Pantheon Report

Generated at 2018-10-10 06:13:38 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.
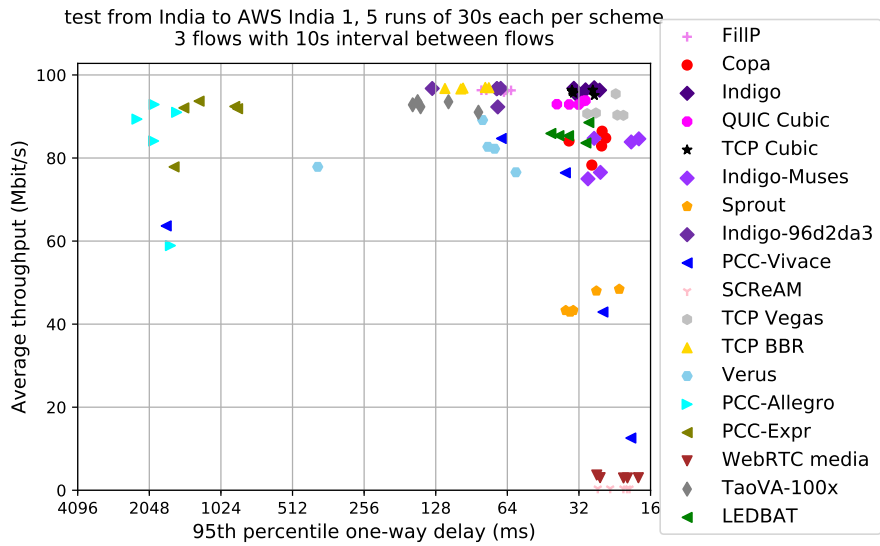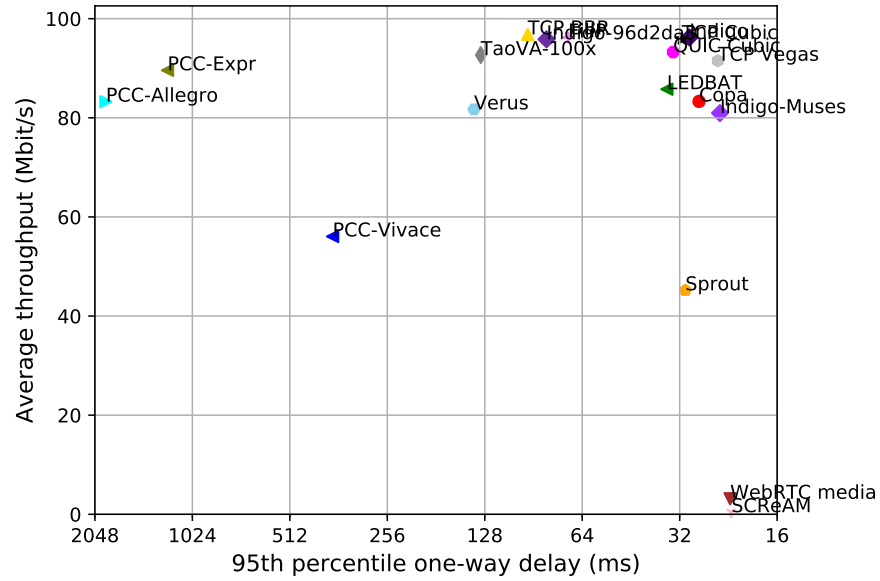
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ 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 India to AWS India 1, 5 runs of 30s each per scheme
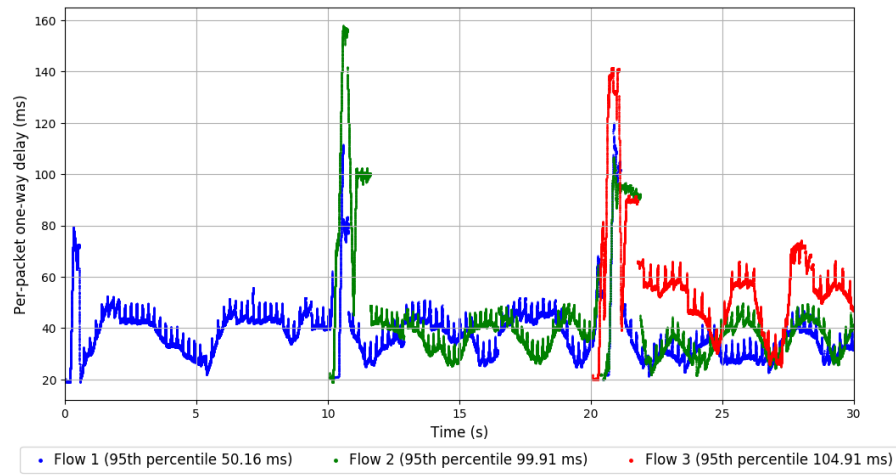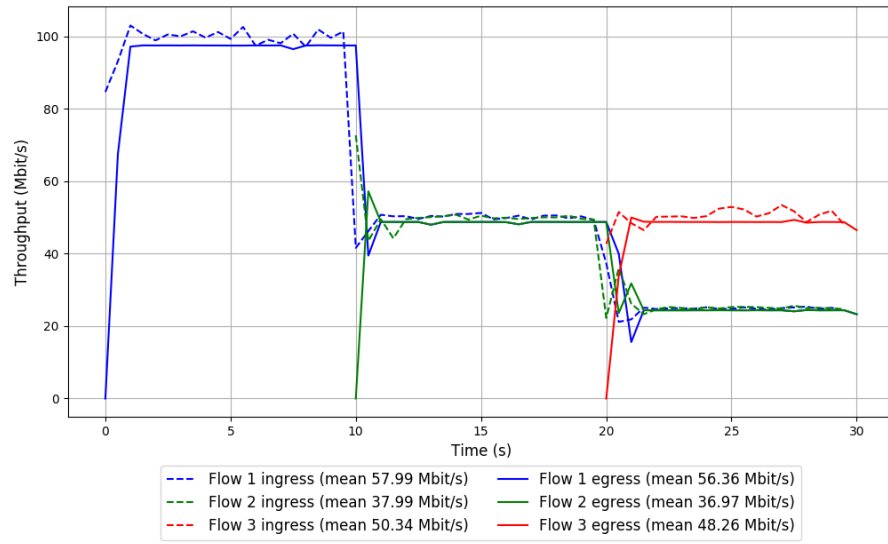3 flows with 10s interval between flows (mean of all runs by scheme)

test from India to AWS India 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	57.28	40.59	37.75	57.29	118.37	143.51	2.65	3.17	4.49
Copa	5	53.24	33.29	23.81	27.62	28.24	29.15	0.06	0.11	0.30
TCP Cubic	5	58.57	38.11	36.00	31.38	31.88	31.93	0.07	0.21	0.33
FillP	5	58.35	41.64	30.69	64.38	72.84	98.47	1.47	1.47	1.12
Indigo	5	60.56	40.03	27.56	29.27	28.94	32.20	0.07	0.13	0.36
Indigo-96d2da3	5	58.10	41.66	30.36	76.76	90.10	111.49	3.97	5.30	6.72
LEDBAT	5	54.89	30.99	30.91	34.13	34.33	37.83	0.09	0.13	0.45
Indigo-Muses	5	47.99	33.99	31.35	23.86	23.95	25.58	0.04	0.09	0.22
PCC-Allegro	5	47.66	40.48	26.38	1597.85	931.74	225.34	7.86	6.33	2.21
PCC-Expr	5	57.47	35.87	25.09	1060.97	1034.66	52.20	23.70	11.05	0.37
QUIC Cubic	5	57.68	39.01	29.20	32.73	32.87	46.22	0.10	0.19	0.49
SCReAM	5	0.21	0.21	0.21	22.17	22.16	22.17	0.13	0.19	0.45
Sprout	5	23.24	22.41	21.39	30.08	30.75	31.52	0.10	0.19	0.25
TaoVA-100x	5	55.69	38.79	33.55	124.02	148.37	122.62	0.43	0.90	1.68
TCP Vegas	5	54.68	38.77	33.24	24.14	24.01	24.25	0.07	0.13	0.32
Verus	5	47.49	37.89	27.69	129.72	252.89	81.80	0.24	0.64	1.10
PCC-Vivace	5	39.62	18.50	12.57	389.04	104.26	37.48	1.62	0.40	0.53
WebRTC media	5	1.67	1.06	0.42	22.31	22.37	22.11	0.12	0.34	0.52

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-10 04:25:59
End at: 2018-10-10 04:26:29
Local clock offset: 0.988 ms
Remote clock offset: -3.825 ms


# Below is generated by plot.py at 2018-10-10 06:02:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.00 Mbit/s
95th percentile per-packet one-way delay: 79.216 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 56.36 Mbit/s
95th percentile per-packet one-way delay: 50.159 ms
Loss rate: 2.89%
-- Flow 2:
Average throughput: 36.97 Mbit/s
95th percentile per-packet one-way delay: 99.910 ms
Loss rate: 2.81%
-- Flow 3:
Average throughput: 48.26 Mbit/s
95th percentile per-packet one-way delay: 104.911 ms
Loss rate: 4.38%
```
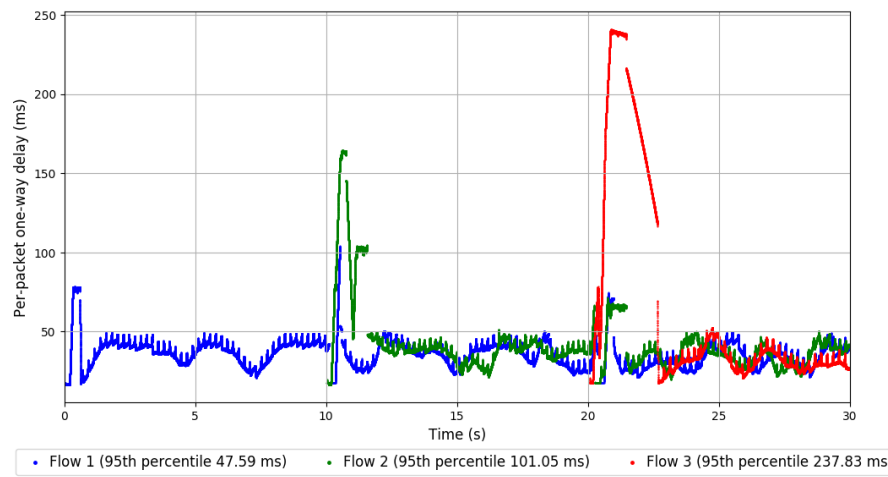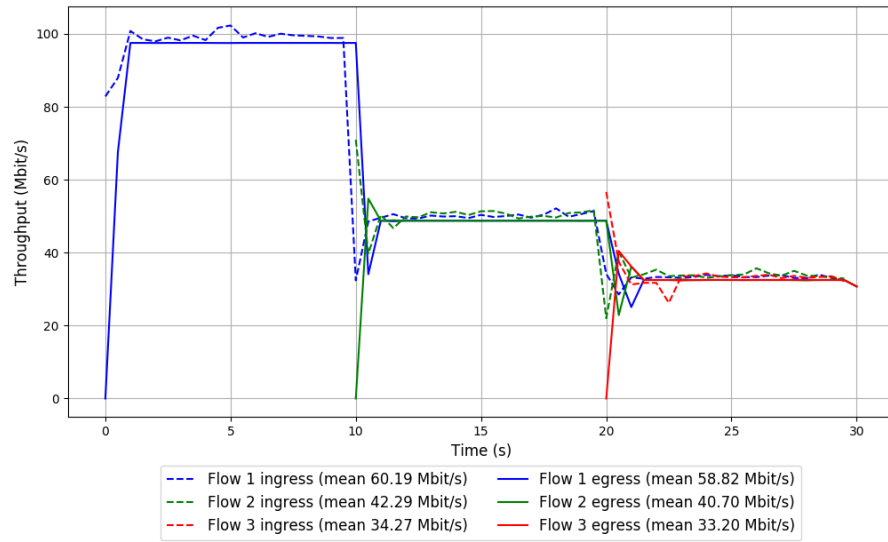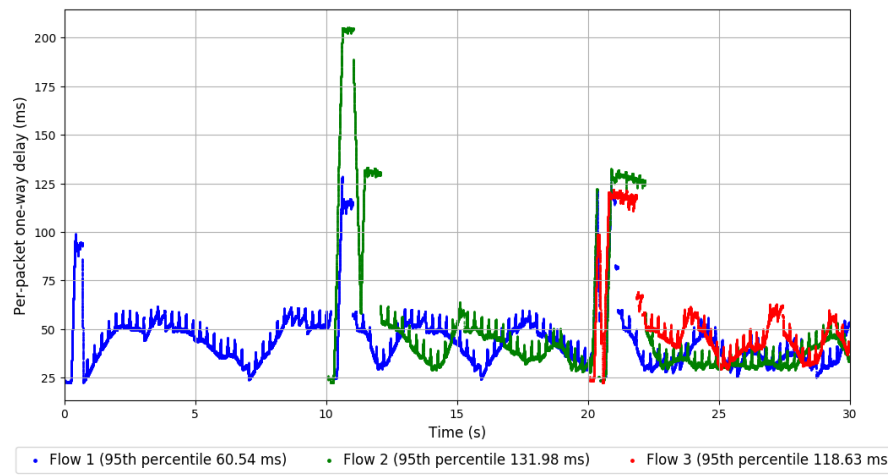
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 57.99 Mbit/s)   Flow 1 egress (mean 56.36 Mbit/s)
Flow 2 ingress (mean 37.99 Mbit/s)   Flow 2 egress (mean 36.97 Mbit/s)
Flow 3 ingress (mean 50.34 Mbit/s)   Flow 3 egress (mean 48.26 Mbit/s)

Flow 1 (95th percentile 50.16 ms)   Flow 2 (95th percentile 99.91 ms)   Flow 3 (95th percentile 104.91 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-10 04:48:26
End at: 2018-10-10 04:48:56
Local clock offset: -0.743 ms
Remote clock offset: -3.502 ms


# Below is generated by plot.py at 2018-10-10 06:02:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.94 Mbit/s
95th percentile per-packet one-way delay: 76.558 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 58.82 Mbit/s
95th percentile per-packet one-way delay: 47.591 ms
Loss rate: 2.36%
-- Flow 2:
Average throughput: 40.70 Mbit/s
95th percentile per-packet one-way delay: 101.047 ms
Loss rate: 3.89%
-- Flow 3:
Average throughput: 33.20 Mbit/s
95th percentile per-packet one-way delay: 237.830 ms
Loss rate: 3.37%
```

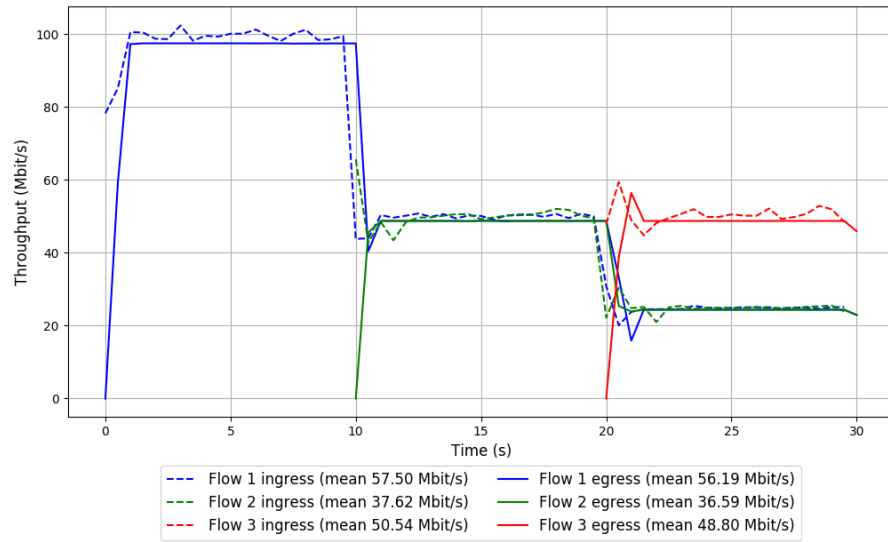Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-10 05:10:45
End at: 2018-10-10 05:11:15
Local clock offset: 0.599 ms
Remote clock offset: -2.961 ms


# Below is generated by plot.py at 2018-10-10 06:02:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.75 Mbit/s
95th percentile per-packet one-way delay: 117.073 ms
Loss rate: 2.74%
-- Flow 1:
Average throughput: 56.19 Mbit/s
95th percentile per-packet one-way delay: 60.536 ms
Loss rate: 2.39%
-- Flow 2:
Average throughput: 36.59 Mbit/s
95th percentile per-packet one-way delay: 131.978 ms
Loss rate: 2.88%
-- Flow 3:
Average throughput: 48.80 Mbit/s
95th percentile per-packet one-way delay: 118.630 ms
Loss rate: 3.73%
```
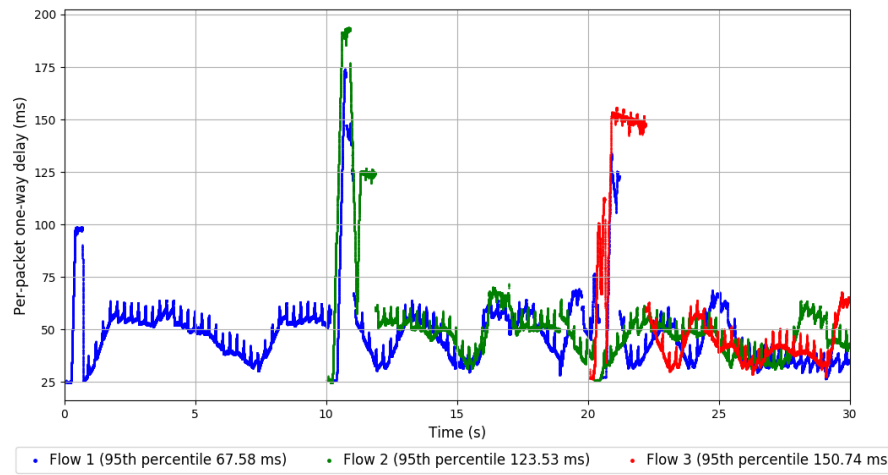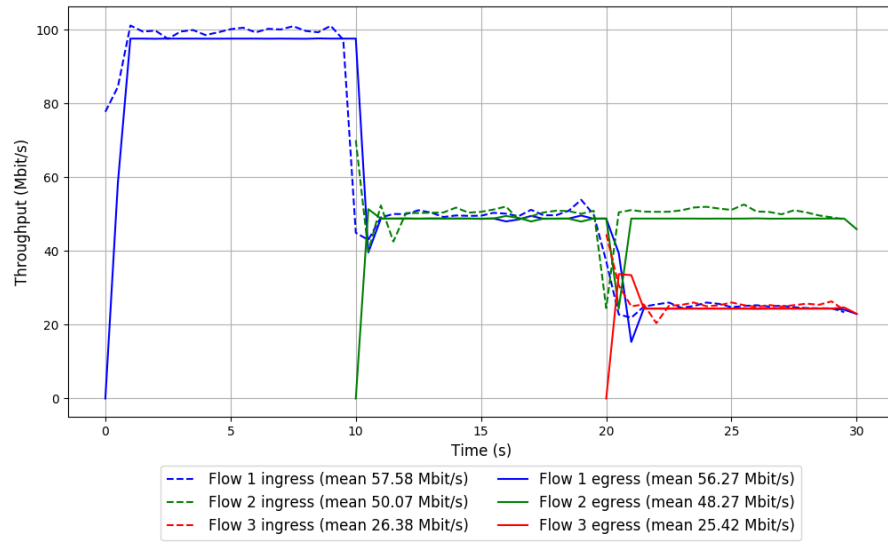
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 57.50 Mbit/s) --- Flow 1 egress (mean 56.19 Mbit/s)
Flow 2 ingress (mean 37.62 Mbit/s) --- Flow 2 egress (mean 36.59 Mbit/s)
Flow 3 ingress (mean 50.54 Mbit/s) --- Flow 3 egress (mean 48.80 Mbit/s)

Flow 1 (95th percentile 60.54 ms)   Flow 2 (95th percentile 131.98 ms)   Flow 3 (95th percentile 118.63 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-10 05:33:05
End at: 2018-10-10 05:33:35
Local clock offset: 1.563 ms
Remote clock offset: -4.007 ms


# Below is generated by plot.py at 2018-10-10 06:02:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.84 Mbit/s
95th percentile per-packet one-way delay: 98.281 ms
Loss rate: 2.99%
-- Flow 1:
Average throughput: 56.27 Mbit/s
95th percentile per-packet one-way delay: 67.575 ms
Loss rate: 2.39%
-- Flow 2:
Average throughput: 48.27 Mbit/s
95th percentile per-packet one-way delay: 123.535 ms
Loss rate: 3.77%
-- Flow 3:
Average throughput: 25.42 Mbit/s
95th percentile per-packet one-way delay: 150.742 ms
Loss rate: 4.01%
```
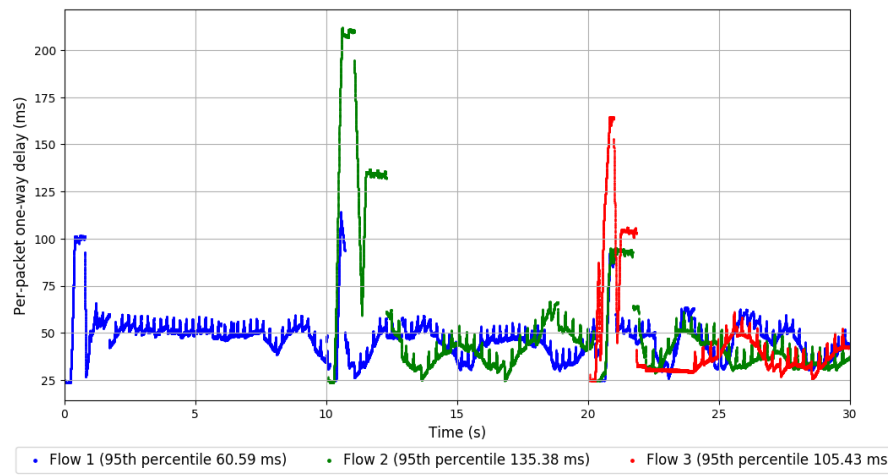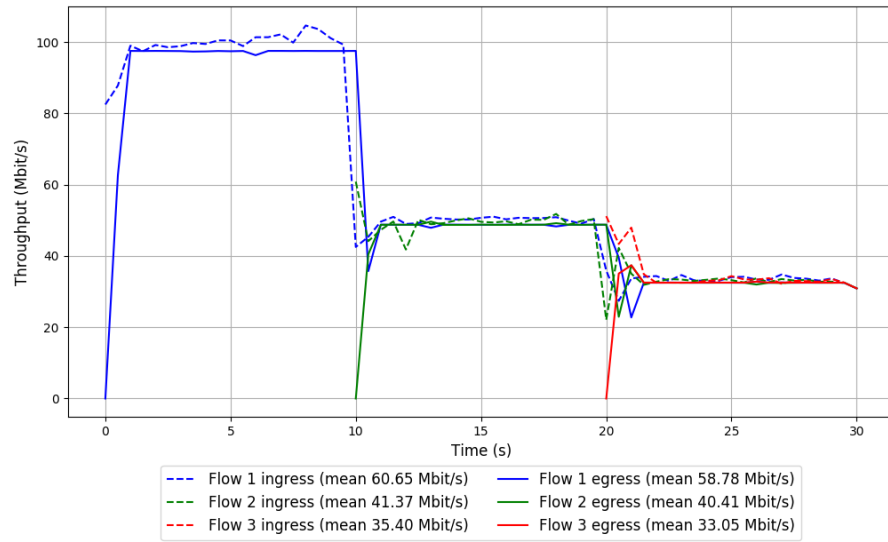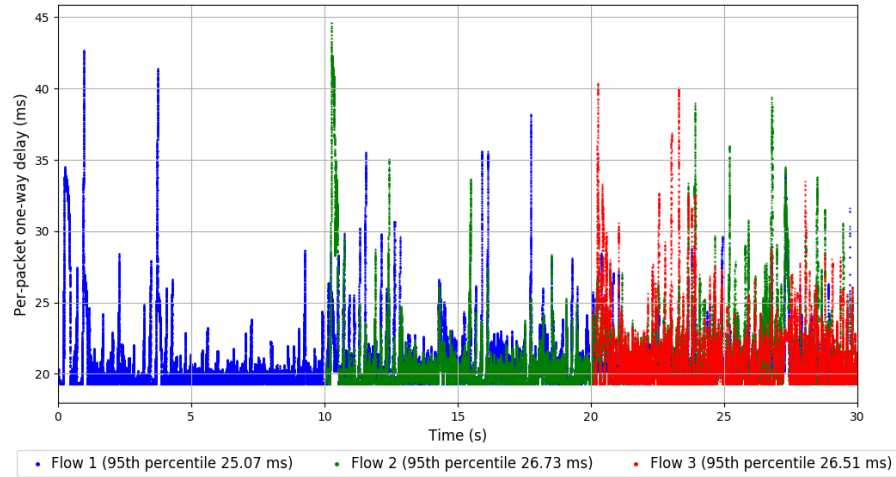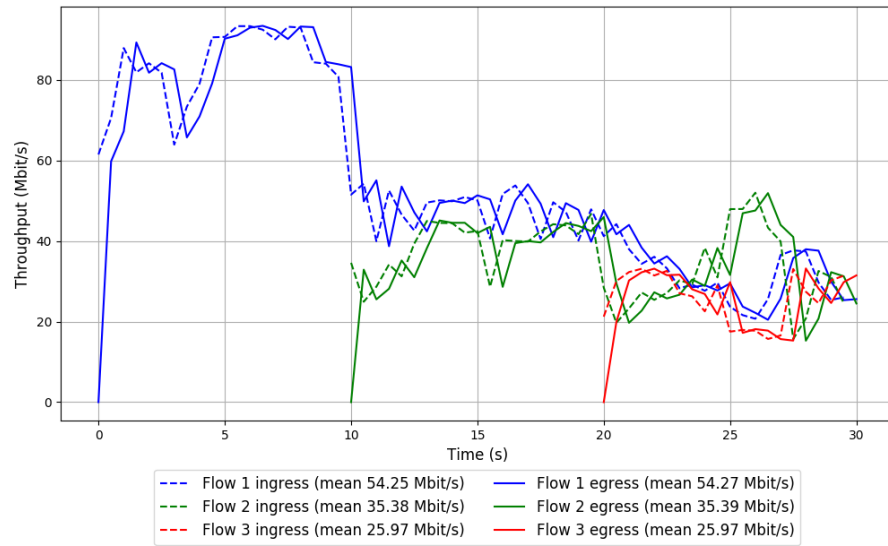
Run 4: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 57.58 Mbit/s) ——— Flow 1 egress (mean 56.27 Mbit/s)
- - - Flow 2 ingress (mean 50.07 Mbit/s) ——— Flow 2 egress (mean 48.27 Mbit/s)
- - - Flow 3 ingress (mean 26.38 Mbit/s) ——— Flow 3 egress (mean 25.42 Mbit/s)

• Flow 1 (95th percentile 67.58 ms)   • Flow 2 (95th percentile 123.53 ms)   • Flow 3 (95th percentile 150.74 ms)
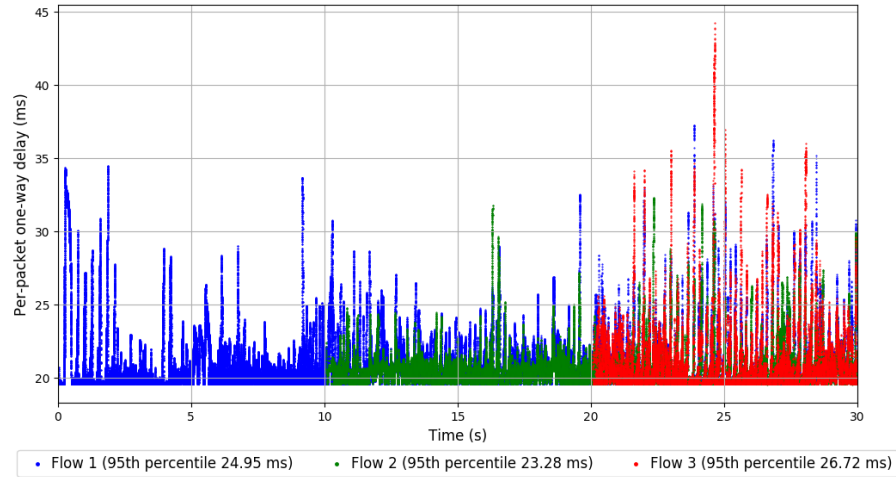
```
Run 5: Statistics of TCP BBR

Start at: 2018-10-10 05:56:00
End at: 2018-10-10 05:56:30
Local clock offset: 0.103 ms
Remote clock offset: -4.49 ms

# Below is generated by plot.py at 2018-10-10 06:02:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.63 Mbit/s
95th percentile per-packet one-way delay: 100.364 ms
Loss rate: 3.44%
-- Flow 1:
Average throughput: 58.78 Mbit/s
95th percentile per-packet one-way delay: 60.586 ms
Loss rate: 3.20%
-- Flow 2:
Average throughput: 40.41 Mbit/s
95th percentile per-packet one-way delay: 135.377 ms
Loss rate: 2.48%
-- Flow 3:
Average throughput: 33.05 Mbit/s
95th percentile per-packet one-way delay: 105.430 ms
Loss rate: 6.95%
```

Run 5: Report of TCP BBR — Data Link

- - - - Flow 1 ingress (mean 60.65 Mbit/s) —— Flow 1 egress (mean 58.78 Mbit/s)
- - - - Flow 2 ingress (mean 41.37 Mbit/s) —— Flow 2 egress (mean 40.41 Mbit/s)
- - - - Flow 3 ingress (mean 35.40 Mbit/s) —— Flow 3 egress (mean 33.05 Mbit/s)

• Flow 1 (95th percentile 60.59 ms)   • Flow 2 (95th percentile 135.38 ms)   • Flow 3 (95th percentile 105.43 ms)
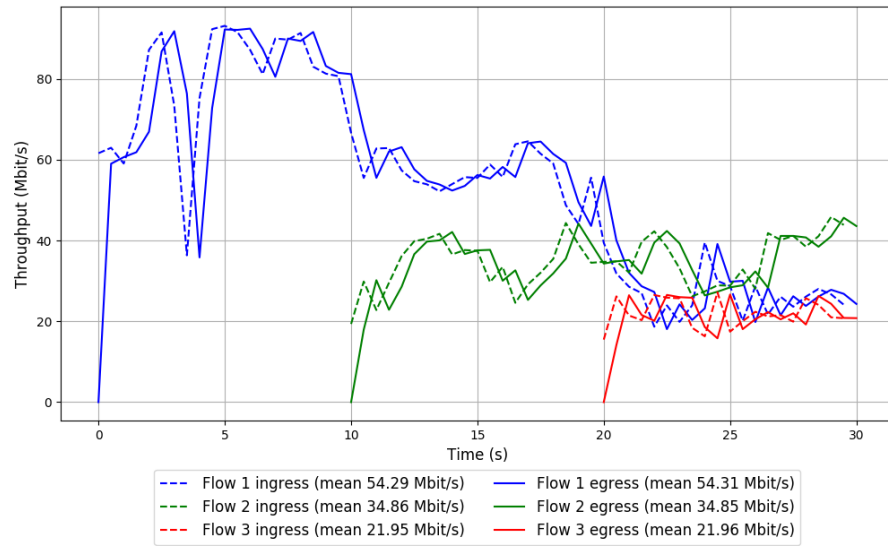
14

```
Run 1: Statistics of Copa

Start at: 2018-10-10 04:16:09
End at: 2018-10-10 04:16:39
Local clock offset: 1.115 ms
Remote clock offset: -4.083 ms


# Below is generated by plot.py at 2018-10-10 06:03:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.45 Mbit/s
95th percentile per-packet one-way delay: 25.572 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 54.27 Mbit/s
95th percentile per-packet one-way delay: 25.074 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 35.39 Mbit/s
95th percentile per-packet one-way delay: 26.730 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 25.97 Mbit/s
95th percentile per-packet one-way delay: 26.510 ms
Loss rate: 0.24%
```
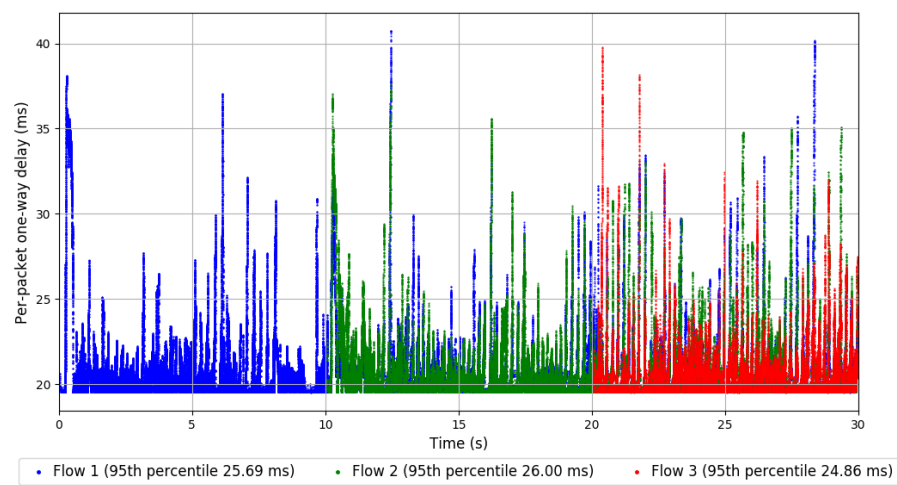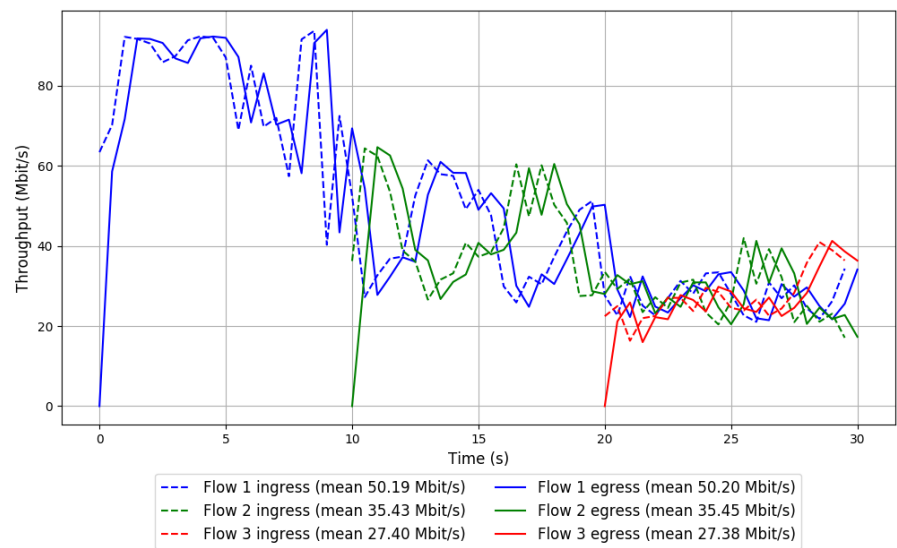
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-10 04:38:32
End at: 2018-10-10 04:39:02
Local clock offset: 1.671 ms
Remote clock offset: -4.036 ms


# Below is generated by plot.py at 2018-10-10 06:03:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.80 Mbit/s
95th percentile per-packet one-way delay: 24.702 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 54.31 Mbit/s
95th percentile per-packet one-way delay: 24.954 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.85 Mbit/s
95th percentile per-packet one-way delay: 23.283 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 21.96 Mbit/s
95th percentile per-packet one-way delay: 26.718 ms
Loss rate: 0.22%
```
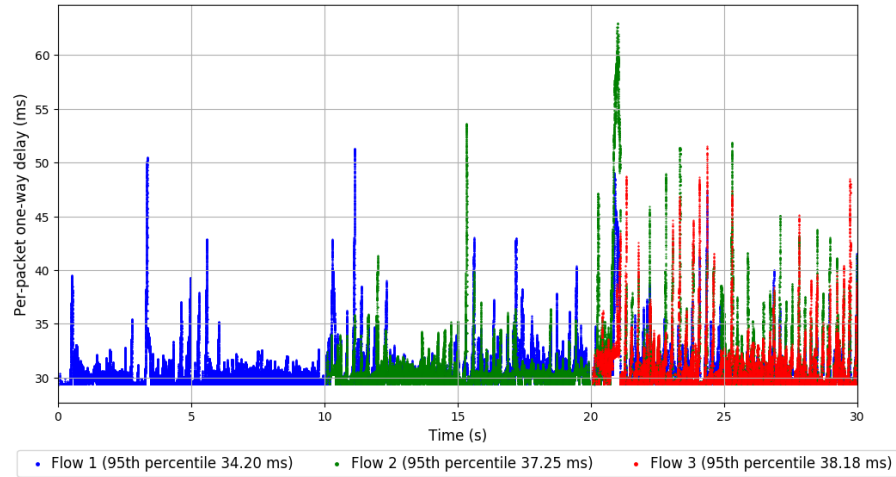
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-10 05:00:56
End at: 2018-10-10 05:01:26
Local clock offset: 1.719 ms
Remote clock offset: -4.495 ms


# Below is generated by plot.py at 2018-10-10 06:03:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.90 Mbit/s
95th percentile per-packet one-way delay: 25.698 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 50.20 Mbit/s
95th percentile per-packet one-way delay: 25.689 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 35.45 Mbit/s
95th percentile per-packet one-way delay: 25.997 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 27.38 Mbit/s
95th percentile per-packet one-way delay: 24.858 ms
Loss rate: 0.33%
```
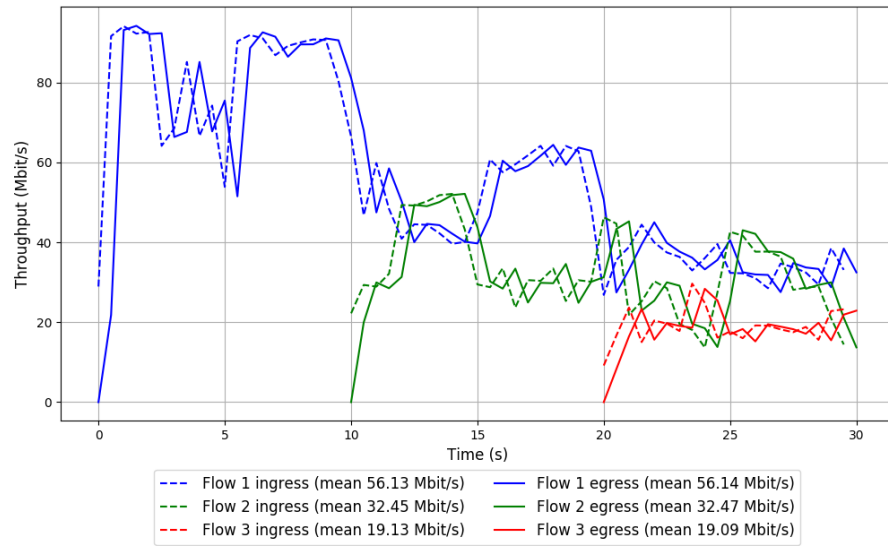
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-10 05:23:14
End at: 2018-10-10 05:23:44
Local clock offset: 4.654 ms
Remote clock offset: -5.761 ms

# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.10 Mbit/s
95th percentile per-packet one-way delay: 35.235 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 56.14 Mbit/s
95th percentile per-packet one-way delay: 34.201 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 37.251 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 19.09 Mbit/s
95th percentile per-packet one-way delay: 38.180 ms
Loss rate: 0.50%
```
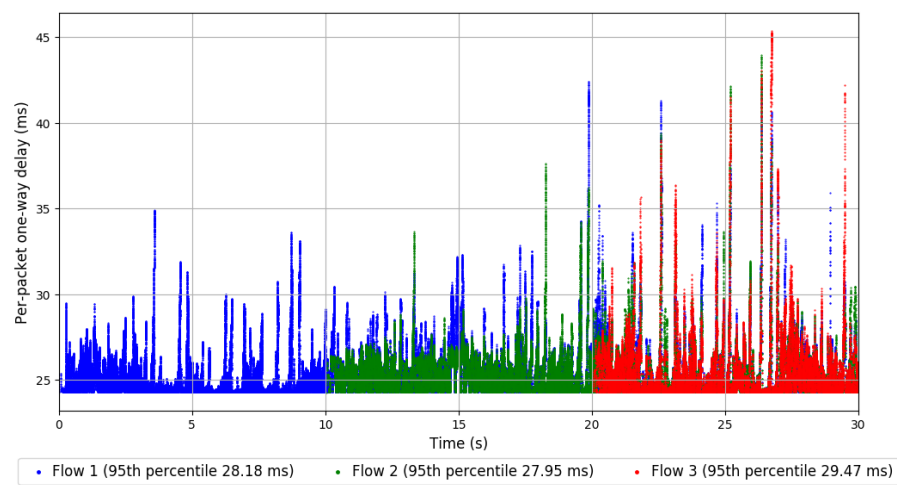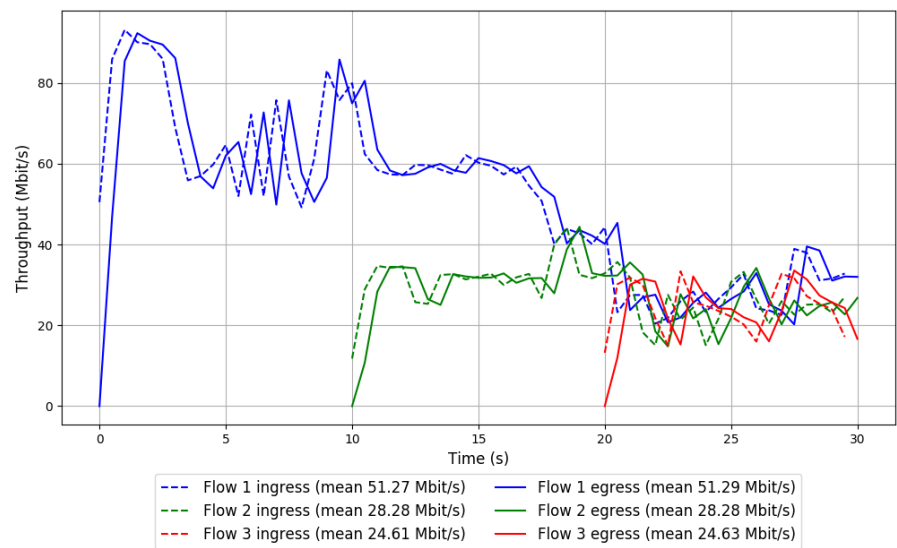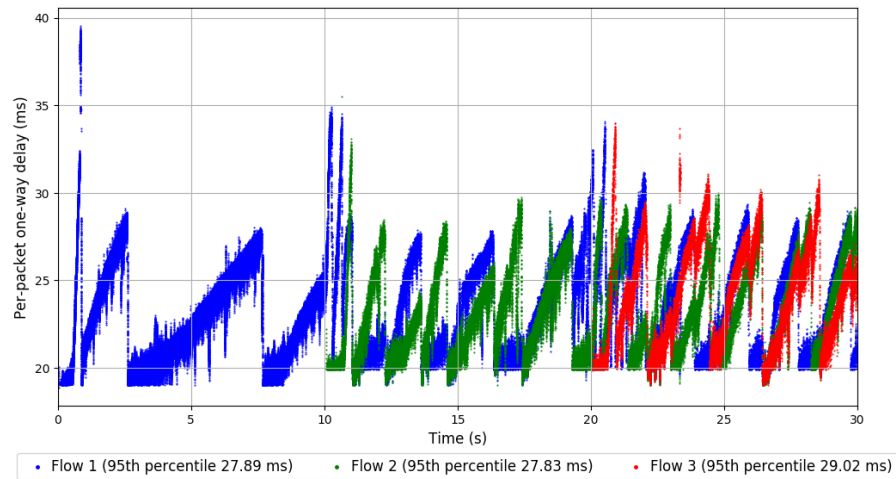
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 56.13 Mbit/s)   Flow 1 egress (mean 56.14 Mbit/s)
Flow 2 ingress (mean 32.45 Mbit/s)   Flow 2 egress (mean 32.47 Mbit/s)
Flow 3 ingress (mean 19.13 Mbit/s)   Flow 3 egress (mean 19.09 Mbit/s)

Flow 1 (95th percentile 34.20 ms)   Flow 2 (95th percentile 37.25 ms)   Flow 3 (95th percentile 38.18 ms)

```
Run 5: Statistics of Copa

Start at: 2018-10-10 05:45:48
End at: 2018-10-10 05:46:18
Local clock offset: 1.041 ms
Remote clock offset: -4.092 ms


# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.30 Mbit/s
95th percentile per-packet one-way delay: 28.248 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 51.29 Mbit/s
95th percentile per-packet one-way delay: 28.183 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 28.28 Mbit/s
95th percentile per-packet one-way delay: 27.945 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 24.63 Mbit/s
95th percentile per-packet one-way delay: 29.468 ms
Loss rate: 0.23%
```
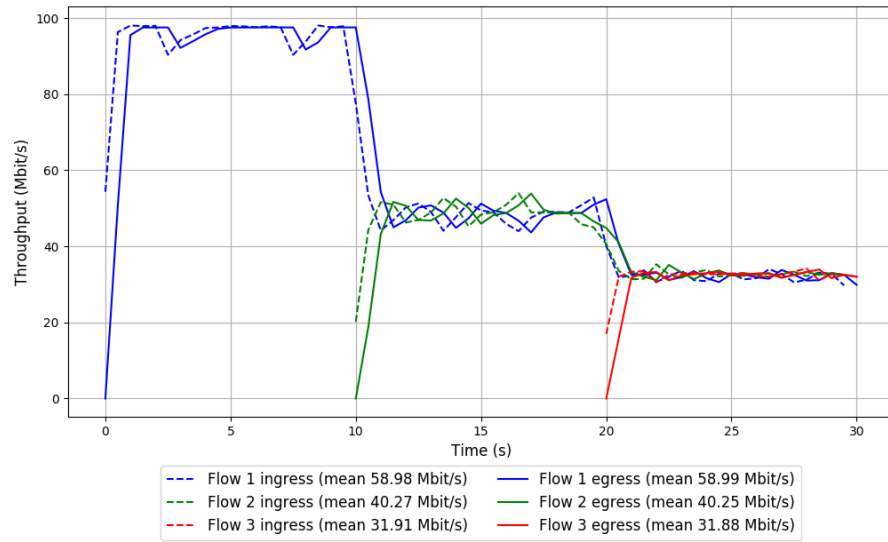
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-10 04:27:14
End at: 2018-10-10 04:27:44
Local clock offset: 1.461 ms
Remote clock offset: -3.416 ms


# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.37 Mbit/s
95th percentile per-packet one-way delay: 27.996 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 58.99 Mbit/s
95th percentile per-packet one-way delay: 27.885 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 40.25 Mbit/s
95th percentile per-packet one-way delay: 27.831 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 31.88 Mbit/s
95th percentile per-packet one-way delay: 29.016 ms
Loss rate: 0.34%
```

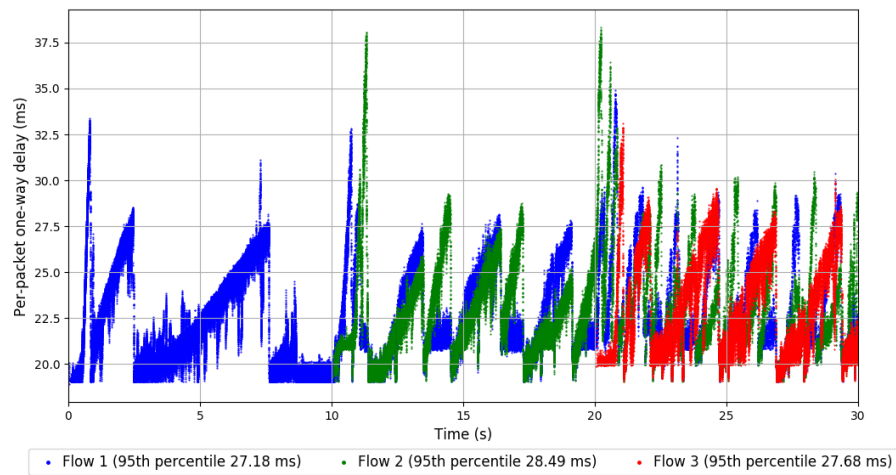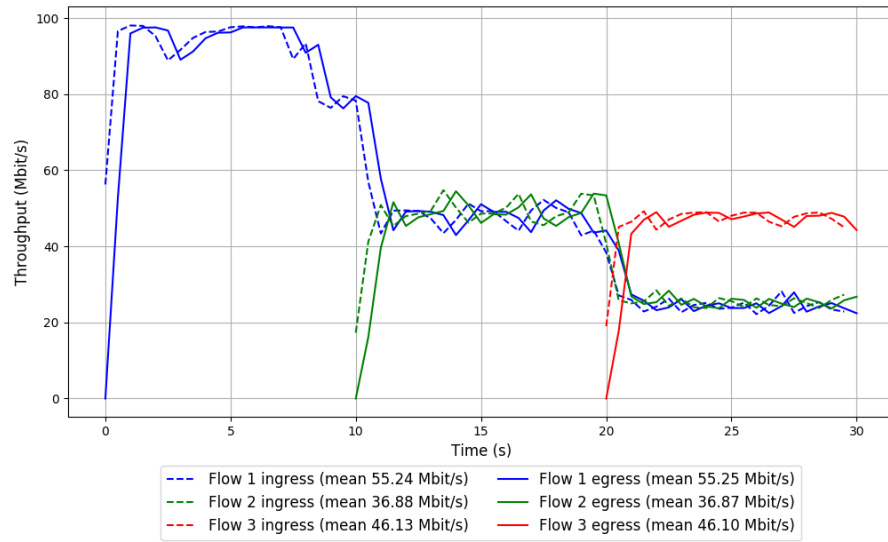Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-10 04:49:42
End at: 2018-10-10 04:50:12
Local clock offset: 1.574 ms
Remote clock offset: -3.627 ms


# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.09 Mbit/s
95th percentile per-packet one-way delay: 27.556 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 55.25 Mbit/s
95th percentile per-packet one-way delay: 27.179 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 36.87 Mbit/s
95th percentile per-packet one-way delay: 28.490 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 46.10 Mbit/s
95th percentile per-packet one-way delay: 27.682 ms
Loss rate: 0.30%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-10 05:12:02
End at: 2018-10-10 05:12:32
Local clock offset: 1.983 ms
Remote clock offset: -4.2 ms


# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.02 Mbit/s
95th percentile per-packet one-way delay: 34.147 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 56.22 Mbit/s
95th percentile per-packet one-way delay: 34.359 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 37.15 Mbit/s
95th percentile per-packet one-way delay: 34.225 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 45.42 Mbit/s
95th percentile per-packet one-way delay: 33.538 ms
Loss rate: 0.34%
```
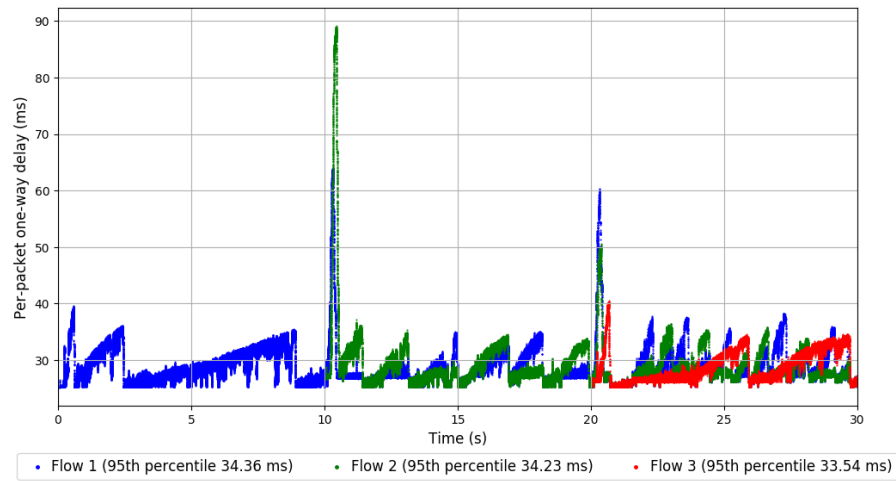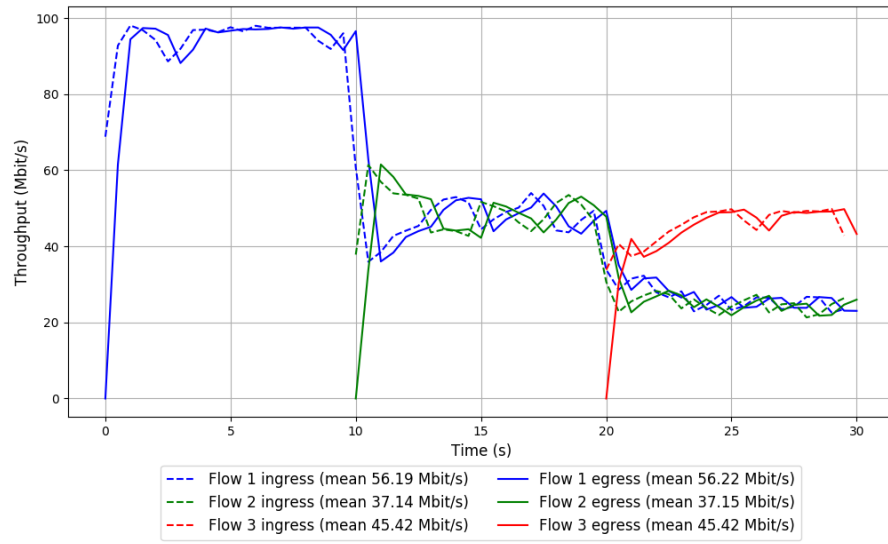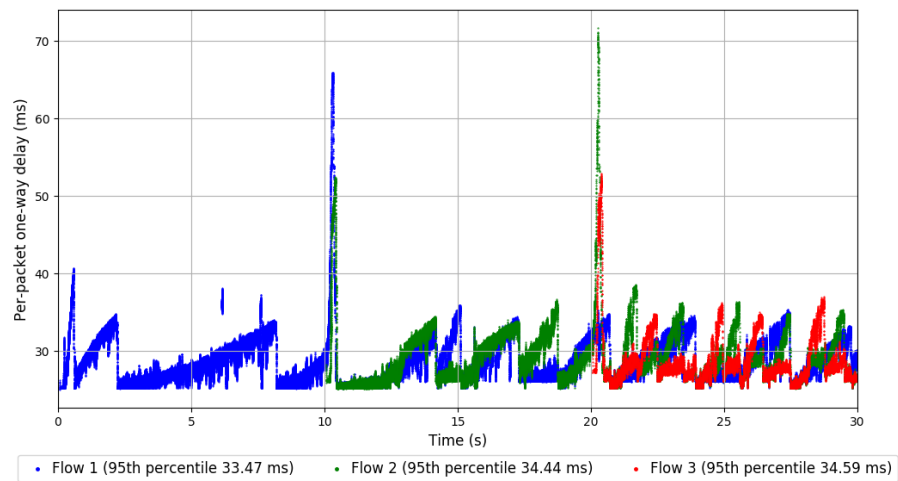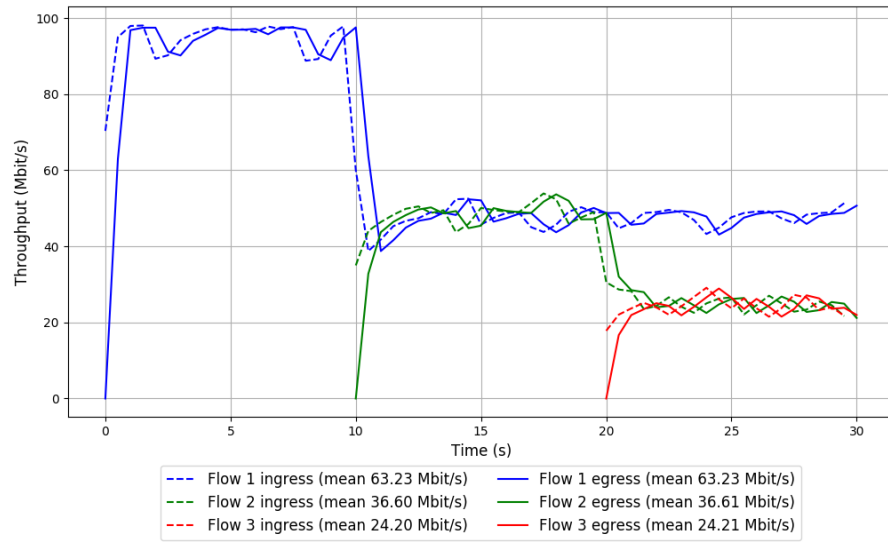
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-10 05:34:20
End at: 2018-10-10 05:34:50
Local clock offset: 2.61 ms
Remote clock offset: -3.374 ms


# Below is generated by plot.py at 2018-10-10 06:04:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.64 Mbit/s
95th percentile per-packet one-way delay: 33.727 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 63.23 Mbit/s
95th percentile per-packet one-way delay: 33.469 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 36.61 Mbit/s
95th percentile per-packet one-way delay: 34.441 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 24.21 Mbit/s
95th percentile per-packet one-way delay: 34.594 ms
Loss rate: 0.29%
```
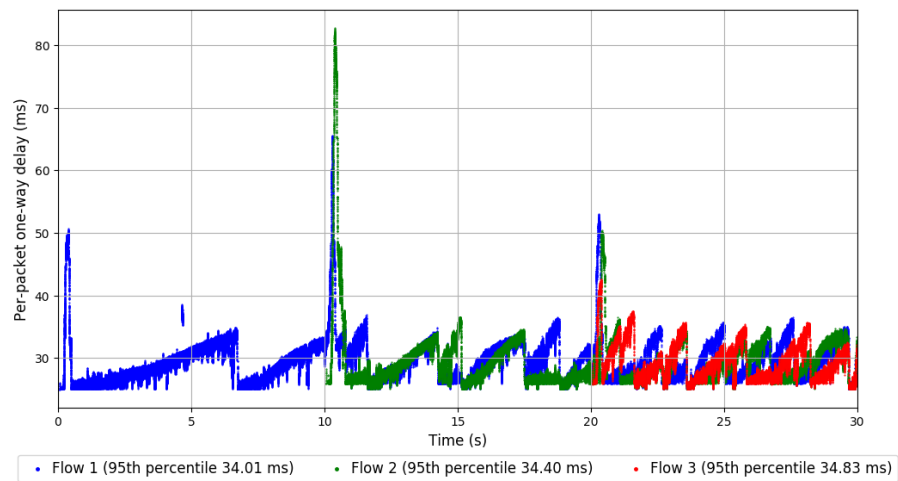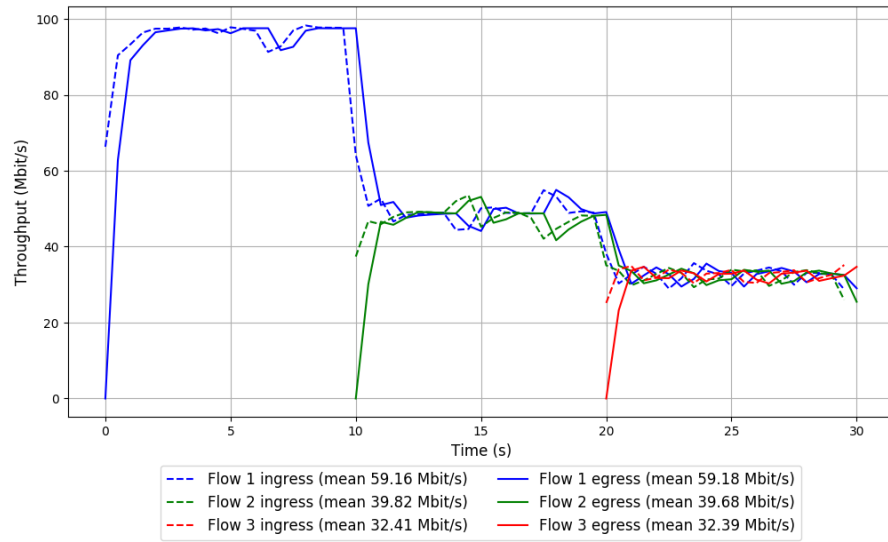
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-10 05:57:23
End at: 2018-10-10 05:57:53
Local clock offset: 2.72 ms
Remote clock offset: -3.171 ms


# Below is generated by plot.py at 2018-10-10 06:04:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.34 Mbit/s
95th percentile per-packet one-way delay: 34.251 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 59.18 Mbit/s
95th percentile per-packet one-way delay: 34.011 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 39.68 Mbit/s
95th percentile per-packet one-way delay: 34.404 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 32.39 Mbit/s
95th percentile per-packet one-way delay: 34.827 ms
Loss rate: 0.40%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 59.16 Mbit/s) --- Flow 1 egress (mean 59.18 Mbit/s)
Flow 2 ingress (mean 39.82 Mbit/s) --- Flow 2 egress (mean 39.68 Mbit/s)
Flow 3 ingress (mean 32.41 Mbit/s) --- Flow 3 egress (mean 32.39 Mbit/s)

Flow 1 (95th percentile 34.01 ms)   Flow 2 (95th percentile 34.40 ms)   Flow 3 (95th percentile 34.83 ms)
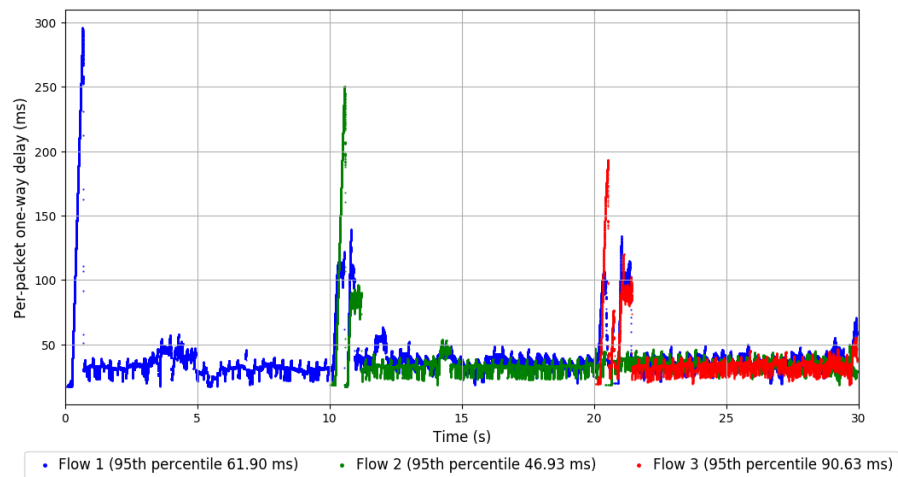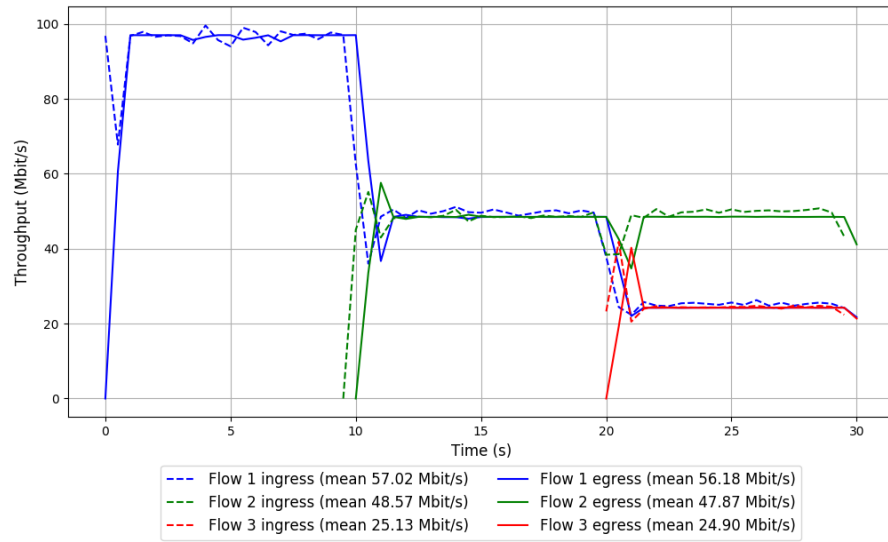
```
Run 1: Statistics of FillP

Start at: 2018-10-10 04:14:56
End at: 2018-10-10 04:15:26
Local clock offset: 1.011 ms
Remote clock offset: -2.493 ms

# Below is generated by plot.py at 2018-10-10 06:04:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 61.764 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 56.18 Mbit/s
95th percentile per-packet one-way delay: 61.900 ms
Loss rate: 1.56%
-- Flow 2:
Average throughput: 47.87 Mbit/s
95th percentile per-packet one-way delay: 46.927 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 24.90 Mbit/s
95th percentile per-packet one-way delay: 90.632 ms
Loss rate: 1.16%
```
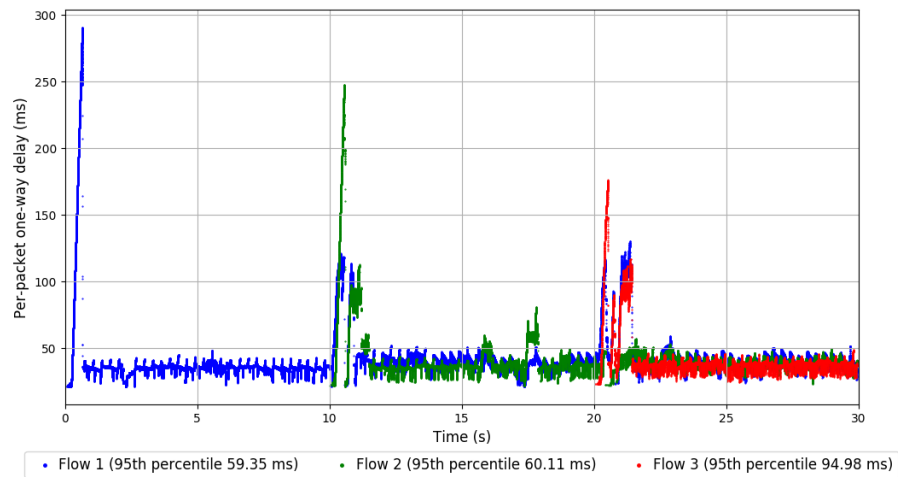
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 57.02 Mbit/s) — Flow 1 egress (mean 56.18 Mbit/s)
Flow 2 ingress (mean 48.57 Mbit/s) — Flow 2 egress (mean 47.87 Mbit/s)
Flow 3 ingress (mean 25.13 Mbit/s) — Flow 3 egress (mean 24.90 Mbit/s)

Flow 1 (95th percentile 61.90 ms) · Flow 2 (95th percentile 46.93 ms) · Flow 3 (95th percentile 90.63 ms)
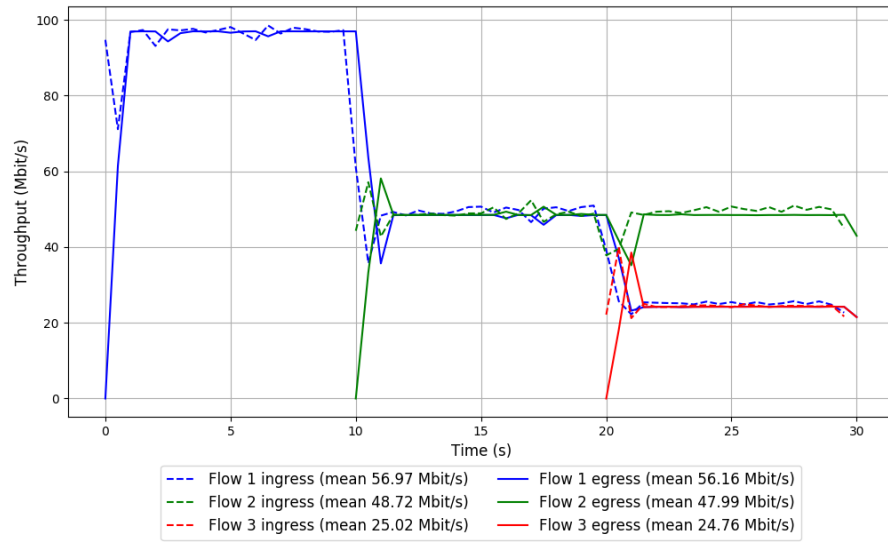
```
Run 2: Statistics of FillP

Start at: 2018-10-10 04:37:19
End at: 2018-10-10 04:37:49
Local clock offset: 2.727 ms
Remote clock offset: -4.963 ms


# Below is generated by plot.py at 2018-10-10 06:04:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 65.013 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 56.16 Mbit/s
95th percentile per-packet one-way delay: 59.346 ms
Loss rate: 1.49%
-- Flow 2:
Average throughput: 47.99 Mbit/s
95th percentile per-packet one-way delay: 60.106 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 24.76 Mbit/s
95th percentile per-packet one-way delay: 94.983 ms
Loss rate: 1.28%
```
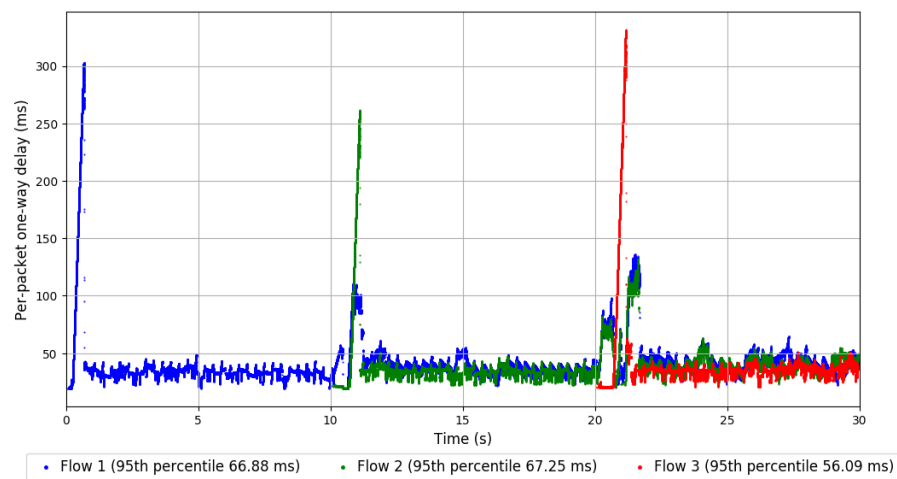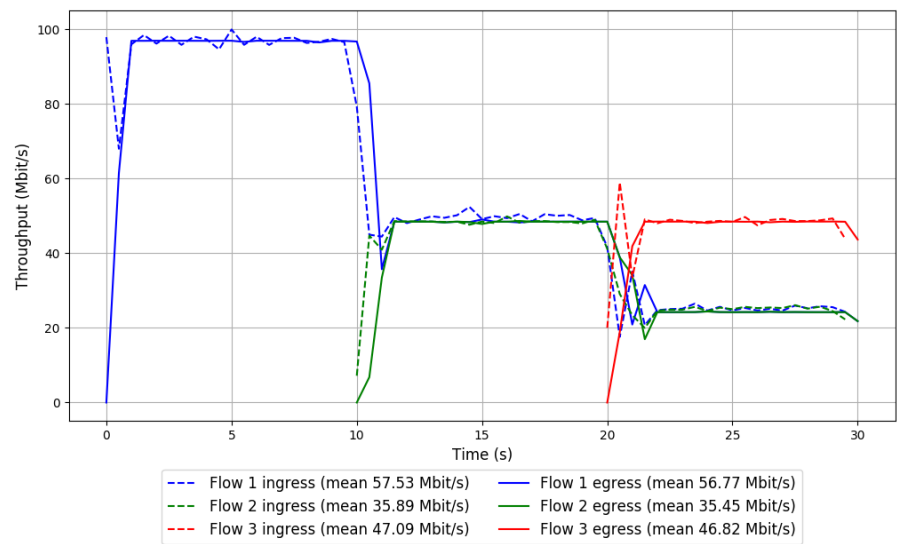
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 56.97 Mbit/s) --- Flow 1 egress (mean 56.16 Mbit/s)
Flow 2 ingress (mean 48.72 Mbit/s) --- Flow 2 egress (mean 47.99 Mbit/s)
Flow 3 ingress (mean 25.02 Mbit/s) --- Flow 3 egress (mean 24.76 Mbit/s)

Flow 1 (95th percentile 59.35 ms) Flow 2 (95th percentile 60.11 ms) Flow 3 (95th percentile 94.98 ms)

```
Run 3: Statistics of FillP

Start at: 2018-10-10 04:59:42
End at: 2018-10-10 05:00:12
Local clock offset: 1.674 ms
Remote clock offset: -4.438 ms


# Below is generated by plot.py at 2018-10-10 06:04:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.87 Mbit/s
95th percentile per-packet one-way delay: 66.175 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 56.77 Mbit/s
95th percentile per-packet one-way delay: 66.880 ms
Loss rate: 1.40%
-- Flow 2:
Average throughput: 35.45 Mbit/s
95th percentile per-packet one-way delay: 67.251 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 46.82 Mbit/s
95th percentile per-packet one-way delay: 56.093 ms
Loss rate: 0.82%
```
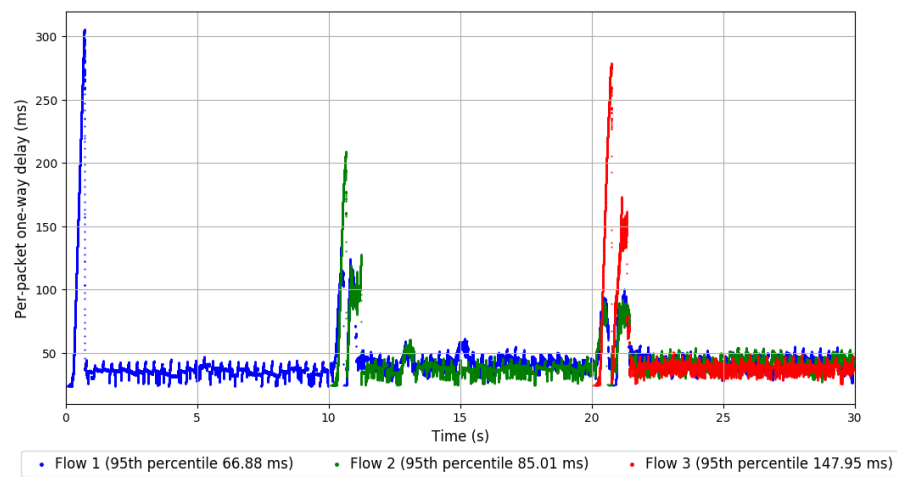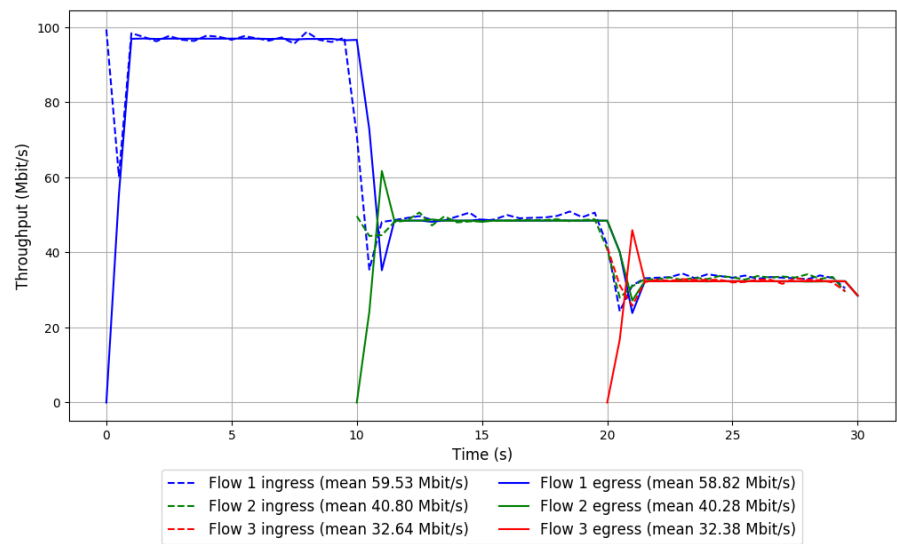
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 57.53 Mbit/s) --- Flow 1 egress (mean 56.77 Mbit/s)
Flow 2 ingress (mean 35.89 Mbit/s) --- Flow 2 egress (mean 35.45 Mbit/s)
Flow 3 ingress (mean 47.09 Mbit/s) --- Flow 3 egress (mean 46.82 Mbit/s)

Flow 1 (95th percentile 66.88 ms) · Flow 2 (95th percentile 67.25 ms) · Flow 3 (95th percentile 56.09 ms)

```
Run 4: Statistics of FillP

Start at: 2018-10-10 05:22:02
End at: 2018-10-10 05:22:32
Local clock offset: 0.074 ms
Remote clock offset: -4.871 ms


# Below is generated by plot.py at 2018-10-10 06:04:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 82.260 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 58.82 Mbit/s
95th percentile per-packet one-way delay: 66.881 ms
Loss rate: 1.29%
-- Flow 2:
Average throughput: 40.28 Mbit/s
95th percentile per-packet one-way delay: 85.010 ms
Loss rate: 1.41%
-- Flow 3:
Average throughput: 32.38 Mbit/s
95th percentile per-packet one-way delay: 147.949 ms
Loss rate: 1.09%
```
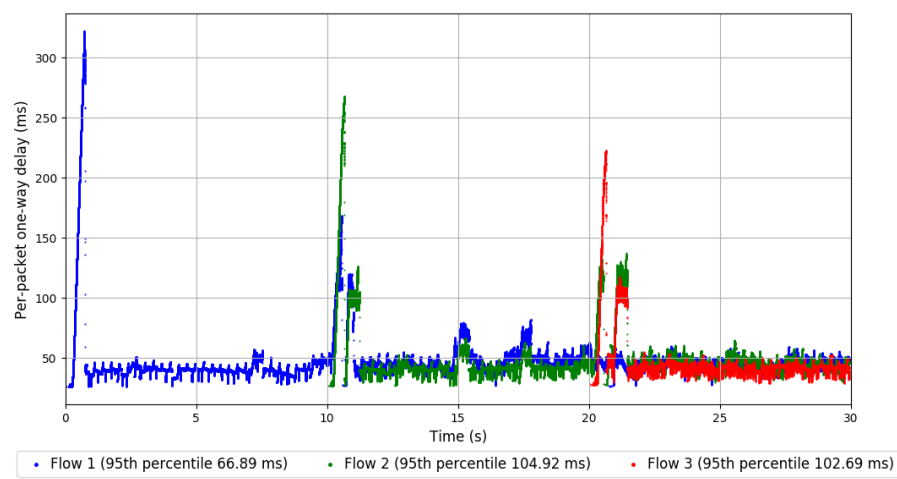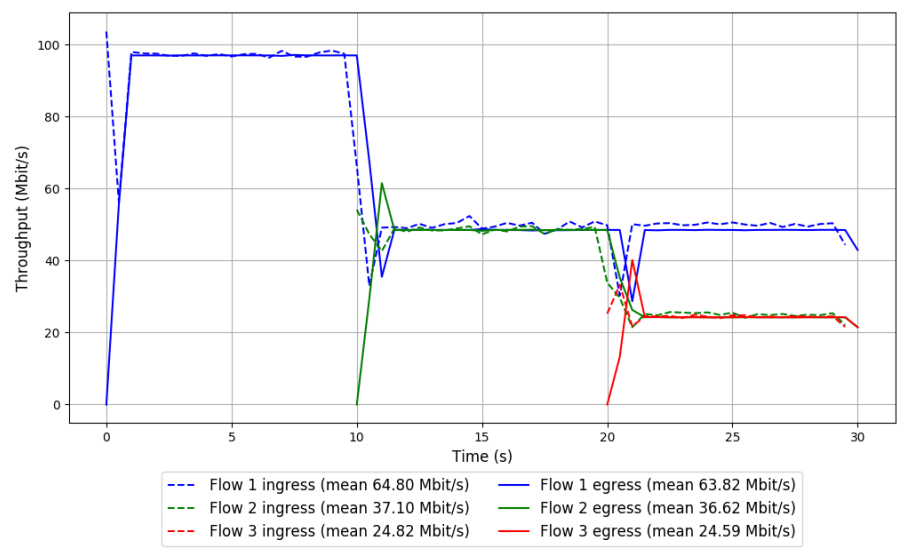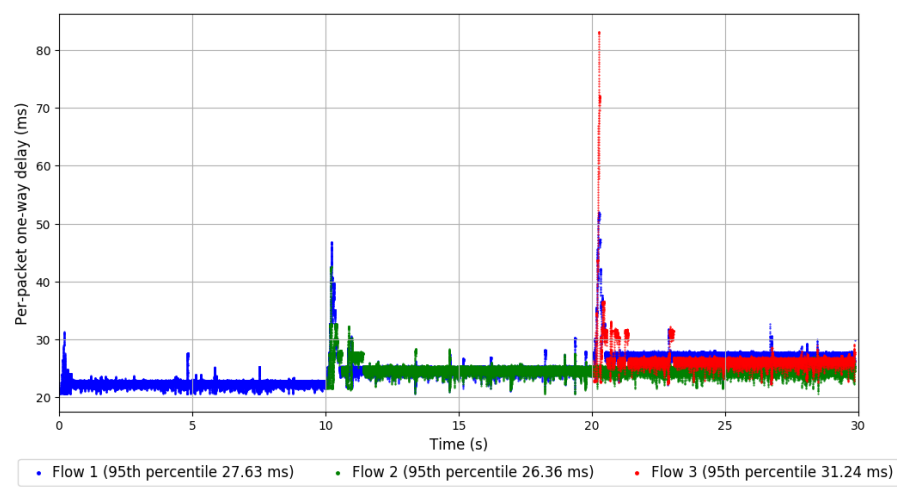
Run 4: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 59.53 Mbit/s) ——— Flow 1 egress (mean 58.82 Mbit/s)
- - - - Flow 2 ingress (mean 40.80 Mbit/s) ——— Flow 2 egress (mean 40.28 Mbit/s)
- - - - Flow 3 ingress (mean 32.64 Mbit/s) ——— Flow 3 egress (mean 32.38 Mbit/s)

• Flow 1 (95th percentile 66.88 ms)   • Flow 2 (95th percentile 85.01 ms)   • Flow 3 (95th percentile 147.95 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-10 05:44:33
End at: 2018-10-10 05:45:03
Local clock offset: 3.828 ms
Remote clock offset: -2.93 ms


# Below is generated by plot.py at 2018-10-10 06:05:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.32 Mbit/s
95th percentile per-packet one-way delay: 78.405 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 63.82 Mbit/s
95th percentile per-packet one-way delay: 66.892 ms
Loss rate: 1.61%
-- Flow 2:
Average throughput: 36.62 Mbit/s
95th percentile per-packet one-way delay: 104.920 ms
Loss rate: 1.40%
-- Flow 3:
Average throughput: 24.59 Mbit/s
95th percentile per-packet one-way delay: 102.693 ms
Loss rate: 1.23%
```
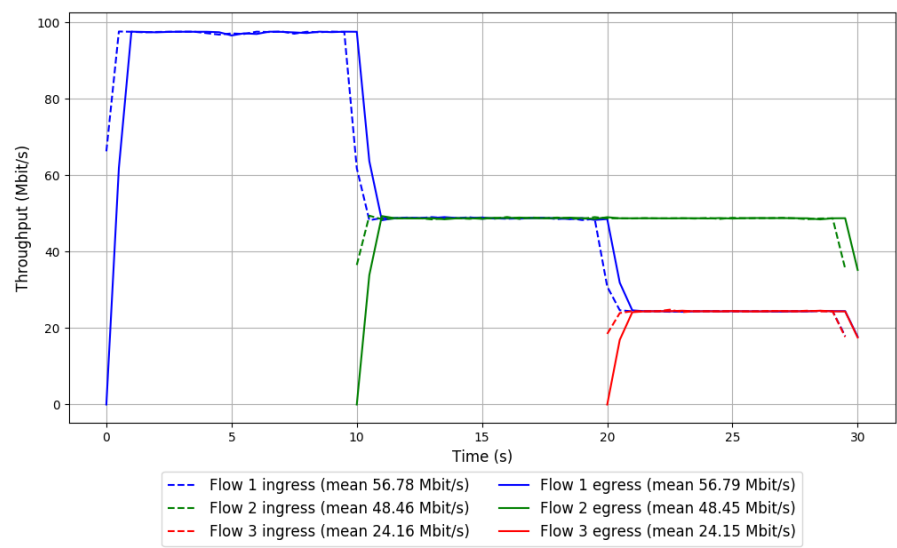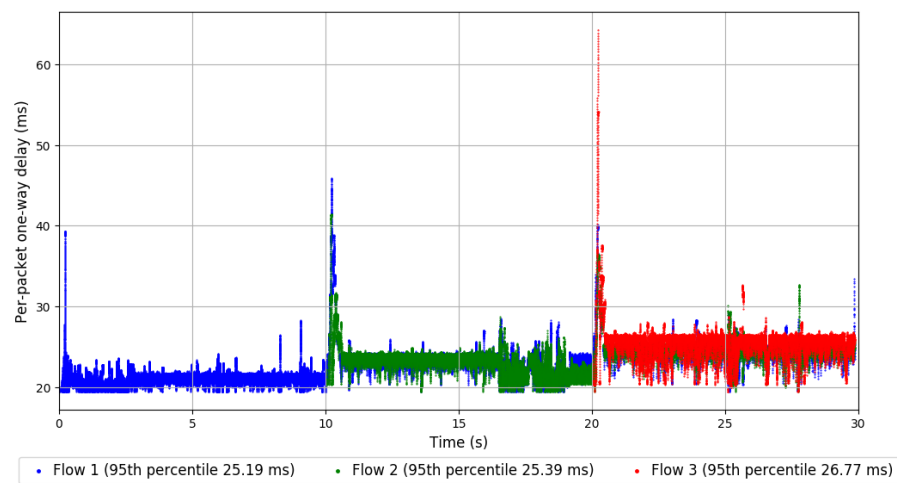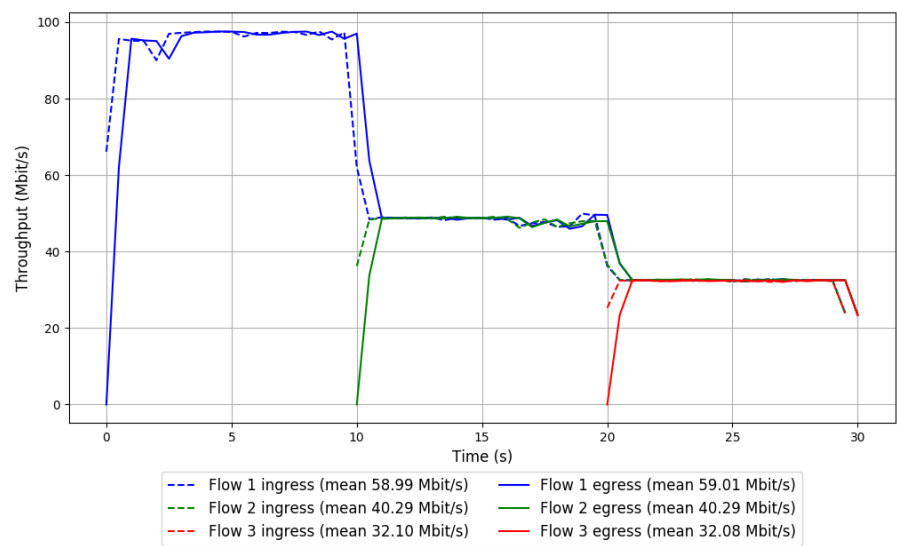
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 64.80 Mbit/s) --- Flow 1 egress (mean 63.82 Mbit/s)
Flow 2 ingress (mean 37.10 Mbit/s) --- Flow 2 egress (mean 36.62 Mbit/s)
Flow 3 ingress (mean 24.82 Mbit/s) --- Flow 3 egress (mean 24.59 Mbit/s)

• Flow 1 (95th percentile 66.89 ms)   • Flow 2 (95th percentile 104.92 ms)   • Flow 3 (95th percentile 102.69 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-10-10 04:21:09
End at: 2018-10-10 04:21:39
Local clock offset: 3.236 ms
Remote clock offset: -3.175 ms


# Below is generated by plot.py at 2018-10-10 06:05:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.92 Mbit/s
95th percentile per-packet one-way delay: 27.598 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 56.79 Mbit/s
95th percentile per-packet one-way delay: 27.632 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 48.45 Mbit/s
95th percentile per-packet one-way delay: 26.364 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 24.15 Mbit/s
95th percentile per-packet one-way delay: 31.237 ms
Loss rate: 0.32%
```
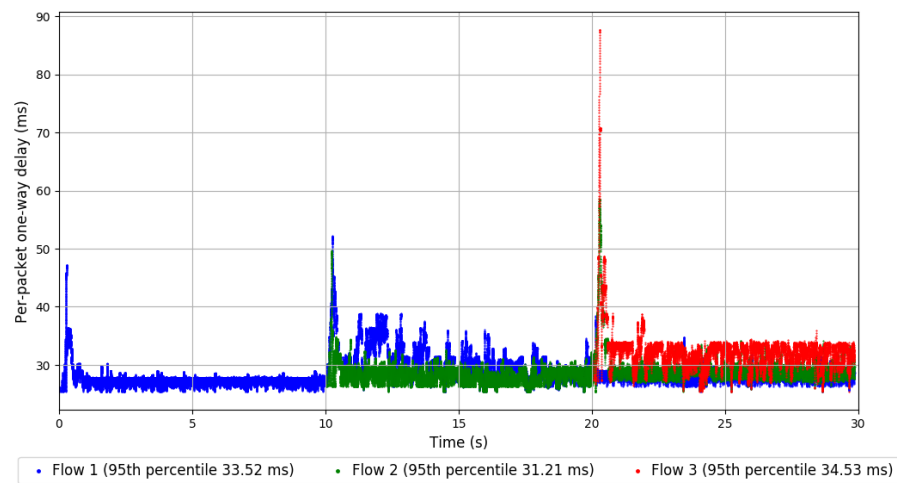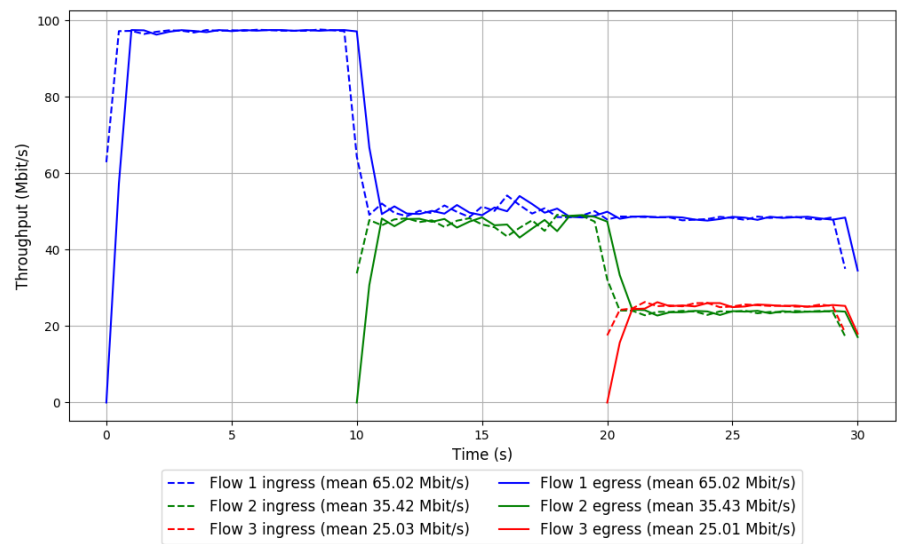
Run 1: Report of Indigo — Data Link

Flow 1 ingress (mean 56.78 Mbit/s)   Flow 1 egress (mean 56.79 Mbit/s)
Flow 2 ingress (mean 48.46 Mbit/s)   Flow 2 egress (mean 48.45 Mbit/s)
Flow 3 ingress (mean 24.16 Mbit/s)   Flow 3 egress (mean 24.15 Mbit/s)

Flow 1 (95th percentile 27.63 ms)   Flow 2 (95th percentile 26.36 ms)   Flow 3 (95th percentile 31.24 ms)

```
Run 2: Statistics of Indigo

Start at: 2018-10-10 04:43:33
End at: 2018-10-10 04:44:03
Local clock offset: 0.82 ms
Remote clock offset: -4.734 ms


# Below is generated by plot.py at 2018-10-10 06:05:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 26.210 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.01 Mbit/s
95th percentile per-packet one-way delay: 25.189 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 40.29 Mbit/s
95th percentile per-packet one-way delay: 25.388 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 32.08 Mbit/s
95th percentile per-packet one-way delay: 26.765 ms
Loss rate: 0.33%
```
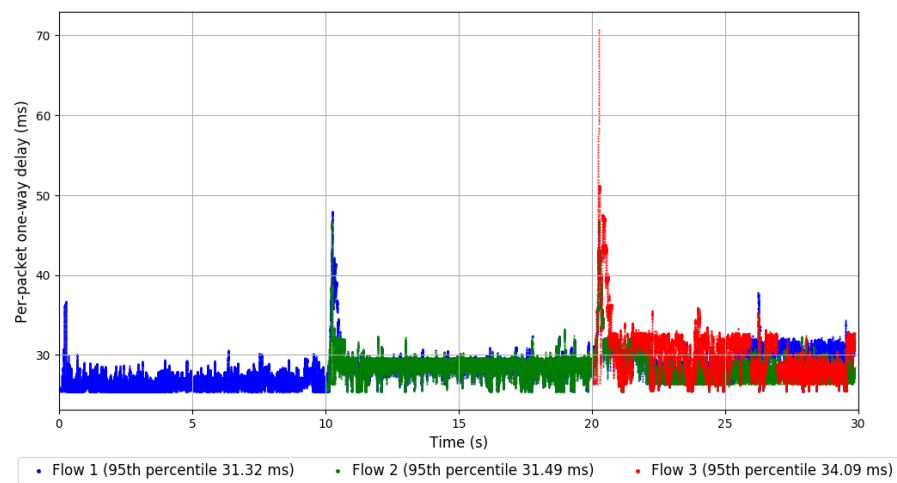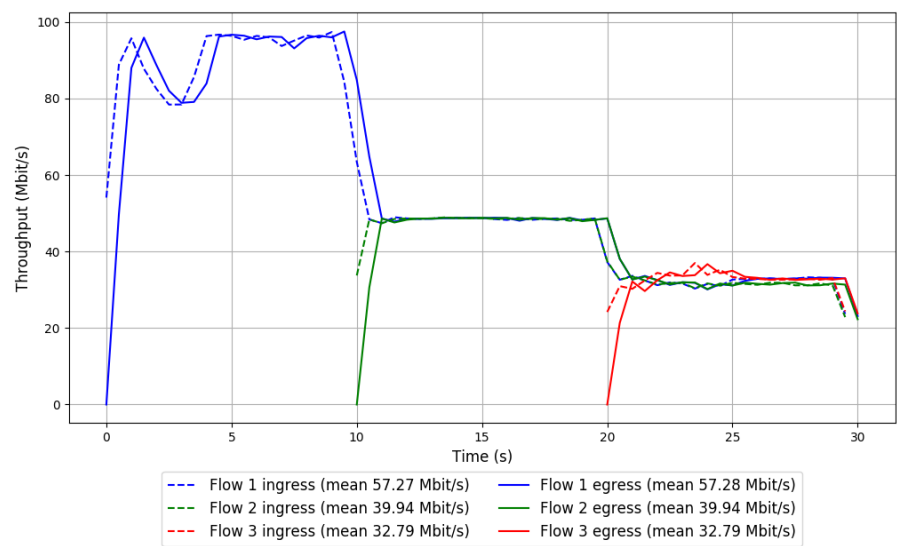
Run 2: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 58.99 Mbit/s) ——— Flow 1 egress (mean 59.01 Mbit/s)
- - - - Flow 2 ingress (mean 40.29 Mbit/s) ——— Flow 2 egress (mean 40.29 Mbit/s)
- - - - Flow 3 ingress (mean 32.10 Mbit/s) ——— Flow 3 egress (mean 32.08 Mbit/s)

- Flow 1 (95th percentile 25.19 ms)   • Flow 2 (95th percentile 25.39 ms)   • Flow 3 (95th percentile 26.77 ms)

```
Run 3: Statistics of Indigo

Start at: 2018-10-10 05:05:47
End at: 2018-10-10 05:06:17
Local clock offset: 1.765 ms
Remote clock offset: -4.503 ms


# Below is generated by plot.py at 2018-10-10 06:05:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.78 Mbit/s
95th percentile per-packet one-way delay: 33.617 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 65.02 Mbit/s
95th percentile per-packet one-way delay: 33.518 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 35.43 Mbit/s
95th percentile per-packet one-way delay: 31.215 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 25.01 Mbit/s
95th percentile per-packet one-way delay: 34.526 ms
Loss rate: 0.40%
```
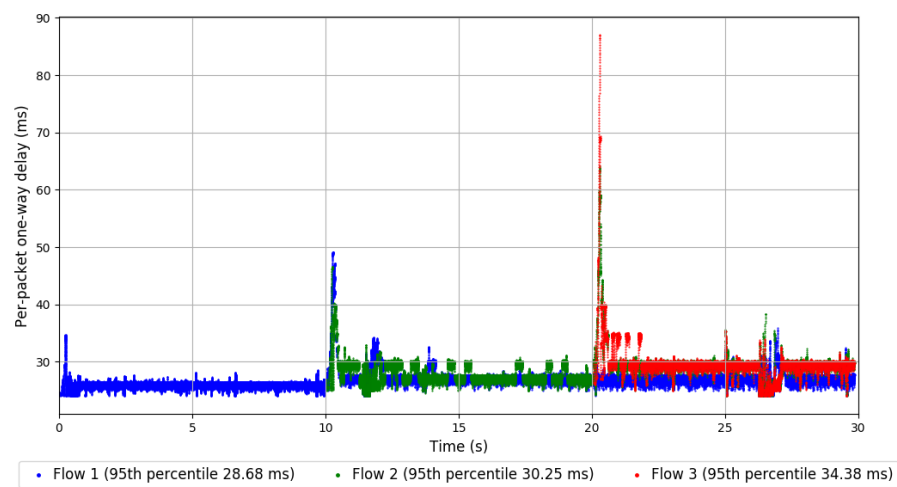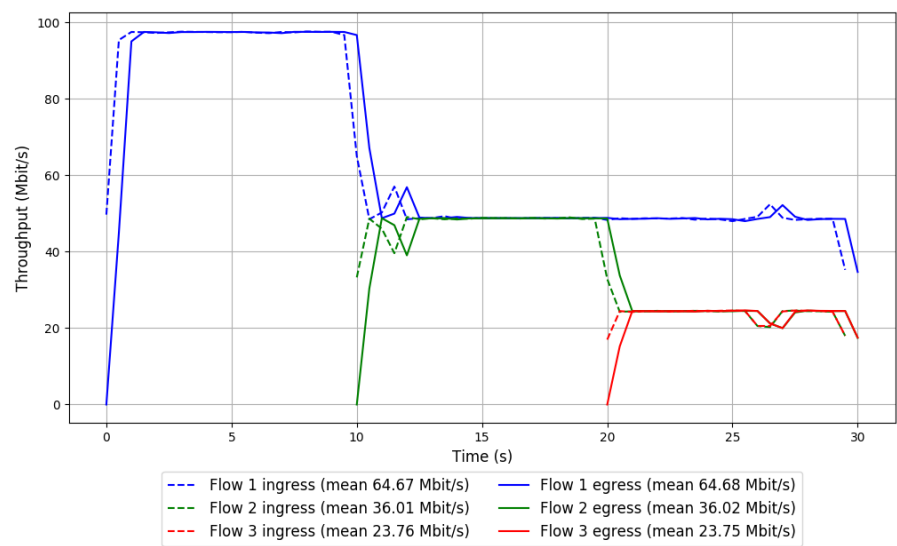
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 65.02 Mbit/s) --- Flow 1 egress (mean 65.02 Mbit/s)
Flow 2 ingress (mean 35.42 Mbit/s) --- Flow 2 egress (mean 35.43 Mbit/s)
Flow 3 ingress (mean 25.03 Mbit/s) --- Flow 3 egress (mean 25.01 Mbit/s)

Flow 1 (95th percentile 33.52 ms) · Flow 2 (95th percentile 31.21 ms) · Flow 3 (95th percentile 34.53 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-10-10 05:28:06
End at: 2018-10-10 05:28:36
Local clock offset: 2.313 ms
Remote clock offset: -4.034 ms


# Below is generated by plot.py at 2018-10-10 06:05:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.60 Mbit/s
95th percentile per-packet one-way delay: 31.864 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 57.28 Mbit/s
95th percentile per-packet one-way delay: 31.325 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.94 Mbit/s
95th percentile per-packet one-way delay: 31.491 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.79 Mbit/s
95th percentile per-packet one-way delay: 34.089 ms
Loss rate: 0.38%
```
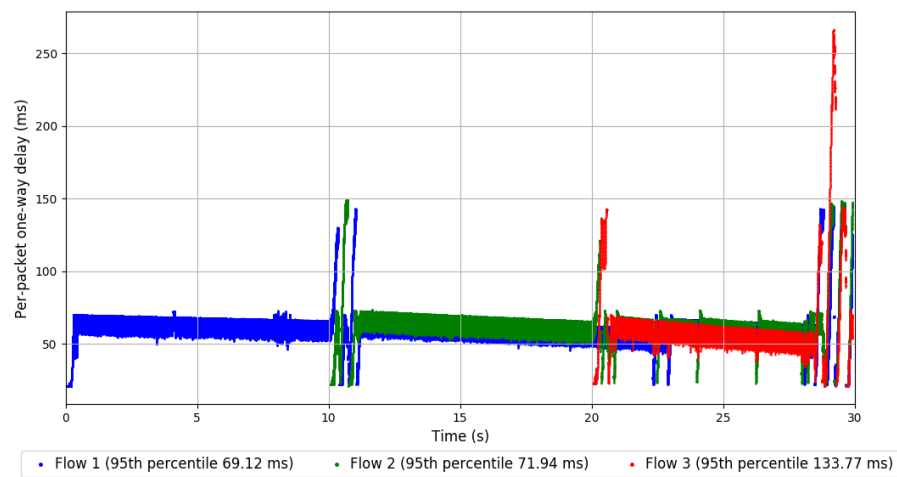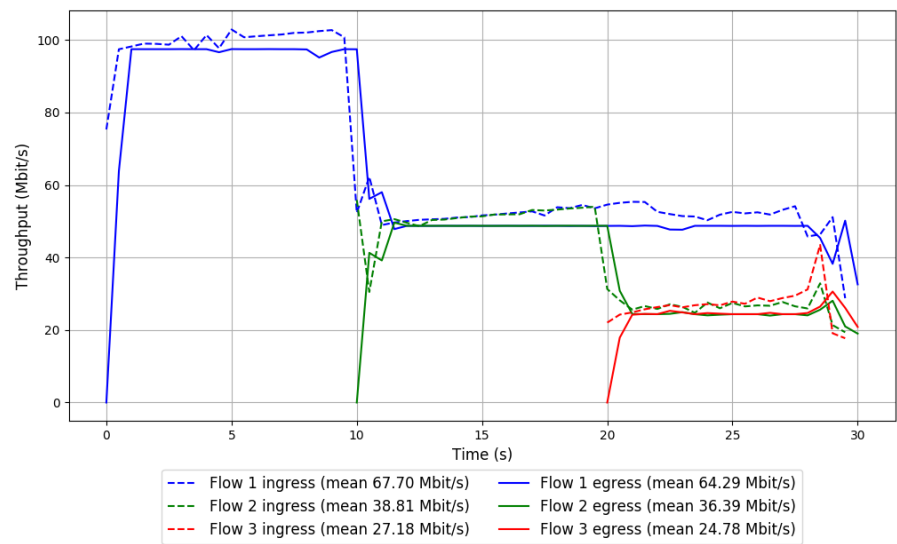
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-10-10 05:50:47
End at: 2018-10-10 05:51:17
Local clock offset: 2.23 ms
Remote clock offset: -2.694 ms


# Below is generated by plot.py at 2018-10-10 06:06:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.41 Mbit/s
95th percentile per-packet one-way delay: 30.022 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 64.68 Mbit/s
95th percentile per-packet one-way delay: 28.677 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 36.02 Mbit/s
95th percentile per-packet one-way delay: 30.255 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 23.75 Mbit/s
95th percentile per-packet one-way delay: 34.382 ms
Loss rate: 0.39%
```
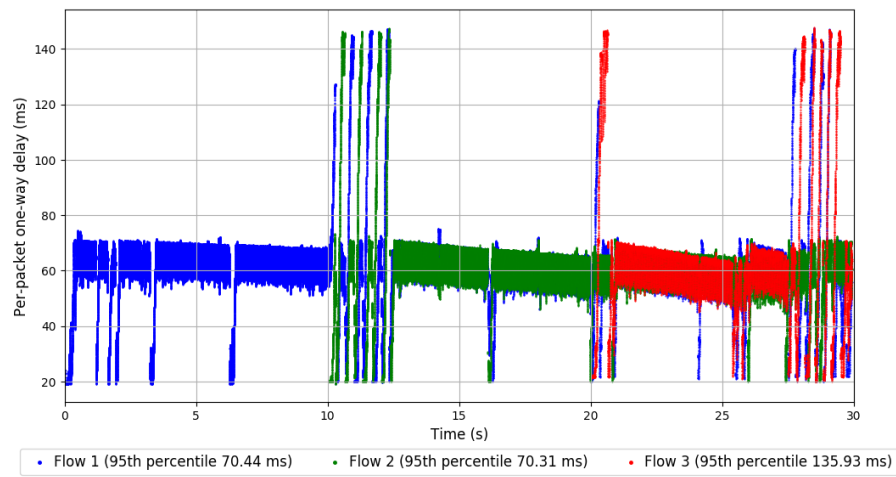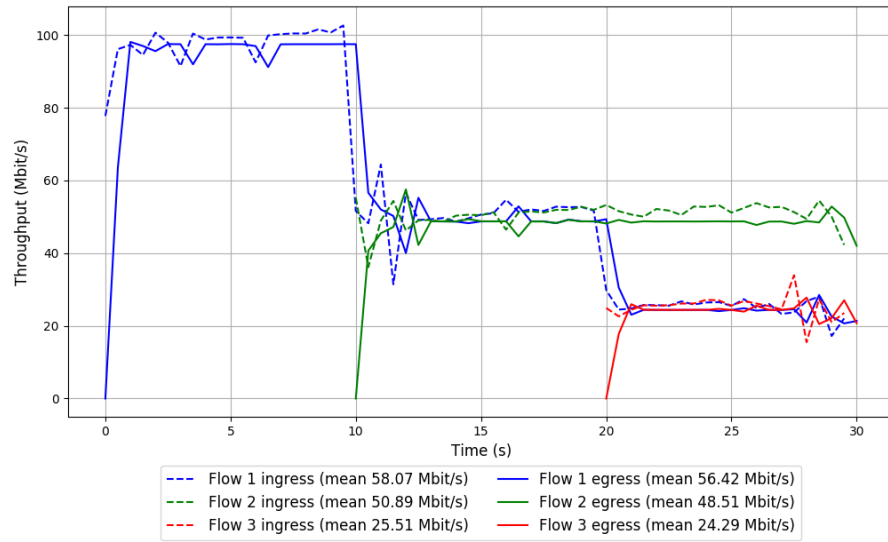
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 64.67 Mbit/s) --- Flow 1 egress (mean 64.68 Mbit/s)
Flow 2 ingress (mean 36.01 Mbit/s) --- Flow 2 egress (mean 36.02 Mbit/s)
Flow 3 ingress (mean 23.76 Mbit/s) --- Flow 3 egress (mean 23.75 Mbit/s)

Flow 1 (95th percentile 28.68 ms)   Flow 2 (95th percentile 30.25 ms)   Flow 3 (95th percentile 34.38 ms)

54

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

Start at: 2018-10-10 04:19:54
End at: 2018-10-10 04:20:24
Local clock offset: 3.225 ms
Remote clock offset: -3.413 ms


# Below is generated by plot.py at 2018-10-10 06:06:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.68 Mbit/s
95th percentile per-packet one-way delay: 71.005 ms
Loss rate: 5.65%
-- Flow 1:
Average throughput: 64.29 Mbit/s
95th percentile per-packet one-way delay: 69.117 ms
Loss rate: 4.92%
-- Flow 2:
Average throughput: 36.39 Mbit/s
95th percentile per-packet one-way delay: 71.943 ms
Loss rate: 6.34%
-- Flow 3:
Average throughput: 24.78 Mbit/s
95th percentile per-packet one-way delay: 133.766 ms
Loss rate: 9.08%
```
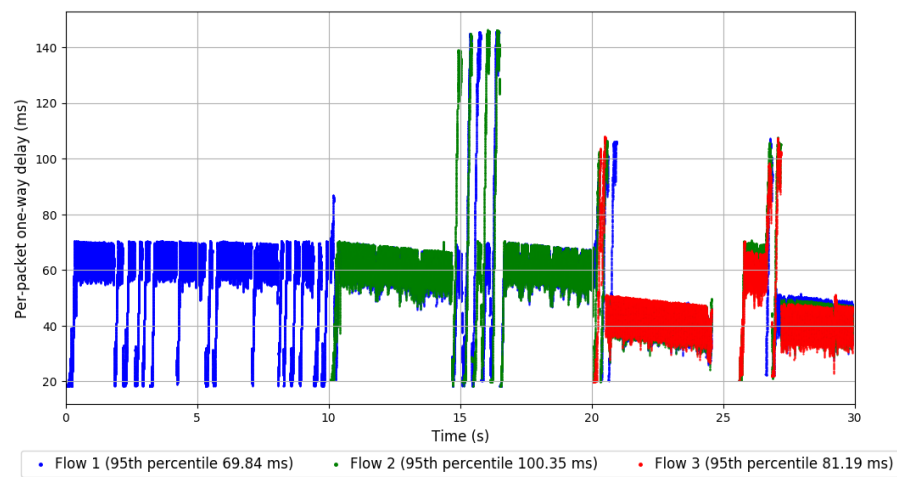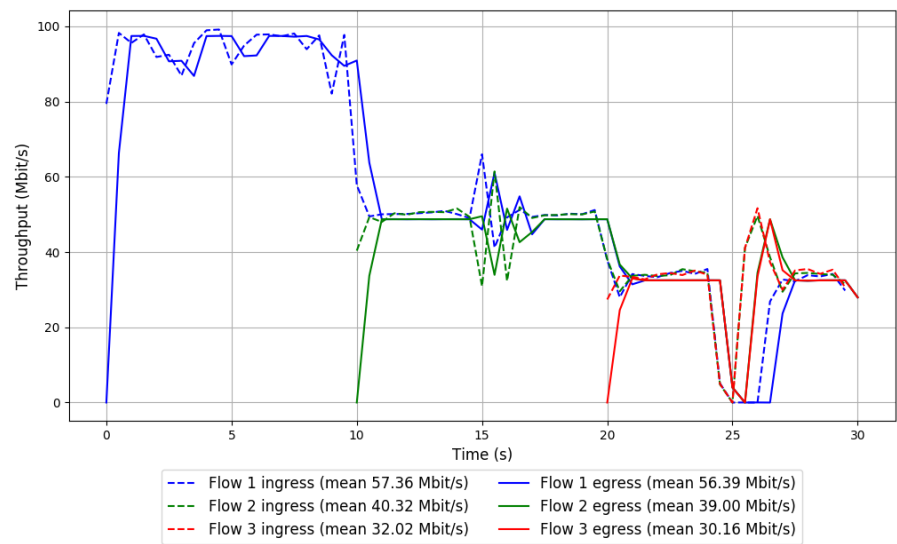
Run 1: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 67.70 Mbit/s) --- Flow 1 egress (mean 64.29 Mbit/s)
Flow 2 ingress (mean 38.81 Mbit/s) --- Flow 2 egress (mean 36.39 Mbit/s)
Flow 3 ingress (mean 27.18 Mbit/s) --- Flow 3 egress (mean 24.78 Mbit/s)

Flow 1 (95th percentile 69.12 ms)   Flow 2 (95th percentile 71.94 ms)   Flow 3 (95th percentile 133.77 ms)
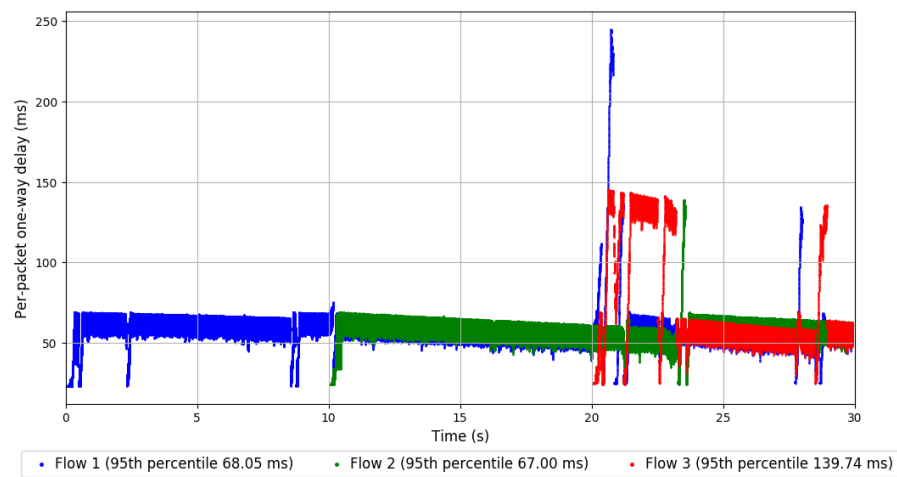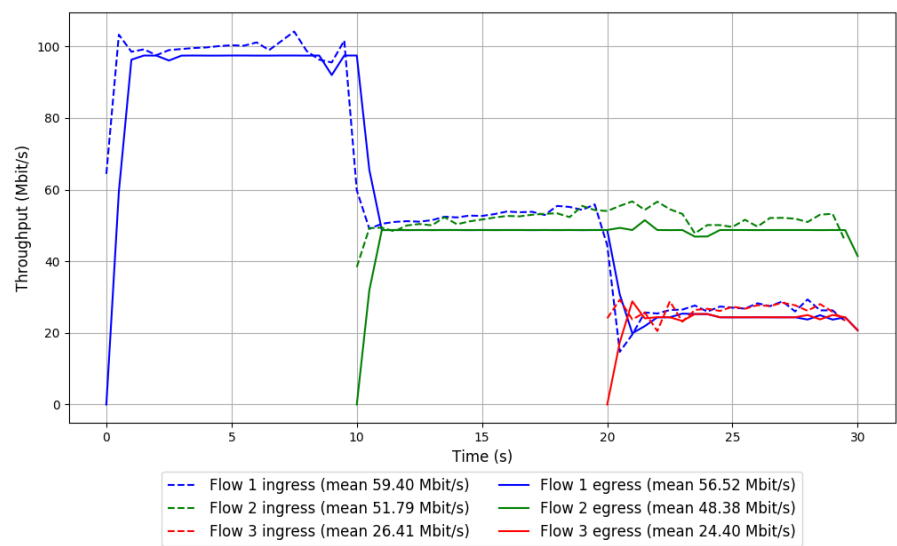
```
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-10 04:42:17
End at: 2018-10-10 04:42:47
Local clock offset: 1.283 ms
Remote clock offset: -3.925 ms

# Below is generated by plot.py at 2018-10-10 06:06:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.72 Mbit/s
95th percentile per-packet one-way delay: 70.675 ms
Loss rate: 3.71%
-- Flow 1:
Average throughput: 56.42 Mbit/s
95th percentile per-packet one-way delay: 70.444 ms
Loss rate: 2.92%
-- Flow 2:
Average throughput: 48.51 Mbit/s
95th percentile per-packet one-way delay: 70.313 ms
Loss rate: 4.76%
-- Flow 3:
Average throughput: 24.29 Mbit/s
95th percentile per-packet one-way delay: 135.931 ms
Loss rate: 4.91%
```
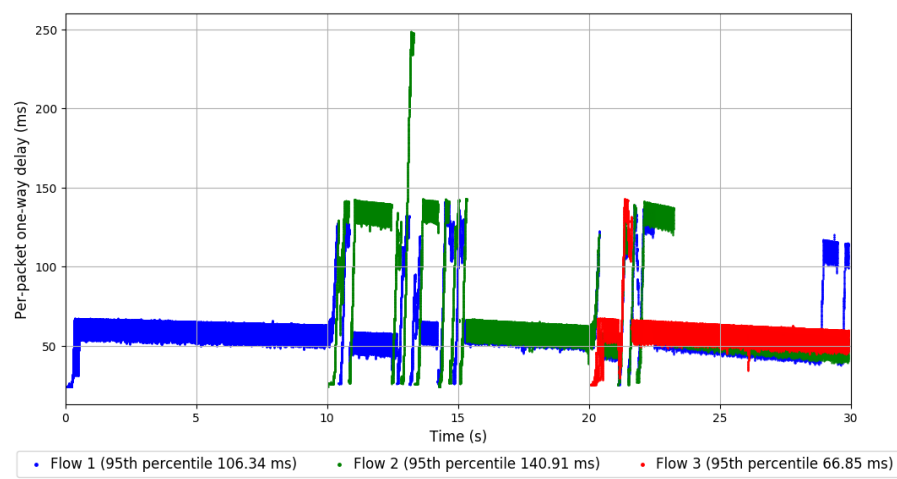
Run 2: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 58.07 Mbit/s) — — — Flow 1 egress (mean 56.42 Mbit/s)
Flow 2 ingress (mean 50.89 Mbit/s) — — — Flow 2 egress (mean 48.51 Mbit/s)
Flow 3 ingress (mean 25.51 Mbit/s) — — — Flow 3 egress (mean 24.29 Mbit/s)

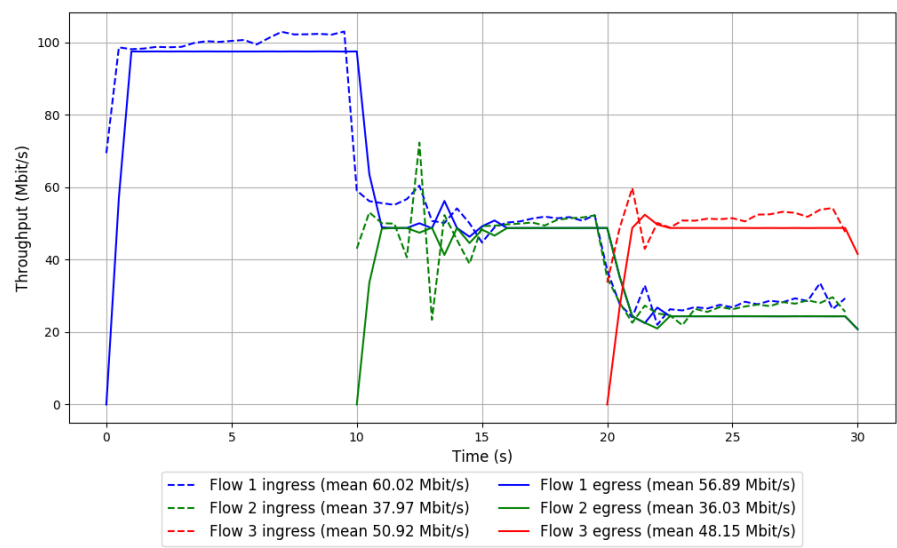Flow 1 (95th percentile 70.44 ms)   Flow 2 (95th percentile 70.31 ms)   Flow 3 (95th percentile 135.93 ms)

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

Start at: 2018-10-10 05:04:30
End at: 2018-10-10 05:05:00
Local clock offset: 3.639 ms
Remote clock offset: -1.53 ms


# Below is generated by plot.py at 2018-10-10 06:06:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.31 Mbit/s
95th percentile per-packet one-way delay: 70.221 ms
Loss rate: 2.70%
-- Flow 1:
Average throughput: 56.39 Mbit/s
95th percentile per-packet one-way delay: 69.840 ms
Loss rate: 1.77%
-- Flow 2:
Average throughput: 39.00 Mbit/s
95th percentile per-packet one-way delay: 100.352 ms
Loss rate: 3.40%
-- Flow 3:
Average throughput: 30.16 Mbit/s
95th percentile per-packet one-way delay: 81.188 ms
Loss rate: 5.98%
```
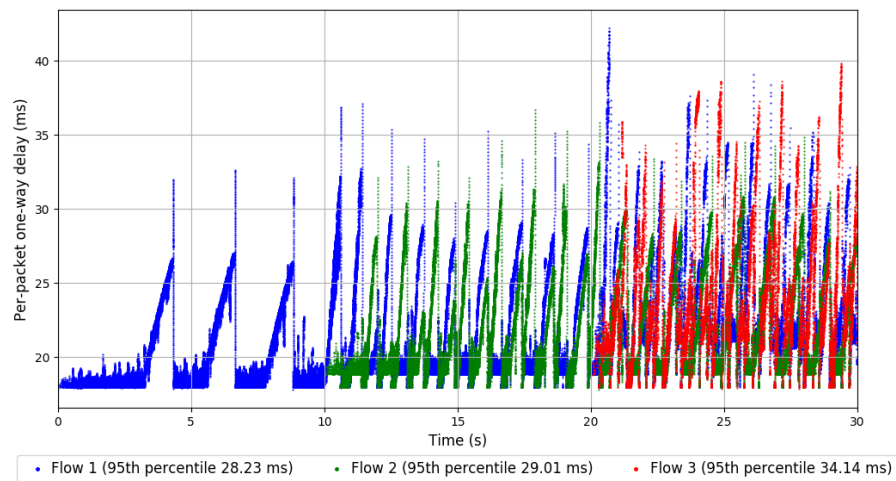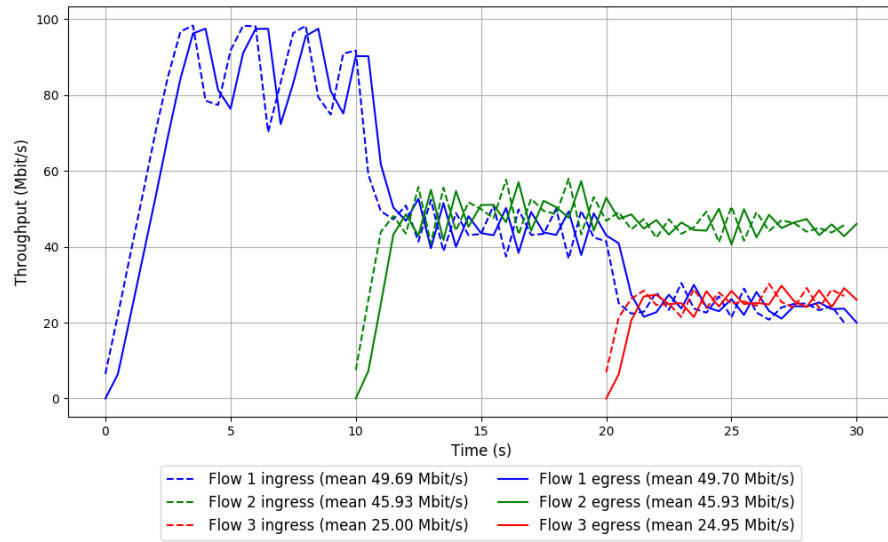
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 57.36 Mbit/s) --- Flow 1 egress (mean 56.39 Mbit/s)
Flow 2 ingress (mean 40.32 Mbit/s) --- Flow 2 egress (mean 39.00 Mbit/s)
Flow 3 ingress (mean 32.02 Mbit/s) --- Flow 3 egress (mean 30.16 Mbit/s)

Flow 1 (95th percentile 69.84 ms) • Flow 2 (95th percentile 100.35 ms) • Flow 3 (95th percentile 81.19 ms)

```
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:26:52
End at: 2018-10-10 05:27:22
Local clock offset: -0.048 ms
Remote clock offset: -4.218 ms


# Below is generated by plot.py at 2018-10-10 06:06:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.77 Mbit/s
95th percentile per-packet one-way delay: 68.244 ms
Loss rate: 5.79%
-- Flow 1:
Average throughput: 56.52 Mbit/s
95th percentile per-packet one-way delay: 68.051 ms
Loss rate: 4.94%
-- Flow 2:
Average throughput: 48.38 Mbit/s
95th percentile per-packet one-way delay: 67.001 ms
Loss rate: 6.73%
-- Flow 3:
Average throughput: 24.40 Mbit/s
95th percentile per-packet one-way delay: 139.738 ms
Loss rate: 7.88%
```

Run 4: Report of Indigo-96d2da3 — Data Link
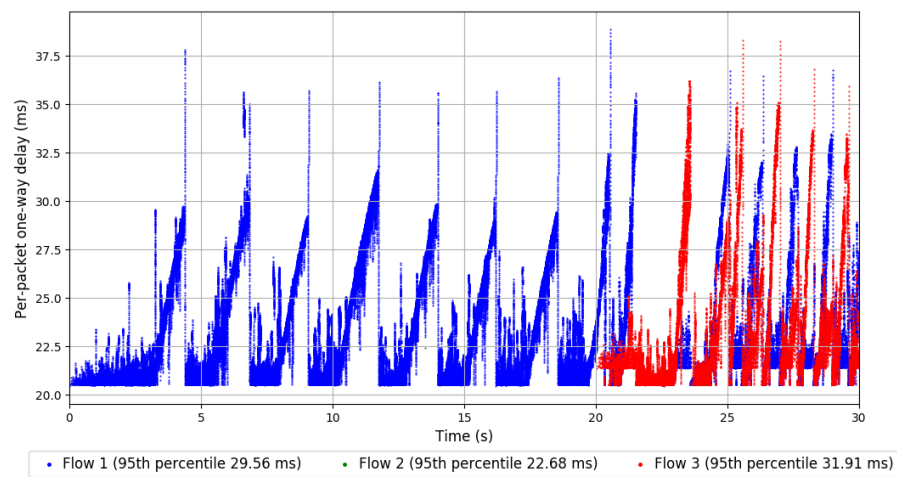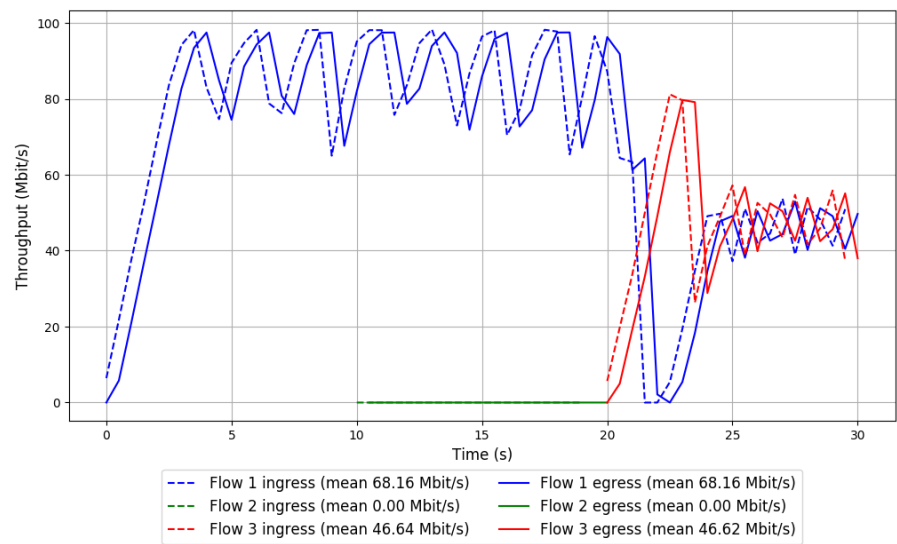
```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-10 05:49:27
End at: 2018-10-10 05:49:57
Local clock offset: 0.883 ms
Remote clock offset: -4.241 ms


# Below is generated by plot.py at 2018-10-10 06:06:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.74 Mbit/s
95th percentile per-packet one-way delay: 132.410 ms
Loss rate: 5.37%
-- Flow 1:
Average throughput: 56.89 Mbit/s
95th percentile per-packet one-way delay: 106.344 ms
Loss rate: 5.29%
-- Flow 2:
Average throughput: 36.03 Mbit/s
95th percentile per-packet one-way delay: 140.911 ms
Loss rate: 5.27%
-- Flow 3:
Average throughput: 48.15 Mbit/s
95th percentile per-packet one-way delay: 66.846 ms
Loss rate: 5.77%
```

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

Flow 1 ingress (mean 60.02 Mbit/s) --- Flow 1 egress (mean 56.89 Mbit/s)
Flow 2 ingress (mean 37.97 Mbit/s) --- Flow 2 egress (mean 36.03 Mbit/s)
Flow 3 ingress (mean 50.92 Mbit/s) --- Flow 3 egress (mean 48.15 Mbit/s)

Flow 1 (95th percentile 106.34 ms) • Flow 2 (95th percentile 140.91 ms) • Flow 3 (95th percentile 66.85 ms)
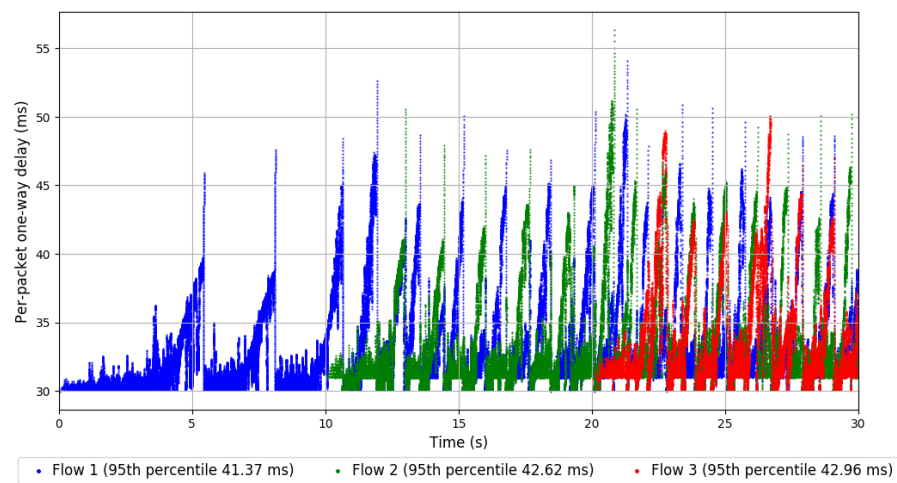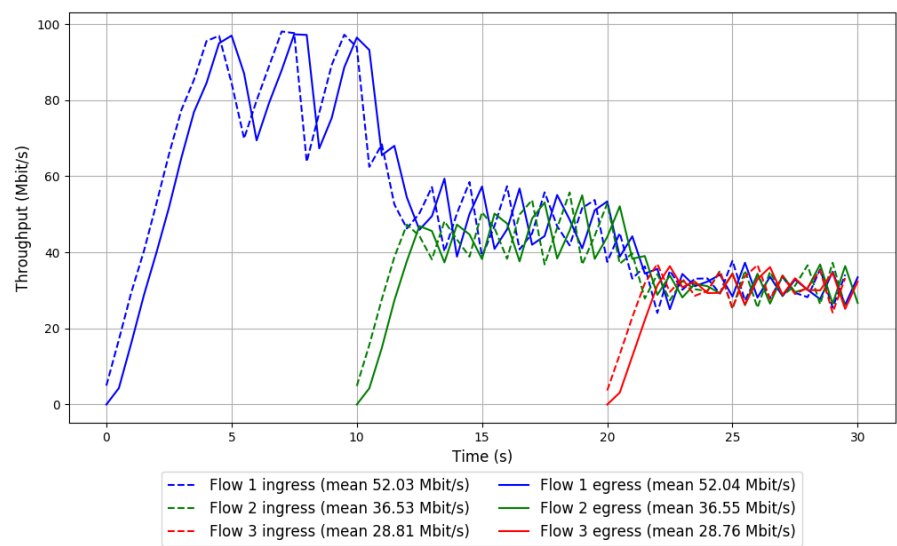
```
Run 1: Statistics of LEDBAT

Start at: 2018-10-10 04:22:26
End at: 2018-10-10 04:22:56
Local clock offset: 0.663 ms
Remote clock offset: -3.045 ms

# Below is generated by plot.py at 2018-10-10 06:06:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.54 Mbit/s
95th percentile per-packet one-way delay: 29.089 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 49.70 Mbit/s
95th percentile per-packet one-way delay: 28.226 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 45.93 Mbit/s
95th percentile per-packet one-way delay: 29.014 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 24.95 Mbit/s
95th percentile per-packet one-way delay: 34.138 ms
Loss rate: 0.46%
```
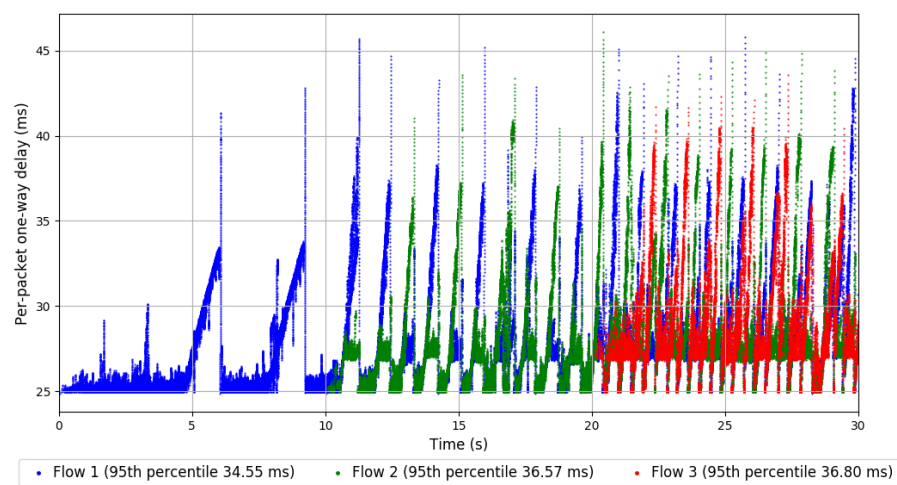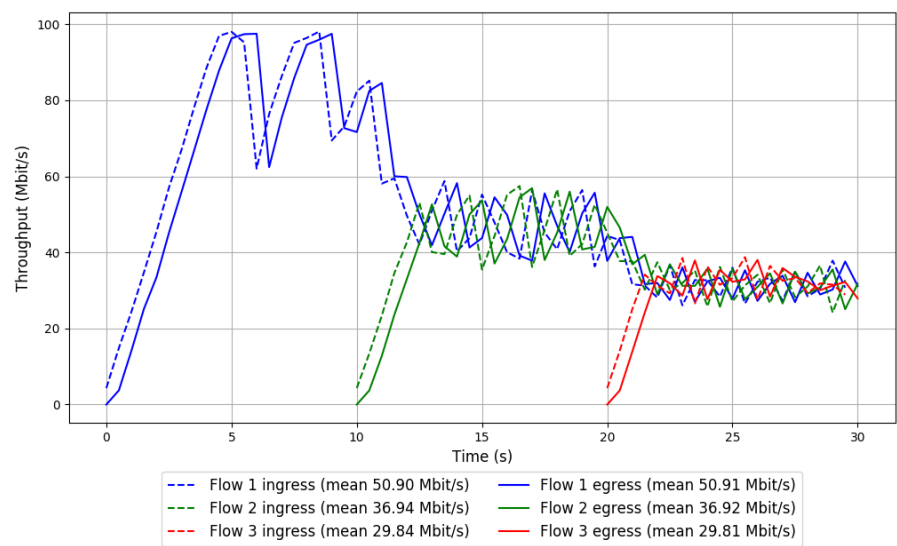
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-10 04:44:48
End at: 2018-10-10 04:45:18
Local clock offset: 3.637 ms
Remote clock offset: -2.981 ms


# Below is generated by plot.py at 2018-10-10 06:06:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.62 Mbit/s
95th percentile per-packet one-way delay: 29.927 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 68.16 Mbit/s
95th percentile per-packet one-way delay: 29.557 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 22.679 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 46.62 Mbit/s
95th percentile per-packet one-way delay: 31.913 ms
Loss rate: 0.32%
```

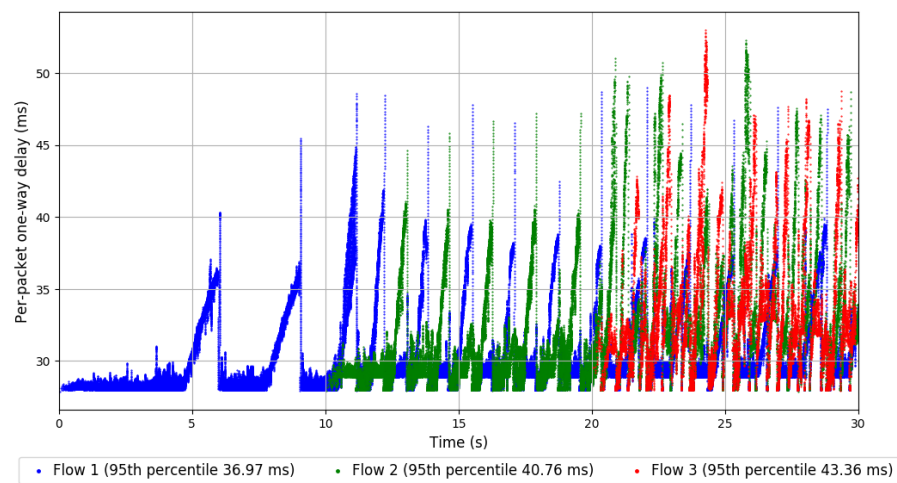## Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-10 05:07:07
End at: 2018-10-10 05:07:37
Local clock offset: 1.67 ms
Remote clock offset: -9.278 ms


# Below is generated by plot.py at 2018-10-10 06:07:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.91 Mbit/s
95th percentile per-packet one-way delay: 42.006 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 52.04 Mbit/s
95th percentile per-packet one-way delay: 41.367 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 42.619 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 28.76 Mbit/s
95th percentile per-packet one-way delay: 42.964 ms
Loss rate: 0.50%
```
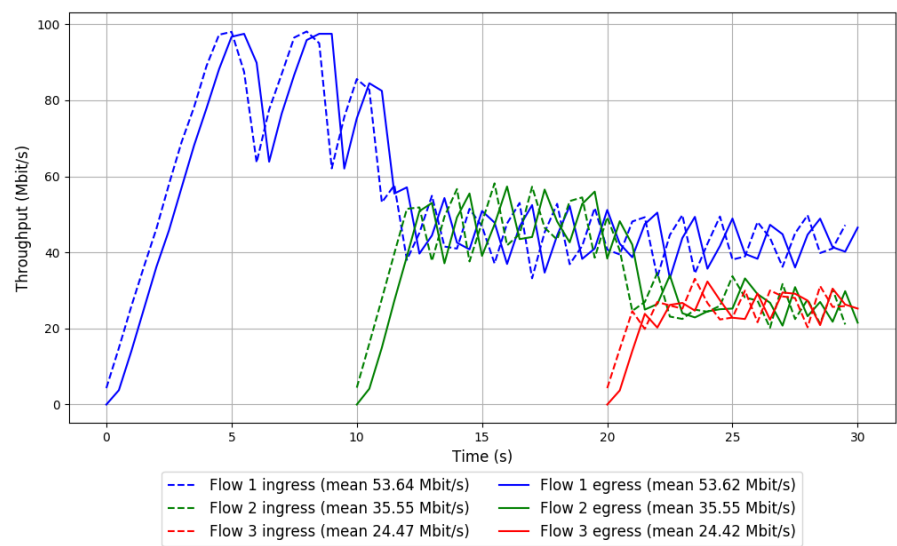
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 52.03 Mbit/s) Flow 1 egress (mean 52.04 Mbit/s)
Flow 2 ingress (mean 36.53 Mbit/s) Flow 2 egress (mean 36.55 Mbit/s)
Flow 3 ingress (mean 28.81 Mbit/s) Flow 3 egress (mean 28.76 Mbit/s)

Flow 1 (95th percentile 41.37 ms)   Flow 2 (95th percentile 42.62 ms)   Flow 3 (95th percentile 42.96 ms)

70

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-10 05:29:25
End at: 2018-10-10 05:29:55
Local clock offset: 1.889 ms
Remote clock offset: -3.964 ms


# Below is generated by plot.py at 2018-10-10 06:07:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.37 Mbit/s
95th percentile per-packet one-way delay: 35.403 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 50.91 Mbit/s
95th percentile per-packet one-way delay: 34.546 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 36.92 Mbit/s
95th percentile per-packet one-way delay: 36.568 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 29.81 Mbit/s
95th percentile per-packet one-way delay: 36.796 ms
Loss rate: 0.42%
```
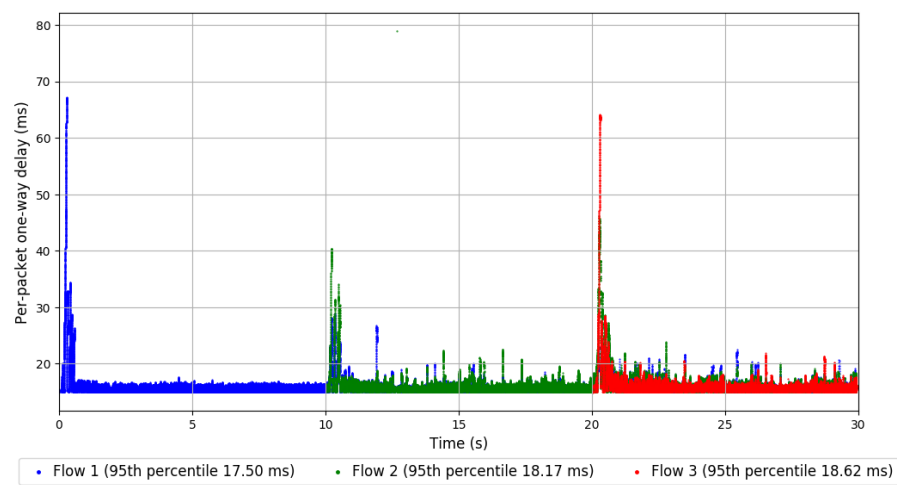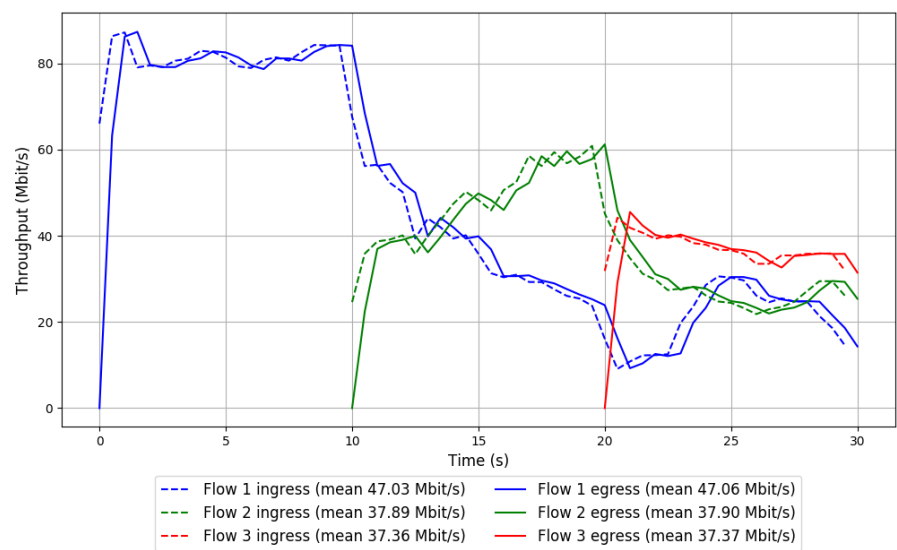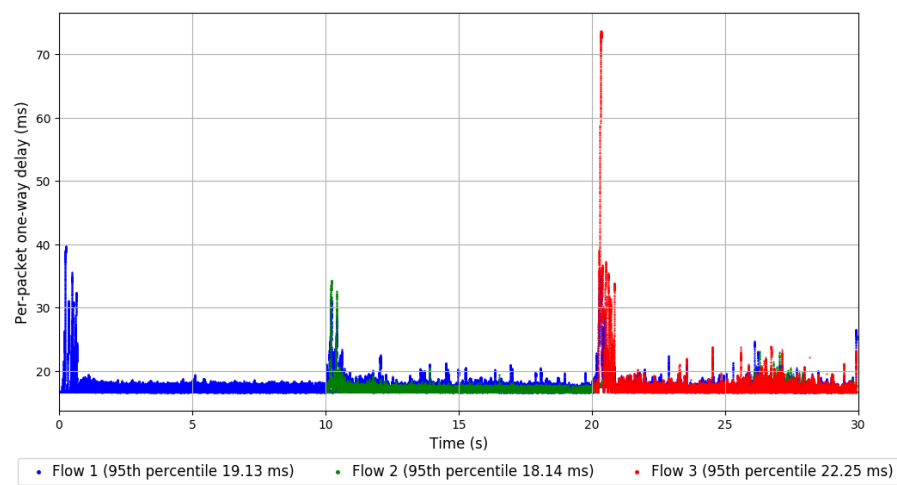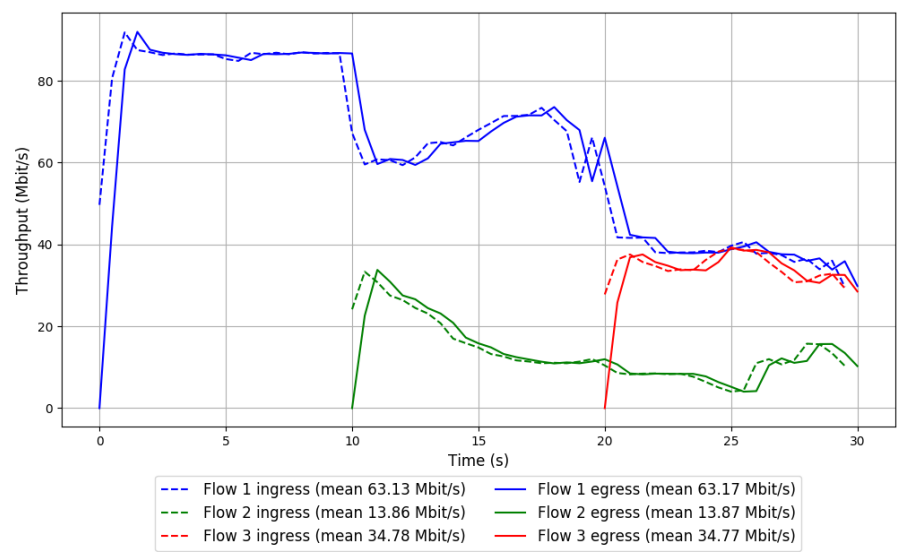
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 50.90 Mbit/s)   Flow 1 egress (mean 50.91 Mbit/s)
Flow 2 ingress (mean 36.94 Mbit/s)   Flow 2 egress (mean 36.92 Mbit/s)
Flow 3 ingress (mean 29.84 Mbit/s)   Flow 3 egress (mean 29.81 Mbit/s)

Flow 1 (95th percentile 34.55 ms)   Flow 2 (95th percentile 36.57 ms)   Flow 3 (95th percentile 36.80 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-10 05:52:04
End at: 2018-10-10 05:52:34
Local clock offset: 4.747 ms
Remote clock offset: -4.111 ms


# Below is generated by plot.py at 2018-10-10 06:07:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.39 Mbit/s
95th percentile per-packet one-way delay: 38.863 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 53.62 Mbit/s
95th percentile per-packet one-way delay: 36.966 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 40.760 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 24.42 Mbit/s
95th percentile per-packet one-way delay: 43.359 ms
Loss rate: 0.54%
```
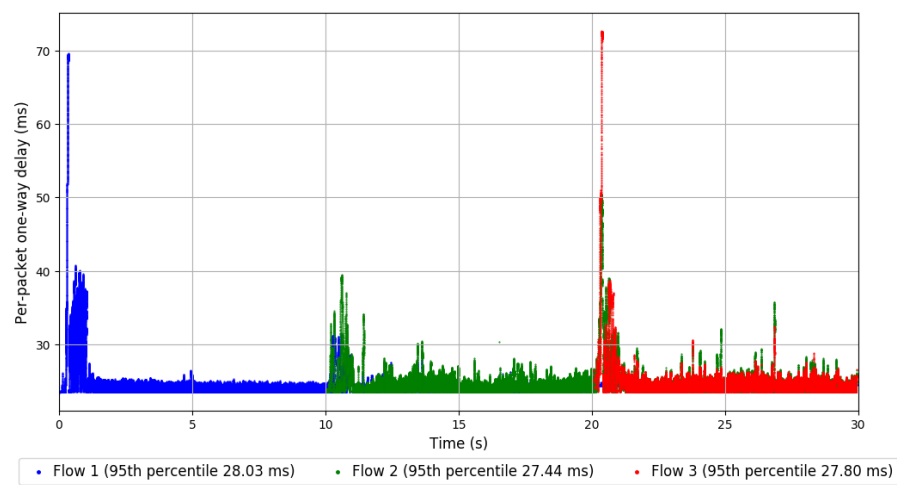
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 53.64 Mbit/s) --- Flow 1 egress (mean 53.62 Mbit/s)
Flow 2 ingress (mean 35.55 Mbit/s) --- Flow 2 egress (mean 35.55 Mbit/s)
Flow 3 ingress (mean 24.47 Mbit/s) --- Flow 3 egress (mean 24.42 Mbit/s)

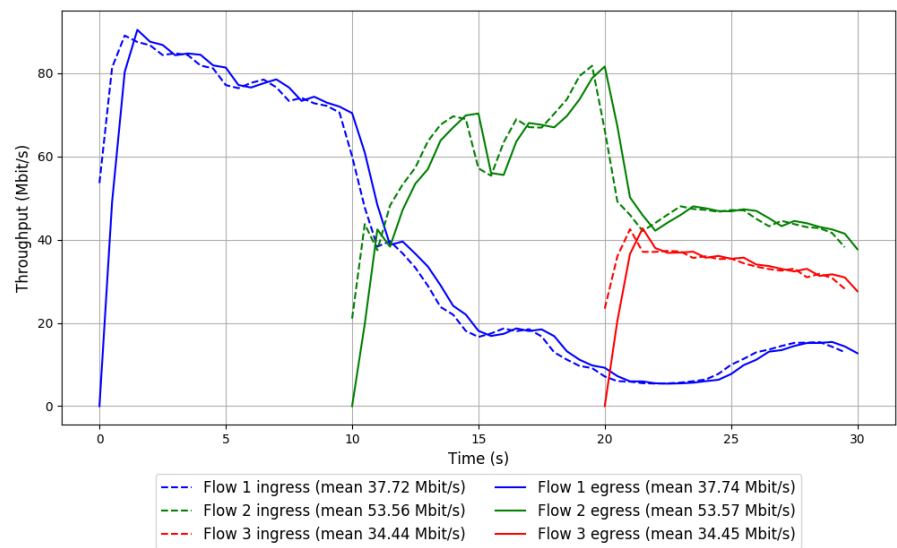Flow 1 (95th percentile 36.97 ms)   Flow 2 (95th percentile 40.76 ms)   Flow 3 (95th percentile 43.36 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-10 04:24:47
End at: 2018-10-10 04:25:17
Local clock offset: 0.814 ms
Remote clock offset: 0.009 ms

# Below is generated by plot.py at 2018-10-10 06:07:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.62 Mbit/s
95th percentile per-packet one-way delay: 17.924 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 47.06 Mbit/s
95th percentile per-packet one-way delay: 17.499 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 37.90 Mbit/s
95th percentile per-packet one-way delay: 18.170 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 37.37 Mbit/s
95th percentile per-packet one-way delay: 18.619 ms
Loss rate: 0.23%
```
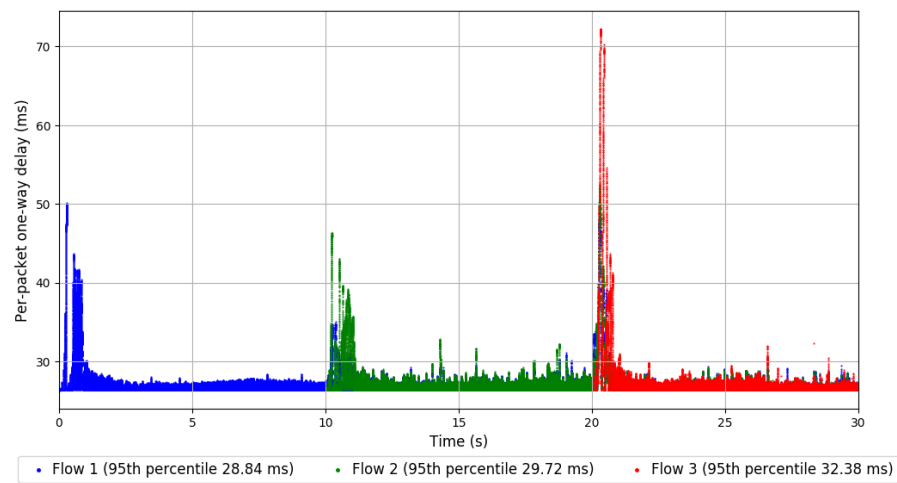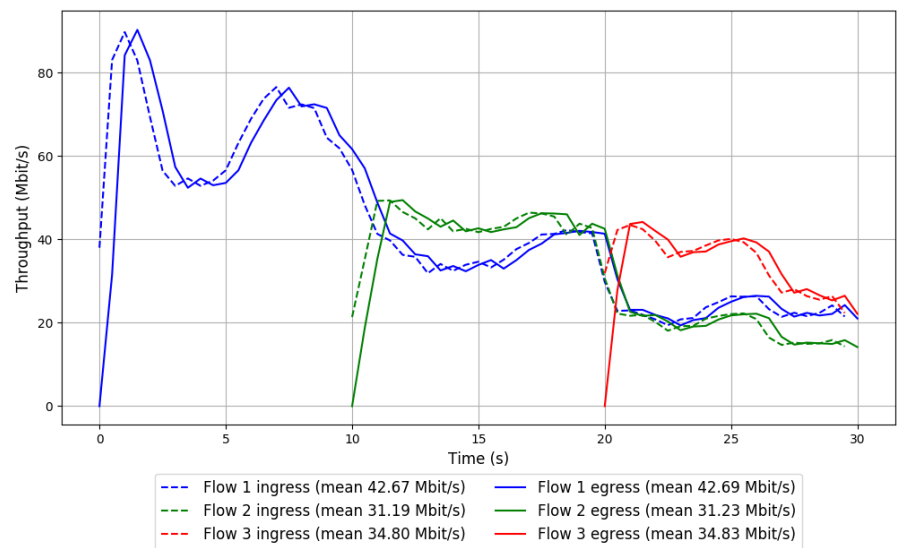
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-10 04:47:13
End at: 2018-10-10 04:47:43
Local clock offset: -0.65 ms
Remote clock offset: -3.396 ms


# Below is generated by plot.py at 2018-10-10 06:07:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.87 Mbit/s
95th percentile per-packet one-way delay: 19.290 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 63.17 Mbit/s
95th percentile per-packet one-way delay: 19.126 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 13.87 Mbit/s
95th percentile per-packet one-way delay: 18.139 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 34.77 Mbit/s
95th percentile per-packet one-way delay: 22.247 ms
Loss rate: 0.29%
```

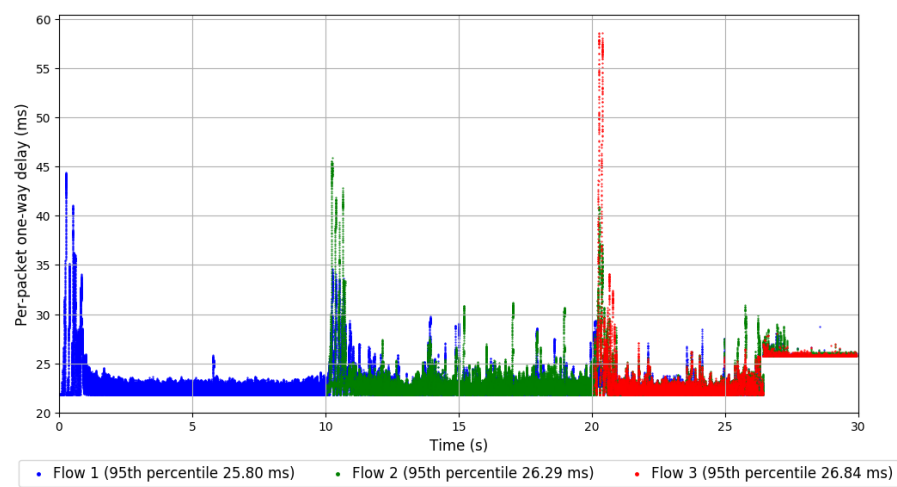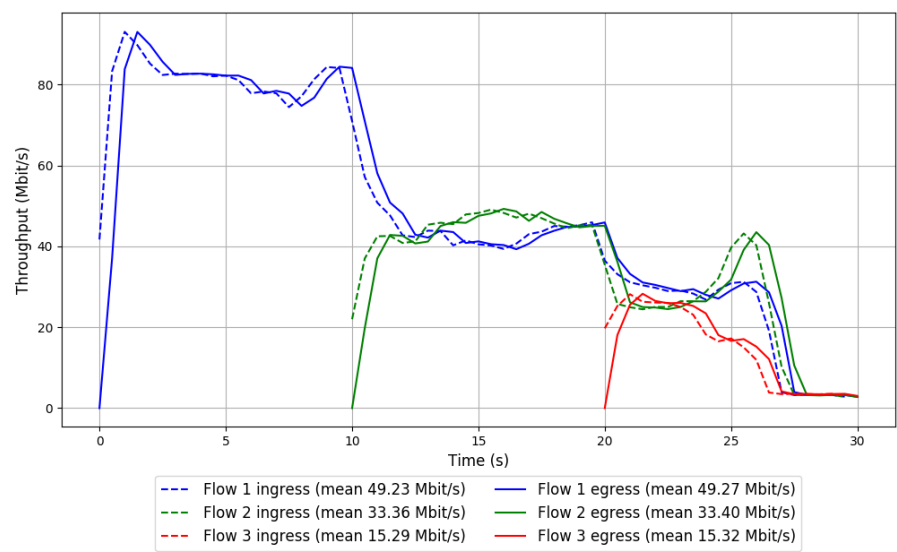Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-10 05:09:32
End at: 2018-10-10 05:10:02
Local clock offset: -0.434 ms
Remote clock offset: -4.872 ms


# Below is generated by plot.py at 2018-10-10 06:07:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.74 Mbit/s
95th percentile per-packet one-way delay: 27.627 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 37.74 Mbit/s
95th percentile per-packet one-way delay: 28.032 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 53.57 Mbit/s
95th percentile per-packet one-way delay: 27.438 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 34.45 Mbit/s
95th percentile per-packet one-way delay: 27.796 ms
Loss rate: 0.30%
```
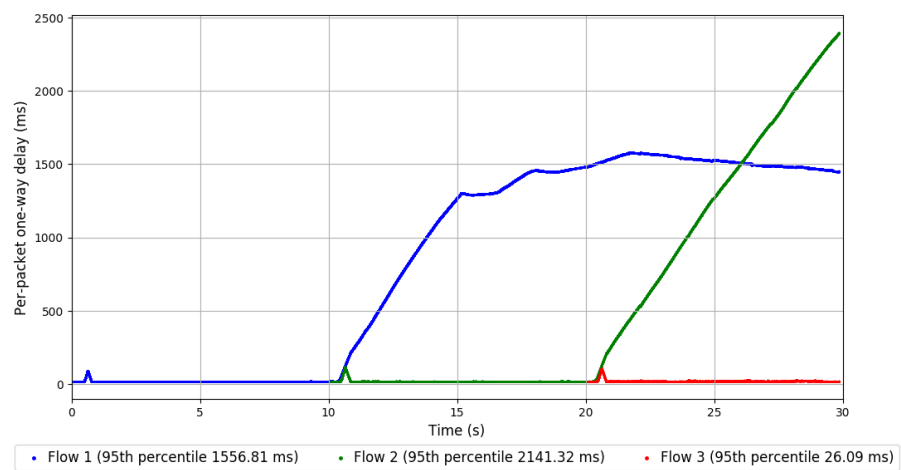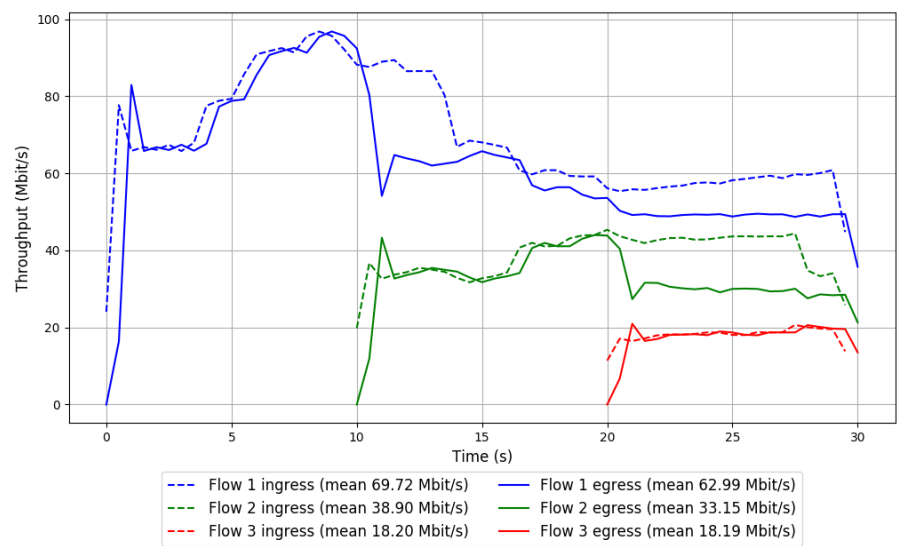
Run 3: Report of Indigo-Muses — Data Link

- - - - Flow 1 ingress (mean 37.72 Mbit/s)   —— Flow 1 egress (mean 37.74 Mbit/s)
- - - - Flow 2 ingress (mean 53.56 Mbit/s)   —— Flow 2 egress (mean 53.57 Mbit/s)
- - - - Flow 3 ingress (mean 34.44 Mbit/s)   —— Flow 3 egress (mean 34.45 Mbit/s)

- Flow 1 (95th percentile 28.03 ms)   • Flow 2 (95th percentile 27.44 ms)   • Flow 3 (95th percentile 27.80 ms)

80

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-10 05:31:51
End at: 2018-10-10 05:32:21
Local clock offset: 2.728 ms
Remote clock offset: -4.46 ms


# Below is generated by plot.py at 2018-10-10 06:07:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.99 Mbit/s
95th percentile per-packet one-way delay: 29.331 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 42.69 Mbit/s
95th percentile per-packet one-way delay: 28.844 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 31.23 Mbit/s
95th percentile per-packet one-way delay: 29.717 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 34.83 Mbit/s
95th percentile per-packet one-way delay: 32.383 ms
Loss rate: 0.22%
```

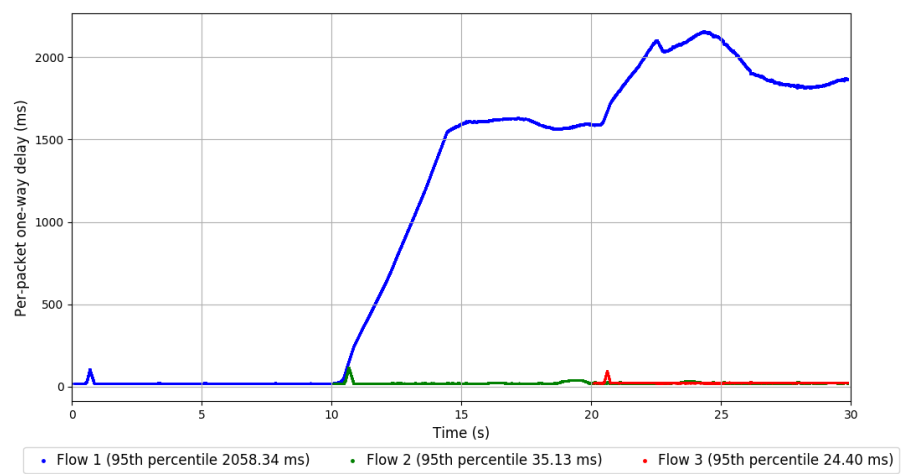Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-10 05:54:46
End at: 2018-10-10 05:55:16
Local clock offset: 3.046 ms
Remote clock offset: -3.585 ms


# Below is generated by plot.py at 2018-10-10 06:07:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.54 Mbit/s
95th percentile per-packet one-way delay: 25.995 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 49.27 Mbit/s
95th percentile per-packet one-way delay: 25.804 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 33.40 Mbit/s
95th percentile per-packet one-way delay: 26.290 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 15.32 Mbit/s
95th percentile per-packet one-way delay: 26.837 ms
Loss rate: 0.08%
```

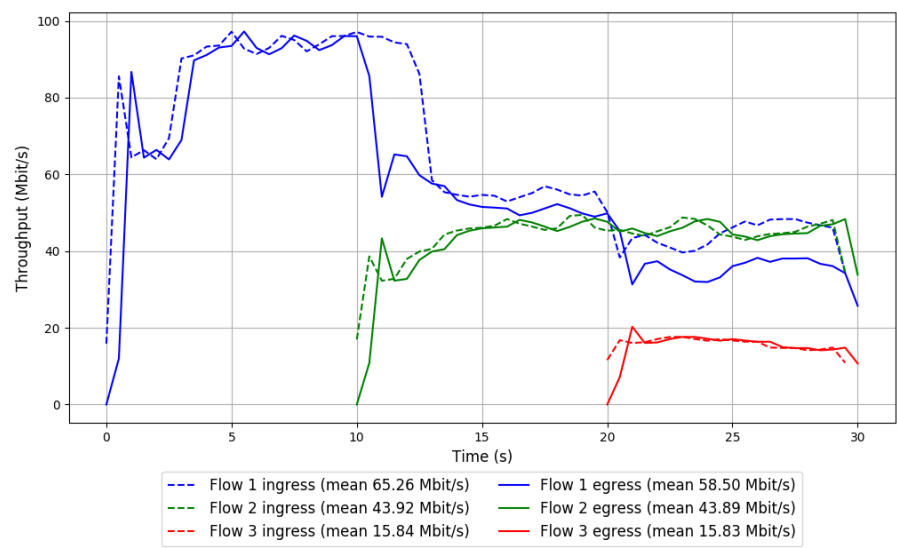Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-10 04:17:32
End at: 2018-10-10 04:18:02
Local clock offset: 1.367 ms
Remote clock offset: -2.784 ms


# Below is generated by plot.py at 2018-10-10 06:08:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.00 Mbit/s
95th percentile per-packet one-way delay: 1572.497 ms
Loss rate: 10.46%
-- Flow 1:
Average throughput: 62.99 Mbit/s
95th percentile per-packet one-way delay: 1556.805 ms
Loss rate: 9.70%
-- Flow 2:
Average throughput: 33.15 Mbit/s
95th percentile per-packet one-way delay: 2141.325 ms
Loss rate: 14.88%
-- Flow 3:
Average throughput: 18.19 Mbit/s
95th percentile per-packet one-way delay: 26.094 ms
Loss rate: 0.32%
```

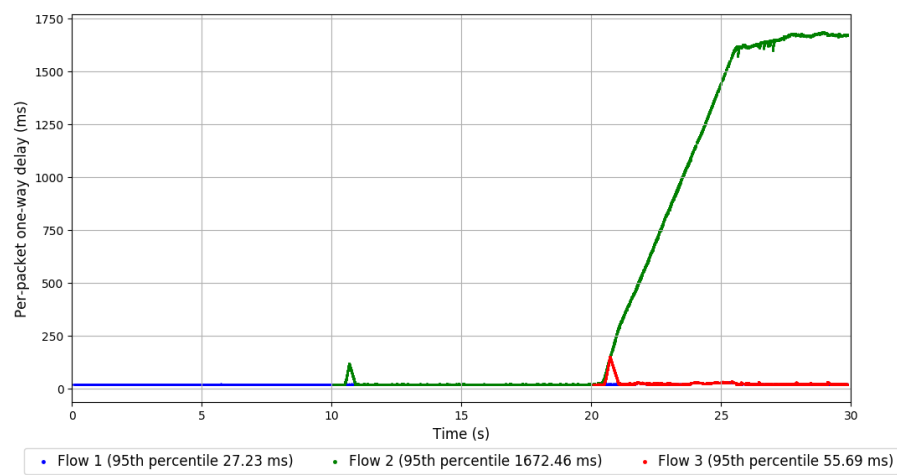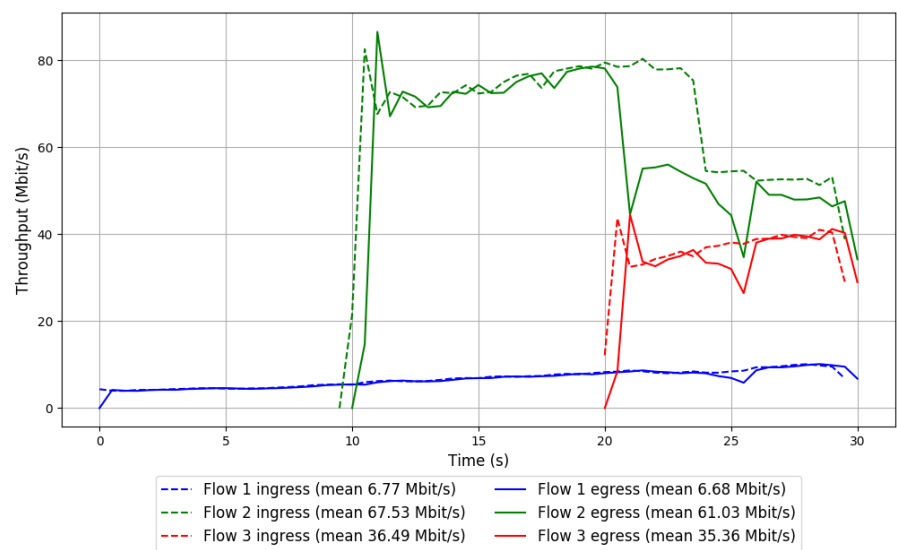Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 69.72 Mbit/s)   Flow 1 egress (mean 62.99 Mbit/s)
Flow 2 ingress (mean 38.90 Mbit/s)   Flow 2 egress (mean 33.15 Mbit/s)
Flow 3 ingress (mean 18.20 Mbit/s)   Flow 3 egress (mean 18.19 Mbit/s)

Flow 1 (95th percentile 1556.81 ms)   Flow 2 (95th percentile 2141.32 ms)   Flow 3 (95th percentile 26.09 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-10 04:39:59
End at: 2018-10-10 04:40:29
Local clock offset: 1.327 ms
Remote clock offset: -4.045 ms


# Below is generated by plot.py at 2018-10-10 06:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.88 Mbit/s
95th percentile per-packet one-way delay: 1954.459 ms
Loss rate: 6.91%
-- Flow 1:
Average throughput: 58.50 Mbit/s
95th percentile per-packet one-way delay: 2058.345 ms
Loss rate: 10.43%
-- Flow 2:
Average throughput: 43.89 Mbit/s
95th percentile per-packet one-way delay: 35.129 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 15.83 Mbit/s
95th percentile per-packet one-way delay: 24.398 ms
Loss rate: 0.34%
```
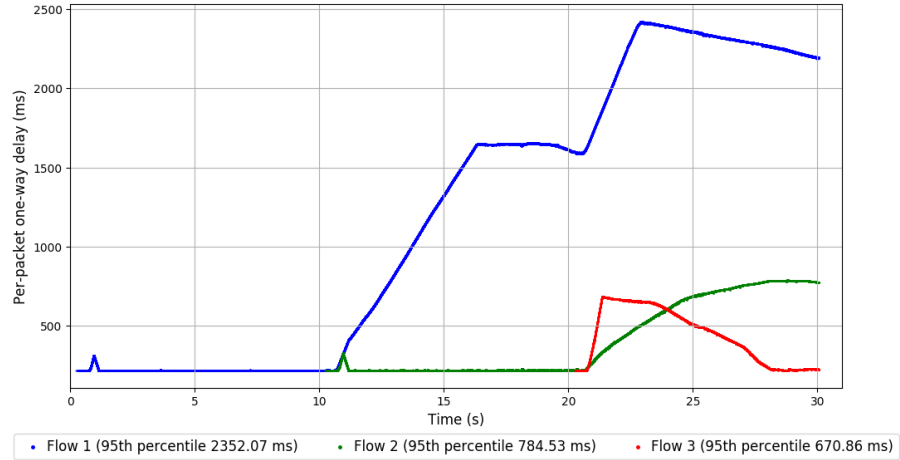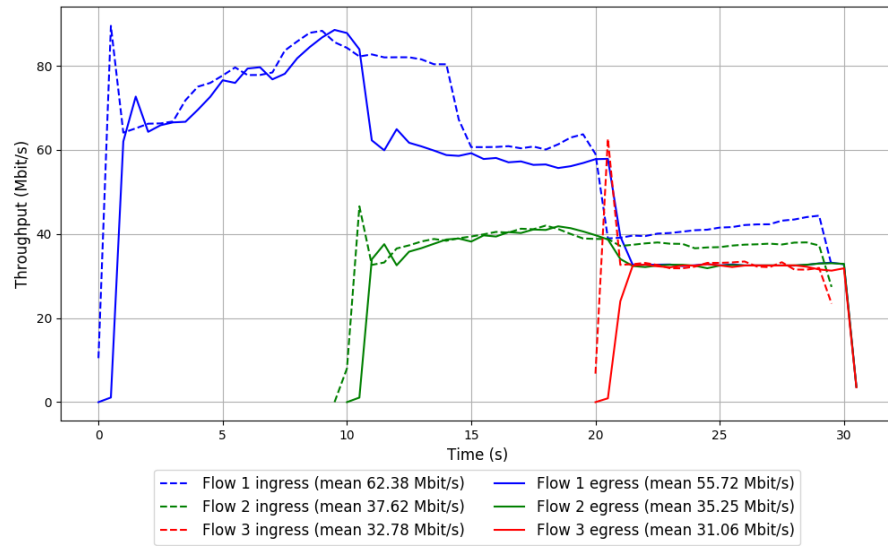
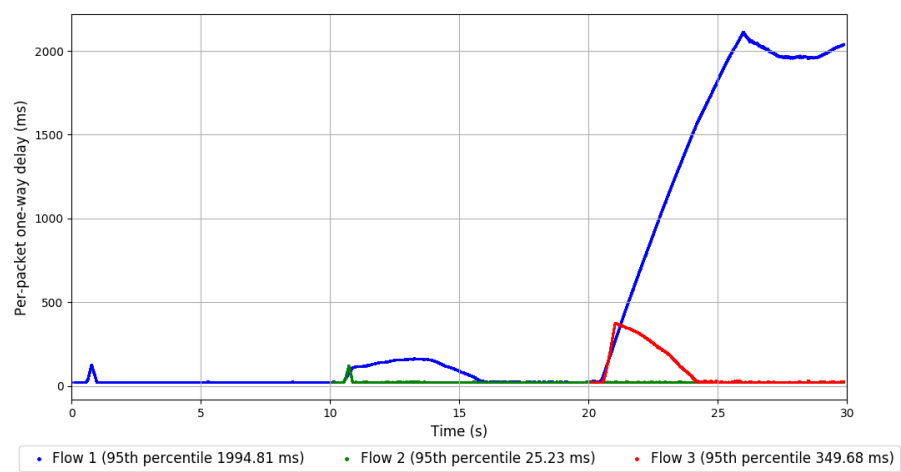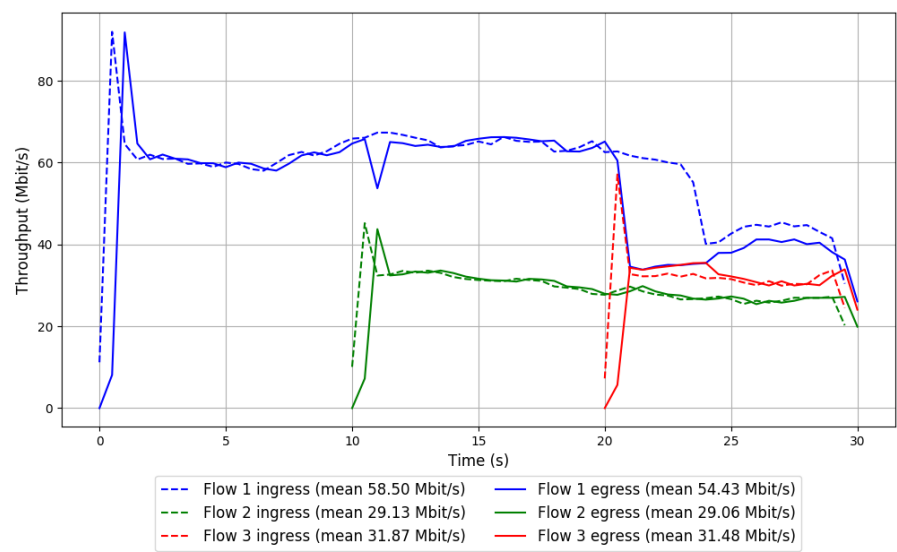Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-10 05:02:14
End at: 2018-10-10 05:02:44
Local clock offset: 3.792 ms
Remote clock offset: -4.472 ms


# Below is generated by plot.py at 2018-10-10 06:08:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.92 Mbit/s
95th percentile per-packet one-way delay: 1669.688 ms
Loss rate: 7.63%
-- Flow 1:
Average throughput: 6.68 Mbit/s
95th percentile per-packet one-way delay: 27.233 ms
Loss rate: 1.33%
-- Flow 2:
Average throughput: 61.03 Mbit/s
95th percentile per-packet one-way delay: 1672.462 ms
Loss rate: 9.73%
-- Flow 3:
Average throughput: 35.36 Mbit/s
95th percentile per-packet one-way delay: 55.691 ms
Loss rate: 3.31%
```
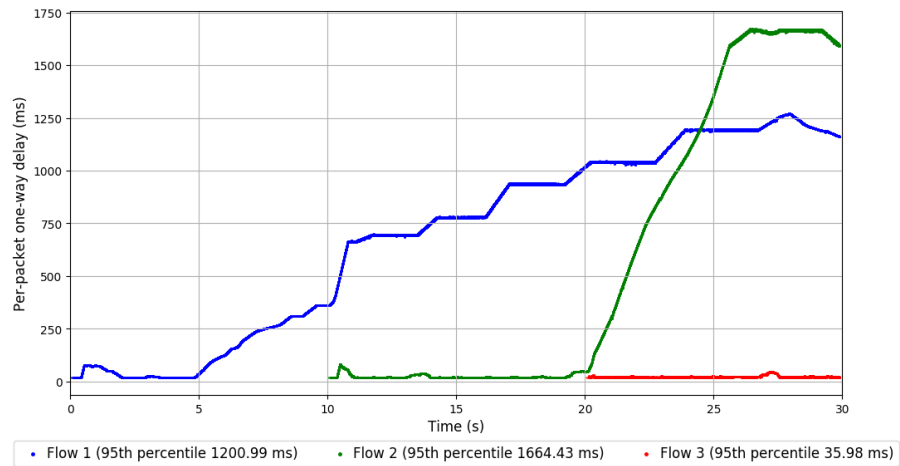
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 6.77 Mbit/s) --- Flow 1 egress (mean 6.68 Mbit/s)
Flow 2 ingress (mean 67.53 Mbit/s) --- Flow 2 egress (mean 61.03 Mbit/s)
Flow 3 ingress (mean 36.49 Mbit/s) --- Flow 3 egress (mean 35.36 Mbit/s)

Flow 1 (95th percentile 27.23 ms)   Flow 2 (95th percentile 1672.46 ms)   Flow 3 (95th percentile 55.69 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-10 05:24:33
End at: 2018-10-10 05:25:03
Local clock offset: 4.448 ms
Remote clock offset: -195.49 ms


# Below is generated by plot.py at 2018-10-10 06:08:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.36 Mbit/s
95th percentile per-packet one-way delay: 2308.188 ms
Loss rate: 9.09%
-- Flow 1:
Average throughput: 55.72 Mbit/s
95th percentile per-packet one-way delay: 2352.066 ms
Loss rate: 10.77%
-- Flow 2:
Average throughput: 35.25 Mbit/s
95th percentile per-packet one-way delay: 784.530 ms
Loss rate: 6.44%
-- Flow 3:
Average throughput: 31.06 Mbit/s
95th percentile per-packet one-way delay: 670.856 ms
Loss rate: 5.52%
```

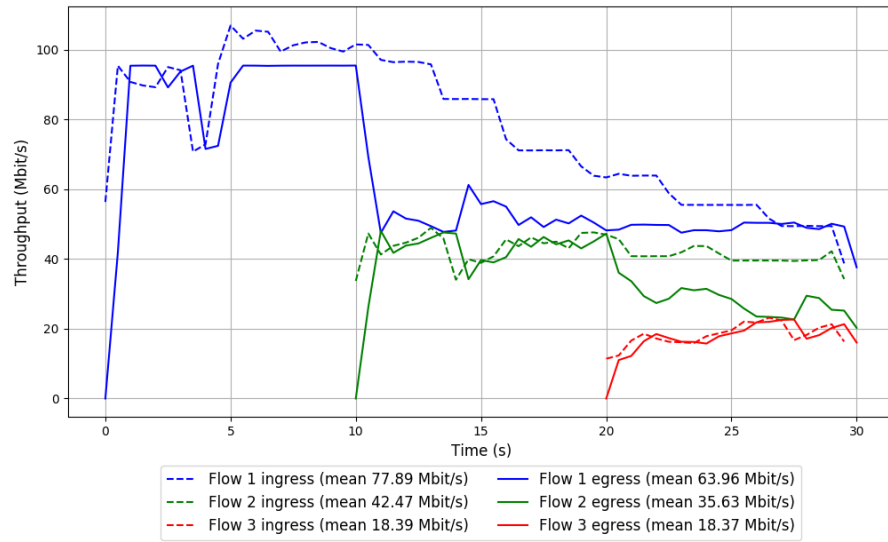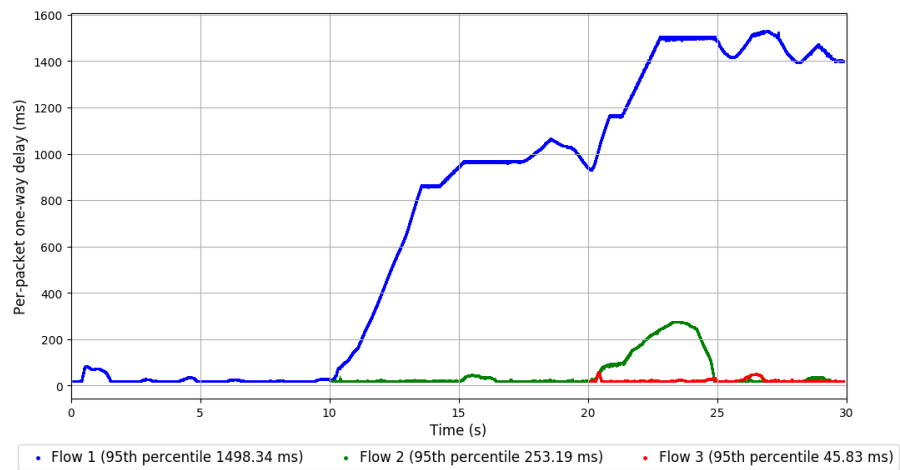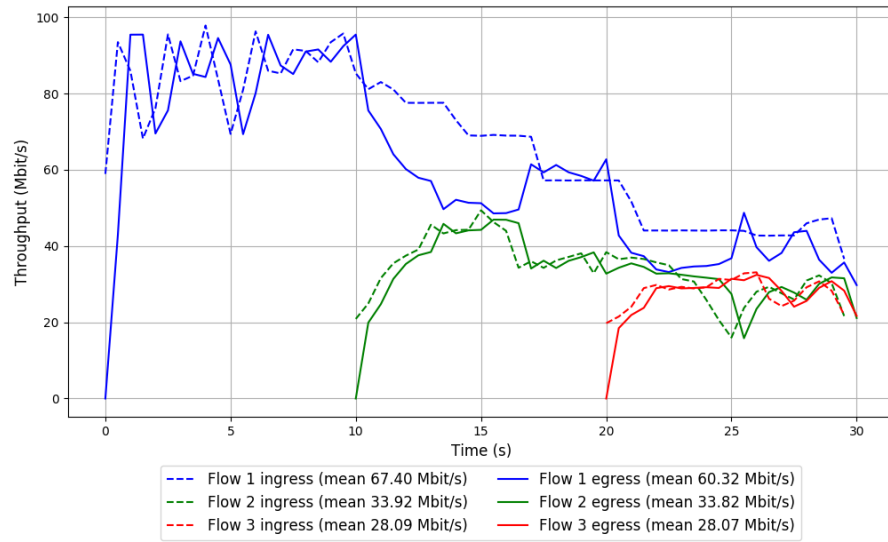Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 62.38 Mbit/s) --- Flow 1 egress (mean 55.72 Mbit/s)
Flow 2 ingress (mean 37.62 Mbit/s) --- Flow 2 egress (mean 35.25 Mbit/s)
Flow 3 ingress (mean 32.78 Mbit/s) --- Flow 3 egress (mean 31.06 Mbit/s)

Flow 1 (95th percentile 2352.07 ms) · Flow 2 (95th percentile 784.53 ms) · Flow 3 (95th percentile 670.86 ms)
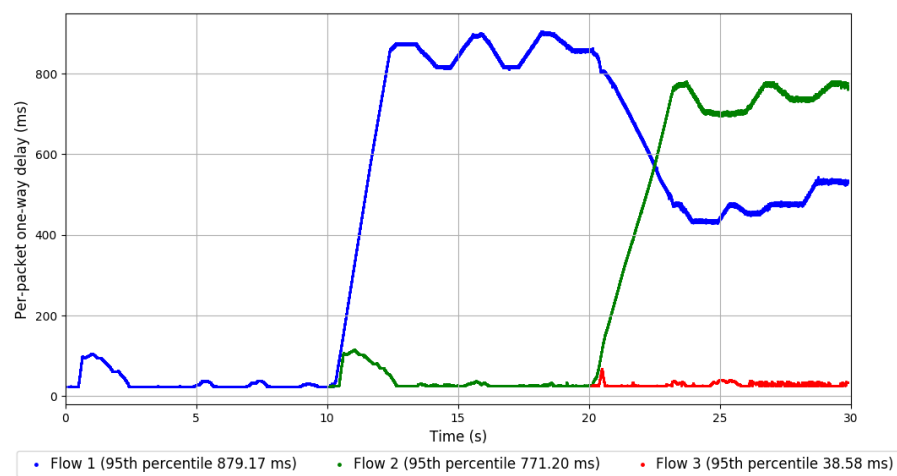
```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-10 05:47:09
End at: 2018-10-10 05:47:39
Local clock offset: 0.599 ms
Remote clock offset: -4.021 ms


# Below is generated by plot.py at 2018-10-10 06:08:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.10 Mbit/s
95th percentile per-packet one-way delay: 1964.649 ms
Loss rate: 4.94%
-- Flow 1:
Average throughput: 54.43 Mbit/s
95th percentile per-packet one-way delay: 1994.813 ms
Loss rate: 7.05%
-- Flow 2:
Average throughput: 29.06 Mbit/s
95th percentile per-packet one-way delay: 25.229 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 31.48 Mbit/s
95th percentile per-packet one-way delay: 349.675 ms
Loss rate: 1.58%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 58.50 Mbit/s) — — —   Flow 1 egress (mean 54.43 Mbit/s)
Flow 2 ingress (mean 29.13 Mbit/s) — — —   Flow 2 egress (mean 29.06 Mbit/s)
Flow 3 ingress (mean 31.87 Mbit/s) — — —   Flow 3 egress (mean 31.48 Mbit/s)

Flow 1 (95th percentile 1994.81 ms)   Flow 2 (95th percentile 25.23 ms)   Flow 3 (95th percentile 349.68 ms)
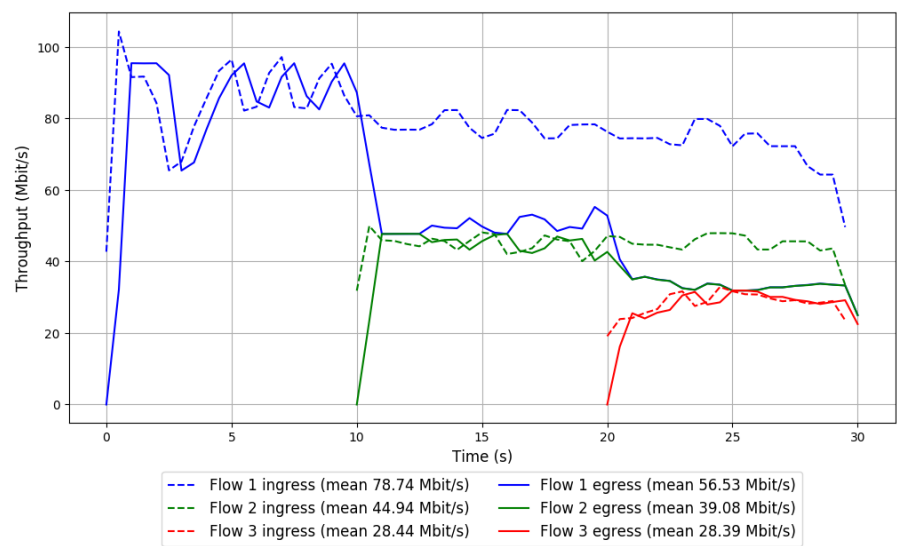
```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-10 04:28:26
End at: 2018-10-10 04:28:56
Local clock offset: 1.209 ms
Remote clock offset: -2.682 ms


# Below is generated by plot.py at 2018-10-10 06:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.69 Mbit/s
95th percentile per-packet one-way delay: 1265.236 ms
Loss rate: 16.56%
-- Flow 1:
Average throughput: 63.96 Mbit/s
95th percentile per-packet one-way delay: 1200.994 ms
Loss rate: 17.95%
-- Flow 2:
Average throughput: 35.63 Mbit/s
95th percentile per-packet one-way delay: 1664.427 ms
Loss rate: 16.23%
-- Flow 3:
Average throughput: 18.37 Mbit/s
95th percentile per-packet one-way delay: 35.982 ms
Loss rate: 0.34%
```

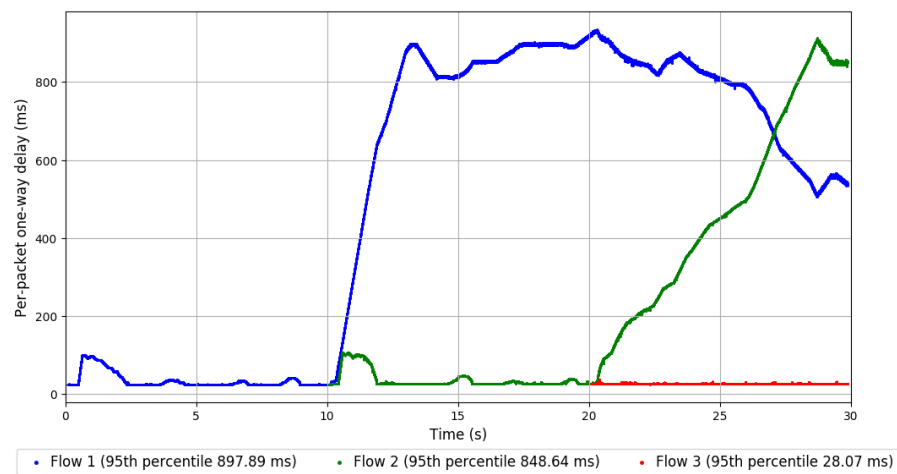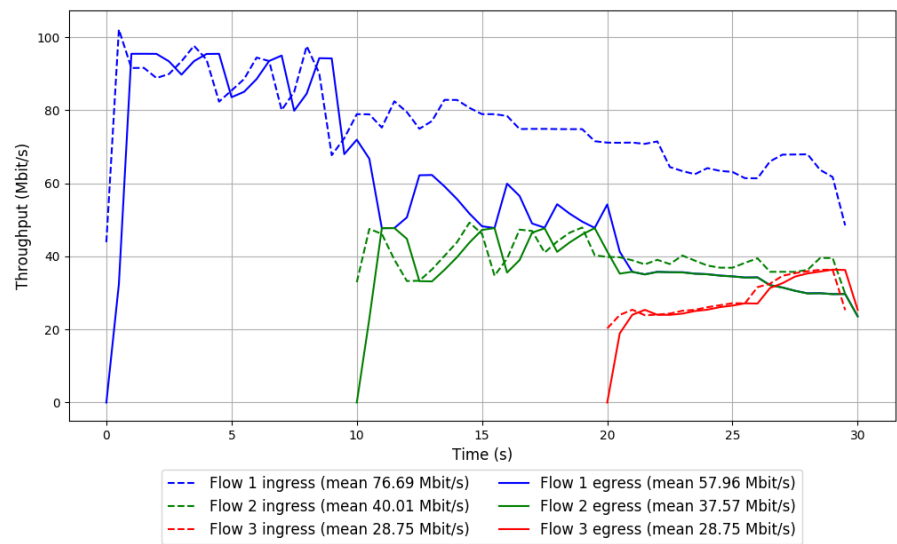# Run 1: Report of PCC-Expr — Data Link

- - - - Flow 1 ingress (mean 77.89 Mbit/s)   —— Flow 1 egress (mean 63.96 Mbit/s)
- - - - Flow 2 ingress (mean 42.47 Mbit/s)   —— Flow 2 egress (mean 35.63 Mbit/s)
- - - - Flow 3 ingress (mean 18.39 Mbit/s)   —— Flow 3 egress (mean 18.37 Mbit/s)

• Flow 1 (95th percentile 1200.99 ms)   • Flow 2 (95th percentile 1664.43 ms)   • Flow 3 (95th percentile 35.98 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-10 04:50:56
End at: 2018-10-10 04:51:26
Local clock offset: 1.641 ms
Remote clock offset: -4.173 ms


# Below is generated by plot.py at 2018-10-10 06:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.06 Mbit/s
95th percentile per-packet one-way delay: 1466.134 ms
Loss rate: 7.32%
-- Flow 1:
Average throughput: 60.32 Mbit/s
95th percentile per-packet one-way delay: 1498.339 ms
Loss rate: 10.59%
-- Flow 2:
Average throughput: 33.82 Mbit/s
95th percentile per-packet one-way delay: 253.185 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 28.07 Mbit/s
95th percentile per-packet one-way delay: 45.826 ms
Loss rate: 0.33%
```
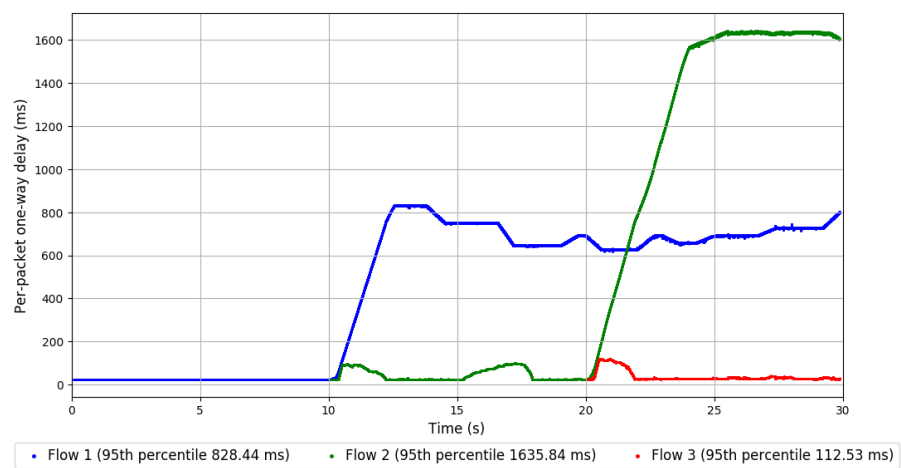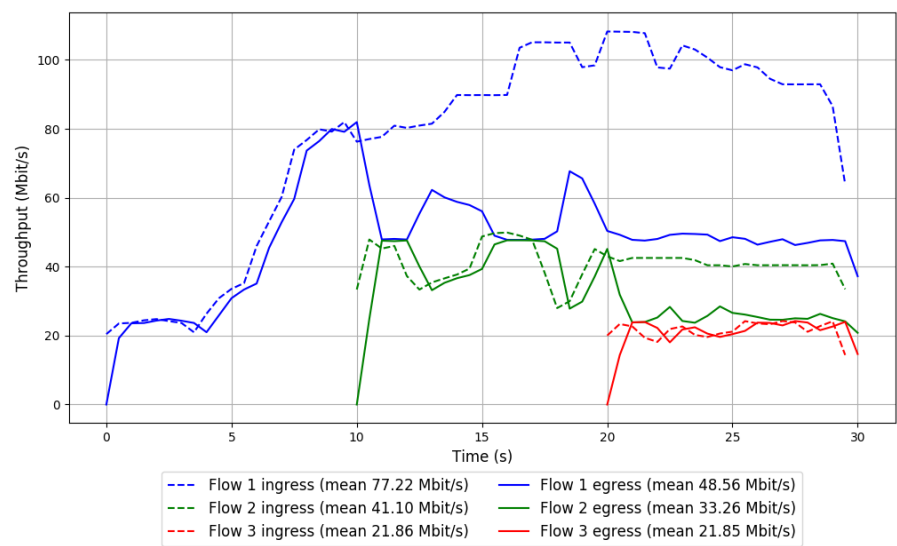
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 67.40 Mbit/s)   Flow 1 egress (mean 60.32 Mbit/s)
Flow 2 ingress (mean 33.92 Mbit/s)   Flow 2 egress (mean 33.82 Mbit/s)
Flow 3 ingress (mean 28.09 Mbit/s)   Flow 3 egress (mean 28.07 Mbit/s)

Flow 1 (95th percentile 1498.34 ms)   Flow 2 (95th percentile 253.19 ms)   Flow 3 (95th percentile 45.83 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-10 05:13:15
End at: 2018-10-10 05:13:45
Local clock offset: 0.362 ms
Remote clock offset: -4.591 ms


# Below is generated by plot.py at 2018-10-10 06:09:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.88 Mbit/s
95th percentile per-packet one-way delay: 871.430 ms
Loss rate: 22.25%
-- Flow 1:
Average throughput: 56.53 Mbit/s
95th percentile per-packet one-way delay: 879.171 ms
Loss rate: 28.29%
-- Flow 2:
Average throughput: 39.08 Mbit/s
95th percentile per-packet one-way delay: 771.198 ms
Loss rate: 13.17%
-- Flow 3:
Average throughput: 28.39 Mbit/s
95th percentile per-packet one-way delay: 38.584 ms
Loss rate: 0.51%
```
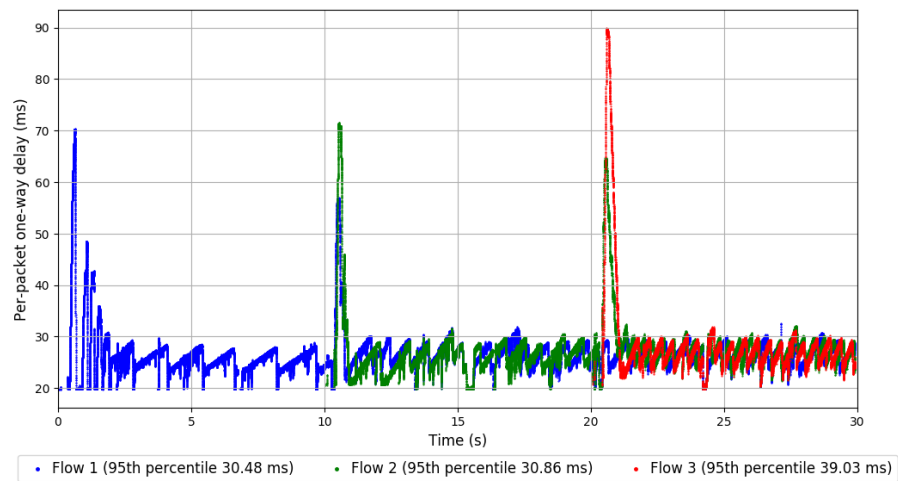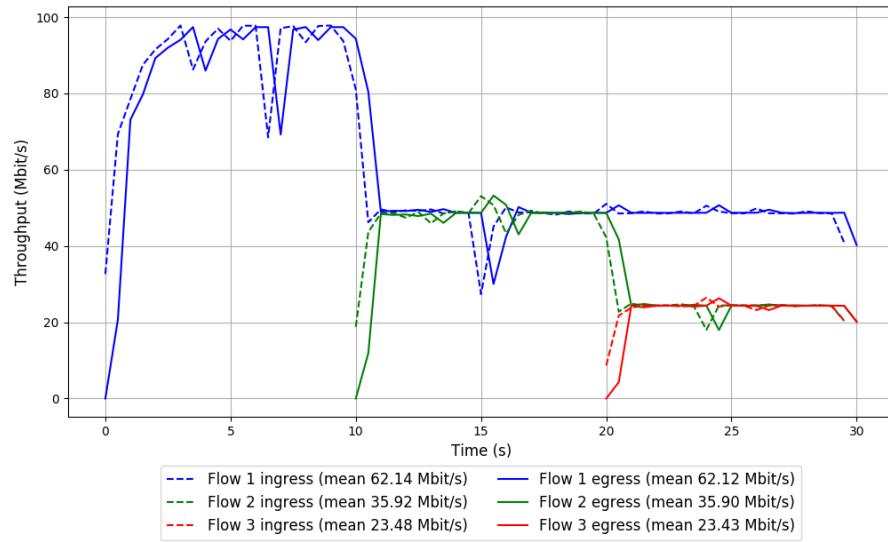
Run 3: Report of PCC-Expr — Data Link

- Flow 1 ingress (mean 78.74 Mbit/s)
- Flow 1 egress (mean 56.53 Mbit/s)
- Flow 2 ingress (mean 44.94 Mbit/s)
- Flow 2 egress (mean 39.08 Mbit/s)
- Flow 3 ingress (mean 28.44 Mbit/s)
- Flow 3 egress (mean 28.39 Mbit/s)

- Flow 1 (95th percentile 879.17 ms)
- Flow 2 (95th percentile 771.20 ms)
- Flow 3 (95th percentile 38.58 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-10 05:35:33
End at: 2018-10-10 05:36:03
Local clock offset: 3.706 ms
Remote clock offset: -2.399 ms


# Below is generated by plot.py at 2018-10-10 06:10:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.41 Mbit/s
95th percentile per-packet one-way delay: 895.661 ms
Loss rate: 18.16%
-- Flow 1:
Average throughput: 57.96 Mbit/s
95th percentile per-packet one-way delay: 897.890 ms
Loss rate: 24.51%
-- Flow 2:
Average throughput: 37.57 Mbit/s
95th percentile per-packet one-way delay: 848.636 ms
Loss rate: 6.22%
-- Flow 3:
Average throughput: 28.75 Mbit/s
95th percentile per-packet one-way delay: 28.068 ms
Loss rate: 0.34%
```
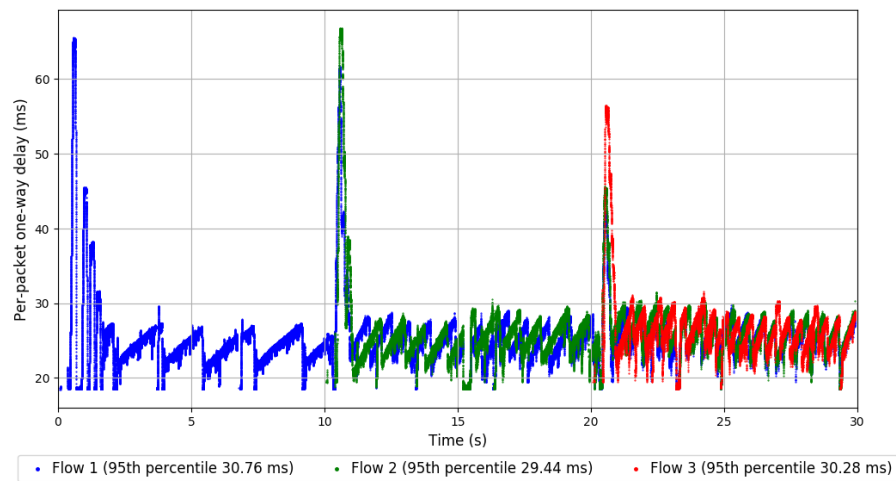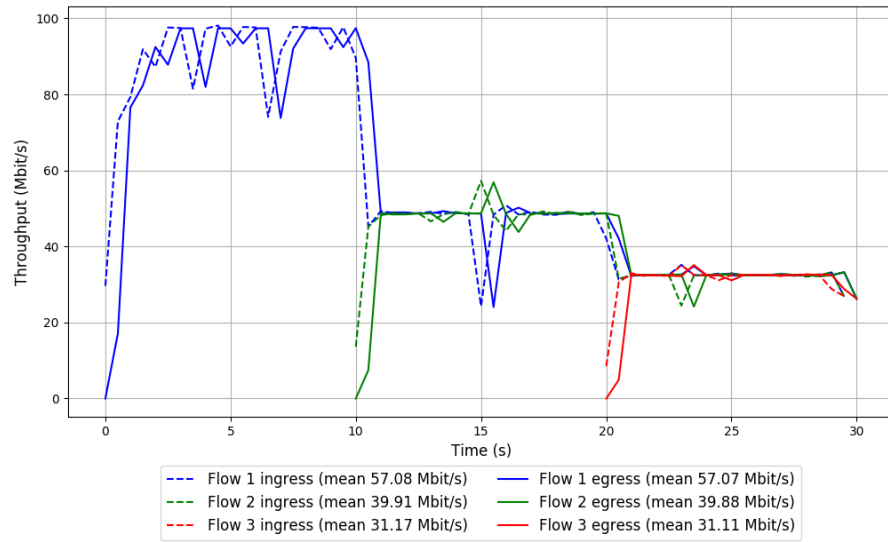
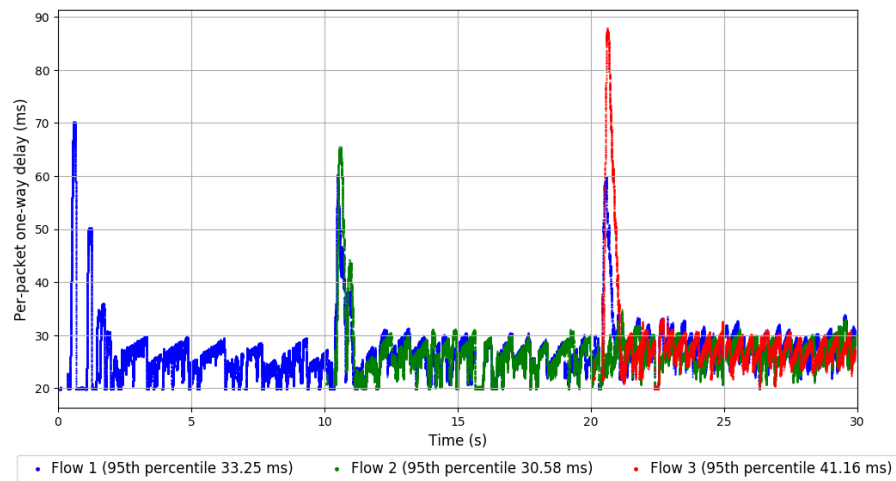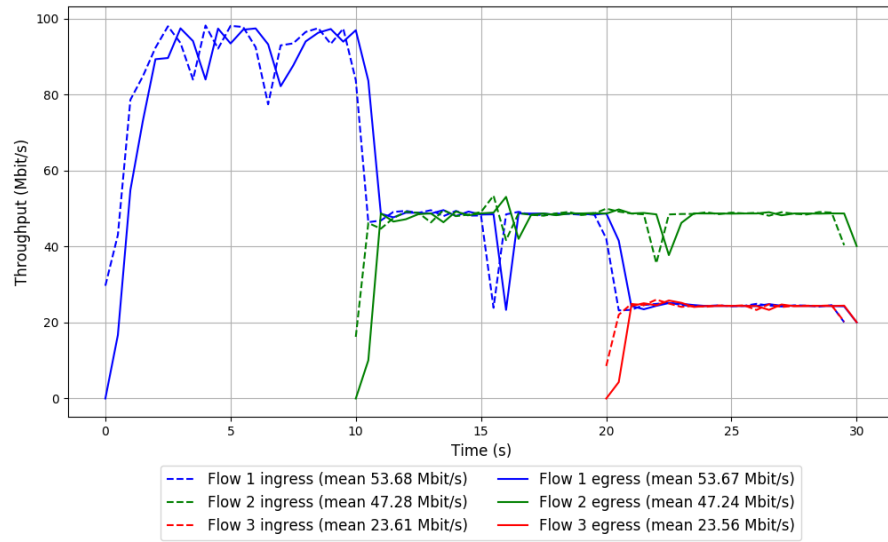Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-10 05:58:37
End at: 2018-10-10 05:59:07
Local clock offset: 0.628 ms
Remote clock offset: -3.665 ms


# Below is generated by plot.py at 2018-10-10 06:10:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.86 Mbit/s
95th percentile per-packet one-way delay: 1611.876 ms
Loss rate: 30.41%
-- Flow 1:
Average throughput: 48.56 Mbit/s
95th percentile per-packet one-way delay: 828.444 ms
Loss rate: 37.18%
-- Flow 2:
Average throughput: 33.26 Mbit/s
95th percentile per-packet one-way delay: 1635.843 ms
Loss rate: 19.22%
-- Flow 3:
Average throughput: 21.85 Mbit/s
95th percentile per-packet one-way delay: 112.526 ms
Loss rate: 0.31%
```

Run 5: Report of PCC-Expr — Data Link

- Flow 1 ingress (mean 77.22 Mbit/s)
- Flow 1 egress (mean 48.56 Mbit/s)
- Flow 2 ingress (mean 41.10 Mbit/s)
- Flow 2 egress (mean 33.26 Mbit/s)
- Flow 3 ingress (mean 21.86 Mbit/s)
- Flow 3 egress (mean 21.85 Mbit/s)

- Flow 1 (95th percentile 828.44 ms)
- Flow 2 (95th percentile 1635.84 ms)
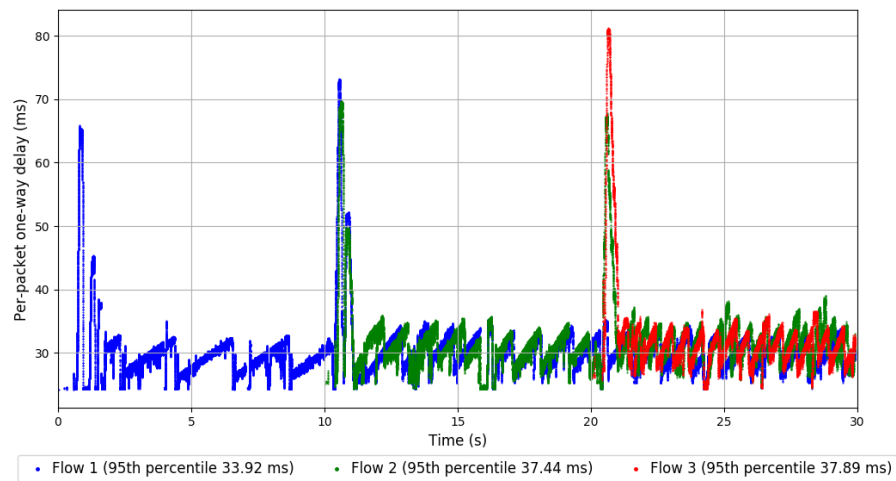- Flow 3 (95th percentile 112.53 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-10 04:08:52
End at: 2018-10-10 04:09:22
Local clock offset: 0.987 ms
Remote clock offset: -4.767 ms


# Below is generated by plot.py at 2018-10-10 06:10:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.73 Mbit/s
95th percentile per-packet one-way delay: 30.713 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 62.12 Mbit/s
95th percentile per-packet one-way delay: 30.480 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 35.90 Mbit/s
95th percentile per-packet one-way delay: 30.863 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 23.43 Mbit/s
95th percentile per-packet one-way delay: 39.032 ms
Loss rate: 0.49%
```
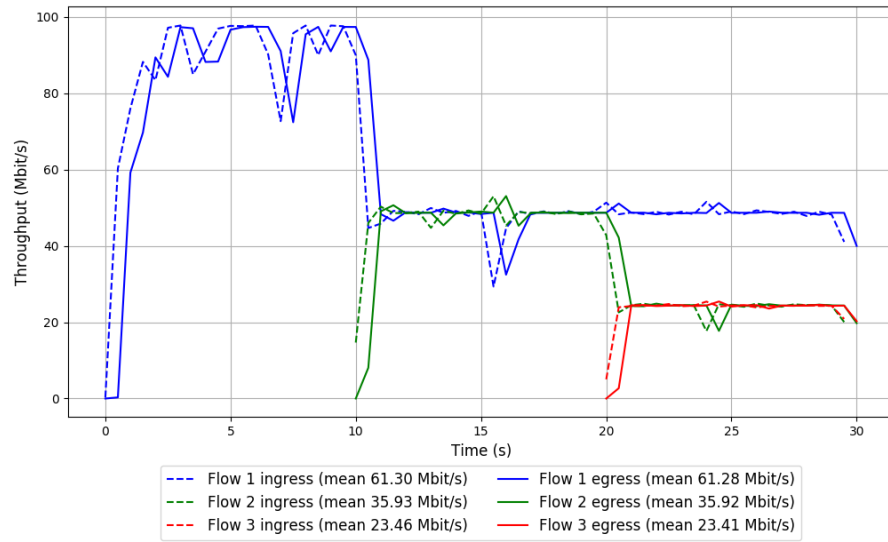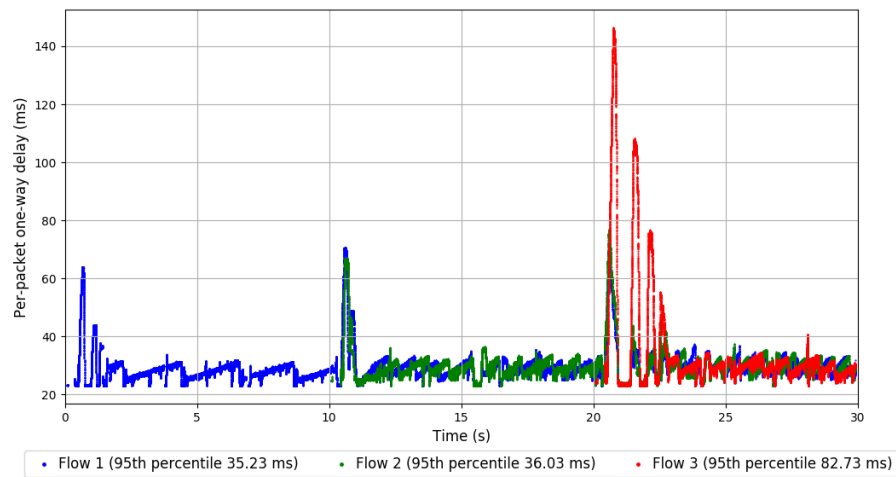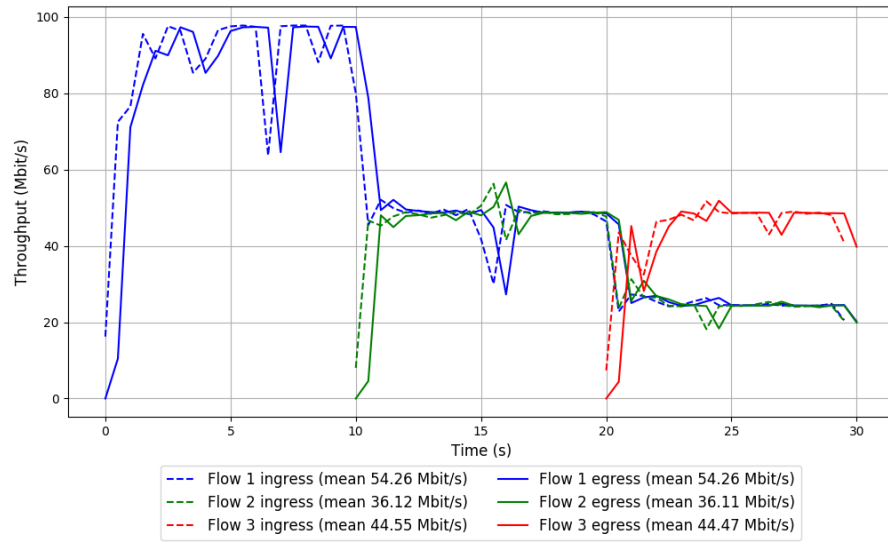
Run 1: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 62.14 Mbit/s) —— Flow 1 egress (mean 62.12 Mbit/s)
- - - Flow 2 ingress (mean 35.92 Mbit/s) —— Flow 2 egress (mean 35.90 Mbit/s)
- - - Flow 3 ingress (mean 23.48 Mbit/s) —— Flow 3 egress (mean 23.43 Mbit/s)

• Flow 1 (95th percentile 30.48 ms)   • Flow 2 (95th percentile 30.86 ms)   • Flow 3 (95th percentile 39.03 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-10 04:31:07
End at: 2018-10-10 04:31:37
Local clock offset: 0.91 ms
Remote clock offset: -3.635 ms


# Below is generated by plot.py at 2018-10-10 06:10:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.84 Mbit/s
95th percentile per-packet one-way delay: 30.049 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 57.07 Mbit/s
95th percentile per-packet one-way delay: 30.760 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 39.88 Mbit/s
95th percentile per-packet one-way delay: 29.443 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 31.11 Mbit/s
95th percentile per-packet one-way delay: 30.277 ms
Loss rate: 0.45%
```
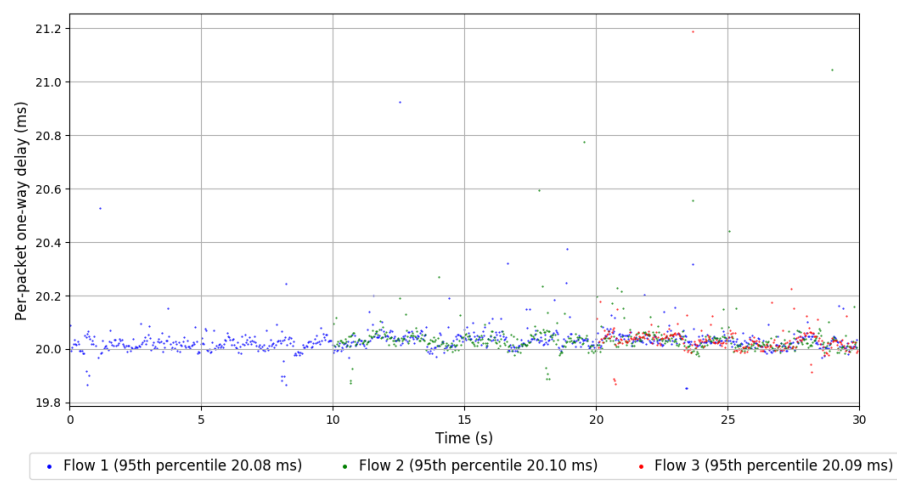
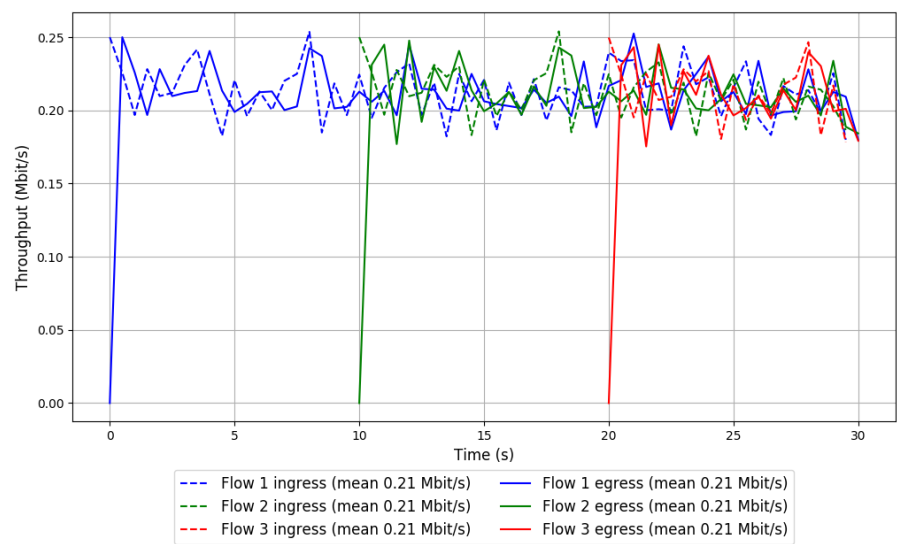Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-10 04:53:45
End at: 2018-10-10 04:54:15
Local clock offset: 1.369 ms
Remote clock offset: -4.654 ms


# Below is generated by plot.py at 2018-10-10 06:10:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.87 Mbit/s
95th percentile per-packet one-way delay: 32.096 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 53.67 Mbit/s
95th percentile per-packet one-way delay: 33.254 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 47.24 Mbit/s
95th percentile per-packet one-way delay: 30.580 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 23.56 Mbit/s
95th percentile per-packet one-way delay: 41.163 ms
Loss rate: 0.48%
```

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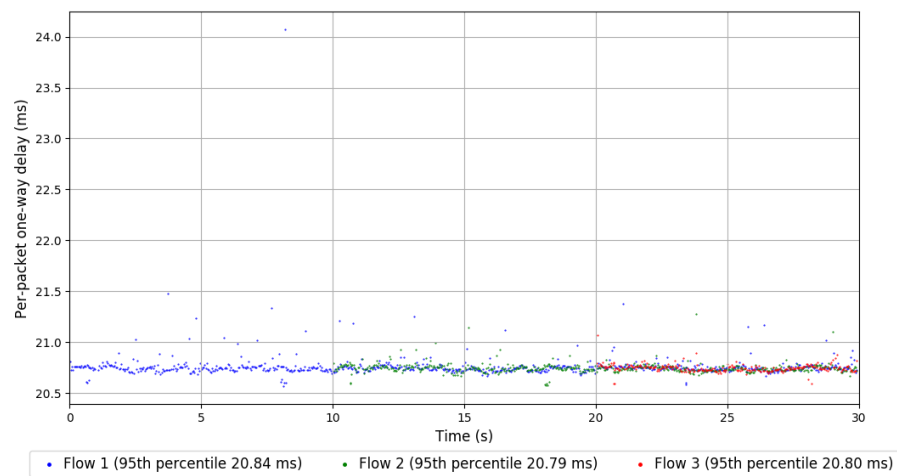
```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-10 05:15:48
End at: 2018-10-10 05:16:18
Local clock offset: 1.856 ms
Remote clock offset: -3.483 ms


# Below is generated by plot.py at 2018-10-10 06:10:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.90 Mbit/s
95th percentile per-packet one-way delay: 35.162 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 61.28 Mbit/s
95th percentile per-packet one-way delay: 33.917 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 35.92 Mbit/s
95th percentile per-packet one-way delay: 37.440 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 23.41 Mbit/s
95th percentile per-packet one-way delay: 37.893 ms
Loss rate: 0.53%
```
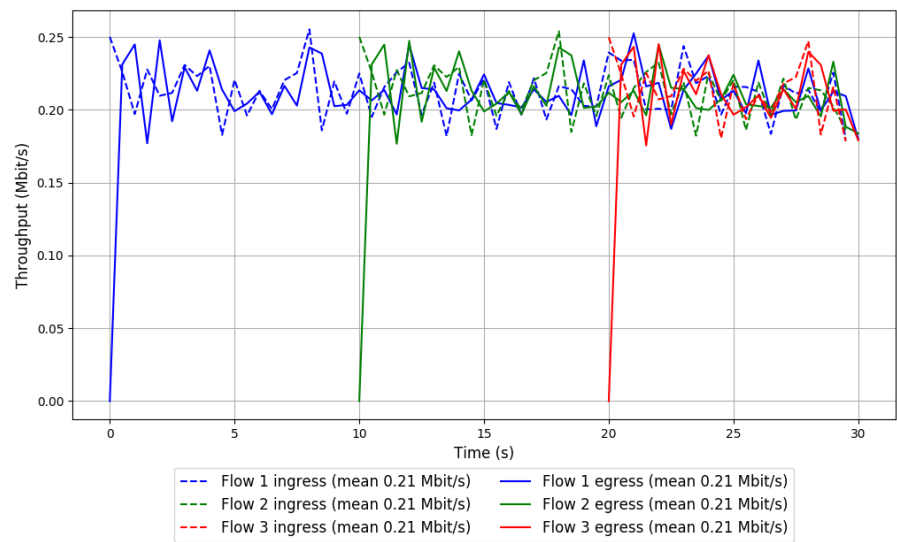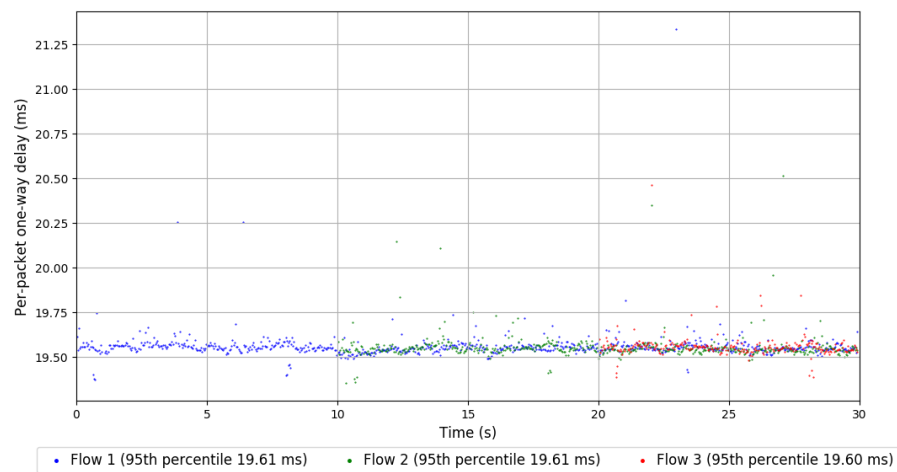
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 61.30 Mbit/s) --- Flow 1 egress (mean 61.28 Mbit/s)
Flow 2 ingress (mean 35.93 Mbit/s) --- Flow 2 egress (mean 35.92 Mbit/s)
Flow 3 ingress (mean 23.46 Mbit/s) --- Flow 3 egress (mean 23.41 Mbit/s)

Flow 1 (95th percentile 33.92 ms)   Flow 2 (95th percentile 37.44 ms)   Flow 3 (95th percentile 37.89 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-10 05:38:18
End at: 2018-10-10 05:38:48
Local clock offset: 0.792 ms
Remote clock offset: -3.062 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.95 Mbit/s
95th percentile per-packet one-way delay: 39.621 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 54.26 Mbit/s
95th percentile per-packet one-way delay: 35.227 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 36.11 Mbit/s
95th percentile per-packet one-way delay: 36.027 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 44.47 Mbit/s
95th percentile per-packet one-way delay: 82.732 ms
Loss rate: 0.49%
```
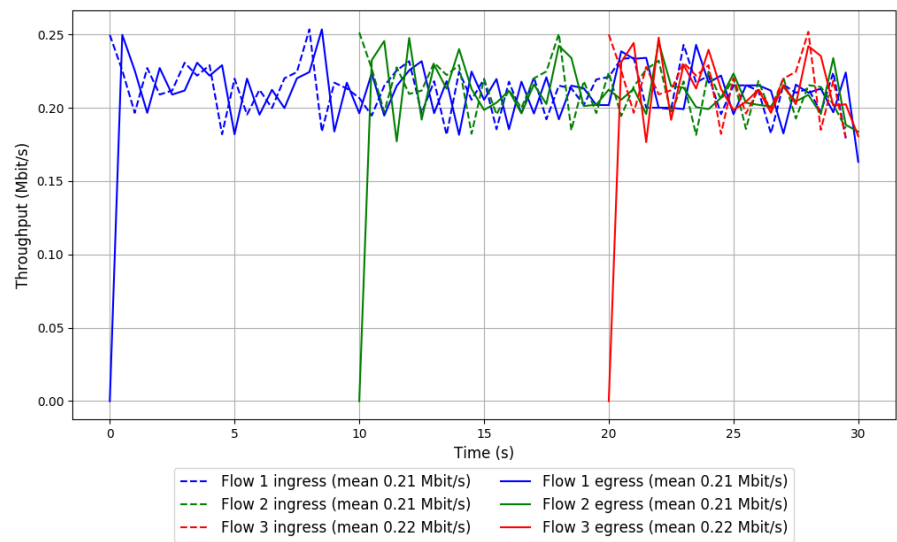
Run 5: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 54.26 Mbit/s) ——— Flow 1 egress (mean 54.26 Mbit/s)
- - - Flow 2 ingress (mean 36.12 Mbit/s) ——— Flow 2 egress (mean 36.11 Mbit/s)
- - - Flow 3 ingress (mean 44.55 Mbit/s) ——— Flow 3 egress (mean 44.47 Mbit/s)

• Flow 1 (95th percentile 35.23 ms)   • Flow 2 (95th percentile 36.03 ms)   • Flow 3 (95th percentile 82.73 ms)
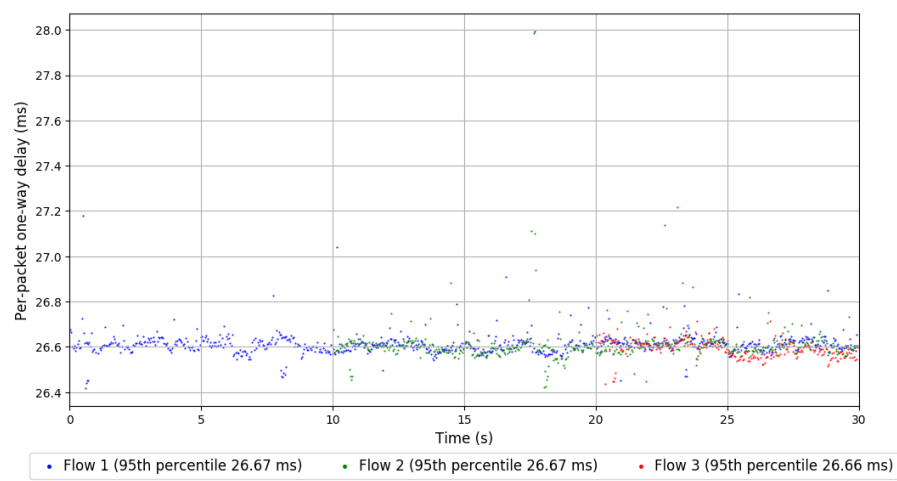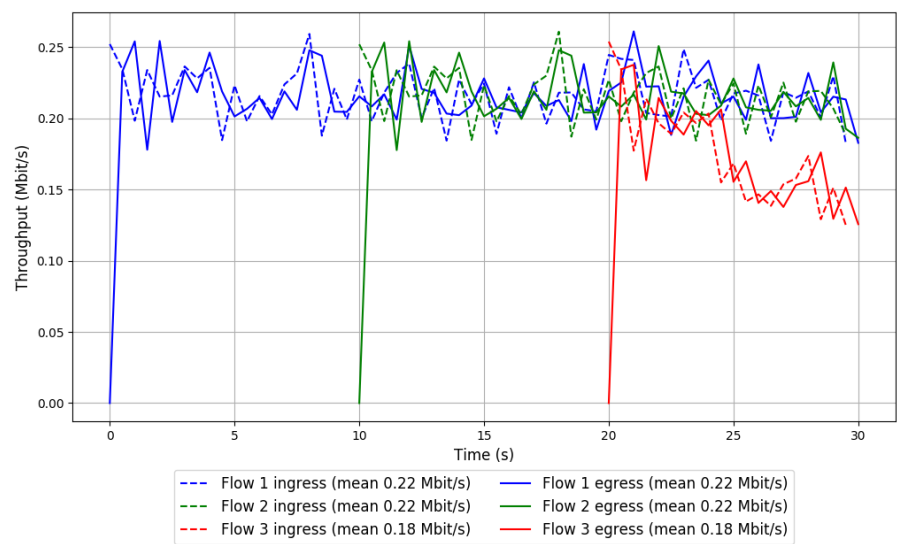
```
Run 1: Statistics of SCReAM

Start at: 2018-10-10 04:18:48
End at: 2018-10-10 04:19:18
Local clock offset: 2.672 ms
Remote clock offset: -3.183 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.087 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.080 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.097 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.094 ms
Loss rate: 0.35%
```
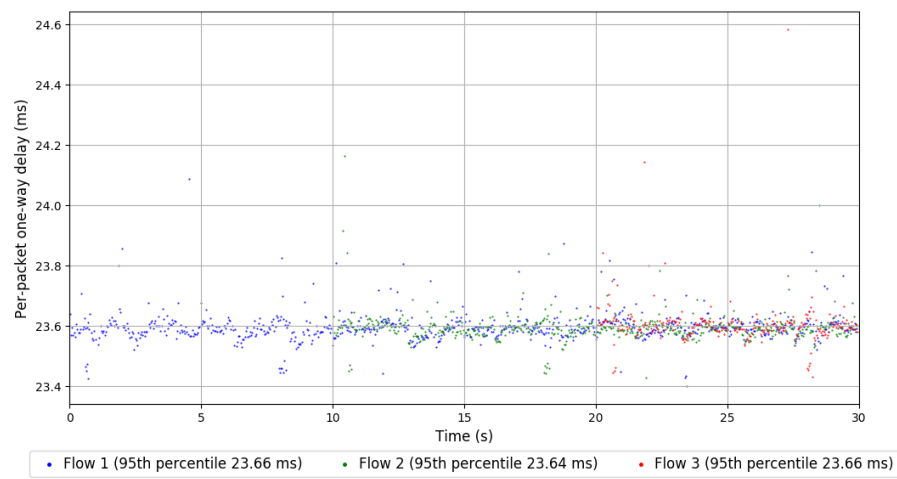
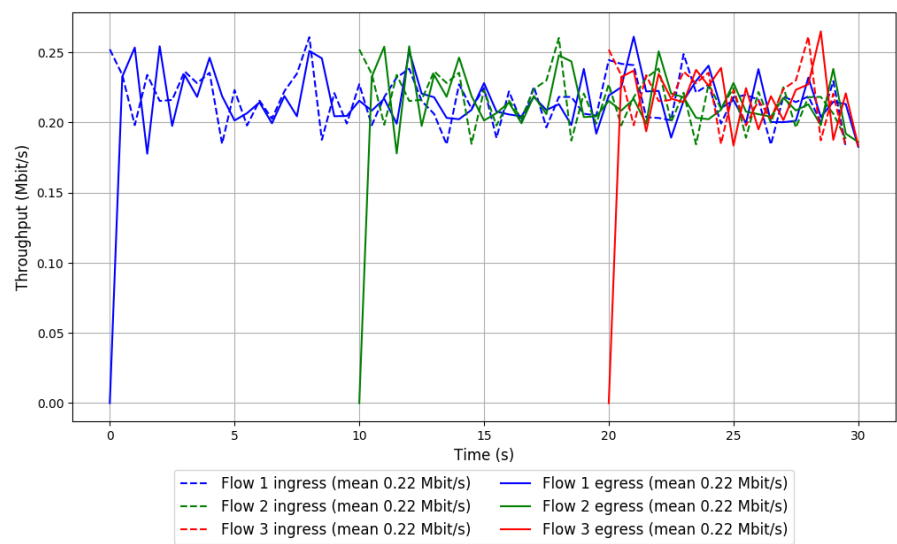# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-10-10 04:41:10
End at: 2018-10-10 04:41:40
Local clock offset: 2.881 ms
Remote clock offset: -3.979 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.814 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.840 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.792 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.805 ms
Loss rate: 0.36%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-10 05:03:23
End at: 2018-10-10 05:03:53
Local clock offset: 2.01 ms
Remote clock offset: -4.296 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 19.611 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 19.614 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 19.607 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.602 ms
Loss rate: 0.35%
```
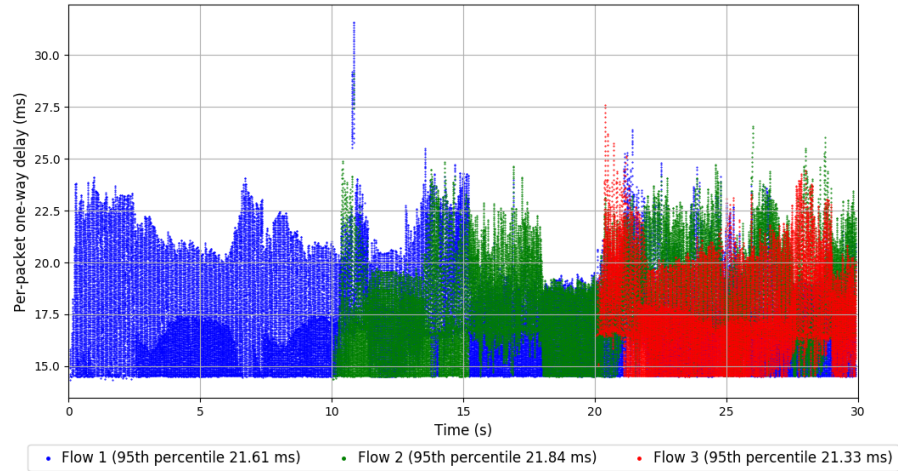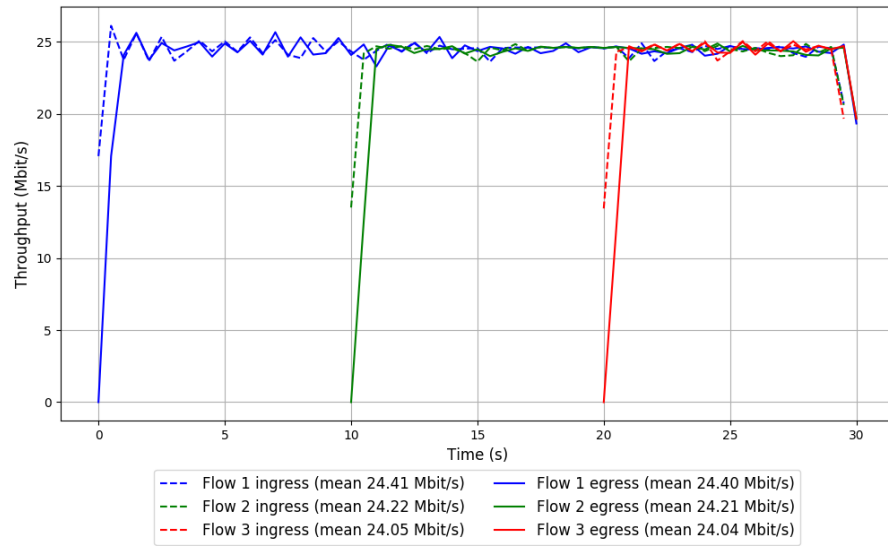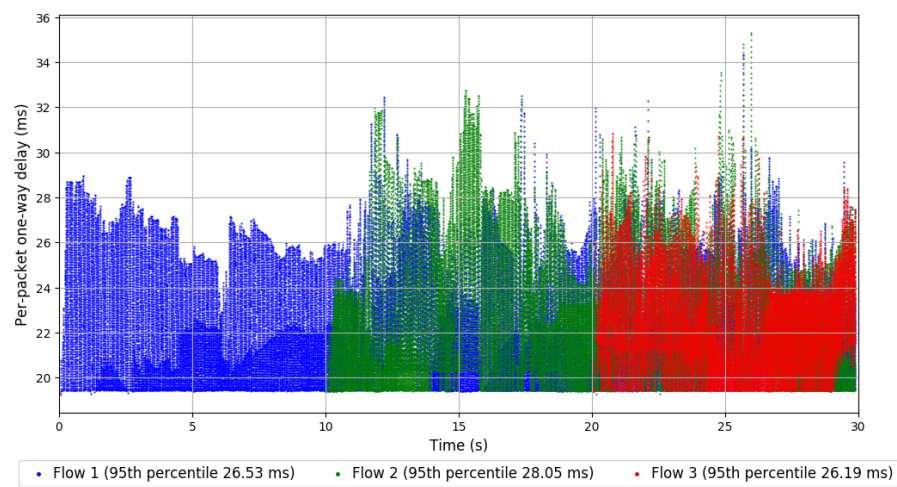
Run 3: Report of SCReAM — Data Link

- Flow 1 ingress (mean 0.21 Mbit/s)
- Flow 1 egress (mean 0.21 Mbit/s)
- Flow 2 ingress (mean 0.21 Mbit/s)
- Flow 2 egress (mean 0.21 Mbit/s)
- Flow 3 ingress (mean 0.22 Mbit/s)
- Flow 3 egress (mean 0.22 Mbit/s)

- Flow 1 (95th percentile 19.61 ms)
- Flow 2 (95th percentile 19.61 ms)
- Flow 3 (95th percentile 19.60 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-10-10 05:25:45
End at: 2018-10-10 05:26:15
Local clock offset: 3.848 ms
Remote clock offset: -3.714 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 26.667 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 26.667 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 26.669 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 26.663 ms
Loss rate: 0.83%
```
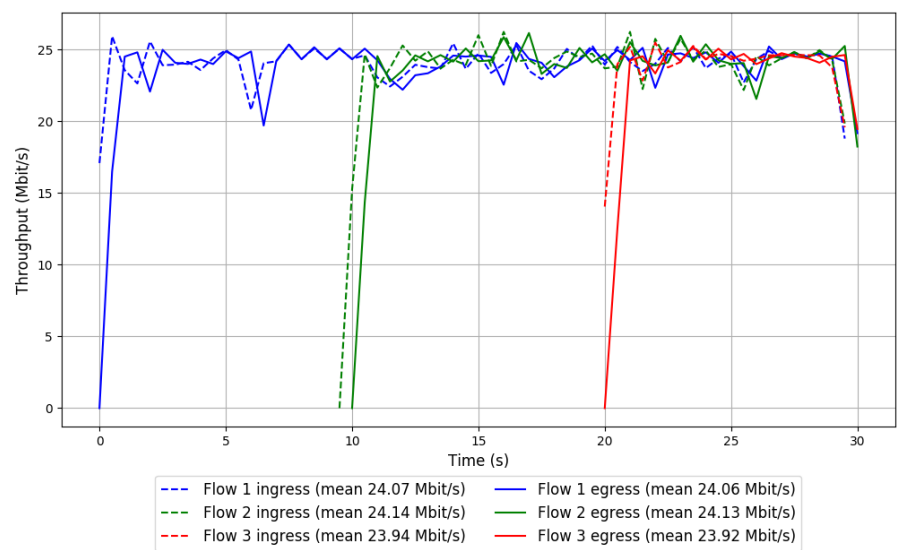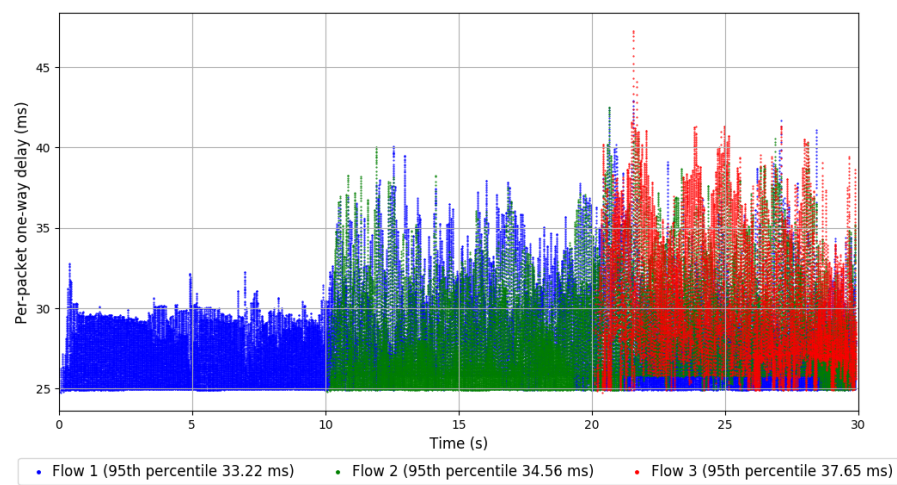
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-10 05:48:21
End at: 2018-10-10 05:48:51
Local clock offset: 0.618 ms
Remote clock offset: -3.802 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 23.654 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 23.655 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 23.644 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 23.665 ms
Loss rate: 0.35%
```
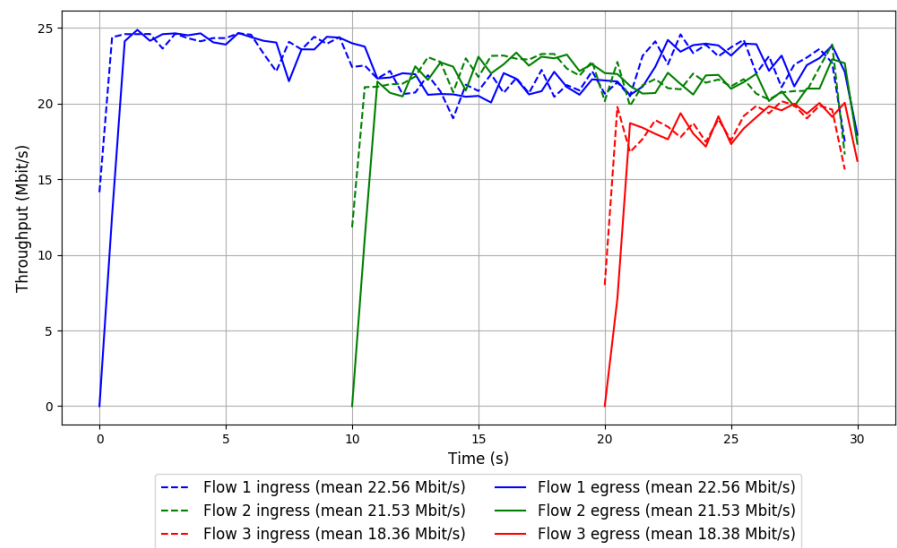
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-10-10 04:23:39
End at: 2018-10-10 04:24:09
Local clock offset: 0.23 ms
Remote clock offset: 0.027 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.42 Mbit/s
95th percentile per-packet one-way delay: 21.664 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 24.40 Mbit/s
95th percentile per-packet one-way delay: 21.607 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 24.21 Mbit/s
95th percentile per-packet one-way delay: 21.841 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 24.04 Mbit/s
95th percentile per-packet one-way delay: 21.330 ms
Loss rate: 0.18%
```
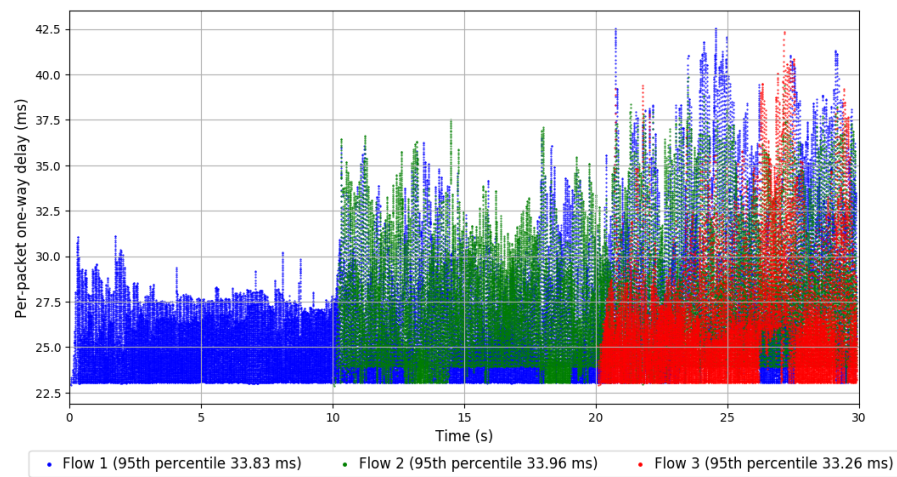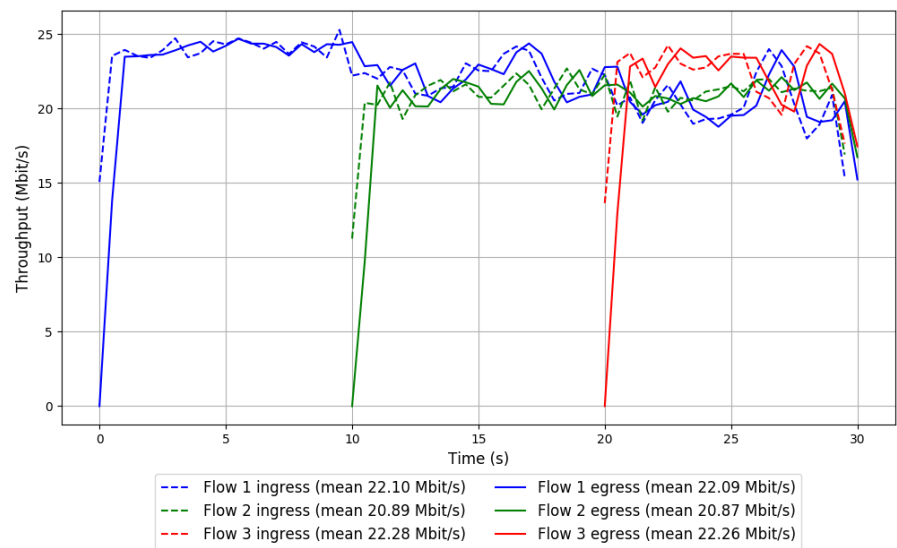
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-10 04:46:04
End at: 2018-10-10 04:46:34
Local clock offset: 1.047 ms
Remote clock offset: -4.473 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.00 Mbit/s
95th percentile per-packet one-way delay: 27.026 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 24.06 Mbit/s
95th percentile per-packet one-way delay: 26.534 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 24.13 Mbit/s
95th percentile per-packet one-way delay: 28.051 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 23.92 Mbit/s
95th percentile per-packet one-way delay: 26.191 ms
Loss rate: 0.24%
```
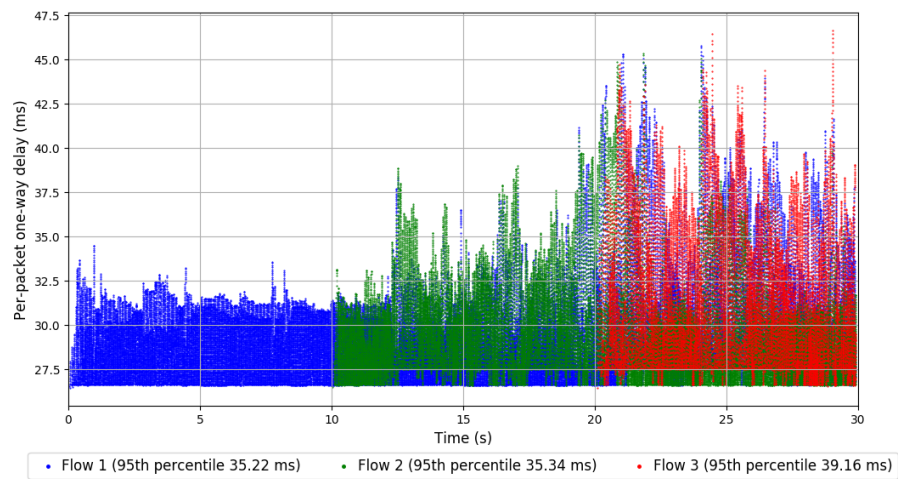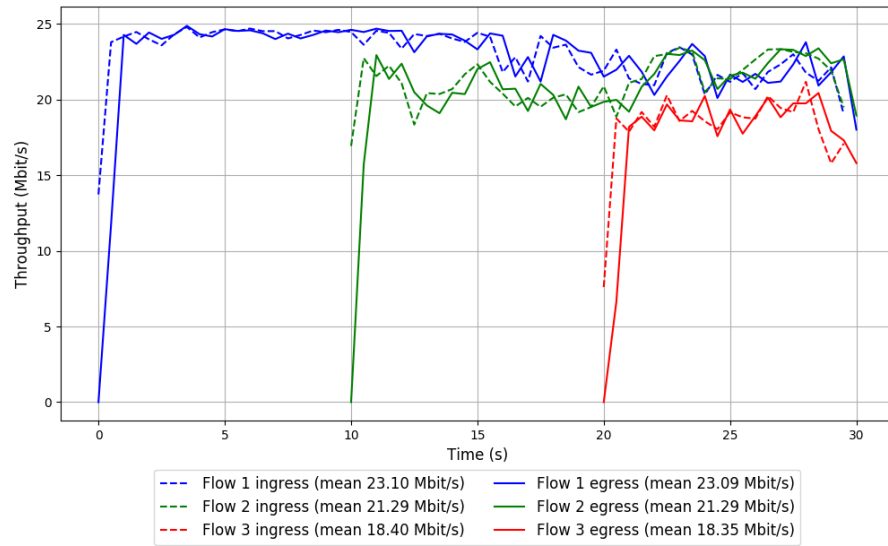
Run 2: Report of Sprout — Data Link

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```
Run 3: Statistics of Sprout

Start at: 2018-10-10 05:08:23
End at: 2018-10-10 05:08:53
Local clock offset: 1.831 ms
Remote clock offset: -3.937 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.93 Mbit/s
95th percentile per-packet one-way delay: 34.857 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 22.56 Mbit/s
95th percentile per-packet one-way delay: 33.221 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 21.53 Mbit/s
95th percentile per-packet one-way delay: 34.558 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 18.38 Mbit/s
95th percentile per-packet one-way delay: 37.652 ms
Loss rate: 0.06%
```
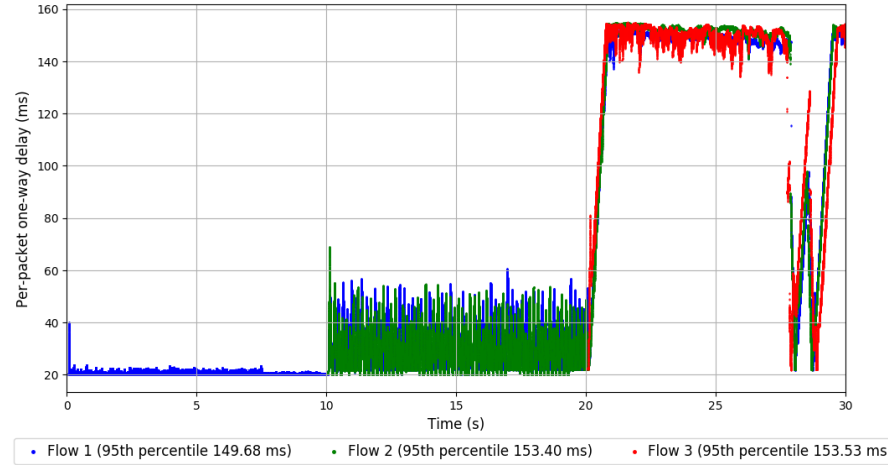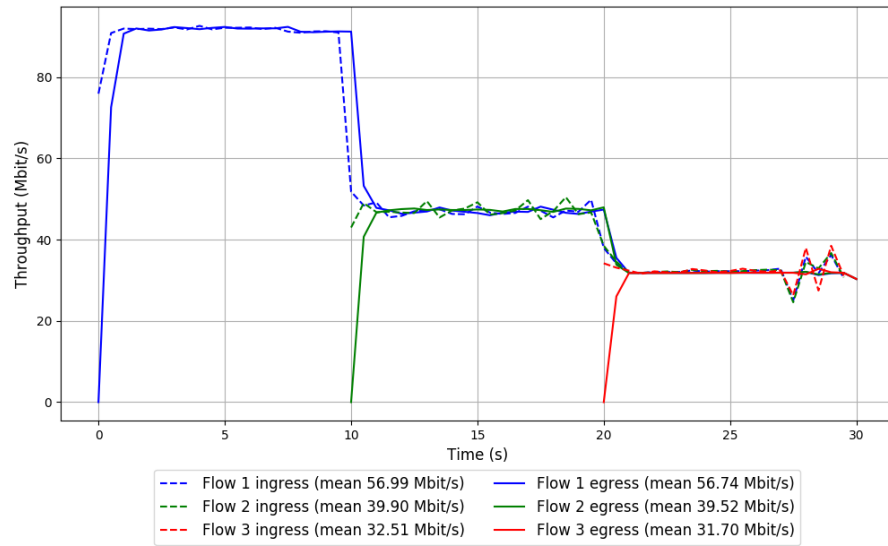
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-10 05:30:41
End at: 2018-10-10 05:31:11
Local clock offset: 0.43 ms
Remote clock offset: -3.442 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.31 Mbit/s
95th percentile per-packet one-way delay: 33.815 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 22.09 Mbit/s
95th percentile per-packet one-way delay: 33.830 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 20.87 Mbit/s
95th percentile per-packet one-way delay: 33.957 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 22.26 Mbit/s
95th percentile per-packet one-way delay: 33.264 ms
Loss rate: 0.30%
```
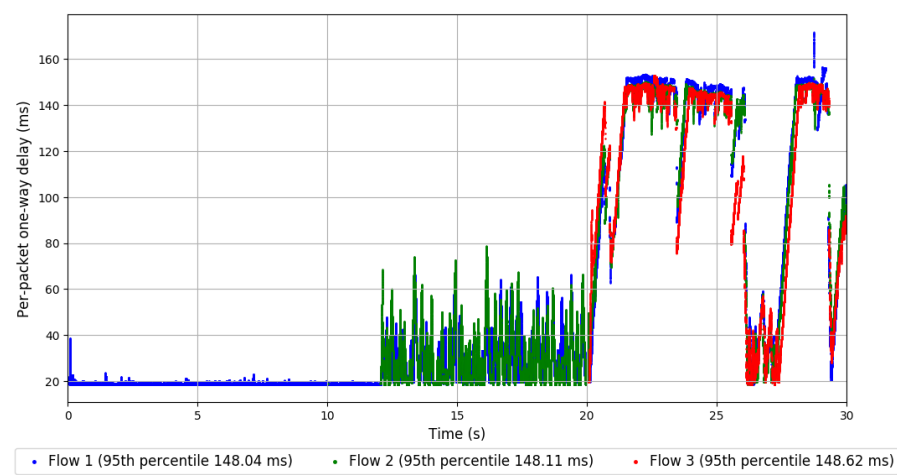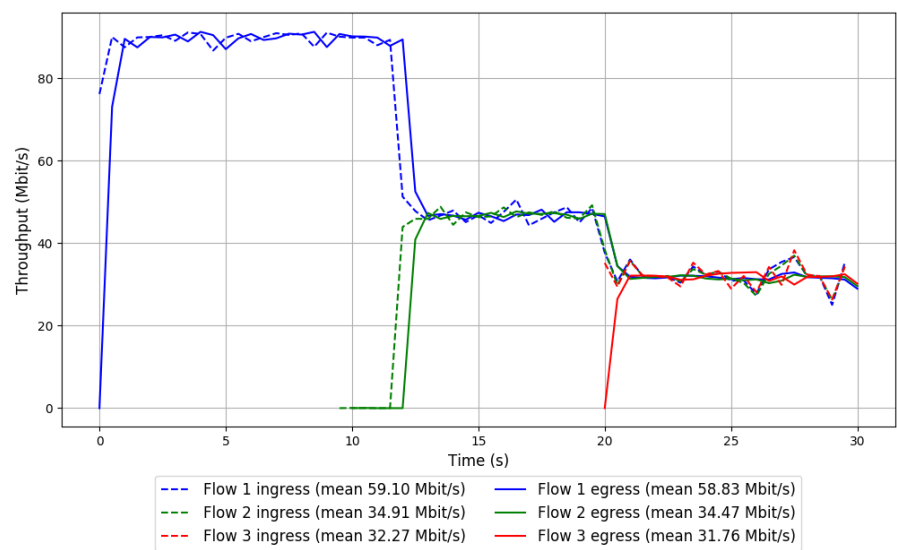
Run 4: Report of Sprout — Data Link

Flow 1 ingress (mean 22.10 Mbit/s) — Flow 1 egress (mean 22.09 Mbit/s)
Flow 2 ingress (mean 20.89 Mbit/s) — Flow 2 egress (mean 20.87 Mbit/s)
Flow 3 ingress (mean 22.28 Mbit/s) — Flow 3 egress (mean 22.26 Mbit/s)

Flow 1 (95th percentile 33.83 ms)　　Flow 2 (95th percentile 33.96 ms)　　Flow 3 (95th percentile 33.26 ms)

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```
Run 5: Statistics of Sprout

Start at: 2018-10-10 05:53:19
End at: 2018-10-10 05:53:49
Local clock offset: 3.483 ms
Remote clock offset: -3.981 ms


# Below is generated by plot.py at 2018-10-10 06:10:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.30 Mbit/s
95th percentile per-packet one-way delay: 36.355 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 23.09 Mbit/s
95th percentile per-packet one-way delay: 35.222 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 21.29 Mbit/s
95th percentile per-packet one-way delay: 35.335 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 18.35 Mbit/s
95th percentile per-packet one-way delay: 39.159 ms
Loss rate: 0.48%
```
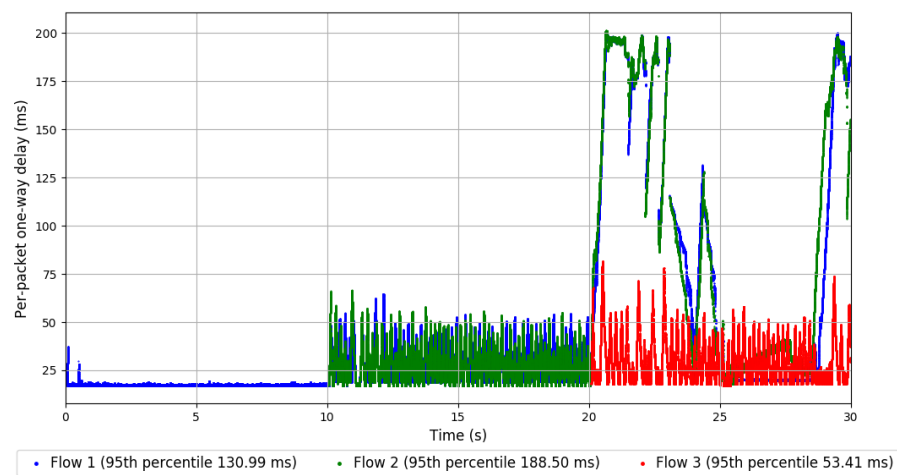
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 23.10 Mbit/s)   Flow 1 egress (mean 23.09 Mbit/s)
Flow 2 ingress (mean 21.29 Mbit/s)   Flow 2 egress (mean 21.29 Mbit/s)
Flow 3 ingress (mean 18.40 Mbit/s)   Flow 3 egress (mean 18.35 Mbit/s)

Flow 1 (95th percentile 35.22 ms)   Flow 2 (95th percentile 35.34 ms)   Flow 3 (95th percentile 39.16 ms)
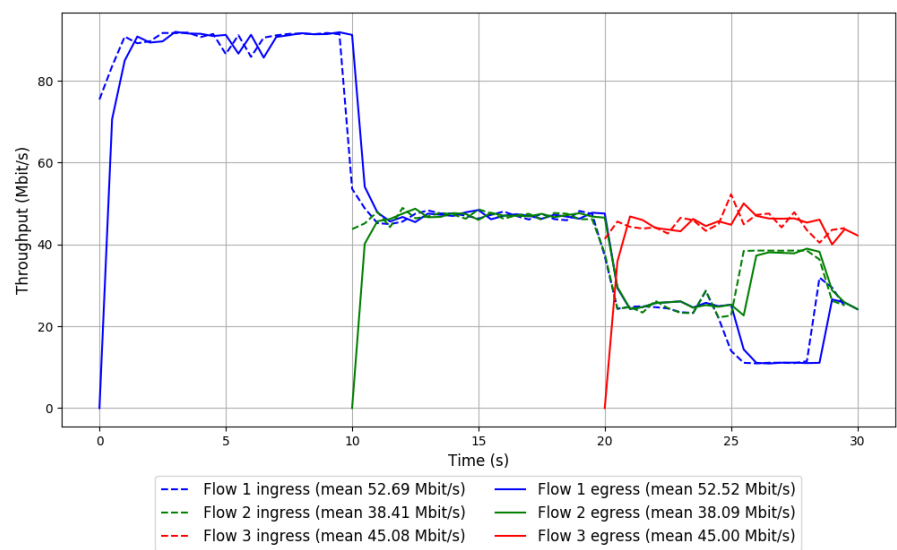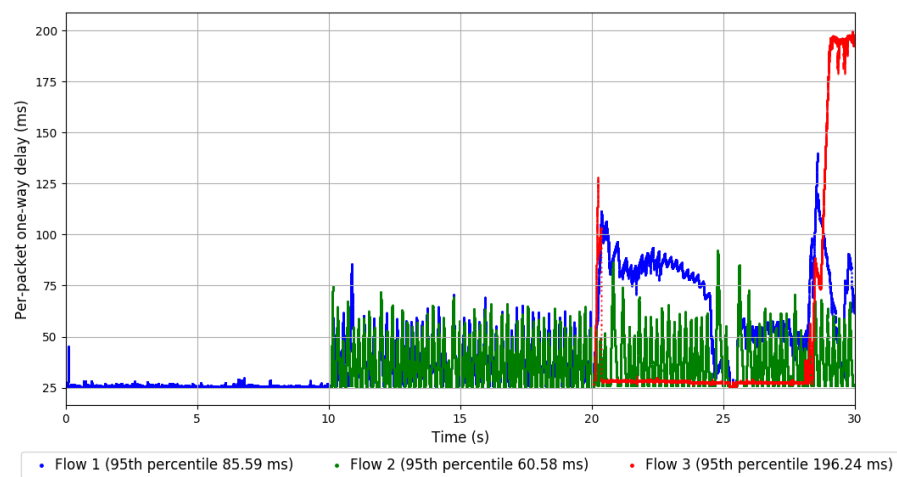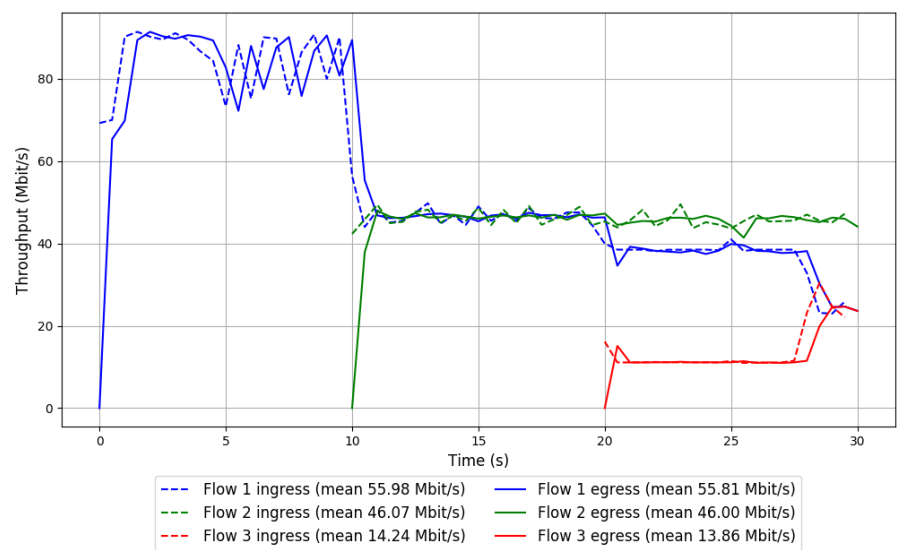
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-10-10 04:10:04
End at: 2018-10-10 04:10:34
Local clock offset: 0.891 ms
Remote clock offset: -5.137 ms


# Below is generated by plot.py at 2018-10-10 06:12:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.58 Mbit/s
95th percentile per-packet one-way delay: 152.529 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 56.74 Mbit/s
95th percentile per-packet one-way delay: 149.675 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 39.52 Mbit/s
95th percentile per-packet one-way delay: 153.398 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 31.70 Mbit/s
95th percentile per-packet one-way delay: 153.534 ms
Loss rate: 2.74%
```

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

Flow 1 ingress (mean 56.99 Mbit/s) --- Flow 1 egress (mean 56.74 Mbit/s)
Flow 2 ingress (mean 39.90 Mbit/s) --- Flow 2 egress (mean 39.52 Mbit/s)
Flow 3 ingress (mean 32.51 Mbit/s) --- Flow 3 egress (mean 31.70 Mbit/s)

Flow 1 (95th percentile 149.68 ms) • Flow 2 (95th percentile 153.40 ms) • Flow 3 (95th percentile 153.53 ms)
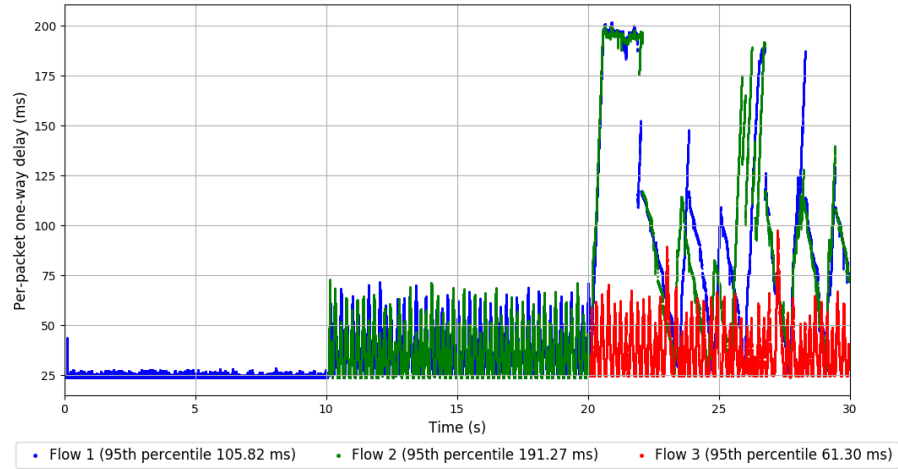
```
Run 2: Statistics of TaoVA-100x

Start at: 2018-10-10 04:32:23
End at: 2018-10-10 04:32:53
Local clock offset: 1.053 ms
Remote clock offset: -3.502 ms


# Below is generated by plot.py at 2018-10-10 06:12:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.34 Mbit/s
95th percentile per-packet one-way delay: 148.240 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 58.83 Mbit/s
95th percentile per-packet one-way delay: 148.040 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 34.47 Mbit/s
95th percentile per-packet one-way delay: 148.112 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 31.76 Mbit/s
95th percentile per-packet one-way delay: 148.617 ms
Loss rate: 1.84%
```

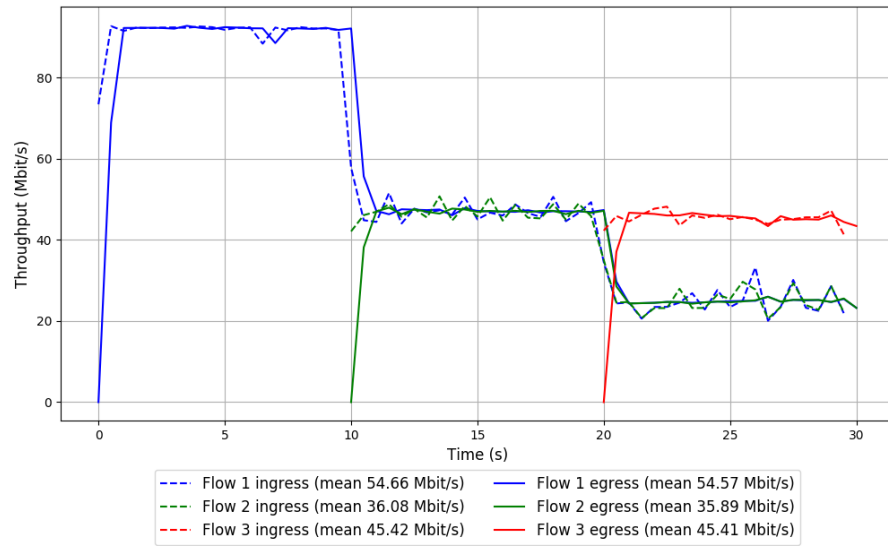# Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-10 04:54:59
End at: 2018-10-10 04:55:29
Local clock offset: -0.205 ms
Remote clock offset: -3.449 ms


# Below is generated by plot.py at 2018-10-10 06:12:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.82 Mbit/s
95th percentile per-packet one-way delay: 160.040 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 52.52 Mbit/s
95th percentile per-packet one-way delay: 130.985 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 38.09 Mbit/s
95th percentile per-packet one-way delay: 188.502 ms
Loss rate: 0.99%
-- Flow 3:
Average throughput: 45.00 Mbit/s
95th percentile per-packet one-way delay: 53.412 ms
Loss rate: 0.45%
```

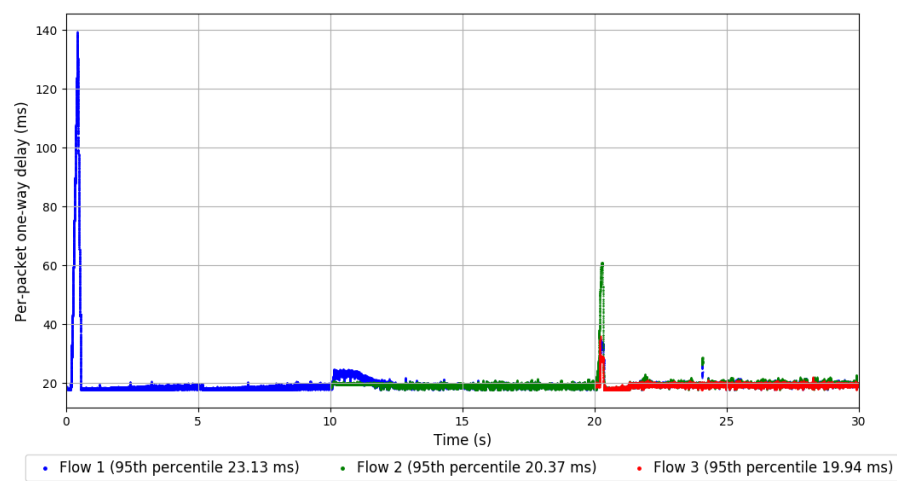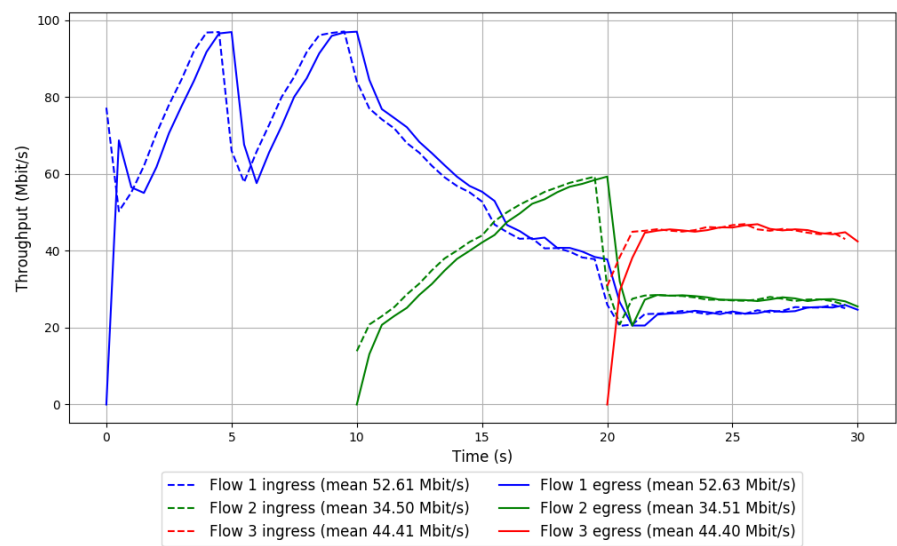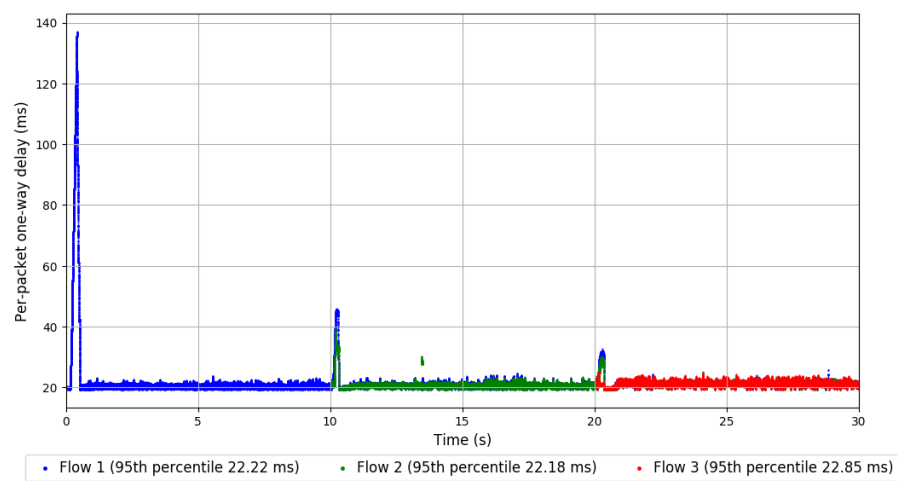Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-10 05:17:03
End at: 2018-10-10 05:17:33
Local clock offset: 2.098 ms
Remote clock offset: -4.139 ms


# Below is generated by plot.py at 2018-10-10 06:12:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.02 Mbit/s
95th percentile per-packet one-way delay: 84.657 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 55.81 Mbit/s
95th percentile per-packet one-way delay: 85.589 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 46.00 Mbit/s
95th percentile per-packet one-way delay: 60.581 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 13.86 Mbit/s
95th percentile per-packet one-way delay: 196.242 ms
Loss rate: 3.04%
```

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

Flow 1 ingress (mean 55.98 Mbit/s)   Flow 1 egress (mean 55.81 Mbit/s)
Flow 2 ingress (mean 46.07 Mbit/s)   Flow 2 egress (mean 46.00 Mbit/s)
Flow 3 ingress (mean 14.24 Mbit/s)   Flow 3 egress (mean 13.86 Mbit/s)

Flow 1 (95th percentile 85.59 ms)   Flow 2 (95th percentile 60.58 ms)   Flow 3 (95th percentile 196.24 ms)
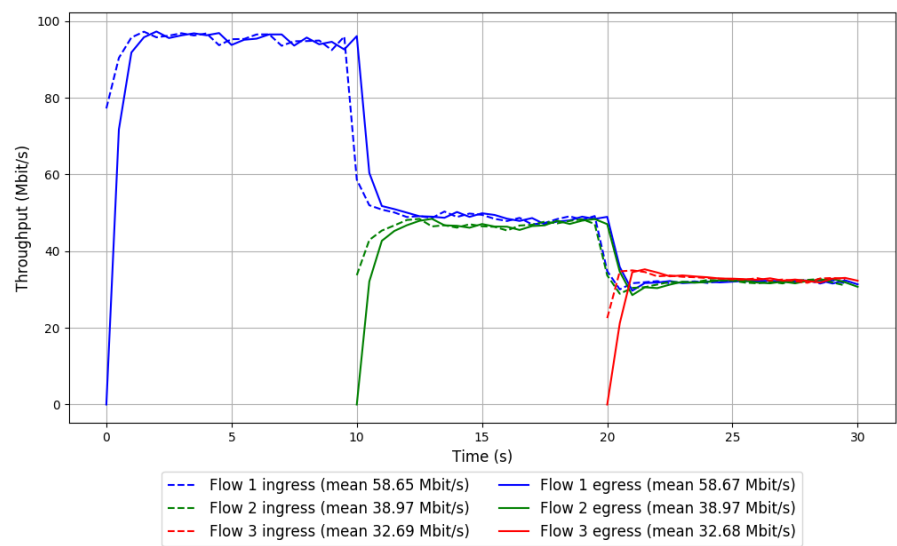
```
Run 5: Statistics of TaoVA-100x

Start at: 2018-10-10 05:39:32
End at: 2018-10-10 05:40:02
Local clock offset: 0.519 ms
Remote clock offset: -3.949 ms


# Below is generated by plot.py at 2018-10-10 06:12:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.54 Mbit/s
95th percentile per-packet one-way delay: 113.131 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 54.57 Mbit/s
95th percentile per-packet one-way delay: 105.816 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 35.89 Mbit/s
95th percentile per-packet one-way delay: 191.272 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 45.41 Mbit/s
95th percentile per-packet one-way delay: 61.295 ms
Loss rate: 0.35%
```
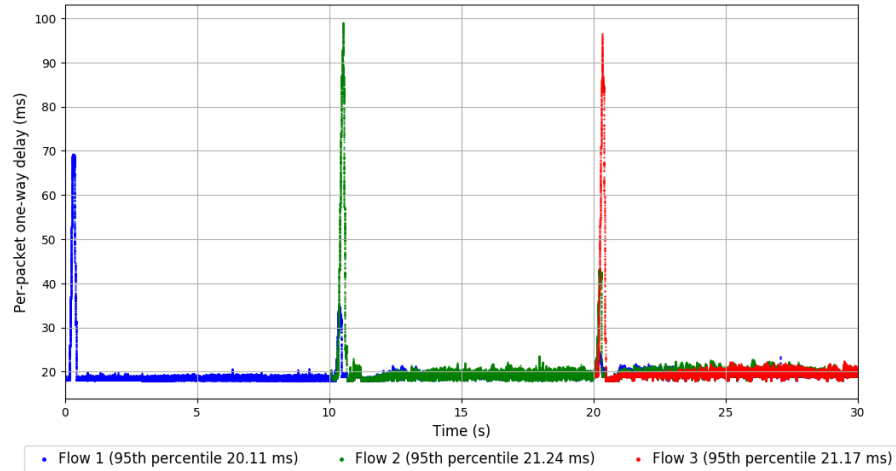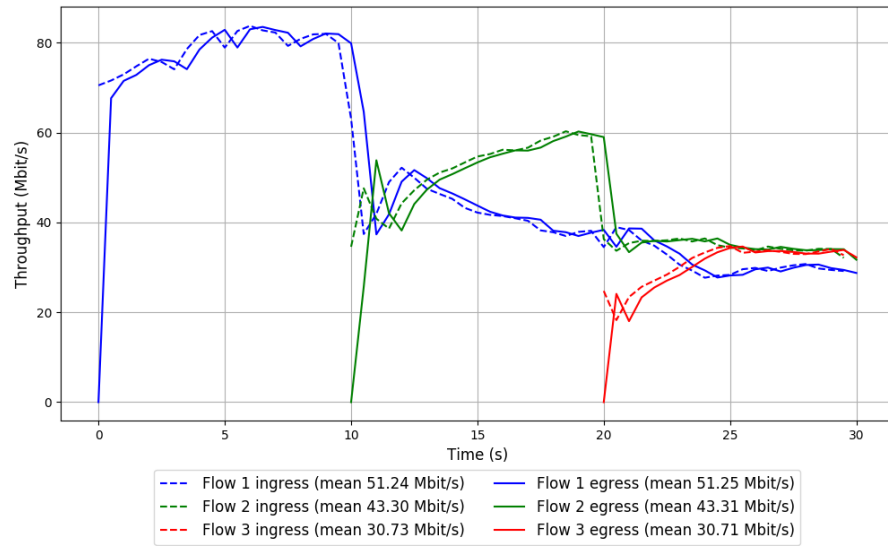
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-10 04:12:34
End at: 2018-10-10 04:13:04
Local clock offset: 0.919 ms
Remote clock offset: -2.778 ms


# Below is generated by plot.py at 2018-10-10 06:12:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.33 Mbit/s
95th percentile per-packet one-way delay: 22.070 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 52.63 Mbit/s
95th percentile per-packet one-way delay: 23.134 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.51 Mbit/s
95th percentile per-packet one-way delay: 20.372 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 44.40 Mbit/s
95th percentile per-packet one-way delay: 19.938 ms
Loss rate: 0.27%
```
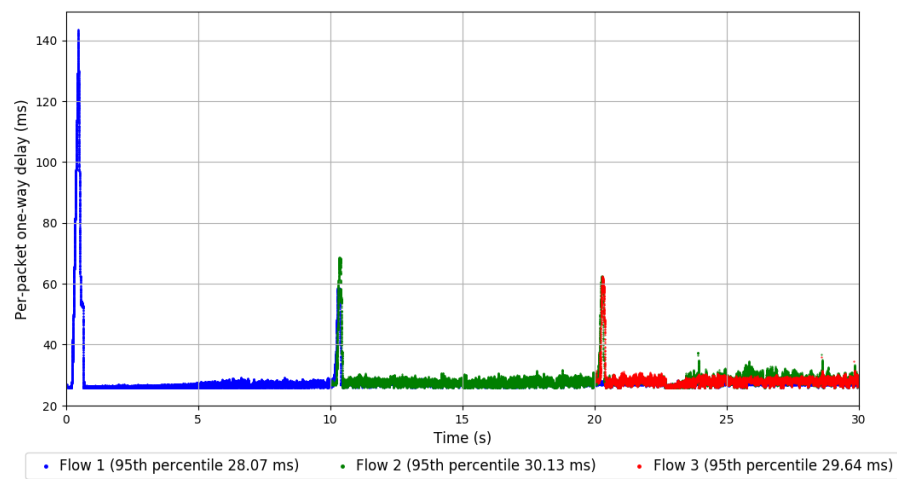
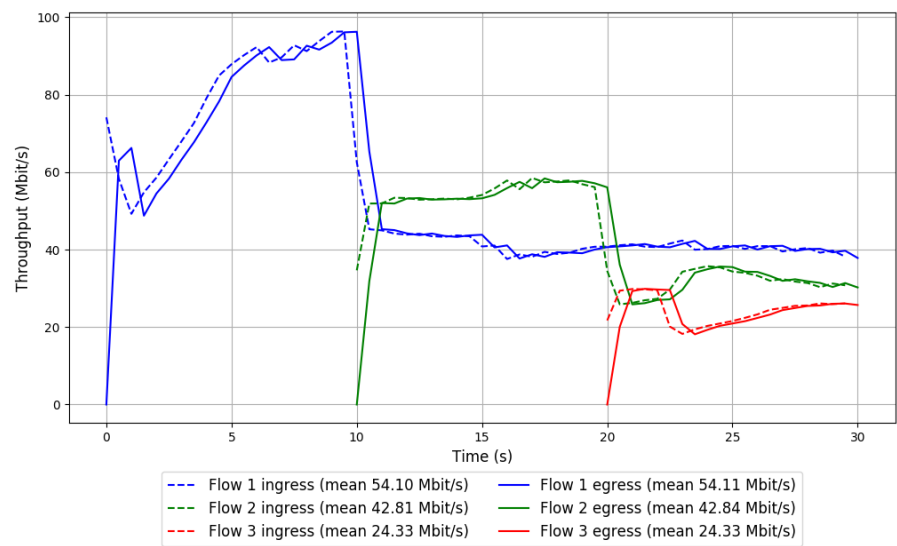Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-10 04:34:57
End at: 2018-10-10 04:35:27
Local clock offset: 1.025 ms
Remote clock offset: -4.391 ms


# Below is generated by plot.py at 2018-10-10 06:12:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.46 Mbit/s
95th percentile per-packet one-way delay: 22.415 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 58.67 Mbit/s
95th percentile per-packet one-way delay: 22.220 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 38.97 Mbit/s
95th percentile per-packet one-way delay: 22.183 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.68 Mbit/s
95th percentile per-packet one-way delay: 22.852 ms
Loss rate: 0.29%
```

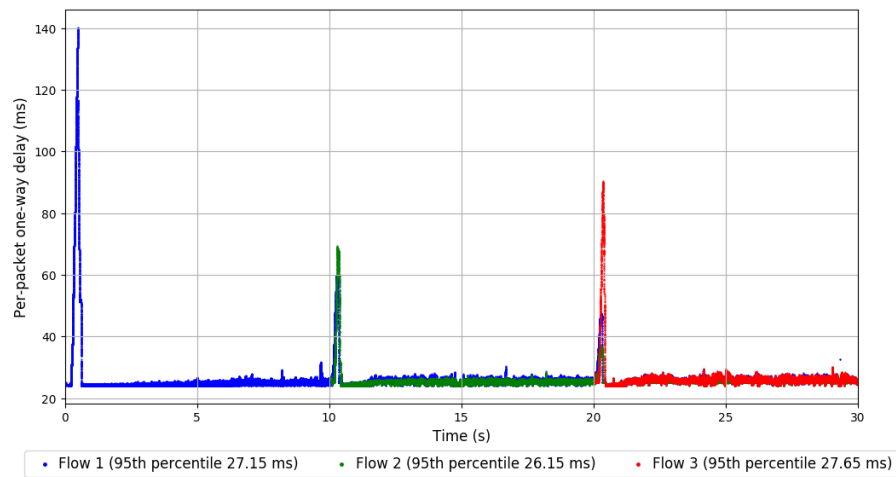## Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-10 04:57:24
End at: 2018-10-10 04:57:54
Local clock offset: -0.383 ms
Remote clock offset: -4.815 ms


# Below is generated by plot.py at 2018-10-10 06:12:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.27 Mbit/s
95th percentile per-packet one-way delay: 20.811 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 51.25 Mbit/s
95th percentile per-packet one-way delay: 20.106 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 43.31 Mbit/s
95th percentile per-packet one-way delay: 21.240 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 30.71 Mbit/s
95th percentile per-packet one-way delay: 21.173 ms
Loss rate: 0.33%
```
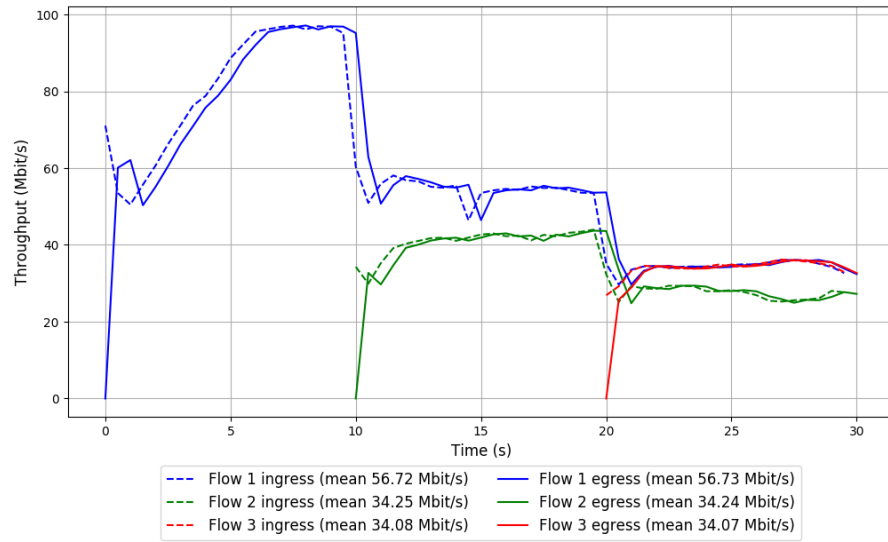
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-10 05:19:42
End at: 2018-10-10 05:20:12
Local clock offset: 1.888 ms
Remote clock offset: -4.951 ms


# Below is generated by plot.py at 2018-10-10 06:12:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.69 Mbit/s
95th percentile per-packet one-way delay: 29.542 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 54.11 Mbit/s
95th percentile per-packet one-way delay: 28.073 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 42.84 Mbit/s
95th percentile per-packet one-way delay: 30.128 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 24.33 Mbit/s
95th percentile per-packet one-way delay: 29.644 ms
Loss rate: 0.38%
```
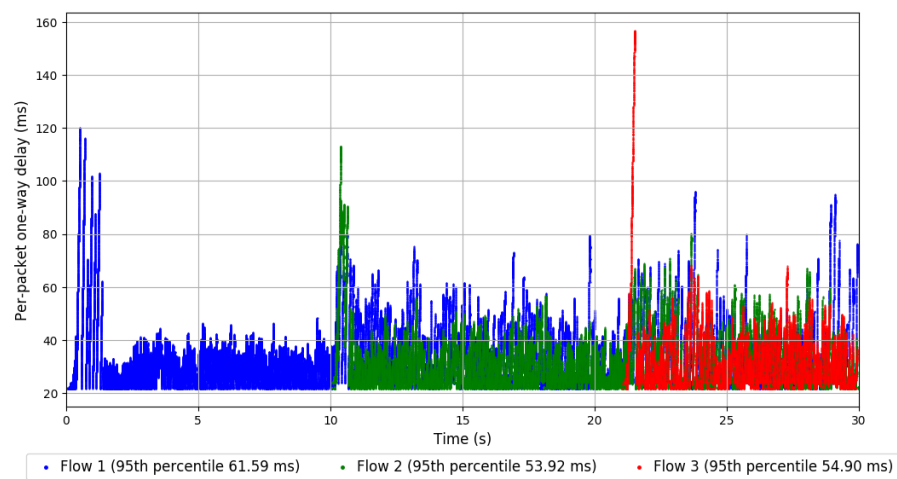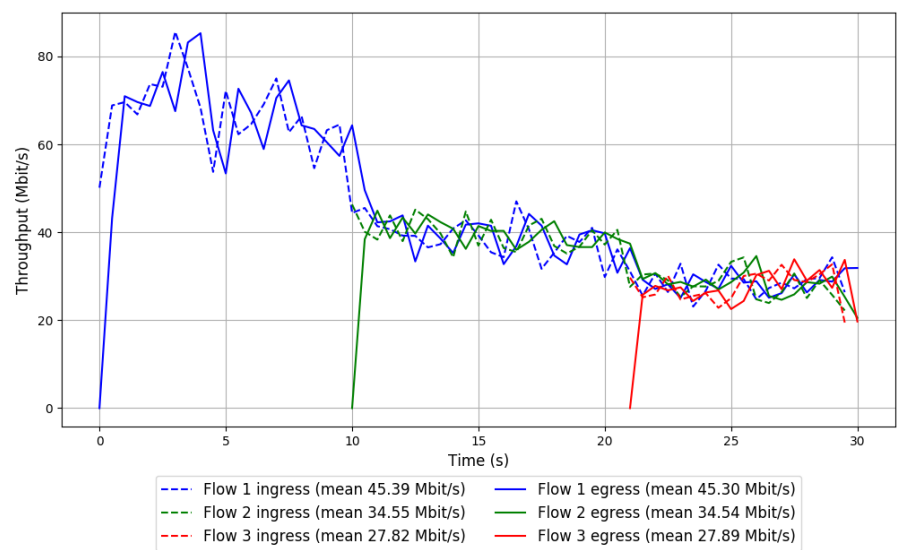
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-10 05:42:13
End at: 2018-10-10 05:42:43
Local clock offset: 0.956 ms
Remote clock offset: -3.972 ms


# Below is generated by plot.py at 2018-10-10 06:12:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.84 Mbit/s
95th percentile per-packet one-way delay: 27.153 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 56.73 Mbit/s
95th percentile per-packet one-way delay: 27.148 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 34.24 Mbit/s
95th percentile per-packet one-way delay: 26.150 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 34.07 Mbit/s
95th percentile per-packet one-way delay: 27.648 ms
Loss rate: 0.33%
```

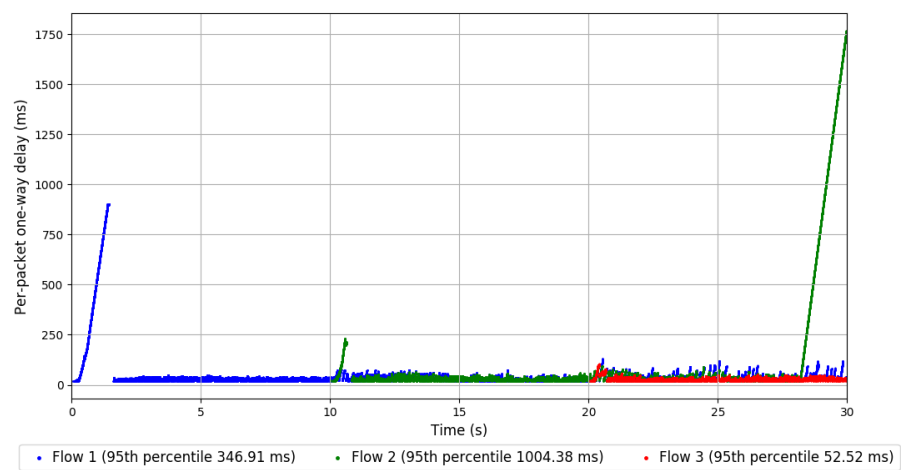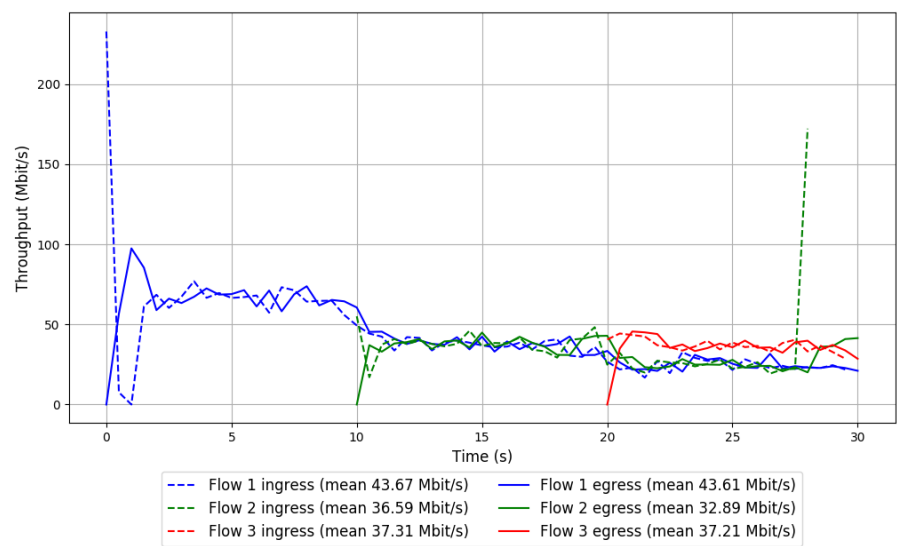## Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-10-10 04:07:39
End at: 2018-10-10 04:08:09
Local clock offset: 2.76 ms
Remote clock offset: -4.889 ms

# Below is generated by plot.py at 2018-10-10 06:12:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.57 Mbit/s
95th percentile per-packet one-way delay: 58.889 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 45.30 Mbit/s
95th percentile per-packet one-way delay: 61.593 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 34.54 Mbit/s
95th percentile per-packet one-way delay: 53.920 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 27.89 Mbit/s
95th percentile per-packet one-way delay: 54.901 ms
Loss rate: 0.38%
```
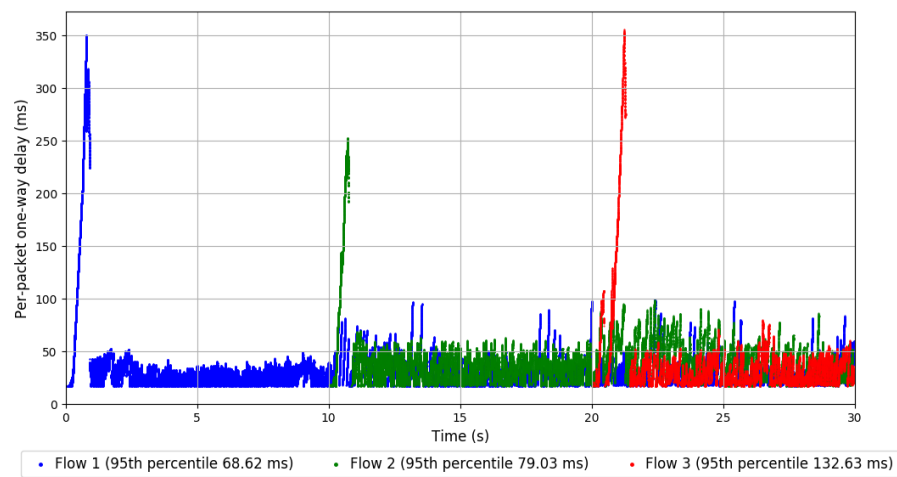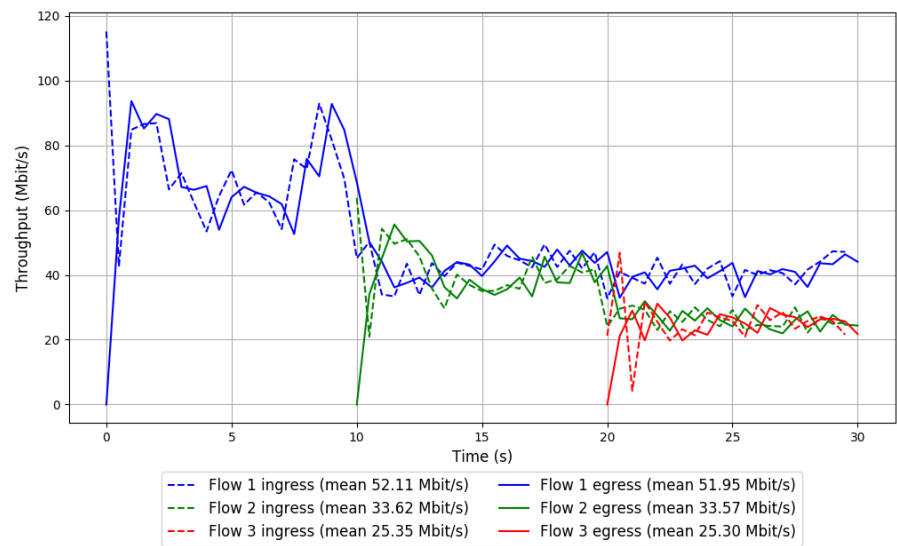
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-10 04:29:52
End at: 2018-10-10 04:30:22
Local clock offset: 1.43 ms
Remote clock offset: -4.138 ms


# Below is generated by plot.py at 2018-10-10 06:13:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.87 Mbit/s
95th percentile per-packet one-way delay: 401.169 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 43.61 Mbit/s
95th percentile per-packet one-way delay: 346.911 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 32.89 Mbit/s
95th percentile per-packet one-way delay: 1004.379 ms
Loss rate: 1.53%
-- Flow 3:
Average throughput: 37.21 Mbit/s
95th percentile per-packet one-way delay: 52.516 ms
Loss rate: 0.21%
```
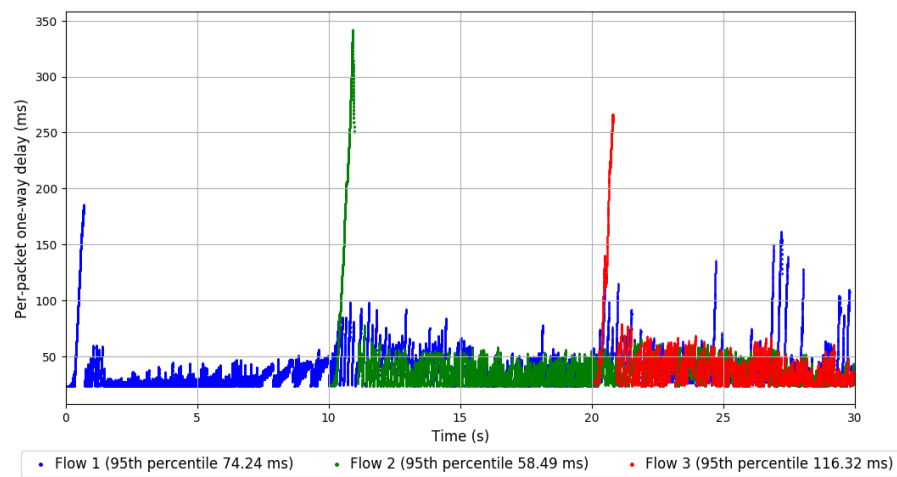
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-10 04:52:32
End at: 2018-10-10 04:53:02
Local clock offset: -0.153 ms
Remote clock offset: -3.557 ms


# Below is generated by plot.py at 2018-10-10 06:13:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.70 Mbit/s
95th percentile per-packet one-way delay: 77.296 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 51.95 Mbit/s
95th percentile per-packet one-way delay: 68.621 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 33.57 Mbit/s
95th percentile per-packet one-way delay: 79.025 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 25.30 Mbit/s
95th percentile per-packet one-way delay: 132.631 ms
Loss rate: 0.44%
```
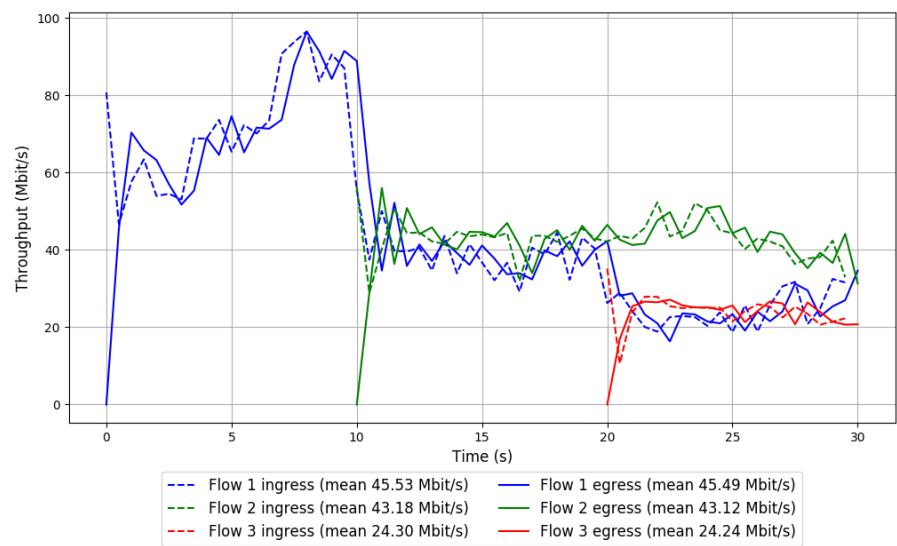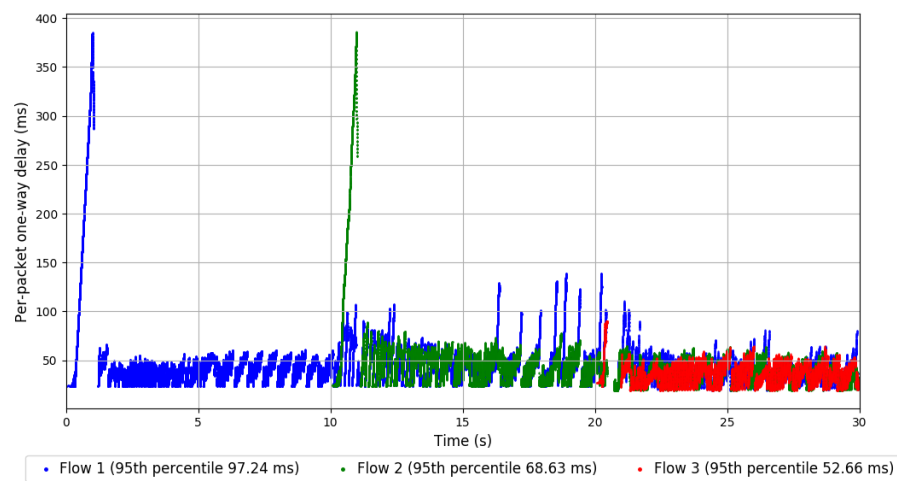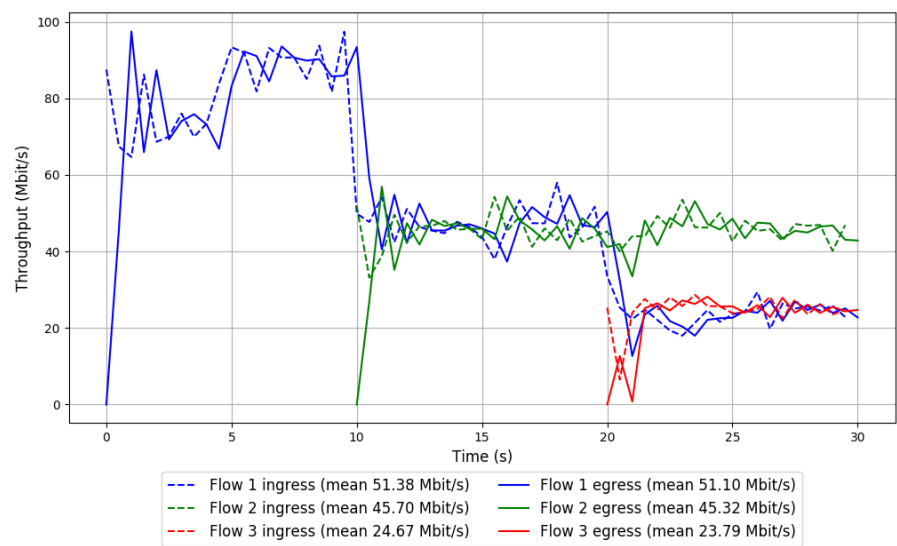
Run 3: Report of Verus — Data Link

- - - Flow 1 ingress (mean 52.11 Mbit/s) —— Flow 1 egress (mean 51.95 Mbit/s)
- - - Flow 2 ingress (mean 33.62 Mbit/s) —— Flow 2 egress (mean 33.57 Mbit/s)
- - - Flow 3 ingress (mean 25.35 Mbit/s) —— Flow 3 egress (mean 25.30 Mbit/s)

• Flow 1 (95th percentile 68.62 ms)   • Flow 2 (95th percentile 79.03 ms)   • Flow 3 (95th percentile 132.63 ms)

```
Run 4: Statistics of Verus

Start at: 2018-10-10 05:14:33
End at: 2018-10-10 05:15:03
Local clock offset: 0.05 ms
Remote clock offset: -4.515 ms


# Below is generated by plot.py at 2018-10-10 06:13:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.23 Mbit/s
95th percentile per-packet one-way delay: 72.398 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 45.49 Mbit/s
95th percentile per-packet one-way delay: 74.244 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 43.12 Mbit/s
95th percentile per-packet one-way delay: 58.489 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 24.24 Mbit/s
95th percentile per-packet one-way delay: 116.316 ms
Loss rate: 0.55%
```
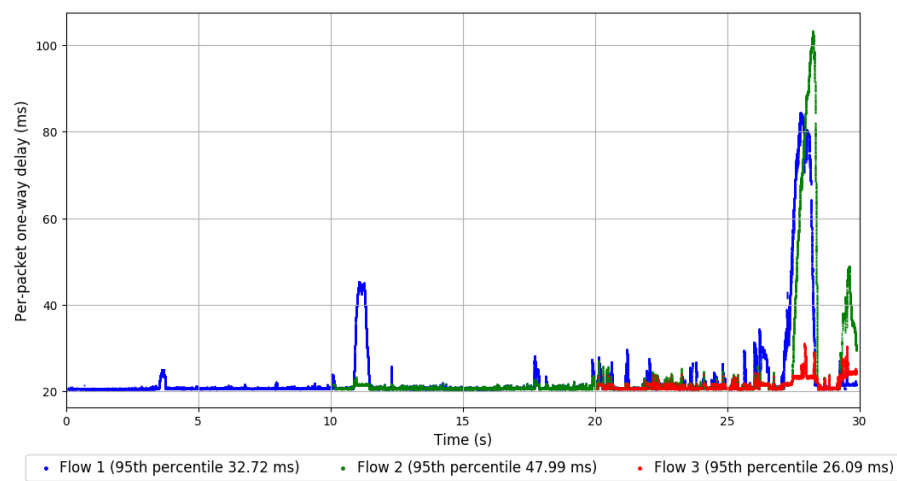
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-10 05:37:00
End at: 2018-10-10 05:37:30
Local clock offset: 1.145 ms
Remote clock offset: -2.866 ms


# Below is generated by plot.py at 2018-10-10 06:13:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.14 Mbit/s
95th percentile per-packet one-way delay: 81.319 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 51.10 Mbit/s
95th percentile per-packet one-way delay: 97.241 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 45.32 Mbit/s
95th percentile per-packet one-way delay: 68.627 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 23.79 Mbit/s
95th percentile per-packet one-way delay: 52.659 ms
Loss rate: 3.91%
```
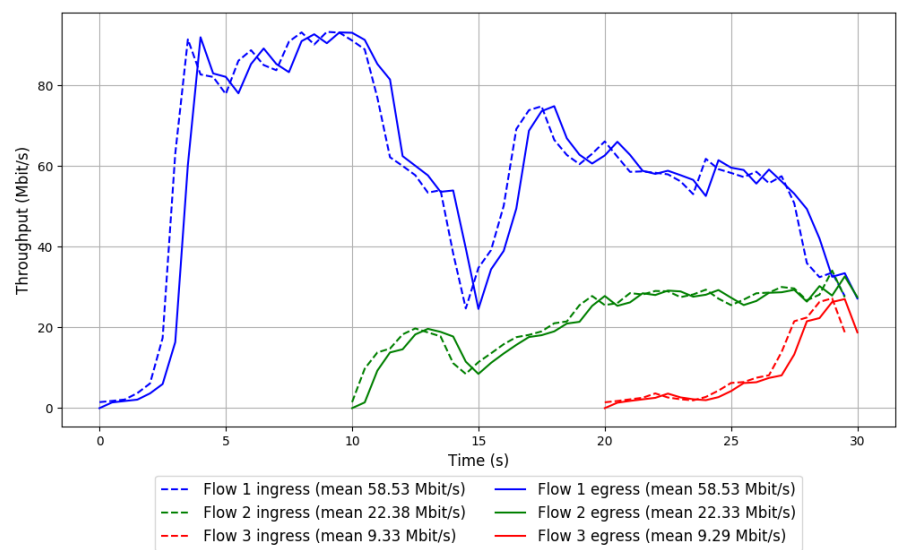
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 51.38 Mbit/s) --- Flow 1 egress (mean 51.10 Mbit/s)
Flow 2 ingress (mean 45.70 Mbit/s) --- Flow 2 egress (mean 45.32 Mbit/s)
Flow 3 ingress (mean 24.67 Mbit/s) --- Flow 3 egress (mean 23.79 Mbit/s)

Flow 1 (95th percentile 97.24 ms)   Flow 2 (95th percentile 68.63 ms)   Flow 3 (95th percentile 52.66 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-10 04:11:20
End at: 2018-10-10 04:11:50
Local clock offset: 2.752 ms
Remote clock offset: -3.813 ms


# Below is generated by plot.py at 2018-10-10 06:13:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.44 Mbit/s
95th percentile per-packet one-way delay: 36.514 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 58.53 Mbit/s
95th percentile per-packet one-way delay: 32.715 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 22.33 Mbit/s
95th percentile per-packet one-way delay: 47.986 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 9.29 Mbit/s
95th percentile per-packet one-way delay: 26.094 ms
Loss rate: 0.75%
```
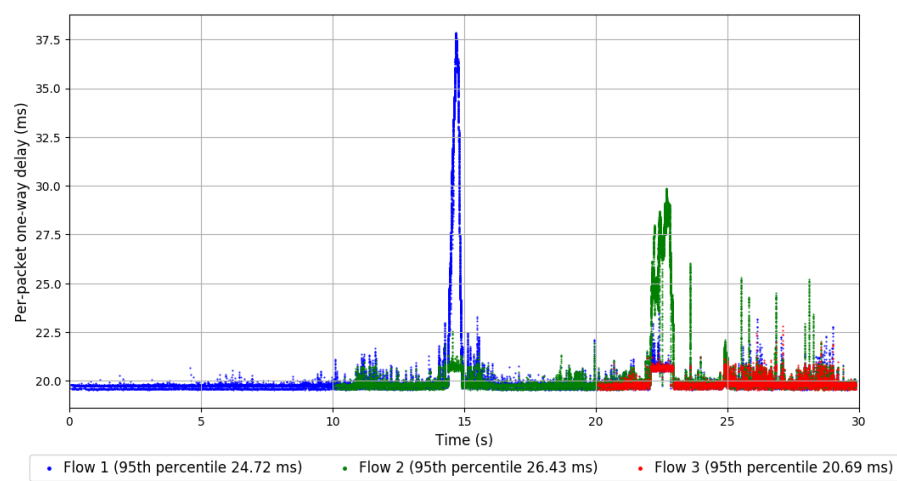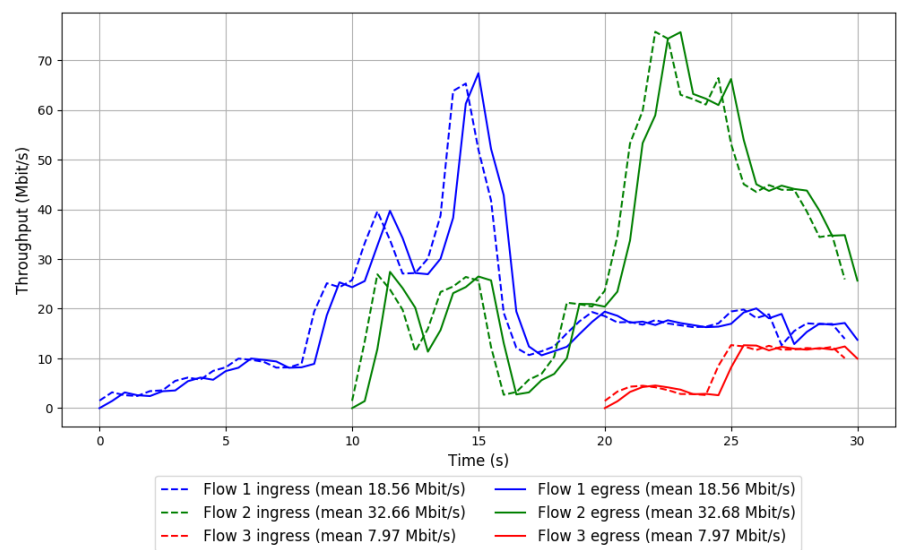
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-10 04:33:46
End at: 2018-10-10 04:34:16
Local clock offset: 1.175 ms
Remote clock offset: -4.58 ms


# Below is generated by plot.py at 2018-10-10 06:13:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.91 Mbit/s
95th percentile per-packet one-way delay: 25.374 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 18.56 Mbit/s
95th percentile per-packet one-way delay: 24.722 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 32.68 Mbit/s
95th percentile per-packet one-way delay: 26.435 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 20.693 ms
Loss rate: 0.39%
```

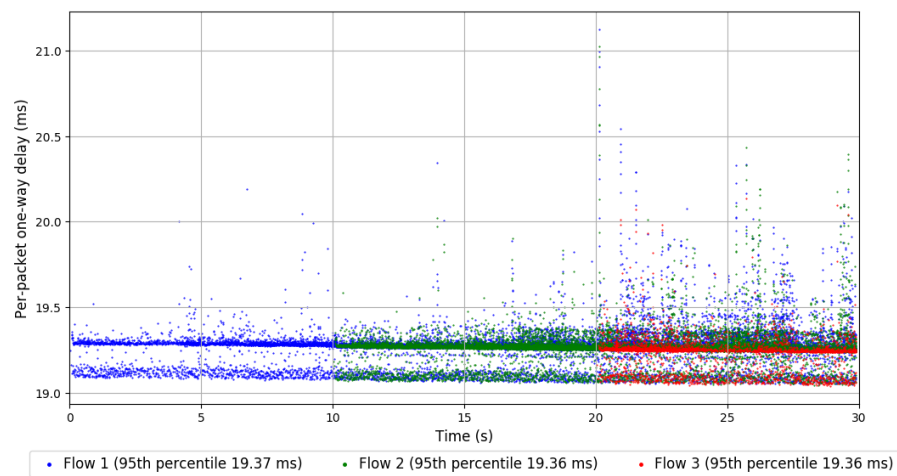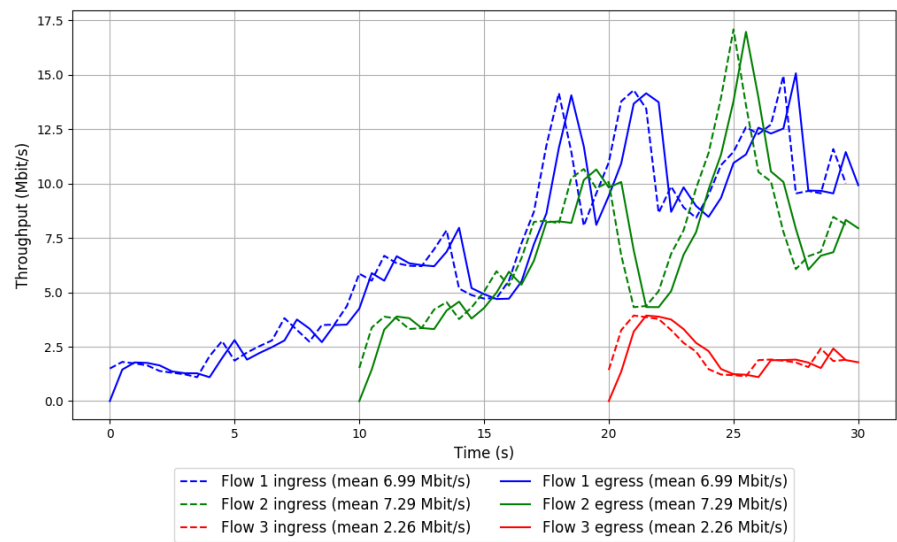Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-10 04:56:17
End at: 2018-10-10 04:56:47
Local clock offset: 2.157 ms
Remote clock offset: -3.443 ms


# Below is generated by plot.py at 2018-10-10 06:13:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.57 Mbit/s
95th percentile per-packet one-way delay: 19.365 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 19.367 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 7.29 Mbit/s
95th percentile per-packet one-way delay: 19.363 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 19.363 ms
Loss rate: 0.37%
```

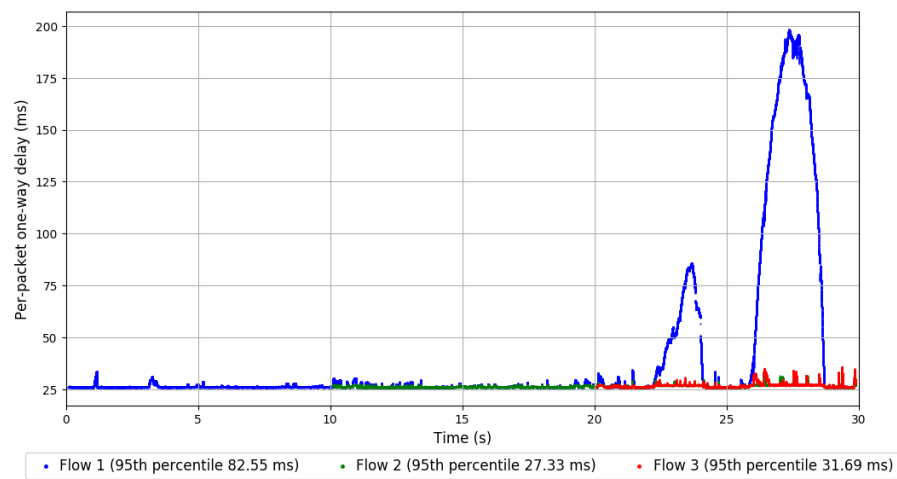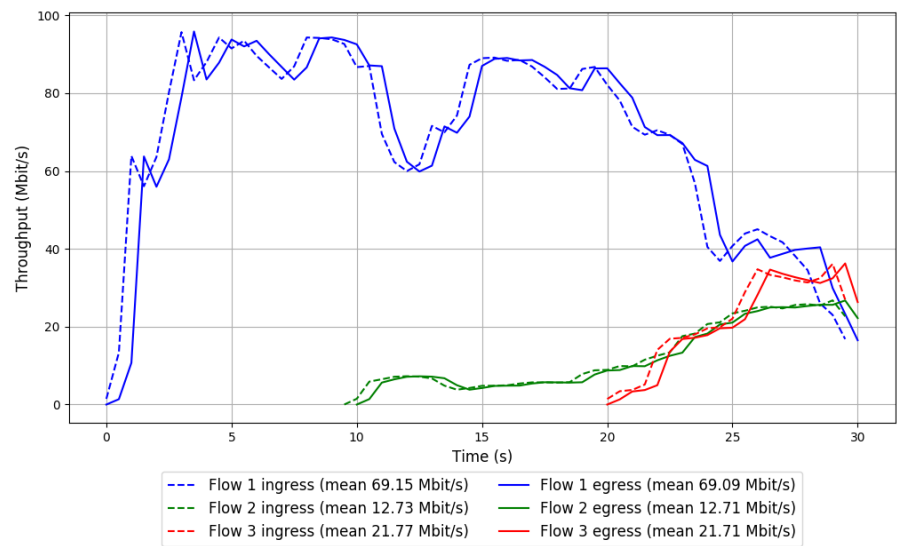Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-10 05:18:24
End at: 2018-10-10 05:18:54
Local clock offset: 2.511 ms
Remote clock offset: -4.559 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.70 Mbit/s
95th percentile per-packet one-way delay: 67.742 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 69.09 Mbit/s
95th percentile per-packet one-way delay: 82.545 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 12.71 Mbit/s
95th percentile per-packet one-way delay: 27.330 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 21.71 Mbit/s
95th percentile per-packet one-way delay: 31.686 ms
Loss rate: 0.57%
```

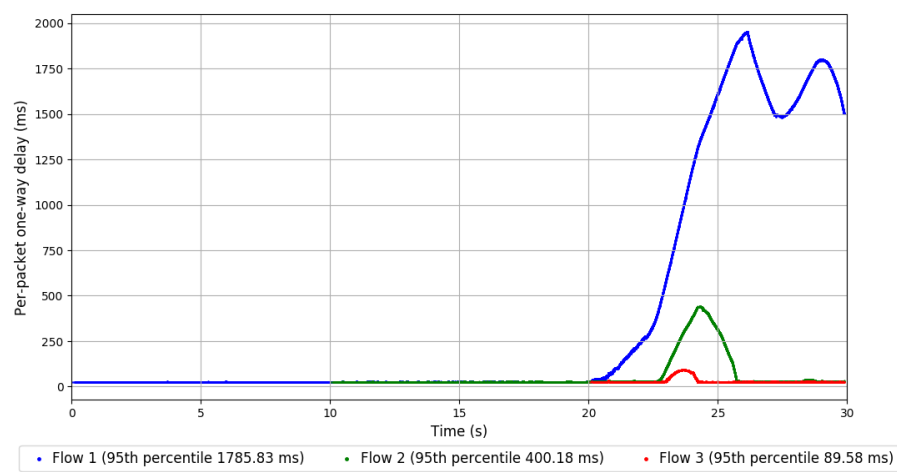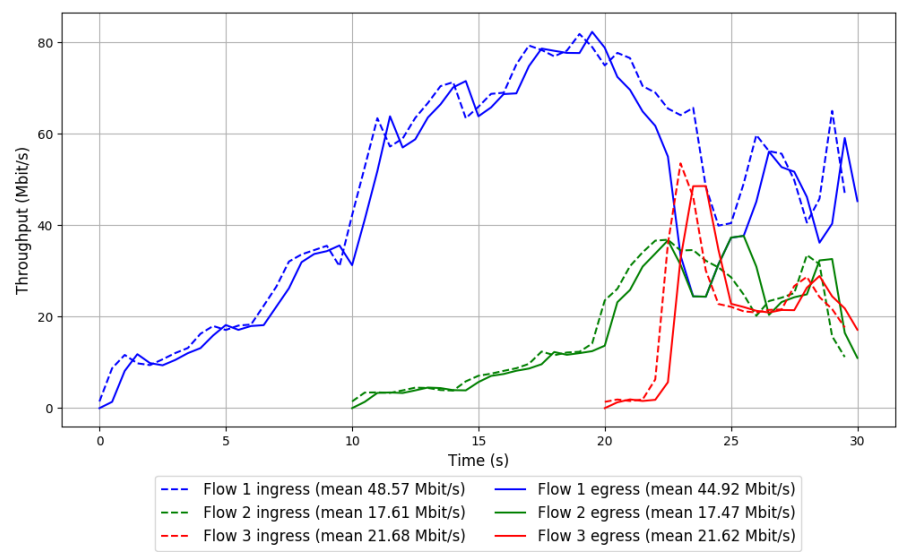Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-10 05:40:57
End at: 2018-10-10 05:41:27
Local clock offset: 1.101 ms
Remote clock offset: -5.658 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.66 Mbit/s
95th percentile per-packet one-way delay: 1739.268 ms
Loss rate: 5.70%
-- Flow 1:
Average throughput: 44.92 Mbit/s
95th percentile per-packet one-way delay: 1785.831 ms
Loss rate: 7.60%
-- Flow 2:
Average throughput: 17.47 Mbit/s
95th percentile per-packet one-way delay: 400.177 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 21.62 Mbit/s
95th percentile per-packet one-way delay: 89.585 ms
Loss rate: 0.59%
```

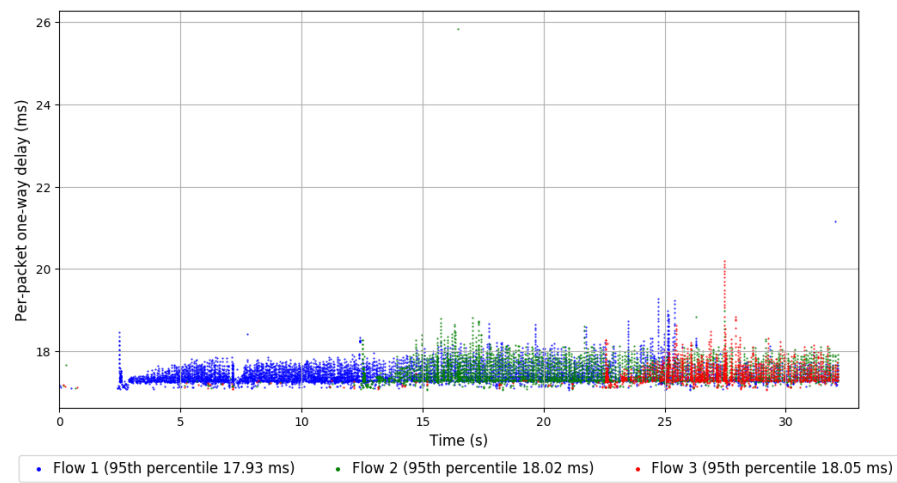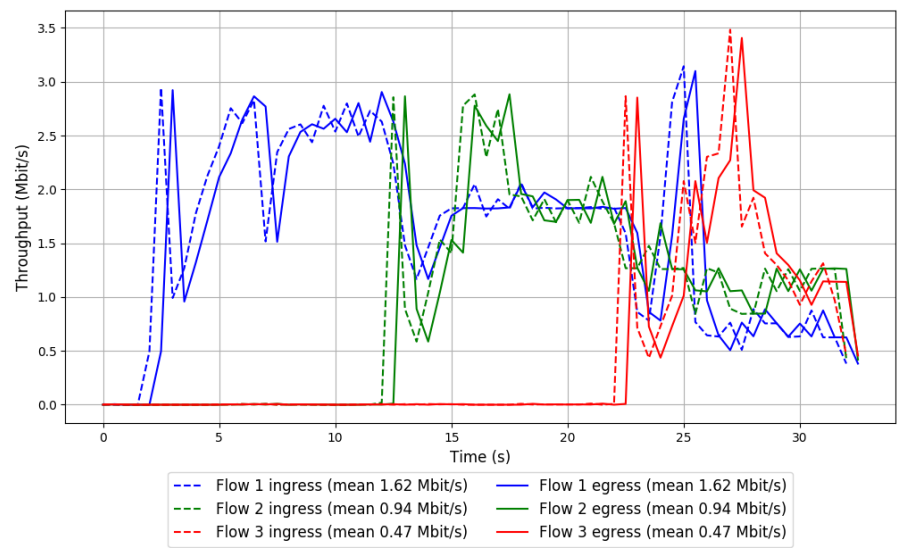# Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 48.57 Mbit/s) --- Flow 1 egress (mean 44.92 Mbit/s)
Flow 2 ingress (mean 17.61 Mbit/s) --- Flow 2 egress (mean 17.47 Mbit/s)
Flow 3 ingress (mean 21.68 Mbit/s) --- Flow 3 egress (mean 21.62 Mbit/s)

Flow 1 (95th percentile 1785.83 ms) • Flow 2 (95th percentile 400.18 ms) • Flow 3 (95th percentile 89.58 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-10 04:13:50
End at: 2018-10-10 04:14:20
Local clock offset: 0.604 ms
Remote clock offset: -2.566 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 17.997 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 17.932 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 18.025 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 18.048 ms
Loss rate: 0.01%
```

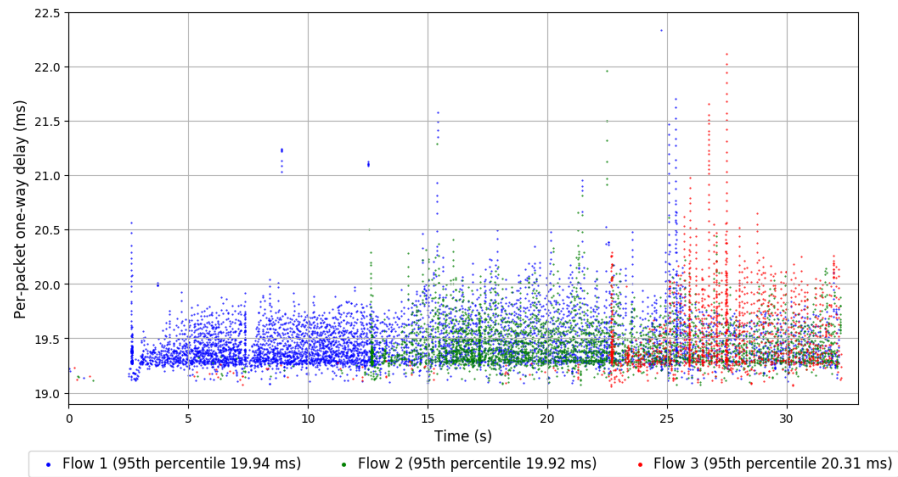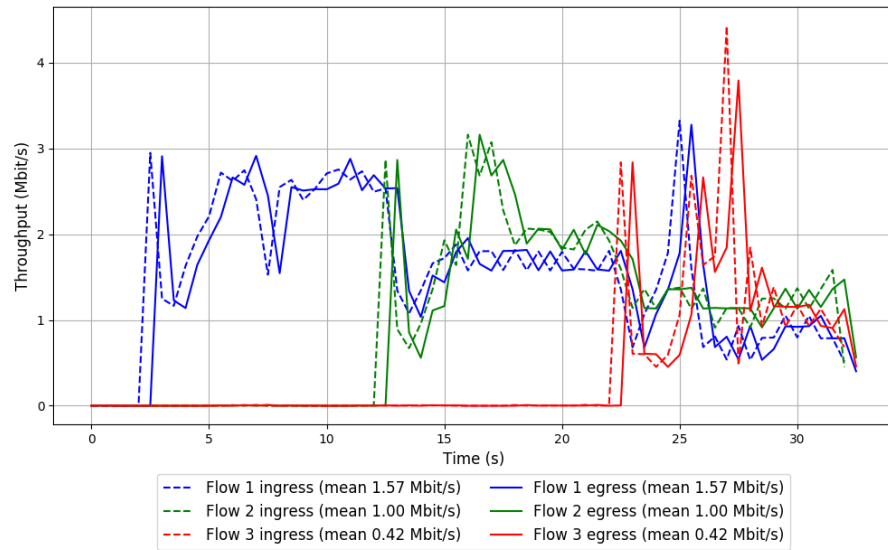Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-10 04:36:12
End at: 2018-10-10 04:36:42
Local clock offset: 1.627 ms
Remote clock offset: -3.683 ms

# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.97 Mbit/s
95th percentile per-packet one-way delay: 20.013 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 19.937 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 19.920 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 20.308 ms
Loss rate: 0.83%
```

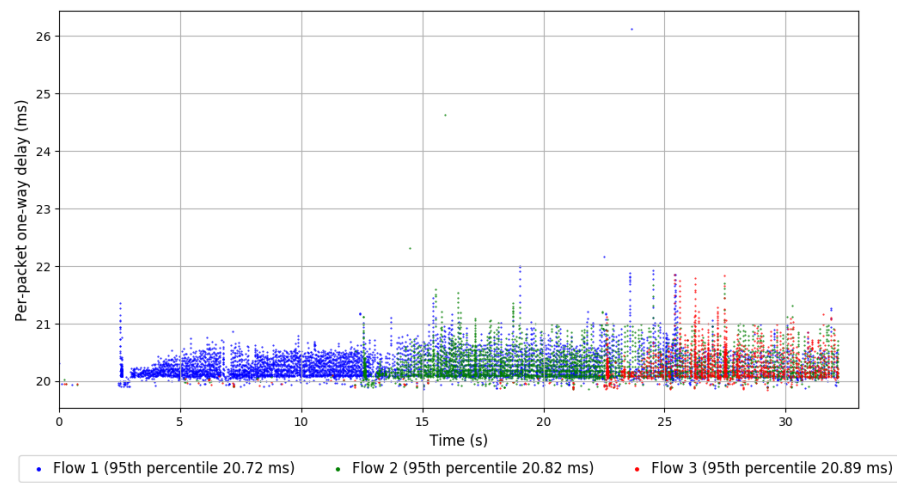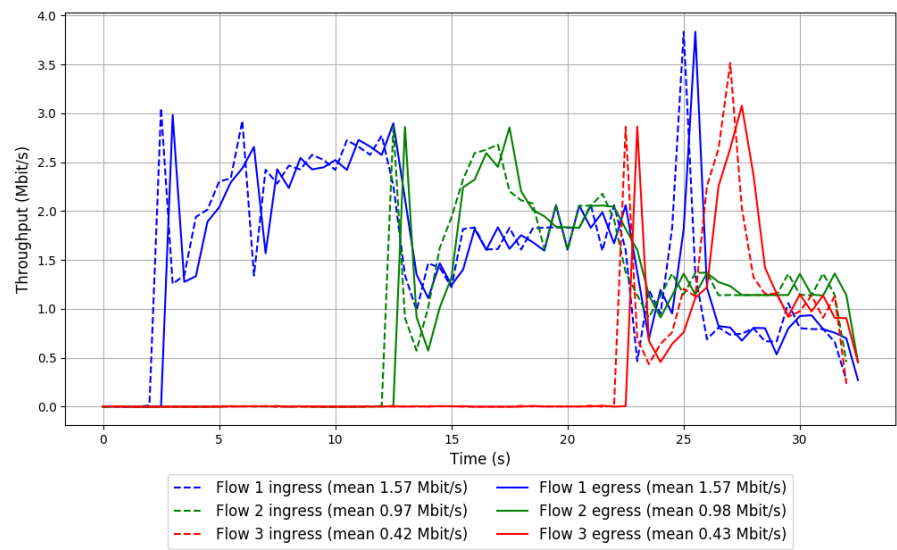Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-10 04:58:35
End at: 2018-10-10 04:59:05
Local clock offset: 2.771 ms
Remote clock offset: -3.784 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.96 Mbit/s
95th percentile per-packet one-way delay: 20.787 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 20.716 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.98 Mbit/s
95th percentile per-packet one-way delay: 20.824 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.888 ms
Loss rate: 0.02%
```

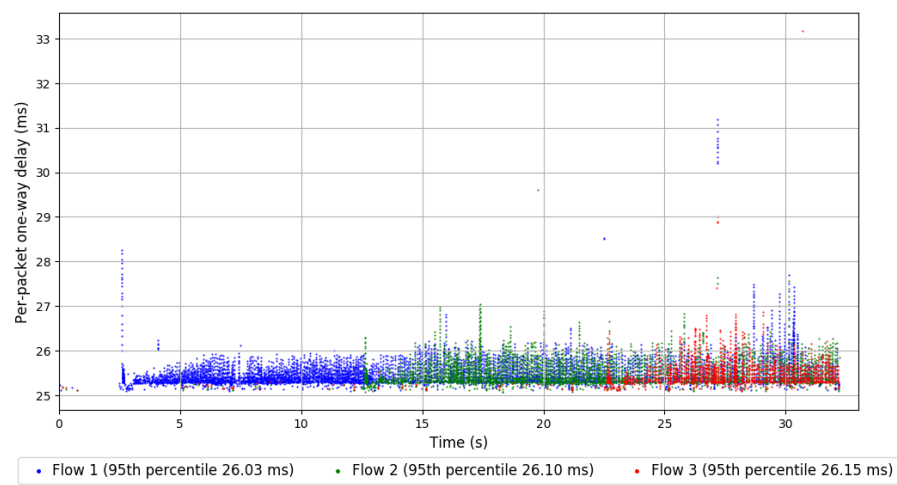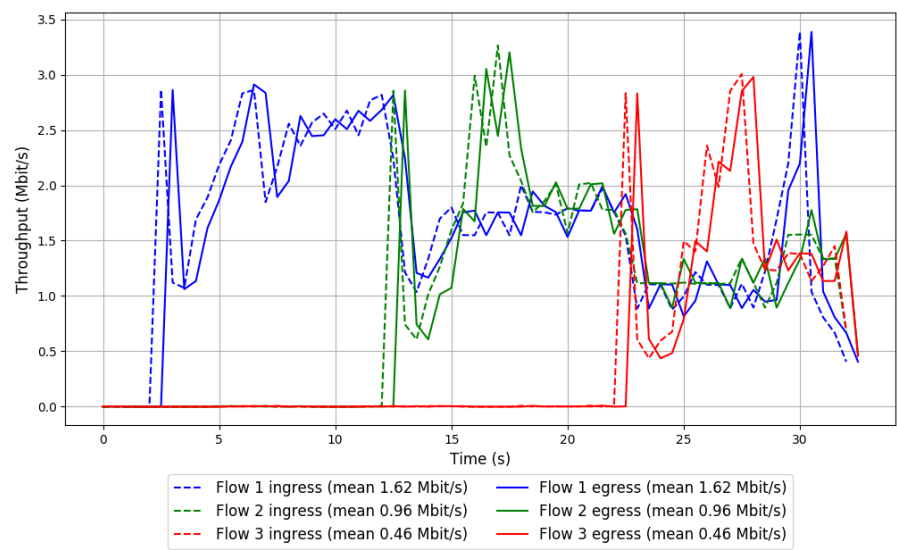Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-10 05:20:54
End at: 2018-10-10 05:21:24
Local clock offset: 2.092 ms
Remote clock offset: -4.155 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 26.072 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 26.029 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 26.098 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 26.146 ms
Loss rate: 0.76%
```

Run 4: Report of WebRTC media — Data Link

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```
Run 5: Statistics of WebRTC media

Start at: 2018-10-10 05:43:26
End at: 2018-10-10 05:43:56
Local clock offset: 3.005 ms
Remote clock offset: -4.218 ms


# Below is generated by plot.py at 2018-10-10 06:13:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.67 Mbit/s
95th percentile per-packet one-way delay: 26.939 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 1.98 Mbit/s
95th percentile per-packet one-way delay: 26.959 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 26.959 ms
Loss rate: 1.35%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 25.141 ms
Loss rate: 1.00%
```

Run 5: Report of WebRTC media — Data Link