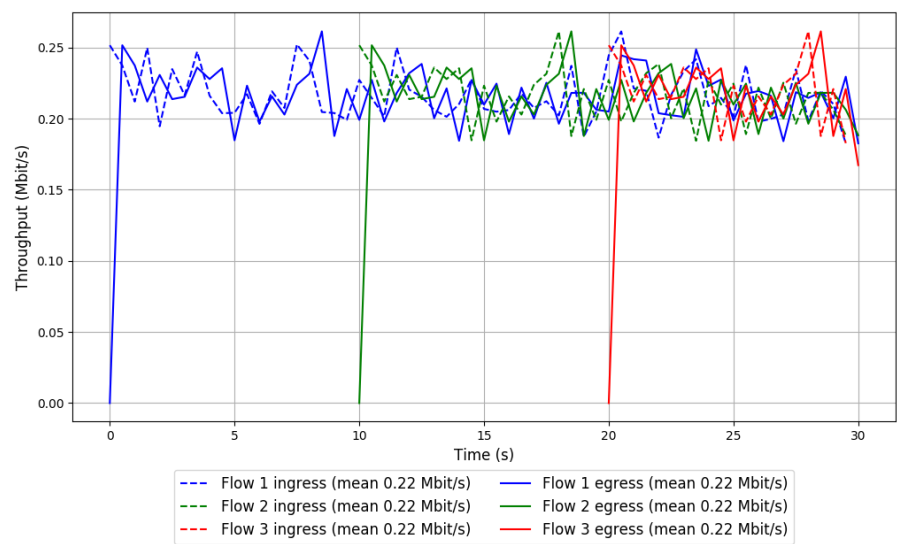
```
Run 2: Statistics of SCReAM

Start at: 2019-09-18 23:14:48
End at: 2019-09-18 23:15:18
Local clock offset: -5.977 ms
Remote clock offset: -2.702 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.973 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.971 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.965 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.984 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link
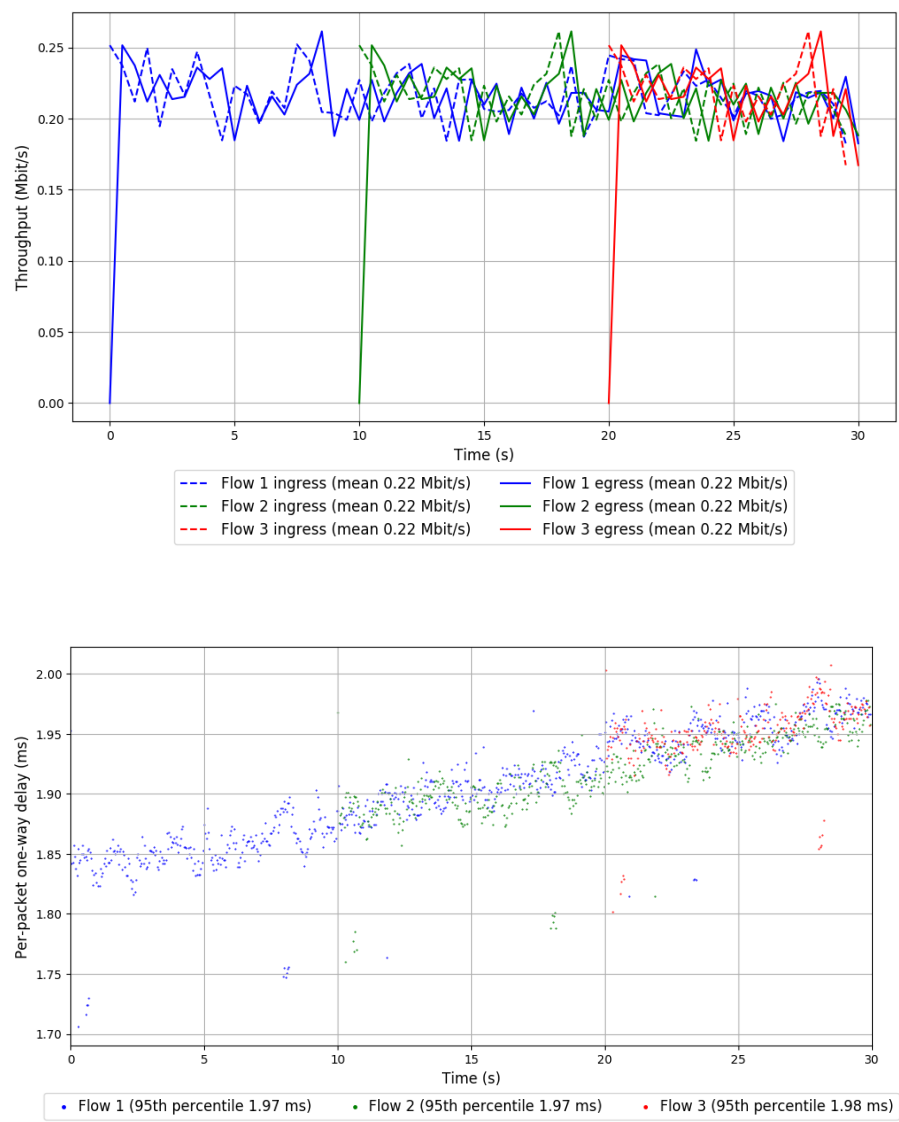
```
Run 3: Statistics of SCReAM

Start at: 2019-09-18 23:42:19
End at: 2019-09-18 23:42:49
Local clock offset: -10.342 ms
Remote clock offset: -1.7 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.865 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.858 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.859 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.876 ms
Loss rate: 0.35%
```

Run 3: Report of SCReAM — Data Link
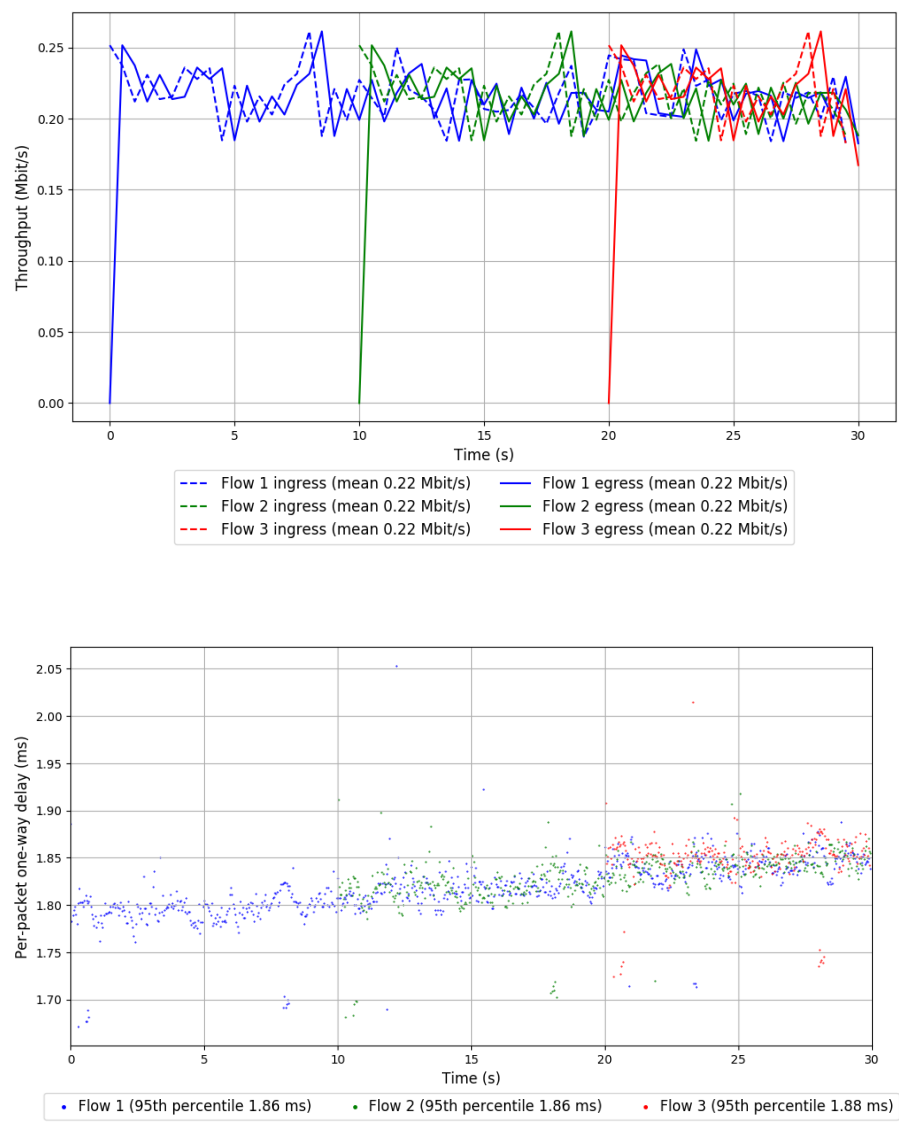
```
Run 4: Statistics of SCReAM

Start at: 2019-09-19 00:09:53
End at: 2019-09-19 00:10:23
Local clock offset: -8.235 ms
Remote clock offset: -0.596 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.513 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.524 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.498 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.478 ms
Loss rate: 0.00%
```
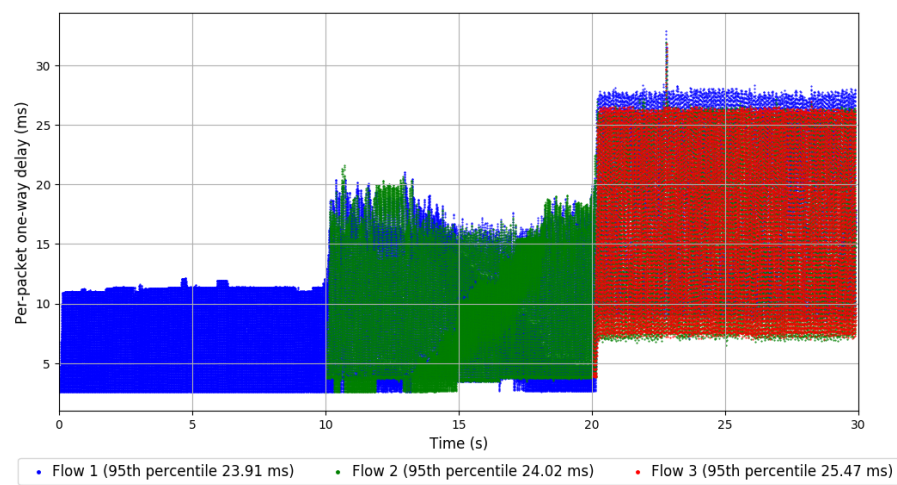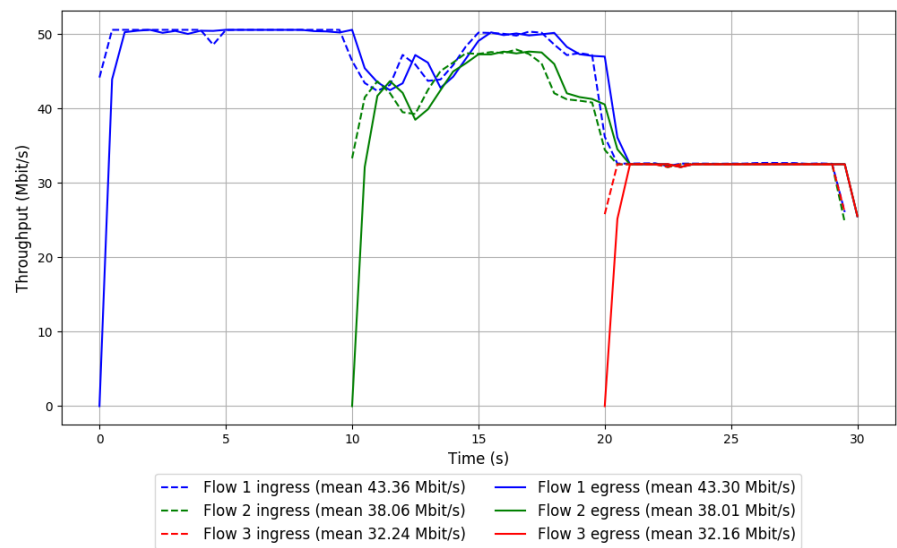
Run 4: Report of SCReAM — Data Link
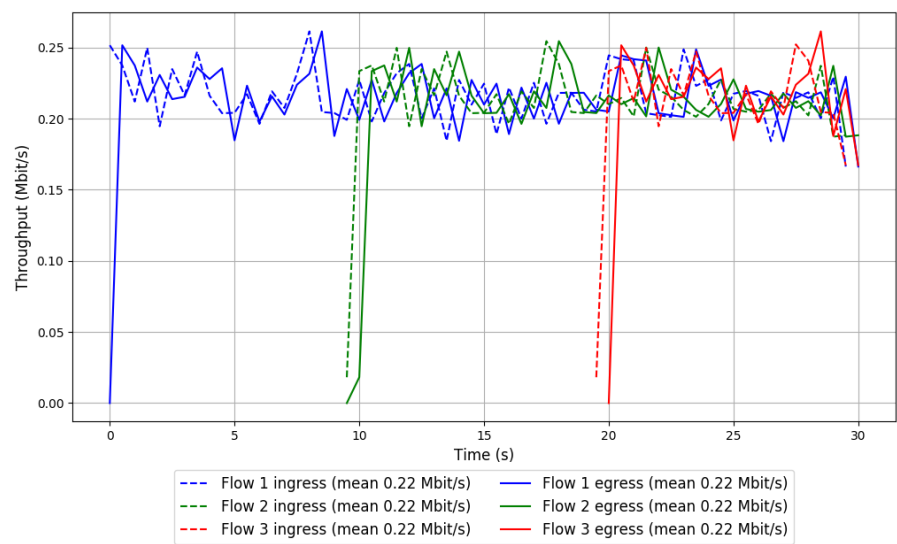
```
Run 5: Statistics of SCReAM

Start at: 2019-09-19 00:37:26
End at: 2019-09-19 00:37:56
Local clock offset: -5.59 ms
Remote clock offset: -0.313 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.591 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.602 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.574 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.551 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link
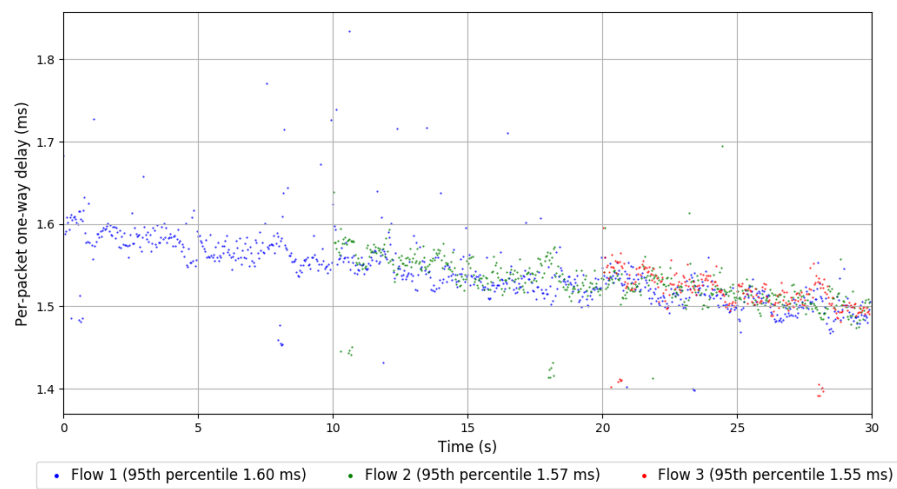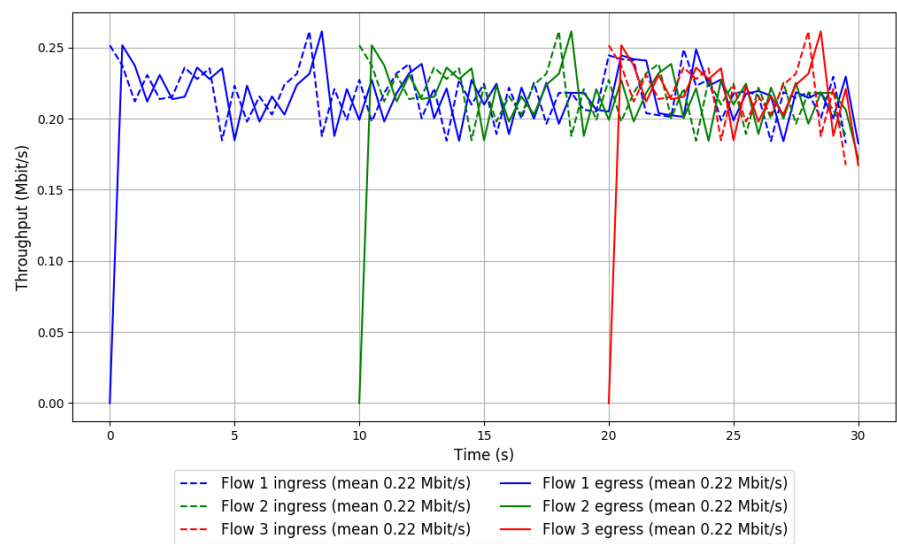
```
Run 1: Statistics of Sprout

Start at: 2019-09-18 22:52:59
End at: 2019-09-18 22:53:29
Local clock offset: 2.318 ms
Remote clock offset: -2.235 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.37 Mbit/s
95th percentile per-packet one-way delay: 24.654 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 42.48 Mbit/s
95th percentile per-packet one-way delay: 23.779 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 37.97 Mbit/s
95th percentile per-packet one-way delay: 25.276 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 24.933 ms
Loss rate: 0.22%
```

Run 1: Report of Sprout — Data Link
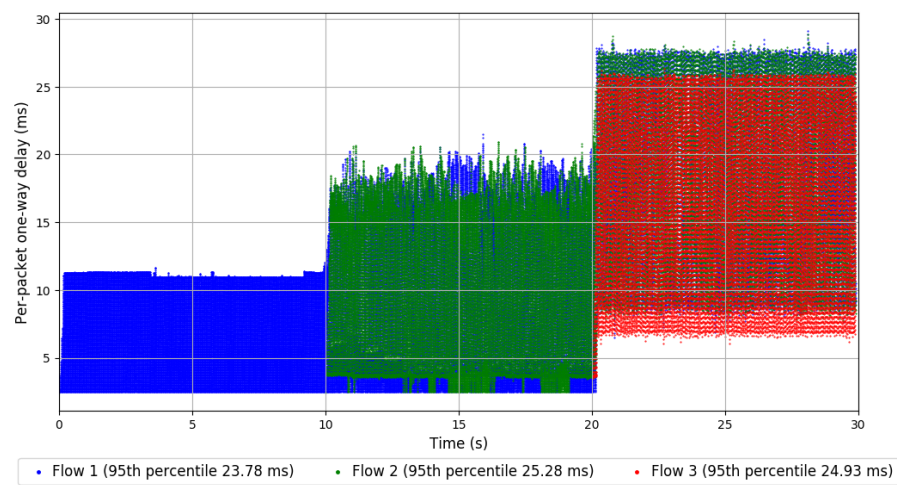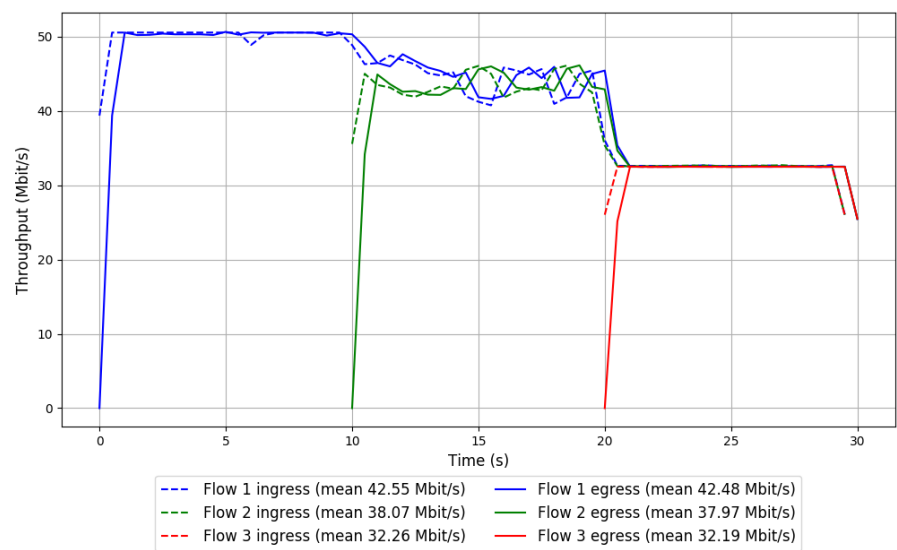
```
Run 2: Statistics of Sprout

Start at: 2019-09-18 23:20:32
End at: 2019-09-18 23:21:02
Local clock offset: -6.505 ms
Remote clock offset: -2.629 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.21 Mbit/s
95th percentile per-packet one-way delay: 24.472 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 43.30 Mbit/s
95th percentile per-packet one-way delay: 23.905 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 38.01 Mbit/s
95th percentile per-packet one-way delay: 24.017 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 32.16 Mbit/s
95th percentile per-packet one-way delay: 25.469 ms
Loss rate: 0.17%
```
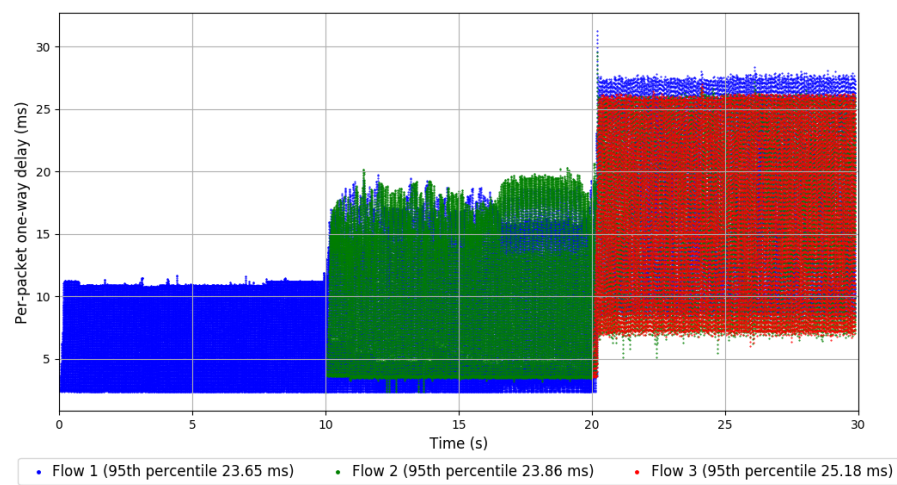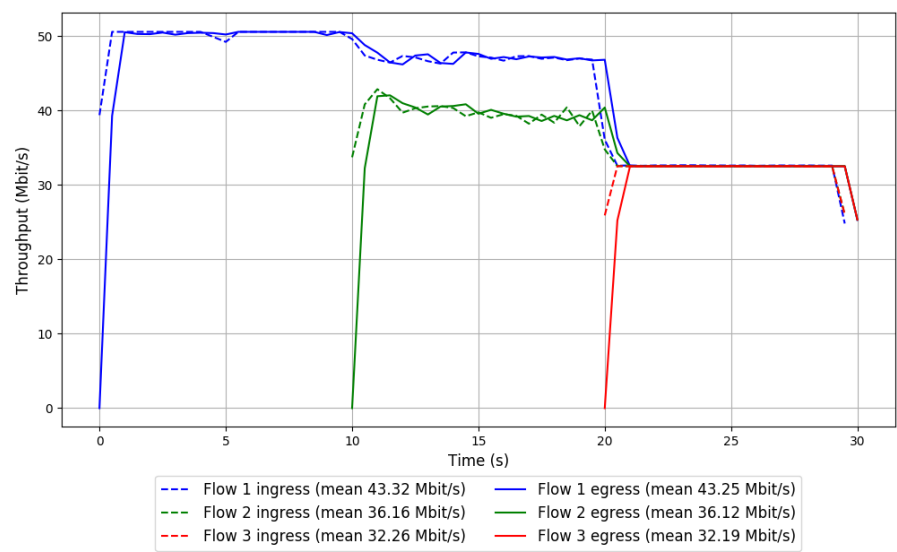
Run 2: Report of Sprout — Data Link

Flow 1 ingress (mean 43.36 Mbit/s)   Flow 1 egress (mean 43.30 Mbit/s)
Flow 2 ingress (mean 38.06 Mbit/s)   Flow 2 egress (mean 38.01 Mbit/s)
Flow 3 ingress (mean 32.24 Mbit/s)   Flow 3 egress (mean 32.16 Mbit/s)

Flow 1 (95th percentile 23.91 ms)   Flow 2 (95th percentile 24.02 ms)   Flow 3 (95th percentile 25.47 ms)

```
Run 3: Statistics of Sprout

Start at: 2019-09-18 23:48:03
End at: 2019-09-18 23:48:33
Local clock offset: -10.228 ms
Remote clock offset: -1.582 ms


# Below is generated by plot.py at 2019-09-19 01:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.71 Mbit/s
95th percentile per-packet one-way delay: 24.587 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 41.51 Mbit/s
95th percentile per-packet one-way delay: 21.867 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 39.96 Mbit/s
95th percentile per-packet one-way delay: 25.247 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 26.639 ms
Loss rate: 0.45%
```

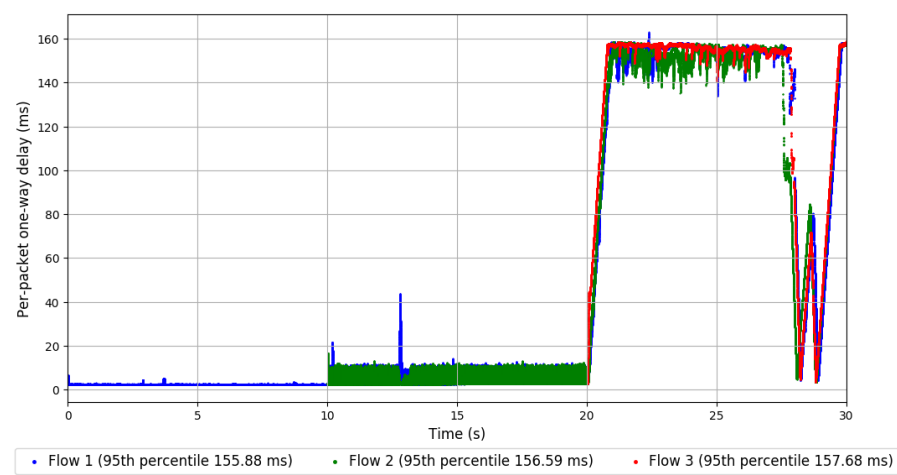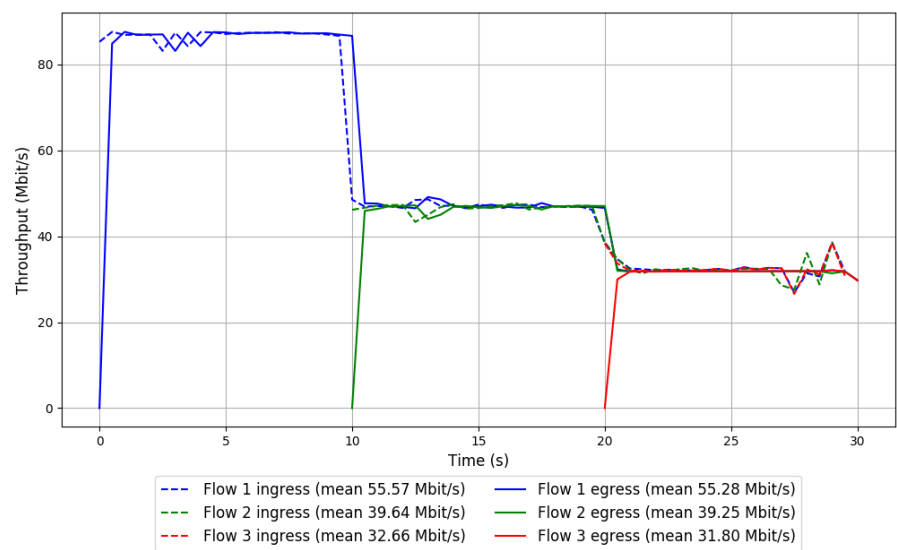## Run 3: Report of Sprout — Data Link
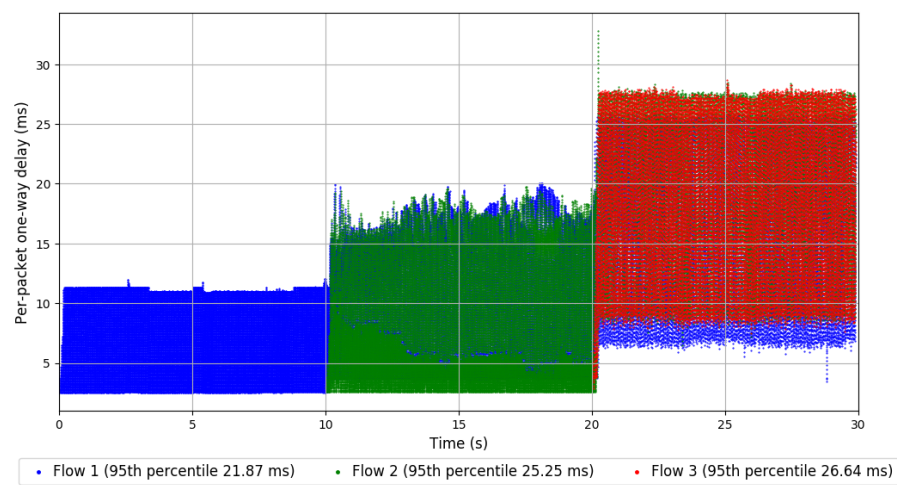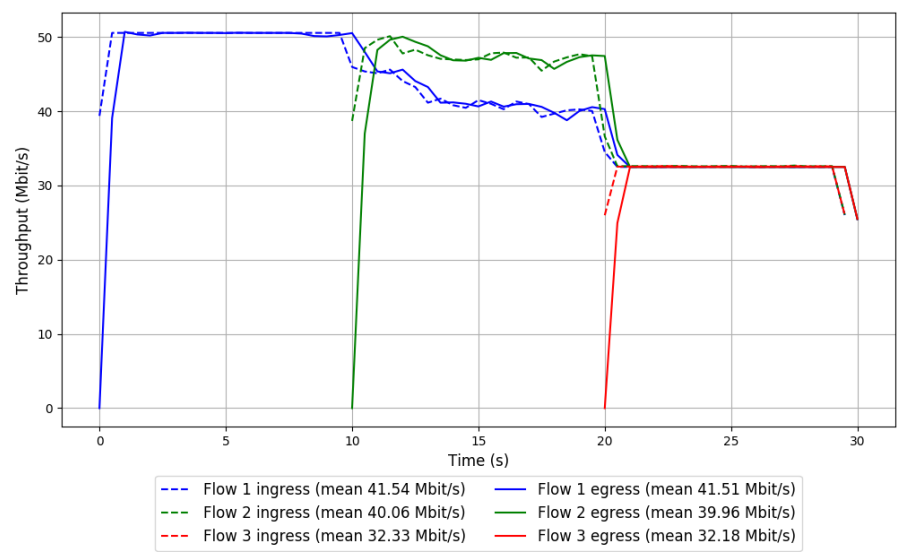
```
Run 4: Statistics of Sprout

Start at: 2019-09-19 00:15:38
End at: 2019-09-19 00:16:08
Local clock offset: -7.452 ms
Remote clock offset: -0.402 ms


# Below is generated by plot.py at 2019-09-19 01:13:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.77 Mbit/s
95th percentile per-packet one-way delay: 24.724 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 44.15 Mbit/s
95th percentile per-packet one-way delay: 23.733 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 39.05 Mbit/s
95th percentile per-packet one-way delay: 23.761 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 26.675 ms
Loss rate: 0.41%
```

Run 4: Report of Sprout — Data Link
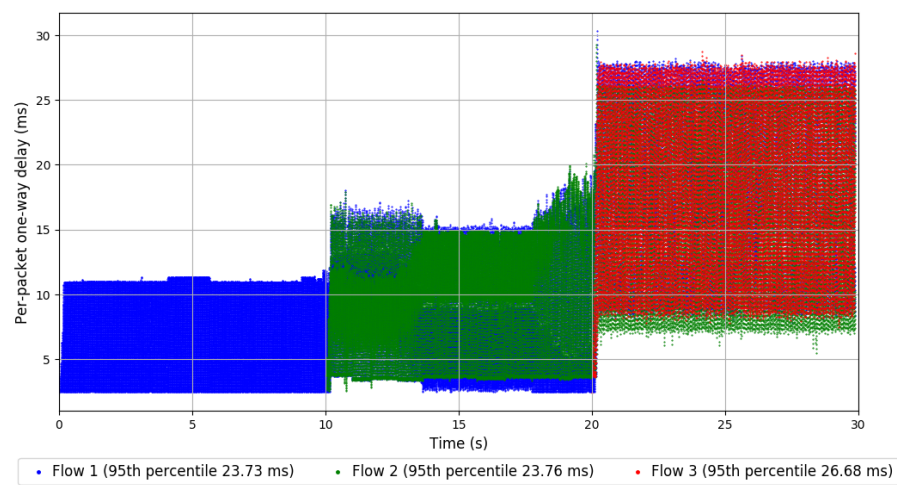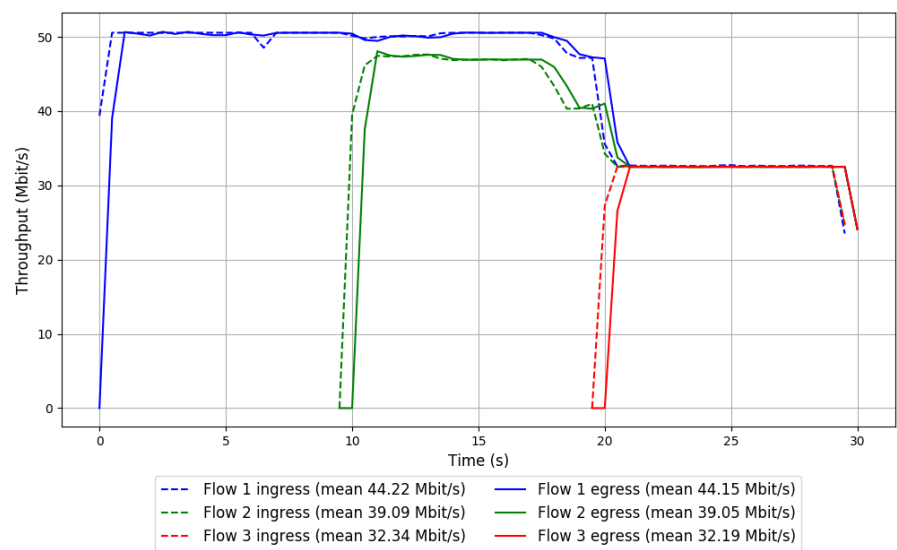
```
Run 5: Statistics of Sprout

Start at: 2019-09-19 00:43:10
End at: 2019-09-19 00:43:40
Local clock offset: -3.905 ms
Remote clock offset: -0.322 ms


# Below is generated by plot.py at 2019-09-19 01:13:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.90 Mbit/s
95th percentile per-packet one-way delay: 24.241 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 43.25 Mbit/s
95th percentile per-packet one-way delay: 23.651 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 36.12 Mbit/s
95th percentile per-packet one-way delay: 23.858 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 25.177 ms
Loss rate: 0.22%
```
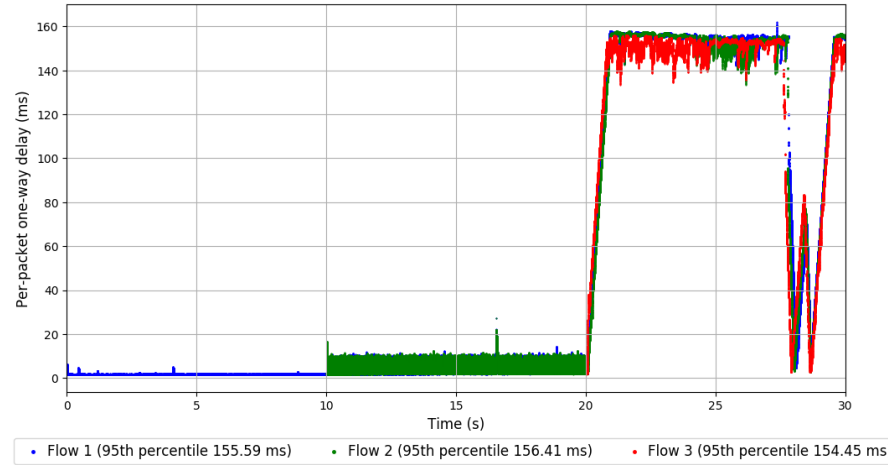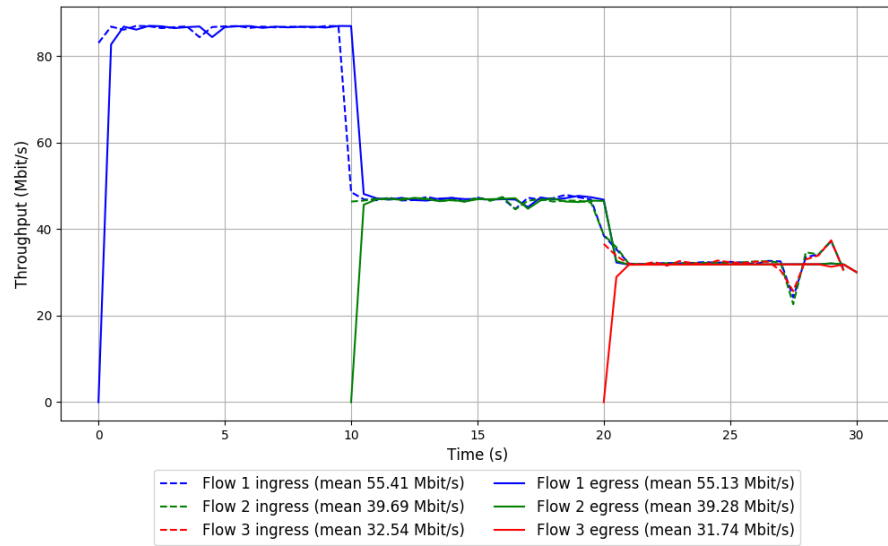
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 43.32 Mbit/s) Flow 1 egress (mean 43.25 Mbit/s)
Flow 2 ingress (mean 36.16 Mbit/s) Flow 2 egress (mean 36.12 Mbit/s)
Flow 3 ingress (mean 32.26 Mbit/s) Flow 3 egress (mean 32.19 Mbit/s)

Flow 1 (95th percentile 23.65 ms)   Flow 2 (95th percentile 23.86 ms)   Flow 3 (95th percentile 25.18 ms)

194

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

Start at: 2019-09-18 22:59:53
End at: 2019-09-18 23:00:23
Local clock offset: 2.205 ms
Remote clock offset: -2.535 ms


# Below is generated by plot.py at 2019-09-19 01:15:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.98 Mbit/s
95th percentile per-packet one-way delay: 156.965 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 55.28 Mbit/s
95th percentile per-packet one-way delay: 155.880 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.25 Mbit/s
95th percentile per-packet one-way delay: 156.588 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 31.80 Mbit/s
95th percentile per-packet one-way delay: 157.676 ms
Loss rate: 2.65%
```

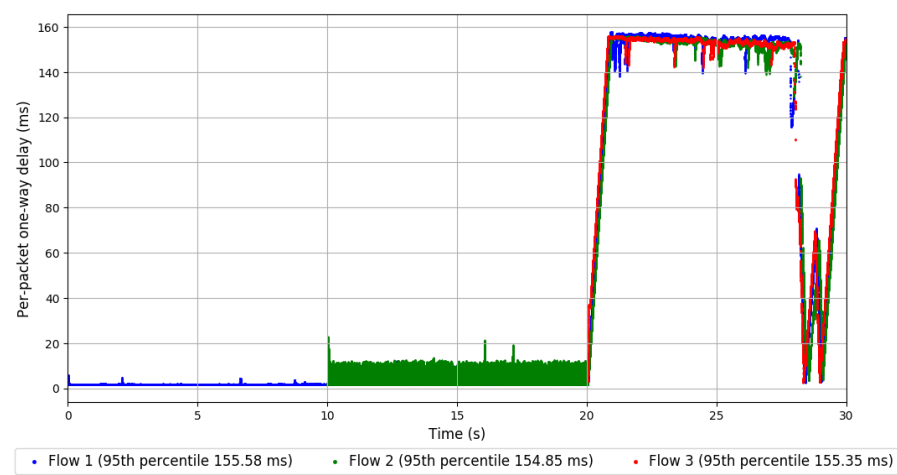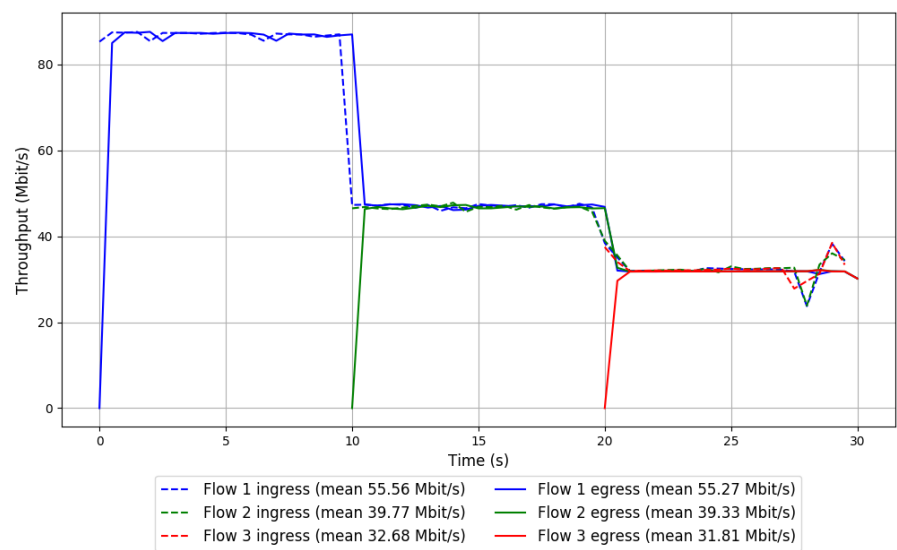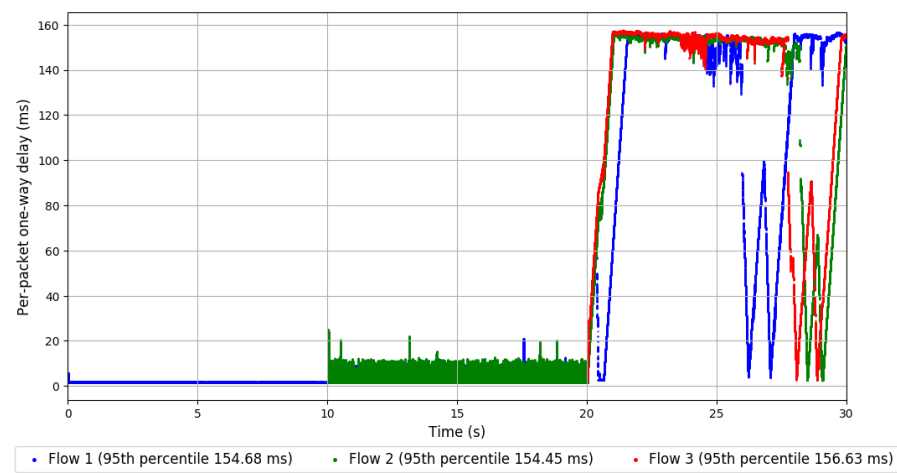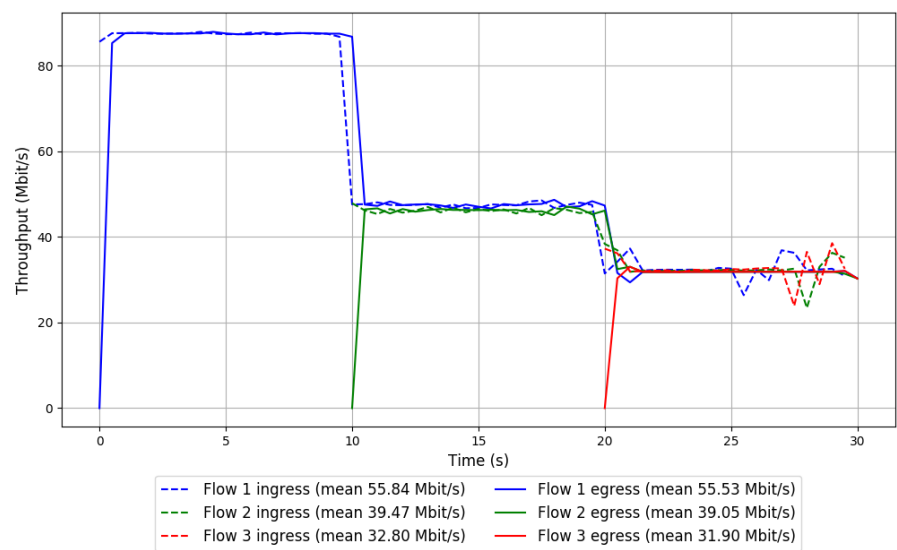## Run 1: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 55.57 Mbit/s)   Flow 1 egress (mean 55.28 Mbit/s)
- - - - Flow 2 ingress (mean 39.64 Mbit/s)   Flow 2 egress (mean 39.25 Mbit/s)
- - - - Flow 3 ingress (mean 32.66 Mbit/s)   Flow 3 egress (mean 31.80 Mbit/s)

- Flow 1 (95th percentile 155.88 ms)   • Flow 2 (95th percentile 156.59 ms)   • Flow 3 (95th percentile 157.68 ms)

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

Start at: 2019-09-18 23:27:26
End at: 2019-09-18 23:27:56
Local clock offset: -8.405 ms
Remote clock offset: -2.336 ms


# Below is generated by plot.py at 2019-09-19 01:15:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.82 Mbit/s
95th percentile per-packet one-way delay: 155.846 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 55.13 Mbit/s
95th percentile per-packet one-way delay: 155.595 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.28 Mbit/s
95th percentile per-packet one-way delay: 156.415 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 31.74 Mbit/s
95th percentile per-packet one-way delay: 154.451 ms
Loss rate: 2.50%
```
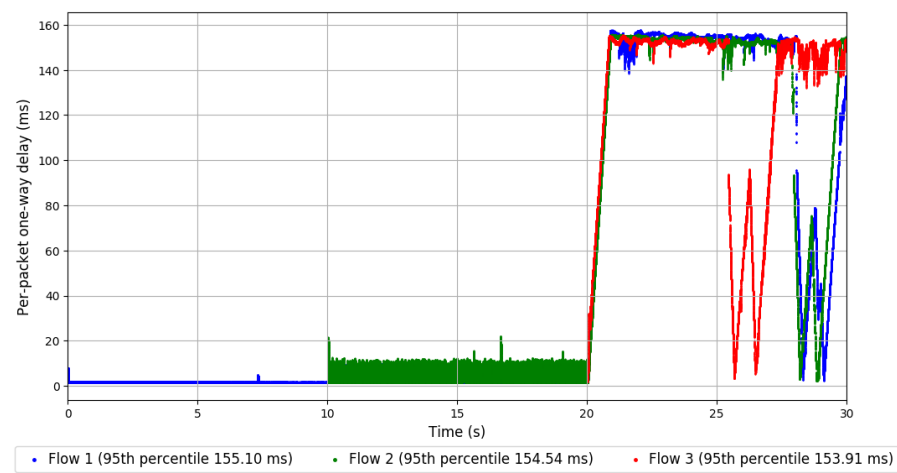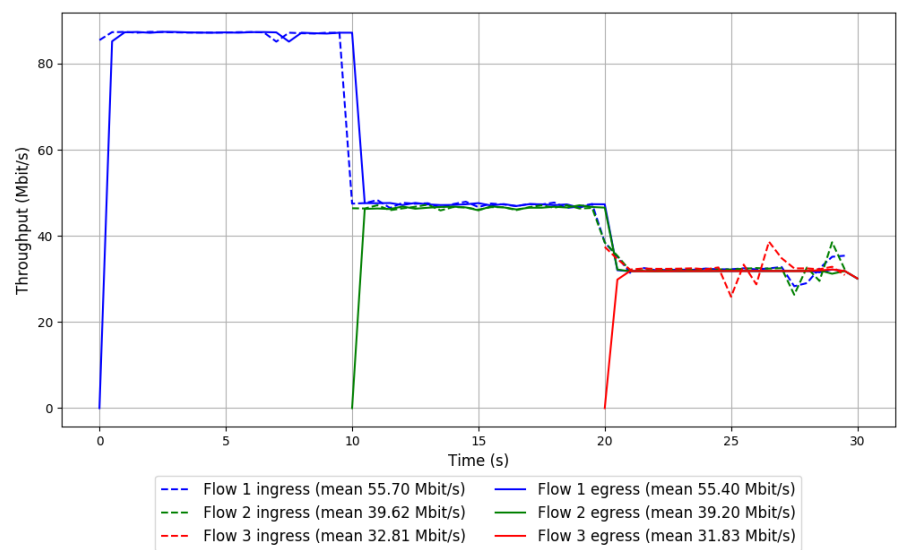
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.41 Mbit/s)   Flow 1 egress (mean 55.13 Mbit/s)
Flow 2 ingress (mean 39.69 Mbit/s)   Flow 2 egress (mean 39.28 Mbit/s)
Flow 3 ingress (mean 32.54 Mbit/s)   Flow 3 egress (mean 31.74 Mbit/s)

Flow 1 (95th percentile 155.59 ms)   Flow 2 (95th percentile 156.41 ms)   Flow 3 (95th percentile 154.45 ms)

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

Start at: 2019-09-18 23:54:57
End at: 2019-09-18 23:55:27
Local clock offset: -11.896 ms
Remote clock offset: -1.175 ms


# Below is generated by plot.py at 2019-09-19 01:15:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.03 Mbit/s
95th percentile per-packet one-way delay: 155.276 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 55.27 Mbit/s
95th percentile per-packet one-way delay: 155.584 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.33 Mbit/s
95th percentile per-packet one-way delay: 154.851 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 31.81 Mbit/s
95th percentile per-packet one-way delay: 155.350 ms
Loss rate: 2.73%
```

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

Flow 1 ingress (mean 55.56 Mbit/s)   Flow 1 egress (mean 55.27 Mbit/s)
Flow 2 ingress (mean 39.77 Mbit/s)   Flow 2 egress (mean 39.33 Mbit/s)
Flow 3 ingress (mean 32.68 Mbit/s)   Flow 3 egress (mean 31.81 Mbit/s)

Flow 1 (95th percentile 155.58 ms)   Flow 2 (95th percentile 154.85 ms)   Flow 3 (95th percentile 155.35 ms)

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

Start at: 2019-09-19 00:22:31
End at: 2019-09-19 00:23:01
Local clock offset: -7.845 ms
Remote clock offset: -0.311 ms


# Below is generated by plot.py at 2019-09-19 01:15:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.14 Mbit/s
95th percentile per-packet one-way delay: 155.274 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 55.53 Mbit/s
95th percentile per-packet one-way delay: 154.683 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 39.05 Mbit/s
95th percentile per-packet one-way delay: 154.453 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 31.90 Mbit/s
95th percentile per-packet one-way delay: 156.632 ms
Loss rate: 2.78%
```

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

Flow 1 ingress (mean 55.84 Mbit/s)   Flow 1 egress (mean 55.53 Mbit/s)
Flow 2 ingress (mean 39.47 Mbit/s)   Flow 2 egress (mean 39.05 Mbit/s)
Flow 3 ingress (mean 32.80 Mbit/s)   Flow 3 egress (mean 31.90 Mbit/s)

Flow 1 (95th percentile 154.68 ms)   Flow 2 (95th percentile 154.45 ms)   Flow 3 (95th percentile 156.63 ms)

202

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

Start at: 2019-09-19 00:50:03
End at: 2019-09-19 00:50:33
Local clock offset: -3.916 ms
Remote clock offset: -0.381 ms


# Below is generated by plot.py at 2019-09-19 01:15:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.08 Mbit/s
95th percentile per-packet one-way delay: 154.737 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 55.40 Mbit/s
95th percentile per-packet one-way delay: 155.104 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 39.20 Mbit/s
95th percentile per-packet one-way delay: 154.543 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 31.83 Mbit/s
95th percentile per-packet one-way delay: 153.911 ms
Loss rate: 3.05%
```

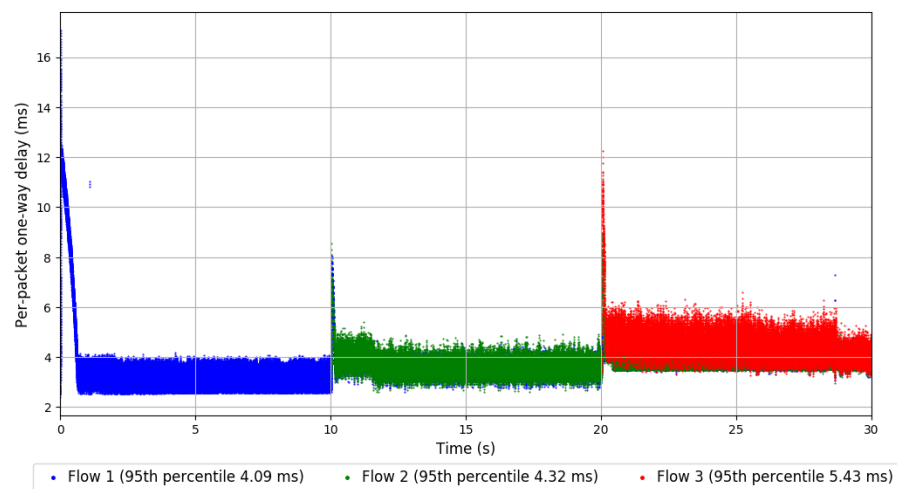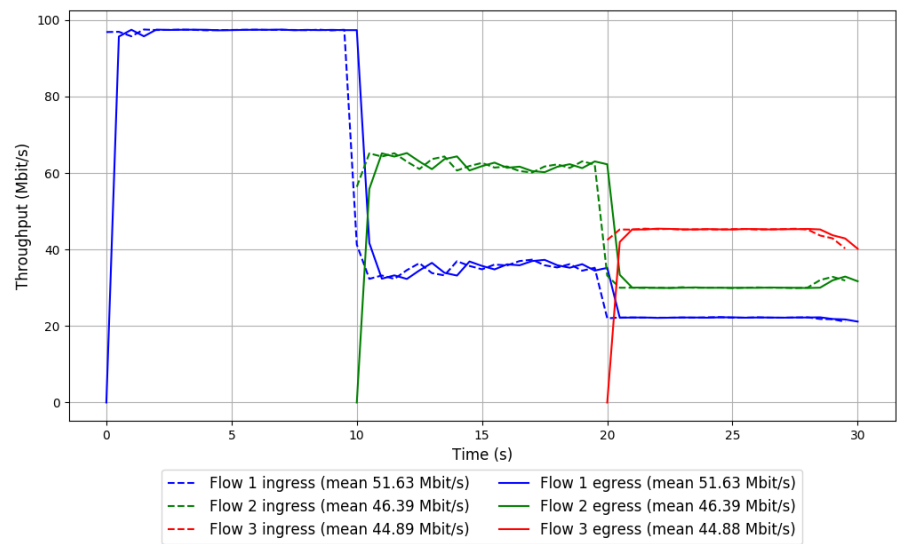Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.70 Mbit/s)   Flow 1 egress (mean 55.40 Mbit/s)
Flow 2 ingress (mean 39.62 Mbit/s)   Flow 2 egress (mean 39.20 Mbit/s)
Flow 3 ingress (mean 32.81 Mbit/s)   Flow 3 egress (mean 31.83 Mbit/s)

Flow 1 (95th percentile 155.10 ms)   Flow 2 (95th percentile 154.54 ms)   Flow 3 (95th percentile 153.91 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2019-09-18 22:57:35
End at: 2019-09-18 22:58:05
Local clock offset: 2.289 ms
Remote clock offset: -2.362 ms


# Below is generated by plot.py at 2019-09-19 01:15:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 5.326 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.72 Mbit/s
95th percentile per-packet one-way delay: 4.008 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 45.43 Mbit/s
95th percentile per-packet one-way delay: 4.221 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 43.62 Mbit/s
95th percentile per-packet one-way delay: 5.741 ms
Loss rate: 0.07%
```

Run 1: Report of TCP Vegas — Data Link
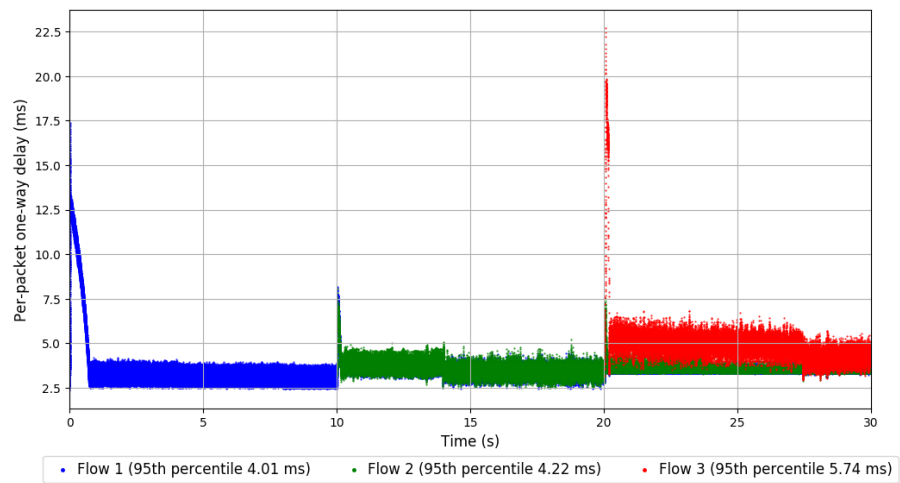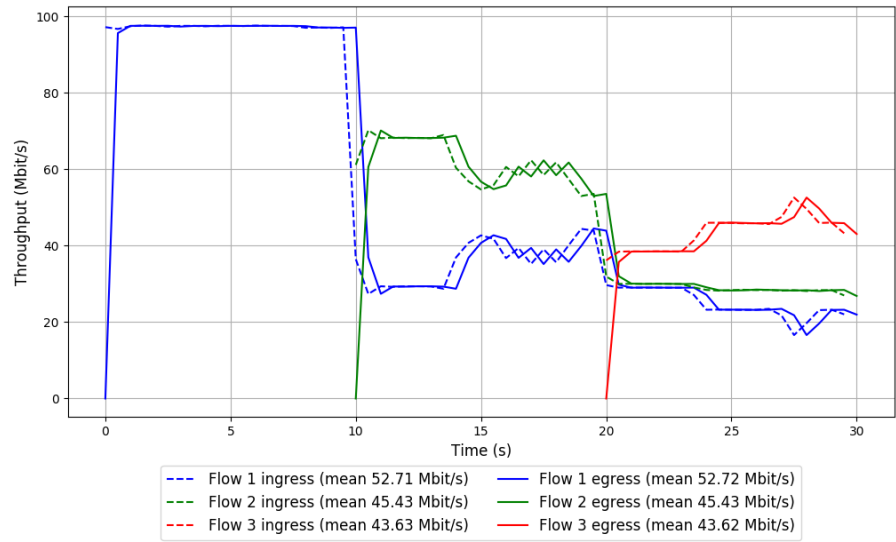
```
Run 2: Statistics of TCP Vegas

Start at: 2019-09-18 23:25:08
End at: 2019-09-18 23:25:38
Local clock offset: -8.094 ms
Remote clock offset: -2.626 ms


# Below is generated by plot.py at 2019-09-19 01:15:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 4.420 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.62 Mbit/s
95th percentile per-packet one-way delay: 3.588 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 51.10 Mbit/s
95th percentile per-packet one-way delay: 4.314 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 4.873 ms
Loss rate: 0.06%
```

Run 2: Report of TCP Vegas — Data Link
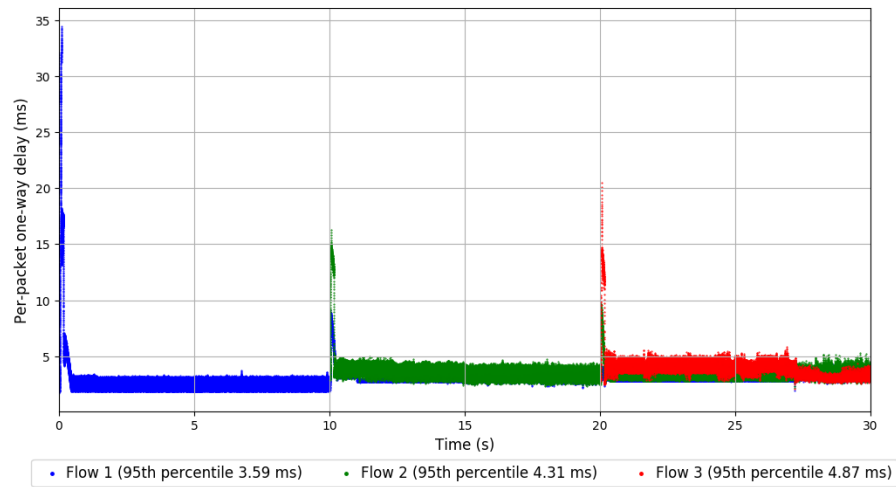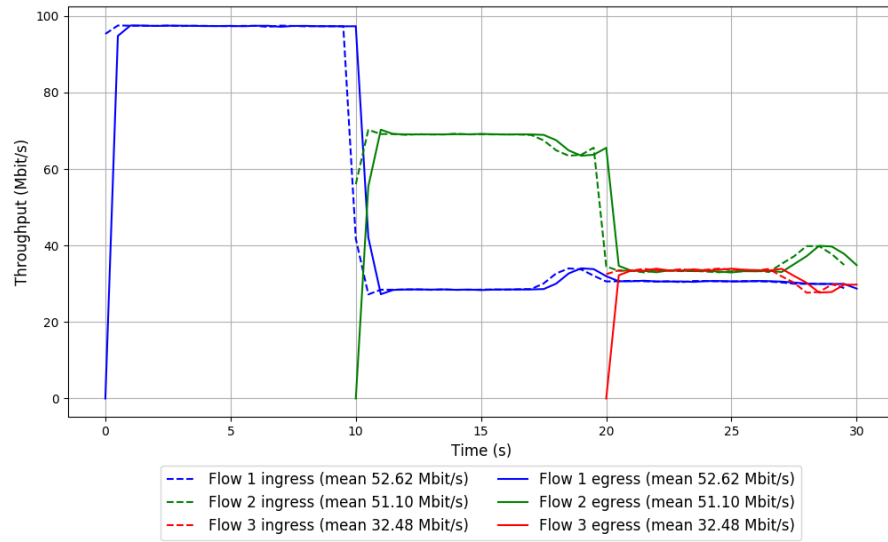
```
Run 3: Statistics of TCP Vegas

Start at: 2019-09-18 23:52:40
End at: 2019-09-18 23:53:10
Local clock offset: -10.773 ms
Remote clock offset: -1.391 ms


# Below is generated by plot.py at 2019-09-19 01:15:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 5.013 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 51.63 Mbit/s
95th percentile per-packet one-way delay: 4.090 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 46.39 Mbit/s
95th percentile per-packet one-way delay: 4.316 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 44.88 Mbit/s
95th percentile per-packet one-way delay: 5.434 ms
Loss rate: 0.05%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 51.63 Mbit/s)   Flow 1 egress (mean 51.63 Mbit/s)
Flow 2 ingress (mean 46.39 Mbit/s)   Flow 2 egress (mean 46.39 Mbit/s)
Flow 3 ingress (mean 44.89 Mbit/s)   Flow 3 egress (mean 44.88 Mbit/s)

Flow 1 (95th percentile 4.09 ms)   Flow 2 (95th percentile 4.32 ms)   Flow 3 (95th percentile 5.43 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2019-09-19 00:20:14
End at: 2019-09-19 00:20:44
Local clock offset: -7.99 ms
Remote clock offset: -0.238 ms


# Below is generated by plot.py at 2019-09-19 01:15:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 3.849 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 54.38 Mbit/s
95th percentile per-packet one-way delay: 2.937 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 45.70 Mbit/s
95th percentile per-packet one-way delay: 3.363 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 37.97 Mbit/s
95th percentile per-packet one-way delay: 4.562 ms
Loss rate: 0.04%
```

Run 4: Report of TCP Vegas — Data Link
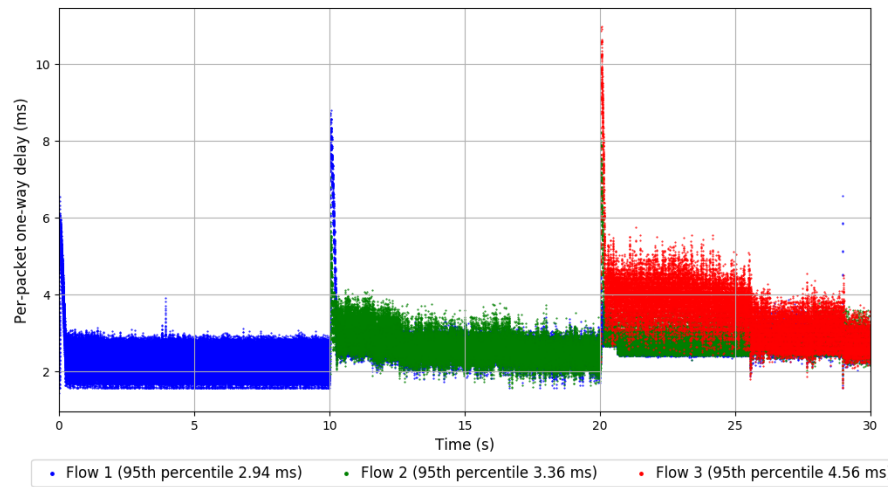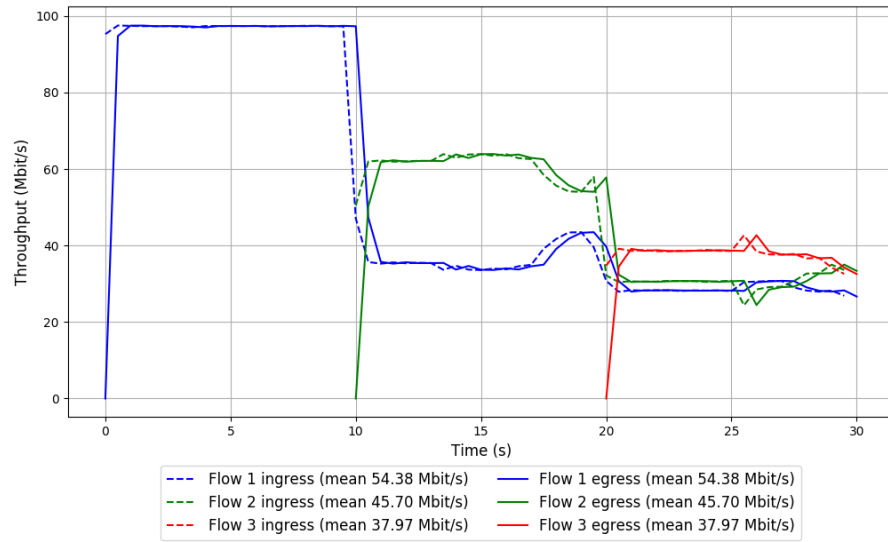
```
Run 5: Statistics of TCP Vegas

Start at: 2019-09-19 00:47:46
End at: 2019-09-19 00:48:16
Local clock offset: -3.366 ms
Remote clock offset: -0.359 ms


# Below is generated by plot.py at 2019-09-19 01:15:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 4.818 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.67 Mbit/s
95th percentile per-packet one-way delay: 3.850 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 48.64 Mbit/s
95th percentile per-packet one-way delay: 4.865 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 37.30 Mbit/s
95th percentile per-packet one-way delay: 5.214 ms
Loss rate: 0.06%
```

Run 5: Report of TCP Vegas — Data Link
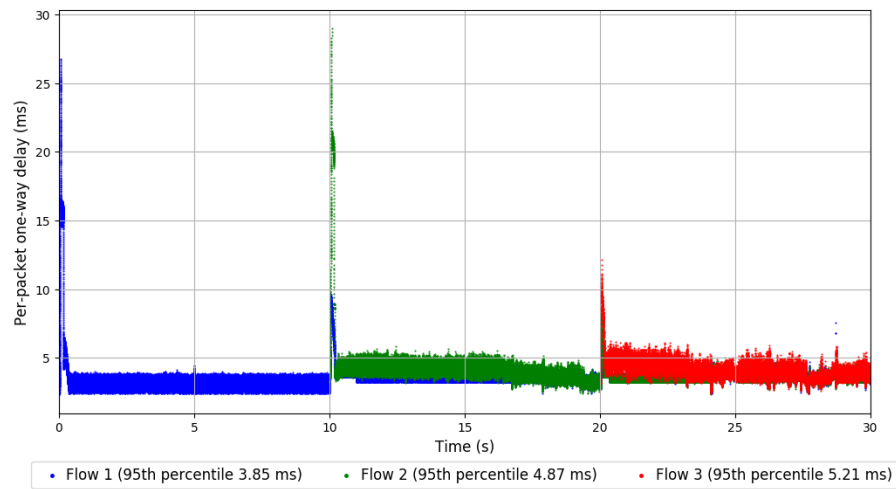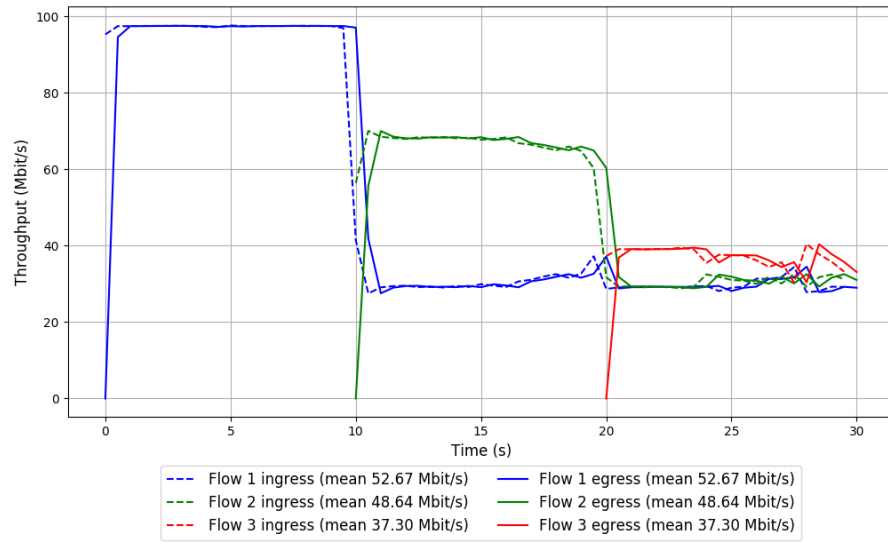
```
Run 1: Statistics of Verus

Start at: 2019-09-18 23:01:05
End at: 2019-09-18 23:01:35
Local clock offset: 1.744 ms
Remote clock offset: -2.515 ms


# Below is generated by plot.py at 2019-09-19 01:15:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.31 Mbit/s
95th percentile per-packet one-way delay: 31.824 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 37.02 Mbit/s
95th percentile per-packet one-way delay: 35.140 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 44.94 Mbit/s
95th percentile per-packet one-way delay: 23.743 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 31.24 Mbit/s
95th percentile per-packet one-way delay: 106.785 ms
Loss rate: 0.10%
```

Run 1: Report of Verus — Data Link
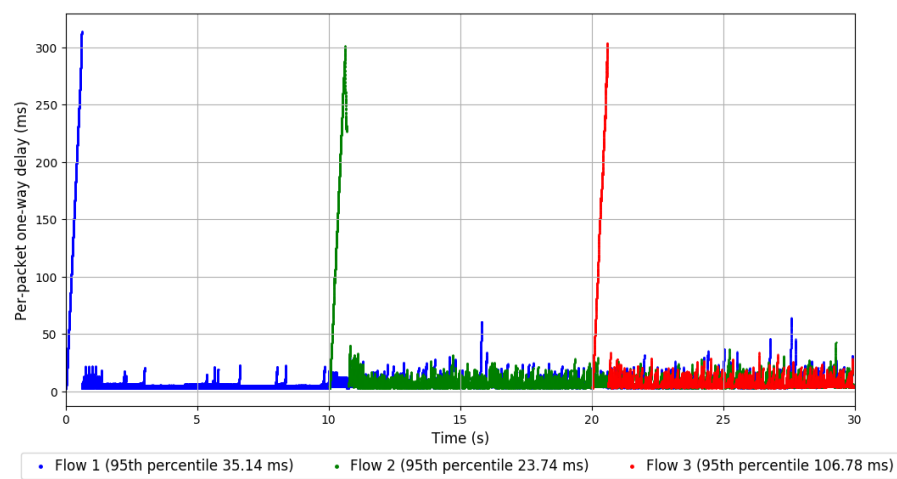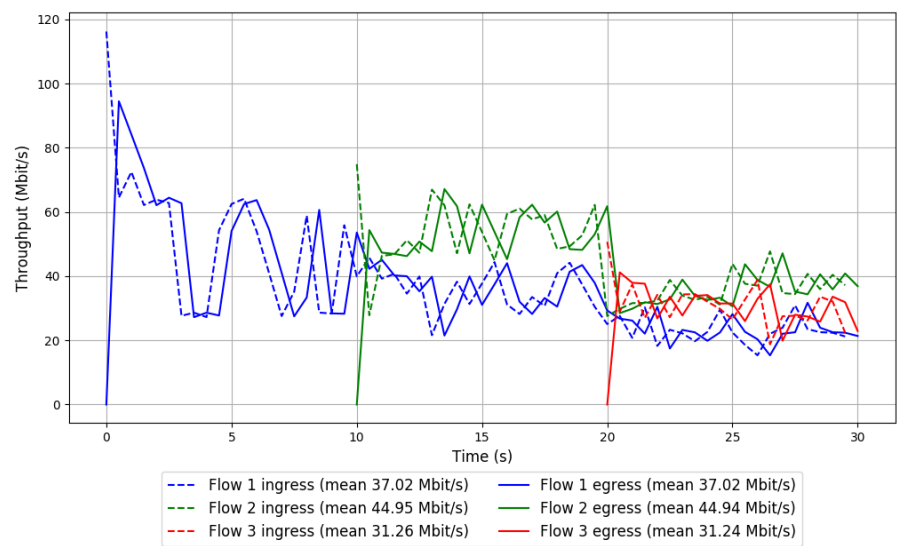
```
Run 2: Statistics of Verus

Start at: 2019-09-18 23:28:38
End at: 2019-09-18 23:29:08
Local clock offset: -8.616 ms
Remote clock offset: -2.392 ms


# Below is generated by plot.py at 2019-09-19 01:15:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.93 Mbit/s
95th percentile per-packet one-way delay: 56.951 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 35.33 Mbit/s
95th percentile per-packet one-way delay: 46.941 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 38.48 Mbit/s
95th percentile per-packet one-way delay: 27.568 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 33.06 Mbit/s
95th percentile per-packet one-way delay: 171.505 ms
Loss rate: 0.25%
```

Run 2: Report of Verus — Data Link
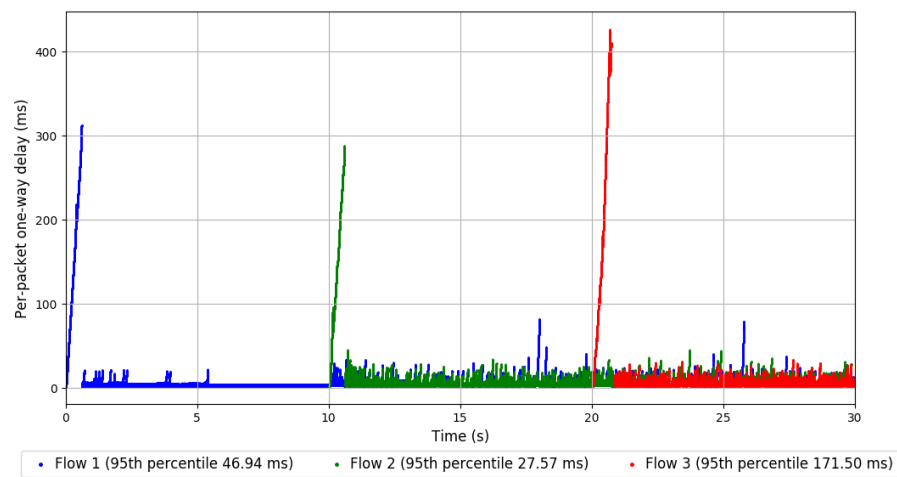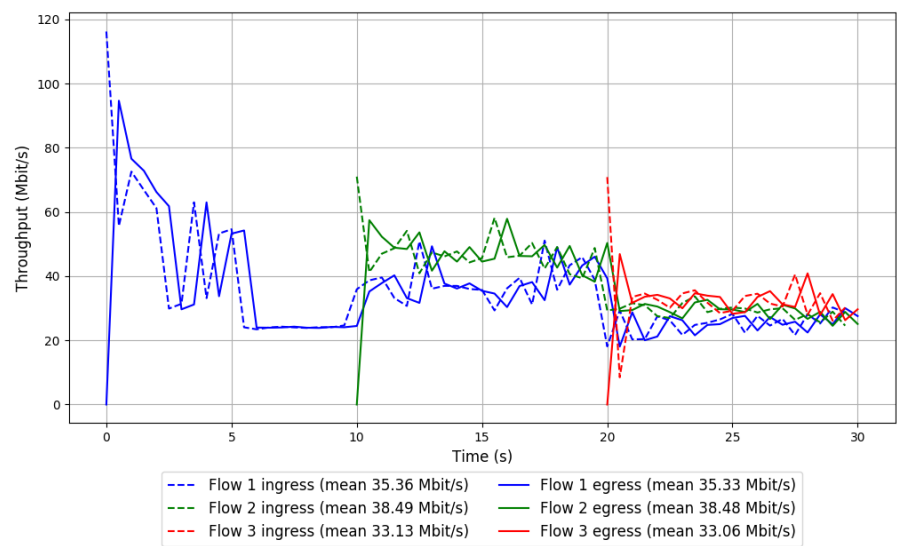
```
Run 3: Statistics of Verus

Start at: 2019-09-18 23:56:09
End at: 2019-09-18 23:56:39
Local clock offset: -11.924 ms
Remote clock offset: -1.062 ms


# Below is generated by plot.py at 2019-09-19 01:16:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.96 Mbit/s
95th percentile per-packet one-way delay: 30.389 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 46.79 Mbit/s
95th percentile per-packet one-way delay: 22.126 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 38.05 Mbit/s
95th percentile per-packet one-way delay: 23.600 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 29.64 Mbit/s
95th percentile per-packet one-way delay: 190.413 ms
Loss rate: 0.18%
```

Run 3: Report of Verus — Data Link
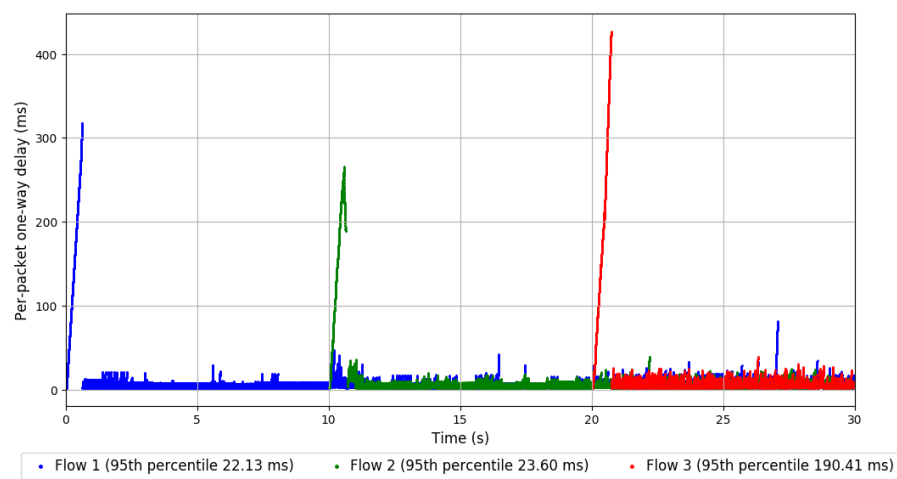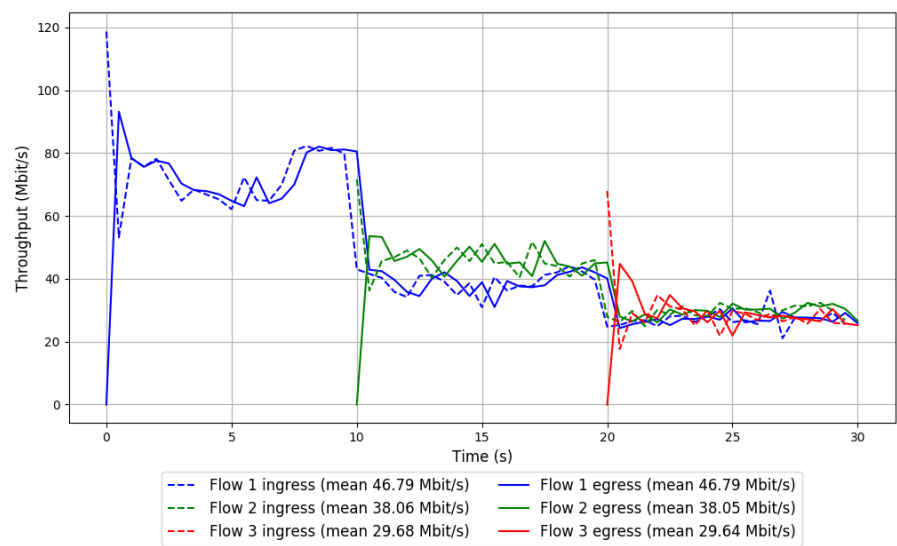
```
Run 4: Statistics of Verus

Start at: 2019-09-19 00:23:44
End at: 2019-09-19 00:24:14
Local clock offset: -7.032 ms
Remote clock offset: -0.215 ms


# Below is generated by plot.py at 2019-09-19 01:16:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.46 Mbit/s
95th percentile per-packet one-way delay: 38.610 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 37.23 Mbit/s
95th percentile per-packet one-way delay: 33.561 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 33.96 Mbit/s
95th percentile per-packet one-way delay: 22.594 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 34.97 Mbit/s
95th percentile per-packet one-way delay: 167.768 ms
Loss rate: 0.09%
```

Run 4: Report of Verus — Data Link
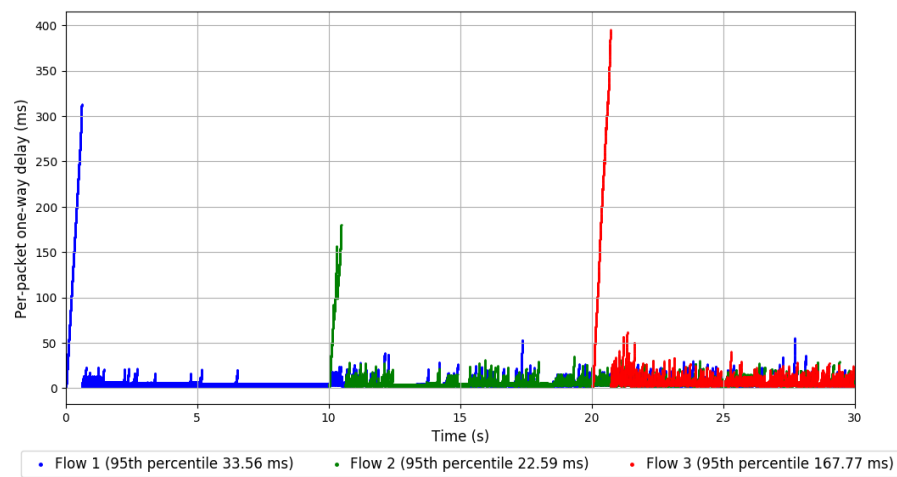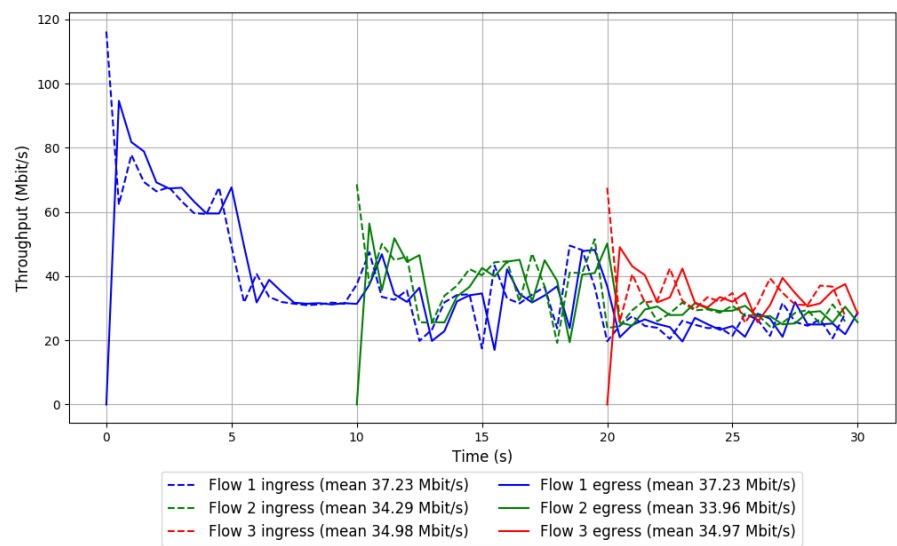
```
Run 5: Statistics of Verus

Start at: 2019-09-19 00:51:16
End at: 2019-09-19 00:51:46
Local clock offset: -3.823 ms
Remote clock offset: -0.382 ms


# Below is generated by plot.py at 2019-09-19 01:16:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.51 Mbit/s
95th percentile per-packet one-way delay: 39.563 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 35.75 Mbit/s
95th percentile per-packet one-way delay: 38.167 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 32.51 Mbit/s
95th percentile per-packet one-way delay: 29.164 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 36.39 Mbit/s
95th percentile per-packet one-way delay: 83.901 ms
Loss rate: 0.07%
```

Run 5: Report of Verus — Data Link

224
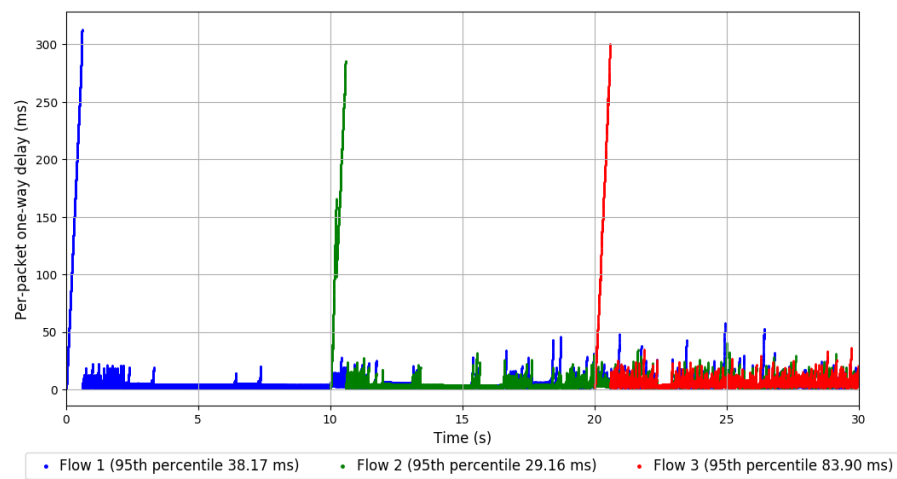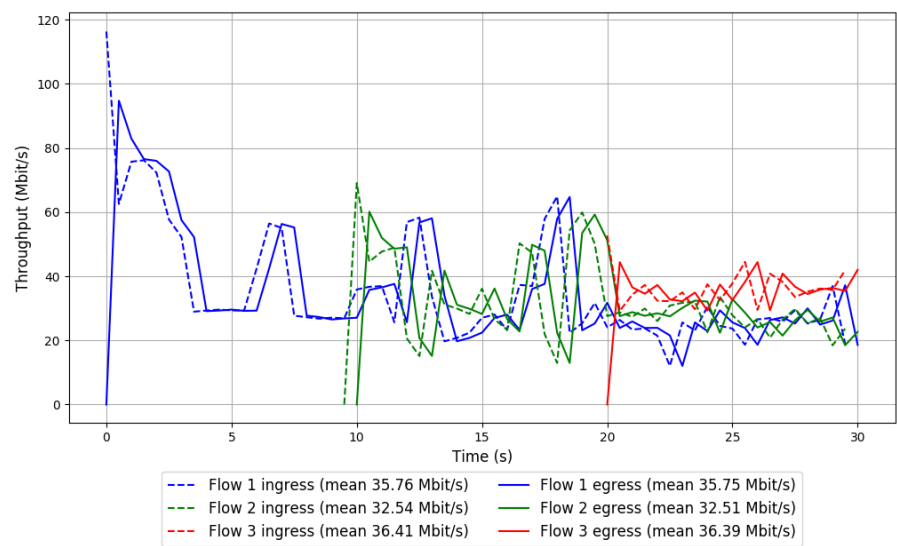
```
Run 1: Statistics of PCC-Vivace

Start at: 2019-09-18 22:50:39
End at: 2019-09-18 22:51:09
Local clock offset: 1.493 ms
Remote clock offset: -2.25 ms


# Below is generated by plot.py at 2019-09-19 01:16:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.55 Mbit/s
95th percentile per-packet one-way delay: 11.773 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 58.37 Mbit/s
95th percentile per-packet one-way delay: 34.295 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 28.90 Mbit/s
95th percentile per-packet one-way delay: 3.498 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 24.11 Mbit/s
95th percentile per-packet one-way delay: 3.991 ms
Loss rate: 0.06%
```

Run 1: Report of PCC-Vivace — Data Link
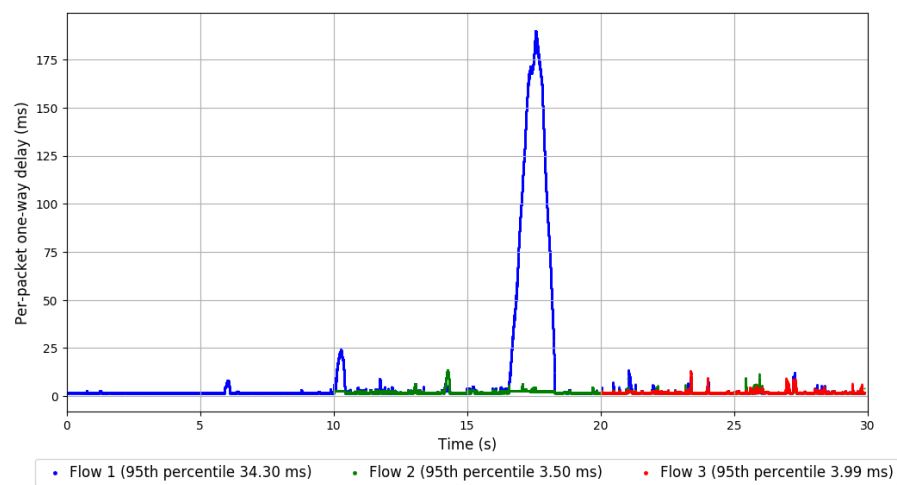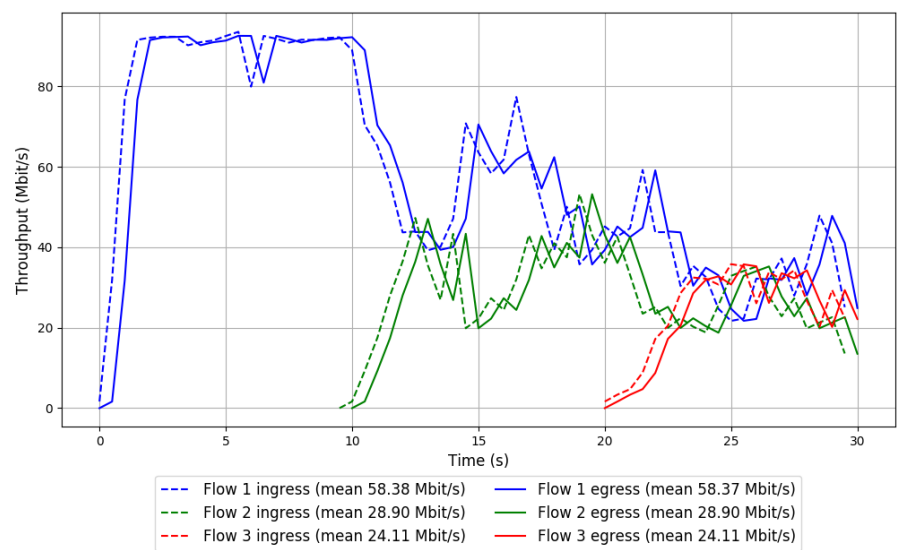
```
Run 2: Statistics of PCC-Vivace

Start at: 2019-09-18 23:18:12
End at: 2019-09-18 23:18:42
Local clock offset: -6.822 ms
Remote clock offset: -2.685 ms


# Below is generated by plot.py at 2019-09-19 01:16:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.50 Mbit/s
95th percentile per-packet one-way delay: 9.448 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 55.82 Mbit/s
95th percentile per-packet one-way delay: 13.272 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.78 Mbit/s
95th percentile per-packet one-way delay: 8.222 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 25.91 Mbit/s
95th percentile per-packet one-way delay: 9.289 ms
Loss rate: 0.07%
```

Run 2: Report of PCC-Vivace — Data Link
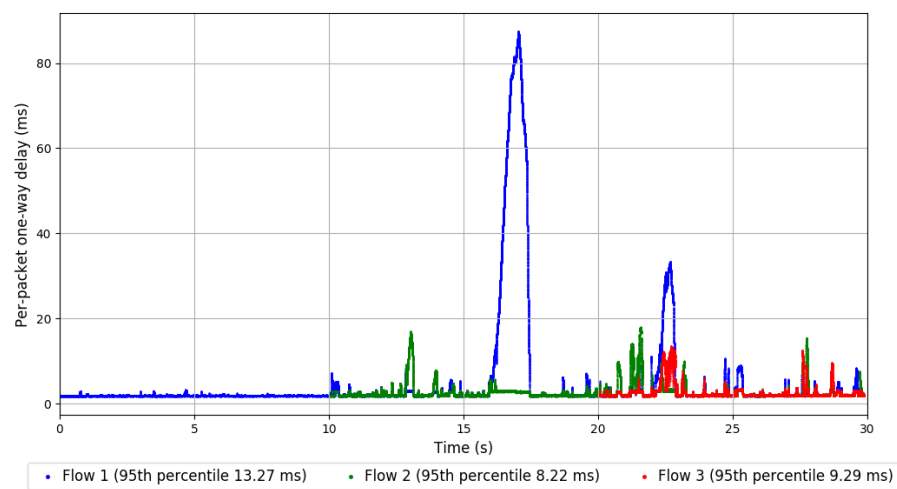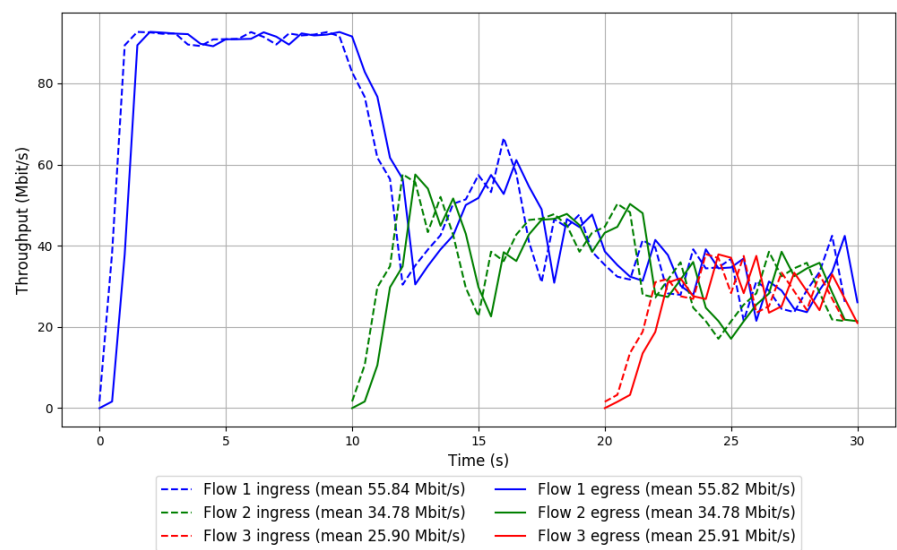
```
Run 3: Statistics of PCC-Vivace

Start at: 2019-09-18 23:45:44
End at: 2019-09-18 23:46:14
Local clock offset: -10.819 ms
Remote clock offset: -1.597 ms


# Below is generated by plot.py at 2019-09-19 01:16:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.48 Mbit/s
95th percentile per-packet one-way delay: 11.475 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 48.45 Mbit/s
95th percentile per-packet one-way delay: 2.962 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 34.42 Mbit/s
95th percentile per-packet one-way delay: 3.540 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 33.72 Mbit/s
95th percentile per-packet one-way delay: 95.705 ms
Loss rate: 8.55%
```

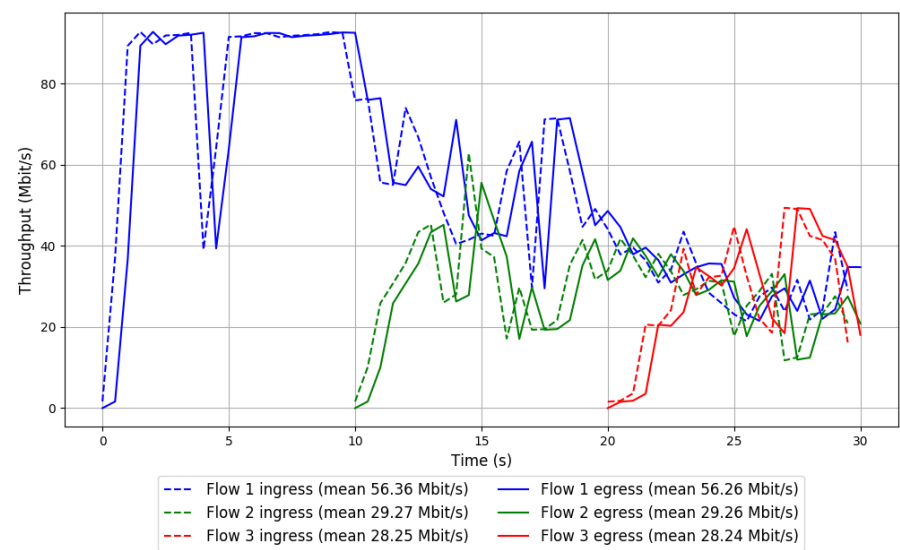Run 3: Report of PCC-Vivace — Data Link
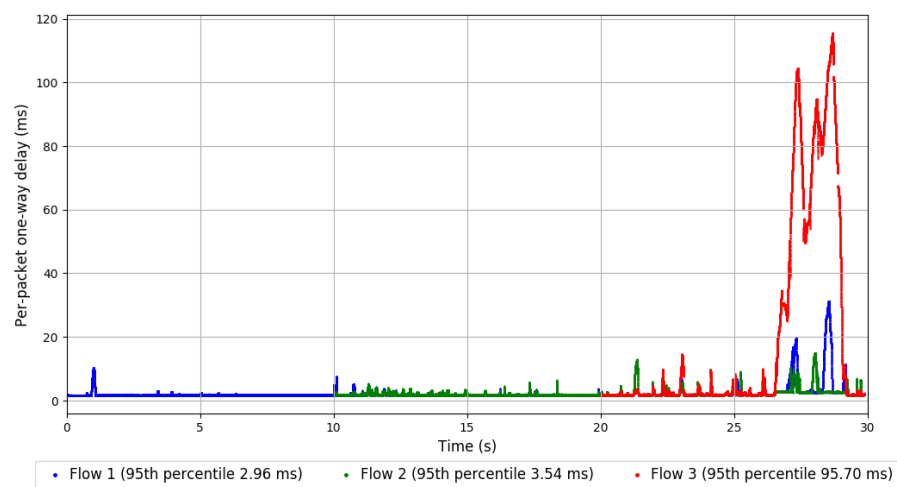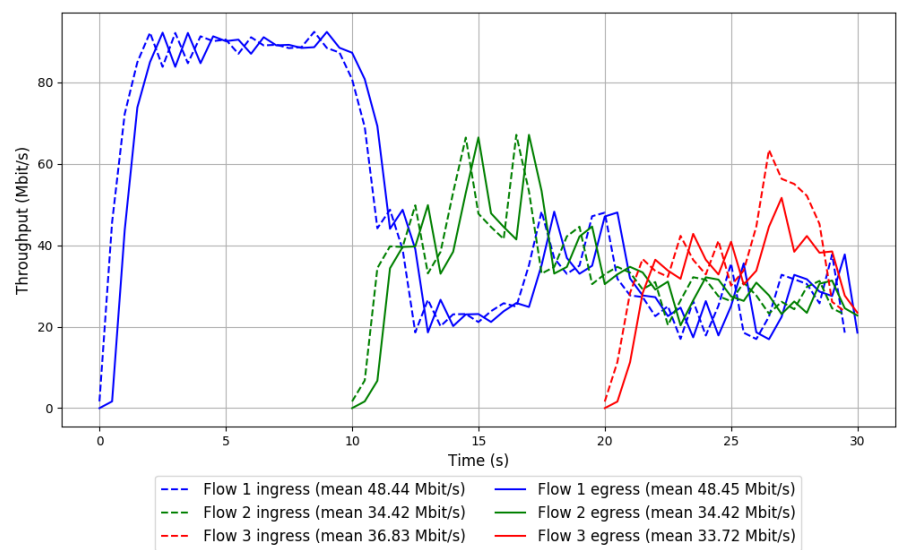
```
Run 4: Statistics of PCC-Vivace

Start at: 2019-09-19 00:13:18
End at: 2019-09-19 00:13:48
Local clock offset: -7.71 ms
Remote clock offset: -0.493 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.03 Mbit/s
95th percentile per-packet one-way delay: 100.631 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 56.26 Mbit/s
95th percentile per-packet one-way delay: 140.193 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 29.26 Mbit/s
95th percentile per-packet one-way delay: 33.072 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 28.24 Mbit/s
95th percentile per-packet one-way delay: 56.333 ms
Loss rate: 0.20%
```

Run 4: Report of PCC-Vivace — Data Link
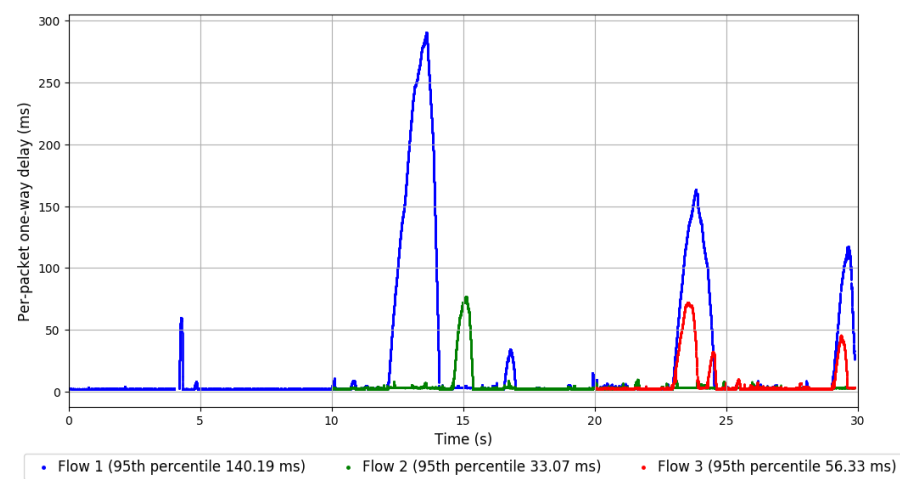
```
Run 5: Statistics of PCC-Vivace

Start at: 2019-09-19 00:40:51
End at: 2019-09-19 00:41:21
Local clock offset: -4.18 ms
Remote clock offset: -0.31 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.00 Mbit/s
95th percentile per-packet one-way delay: 83.403 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 33.32 Mbit/s
95th percentile per-packet one-way delay: 69.863 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 32.78 Mbit/s
95th percentile per-packet one-way delay: 139.957 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 26.93 Mbit/s
95th percentile per-packet one-way delay: 13.988 ms
Loss rate: 0.12%
```

Run 5: Report of PCC-Vivace — Data Link
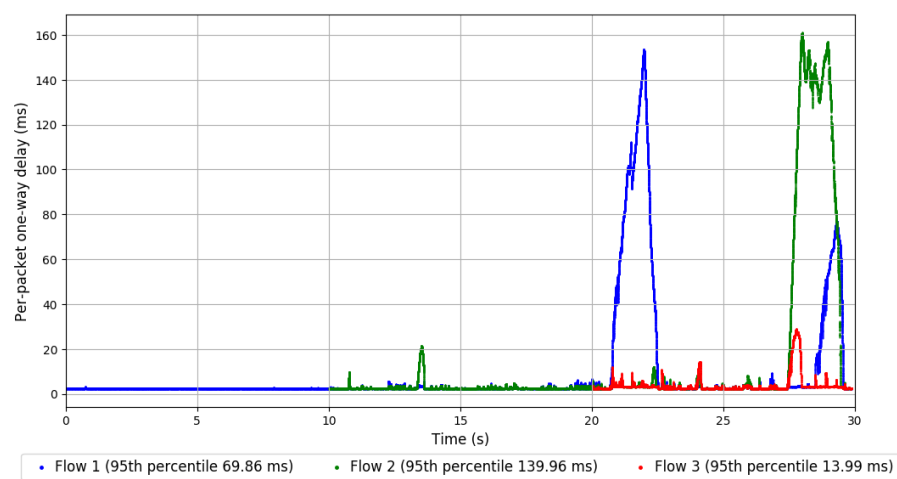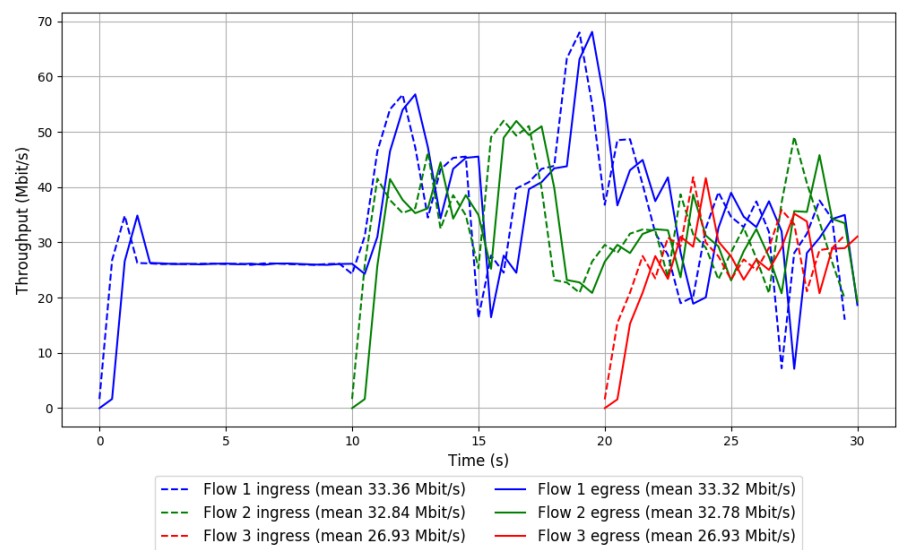
```
Run 1: Statistics of WebRTC media

Start at: 2019-09-18 22:44:56
End at: 2019-09-18 22:45:26
Local clock offset: 1.6 ms
Remote clock offset: -2.148 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.63 Mbit/s
95th percentile per-packet one-way delay: 2.305 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 2.347 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 2.041 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2.384 ms
Loss rate: 0.01%
```
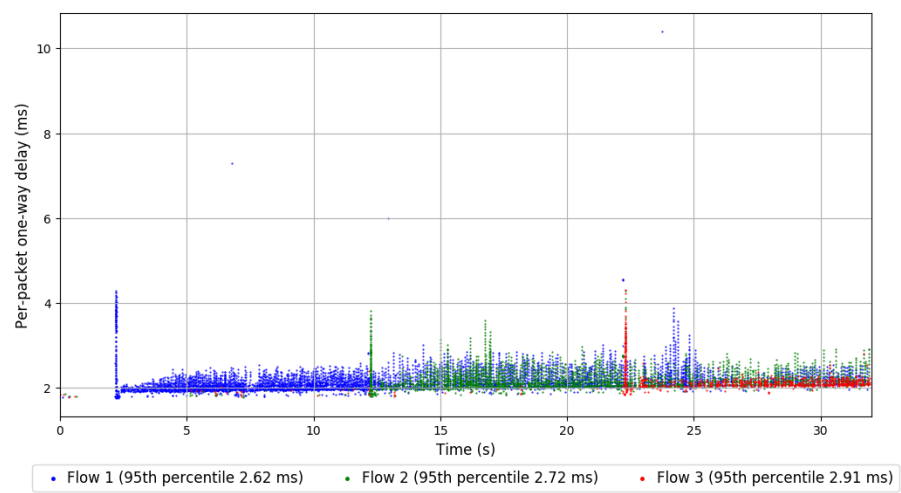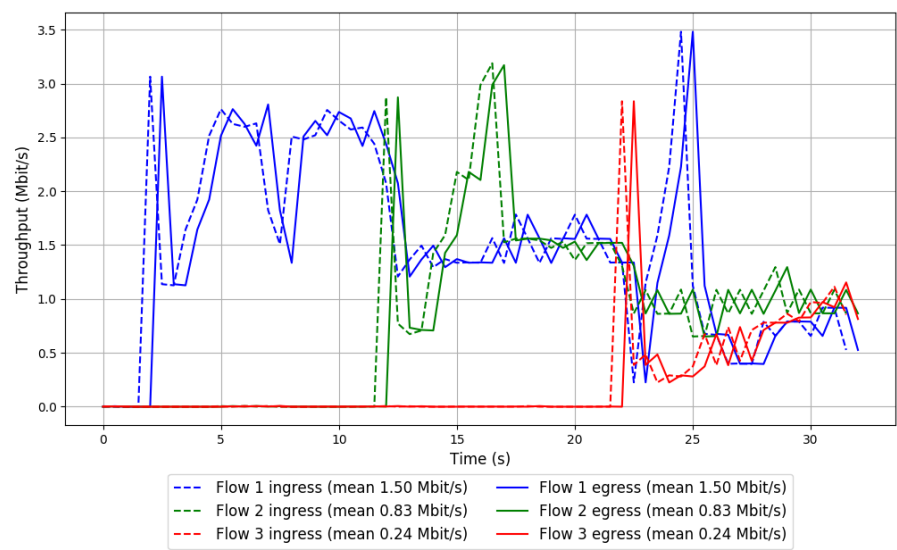
Run 1: Report of WebRTC media — Data Link
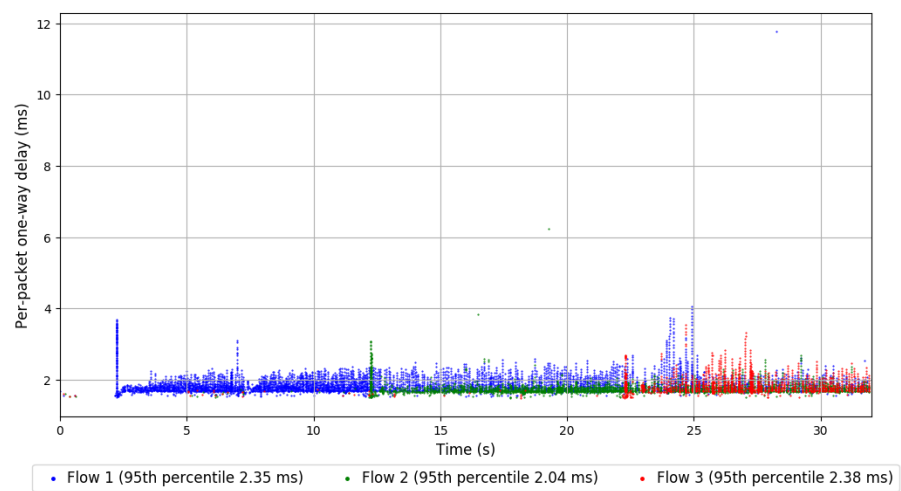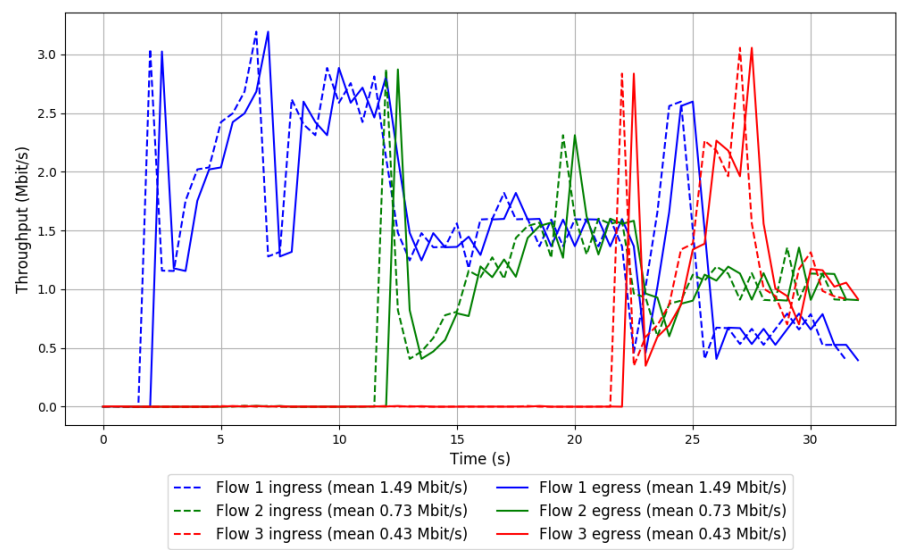
```
Run 2: Statistics of WebRTC media

Start at: 2019-09-18 23:12:30
End at: 2019-09-18 23:13:00
Local clock offset: -5.267 ms
Remote clock offset: -2.715 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 2.667 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 2.622 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 2.719 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 2.910 ms
Loss rate: 0.27%
```

Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-09-18 23:40:01
End at: 2019-09-18 23:40:31
Local clock offset: -10.093 ms
Remote clock offset: -1.712 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.79 Mbit/s
95th percentile per-packet one-way delay: 2.530 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 2.437 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 2.447 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 3.201 ms
Loss rate: 0.00%
```

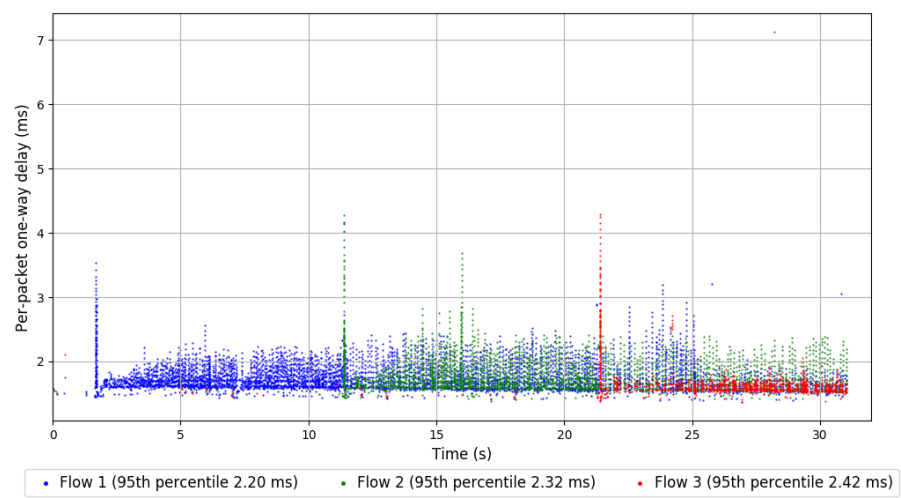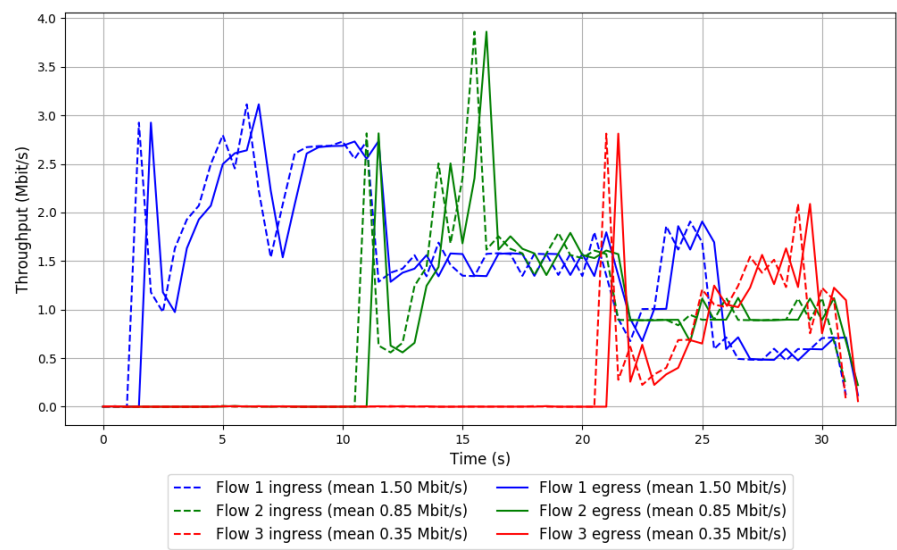Run 3: Report of WebRTC media — Data Link
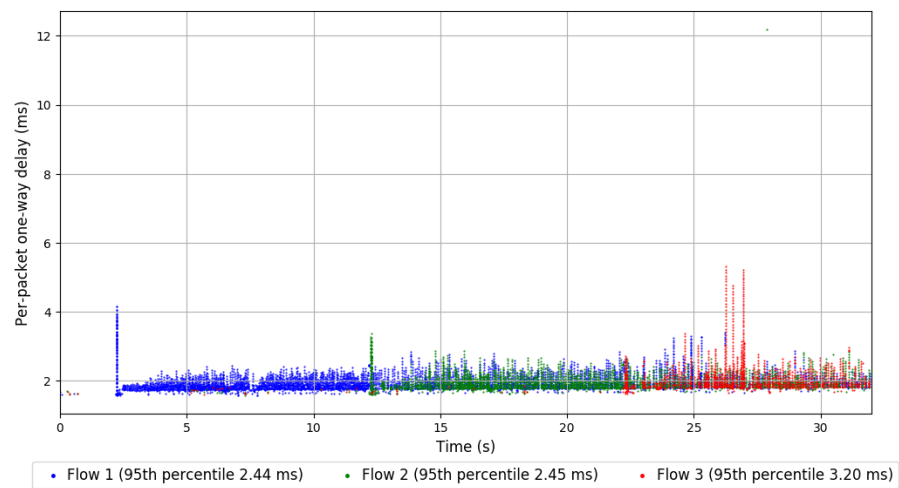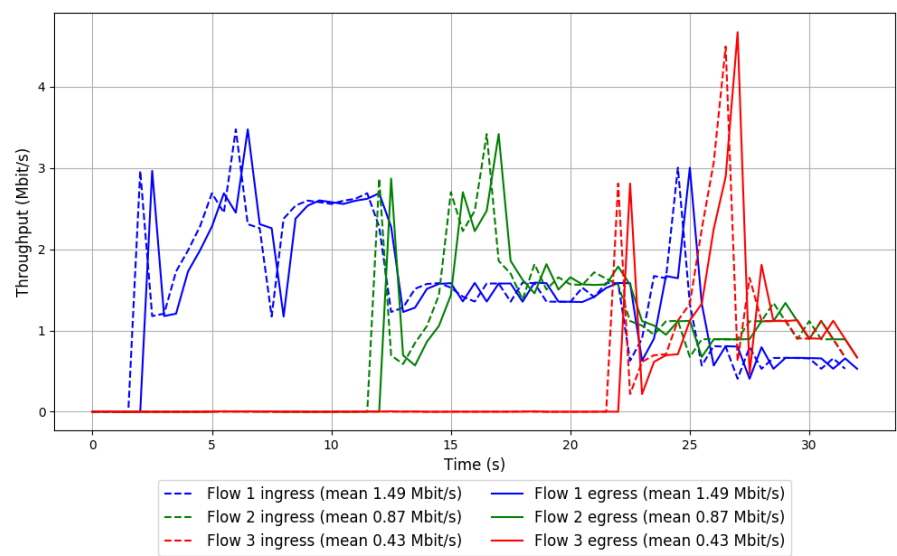
```
Run 4: Statistics of WebRTC media

Start at: 2019-09-19 00:07:34
End at: 2019-09-19 00:08:04
Local clock offset: -9.525 ms
Remote clock offset: -0.501 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 2.253 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 2.199 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 2.319 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 2.422 ms
Loss rate: 0.01%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-09-19 00:35:08
End at: 2019-09-19 00:35:38
Local clock offset: -5.325 ms
Remote clock offset: -0.366 ms


# Below is generated by plot.py at 2019-09-19 01:16:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 3.118 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 3.045 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 3.234 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 2.988 ms
Loss rate: 0.08%
```

Run 5: Report of WebRTC media — Data Link